In collaboration with the Research Center for Wealth Management, Tsinghua University PBC School of Finance

Global Financial Inclusion Practices: Case Studies from China, India and the USA

WHITE PAPER

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Foreword

Xiaoyan Zhang
Xinyuan Chair Professor of Finance, Associate Dean, PBC School of Finance, Tsinghua University

Faheen Allibhoy
Managing Director; Global Head, Multilateral Institutions and Development Banks, JPMorgan Chase

Mary Ellen Iskenderian
President and Chief Executive Officer, Women's World Banking

In an increasingly fragmented global landscape, financial inclusion is emerging as a vital tool for promoting resilience among individuals and businesses. Financial inclusion serves as a critical enabler, integrating marginalized and underserved populations into the financial system and empowering individuals to build financial security, mitigate risks and withstand economic shocks. For businesses, particularly small and micro enterprises (SMEs), financial inclusion facilitates access to capital, supports growth and enhances the ability to navigate uncertain environments.

This paper explores recent examples of financial inclusion, highlighting the roles of government policy, public–private partnerships and technological innovation. Cases such as India's Pradhan Mantri Jan Dhan Yojana (PMJDY) and China's digital yuan demonstrate how targeted government efforts can bring underserved populations into the financial fold. Meanwhile, private-sector advances, from artificial intelligence (AI)-driven digital banking in China to research on loan disparities in the United States, underscore the transformative potential of technology in expanding financial access and literacy.

At the same time, advancing financial inclusion requires addressing systemic challenges such as the digital divide, privacy concerns and the complexity of financial products. Bridging these gaps demands a coordinated approach that integrates technological innovation, inclusive policy frameworks and enhanced education efforts.

This paper calls upon stakeholders in government, industry and civil society to collaborate and foster a more transparent, secure and equitable financial ecosystem. Doing so will unlock new opportunities for individuals and businesses worldwide, ultimately driving sustainable economic growth and resilience. We express our gratitude to the experts and organizations whose contributions shaped the insights presented in this paper.

Executive summary

In today's rapidly evolving global economy, access to financial services is more crucial than ever for ensuring equitable growth and economic resilience.

In a fragmented world, lower-income groups and SMEs (defined in this paper as small and micro enterprises) face significant challenges due to their limited access to financial services, exacerbating inequalities. Financial inclusion is a critical solution for reducing these disparities and enhancing resilience by providing essential financial services to all segments of society. This paper highlights global efforts in financial inclusion, emphasizing government initiatives, private-sector contributions and technological innovations.

Key findings highlight how government programmes such as India's Pradhan Mantri Jan Dhan Yojana (PMJDY) were effective in distributing COVID-19 relief payments, particularly to women, thereby advancing financial inclusion and gender equity. Similarly, China's introduction of the digital yuan has demonstrated the potential of central bank digital currencies (CBDCs) to integrate underserved populations into the financial system. Additionally, the private sector's contributions, such as digital banking platforms in China and the use of robot investment assistants (RIAs), have significantly expanded access to financial services and improved financial literacy, particularly among SMEs and individual investors.

This paper's conclusion is that advancing financial inclusion requires a multifaceted approach that integrates robust government policies, innovative private-sector initiatives and cutting-edge technological solutions. While substantial progress has been made, challenges such as the digital divide, privacy concerns and the complexity of financial products remain significant barriers. The authors recommend sustained investment in digital infrastructure, enhanced cybersecurity measures and efforts to simplify financial products to ensure that the benefits of financial inclusion are accessible to all segments of society. By addressing these challenges through a coordinated global effort, financial inclusion can be effectively promoted, driving economic growth and social equity.

Introduction

As global challenges intensify, promoting resilience and equitable growth becomes increasingly important.

In today's fragmented world, lower-income groups and SMEs are particularly vulnerable. These groups often struggle due to their limited access to financial services, exacerbating existing inequalities. In this context, how can resilience be achieved?

Financial inclusion plays a crucial role in reducing financial fragmentation and enhancing resilience by providing all segments of society with access to essential financial services. Measures taken by governments or the private sector to promote financial inclusion – such as establishing unified financial service platforms and providing convenient financial solutions – can reduce the fragmentation of financial services, thereby enhancing the integration and accessibility of financial services and further promoting the realization of financial inclusion. Financial inclusion has become a vital component of global economic development, with countries around the world adopting various strategies to ensure that all segments of society have access to financial services. On a global scale, financial inclusion enables individuals and businesses to invest in opportunities and better manage risks, promoting economic resilience.

This paper showcases global practices in financial inclusion from the perspective of policy, partnership and technological innovations. It looks at India's use of the Pradhan Mantri Jan Dhan Yojana (PMJDY) to distribute COVID-19 relief payments and China's introduction of the digital yuan to integrate underserved populations into the financial system, as well as the private sector's role in improving financial inclusion. It discusses Chinese digital banking platforms' use of artificial intelligence (AI) and big data to widen access to credit for some SMEs; the need for inclusive lending practices in the US; and how Chinese robot investment assistants (RIAs) can democratize investment and improve financial literacy in the general population.

Through these global practices, it is evident that a multifaceted approach involving government policies, private-sector initiatives and technological innovations is essential for advancing financial inclusion. These demonstrate how financial inclusion can reduce fragmentation and improve economic integration, thereby promoting resilience.

1 Government's role in advancing financial inclusion

The PMJDY initiative in India and the digital yuan in China underscore how important government leadership and robust digital infrastructure are in driving inclusive financial practices.

This section investigates the important role governments play in advancing financial inclusion, particularly through strategic initiatives and digital innovations. It highlights two significant cases: India's use of the PMJDY to deliver COVID-19 relief payments, which effectively empowered women and expanded financial inclusion; and China's implementation of the digital yuan, which has integrated underserved populations into the financial system and set a model for CBDCs.

The two cases demonstrate how government-led initiatives and digital innovations can enhance resilience by reducing financial fragmentation, integrating underserved populations into the financial system and expanding access to essential financial services, thereby promoting greater economic stability and inclusion.

CASE STUDY 1

Digital relief payments: India's response to COVID-19

India's use of its strong digital public infrastructure to disburse COVID-19 relief payments via the PMJDY programme highlights the role of government initiatives in financial inclusion. This approach not only facilitated immediate relief but also bolstered long-term engagement with the financial system, particularly for women.

Goal

Investing in women is not just a moral imperative but a strategic investment in societal development. The COVID-19 pandemic presented unique challenges but also accelerated the adoption of digital financial solutions that promoted inclusion. Many countries, including India, implemented digital safety-net payments to support their most vulnerable populations. Specifically, India's approach to digitalizing these payments proved effective in strengthening women's economic empowerment by ensuring they received direct and immediate financial support, thus reducing gender inequalities and enhancing women's agency and leadership roles.

Implementation

The success of India's financial inclusion efforts during the pandemic can largely be attributed to its well-established digital public infrastructure and the banking sector's collaboration. The PMJDY, a cornerstone initiative launched in 2014 with the aim of creating bank accounts for every household, has been particularly effective. This programme directly connected social protection measures to formal financial services, enabling the rapid disbursement of funds to 200 million beneficiaries, thus illustrating the pivotal role of government and private-sector cooperation in advancing financial inclusion.[1]

Over the course of the decade from 2014 to 2024, India's bank account ownership has more than doubled, from 35% of the population to 78%. According to the Ministry of Finance, 500 million PMJDY accounts have been opened. A Women's World Banking survey of 6,000 PMJDY account holders found that 50% of women account holders opened their accounts to receive government benefits.[2]

The PMJDY accounts rely on strong digital public infrastructure. Each Indian national has a biometrically linked Aadhaar identity card and number combined with their mobile number and their bank account. With these three elements, the government of India targeted and deployed immediate relief to PMJDY account holders through their accounts. Bank branches and agent networks remained open on an emergency basis so that customers could withdraw these payments for immediate use, even in rural areas.

