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Digitalisation and innovation – opportunities and risks for financial health

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Digitalisation and innovation – opportunities and risks for financial health[1]

Highlights

- *Digital innovation is enhancing access to payments, credit, savings and insurance, and can help people to manage their financial obligations and have greater confidence in their financial future.*
- *But these benefits are emerging alongside new vulnerabilities: a global surge in scams and fraud, greater overindebtedness among some digital borrowers and the use of ill-suited investment products.*
- *In line with these competing forces, aggregate trends in financial health are mixed; in some countries, available indices are deteriorating despite greater uptake of digital technologies.*
- *This highlights the crucial role of financial authorities in enhancing regulatory and supervisory frameworks to mitigate emerging risks, providing public infrastructures and services, and enabling responsible innovation that supports financial health outcomes.*

1. Introduction

Around the world, financial services have undergone a rapid transformation in recent years. The financial technology (fintech) revolution has featured breakthroughs in artificial intelligence (AI) and the entry of new players such as big technology companies (big techs) and other non-banks (BIS (2019); Croxson et al (2023)). These shifts have transformed the delivery of financial services for existing customers and expanded access for those that were previously financially excluded (Klapper et al (2025)). For example, big techs and fintech entrants have introduced payment services, often supported by digital public infrastructures (DPIs), that have vastly increased access to digital payments. By leveraging new types of data and analytics, lenders can improve the accuracy of credit scoring, expanding the supply of credit to small businesses and individuals that would not qualify under traditional credit scoring methods (Berg et al (2022)). By using alternative data, they can reduce the need for collateral in credit markets (Gambacorta et al (2023)). New technologies have enhanced connectivity, risk analysis, fraud detection and the personalisation of services.

In addition to improving the delivery of financial services, these changes can in principle support the objective of bringing meaningful gains for households' and individuals' financial health. Financial health refers to a multi-dimensional concept that goes beyond financial inclusion. As defined by different

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This paper is based on background notes for sessions on "Digitalisation and innovation – opportunities for financial health" and "Digitalisation and innovation – risks to financial health" at a workshop on "Achieving stability, resilience and inclusive growth through financial health" jointly organised by the BIS and the UNSGSA on 11–12 November 2025 in Basel.

institutions, it encompasses individuals' ability to do at least four things: (i) manage their finances; (ii) build resilience to financial shocks; (iii) achieve short- and long-term financial goals; and (iv) feel secure about their financial lives (Cantú et al (2024); GPFI (2024); Iravantchi et al (2025); Kaastra et al (2025); Klapper et al (2025); UN (2025)). Greater competition from new providers and new financial products can help individuals to pay, save, borrow, invest and insure themselves in new ways and at lower cost, and thrive financially.

However, there is no guarantee that digital innovations will necessarily bring about improved financial health for households and individuals. Digital innovations can also allow bad actors to commit fraud and scams more effectively. Moreover, greater access to credit or investment products can lead to borrowers taking on excessive debt, or savers making risky investments. Overall, whether digital innovation contributes to financial health in practice is an empirical question. Answering this question starts with improved measurement of financial health and related economic outcomes. At the same time, new forms of regulatory experimentation and public-private collaboration may also be needed to manage risks.

In this brief, we discuss the measurement of financial health, and outline opportunities created by digital technologies to improve financial health in five areas: (i) payments; (ii) credit; (iii) savings and investment; (iv) insurance; and (v) combating fraud and scams. We then discuss risks arising from digital innovation around new avenues for fraud and scams, risks of overindebtedness and ill-suited investment products. The brief then sets out policy considerations for both measuring and enhancing financial health in light of recent digital innovations. The final section concludes.

2. Measuring financial health

Accurately and consistently measuring the financial health of households and individuals is a challenging task. Unlike traditional metrics that focus solely on income or credit scores, financial health assessments must contend with both objective and subjective elements to provide a more holistic view. Measurement is further complicated by the fact that financial health is a dynamic state, shaped by a range of interconnected and multidimensional factors.

Actors in many jurisdictions are working to identify the most relevant financial and economic measures for this purpose. The four dimensions are, again, whether individuals can: (i) manage their finances; (ii) build resilience to financial shocks; (iii) achieve short- and long-term financial goals; and (iv) feel secure about their financial lives. Objective measures can include indicators such as savings levels, debt-to-income (DTI) ratios, the share of consumer or revolving loans in overall credit or use of (and fees on) overdraft facilities and credit card debt.[2] Subjective measures assess individuals' confidence, sense of control and satisfaction with their financial situation.[3] Together, these indicators can offer an improved understanding of financial well-being, helping to identify areas of vulnerability and track progress over time. At the international level, CGAP is developing global technical guidance on financial health measurement informed by early country experiences. The guidance includes high-level framing and specific measurement indicators aligned with the Global Partnership for Financial Inclusion (GPFI) consensus definition and drawing on both supply- and demand-side data sources.[4]

[2] Objective measures based on administrative/transactional data have drawbacks: (i) they may reflect the overall level of financial sector development instead of financial health; and (ii) they provide only a partial picture of financial health, as they can often fail to capture the broader financial relationships individuals have (see for example GPFI (2024)).

[3] The tools and frameworks to measure financial health vary across jurisdictions and institutions. Surveys cover financial behaviours, stress and preparedness for emergencies. Transactional data, eg payment histories and savings patterns, can complement survey findings with real-world behavioural insights.

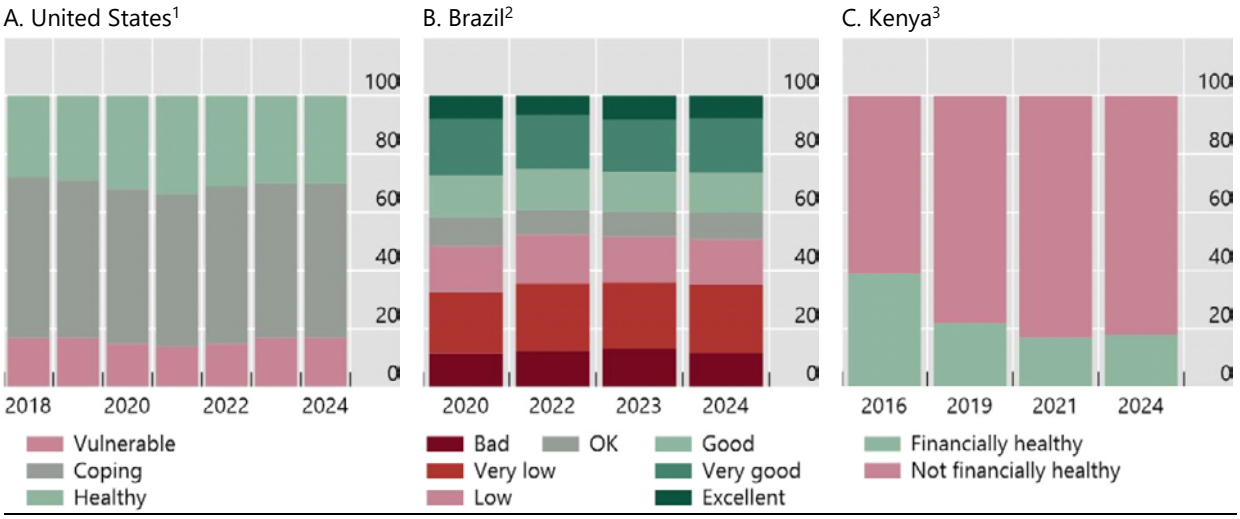
[4] CGAP is a global partnership of development organisations that works to advance the lives of people living in poverty, especially women, through financial inclusion. It was founded in 1995 as the Consultative Group to Assist the Poor.

