

A Comprehensive Review of Fintech, Digital Finance and Inclusive Economic Development: Evidence, Risks and Research Directions

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Abstract

Financial technology (fintech) and digital finance are changing how households, firms and governments save, borrow, pay and transact, yet the evidence on their economic consequences is spread across countries, methods and sub-fields. This conceptual, review-based paper synthesises fifteen peer-reviewed articles published between October and December 2022 in three open-access finance journals. A thematic synthesis organises the literature into five strands: fintech, financial inclusion and inequality; adoption of fintech and the regulatory setting; data, credit scoring and bank performance; digital money, payments and central bank digital currency; and blockchain, decentralised finance and digital assets. The reviewed studies indicate that fintech widens access to formal finance but can coincide with higher inequality where institutions are weak, that adoption depends on a small number of behavioural and institutional factors, that new data sources improve credit assessment, that regulation can raise costs for new entrants, and that digital money and digital assets create fresh risks for banks and markets. The paper offers a five-proposition framework and a research agenda relevant to emerging economies such as India.

Keywords: fintech; digital finance; financial inclusion; central bank digital currency; blockchain; economic development

1. Introduction

Finance has always depended on technology, but the past decade has changed its speed and reach. Mobile payments, digital banks, open banking data, blockchain-based platforms and digital currencies now sit alongside traditional branches and paper-based credit files. For economists, these developments matter beyond engineering. Finance allocates savings to investment, lets households smooth consumption and enables small firms to grow, so changes in who can access finance, at what cost and with what protection are changes in an economy's growth path and in the distribution of its gains.

Two ideas shape the present debate. The first is that fintech and digital financial services lower the cost of reaching people and businesses that formal institutions served poorly, and therefore expand financial inclusion. The second is that innovation in finance, like innovation elsewhere, creates winners and losers and introduces new risks, so its net effect on inequality, stability and institutional performance is an empirical question. Both ideas appear in the studies reviewed here, but they are

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usually examined separately: inclusion studies seldom engage with regulation or risk, and studies of digital assets seldom connect their findings to development.

The fragmentation is a particular concern for countries such as India, where digital payments have expanded quickly while differences in income, literacy and institutional capacity remain wide. A conceptual review that places evidence from different regions and methods side by side can help researchers see which conclusions travel across contexts and which depend on local conditions.

Three questions guide the paper. First, what do recent studies show about the links between fintech, financial inclusion and inequality? Second, which factors influence the adoption of fintech and the performance of banks and new entrants in a changing regulatory and data environment? Third, what risks and institutional questions arise from digital money and digital assets? To answer them, the paper reviews fifteen articles published in the last quarter of 2022 and organises their insights into a conceptual framework.

The paper makes three contributions. It brings together evidence on inclusion, adoption, bank performance and digital assets, which are rarely discussed in one place. It highlights tensions in the evidence, notably that fintech use and financial inclusion are reported to rise together with income inequality in Africa, and that regulatory sandboxes are reported to raise costs for digital banks. And it proposes propositions and a research agenda specific enough to guide empirical work. The remainder of the paper reviews the literature, explains the review method, presents the synthesis, and concludes with implications and directions for future research.

2. Review of Literature

2.1 Fintech, financial inclusion and inequality

The central question in the inclusion literature is whether digital finance reaches the people who need it and what follows when it does. Ashenafi and Dong (2022) used survey data from 2011, 2014 and 2017 covering 39 African countries and applied pooled ordinary least squares and two-stage least squares estimation. They found that institutional quality, including political stability, control of corruption and government effectiveness, shapes both financial inclusion and fintech. Fintech increased the likelihood of holding a formal bank account, but greater inclusion and fintech use were also associated with higher income inequality. The result is important because it separates access from distribution: expanding accounts does not by itself spread the gains evenly.

Measurement is a related challenge. Takouda et al. (2022) applied data envelopment analysis, which they describe as rarely used for financial inclusion, to central bank data for the West African Economic and Monetary Union from 2010 to 2017. They report steady overall improvement in the Union, with differences between countries, and use benchmarking to identify best-practice countries and reference peers. The optimal weights from the analysis show which financial service sectors drive inclusion in each country, which gives policymakers a country-specific diagnostic rather than a single index.

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Inclusion also depends on alternative sources of finance for small firms. Mamaro and Sibindi (2022) studied the financing of African small and medium enterprises during the COVID-19 pandemic, with a focus on crowdfunding. Using a probit model on 859 African crowdfunding campaigns, they found that the number of backers, the pandemic variable and social network variables were positively and significantly related to campaign success, while campaign duration was negatively related. Digital funding channels therefore appear to depend on networks and momentum as much as on the merits of a project.