CASE STUDY 1 – CONTINUED

Not only did India disburse payments to existing account holders but it was also able to quickly open new accounts, targeting women as the beneficiaries of these accounts, in recognition of their cornerstone role in household financial management. In the first few months of the COVID-19 pandemic, the government reported that it opened 42 million new accounts, about 25 million of which were for women.[3]

To ensure that relief payments translate into deep engagement with the financial system, banks such as Indian Bank, Union Bank and others have partnered with Women's World Banking. Changes the institutions have made to PMJDY accounts have encouraged deposit activity, rewarding deposits with additional benefits such as access to an overdraft facility, access to insurance and pension savings. Early results include more frequent saving and increased financial-sector engagement overall for women.

Implications

To promote financial inclusion during the COVID-19 pandemic, the government of India played a pivotal role through the PMJDY programme, highlighting a successful model of a government initiative combined with digital infrastructure. The rapid disbursement of relief payments to more than 200 million beneficiaries underscored the effectiveness of pre-established digital platforms and a strategic government–private-sector collaboration. This not only provided immediate financial support to those in dire need, particularly targeting women, but also reinforced long-term engagement with the financial system. The inclusion of digital safety-net payments specifically aimed at women has been a strategic move in reducing gender inequality and promoting economic empowerment, making it a practice worthy of replication.

CASE STUDY 2

Digital currencies and CBDCs: The case of China's digital yuan

China's introduction of the digital yuan, or e-CNY, was a significant step in using CBDCs to promote financial inclusion. The digital yuan's implementation in cities such as Suzhou not only enhances transaction efficiency but also integrates underserved populations into the financial system. By reducing reliance on physical cash and democratizing access to banking services, the digital yuan serves as a model for CBDC use to boost financial inclusion.

Goal

CBDCs are digital forms of a country's fiat currency, issued and regulated by its central bank. They are different from cryptocurrencies, which are decentralized and not state-controlled. CBDCs can be broadly classified into two categories: wholesale and retail. Wholesale CBDCs are designed for use by financial institutions, such as banks and other large-scale entities, rather than by the general public. Retail CBDCs are designed for use by the general public, making everyday transactions smoother and more inclusive.

The digital yuan, or e-CNY, is China's version of a retail CBDC. It has been under development by the People's Bank of China (PBOC) since 2014 and has undergone extensive trials in several cities across the country. The digital yuan operates on a centralized system managed by the PBOC, ensuring full regulatory oversight and integration with the national financial system. It is designed to provide a legal tender that is secure and convenient, reducing reliance on physical cash and private digital payment platforms.

Implementation

Since 2019, the PBOC, along with commercial banks and electronic payment institutions, have been developing and piloting the digital yuan using a two-tier operational framework. By the end of 2020, pilot programmes had been launched in Suzhou, Shenzhen, Chengdu and Xiong'an New Area, allowing residents to make transactions using digital wallets. Subsequent phases expanded the trials to include more cities and applications such as retail, public services, e-commerce and cross-border payments. As of April 2024, the implementation of the digital yuan encompasses pilot programmes in 26 regions in 17 provinces and municipalities. By the end of December 2023, approximately 15.3% of internet users reported having used the digital yuan, indicating its growing adoption and usage.[4]

Suzhou, prominently featured in the pilot phases, stands out as a leader in the adoption of the digital yuan in China. As one of the first cities to test the digital yuan in real-world scenarios, such as the "Double Twelve" shopping festival, Suzhou gained an early advantage in integrating the digital yuan into daily transactions. The city has not only trialled traditional uses but also explored innovative applications by integrating the digital yuan with local transport and government services, enhancing its utility and acceptance among residents. For example, users with a digital yuan wallet can touch their phone screen to the turnstile at metro stations, providing easy access to the station. The system works even in areas with poor network connectivity.

Moreover, Suzhou has actively engaged its community through incentives such as digital yuan "red packets",[5] boosting public participation and providing valuable feedback, which is essential for refining this digital currency.

Suzhou's rollout of the digital yuan was strategically executed in phases, featuring a pilot programme that integrated the key partners – banks, merchants and tech providers – and was essential for smooth implementation. The government established a robust digital infrastructure to support the digital yuan's issuance, circulation and redemption, while also conducting extensive public outreach to educate citizens about its use.

The digital yuan was seamlessly woven into the existing banking system, facilitating easy transactions with traditional currencies. Incentives and support from the government and banks encouraged merchant adoption, enhancing transaction fluidity and acceptance. Legal frameworks and regulatory guidelines were established to ensure system integrity and consumer protection, alongside stringent anti-money laundering (AML) and know-your-client (KYC) protocols to secure the digital currency. Using blockchain technology, the digital yuan ensures transaction transparency, security and efficiency, particularly in government payments and subsidies through smart contracts. These efforts collectively bolstered the digital yuan's reliability and public trust.

Suzhou has achieved remarkable success in promoting financial inclusion through the adoption of the digital yuan. By the end of 2023, the city had seen the creation of over 29.14 million personal digital wallets and more than 1.92 million enterprise digital wallets,[6] facilitating transactions that cumulatively surpassed 2 trillion yuan ($280 million), indicating a broad user base.[7] Additionally, more than 790,000 merchants in Suzhou now accept the digital yuan, spanning 24 industrial categories and encompassing a total of 800,000 application scenarios – providing residents with diverse payment options across various aspects of daily life.[8] These figures demonstrate that Suzhou's digital yuan has played a crucial role in expanding the reach of financial services, lowering barriers to access and promoting inclusive finance, effectively contributing to the enhancement of financial inclusion.

FIGURE 1: **The digital yuan in figures**

More than **29.14 million** personal digital wallets

More than **1.92 million** enterprise digital wallets

The total trade volume exceeded **2 trillion yuan**

Covering **24** industrial categories

A total of **800,000** application scenarios

Source: Suzhou Municipal People's Government

The digital yuan has revolutionized Suzhou's financial landscape, enhancing financial inclusion by providing broader and more convenient access to affordable services. Its introduction has driven innovation within the financial sector, serving as a catalyst for the creation of novel financial technologies and services. This innovation has not only facilitated consumer spending but also stimulated economic growth, leading to the expansion of local businesses and the creation of employment opportunities. With thorough attention to infrastructure, regulation, technology and education, Suzhou's approach offers a proven model for cities worldwide.