Of course, financial health is influenced by a wide variety of other factors – notably incomes, aggregate price developments (inflation), social safety nets, consumer protection policies and financial literacy. There are thus key drivers of individuals' financial well-being that are clearly in the macroeconomic realm or within broader financial sector developments. But digital innovation in financial services has the potential to contribute to improving financial health, and for it to do so, supportive efforts are needed.[5]

Notably, the available data suggest that in at least some countries, despite digital innovation, financial health outcomes have deteriorated in the last few years. Indeed, in the United States, the share of respondents in an annual survey who were classified as financially "vulnerable" declined during and in the immediate wake of the pandemic, but returned to pre-pandemic levels by 2024 (Graph 1.A). In Brazil, there was an increase over 2020–23 in the number of respondents with a "bad" or "very low" financial health score, with a slight improvement in 2024 (Graph 1.B). In Kenya, the share of respondents who are "not financially healthy" rose from around 60% to 80% between 2016 and 2021 and stayed at that level in 2024 (Graph 1.C). For the United States and Brazil, challenges may relate to the Covid-19 pandemic and inflation shock. For Kenya, the deterioration is striking as it occurred alongside the continuing uptake of mobile money and greater availability of digital lending. Recent work suggests that this deterioration was driven by macroeconomic factors such as inflation (particularly of food prices), falling incomes and shifts to less reliable sources of income (eg from employment, business ownership and farming to casual work and transfers) (Gubbins and Heyer (2022)). Greater reliance on credit for day-to-day consumption, emergencies and education (Cook (2025)) may be a symptom of these changes in macroeconomic factors.

In some cases, financial health has deteriorated in the last few years

Share of respondents by category, in per cent — Graph 1



[1] Financial Health Network's FinHealth Score is based on eight survey questions that align with eight core indicators of financial health reflecting a household's spending, saving, borrowing, financial planning, and protection. FinHealth Scores range from 0 to 100 and are sorted into three tiers: vulnerable (0–39), coping (40–79) and healthy (80–100). [2] Índice de Saúde Financeira do Brasileiro (Brazilian Financial Health Index) is measured using a questionnaire with 15 questions: 12 to directly calculate the individual's score in the main dimensions of financial health and three designed to calculate the financial base. The score ranges from 0 to 100 and is divided into seven levels. [3] Financial health is measured with nine indicators across three domains: ability to manage day to day, ability to cope with shocks and ability to invest in the future. The score ranges from 0 to 100. Individuals are categorised as financially "healthy" if their financial health score equals or exceeds 60 (equivalent to having at least six of any of the nine indicators).

Sources: Warren et al (2025); Federação Brasileira de Bancos; FSD Kenya.

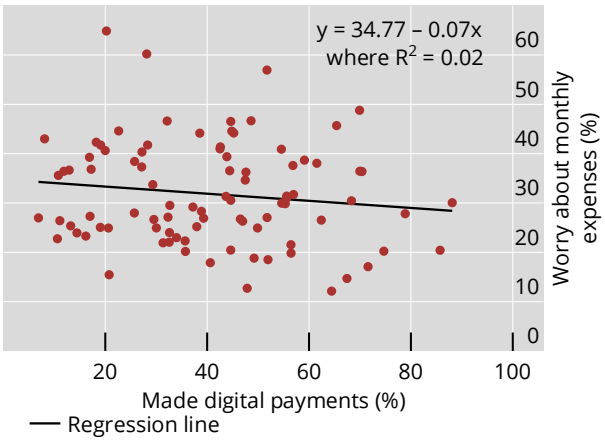
Digital technology can influence both the measurement of financial health and the outcomes that contribute to financial health. In terms of measurement, new forms of data and new ways of analysing

[5] For a discussion of available evidence on the drivers of financial health, see GPFI (2024) and Iravantchi et al (2025).

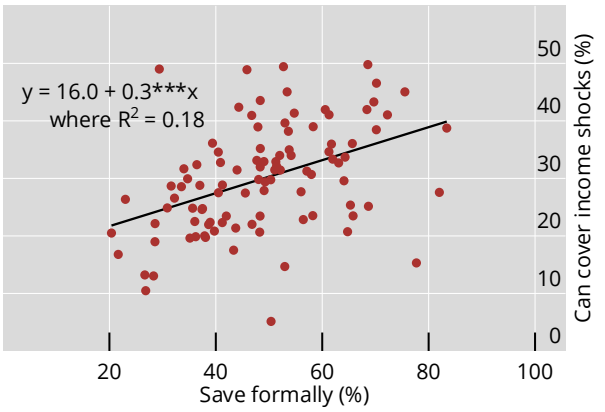
data can help to better measure the financial condition of individuals. In terms of outcomes, in principle, digital technology can facilitate access to and the use of financial services to improve financial health. However, the empirical link between financial inclusion and financial health measures is not clear. For example, the relationship between making or receiving a digital payment (which typically serves as entry point for other financial services) and financial health (as proxied by worries about expenses) is insignificant (Graph 2.A). On the other hand, some measures of financial inclusion go hand in hand with financial health. For instance, there is a positive and statistically significant correlation between the share of adults who save and those who can cover an income shock (Graph 2.B). For digital technologies specifically, Suri and Jack (2016) show that in Kenya the use of mobile money causally increased households' financial resilience over their sample period.[6]

Exploring the links between financial inclusion and financial health measures — Graph 2

A. No significant link between digital payments and worries about monthly expenses[1]



B. The link between the share of the population who saves and those who can cover a shock is positive[2]



[1] On the x-axis is the share of respondents (aged 15 and above) who made a digital payment in the previous year. On the y-axis is the share of respondents (aged 15 and above) who noted that they worry about their monthly expenses. [2] On the x-axis is the share of respondents (aged 15 and over) who save using a formal method. On the y-axis is the share of respondents (aged 15 and over) who say that they can cover more than two months of expenses if their main income source were to disappear.

