

Tech Disruption In Retail Banking: Country-By-Country Analysis 2023

Leaders And Laggards Emerge

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This report does not constitute a rating action



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Key Takeaways

- Digitalization and automation are driving significant changes to banks' products, systems, and operational efficiency.
- Tech adoption rates are influenced by infrastructure, regulation, local preferences, and competitive pressures, and are thus uneven. Emerging technology gaps between banks and countries will benefit or inhibit the wealth of clients and nations.
- We expect banks in many regions will have a greater capacity to innovate due to stronger earnings from rising interest rates, and thus create a virtuous circle in which tech-driven savings enable greater investment in tech.
- Emergent technologies, such as generative artificial intelligence, promise material change that could create opportunities and threats for banks and fintechs.

Banking sector tech disruption risks differ significantly across countries and regions

Our assessment draws on four factors: technology, regulation, industry, and preferences (TRIP)

	Technology	Regulation	Industry	Preferences	Risk
Australia	Moderate	Moderate	Low	High	Very high
Austria	Moderate	Moderate	High	Moderate	High
Belgium	Moderate	Moderate	Low	High	Moderate
Brazil	Moderate	High	Low	High	Low
Canada	Moderate	Moderate	Low	Moderate	Very low
China	High	Low	Moderate	Very high	
Czech Republic	Moderate	Moderate	Low	Moderate	
Denmark	High	Moderate	Low	High	
Finland	High	Moderate	Low	High	
France	Moderate	Moderate	High	High	
GCC	Moderate	Low	Moderate	High	
Germany	Moderate	Moderate	High	Moderate	
Hong Kong	Low	Moderate	Low	Low	
Hungary	Moderate	High	High	Low	
Iceland	High	Moderate	Low	High	
India	Low	Low	Low	Moderate	
Ireland	Moderate	Moderate	Moderate	Moderate	
Israel	Moderate	High	Moderate	Moderate	
Italy	Moderate	Moderate	High	Moderate	
Japan	Moderate	Moderate	High	Moderate	
Korea	Low	Moderate	Moderate	Moderate	
Mexico	Moderate	Low	Low	Low	
Norway	High	Moderate	Low	High	
Poland	Moderate	Moderate	Low	Moderate	
Portugal	Moderate	Moderate	Moderate	Low	
Slovenia	Moderate	Moderate	Moderate	Moderate	
Singapore	Low	Moderate	Low	Low	
Spain	Moderate	Moderate	Low	Moderate	
Sweden	High	Moderate	Low	High	
Switzerland	Moderate	Moderate	Low	Moderate	
Taiwan	Moderate	Low	High	Moderate	
Thailand	Low	Moderate	Low	High	
U.K.	High	High	Moderate	High	
U.S.	Moderate	Moderate	Moderate	High	

Risk assessment per TRIP factor as of September 2023. The assessment is the view of S&P Global Ratings' analysts, includes their discussions with market participants, and is relative to banking industry peers. Technology--banks' technological capabilities. Regulation--regulatory protection afforded to incumbent banks. Industry--banking system adaptability and investment capacity. Preferences--customers' openness to new technology, digital banking, and switching to nonbanks. GCC--Gulf Cooperation Council. Source: S&P Global Ratings.

These are uncertain times for banks. The business of lending, facilitating payments, and guarding savings is being roiled by technological advancements, demographic shifts, changing client expectations, and existential threats from both fintech and big tech companies. Add to that the rumor mill of social media, the aftershocks of a global pandemic, and the most substantial war in Europe for more than 30 years and it is little wonder that the sector, which has always been prone to change, finds itself in a state of flux. Adaptation to that changing environment has overwhelmingly demanded the adoption of new technologies, notably the digitalization of client services and the systems that underpin them. That has been driven by customers' growing preference for the convenience of remote banking, and by pressure from nonbank actors willing to offer those services. But it has also emerged as an operational necessity driven by cost savings afforded by automation, not the least of which is the ability to reduce branch and employee numbers.

While the promise of technology in banking is significant, its implementation comes with considerable burdens on bank (and often national) budgets. Secure and reliable digital services require modern infrastructure, regulatory oversight, human expertise, and significant investment in software and hardware. It can also require the often-expensive dismantling of legacy systems, a process often encumbered by complexity and the need to continue to service clients unwilling to adopt new systems. Regulatory risks and oversight are also a burden and must often balance the benefits of innovation against dangers to financial system stability and security, and in doing so (sometimes) take sides in the contest between incumbent banks and fintech interlopers. Given the range of issues, it is no surprise that tech adoption has been uneven, with some countries and regions like the Nordics, Singapore, Hong Kong, and China accelerating into a digital future while others make sluggish progress. The resultant digitalization gap will have implications for bank customers and could weigh on the health of banks, national banking sectors, and economies.

Economic volatility and black swan events will continue to test traditional bank models and demand greater proactivity and faster reactivity. In January, S&P Global Ratings defined a watchlist for 2023 and beyond and warned that there would be little room for error in maneuvering through the strains weighing on credit this year (see "[Key Themes 2023: What We're Watching](#)," Jan. 30, 2023). Little has happened in the intervening period to suggest that forecast should be revised. The war in Ukraine, energy price instability, and the ongoing balancing act between economic growth and inflation management--all in the wake of the unprecedented shock of, and response to, the COVID-19 pandemic--means both regional and national economies continue to navigate choppy and uncertain waters. Indeed, the risk of a global recession continues to constitute the downside of our economic projections, even if we believe that the probability of a hard landing has abated (see "[Global Economic Outlook Q3 2023: Higher For Longer Rates Is The New Baseline](#)," June 28, 2023).

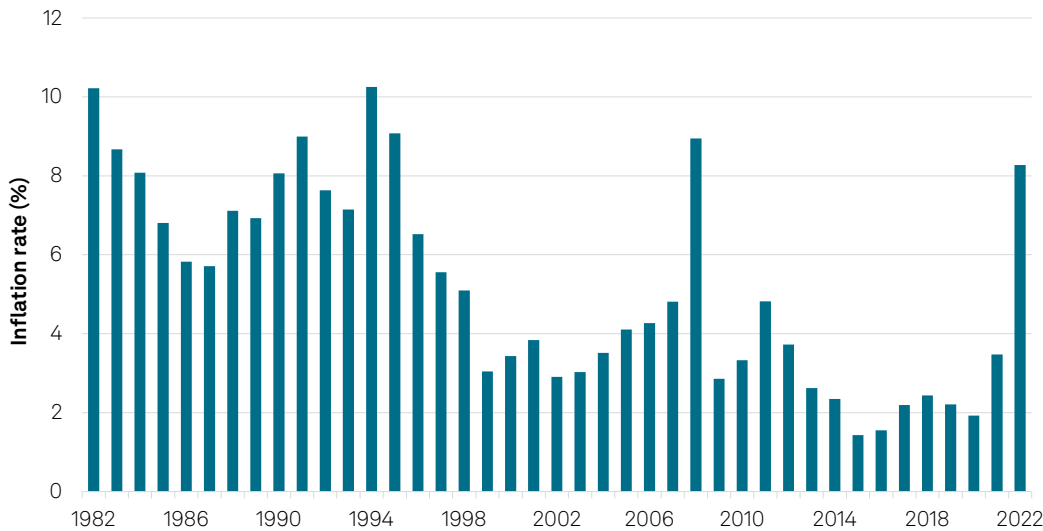
Retail banks have had to react rapidly to deal with the repercussions of these events and will have to continue to be nimble. Technology that streamlines operations, increases resilience, facilitates transactions, and enables rapid product roll-out and adjustments will underpin that agility and speed. Economic factors seem to be playing in banks' favor, for now. Higher interest rates, implemented by central banks to slow elevated inflation (see chart 1), are boosting banking sector earnings in many regions, and providing headroom for increased technology budgets.

The digitalization gap will have implications for bank customers and could weigh on the health of banks, banking sectors, and national economies

Chart 1

More than a decade of low inflation ended in 2021

Annual change in consumer prices (global)



Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres Price Index is generally used. Source: IMF.

Understanding the extent, momentum, and implications of tech disruption in retail banking requires analysis of both individual markets and comparison across countries. This report on tech disruption in retail banking provides that dual insight. Our country-by-country reports offer a snapshot of the key Technology, Regulation, Industry, and customer Preferences (TRIP) factors that are driving, or inhibiting, retail banks' adoption of tech across different national markets. Meanwhile, our TRIP risk scale employs the same four factors to provide an overview of tech disruption that is comparable across countries, while we have also collated three proxy-measures (average app rating, branch density, and credit and debit card ownership) that offer further insight into tech levels and penetration in each market.