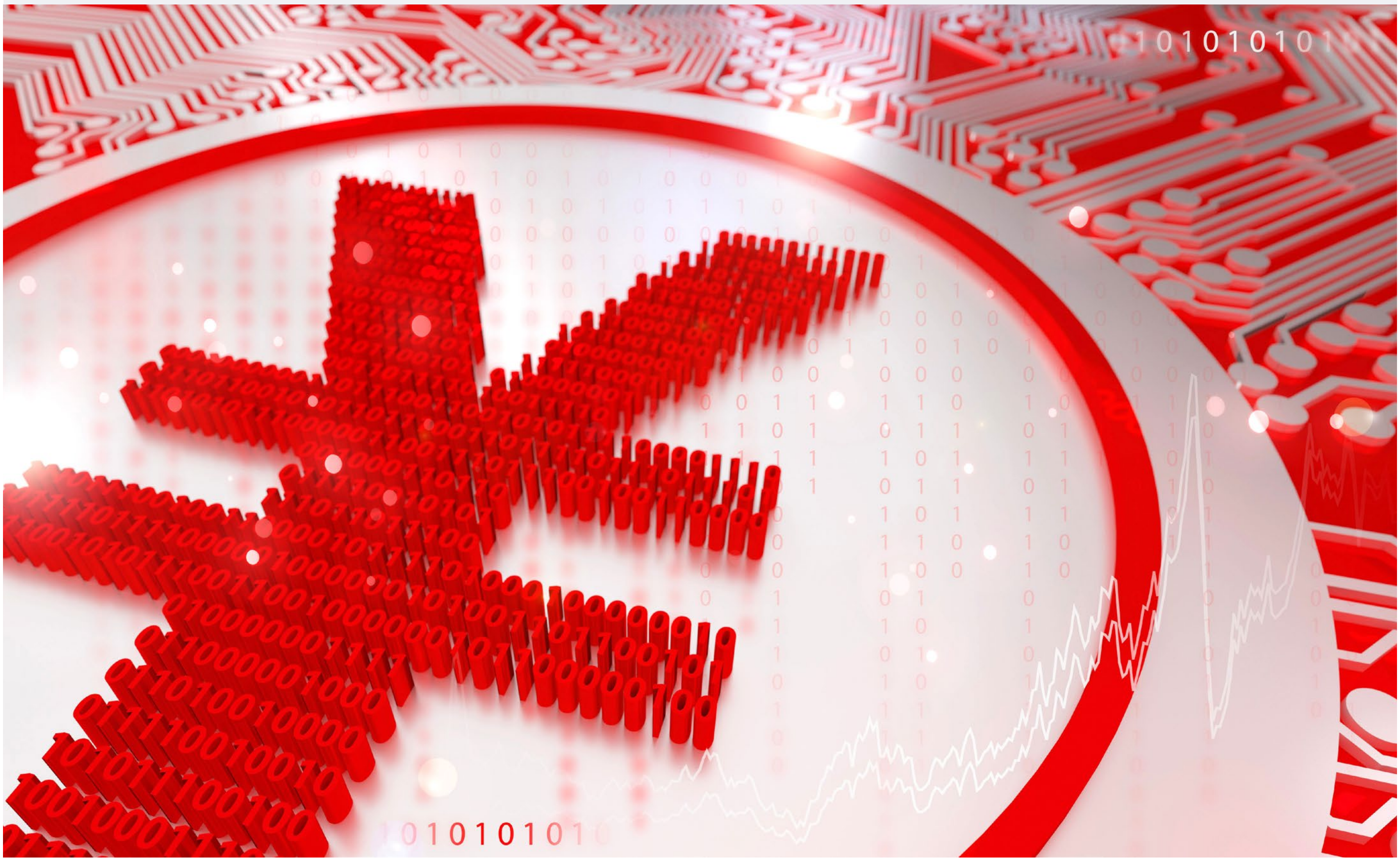
Implications

The introduction of China's digital yuan has played an important role in promoting financial inclusion by making financial services more accessible and affordable to underserved populations. By reducing the reliance on physical cash and integrating the digital yuan into everyday transactions, even in areas with poor network connectivity, the e-CNY has helped to bring unbanked or underbanked individuals into the formal financial system. In cities such as Suzhou, where the digital yuan has been successfully implemented, millions of personal and enterprise digital wallets have been created, and hundreds of thousands of merchants now accept digital yuan. This broad access to digital currency facilitates smoother transactions, supports local businesses and provides diverse payment options, effectively lowering the barriers to financial services. Additionally, the digital yuan enhances transaction efficiency and security, promoting public trust and providing a model for other CBDCs aimed at expanding financial inclusion globally.

The introduction of CBDCs offers opportunities to enhance financial inclusion but also presents challenges such as privacy concerns, the need for digital literacy and access to technology. While initiatives such as the digital yuan aim to protect user privacy, linking personal and banking information raises data security issues, particularly for populations lacking digital access or literacy. To fully realize the benefits of CBDCs, a comprehensive approach is needed, including stronger privacy protections through technologies such as zero-knowledge proofs and investments in digital infrastructure and education to bridge the digital divide and ensure widespread access.

Adopting a hybrid model in which CBDCs complement existing private currencies can mitigate disruptions to the financial system. By positioning CBDCs primarily for transactions while allowing commercial banks to continue their roles in saving and lending, this approach maintains stability while promoting inclusion. Furthermore, fostering international cooperation to establish interoperability standards for CBDCs can enhance their usability in global transactions, facilitating smoother international trade.

An incremental implementation strategy, phased in over time, can ease resistance from traditional financial institutions and promote gradual public acceptance. This approach ensures the smooth integration of CBDCs into existing financial structures, ultimately advancing the goal of global financial inclusion.



2 Private-sector efforts to enhance financial access and literacy

The private sector can play a critical role in expanding financial access for SMEs and improving individual investors' financial literacy.

Three key examples of private-sector engagement are China's digital banking initiatives, research on disparities in home-purchase loan costs in the USA and China's use of RIAs.

Digital banking in China plays a significant role in improving financial access and risk management for SMEs by offering tailored financial products and services, streamlining loan processes and enhancing risk assessment through data-driven technologies. Additionally, research on loan disparities and the use of RIAs demonstrates how the private sector can address financial inequalities and foster greater inclusion by democratizing investment and providing personalized financial advice to individuals with low financial literacy.

The examples of China's digital banking initiatives, US research on loan disparities and China's use of RIAs demonstrate how the private sector enhances resilience by addressing financial fragmentation, improving access to financial services for SMEs, reducing inequalities in loan costs and democratizing investment opportunities for individuals with low financial literacy, ultimately contributing to a more inclusive and stable economic environment.

CASE STUDY 3

Digital banking: Empowering SMEs in China

Digital banking in China has revolutionized access to financial services for SMEs, which are crucial to the nation's economic fabric. By using technologies such as AI and big data, digital banks have provided unprecedented access to credit for SMEs, many of which had previously been excluded from traditional banking due to barriers such as insufficient collateral and lack of credit history.

Goal

SMEs play a crucial role in China's economy, contributing significantly to employment generation, innovation and economic growth. However, they often face challenges in accessing formal financial services, including limited access to credit, high transaction costs and cumbersome documentation requirements. In recent years, China has placed significant emphasis on fostering the growth of SMEs by promoting and expanding inclusive lending programmes offered by traditional and new types of financial institutions (such as policy banks and digital banks), which are specifically tailored to meet the unique needs of these enterprises. By the end of 2023, outstanding inclusive loans granted to SMEs were at 29.06 trillion yuan (about $4.09 trillion), up 23.3% from a year earlier. Compared to problems such as difficult, expensive and slow financing, which SMEs face when applying for credit from traditional banks, the financial services offered by digital banks, by using digital credit, cost less, are more efficient and have broader coverage for SMEs, thus achieving the goal of financial inclusion.