Sources: Klapper et al (2025); World Bank Global Financial Inclusion (Global Findex) Database.

3. Opportunities for digital innovation to improve financial health

Digital innovation has the potential to enhance outcomes that contribute to financial health. We now turn to opportunities in payments, credit, investments and savings, insurance and combating financial crime.

Opportunities for digital innovation in payment markets

In the last two decades, the payments sector has seen repeated waves of disruption with mobile money, fast payments and digital wallets. Overall, payments have become faster, cheaper and more accessible for many individuals and businesses. Beyond efficiency gains, the use of digital payments is associated with a reduction in informal employment and improved access to credit (Aguilar et al (2024)). More specifically, in sub-Saharan Africa, access and use of mobile money have been found to increase per capita income,

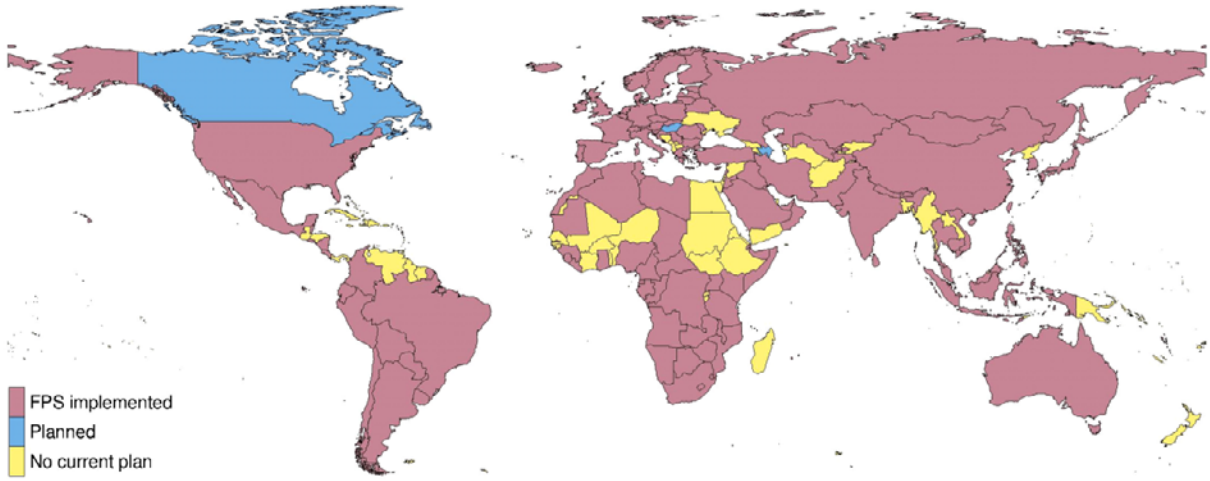
[6] The results were particularly pronounced for female-headed households. The impact appears to be driven by changes in financial behaviour (ie increased savings and, hence, more efficient allocation of consumption over time).

lift households out of poverty, enhance financial resilience and increase savings (Suri and Jack (2016)). Together, this should contribute to enhancing the financial health of individuals and households.

Fast payment systems (FPS) in particular have seen rapid adoption. At the time of writing, users in over 135 jurisdictions have access to a domestic or regional FPS, operated either by central banks directly or by the private sector, sometimes with an important catalytic role by the central bank (World Bank (2026); Graph 3). Argente et al (2025) show that mass adoption is particularly likely when there is a "rapid low income-gradient", ie when adoption spreads quickly from affluent early users to lower-income groups. Frost et al (2024) show that adoption is higher when the public sector plays an active role in the FPS, when non-banks can participate and when there are more use cases and cross-border connections.

FPS have been implemented in jurisdictions around the world

Graph 3



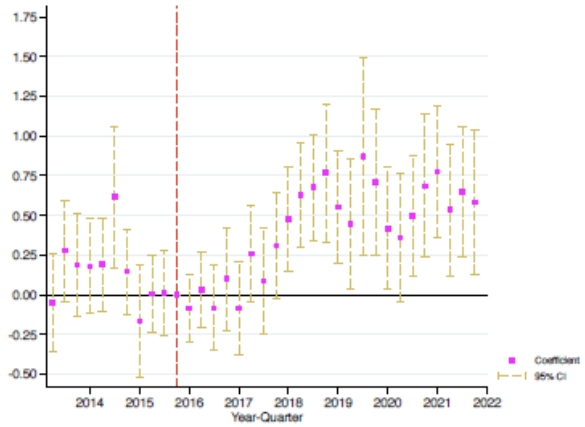
The use of this map does not constitute, and should not be construed as constituting, an expression of a position by the BIS regarding the legal status of, or sovereignty of any territory or its authorities, to the delimitation of international frontiers and boundaries and/or to the name and designation of any territory, city or area. Updated as of September 2024.

Sources: CPMI; World Bank; Aurazo et al (2025).

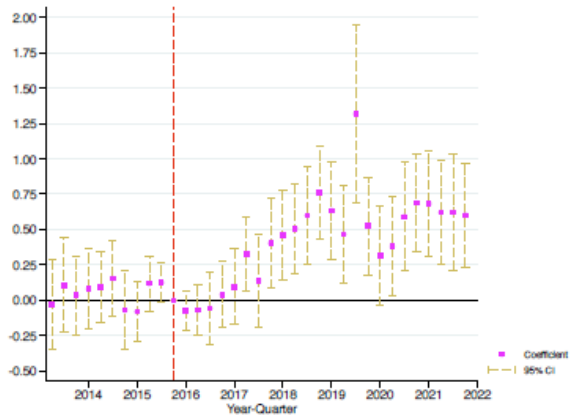
FPS have been tied to measurable improvements in economic outcomes that can contribute to better financial health for individuals and businesses. Aurazo et al (2025) find that jurisdictions with an FPS have a higher share of individuals saving at a formal financial institution. Cornelli et al (2025) find higher use of digital finance apps more generally after the launch of an FPS, particularly when it is operated by the central bank. In India, Dubey and Purnanandam (2023) use the staggered adoption of the Unified Payments Interface (UPI) in different districts, and find that UPI use increased the incomes of households that adopted cashless payments, particularly in areas that were less developed financially. This is visible in the higher household incomes in early versus late adoption districts in the years after 2016 (Graph 4.A). A similarly strong increase is visible in small business activities, as measured by entrepreneurs' incomes, in early versus late adoption districts (Graph 4.B). This highlights the role that digital technology can play to raise incomes and to close the gaps between developed and less developed regions. In Brazil, the launch of the central bank-operated FPS Pix is tied to higher credit lines and lower use of credit by small businesses, as the quicker availability of funds means there is less need for external finance for working capital (Araujo et al (2026)).