2.2 Adoption of fintech and the regulatory setting

A second strand asks why people and organisations adopt fintech and how regulation shapes the performance of new entrants. Antwi-Boampong et al. (2022) surveyed 407 port users in Ghana using the extended Unified Theory of Acceptance and Use of Technology and structural equation modelling. Performance expectancy, effort expectancy and habit predicted behavioural intention to adopt fintech, whereas facilitating conditions, social influence, hedonic motivation and price value did not, and age did not moderate the relationships. The finding suggests that perceived usefulness and ease of use may matter more than price or peer pressure in this setting.

Adoption is also an ecosystem question. Koroleva (2022) surveyed fintech representatives in ten Russian regions, built a fintech ecosystem index and used correlation and data envelopment analysis. The results show a positive link between ecosystem attributes and productive entrepreneurship, with Moscow scoring highest and Chelyabinsk lowest. Place-based conditions, in other words, shape whether fintech translates into entrepreneurial activity.

Regulation can both enable and burden. Washington et al. (2022) examined whether regulatory sandboxes help the growth of financial institutions by studying a panel of 24 United Kingdom challenger banks. Contrary to the expected benefit, they report that sandboxes have a detrimental effect on digital banks' financial performance, mainly by raising compliance and efficiency costs. The study is a reminder that supportive policies can impose costs, and that their design matters.

2.3 Data, credit scoring and bank performance

New data sources are changing how banks assess risk. Hjelkrem et al. (2022) compared the scoring models a Norwegian bank uses for new applicants with a deep learning model trained only on 90 days of transaction data obtained through Open Banking interfaces. The Open Banking-only model predicted default surprisingly well compared with conventional models, and an ensemble combining traditional credit data with features from the deep learning model outperformed the conventional model for new customers. Because new customers lack credit histories, such data could in principle help extend credit to people with thin files.

Technology does not remove the need for sound operations. Dsouza et al. (2022) analysed annual data from 2001 to 2020 for 33 Indian banks, an unbalanced panel of 527 bank-year observations, using pooled panel regression. The cost-to-income ratio had a significant negative effect on return on

assets and net interest margin, while the ratio of staff expenses to total expenses had a significant positive effect on return on assets. Efficiency, in this evidence, remains a core driver of profitability, and digital tools are likely to matter largely through their effect on costs.

Digital finance also enlarges the attack surface. Kuzior et al. (2022) used Google Trends data from April 2017 to October 2022 for three types of cyberattack on computer systems, network infrastructure and cloud infrastructure, and applied exponential smoothing to build trend and cyclical models. They conclude that cybercrimes in the United States financial system can be expected in the short and medium term, which supports the development of countermeasures to reduce potential losses.

2.4 Digital money, payments and central bank digital currency

A fourth strand considers money itself. Srouji and Torre (2022) examine how the COVID-19 pandemic affected payment systems and preferences, moving people away from cash and intensifying discussion of central bank digital currencies. They conclude that the pandemic showed the value of advanced, competitive and integrated digital payment ecosystems, but also revealed more fragmentation than convergence among payment systems in different regions.

Wenker (2022) studies the Bahamian Sand Dollar, presented as the first real-world retail central bank digital currency, and compares its design with definition-based specifications. Using scenario analysis, the author illustrates how a central bank that becomes the dominant deposit provider could create funding, disintermediation and solvency risks for commercial banks. The paper concludes that restrictions and caps may become central to the regulation of such currencies, that anonymity could hinder adoption and that a central bank digital currency alone cannot solve the problems posed by cryptocurrencies. The study is a scenario analysis rather than an empirical estimate, but it frames the trade-offs that policymakers face.

2.5 Blockchain, decentralised finance and digital assets

The final strand covers distributed ledgers and digital assets. Agmon and Kallir (2022) ask whether a distributed ledger framework can be a game changer for multinational enterprises in emerging markets, using the Israeli venture capital industry as a case. They report promising potential, noting that the country's venture investment capital is wholly imported, which leaves room for investment through such technology.

Metelski and Sobieraj (2022) studied 30 decentralised finance protocols across decentralised exchanges, lending and asset management, using Granger causality tests and fixed-effects panel regression. Valuations depended to some extent on measures such as total value locked and protocol revenue, though the strength and direction varied. Total value locked did not reliably predict future valuations, whereas gross merchandise volume showed a two-way causal relationship with valuations and was the only variable that Granger-caused them.