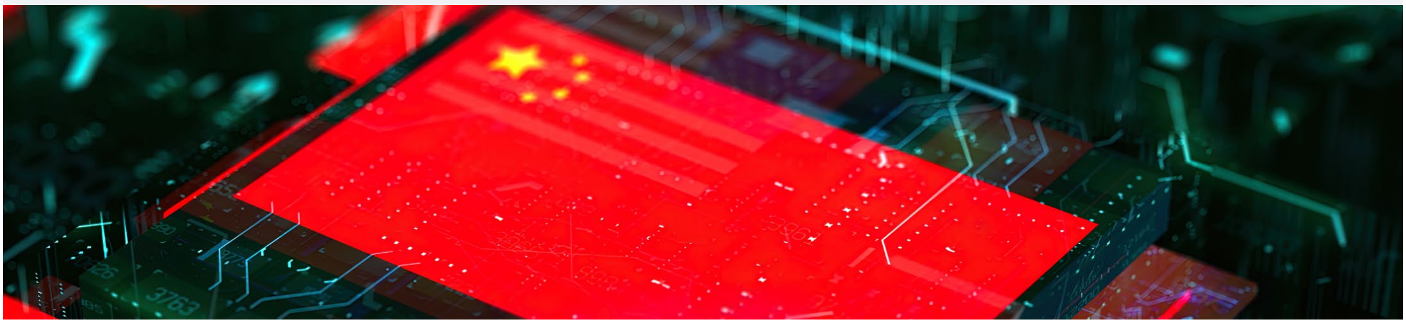
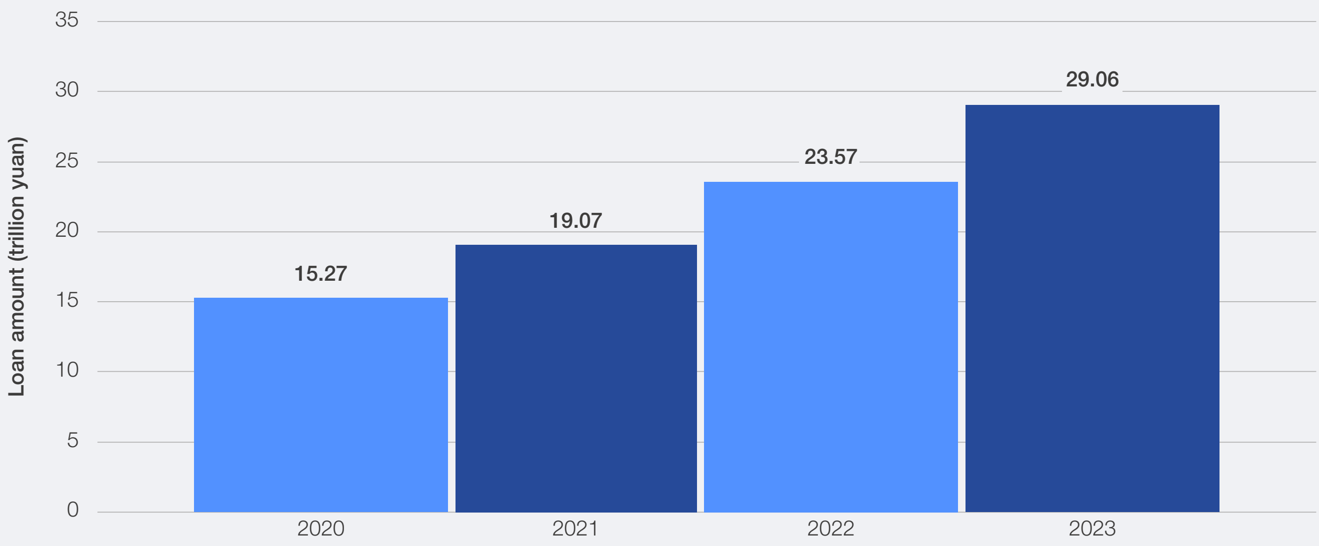


FIGURE 2: **Outstanding inclusive loans granted to small and micro enterprises**



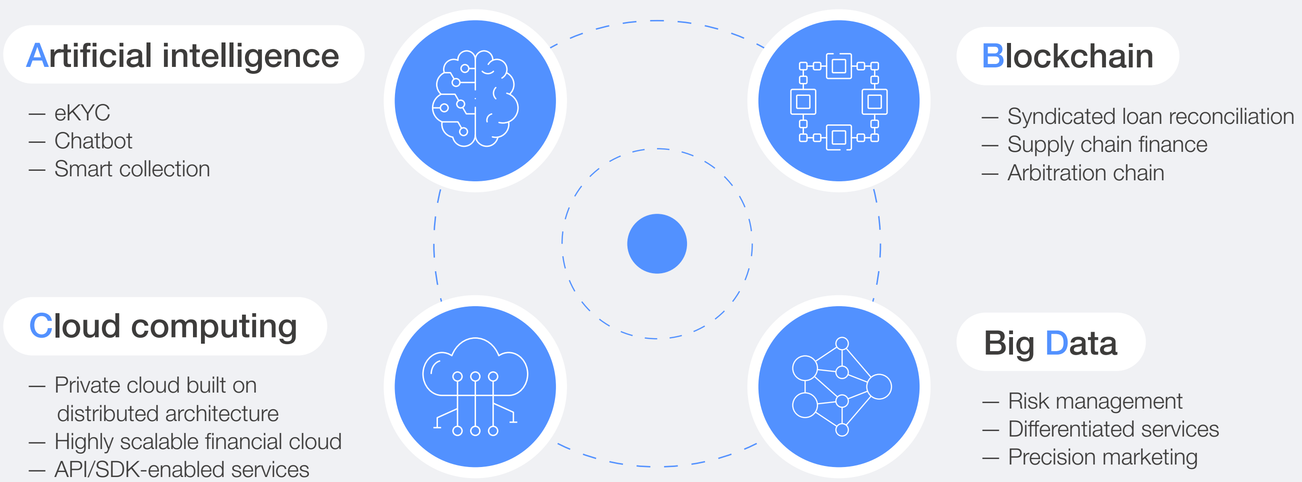
Source: China's National Financial Regulatory Administration

Implementation

Digital banking relies on technologies such as big data, AI, blockchain and cloud computing to provide cost-effective, efficient and comprehensive financial services for SMEs.

FIGURE 3: **The ABCD of using advanced technologies in digital banking**

A bank built with the most advanced technologies



Note: An API is a set of rules and protocols that allow different software applications to communicate with each other. An SDK is a collection of tools, libraries, code samples and documentation that developers use to create applications for a specific platform or service. API/SDK-enabled services refer to services that provide APIs and SDKs for developers to enable them to integrate their features or functionalities into other applications.
Source: WeBank

Technology can help to mitigate the problem of information asymmetry. By integrating the specific needs of particular groups and scenarios, digital banks incorporate data such as electricity consumption, invoices, transaction records within the supply chain, patents and intellectual property rights to construct the true financial profile of enterprises and provide more accurate credit assessments. Moreover, technology helps to identify customer needs and offer personalized product services tailored to these scenarios. Credit lines and interest rates are dynamically adjusted based on actual customer use, accurately meeting their credit limits, interest rates and borrowing periods.

When it comes to risk management, digital banks have devised novel risk-assessment models that harness big-data analysis and AI algorithms. These models can analyse SMEs' credit status and behavioural patterns in real time, enabling effective risk prediction and prevention.

A notable example is WeBank, the first digital bank in China. In 2017, it launched Weiyedai, China's first online unsecured-loan product to provide working capital for SMEs. As of the end of 2022, it has cumulatively provided credit services to more than 1.1 million SMEs and account services to over 400,000 enterprises – with more than half of the SMEs having no credit history with banks.[9]

Implications

The growth of inclusive loans is fuelled by the rise of digital banking in China. According to the People's Bank of China, as of the end of 2022 the outstanding balance of digital working capital loans for SMEs reached had 936.3 billion yuan ($132 billion), representing a year-on-year increase of 34%.[10] When attempting to obtain loans, SMEs frequently face challenges such as limited credit history, insufficient collateral and high transaction costs, thereby impeding their operational efficiency and constraining their potential for growth. As an important supplement to traditional banking, digital banking leverages cutting-edge technology to enhance SMEs' access to capital and provide customized services, promoting their participation in the formal financial system and contributing to inclusive economic development.