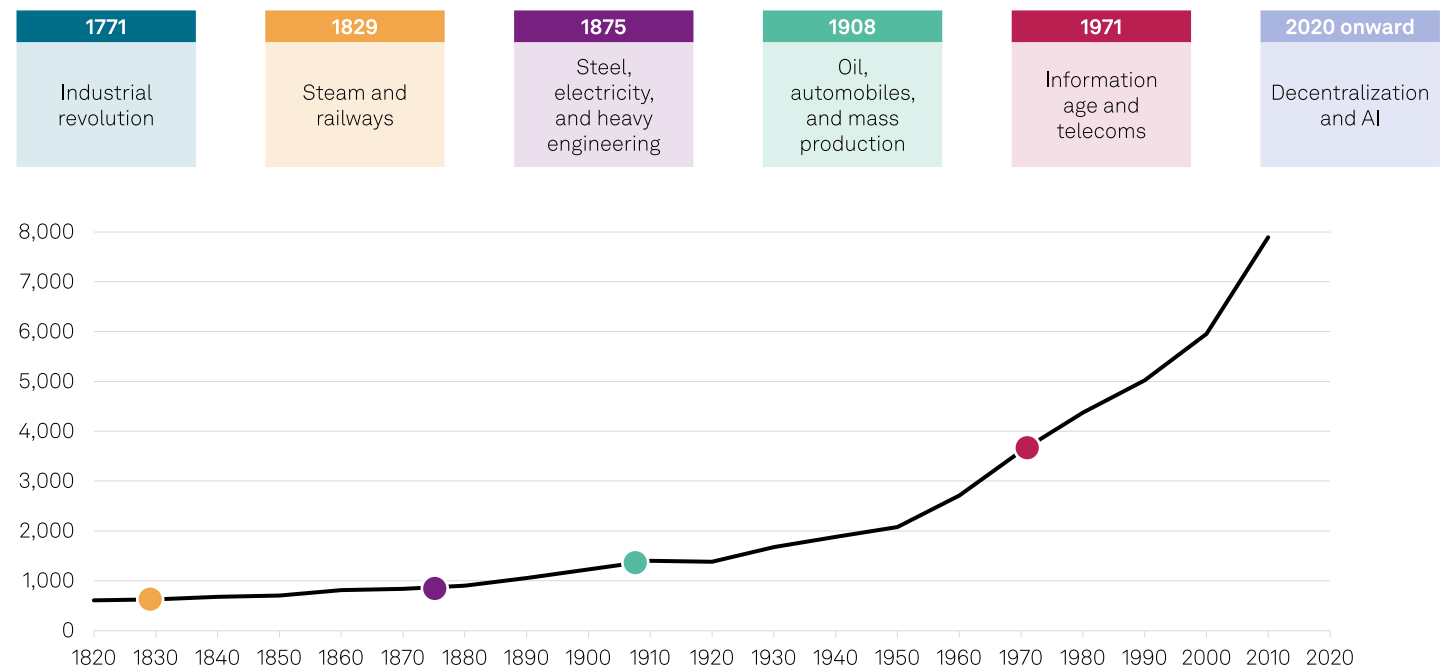
Tech disruption has long-lasting and often unpredictable effects. Advancements in a range of technologies have ushered in waves of significant wealth creation, dating back to 1770. It is not unreasonable to assume that the continued and novel application of new technologies (such as cloud computing and blockchain) and emergent technologies such as generative artificial intelligence (AI) will give rise to a new wave of wealth creation (see chart 2).

Disruption has been thrust on the retail banking sector in recent years by a mixture of technological advancements and global events, notably COVID-19

Chart 2

Technological revolutions have been the backbone of global growth and prosperity

World GDP per capita since 1820 (US\$, at 1990 PPP)



PPP--Purchasing power parity. Sources: IMF, "Technological Revolutions and Financial Capital The Dynamics of Bubbles and Golden Ages," Perez, C. (2002), S&P Global Ratings.

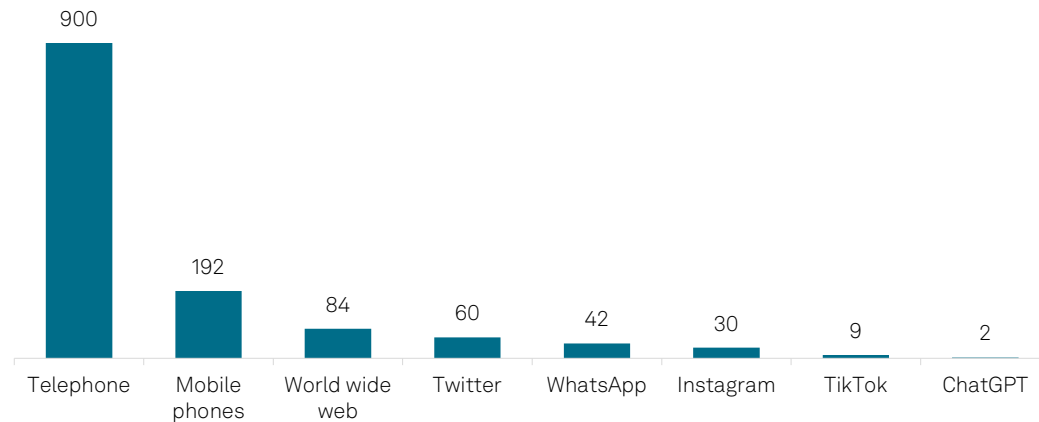
Banking systems, as the nexus of wealth creation and much of the unfolding tech disruption, will feel acutely the effects of the current wave of innovation. Blockchains, for example, have introduced a new way of tracking and maintaining internet-native asset ownership, without the need for intermediaries. That has, in turn, led to the rapid growth of decentralized finance and crypto assets. Cloud computing, which is being adopted near universally by banks, promises to reduce costs, provide flexibility, and improve cyber security. And the application of generative AI could prove the most disruptive technology of all, affecting myriad industrial sectors including banking, where it seems to offer greater efficiency, stronger risk management, and accelerated product and service innovation. As is often the case with new technologies, time will be required to accurately assess the extent of the benefits (and disadvantages), not least because regulators are reacting differently across regions, while the impact on banks and societies remains uncertain. Yet the extent of experimentation and user adoption, including notably of generative AI models such as ChatGPT (see chart 3), leaves little doubt that they will be powerful forces.

Banking systems are the nexus of wealth creation and much of the unfolding tech disruption

Chart 3

Technology adoption rates

Months taken to accumulate 100 million users



Source: The World of Statistics.

We Consider Four Factors To Assess Disruption Risks

Tech disruption is shaping retail banking, creating winners and losers within the sector, and determining the extent to which banks enhance or inhibit national and client fortunes. That process is already well underway. Digitalization and automation of banks' operations, coupled with technology that enables remote banking by clients, is enhancing speed, ease of use, and delivering cost savings. Banks at the forefront of digitalization stand to secure competitive advantages--not the least of which is the virtuous circle of cost savings that enable greater tech investment to secure further cost savings, which can perpetuate an ever-widening technological gap between tech adopters and laggards.

Tech disruption is shaping retail banking, creating winners and losers within the sector.

We analyze disruption risks for retail banks with our TRIP framework (see chart 4).

Chart 4

TRIP reflects four forces that are driving retail bank disruption

Technology	Regulation	Industry	Preferences
<ul style="list-style-type: none"> • Application, availability, and quality of domestic internet infrastructure (4G, 5G, and fiber-network penetration) • Open-banking ecosystem • Banks' IT systems and cloud computing • AI and big-data solutions • Use-case of distributed ledger technology 	<ul style="list-style-type: none"> • Banking and fintech licensing • Sandbox approach for fintechs • Regulatory stance toward innovation and nonbank competition • Data privacy, labor protection, and customer protection laws • Policymaking toward digital education • Cyber-risk regulation 	<ul style="list-style-type: none"> • Fintech and bigtech penetration • Collaboration of banks to strengthen market infrastructure • Investment capacity of banks • Agility or inertia of banks • Urbanization versus ruralization of population 	<ul style="list-style-type: none"> • Client preferences and channel penetration (branch, online, mobile) • Digital conservatism • Security concerns • Sensitivity toward data confidentiality • Demographics

Source: S&P Global Ratings.

The aim of this analysis is to explain how we expect the banking industry in each country to evolve, and to provide some comparability across markets. That said, our TRIP analysis focuses on domestic operations, since retail banking is usually dominated by domestic banks. Nevertheless, we expect that technology will enable banking groups to act more globally by exporting established and tested domestic platforms, and that some measure of international competition, and national-economic competitive advantage, will result.

Technology--Tech Adoption Will Determine Success

Banks must monitor the evolution of technologies. Banking services, and indeed banks themselves, face the constant threat of being displaced by new technologies and nontraditional banking providers. Damage done to incumbents by systems that offer lower costs could be rapid and devastating if not also adopted by banks. Tech disruption risks can also find expression in client-facing operations and result in rapid shifts in market share. Mobile banking, for example, has emerged in just a few years to be a key service that demands ongoing investment to meet clients' demand for high-quality service. The biggest disruption, however, could be yet to come. Generative AI could reshape the way banks have been using traditional AI and add new use cases. And we expect it is likely to prove pervasive across both internal operations and client-facing services and products.

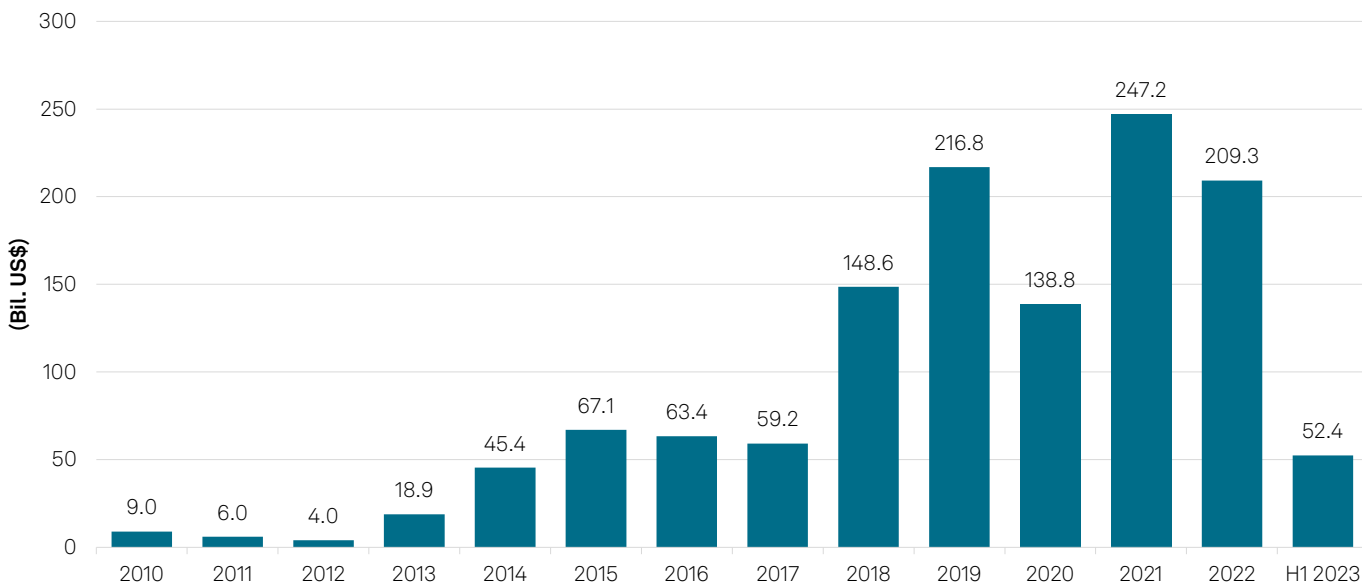
Banks face the constant threat of being displaced by new technologies and providers from outside traditional banking

Each tech-enabled shift in operations, services, and untapped capabilities also opens the door to the risk of competition from nontraditional banking rivals and new market entrants, collectively known as fintechs. This sector has grown from near anonymity 20 years ago to become an important threat to incumbents--though participants have recently found funding more difficult to secure due to tighter financing conditions (see chart 5). Those difficulties could provide banks with an opportunity to collaborate with fintechs, or the time to pursue their own tech initiatives.