Introduction of UPI in India led to higher income for individuals and businesses Graph 4

A. Rise in household incomes from cashless payments in early vs late adopter districts[1]



B. Rise in entrepreneurs' income in early vs late adopter districts [2]



[1] Estimated coefficients for impact of cashless payments on household incomes for early versus late adopter districts. [2] Estimated coefficients for impact of cashless payments on entrepreneurs' incomes for early versus late adopter districts.

Source: Dubey and Purnanandam (2023).

Opportunities in credit markets

As in payments, new technologies and new players are also changing credit provision, particularly for underserved populations. Traditional credit scoring methods rely on credit histories and collateral which can exclude many borrowers. With alternative data (such as e-commerce activity, payment histories and even social media interactions) and AI/machine learning (ML) methods, new methods of credit assessment can extend credit to otherwise excluded borrowers.

Examples from many countries show how access to new data can enhance access to credit. For example, evidence from Argentina suggests that if Mercado Libre, a big tech company used only traditional data that credit bureaus rely on, 30% of the firms that were granted credit would be deemed high risk and excluded (Frost et al (2019)). Another study with data from the United States shows how fintech small business lending platforms expanded in areas with higher unemployment and business bankruptcies, thus helping to complement bank lending for underserved small and medium-sized enterprises (SMEs) (Cornelli et al (2024)). In China, merchants using quick response (QR) code-based payments generate valuable data that allow them to access credit not only from big techs but also from banks (Beck et al (2022)). For digital credit in Kenya, Chen et al (2025) find that a randomised loan approval improves borrowers' financial well-being, with higher self-reported income and employment.[7]

Technology and new types of data can also reduce the need for collateral in credit markets. For example, when big techs lend to merchants that sell products on their platform, instead of relying on collateral, they can rely on data from the merchants' business operations (Gambacorta et al (2023)). Gertler

[7] Specifically, they find that access to digital loans has a positive causal impact on borrowers' financial well-being across multiple mobile phone-based indicators (eg transaction activity, mobility and social networks), alongside higher self-reported income and employment. Importantly, the positive effects are stronger for borrowers with limited alternative access to credit and for those using loans for business purposes. This reinforces the notion that digital credit outcomes are heterogeneous and depend on context, product design and use. As we will discuss below, there is also evidence around the risks of high-interest digital loans and overborrowing.

et al (2024) show how a lockout technology on digital collateral, which allows the lender to temporarily disable the flow of benefits or services from the collateral, can dramatically increase repayment and make an otherwise unprofitable lending activity profitable. They also show that school fee loans secured by digital collateral increased the share of households to whom a lender can profitably offer such loans and, hence, significantly increased school enrolment.

In addition to credit markets, digital public infrastructures like FPS and open finance have been found to increase access and outcomes. In line with results for saving, Aurazo et al (2025) find that in countries with an FPS, a greater proportion of the population borrows from a formal credit institution. Using UK data, Babina et al (2025) find that SMEs were able to access credit from non-bank lenders after the introduction of the Commercial Credit Data Sharing (CCDS) policy, part of the United Kingdom's broader open banking initiatives. This underscores how the greater availability of transaction data from fast payments or from data-sharing can form an important input into credit scoring.

Opportunities for savings and investment

Digital innovation can help to promote saving and democratise access to investment opportunities. In particular, nudges and product design can encourage regular saving behaviour. Digital investment platforms, like Robinhood or Acorns in the United States and many others around the world, now enable retail investors to participate in markets that were once exclusive to institutions. By enabling fractional ownership of financial products and assets, such platforms can enable participation even from individuals with limited means. Similarly, generative AI (gen AI) can also contribute to the democratisation of investment, with robo-advisers providing personalised investment guidance at scale.

Recent work also shows positive correlations between digital behaviour and the saving outcomes of individuals. For example, in South Africa, individuals that use mobile banking have higher saving rates, larger budget allocations to savings, greater use of formal saving methods and higher financial resilience, even after controlling for demographic and socioeconomic variables like age, education level, race, household income and gender (Bohnenkamp et al (2025)). Digital banking tools like automatic and goal-based savings, or "money boxes", may also encourage saving and thus improve financial health outcomes (Almeida et al (2024)). In the Netherlands, clients of a bank who adopted these tools saw improved financial health scores, with the biggest gains among those that report being financially stressed (Kaastra et al (2025)). In the Philippines, work is underway to assess the impact of behavioural nudges and digital tools (DiBa (2025)).

Opportunities for insurance coverage

Digital innovation is reshaping insurance markets through the growth of "insurtech" solutions, creating opportunities to expand coverage and strengthen household resilience. Insurance can contribute directly to financial health by helping households manage shocks, avoid harmful coping strategies and sustain longer-term progress. Yet persistent protection gaps reflect longstanding barriers, including affordability constraints, limited trust, low awareness and weak distribution channels (CGAP et al (2026)).

Digital tools may help reduce these frictions. The Financial Health Network highlights the potential of alternative premium models, such as pay-as-you-go or usage-based coverage, which may be better suited to households facing income volatility (Gdalman et al (2024)). Digitalisation can support embedded and bundled insurance, where coverage is offered at the point of sale or alongside other financial services (eg remittances or mobile services), reducing search costs and increasing uptake as long as customers are aware and provide explicit consent.[8] In addition, streamlined onboarding and

[8] The overall welfare effects of such bundled insurance products can be unclear, particularly in cases where customers have limited attention or information. In those cases, there are risks of misselling.

underwriting processes may lower transaction costs, while behavioural design approaches (eg simplified choices and improved framing) can help consumers select products that better match their needs.

Looking ahead, the gradual extension of open finance frameworks to insurance may further support innovation, including through consent-based data-sharing to improve underwriting and product tailoring. Early developments in jurisdictions such as India and Brazil suggest that open finance ecosystems may increasingly enable more integrated insurance offerings and help expand coverage to individuals and small firms with limited traditional financial histories.

These developments suggest that digitalisation could support more inclusive and scalable insurance markets, provided that appropriate consumer protection safeguards are in place to ensure transparency, fair pricing and suitable product design for underserved groups.