The expansion of digital lending also presents challenges such as the risks associated with data privacy, cybersecurity and potential over-indebtedness among SMEs. Ensuring the protection of sensitive financial data and implementing robust cybersecurity measures are essential to maintaining trust in digital financial services. Furthermore, without adequate financial literacy and a clear understanding of the loan terms, increased access to credit can lead to misuse of inclusive loans by SMEs. Therefore, beyond simply providing access to digital loans, it is also crucial to invest in educating SMEs about their responsibilities and the potential risks involved to promote sustainable financial inclusion.

CASE STUDY 4

Racial disparities in loan-closing costs and mortgage literacy in the USA

Research conducted by the JPMorganChase Institute into home-purchase loan costs illuminates the disparities in financial inclusion in the USA.[11] By identifying and addressing these disparities, this case study provides key insights that can guide policy and private-sector efforts towards more equitable financial services.

Goal

Rising house prices are drastically reducing the affordability of home ownership. While down payments often dominate discussions, it is important not to overlook the significant challenges posed by closing costs. These costs can be substantial, potentially representing a significant portion of the purchase price, and can be just as much of an obstacle to home ownership as down payments. The variety of fees – such as appraisals, flood insurance and title insurance – can create a confusing and daunting challenge for prospective homeowners, especially first-time buyers, making it difficult for them to save for these expenses or make informed decisions about them.

The recent withdrawal of large banks from the mortgage market has further shifted the balance towards non-banks, which originated 61.6% of all closed-end, first-lien, single-family home-purchase loans in 2022.[12] This reduced competition could lead to higher fees, further complicating the home-buying process. As this landscape evolves, borrowers may find their choices limited, making the selection of a lender a critical decision with significant financial implications.

Findings

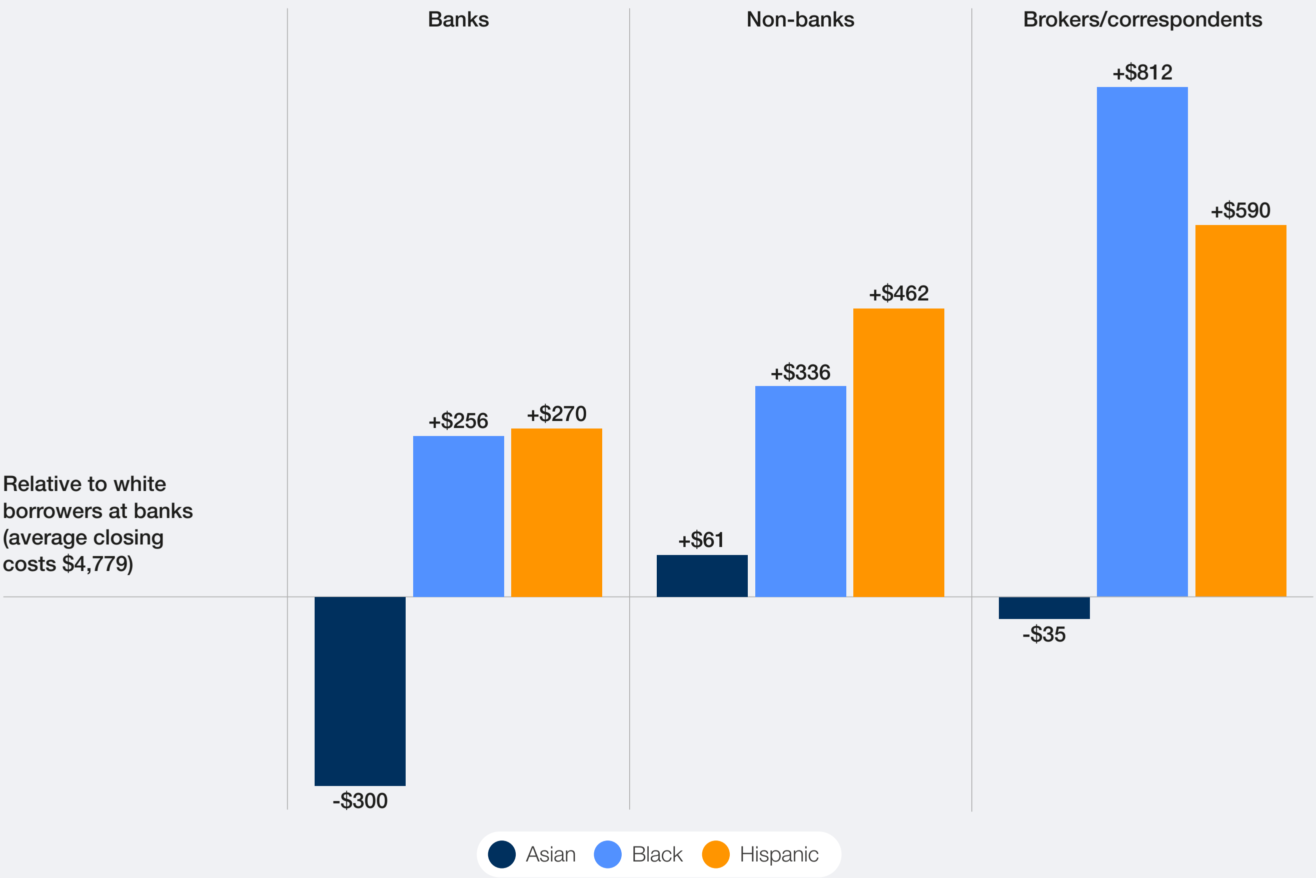
Combining the Home Mortgage Disclosure Act (HMDA), the American Community Survey and Credit Insecurity datasets, the JPMorganChase Institute study shows relationships between race and loan-closing costs. Non-banks, including brokers, are more likely to serve minority borrowers than traditional deposit-taking lenders, but these services come with trade-offs. Lenders provide these services almost exclusively to underserved communities. While they help expand access to credit, they also result in higher closing costs.

The banks column of Figure 4 reveals that racial disparities in closing costs persist among banks with the lowest average fees. Black and Hispanic borrowers face higher costs, while Asian borrowers benefit from lower costs compared to white borrowers. Specifically, Figure 4 illustrates that Black borrowers paid, on average, $256 more in loan fees than white borrowers, while Hispanic borrowers faced an additional $270. In contrast, Asian borrowers who chose banks enjoyed a cost advantage, paying $300 less in closing costs on average than white borrowers.

As illustrated in the other columns of Figure 4, racial disparities are not confined to banks but are even more pronounced with non-banks and brokers. The total disparity for Black borrowers using non-banks amounts to $336 – this includes both the average baseline racial disparity and the additional disparity linked to non-banks. For Hispanic borrowers, accounting for the non-bank impact significantly raised their baseline disparity to $462. Interestingly, the cost disparity for Black borrowers between non-banks and banks was relatively small compared to that for Hispanic borrowers, suggesting that the racial disparity for Black borrowers might not necessarily worsen when switching to non-banks. Racial disparities with brokers are notably greater than those with non-banks. Using brokers for loans could increase baseline disparities by several hundred dollars, raising affordability concerns, particularly for Black borrowers.