Chart 5

Fintechs have secured significant funding in recent years

Global fintech investment volumes between 2010 and 2023



Note: Includes investments by venture capital and private equity funds. H1--First half. Source: Statista.

Regulation--Regional Differences And Digital Oversight

Regulation is evolving to meet technology-driven risks, though not homogeneously. The uncertainty inherent to the risk and benefits of innovation means that lawmakers tend to be reactive in dealing with the tech disruptions that shape banking systems. This is not necessarily a bad thing as it provides room for financial innovation, though it can also leave room for unsafe and unethical practices to flourish. It's also evident that there are different strategies emerging across different regions and countries. These differences are driven at times by differing levels of conservatism and/or a tendency toward reactive regulation, both of which can serve to inhibit innovation.

The differences between the EU and the U.S.'s approach to crypto asset regulation is a case in point, with the former having already finalized a regulation framework that will go live by year-end 2024, while the latter has taken a more reactive route that tends to be enacted via enforcement actions (see "[Europe's Crypto Regulation Lead Could Attract Followers](#)," May 5, 2023). Elsewhere, governments often actively shape regulatory frameworks that are designed to support the evolution of technologies within banking. Regulation of cyber risk prevention is an example, with few nations' willing to risk a hands-off approach when it comes to pushing banks to consider cyber security, digitalization of data, and privacy standards. There also appears to be a consensus emerging on the treatment of fintech development, with a growing number of regulators providing the freedom of a regulatory sandbox environment to foster startups and the application of new technology.

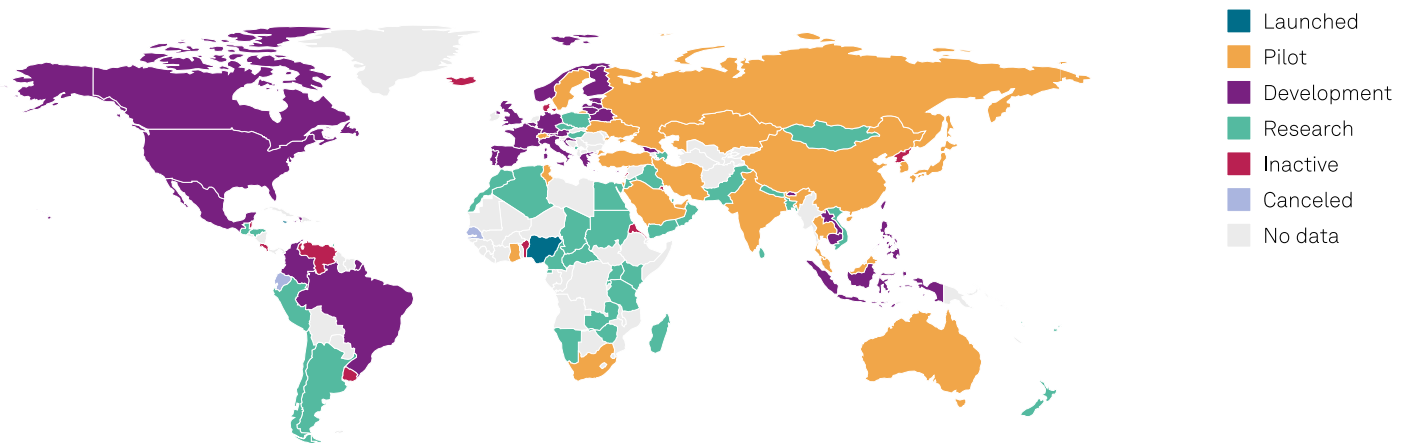
No matter the approach, the pace of digitalization, and its potential to create abrupt change to banking systems, means that the potential for tech disruption is relevant in banking supervisors' risk assessment. The power of technology to stretch existing regulatory norms was made clear in March 2023, when social media contributed to the failure of Silicon Valley Bank and fueled runs on other regional banks and a sharp decline in bank valuations. The crisis was ultimately calmed by coordinated action by major central banks, which provide extraordinary liquidity, and by U.S. government deposit backstops. Governments may themselves yet play a major role in the tech-led disruption of the banking sector. Central banks continue to investigate the idea of overhauling the monetary system by launching central bank digital currencies (CBDC) (see "[Central Bank Digital Currencies: The New Cash For A Digital Age](#)," Sept. 16, 2021). Almost 110 countries are working on a retail CBDC, though progress remains patchy (see chart 6) and we don't expect CBDCs to debut in a significant way ahead of the second half of this decade.

The uncertainty inherent to the risk and benefits of innovation means that lawmakers tend to be reactive in dealing with the tech disruptions that shape banking systems

Chart 6

Central bank digital currencies remain a work in progress

Countries working on a central bank digital currency (as of September 2023)



Note: Launched--countries that officially launched a CBDC. Pilot--countries that have developed a CBDC that is implemented in a real environment on a limited scale. Development--countries that are in an advanced research stage and are considering technical implementation. Research--countries that are employing academics and other individual expertise to research the implications of developing a CBDC. Inactive--countries that have begun investigating the development of a CBDC but are not proceeding with its development. Canceled--countries which launched a CBDC but later discontinued it. No data--countries with an unknown CBDC status. Source: Atlantic Council.

Industry--Digitalization Is A Core Priority

Most banks have realized that there is a strategic need to digitalize their business models. This has resulted in a rapid increase in digital-focused investment and the uptake of digital tools and services. That rapid shift has encompassed operational aspects such as cloud computing services, IT outsourcing and hiring, and cyber security initiatives, as well as customer facing applications. A significant share of most banks' capital expenditure is now dedicated to IT investments, which we estimate to be about 10% of total operating costs for the world's largest banks.

At the same time, spending on branches and other nondigital offerings has been cut due to declining demand and revenue pressures, notably resulting from the long-term, low interest rate environment. The result has been that branch numbers and branch-based services have significantly declined in many countries over the past 10 years. The exception being emerging market countries, where branch networks have often grown along with economic wealth, banks' earning capacity, and with the provision of services to previously unbanked citizens and regions (see chart 7). Notably, in these countries' banks have typically built digital products and services alongside branch networks.

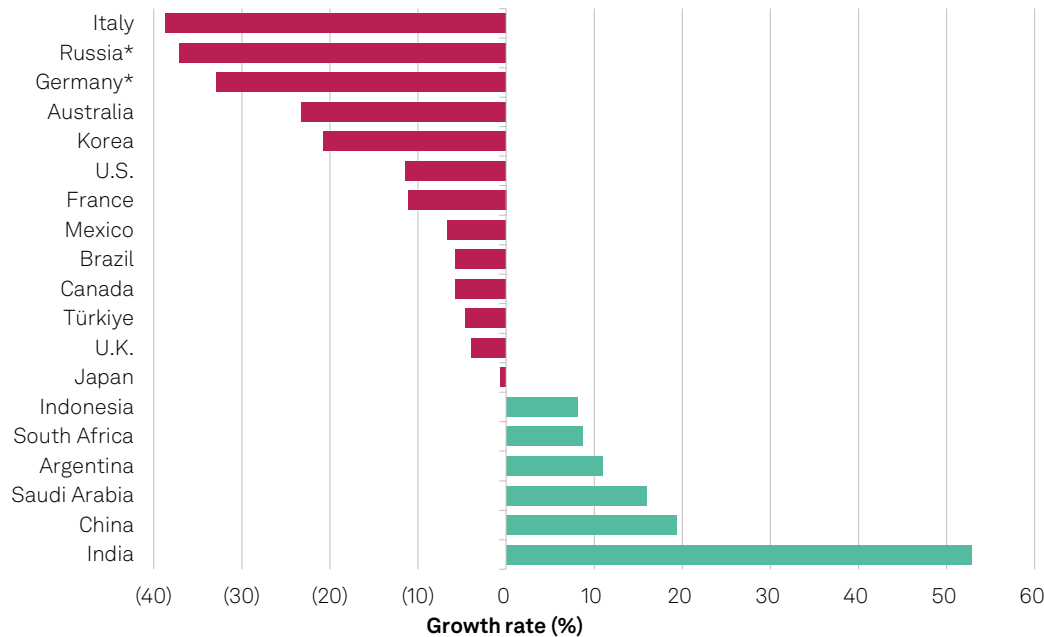
Recently higher interest rates are boosting global bank profits, yet we do not expect a widespread return to branch network expansion. Clients have come to appreciate the convenience and efficiency of digital banking (not least during COVID-19 lockdowns), while banks have grown used to the cost benefits of digital services. The resultant profitability gains should afford banks the opportunity to increase investment in digitalization and thus accelerate the pace of change. Indeed, far from a reversal of the current trend, we expect banks will continue to invest in technology that delivers operational efficiency, securing further cost cuts to fund further digitalization. This will create a virtuous circle for the most-digitalized actors and expose technology laggards to the risk of falling ever further behind.