Opportunities for combating financial fraud and scams

Finally, digital technologies, including AI, offer new tools to combat financial crime and strengthen consumer protection, including by helping providers and authorities identify suspicious activity more quickly and at a greater scale. These tools excel at finding needles in haystacks and as such, are well suited for transaction monitoring and anomaly detection (Desai et al (2024)). Driven by these capabilities, they are becoming a cornerstone of real-time fraud detection (BIS (2024); Aldasoro et al (2024)). Additionally, digital channels can support earlier and more targeted interventions, eg real-time alerts, behavioural nudges and friction mechanisms to prevent scams and unauthorised transactions before losses occur. Moreover, a distinct advantage of digital technologies like gen AI is the potential of scalable financial education platforms that can equip individuals with the knowledge to protect themselves and their finances. Over time, these approaches could help shift fraud and scam protection from a reactive model towards a more preventive and consumer-centred one supporting trust in digital finance and improving financial health outcomes.

4. Risks of digital innovation for financial health

From the preceding discussion, one may think that digital innovation brings universally positive changes to the provision of financial services. Certainly, there is a large body of research supporting the benefits. The impression may be strengthened by visiting industry conferences, where the focus is – understandably – on the success stories, and examples of opaque, ill-suited or even predatory products and services may be glossed over. It is in these cases that the perspective of regulators and civil society organisations, including bodies focused explicitly on consumer protection and well-being, are particularly needed. They can help to surface issues, particularly in places where data are scarce, and identify where and why services may not be leading to better outcomes for households and businesses.

By identifying issues and services that do not lead to better outcomes, regulators and supervisors can set appropriate guardrails and address market failures. This can also help guide innovation so that it better serves consumers' needs and is aligned with positive outcomes. That approach will also help ensure that innovation is aligned with positive consumer outcomes, including through embedding financial health into the product design and business models.

The rest of this section thus explores the other side of the coin: the risks for financial health arising from the digitalisation of finance related to fraud and scams, excessive lending, risky or unsuitable investment products and a deterioration in access for households and businesses to existing services.

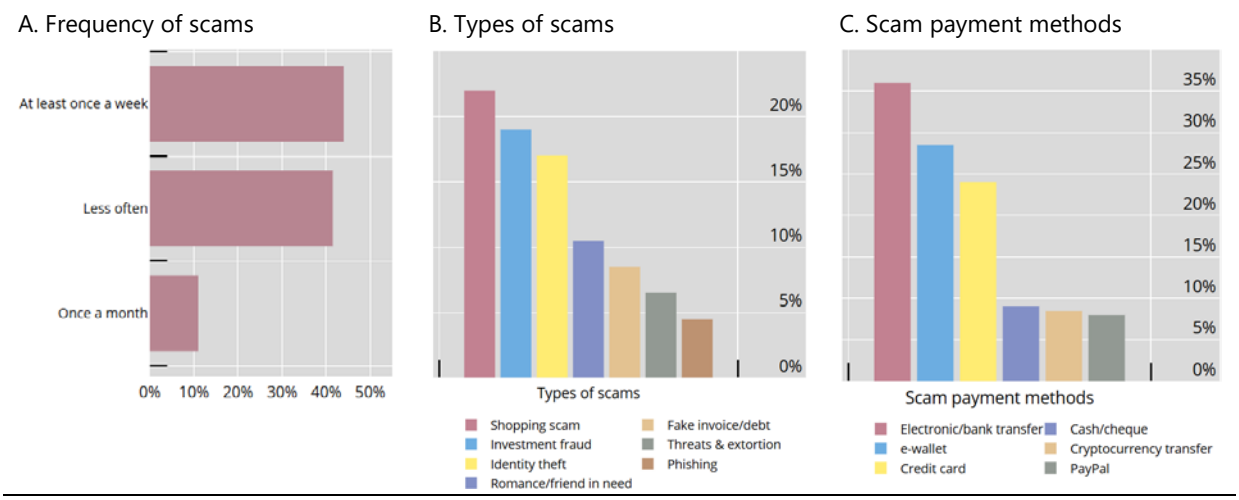
Fraud and scams in digital payments

As discussed above, digital technologies provide tools to combat financial crime and fraud. At the same time, they can also be used by bad actors. In particular, innovation enables criminals to be more agile and

easily increase the scale and scope of their fraudulent activities. New technologies are also making scams/frauds more sophisticated and such technologies are easily available even to unsophisticated scammers through "fraud as a service". For example, generative AI is now used to produce more believable scripts used for phishing and vishing (using videos), as well as more convincing deepfakes.

A 2024 global survey showed that almost half of respondents encountered a scam at least once a week in the past year (GASA and Feedzai (2024); Graph 4.A). Shopping scams, investment fraud and identity theft are the most common types of scams (Graph 4.B). Scammers siphon off money from their victims using digital payments, particularly electronic/bank transfers, e-wallets and credit cards (Graph 5.C). Overall, scams resulted in an estimated $1 trillion of total losses worldwide. While victims in advanced economies (AEs) tend to sustain higher individual losses, at least in nominal terms, the total losses as a percentage of GDP are much higher in emerging market and developing economies (EMDEs). For instance, such losses totalled more than 3% of GDP in Pakistan, Kenya, South Africa, Thailand and India. In addition to the enormous hardship this imposes on (low-income) individuals and (small) businesses, this could form a relevant drag on overall economic activity.

Global threat of scams — Graph 5



Source: GASA and Feedzai (2024).

Increase in problem loans from digital lending

While technology offers significant opportunities in credit markets, it can also offer potential for borrowers to overextend themselves and end up in precarious situations. Easier credit can result in excessive borrowing and overindebtedness, particularly when providers seek to exploit behavioural biases, use manipulative or misleading language or design products in a predatory manner. Meanwhile, algorithmic biases in new credit scoring methods could unfairly disadvantage some groups, shutting them out of credit markets and removing rungs from the ladder of economic advancement.[9] Ensuring that credit is extended responsibly and equitably remains a critical priority to prevent the erosion of financial health.

[9] This concern is well known from the United States, where the practice of "redlining" was quite common in decades past. This entailed banks and other mortgage lenders denying applications from neighbourhoods with high shares of racial or ethnic minorities, indicated on maps as "hazardous" and marked in red. Recent research has found that these forms of exclusion had large and persistent effects on households, with children living on the lower-graded side of such boundaries having lower educational attainment and lower incomes in adulthood (Aaronson et al (2023)). Of course, these practices have existed for a long time with existing lending technologies; there is also the potential for digital credit scoring to mitigate bias.