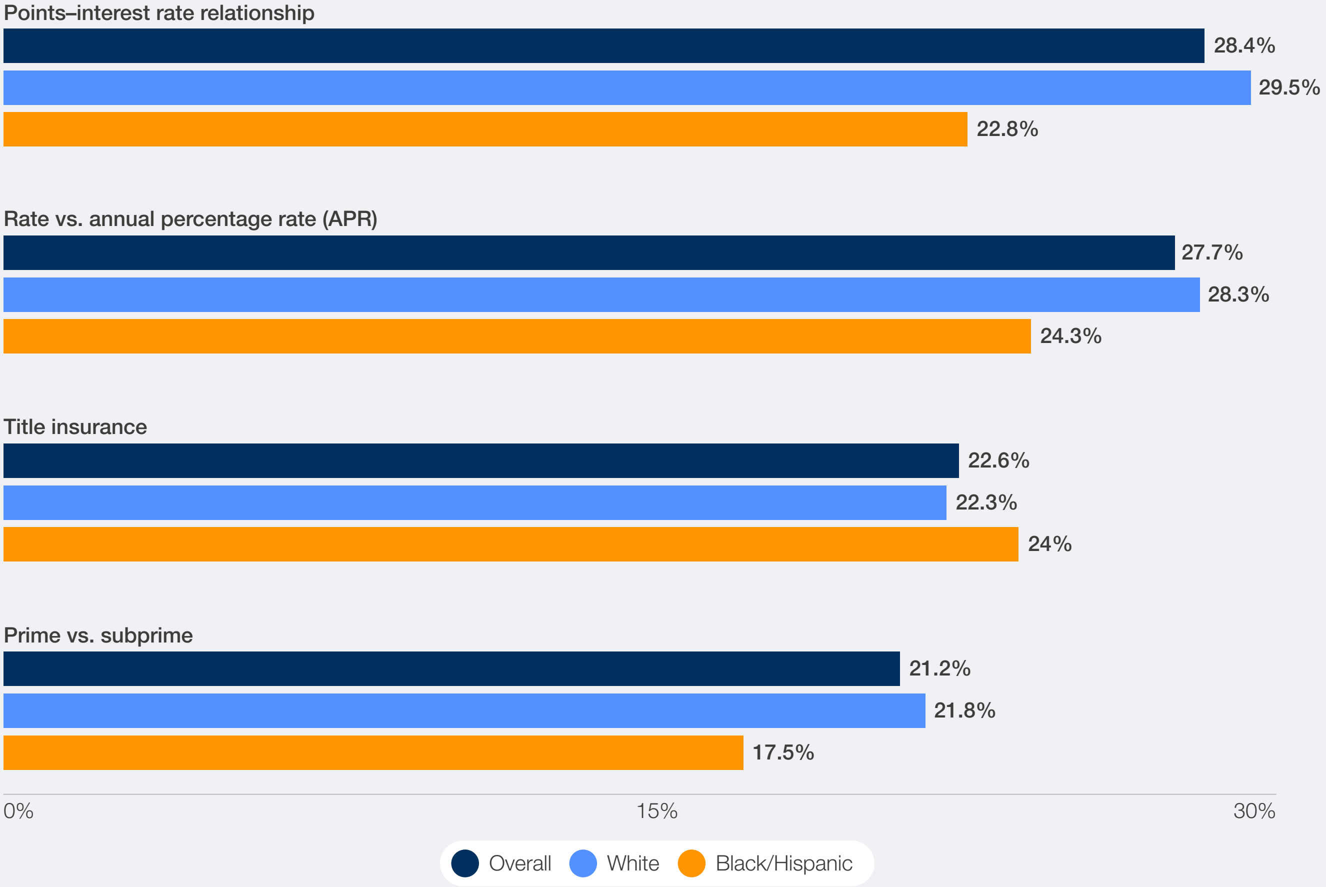
The JPMorganChase report also explores survey evidence and identifies troubling gaps in technical mortgage literacy that could negatively affect borrower costs. As shown in Figure 5, mortgage literacy is alarmingly low among all borrowers. For instance, only 28.4% of those surveyed understand how points relate to interest rates.

FIGURE 4: **Racial disparities in loan-closing costs**



Source: JPMorganChase Institute

FIGURE 5: **Mortgage literacy**



Source: JPMorganChase Institute

Implications

This research highlights the impact of lender type on loan-closing costs and the disproportionate effect these costs have on non-white and low-income borrowers. Gaps in mortgage literacy may worsen these disparities by hindering borrowers' ability to maximize mortgage affordability. To make informed decisions, borrowers need more than just price comparisons; they require access to comprehensive mortgage literacy resources that enable them to make effective comparisons when shopping among different lender types from the beginning of the mortgage process.

Improving mortgage literacy is a key driver of better decision-making. Understanding the consequences of choosing different types of lenders should be as fundamental as grasping interest rates and annual percentage rates. Rate-sensitive borrowers, for instance, might end up with a higher-cost mortgage if they shop only with brokers. It is recommended that financial education should emphasize the cost and interest rate differences among various loan providers, helping consumers to make informed decisions. Comprehensive guides should clarify when it is beneficial to work with brokers or non-banks and when other lender types might offer better cost savings. This effort should be led by financial institutions, regulators and educational platforms to ensure that borrowers are equipped with the knowledge necessary to choose the most suitable mortgage options.

To conclude, in the case of racial disparities in US mortgage-closing costs, variations in lending practices across financial institutions and gaps in mortgage literacy contribute to financial exclusion. By promoting financial education and providing equitable access to comprehensive financial services, financial inclusion helps bridge these divides. Improving mortgage literacy empowers underserved groups to make informed decisions, ensuring that they can access more affordable loan options and avoid excessive costs. This, in turn, fosters greater integration into the financial system, enhancing resilience for vulnerable populations and ensuring a more equitable financial landscape.

CASE STUDY 5

Robo-advising: Democratizing investment in China

RIAs have emerged as a powerful tool in reducing barriers to investment, particularly for individuals with low financial literacy. Platforms such as Ant Fund use RIAs to offer personalized investment advice and portfolio management, significantly enhancing the investment landscape for ordinary consumers.[13]

Goal

The success of online investment platforms has facilitated the provision of unique investment services and triggered the advent and rapid development of robo-advising. Robo-advising, through automated algorithms using online trading data, is able to provide tailored services to customers.

The implementation of RIAs in China's financial sector has been important for democratizing investment access and addressing significant gaps in financial literacy. Many individuals, particularly those with low financial knowledge, face barriers to effective investment, limiting their ability to build wealth. RIAs offer tailored, accessible financial advice and portfolio management, enabling a broader range of investors to participate in financial markets.

Implementation

Unlike the robo-advising business model in the USA, the European Union and elsewhere – which are automated portfolio-optimizer or fully entrusted investment services – robo-advising in China provides more comprehensive and hybrid services, including customized information collection and advice provision. At present, there are more than 20 entities in China that have acquired fund-investment advisory licences, and which have already developed or are developing "intelligent investment adviser" functions.

Most provide a fully entrusted investment service through mining algorithms or by combining algorithms with manual selection: investor clients fully delegate their investment decision-making to the robo-advisory system, which uses advanced technologies such as big data and AI to automatically generate personalized investment advice or portfolio solutions based on the client's financial situation, risk preferences and investment goals. The system then directly executes transactions, enabling automated management and allocation of assets.

The fully entrusted investment service has effectively promoted financial inclusion by lowering investment barriers, enhancing convenience, offering personalized investment advice and improving investor education. This service model enables more low- and middle-income individuals to access professional financial advisory services, thereby expanding the reach and accessibility of financial services. As robo-advisory technology continues to develop and improve, its potential to further promote financial inclusion will be increasingly realized.

Among all of the online investment platforms, Ant Fund is the largest mutual fund distribution platform, with more than 73.7 billion yuan ($10.1 billion) total assets by the end of 2023. To attract more investors, Ant Fund has been cooperating with fund companies and other professional institutions to make the best use of their proprietary data and advanced algorithms to launch various types of investment service. Innovatively, besides the traditional type of robo-advising service called BangNiTou, which directly provides a full-entrusted investment service, the Alipay app also created an RIA, ZhiXiaoBao (ZXB).[14] Users can access and invest in almost the entire spread of mutual funds in China on the platform with the help of RIA services.