A significant share of most banks' capital expenditure is now dedicated to IT investments, which we estimate to be about 10% of total operating costs for the world's largest banks

Chart 7

Development of bank branches differs markedly across G20 countries

Growth of commercial bank branches for G20 countries between 2012 and 2021*



Note: G20 excluding the European Union to avoid double-counting. *Last available data for Germany and Russia as of December 2020. Source: IMF. U.K. Office for National Statistics (ONS).

Preferences--Customer Demands Are Driving Change

The ease with which clients in most national markets can now switch banks increases the risk of disappointing customers. Expectations that banks should deliver reliable and low-cost financial products have increased along with the adoption of digital services, and particularly so during and since the pandemic (see chart 8). Barriers to switching and associated costs have, at the same time, tumbled thanks to regulatory initiatives and intermediation by internet-based switching services and aggregators (which collate relevant information to enable clients to make informed choices). The combination of those factors has increased pressure on banks to make each customer interaction a positive experience in terms of both convenience and cost, both of which play to the strengths of digital services. That trend is set to continue.

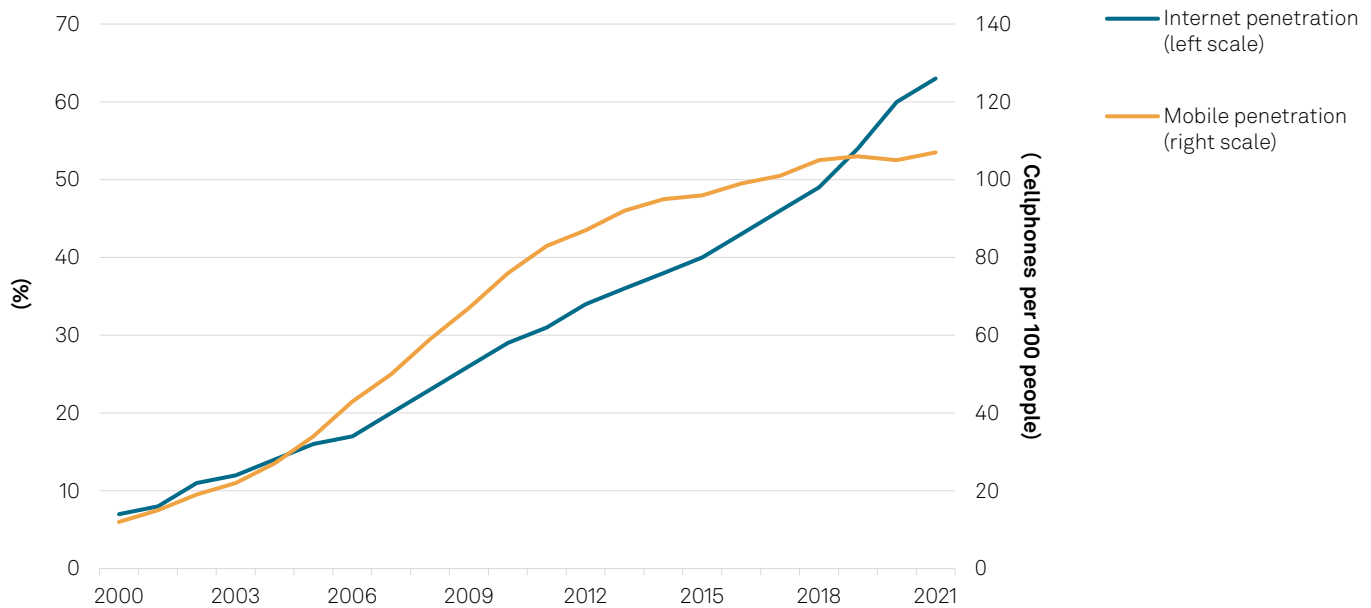
While the pandemic accelerated the adoption of mobile banking, demographics have also been a determinant factor. So-called "digital-native generations" are used to transacting remotely, often using their phones, and typically have little attachment to traditional banking services, branches, or products. This makes them more open than previous generations to new solutions, such as buy-now-pay-later loans, and to changing their banking services provider. That increased propensity to migrate is likely to stand out in the current interest rate environment, where shifts in loan and deposit rates that should encourage switching. It will be interesting to see how banks meet the challenge of retaining clients in this environment, without cutting into margins.

While the pandemic accelerated the adoption of mobile banking, demographics have also been a determinant factor

Chart 8

Customer preferences have clearly shifted toward digital solutions

Internet and mobile penetration of world population between 2000-2021



Note: Mobile penetration equates to mobile cellular subscriptions per 100 people. Internet penetration is the percentage of individuals who used the internet in the three months before the survey. Source: The World Bank.

Tech Disruption Will Weigh Unevenly On Banks

We consider digitalization and disruption risks among the factors that determine our bank ratings. We incorporate our views of digitalization for banks in two ways. First, through our understanding of the market, arrived at by analyzing several metrics and through discussions with multiple stakeholders. This helps us shape our view of a country's competitive dynamics, which are part of our industry risk views under our Banking Industry Country Risk Assessment (BICRA). Second, we analyze how digitalization (and its disruption risks) plays a specific role for each bank, relative to the environment in which it operates. This contributes primarily to our view of a bank's business position. Additionally, if we identify specific disruption risks, they could ultimately affect our view on capital, earnings and funding positioning, depending on each situation.

As part of our surveillance of banks and in discussions with banking supervisors, investors, and other market participants, we address questions relevant to the assessment of potential disruption due to technologies. That assessment is complicated by the lack of thorough and standardized public disclosure on digitalization progress, or any form of disclosure that comes close to the usual standard of financial and regulatory disclosure that banks must follow. Our risk assessment thus largely summarizes our understanding of the market, drawn from discussions with multiple stakeholders in each country. We currently assess more than 30 countries under our TRIP framework.

About TRIP

We score each TRIP factor on a scale from "1" (very low) to "5" (very high). Some categories may represent an elevated risk in the respective market. The subfactors (as described earlier in chart 4) are not an exhaustive list, but rather a starting point for what we believe to be the chief drivers of each factor. In assessing the four TRIP factors for national and regional banking sectors, we look at the following:

- **Technology:** How advanced are banks' overall technological capabilities and how supportive is a country's technological infrastructure? The more advanced a banking systems technological capability, the less risk we see of disruption. On the other hand, if banks lag technological developments, nonbank competitors, like fintech and big tech, may take over profitable parts of their business by offering new solutions.
- **Regulation:** To what extent do banking regulations and national laws protect incumbents' market positions or foster innovative competition? Protective and stringent regulation acts as a barrier to entry for nonbank players and reduces the risk of market disruption, in our opinion. More permissive regulatory environments, such as sandbox approaches, can lead to higher innovation potential for the retail banking industry. The impact of varying legal data privacy frameworks is not as evident, but stricter regimes could hamper tech companies' ability to fully use their existing customer bases and analytical capabilities.
- **Industry:** To what extent does the banking system's existing structure, profitability, and strategy support banks' ability and willingness to invest in digitalization and adjust to a different and more challenging environment? We also consider cooperation between banks and nonbank players, as well as between competing banks, which can speed up technological advancements and make it more difficult for new entrants to gain a foothold due to network effects.
- **Preferences:** The likelihood that customers will embrace new technologies and possibly switch to nonbank competitors, and the extent to which their preference for emerging technologies increases the risk of migration to players with the most convenient solutions. A higher preference for traditional banking systems leads to a lower risk of disruption, in our opinion, because banks can rely on their established market presence. High risk aversion and data privacy concerns also reduce disruption risk, and vice versa.

We recognize that the factors may be interrelated. For example, new technology might call for new regulation. However, we analyze each factor and their subfactors in isolation, to avoid overlapping scores.

Notes on the TRIP country analyses

- Every country analysis one-pager contains a link to S&P Global Ratings' BICRA report in the top right corner. The BICRA is designed to evaluate and compare global banking systems by contrasting strengths and weaknesses of an economy and its banking industry. Those are critical factors for the creditworthiness of a country's financial institutions.
- The data in the right-hand columns of the one-pagers are publicly available.
- We do not assign an average or overall TRIP risk score for each country because we believe that a higher score in one category will not offset a lower score in another.
- The scoring reflects the status quo of disruption risk and is a relative assessment, i.e., risks are ranked in a peer context.

Country Analyses

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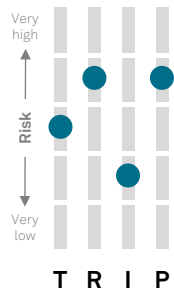
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Brazil | Major Banks Embrace Digitalization



Key Takeaways

- Large Brazilian banks' embrace of new technological platforms, their superior capacity to invest, and the country's universal banking model should help them preserve their dominant market share.
- Efforts to maintain sound profitability by improving efficiency have been a key driver of investment in new technology.
- The supportive regulatory framework has prompted a boom in fintech companies and fostered competition.

Technology: Investing to protect strong market positions

Amid accelerating technological shifts and changing customer preferences, major Brazilian banks have made substantial investments to remain the banking platform of choice. Moreover, the need to improve efficiency to maintain sound profitability has also been a key factor that has encouraged investment in technology.