In AEs, concerns have arisen over new financial products and digital distribution channels. Financial services providers, such as credit card issuers, may use big data to exploit behavioural biases of less educated borrowers to offer more back-loaded fees (Ru and Schoar (2025)). Meanwhile, the same reduction in frictions that can enhance efficiency can also entice borrowers to take on more credit than they can safely bear. One example is the growth of buy now, pay later (BNPL), which is used to a greater extent by young adults who are often heavily indebted and have low credit scores, thus suffering higher delinquency rates than traditional consumer credit (Cornelli et al (2023)).[10] In the Netherlands, the Authority for the Financial Markets (AFM) mapped the opportunities and risks of innovation in mortgages and consumer credit (Teunissen et al (2025)). The report identifies concerns related to impulse purchases and debt accumulation, exclusion of certain customer segments and personalisation of credit that can lead to data privacy issues and more complex products.

Recent studies find that the overall impact of digital lending on financial health in EMDEs is ambiguous. In data for Malawi, Brailovskaya et al (2024) observe an uptick in short-term, high-interest loans offered through mobile money. While they find no negative effects of access to such loans on self-reported financial well-being, they do find that borrowers fail to repay on time and incur high late fees. Concerns also arose in a survey by the Global System for Mobile Communications Association (GSMA) with respondents in Côte d'Ivoire (30% of respondents with digital loans), Ghana (80%), India (2%), Kenya (54%) and Tanzania (32%). The study shows that borrowers with digital loans in all these jurisdictions are more likely to report loans in arrears, ie loans with late, partial or missed payments or that are in default (Graph 6.A).[11] At the same time, borrowers with digital loans tend to report having savings and making monthly contributions to their savings (Graph 6.B). Moreover, in all jurisdictions covered, except Tanzania, borrowers with digital loans are more likely to consider themselves financially healthy (Graph 6.C).[12]

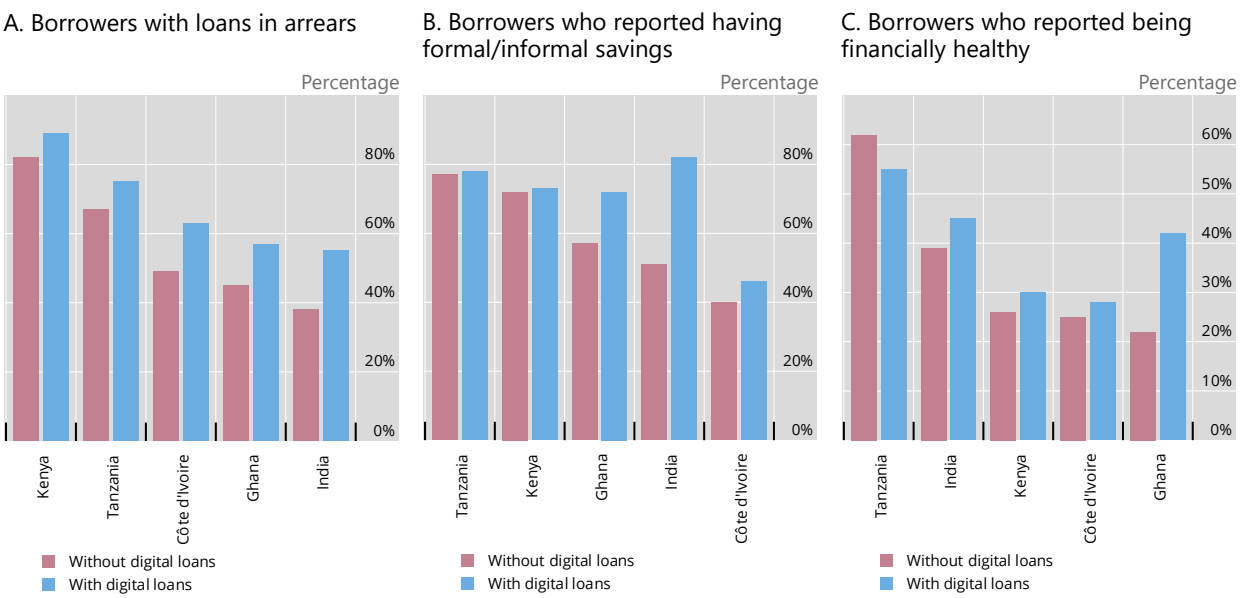
[10] Yet evidence is not universally concerning. For Norway, Laudenbach et al (2025) find that BNPL customers are more likely to be approved for bank loans and exhibit better payment behaviour, suggesting that BNPL can improve risk assessment and foster learning, thereby promoting inclusion. See also Ehrentraud et al (2024) for regulatory developments relating to BNPL.

[11] In Brazil, a significant increase in credit has led to a third of the population having their names registered in credit bureaus due to defaulted payments (Gonzalez and Cernev (2025)).

[12] GSMA (2024) defines being financially healthy as being very well prepared to manage day-to-day expenses and a financial crisis (eg a medical emergency or job loss). It also entails the ability to seize a market opportunity (eg to expand one's microbusiness), manage debt and build a secure financial future for individuals and their household. Overall, more than half of digital borrowers in these jurisdictions (except Tanzania with 43%) believe that digital loans helped them with both short- and long-term goals and challenges. This led the study to conclude that digital credit may play an important role in financing vulnerable households, which needs to be further studied and understood. The study also states that vulnerable households using digital loans may not be fully aware of appropriate lending practices or may view the benefits of digital loans as high enough to underreport or overlook abusive practices.

Digital borrowers tend to struggle with payments, but also tend to save more and consider themselves financially healthy

Graph 6



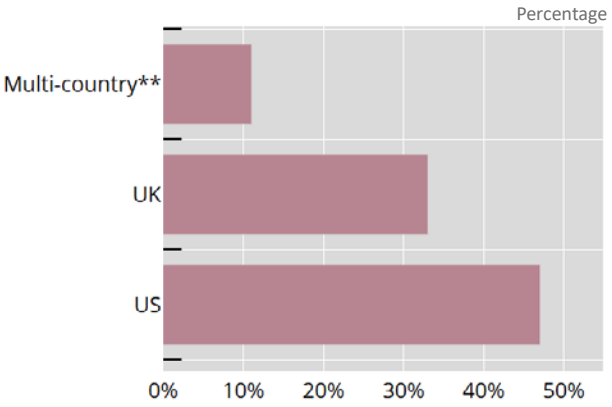
Source: GSMA (2024).