FIGURE 6: **The ZhiXiaoBao platform page**

Source: ZhiXiaoBao app

Compared to traditional wealth management and investment methods, RIAs on financial technology platforms possess distinct characteristics. First, they feature a low investment threshold. In traditional wealth management and investment, institutions often impose minimum requirements on account or investment sizes; however, on online platforms primarily offering mutual funds, the minimum purchase amount is significantly reduced, catering to a wider range of investors and attracting more individual participants. Second, these platforms offer comprehensive services. Information accessibility is improved, as the cost of acquiring information is reduced due to the platform's ability to integrate various pieces of information from markets, industries and products. Furthermore, the platforms provide comprehensive financial advice services, with intelligent customer service offering suggestions on portfolio holdings and product selection based on market conditions, user risk appetite and investors' own transaction preferences.

Implications

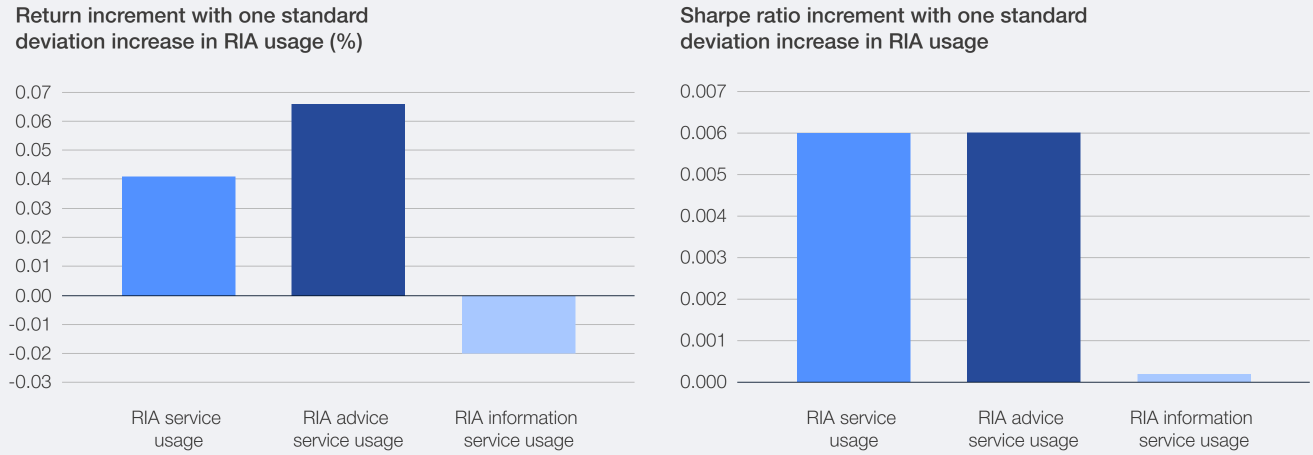
Recent research demonstrates that higher RIA service use is associated with higher future raw returns as well as higher returns after adjusting for risk.[15] Moreover, it has a significant impact on aspects of the trading behaviour of individual investors, such as turnover, diversification and risk-taking. After controlling for other factors, if RIA service usage increases by one standard deviation (which is around ten times for one month), the return in the next month will on average increase by 0.041%, leading to an increase in the Sharpe ratio[16] by 0.006.[17]

The increased use of RIA service not only leads to higher returns and improved risk-adjusted performance but also promotes financial inclusion as a broader social phenomenon. By enabling a wider range of individuals – especially those with lower financial literacy or less access to traditional advisory services – to engage in diversified and risk-managed investing, RIAs make professional investment strategies accessible to more people. This democratization of financial advice helps bridge the gap between underserved populations and high-quality financial services, promoting a more inclusive financial environment that benefits society as a whole, beyond just expanding the client base.

RIA services can be categorized into information and advice services. The information service includes market quotation provision, financial statement analysis, fund evaluation and investor education, which equips investors with general insights but leaves the decision-making to them. The advice service includes fund manager advice, rebalance advice, fund selection suggestions and asset diagnosis tailored to the investor's specific needs and goals. In summary, information services provide data and insights relevant to decision-making but do not offer specific investment recommendations, whereas advice services offer personalized investment decision suggestions. Compared with the information service, the use of an advice service contributes significantly more to individual investors' performance.

With regard to the trading behaviour of individual investors, the use of advice services is more positively associated with an increase in risk-taking and diversification than information services. Increasing the use of advice services by one standard deviation can significantly boost account returns by 0.066%. However, increasing the use of information services does not provide much marginal benefit. When evaluating performance through the Sharpe ratio, increasing advice service usage by one standard deviation significantly raises the Sharpe ratio by 0.006. In contrast, increasing information service usage by one standard deviation has an insignificant effect on the Sharpe ratio. This may be because most investors have low financial literacy and limited information-processing ability, making advice services a more straightforward guideline.[18]

FIGURE 7: **Performance of RIA**



Source: Ge, Tan, Wu, & Zhang, 2022.

3 Challenges and calls to action

Focused action is needed to address concerns about the digital divide, privacy and security, as well as transparency and clarity.

3.1 Digital divide

Challenges

Addressing the digital divide is crucial to ensure the benefits of digital financial solutions reach all segments of the population. While technological innovations have significantly improved financial inclusion, they also highlight disparities in digital access. In many regions, particularly rural or underdeveloped areas, the infrastructure required to support digital connectivity – such as reliable internet access and adequate digital payment systems – is often lacking. This gap in digital infrastructure can prevent residents from accessing essential financial services that are increasingly available online, from banking to insurance and investment opportunities.

Furthermore, there is a noticeable disparity in digital literacy that affects certain demographics, notably among elderly people. Many older adults have limited experience of digital devices and platforms, and this poses a challenge in regions where digital financial services are becoming the norm. Without the necessary skills to navigate these digital tools, elderly people are at risk of being left behind, unable to benefit from services that could enhance their financial security and independence. For example, as banking moves increasingly online, older people, especially in developed countries, are losing access to financial services, a problem worsened by the COVID-19 pandemic and the ongoing closure of bank branches.

Call to action

To bridge the digital divide, targeted, practical initiatives are essential. Governments and organizations could collaborate to implement specific programmes that improve digital infrastructure in underserved areas. For example, governments could partner with telecommunications companies to expand reliable internet access in rural areas by subsidizing infrastructure projects or creating incentives for private-sector investment in these regions. Additionally, mobile banking platforms could be introduced to areas with limited numbers of physical bank branches, as demonstrated in countries such as Kenya with the success of M-Pesa, which has transformed financial access in remote regions.[19]

Simultaneously, educational programmes should be developed to address digital literacy, particularly for elderly people and other vulnerable groups. For instance, community centres, libraries or non-profits could host free workshops that teach basic digital skills, such as how to use smartphones for banking or how to manage online payments. In developed countries, banks could offer digital transition services, where staff assist older adults in adapting to online banking tools, helping them set up accounts, learn cybersecurity basics and navigate apps. Partnering with technology companies to develop simplified interfaces or voice-assisted technology for older users could also make digital financial services more accessible. By combining infrastructure improvements with tailored education initiatives, it is possible to ensure that the benefits of digital financial advances extend to all segments of society, promoting true financial inclusion.

3.2 Privacy and security concerns

Challenges

The rapid expansion of digital financial services has been accompanied by increasing concerns about privacy and data security, which are paramount for maintaining user trust in these technologies. As financial activities shift online, vast amounts of personal and financial data are being collected, stored and processed by various entities, ranging from banks to fintech start-ups. This concentration of sensitive data makes digital financial platforms attractive targets for cyberthreats such as data breaches, identity theft and financial fraud. Without stringent security measures and robust data-protection policies, the privacy of users is at significant risk.