Regulation: A supportive framework for digital-only banks

We think that Brazil's supportive regulatory framework has prompted a boom in fintech companies that has fostered competition. The Brazilian central bank's (BCB) initiatives have substantially reduced the cost of credit and broadened access to the financial system, even though Brazil has a lower credit-to-GDP ratio than its global peers. The country's instant payment ecosystem was bolstered by the BCB's creation of Pix, which enables users to transfer money in just a few seconds and at any time (including on nonbusiness days). The BCB also introduced Brazil's Open Finance environment, where regulated entities share data, products, and services at customers' discretion. Both initiatives aim to reduce information asymmetry between financial services providers. Pix has been widely adopted and Open Finance usage is growing substantially. The BCB has also implemented a comprehensive framework for managing cyber security risk. That framework includes several requirements for financial institutions, including the need to prepare annual reports on the implementation of their cyber security action plans.

Industry: Sound profitability supports investments in tech

Brazil's major banks benefit from sound profitability that is supported by healthy margins and business diversification (which includes insurance and asset management). Overall, we think they face a limited threat of disruption in the short term, though there is an ongoing need to invest in technology due to increasing competition that is already weighing on bottom-line results. Large banks' embrace of new technological platforms, their superior capacity to invest, and the universal banking model should help them preserve their dominant market share.

Preferences: Ready to confront high demand for digitalization

Demand for digitalized banking in Brazil continues to increase. In our view, that is primarily because of the convenience and speed of service, lower costs, and relatively low credit penetration in the country. Fintech companies are also benefiting from the widespread ownership of smartphones and younger customers readiness to adopt digital banking solutions. Major banks' willingness to embrace new technology, their ample capacity to invest, and the universal banking model, should help them keep pace with newer competitors.



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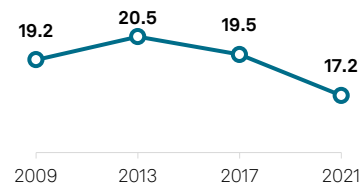
Average app rating of five largest banks



Note: Banco Itau, Banco do Brasil, Caixa Economica Federal, Banco Bradesco, Banco Santander (Brasil). Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

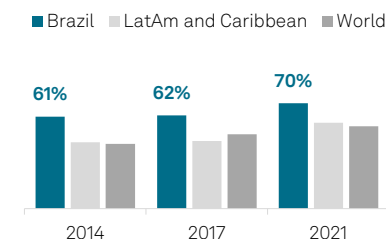
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

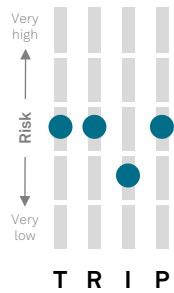
Share of population with a credit or debit card

Aged 15+



LatAm--Latin America. Source: World Bank, The Global Findex Database.

Canada | Digital Transformation Is Slow But Steady



Key Takeaways

- Customers are increasingly favoring digital services, while privacy and security concerns persist when it comes to open-banking regulation.
- Canadian banks have embraced fintech, but progress is slower than for some international peers.
- Large Canadian banks' dominant market position will help fend off fintech challengers.



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Technology: Digital transformation is accelerating but lags that of global peers

Canadian banks are hampered by legacy IT systems and have predominately used bolt-on solutions to improve operations. However, progress has been slow given the complexity of the task. As it stands, risks from technological failures pose a bigger threat to the banking sector than new fintech entrants. While digital capabilities are robust, due to supportive internet infrastructure, delays in the launch of a real-time payment system and no availability of open banking, leave Canada's banking sector lagging counterparts in the U.S., EU, and Asia.

Regulation: The framework leaves ample room for fintech players

The Canadian regulatory environment is cautiously receptive toward fintech innovation and mostly aligns with the work of international bodies. Canada's regulatory framework has been more welcoming since 2018, with the creation of federal funded incentives for fintech firms, so-called regulatory sandboxes, and more streamlined collaboration between banks and fintechs. Regulators remain conscious of the need to identify weaknesses in banks' cyber security models and, in April 2023, the bank supervisory body OSFI published its Intelligence-led Cyber Resilience Testing Framework to address that risk.

Industry: Bank-led partnerships characterize Canada's fintech landscape

Canada's banking industry remains highly concentrated, with the six largest banks holding most domestic assets. Brand recognition of these few large players, coupled with stringent bank licensing requirements and high client stability, create natural barriers to fintech entrants and will help minimize disruption. Moreover, Canadian banks' high profitability and capital enable them to easily scale up technological investments and minimize direct competition. Overall, Canadian banks have embraced fintech and have developed internal teams to advance fintech exposure.

Preferences: Consumer preferences are evolving

Consumer preferences continue to shift in Canada, accelerated by the COVID-19 pandemic, in favor of faster, more convenient digital services. Online transfers are the fastest growing payment segment by volume in Canada, and over half of transaction volumes of debit and credit cards are contactless. While preferences are changing, branch-usage is still high relative to global peers'. Security and data privacy concerns remain key for a significant portion of the population, thus curbing the disruption risk posed by financial innovations, particularly widespread adoption of open banking.

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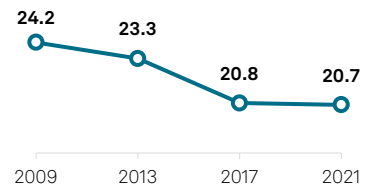
Average app rating of five largest banks



Note: Royal Bank of Canada, Toronto-Dominion Bank, Bank of Nova Scotia, Bank of Montreal, Canadian Imperial Bank of Commerce. Sorted by total assets. Source: iOs App Store Ratings.

Commercial bank branches

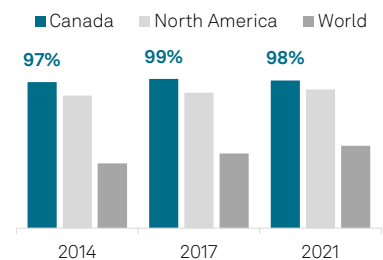
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

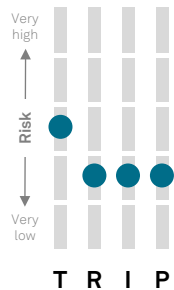
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Mexico | Financial Inclusion Lags Amid Innovation



Key Takeaways

- Limited access to banking services in Mexico reflects the country's large informal sector (which prefers the use of cash), income inequality, and inefficient rule of law.
- Bank customers in Mexico seem to be open to using digital financial solutions, but still show a preference for traditional banks.
- Large banks' strong presence, good diversification, and sound profitability enable them to invest in IT to cope with tech disruption.
- We expect the collaborative relationship between banks and fintech companies to persist in coming years.



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Technology: Large banks' capabilities limit risks of disruption

Even if fintech companies don't represent an immediate threat to the banking sector, banks have not ignored the potential risk, and so they're adopting and implementing fintech companies' innovations. However, while the largest banks have the financial capacity to upgrade their technological infrastructure, smaller players are more exposed to technological disruption and competition from new players. Large foreign-owned banks benefit from their parent companies' knowledge and experience digitalizing subsidiaries in other countries and regions.

Regulation: Stringent regulations limit competition for banks

Mexico was a pioneer in fintech regulation--it introduced fintech legislation in 2018--but now it is moving slower than its peers. Regulatory efforts are being carried out in a controlled and cautious manner to preserve financial stability and avoid disruptions to banks. Regulatory requirements and their associated costs are barriers that limit new entrants. As a result, the growth rate of new start-ups in Mexico is now slower than the growth rate of new start-ups in Brazil, for example.

Industry: Banks' business strategies underpin industry stability

The adoption of financial technology will strengthen banks' business risk and financial risk profiles in the future. We expect commercial banks and fintech companies to be collaborators going forward, not rivals. The banking sector is dominated by the country's seven largest banks, which together have about 80% market share by loans and deposits. This concentration, along with stringent regulations, will continue to be a significant barrier for new entrants, including potential disruptors.

Preferences: Responding to customer needs is a key challenge

We see acceptance of emerging technologies among clients of traditional banks. We estimate that more than 50% of the population is between the ages of 15 and 50, and they are more open to innovative financial solutions. However, the large informal sector (estimated to be about 55% of the labor force) has a strong preference for the use of cash (which accounts for about 40% of all transactions). That will limit financial inclusion in the country, and we don't expect digitalization of Mexico's financial sector to spur much change on that front, at least in the short term. This environment lowers the risk of disruption to banks since few customers are likely to migrate to nonbank or fintech competitors. But it also means growth potential from new clients will remain limited and a lack of access to banking services will persist.

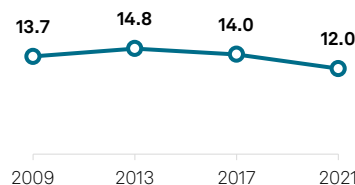
Average app rating of five largest banks



Note: BBVA, Santander, Banorte, Citibanamex, HSBC. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

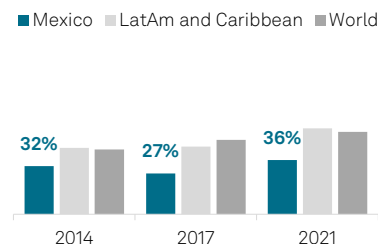
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

Share of population with a credit or debit card

Aged 15+



LatAm--Latin America. Source: World Bank, The Global Findex Database.

U.S. | Navigating Challenges While Disruption Risks Remain Higher At Smaller Banks



Key Takeaways

- Modernization efforts remain a priority across U.S. banks, but operating pressures may slow progress, particularly at smaller banks.
- Regulatory initiatives are focused on providing a more cohesive response to the risks posed by technological challenges.
- Customers' rapid shift in preferences toward personalized and digital financial services are driving competition.

Technology: Legacy systems abound, with varying responses

The adoption of new technology varies greatly, with the smallest banks at the greatest risk of disruption. Legacy infrastructure remains a core issue at many banks, reflecting the prevalence of cumbersome, less-agile systems. Technology investment has continued to increase, with focuses on cloud capabilities, integrating artificial intelligence (AI), and automation. We expect tech advances to remain a strategic focus for U.S. banks, but the current operating environment may slow progress.