Risks to retail investors

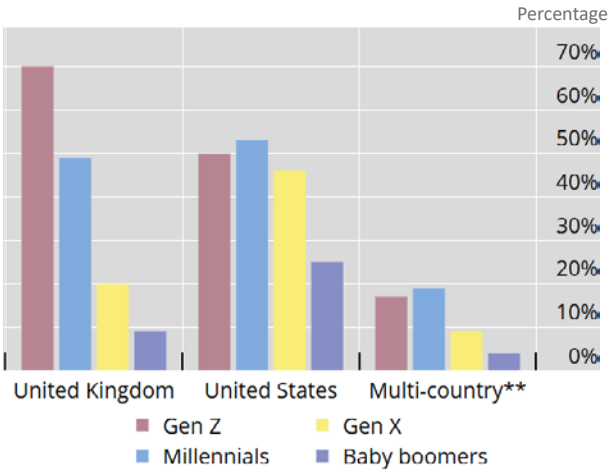
Use of publicly available AI tools by retail investors is becoming increasingly common – at least in AEs. For example, a 2023 survey found that 47% of Americans rely on ChatGPT for stock recommendations (Wealth Professional (2023)). Another survey, from 2025, finds that in the United Kingdom, 33% of retail investors now use AI tools like ChatGPT for financial advice and information (The Nursery and AML Group (2025)). Across 13 countries studied by an online trading platform, 11% of retail investors are said to be using such tools (Graph 7.A). In all cases, younger investors tend to use these tools more than older investors (eToro (2023); Graph 7.B).

Retail investors, particularly young investors, are using ChatGPT and similar AI tools for investment purposes* Graph 7

A. Percentage of respondents that used ChatGPT and other similar tools for investment purposes



B. Breakdown by age group



*Multi-country and US figures are for 2023, UK figures are for 2025.

**Multi-country includes Australia, Czech Republic, Denmark, France, Germany, Italy, Netherlands, Norway, Poland, Romania, Spain, United Kingdom and United States.

Sources: The Nursery and AML Group (2025); Wealth Professional (2023); eToro (2023).

It is often argued that this democratises access to investment advice by enabling individuals who previously did not meet minimum investment thresholds to participate in wealth-building. There are claims that ChatGPT outperforms money managers (ZDNet (2023)). Fedyk et al (2024) find that AI agents can rate (with the appropriate prompts) stocks, bonds and cash in ways that correspond to the preferences of users and can help to identify where a lack of financial knowledge poses risks in human responses. Yet currently, use of AI tools for investment purposes is without oversight, transparency or accountability. Consumers may be misled by authoritative-sounding responses from these tools that may be inaccurate and may just induce increased risks (Winder et al (2025)). Improper use of such tools may pose serious risks to consumers' financial health.

Meanwhile, investment apps could influence consumers – through digital engagement practices – to take on more risk in their investment decisions. These apps increasingly use behavioural insights to increase user engagement. Examples include social networking tools, gamification elements, loyalty programmes and real-time engagement such as chatbots. These techniques are not always used in the interest of the client but may instead be used to persuade them to trade in more risky assets (AFM (2025)).

Beyond the use of AI and apps for investing, other developments in the retail investment space could also have implications for the financial health of retail investors. These include social media personalities (so-called finfluencers) who provide financial advice, information and tips on investing, saving and budgeting; and online imitative trading practices without any oversight.[13]

A particularly salient risk for investors comes from the spate of new crypto-related investment products. The proliferation of highly volatile cryptoassets (including so-called meme coins), alongside the growing availability of crypto exchange-traded products, crypto derivatives and margin-based trading, can

[13] Online imitative trading practices allow retail investors to automatically replicate trades of professional traders. This approach is often marketed as a simple way for retail investors to participate in financial markets without the need for extensive market investment knowledge or active decision-making (IOSCO (2025a)).

expose retail investors to substantial losses (IOSCO (2024b); EBA et al (2025)). More alarming is that the largest growth of crypto use has been in EMDEs, where access to traditional financial services can be far from universal and the level of financial literacy is generally lower (Newbury and Kerse (2023)). Risks to retail investors may be amplified by digital distribution channels and digital engagement practices that encourage frequent trading or risk-taking. In particular, leveraged products (including derivatives and margin trading) can result in losses that exceed the initial investment. This can pose acute risks for younger and lower-income investors with limited financial buffers. In EMDEs, advertisements for crypto that target young people often appeal to their desire for easy money and play on feelings like fear of missing out (Newbury and Kerse (2023)). These concerns have been highlighted in warnings and supervisory communications by securities regulators and other authorities in both AEs and EMDEs (IOSCO (2024a); EBA et al (2025)).

Declining access to existing services

A final risk from digital innovation is that it can lead to reduced access to financial services that households and small businesses continue to rely on, particularly where digitalisation outpaces inclusion. If a large group of users prefer (particular) digital channels, this makes it less profitable to support other (digital and non-digital) channels.

One clear example is cash. As digital payments rise, the incentives of private players to continue providing cash services, particularly in remote and rural areas, are reduced. Lower acceptance of cash and reduced availability of automated teller machines (ATMs) can make life more difficult for those who rely on them, and can have negative implications for financial health across both objective measures (eg ability to transact and manage liquidity) and subjective dimensions (eg confidence and sense of control).

In a similar vein, access to physical bank branches and in-person services for financial advice can decline with greater use of digital channels. Users who are less comfortable with digital channels can suffer. For instance, there is international evidence that gender gaps in the use of digital financial services are larger than for traditional services (Tok and Heng (2022); Chen et al (2023)). A recent study of Spain finds a link between fewer bank branches and higher e-banking adoption, but they find significant gaps in e-banking adoption by age, digital skills, gender and geographic location (Martínez de Ibarreta et al (2025)). As such, without progress in digital literacy and services widely accepted by women, by older and lower-income users and by users in underserved areas, there is potential for greater uptake of digital financial services to entail direct reductions in access for these groups.

5. Policy responses

There are clearly trade-offs between promoting digital innovation for financial services and safeguarding consumer interest. Policymakers play a critical role in ensuring that innovation strengthens rather than undermines financial resilience. Authorities have already introduced general guidelines on responsible use of new technologies, eg on AI (Crisanto et al (2024)) and DPIs (UN (2024)). They have strengthened their financial consumer protection frameworks, eg by introducing robust disclosure, creditworthiness assessments, suitability safeguards, complaint resolution mechanisms and prohibiting aggressive advertising. They have improved their financial capability efforts including initiatives to build consumers' knowledge, skills and confidence to make informed financial decisions in increasingly digital environments (Iravantchi et al (2025)). This holistic approach can support an environment that is conducive for enhancing opportunities and minimising risks from digitalisation in financial services. At the same time, many authorities have complemented this holistic approach with more targeted policy interventions. This section outlines policy responses and other measures that have been introduced to address and mitigate the risks to financial health arising from digital innovation in the specific areas discussed above.