Call to action

To address these vulnerabilities, it is crucial to establish and maintain effective regulatory frameworks specifically designed for the digital financial sector. These frameworks should mandate rigorous data-protection standards and require financial service providers to implement state-of-the-art security measures. Moreover, regulations should be dynamic, evolving continuously to keep pace with technological advances and emerging threats. This ongoing adaptation ensures that protection measures remain effective and that financial institutions are held accountable for the security and integrity of user data.

Substantial investment in enhanced cybersecurity measures is imperative. Financial institutions must deploy state-of-the-art security technologies to safeguard their digital platforms and protect customer data from potential breaches. This involves implementing multilayered security protocols – such as encryption, multifactor authentication and real-time monitoring systems – to detect and neutralize threats promptly. In addition to robust cybersecurity measures, developing sophisticated risk-assessment models is essential for mitigating threats associated with digital transactions. Using big data and AI, these advanced models can analyse vast amounts of data to accurately evaluate creditworthiness and identify potential fraud. By integrating predictive analytics and machine-learning algorithms, financial institutions can enhance their ability to detect anomalous activities and pre-emptively address risks. Through investing in cybersecurity and using advanced risk models, financial institutions can effectively safeguard their digital operations and maintain the trust of their customers.

There is also a need for education. Financial service providers should clearly communicate their data use policies and the protections they have in place to secure user information. Educating customers about the risks associated with digital transactions and the steps they can take to protect their personal information further enhances security. By combining comprehensive regulatory frameworks with proactive communication and education strategies, stakeholders can mitigate privacy concerns and promote a safer environment for the growth of digital financial services.

3.3 Transparency and clarity

Challenges

The complexity of financial products and digital financial tools presents a significant barrier to financial inclusion, particularly for potential buyers and users from underserved communities. These individuals often face complex processes and overwhelming amounts of information, which can be daunting and deter them from engaging with financial services. The technical language and myriad options in financial products, for instance, can create confusion and lead to misinformed decisions or, worse, avoidance of these services altogether. Similarly, digital financial tools, while designed to simplify access, can be perceived as too complex for those lacking the necessary digital literacy or financial knowledge. This complexity exacerbates existing inequalities, leaving many without the means to improve their financial well-being.

Call to action

To address this challenge, there is a pressing need for stronger regulatory oversight to ensure transparency and fairness in financial practices. By establishing clearer guidelines and enforcing stricter regulations, governments can help protect consumers from predatory practices. Regulatory frameworks should mandate the simplification of financial products and the provision of clear, comprehensible information to all potential users. Such transparency can empower individuals with the knowledge they need to make informed decisions, thus fostering greater trust and engagement with financial services.

In addition, the private sector must be encouraged to develop inclusive financial products that cater for the unique needs of underserved communities. Financial institutions should innovate and offer products that are not only straightforward but also designed with the specific circumstances of underserved populations in mind. This could involve creating more accessible digital tools, offering personalized financial advice and providing resources that enhance financial literacy. By tailoring their offerings to meet the needs of all potential users, private-sector entities can play a pivotal role in breaking down the barriers posed by complex financial processes and promoting a more inclusive financial ecosystem.

Conclusion

Government and private-sector partnering in financial inclusion efforts reduces inequalities, bridges service gaps and enhances economic resilience.

In an increasingly interconnected yet fragmented world, promoting economic stability and equal opportunity is more important than ever. Financial inclusion is a vital tool in addressing the challenges of inequality, particularly for vulnerable groups such as lower-income individuals and SMEs.

Government initiatives play a key role in advancing financial inclusion worldwide, implementing targeted programmes and making use of emerging technologies. India's PMJDY programme exemplifies how government efforts can effectively promote financial inclusion, particularly by empowering women and addressing gender disparities. China's digital yuan initiative showcases the potential of CBDCs to integrate more people into the financial system, offering a government-backed digital alternative that enhances accessibility and security.

The private sector has also been a key partner in driving innovation and expanding access to financial services, particularly through digital banking and financial literacy initiatives. In China, digital banking has not only transformed financial access for SMEs but also spurred economic growth by providing these businesses with the tools and resources they need to thrive. Additionally, the private sector's efforts to educate individual investors through inclusive financial products and tailored educational programmes are bridging gaps in financial knowledge, promoting a more equitable financial environment.

However, while these advances are promising, they are not without challenges. The digital divide remains a significant barrier to financial inclusion. Many individuals and SMEs, particularly in developing regions, still lack access to the necessary technology or the skills required to participate fully in the digital economy. Addressing this divide requires sustained investment in digital infrastructure as well as comprehensive education and training programmes aimed at equipping underserved populations with the digital literacy needed to access and benefit from financial services.

Privacy and security concerns also loom large in the era of digital finance. As the volume of digital transactions increases, so does the risk of cyberattack and fraud. Moreover, as financial products become more complex, there is an urgent need for greater transparency to ensure that consumers fully understand the terms and risks associated with the products they choose. Such transparency is crucial in empowering consumers to make informed decisions and in preventing exploitation, particularly of vulnerable populations.

In conclusion, the path to financial inclusion requires a holistic approach that combines the strengths of government policies and private-sector innovations. This coordinated effort will not only promote social equity and financial empowerment but also drive economic growth on a global scale. Ultimately, financial inclusion plays a crucial role in reducing fragmentation, promoting economic integration and building a more resilient global economy.

Contributors

Lead Authors

Faheen Allibhoy
Managing Director; Global Head, Multilateral Institutions and Development Banks, JPMorgan Chase

Makada Henry-Nickie
Research Director of Housing Finance, JPMorganChase Institute

Mary Ellen Iskenderian
President and Chief Executive Officer, Women's World Banking

Xiaoyan Zhang
Xinyuan Chair Professor of Finance, Associate Dean, PBC School of Finance, Tsinghua University

Working Group

Marie Penelope Nezurugo
Research and Analysis Specialist, World Economic Forum

Xue Wang
Senior Research Fellow, PBC School of Finance, Tsinghua University

Huihang Wu
Research Associate, PBC School of Finance, Tsinghua University

Yiwei Zhang
Research Associate, PBC School of Finance, Tsinghua University

Yuanyuan Zhang
Postdoctoral Researcher, PBC School of Finance, Tsinghua University

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Production

Laurence Denmark
Creative Director, Studio Miko

Xander Harper
Designer, Studio Miko

Alison Moore
Editor, Astra Content

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5. "Red packets" traditionally refers to monetary gifts given during special occasions, particularly in Chinese culture, such as during Chinese New Year or at weddings. In the context of digital currency, "red packets" refers to digital monetary gifts or incentives provided to individuals, often as part of a promotional campaign.
6. "Enterprise digital wallets" refers to digital wallets specifically created for businesses or enterprises rather than for individuals. These wallets are used by companies to conduct transactions, make payments and store digital currencies such as the digital yuan. They serve as secure, digital accounts for businesses to manage their finances, facilitate payments to suppliers, employees or other stakeholders, and engage in business-related transactions within the digital currency ecosystem.
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16. The Sharpe ratio is a measure of risk-adjusted return developed by Nobel laureate William F. Sharpe. It helps investors understand the return of an investment compared to its risk. A higher Sharpe ratio indicates a better risk-adjusted return. Investors typically prefer investments with higher Sharpe ratios because they offer more return for the same amount of risk or the same return for less risk.
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World Economic Forum
91–93 route de la Capite
CH-1223 Cologny/Geneva
Switzerland

Tel.: +41 (0) 22 869 1212
Fax: +41 (0) 22 786 2744
contact@weforum.org
www.weforum.org