Regulation: A patchwork approach to fintech regulation

U.S. regulation on fintech issues falls short when compared with other regulatory schemes, reflecting the absence of a cohesive national approach. However, the rise of cryptocurrency and generative AI, and recent bank failures, have focused regulators attention on addressing these risks. Separate groups across agencies have been established this year to deepen the understanding of, and organize supervision of, areas such as digital assets, fintech partnerships, and cloud adoption. It's possible that large deposit outflows enabled by digitalized banking could spur regulators to change how they think about the stickiness of deposits; which, in turn, may result in changes to deposit outflow assumptions when calculating banks' liquidity coverage ratios.

Industry: Investment disparity between large and small banks

Funding and liquidity pressures have increased in the aftermath of this year's bank failures, which highlighted how the speed of digital banking works against the stickiness of deposits. Higher rates initially boosted profitability, but tech investment may wane as banks navigate current profitability strains and try to build capital in the face of new regulation. Bank-fintech partnerships remain key opportunities to mitigate disruption, but banks will have to manage their fintech partnerships within regulatory boundaries. Other possible industry disruptors include: a government-sponsored stablecoin (which, if introduced, could disrupt deposit dynamics), more involvement from large tech companies in banking products, and a revival of customer interest in cryptocurrencies.

Preferences: Younger customers expect technological advances

Reliance on digital banking and payment systems continues to grow. About 72% of Americans use mobile or online banking, according to a 2022 American Bankers Association survey, and millennials and other young adults remain at the forefront of demand. In response to growing customer interest in personalized financial services and intensifying competition from digital banks, traditional banks have stepped up their investments in digital platforms and offerings for both retail and commercial customers.



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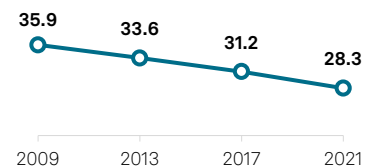
Average app rating of five largest banks



Note: JPMorgan Chase, Bank of America, Citigroup, Wells Fargo, Goldman Sachs. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

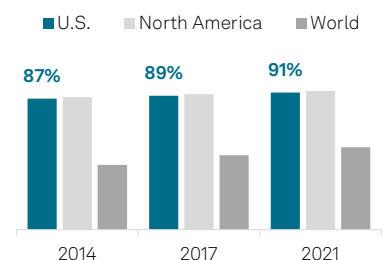
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

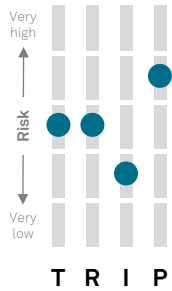
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Australia | Major Banks Stand Their Ground



Key Takeaways

- Major banks can defend their market positions against new tech-enabled competitors.
- Australia is catching up to peers such as the U.K., China, and Sweden, as strong consumer appetite for technology takes hold.
- Adoption of financial technologies accelerated post the pandemic.



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Technology: Implementation is a key hurdle for major banks

Australia's major banks still rely on legacy IT systems for their core operations. On the positive side, the underlying technology (such as fiber networks, the New Payments Platform, and 5G) required for innovation is available in Australia. Smaller regional and mutual banks face similar challenges, although the path will likely be easier for mutual banks that use cheaper off-the-shelf IT products. Mutual banks have also generally stayed more up to date with core banking system upgrades compared their major bank peers.

Regulation: Regulatory environment supportive of fintech development and competition

We believe Australia's regulatory environment is supportive of fintech development and competition in the financial services sector. Australia's regulators openly encourage innovation and see technology as a key mechanism for improving customer outcomes. Consequently, regulation will likely have a growing impact on tech disruption in Australia.

Industry: Strong incumbents will prove resilient to disruption

Australia has a strong incumbent banking sector, which we believe will prove resilient to tech disruption. The country has a high level of financial inclusion (over 99% of Australian adults have a bank account) and a developed retail banking sector that currently faces minimal competition from fintech players in their core activities of deposit taking and lending. Four major banks dominate Australia's banking sector, with a collective market share of around 75% of domestic loans and deposits. A large number of small players share the remainder of the market.

Preferences: Accelerated adoption of tech post pandemic

Australian consumers tend to be quick adopters of financial technology, and even more so since the pandemic. The rollout of contactless payment has been particularly successful in Australia--making up about 76% of point-of-sale (POS) transactions, and over 95% of card transactions as of December 2022, according to the Reserve Bank of Australia. POS transactions can be cash or noncash; contactless payments are a subset of the noncash component that use near-field communication technology to pay by tapping a phone or card on a payment terminal. The share of the population with credit or debit cards is 97%.

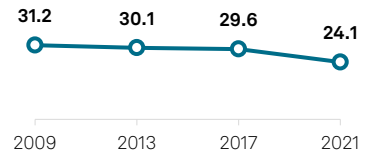
Average app rating of five largest banks



Note: Commonwealth Bank of Australia, Westpac Banking Corporation, National Australia Bank, Australia and New Zealand Banking Corporation, Macquarie Bank. Sorted by total assets. Source: iOs Apple Store Ratings.

Commercial bank branches

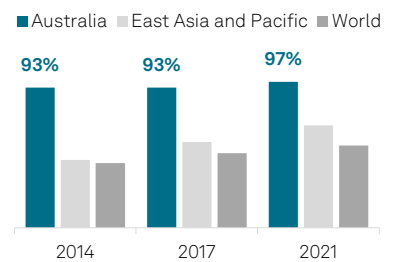
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

China | Fintech Regulations To Ease Digital Disruption Risks



Key Takeaways

- Tightening fintech regulations are helping to level the playing field and encourage collaboration between banks and tech firms.
- Major banks continue to dominate the market despite fintech-enabled disruption.
- Chinese consumers are generally embracing fintech and banks are accelerating the digital transformation, following a pandemic-boost.

Technology: Bigger banks are closing the fintech gap

China maintains a largely favorable environment for fintech development. Big banks are eager to close the tech gap with fintech companies, in our view. Banks have doubled their fintech investment over the past three years, to 3%-4% of revenues. They have added digital infrastructure, including inhouse development of cloud-based core systems, and offer some applications that rival those provided by big tech. The pandemic spurred bank digitalization but catching-up to fintech rivals will take time and there are execution risks.

Regulation: Tighter fintech regulation to ensure financial stability

Regulators have tightened their grip on fintech, reversing an earlier light-handed approach. We expect the stricter approach will continue, not least because financial-sector stability is a key concern for Chinese authorities. Online lending, treatment of personal credit information, and other digital services are now subject to additional stringent regulatory supervision and prudential requirements. The aim is to create a more level playing field for fintech financial services providers and more traditional providers. Proactive regulation and forward-looking policies are likely to encourage more collaboration between banks and fintech companies.

Industry: Entrenched major banks to maintain dominance

Major banks in China benefit from their large client-base and an entrenched national network. The six megabanks collectively account for 41% of the market by total assets. Big tech has made inroads in payment, lending, mutual fund management, and other areas, but the risk that they disrupt the banking sector could be reduced by tightened regulatory requirements. Small banks with limited tech budgets are likely to face a tough up-hill battle and could be left lagging behind in the new digital environment.

Preferences: Customers generally embrace fintech, but banks hold on to their advantages

Chinese customers continue to embrace new financial technology, partly due to the advantages it offers the country's large and scattered rural population and partly thanks to well established digital infrastructure. Chinese banks are improving their services, fueled by artificial intelligence, data analytics, and other technologies. Banks also benefit from a low cost of funding. However, a slower-than-expected adoption of E-CNY (China's digital currency) could prove that customers' digital preferences have their limits.



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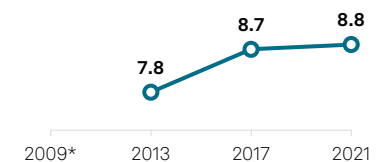
Average app rating of five largest banks



Note: Industrial and Commercial Bank of China, China Construction Bank, Agricultural Bank of China, Bank of China, Postal Savings Bank of China. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

Per 100,000 adults

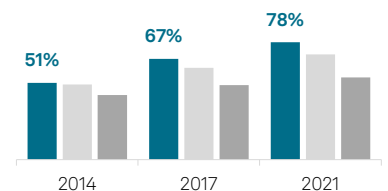


Branches of credit cooperatives, credit unions and savings banks not covered. *2009 figures not available. Source: IMF, Financial Access Survey.

Share of population with a credit or debit card

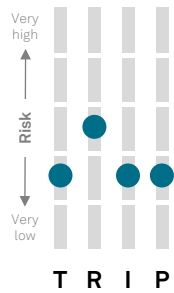
Aged 15+

■ China ■ East Asia and Pacific ■ World



Source: World Bank, The Global Findex Database.

Hong Kong | Major Banks In Sync With Fintech



Key Takeaways

- Major banks with deep pockets, a vast operating network, and strong customer trust have led financial innovation in Hong Kong.
- HKMA is focused on cybersecurity and third-party risk management, both of which it regards as key to ensuring operational resilience.
- The Hong Kong banking sector's competitive dynamics are stable. Virtual banks are growing but remain loss making.



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Technology: Large banks are spearheading tech upgrades

Hong Kong's major banks have leveraged their vast customer base, business scale, and financial resources to explore uses of innovative technologies. Their sizable technological spending has focused on digital onboarding of customers, adoption of artificial intelligence (AI) and data analytics in customer services operations, and cybersecurity. Banks have collaborated with major technology companies and start-ups to target digital innovations and ways to enhance customers' online experience. We expect digitization will continue to help banks improve operating efficiency and further reduce their branch footprints.