Two reviews map the broader field. Aysan and Nanaeva (2022) analysed 363 Scopus documents on

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fintech as a financial disruptor using VOSviewer and Biblioshiny and report rising publication numbers, which suggests continued academic interest. Unal and Aysan (2022) reviewed research on fintech, blockchain and digitalisation in Islamic finance and conclude that Islamic fintech has considerable potential because Shariah norms overlap with fintech principles, which may ease the adoption of technological change.

2.6 Conceptual framework and propositions

The strands combine into a framework in which digital access (fintech, digital payments, new data) influences inclusion, performance and stability, conditional on institutions and regulation, on adoption factors such as usefulness and ease of use, and on the risks created by new money forms and assets. Five propositions follow.

Proposition 1. Fintech widens access to formal finance, but where institutions are weak, expanded access may coincide with higher inequality.

Proposition 2. Fintech adoption is driven mainly by perceived usefulness, ease of use and habit, and by ecosystem conditions that differ across places.

Proposition 3. Regulatory support for new entrants is not costless, and its design affects the performance of digital banks.

Proposition 4. New data sources, such as open banking transactions, improve credit assessment for customers with limited histories, while cyber risk grows with digitisation.

Proposition 5. Digital money and digital assets create institutional risks, including disintermediation of banks and valuation uncertainty, which require calibrated regulation.

3. Methodology

This paper follows a conceptual, review-based design. Its aim is to synthesise and interpret existing evidence and to develop propositions, not to test hypotheses with primary data. A narrative and thematic review is suited to fields in which studies differ widely in context and method and therefore cannot be pooled statistically.

The review is bounded in time. Only articles published between 1 October and 31 December 2022 were considered, in order to capture the state of knowledge immediately before the paper's own period of writing and to keep the corpus manageable. The corpus was assembled from the issue listings of three open-access journals that regularly publish finance and economics research: the *Journal of Risk and Financial Management* (November and December 2022 issues), the *International Journal of Financial Studies* (issue 4 of 2022) and *FinTech* (issue 4 of 2022). Listings were screened for articles on fintech, digital finance, financial inclusion, banking technology, digital currency, blockchain and digital assets. Articles were included if they were peer reviewed, published within the window, and concerned with at least one of these themes in relation to economic or financial outcomes. Editorials and articles on unrelated topics such as option pricing and the music industry were

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excluded. Fifteen articles were retained for synthesis.

For each article, the aim, data and sample, analytical method and principal findings were recorded from the published abstract and bibliographic record. The records were coded inductively into themes, and the themes were compared across studies to identify agreement, contradiction and silence. The five strands described in Section 2 are the product of this process. Because the studies use different outcome measures, no effect sizes were compared; findings are reported as directions and, where authors report them, magnitudes.

Table 1 summarises the review protocol.

Table 1. Review protocol

Element	Specification
Design	Conceptual, narrative and thematic review
Time window	1 October–31 December 2022
Sources	Journal of Risk and Financial Management; International Journal of Financial Studies; FinTech
Inclusion criteria	Peer reviewed; within window; fintech, digital finance, inclusion, digital currency or digital assets
Exclusions	Editorials and unrelated topics
Corpus	15 articles
Extraction	Aim, sample, method and findings from abstracts; inductive thematic coding

Several limitations should be noted. The corpus is not exhaustive: it draws on three journals and one quarter, and the screening of issue listings was not complete, so it cannot represent the whole literature. Extraction relied on abstract-level information rather than full-text appraisal, which limits the assessment of methodological quality. A narrow window also excludes older foundational work, so the paper provides a snapshot and not a history of the field. These limits are reflected in the research agenda.

4. Results

4.1 Profile of the reviewed corpus

The fifteen articles comprise six from the *Journal of Risk and Financial Management*, five from *FinTech* and four from the *International Journal of Financial Studies*. The studies cover Africa, Russia, the United Kingdom, Norway, India, Israel and the Bahamas, alongside global bibliometric samples and conceptual treatments of payments. Designs include panel and cross-country regression, data

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envelopment analysis, structural equation modelling, machine learning, scenario analysis, case study and bibliometric review. Sample sizes range from 24 banks and 30 protocols to several hundred survey respondents and campaigns.

4.2 Thematic findings

Table 2 summarises the five themes and the principal insight from each.