Combating digital fraud

Digital fraud, which is mainly facilitated through digital payments, has become a concern for most financial authorities. At the international level, the Basel Committee on Banking Supervision (BCBS), for example, has issued a discussion paper on the issue (BCBS (2023)).[14] It noted that there have been a wide range of domestic and regional initiatives aimed at addressing digital fraud. These include raising public awareness and customer empowerment, guidance/statements regarding control measures and security protocols (eg strong customer authentication), supervising banks' digital fraud risk management practices, collaborating with other authorities to detect, respond and disrupt fraud activities, and cross-border cooperation.

National authorities have also established liability frameworks for digital fraud. For example, the Monetary Authority of Singapore and the Infocomm Media Development Authority jointly established the Shared Responsibility Framework for losses arising from phishing scams. Another example is the UK Payment Systems Regulator that has put in place the authorised push payment (APP) scams reimbursement requirement (MAS and IMDA (2024); PSR (2024)). Liability frameworks vary widely across jurisdictions, which can impact customer behaviour and incentives for financial institutions.

Regulating digital lending

Some financial authorities have already issued regulatory frameworks for digital lending. These include Reserve Bank of India's Digital Lending Directions, Central Bank of Kenya's Digital Credit Providers Regulations and Nigeria's Federal Competition and Consumer Protection Commission's Digital, Electronic, Online or Non-traditional Consumer Lending Regulations (RBI (2025); CBK (2022); FCCPC (2025); see also Ehrentraud et al (2020, 2024)). These regulations focus on the licensing and registration of previously unregulated providers of digital credit. They aim to respond to common consumer complaints, including high cost of credit, unethical debt collection practices and misuse of personal data. As such, the main thrust of these regulations is to ensure consumer protection by establishing requirements for disclosure to borrowers, responsible business conduct, redress mechanisms and data privacy. The Nigerian regulation also prohibits pre-authorised or automatic lending to mitigate borrower overindebtedness.

Going beyond hard regulations, financial authorities, such as the Central Bank of Brazil, are also looking at encouraging lenders to use financial health information for risk assessments as well as for ensuring that their lending products are meeting the needs of borrowers (Iravantchi et al (2025)). The Office of the Comptroller of the Currency (OCC) in the United States has already piloted such an approach known as "financial health vital signs". It was aimed at encouraging financial services providers to leverage transactional data to evaluate and monitor consumer financial health. The initiative sought to shift the industry's focus from traditional product-based metrics to customer-centred outcomes, using indicators such as positive cash flow, liquidity buffers and on-time payments to better align services with consumer needs (see Hsu (2024)).

Promoting responsible digitalisation of retail investing

Financial authorities have also responded to risks arising from digitalisation of retail investing. With regard to the use of AI tools, for example, market regulators, such as the European Securities and Markets Authority (ESMA), have issued public statements advising retail investors on the risks they should consider when using such tools (ESMA (2025)). Financial authorities are also monitoring developments in the use of digital engagement practices in investment apps. For example, the Dutch AFM has issued a report titled *Risks in the choice environment of crypto apps*, which identified elements in crypto apps that could potentially pose risks to retail investors (AFM (2024)).

At the international level, the International Organization of Securities Commissions (IOSCO) established a roadmap to retail investor online safety. The aim of the roadmap is to combat online harm,

[14] IOSCO has also developed a scams database called the International Securities & Commodities Alerts Network (I-SCAN).

fraud and misselling that have emerged because of technological developments, particularly those related to the rise of finfluencers, copy trading and digital engagement practices (IOSCO (2024a)).[15] The roadmap includes the development of new standards to manage emerging trends, investor education and collaboration between securities regulators and with social media and other internet services providers.

Building public infrastructures

A key way to support jurisdictions in their financial health journey is to help with the creation of public infrastructures that support their population and serve domestic policy goals.

In particular, DPIs, including digital identity, fast payment systems and data-sharing frameworks, can provide foundational "rails" that enable individuals not only to access financial services, but to use them in ways that improve their financial health. By lowering transaction costs, improving interoperability and enabling secure data exchange, these systems can support more inclusive and efficient financial ecosystems (Alonso et al (2023); GPFI (2023)).

From a financial health perspective, the key question is whether these infrastructures translate into better outcomes for individuals, namely, their ability to manage day-to-day finances, build resilience to shocks, pursue longer-term goals and feel confident in their financial lives. Well designed DPI can support these outcomes, for example by enabling timely payments, facilitating savings and insurance uptake, and improving access to appropriately designed financial products.

However, these outcomes are not automatic. Without strong governance, consumer protection and inclusive design, digital infrastructures may reinforce existing inequalities or expose users to new risks. This underscores the role of authorities not only in building public infrastructures, but in ensuring they are inclusive, interoperable and aligned with financial health outcomes, while enabling responsible innovation by the private sector on top of shared digital rails (CFI (2024)).

5. Conclusions

Digitalisation of financial services offers significant potential to strengthen financial health by lowering costs and broadening access across payments, credit, savings and investment. Fast payment systems can raise incomes and resilience; alternative data and AI can broaden credit access; and digital tools can support saving, financial management and long-term planning. Yet the evidence of the relationship between digitalisation and financial health is mixed: in several countries financial health indicators have deteriorated in recent years, while new risks have emerged. These include a global surge in scams and fraud, higher arrears and overindebtedness among some digital borrowers, and risks to retail investors from AI-driven advice and persuasive app designs. The net impact of innovation on financial health remains an empirical question and varies by context.

Policy frameworks are evolving to capture the benefits of digitalisation while mitigating harms. A more holistic approach is needed in responding to the use of new technologies in financial services, as well as in enhancing financial consumer protection and financial capability policies. In addition, targeted measures can be useful. These include strengthening end-to-end fraud prevention and liability regimes; licensing and supervising digital lenders with a strong conduct and data-protection focus; and guiding the use of AI and digital engagement practices in retail markets. Measuring what matters, through robust, disaggregated financial health indicators that combine objective and subjective metrics, can help target

[15] Misselling is a sales practice in which a financial product or service is either deliberately or negligently misrepresented, and the customer is misled about the suitability or appropriateness of that product or service for their needs. This can include deliberately omitting key information, providing misleading advice, or recommending an unsuitable product based on the investor's expressed needs and preferences (IOSCO (2025b)).

interventions and track outcomes. Effective responses will rely on collaboration among financial authorities, market participants and other stakeholders, with a clear focus on consumer protection and long-term financial well-being.

Overall, this highlights the importance of ensuring that digital transformation remains inclusive by design. Without parallel investments in digital literacy, accessible product design and trusted support channels, the shift towards digital finance risks entrenching or even widening existing disparities – undermining individuals' ability to manage their finances, build resilience and pursue longer-term goals.

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