Regulation: HKMA's proactive approach aids digital innovation

The Hong Kong Monetary Authority's (HKMA) forward looking approach in a rapidly evolving digital landscape fosters innovation, while maintaining focus on financial stability. Extensive use of technology and data in supervision, and for early identification of emerging risks, has helped. HKMA's Fintech 2025 strategy is pushing banks to become fully digitalized, to expand the fintech-savvy workforce, and develop data infrastructure such as the Commercial Data Interchange, which facilitates the sharing of data by different service providers (including small and midsize enterprises) with financial institutions. A robust cybersecurity framework and third-party risk management (including for cloud service providers) is being prioritized for their benefits to operational resilience.

Industry: Barriers to entry are high given large banks' dominance

The deeply entrenched market positions of Hong Kong's biggest banks anchor their relevance in this digital era. The market share of the four largest banks was over 55% by total consolidated assets as of end-December 2022. This dominant position is underpinned by a long history of operations and solid customer relationships. These large banks have also swiftly responded to emerging technologies and evolving customer needs. Virtual banks, given their limited scale of operations and focus on niche customer segments such as tech-savvy retail and SME, are unlikely to alter the competitive landscape.

Preferences: Customers like old wine but prefer a new bottle

Hong Kong customers are keen to adapt to new technologies. That said, the risk of disruption for the incumbent banks is limited. This is because customers are inclined toward maintaining banking relationships with established brands, have privacy and data protection concerns, and are increasingly relying on the payment apps and mobile banking apps of their primary banks. The aging demographics in Hong Kong is an additional factor supporting the incumbent bank.

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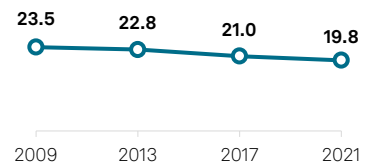
Average app rating of five largest banks



Note: The Hong Kong and Shanghai Banking Corp., Bank of China (Hong Kong), Standard Chartered Bank (Hong Kong), Hang Seng Bank Ltd. ICBC (Asia) Ltd. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

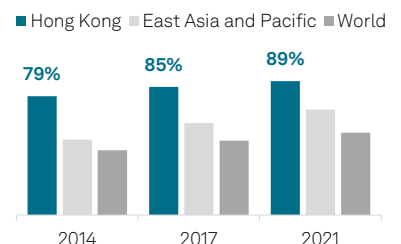
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

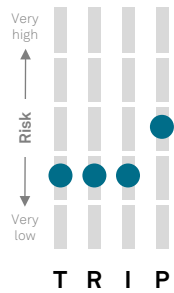
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

India | Top-Tier Indian Banks Lead The Change



Key Takeaways

- Top-tier private-sector banks and State Bank of India are at the forefront of technology adoption targeting product innovation and efficiency.
- Regulations and Indian government initiatives are providing a push for digital development in India.
- The banking system and digital banking services have room to grow given their limited penetration, notably in rural areas.



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Technology: India's banks are quick to embrace new technology

Many banks in India, especially top-tier private-sector banks and State Bank of India, have been quick to embrace new technology and have consistently invested in the area. India also has developed some notable fintech including Aadhaar, the world's largest biometric identification system, and the Unified Payments Interface (UPI), both of which emerged from IndiaStack (a government-led digital initiative). UPI is the preferred mode of digital payment in India, with about 75% market share, placing it well ahead of debit and credit cards and e-wallets. Unlike with e-wallets, funds in the UPI remain in the banking system and thus in customers' accounts, which is proving to be a competitive advantage.

Regulation: Central bank playing a balancing act

We consider the Indian government and the Reserve Bank of India (RBI) to be supportive of fintech development, competition, and collaboration. That said, the RBI is also taking measured steps to regulate fintech and maintain financial stability. It has notably prioritized cybersecurity--especially with regards to privacy breaches. The RBI has also consistently sort to strengthen supervisory oversight of cyber risks, including through simulated phishing, cyber reconnaissance, and other cyber exercises. In August 2023, India passed the Digital Personal Data Protection Act, 2023, which aims to protect personal data and the processing of that data for lawful purposes.

Industry: Banks still tend to have the upper hand

Many traditional banks have supplemented their banking propositions with full-service digital banking platforms to better meet evolving customer needs. In our view, fintech players have assumed a complementary role to banks. This relationship typically combines fintech's superior technological know-how and new ideas with the banks' strengths, including customer trust (based on long-standing relationship) and a size advantage. This collaboration has resulted in various operational solutions with mutual benefits. Banking penetration continues to be low and growth opportunities are ample for all banks.

Preferences: Increasing demand from tech-savvy crowd

The combination of India's young population, rising internet and smartphone penetration, and the still limited reach of banking services (particularly in rural areas) means there is significant potential demand for digital financial operations. However, many bank clients still prefer branch-based banking and face-to-face meetings and this may not change for some time. Rural areas are also still underserved by branch networks. We therefore expect branch numbers to continue to rise, although at a slower pace, as banks try to balance their physical and digital presences.

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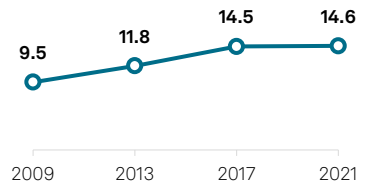
Average app rating of five largest banks



Note: State Bank of India, HDFC bank, ICICI Bank, Punjab National Bank, Bank of Baroda. Sorted by total assets. Where banks have multiple apps, we use an average rating. Source: IOs App store ratings.

Commercial bank branches

Per 100,000 adults

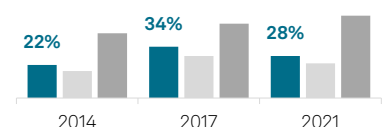


Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

Share of population with a credit or debit card

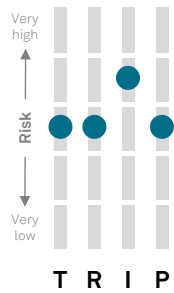
Aged 15+

■ India ■ South Asia ■ World



Source: World Bank, The Global Findex Database.

Japan | Digitalization Filters Into Aging Society



Key Takeaways

- Major banks have increased the pace of digitalization, while small to midsize regional banks are lagging.
- Increasing the capacity for investment in technology will be pivotal to banks' ability to accelerate digitalization's progress.
- The increasing share of cashless payments shows the potential for digital disruption if banks do not adapt to changing client preferences.

Technology: Digitalization execution is a management challenge

Japan has the technology required for digitalization. For example, it has open banking through open application programming (API) interfaces (such as unified payment services for individuals) and has been introducing open and cloud-based system architecture, which can increase efficiency. However, management execution on digitalization (and achievement of go-live targets) and limited development of technology talent remain issues for banks. In addition, low profitability, particularly at small to midsize regional banks, is preventing their adoption of new technologies.

Regulation: A Framework for digitalization is in place

Key legislative changes in recent years have promoted the flexible provision of digital financial services by banks and fintechs. Digital money has been a focus area for Japan's regulators, with experimental demonstrations of a central bank digital currency and new settlement infrastructure. Anti-money laundering and cyber risk management have also been a focus of efforts to ensure operational resilience, while regulators' attitudes toward the use of generative AI have been permissive. Balancing system stability and incubating innovation is important for Japan's regulatory framework.

Industry: Widening tech gaps and developing niches

Recent record profits at Japan's major banks have facilitated investment in (and acquisitions of) digital areas of retail banking, including comprehensive 'super apps'. On the other hand, regional banks are falling behind due to under-investment in digitalization. We consider Japan's banking sector to be at higher risk of digital disruption compared to other countries due to regional banks' about 40% market share in terms of domestic lending. Players are developing individual niches. For example, unlike in other countries, retail and railway companies have a strong presence in cashless payments backed by point programs, while online securities trading firms are attracting retail investors. Fintechs are building positions in complementary financial services such as personal finance apps, robo-advisory services, and cloud accounting systems. Japan's first digital bank started operating in 2021 but has not yet gained significant market share.

Preferences: Cashless payments and omnichannel banking

COVID-19 provided a boost to cashless payments, which now account for more than 50% of private-consumption (including categories such as direct debits). Banks have developed omnichannel services to meet customer needs, including online basic banking services and face-to-face wealth management business. Changing demographics and workforce shortages will drive adoption of digital technologies and force change on banks.



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Average app rating of five largest banks



Note: Mitsubishi UFJ Financial Group, Sumitomo Mitsui Financial Group, Mizuho Financial Group, Japan Post Bank, Norinchukin Bank. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

Per 100,000 adults

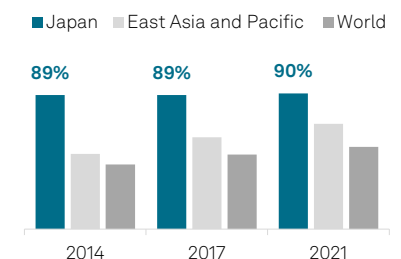


2009 2013 2017 2021

Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Korea | Banks Holding Ground Against Tech Disruption



Key Takeaways

- Incumbent banks are pro-innovation and will continue to dominate the banking scene as the sector becomes increasingly digitalized.
- We expect regulators will continue prioritizing the financial stability of the banking system while allowing new players to enter the market.
- Banks' long-standing customer relationships and advanced digital platforms will be a significant operational barrier to new entrants.

Technology: Bank digitalization continues to expand

Korea's advanced IT infrastructure, deep smartphone penetration, and banks' investments in technology will support the digital transformation. The growth of internet and mobile banking continues, and banks are strengthening their product and service offerings on digital platforms. Banks are revamping their IT systems to accommodate greater data processing and to strengthen stability and security. Most banks have adopted cloud-driven IT systems, and increasingly use artificial intelligence and blockchain technology to improve efficiency and customer service.

Regulation: Seeking a balance between innovation and stability

Recent regulatory initiatives to allow new players, such as internet-only banks, into Korea's banking sector will heighten competition. Although the door is opening wider to new entrants, we expect financial regulators will stringently review qualification for the sake of stability in the banking system. There remains an ownership limit for tech companies, set at a maximum 34%, in internet-only banks, which aims to prevent potential conflicts of interest and to limit tech companies' influence on the banking sector. Given the accelerated digitalization and increased access to data, regulators have strengthened cyber security rules and monitoring for banks over the years.