Table 2. Thematic synthesis of the reviewed studies

Theme	Studies	Principal insight
Fintech, inclusion and inequality	Ashenafi & Dong (2022); Takouda et al. (2022); Mamaro & Sibindi (2022)	Fintech raises account holding, but inclusion and fintech use coincide with higher inequality; measurement and alternative finance matter.
Adoption and regulation	Antwi-Boampong et al. (2022); Koroleva (2022); Washington et al. (2022)	Usefulness, ease of use and habit drive adoption; ecosystems differ; sandboxes can raise costs.
Data, credit and bank performance	Hjelkrem et al. (2022); Dsouza et al. (2022); Kuzior et al. (2022)	Open banking data aid scoring; efficiency drives profitability; cyber risk persists.
Digital money and payments	Srouji & Torre (2022); Wenker (2022)	Pandemic accelerated digital payments with fragmentation; retail digital currency risks bank disintermediation.
Blockchain and digital assets	Agmon & Kallir (2022); Metelski & Sobieraj (2022); Unal & Aysan (2022); Aysan & Nanaeva (2022)	Distributed ledgers show promise; valuations in decentralised finance depend on activity measures; research is expanding.

4.3 Cross-cutting patterns

Access is not the same as equity. The African evidence shows that fintech raises the likelihood of holding a formal account, but inclusion and fintech use are linked with higher inequality, and institutional quality shapes both. The Union-level analysis for West Africa adds that progress differs

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between countries. Inclusion policy therefore needs distributional indicators alongside access indicators.

Adoption is behavioural and local. Perceived usefulness, ease of use and habit predicted adoption in Ghana, and the Russian evidence shows that regional ecosystems vary. Design of fintech services and of support for entrepreneurs should therefore start from user experience and local conditions.

Supportive regulation has costs. The study of United Kingdom challenger banks reports that sandboxes raised compliance and efficiency costs. The finding does not argue against sandboxes, but it indicates that supervisory design should consider costs for new entrants and that the benefits should be measured rather than assumed.

Data and efficiency interact. Open banking data predicted default well for new customers, while the Indian bank evidence shows that cost efficiency drives profitability. Digital data may improve credit decisions, but gains will be realised only where banks control costs and manage cyber risk.

Digital money changes bank intermediation. The pandemic accelerated digital payments yet left payment systems fragmented, and the Sand Dollar scenarios show how a retail central bank currency could create funding and solvency risks for banks. Caps and restrictions appear central to managing these risks.

Digital assets are valued through activity. In decentralised finance, valuations were related to gross merchandise volume more reliably than to total value locked, suggesting that usage rather than locked capital carries information.

4.4 Gaps and tensions

Three gaps emerge. First, the link between inclusion and inequality is examined in only one study, and its association does not establish causation. Second, the evidence on adoption and regulation draws on single countries or single user groups, so generalisation is limited. Third, studies of digital money and digital assets are mostly conceptual, scenario-based or descriptive, with limited empirical testing. Methodologically, the corpus contains few experimental or longitudinal designs.

5. Conclusion and Future Research

This paper reviewed fifteen studies published in the last quarter of 2022 to understand how fintech and digital finance relate to inclusive economic development. The evidence indicates that fintech widens access to formal finance but does not guarantee that gains are evenly shared, that adoption depends on usefulness, ease of use and local ecosystems, that new data improve credit assessment but increase cyber exposure, that regulation can impose costs on new entrants, and that digital money and digital assets introduce risks to bank intermediation and valuation.

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The implications are practical and are summarised in Table 3.

Table 3. Implications by stakeholder

Stakeholder	Implication	Related proposition
Policymakers	Pair digital inclusion programmes with institutional strengthening and distributional monitoring	P1, P2
Regulators	Design sandboxes and digital currency frameworks with attention to cost and to the position of commercial banks	P3, P5
Banks and fintech firms	Focus on usefulness and ease of use, use alternative data responsibly, and invest in cost efficiency and cyber resilience	P2, P4

The study has limitations that are also invitations for further work. The corpus is limited to three journals and one quarter, extraction relied on abstract-level information, and the propositions have not been tested. Future research can proceed in five directions.

- Test the five propositions empirically with household, firm and country data, ideally in India, using designs that connect inclusion, inequality and institutional quality.
- Study the distributional effects of fintech, asking who gains and who is left out, and which institutional reforms spread the gains.
- Evaluate regulatory sandboxes and digital currency pilots using quasi-experimental methods and cost-benefit measures.
- Examine how open banking and alternative data affect credit access for thin-file customers, including fairness and privacy.
- Extend the review to longer windows, more journals and full-text appraisal to assess methodological quality and test the robustness of the synthesis.

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