Industry: High operational barriers for new entrants

The competitive landscape of Korea's banking sector is unlikely to change materially in the coming few years, like it did over the past decade, despite the introduction of internet-only banks since 2017. Incumbents' established market presence and good customer relationships present operational challenges for new entrants, in our view. The underwriting and risk management capabilities of new players will also need to be tested. Korea's three internet-only banks collectively had about 1.5% of the loan market, among deposit-taking institutions, as of end-2022. Incumbent banks' adequate profitability will continue to support their capacity to invest in technology and digital infrastructure.

Preferences: Leaning toward convenient digital services

Korean customers are tech-savvy and quick adaptors of new banking services. We expect incumbent banks to continue with an omnichannel strategy that caters to different customer needs, while restructuring or consolidating some branches to enhance operating efficiency. They will also likely continue to innovate their product suite through digitization. Major banks have launched residential mortgage products--on top of unsecured retail loans--that can be applied for and processed quickly using mobile banking apps and process automation.



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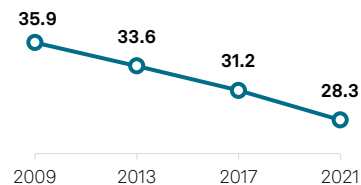
Average app rating of five largest banks



Note: Kookmin Bank, KEB Hana Bank, Shinhan Bank, Woori Bank, Nonghyup Bank. Sorted by total assets. Source: Google Play Store Ratings.

Commercial bank branches

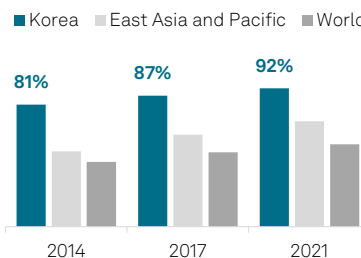
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Singapore | Domestic Incumbents Holding Strong In The Digital Era



Key Takeaways

- Singapore banks have maintained their dominance, thanks to heavy investment in technology and active collaboration with tech firms.
- The regulator has a strong focus on cyber security and digital disruption.
- New digital banks need time to build traction and customer trust.

Technology: Singapore banks are well-positioned digitally

The large Singapore banks started their digital journey several years ago, and continue to make sizable investments in digital innovation, digital solutions, and IT infrastructure. They have embraced digital banking by changing the culture and mindset of employees, and developing innovative tools, including mobile payment solutions and artificial intelligence driven loan approval, which greatly speeds up the approval process while minimizing paperwork.

Regulation: Spotlight on cyber risks and digital disruption

Technology and cyber risks have taken the spotlight amid rapid digitalization and a constantly evolving cyber landscape. The Monetary Authority of Singapore responded swiftly to incidences of digital disruptions and cyber security deficiencies in banks by imposing additional operational capital requirements and requiring immediate remedial steps. In addition, a Financial Services and Market Bill was passed in April 2022, raising the maximum penalty for a breach in technology risk management to Singapore dollar 1 million (US\$735,000), which underscores its critical importance to the financial system.

Industry: Domestic bank dominance creates high entry barriers

The Singapore banking industry is saturated. It is highly concentrated and dominated by three main players--DBS Bank Ltd., Oversea-Chinese Banking Corp. Ltd., United Overseas Bank Ltd. Together they have about 60% of the market in domestic customer loans and deposits. Large banks, insurers, and wealth managers have been forward looking and disrupting their own propositions by offering digitally-accessible and technology-forward services.

Preferences: Customers are embracing fintech, but loyalty to incumbents remains strong

Digital banks in Singapore have been marketing heavily and offering incentives to attract new customers, such as lower fees and attractive deposit rates. We believe these tactics could boost short-term customer acquisition, but digital banks are not likely to replace existing banking relationships for most customers, who are more likely to use a digital bank as a supplementary account rather than switch. The incumbents already have a comprehensive suite of digital offerings, together with customer trust and loyalty from their long operating history.



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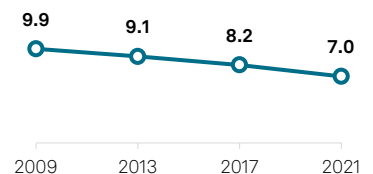
Average app rating of five largest banks



Note: DBS Bank, Oversea-Chinese Banking Corp, United Overseas Bank, Standard Chartered Bank, Citibank Singapore. Sorted by total assets. Source: iOs App Store Ratings.

Commercial bank branches

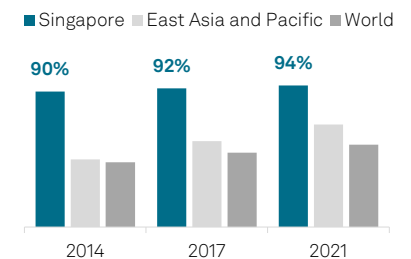
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

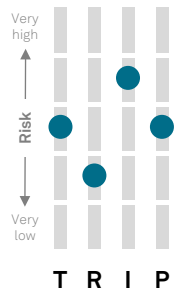
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Taiwan | Digital Transformation Faces Hurdles



Key Takeaways

- Disruption risk appears moderate for Taiwan's banking sector because regulatory barriers protect incumbents.
- Gaps are widening in the technical capabilities between leading banks and their smaller rivals.
- The pandemic has accelerated the shift in preference to digital banking solutions.



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Technology: Low budgets for digitalization and a talent crunch remain constraints

Most Taiwan banks have digital acceleration as a key strategic pillar. They are actively deploying new technologies such as open API (application programming interface), hoping to integrate financial services into key technological ecosystems. However, low profitability at many banks and the slow pace of digital advancement of smaller banks are sector weaknesses. A talent shortage and challenges posed by cyber risk management have also been key pain points for many banks.

Regulation: Regulatory barriers are still high for fintechs

We expect regulations to continue to pose little disruption risk for Taiwan's banking sector. The bank regulator, the Financial Supervisory Commission (FSC), closely scrutinizes new technology deregulation, often prioritizing system stability over innovation. Cyber security is one of the top regulatory priorities and has driven intensification of cyber security governance and the robustness of banks' operational resilience. While the regulator launched a regulatory sandbox in 2018, we understand that use of it by fintechs remain limited.

Industry: Gaps are widening among banks

Large private banks in Taiwan lead the way in digitalization. They continue to modernize technology architecture, opting for cost efficiency as well as big data analysis for client acquisition and targeted marketing. On the other hand, state-owned banks and small banks appear to still be in the middle or later stages of digitalization, largely due to lower levels of technology investment compared to bigger private sector peers. Three virtual banks have launched services, but they have not yet materially changed the competitive situation. All of them are struggling to find a business model that yields profits in an extremely competitive and over-banked market. Digital disruption risk is therefore higher than in other countries, in our view.

Preferences: The pandemic magnified calls for digital solutions

Cashless payment and the use of digital platforms increased during and since the COVID-19 pandemic. E-payments have become almost as popular as cash and credit cards in daily transactions. The younger generation are heavy users of digital platforms with limited touch points at bank branches. The low ratings of some of the apps of the largest Taiwan banks reflect the continued need for investment in technical infrastructure, in our view. We believe that government ownership is also a reason for the limited willingness of state-owned banks to invest in digital solutions.

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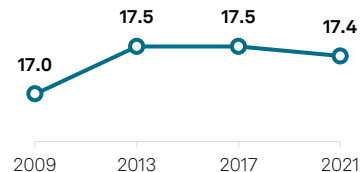
Average app rating of five largest banks



Note: Bank of Taiwan, CTBC Bank Co. Ltd., Taiwan Cooperative Bank, First Commercial Bank, Cathay United Bank. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

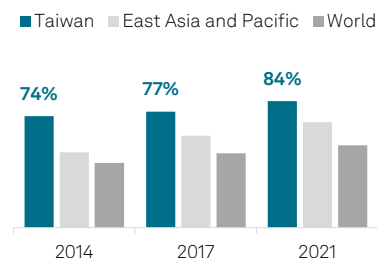
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

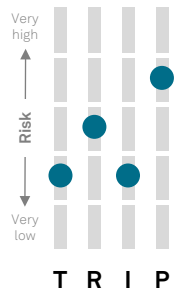
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Thailand | Agile Thai Banks Have An Upper Hand



Key Takeaways

- Evolving preferences of increasingly tech-savvy customers are accelerating the digital transition of Thai banks.
- The government and the central bank have also created favorable conditions for digital banking.
- Thai banks that delay investing in fintech could lose market share to those continually doing so.

Technology: Banks are adopting technology to stay relevant

We believe Thai banks are embracing new technology as the root of innovative product solutions, but the speed of implementation may differ. Based on the pace of adoption of technological solutions by local banks and the availability of resources, the risk posed by technology on the banking system is currently low. But this could rapidly change if operating conditions encourage the presence of big tech companies that emerge as worthy competitors with banks on various financial services.

Regulation: Supportive of fintech development

In our view, the Thai government and the Bank of Thailand (BOT) are pro-innovation. That said, we expect the BOT to open the industry only gradually as it ensures banks are sufficiently equipped to face the heightening competition. The central bank is likely to remain prudent and prevent any value-destructive competition. In June 2023, it announced a consultation paper for a virtual bank licensing framework. The aim is to foster innovation in the sector, improve financial inclusion for underserved segments and stimulate healthy competition. BOT will provide only three licenses by 2024.

Industry: Dominant players to lead the change

To anticipate and meet changing customer needs, large Thai banks have begun to rethink their business models, products, and services. The major banks are transforming and reorganizing their business with a focus on technology. We believe the banks that delay investing in fintech could lose market share to those continually improving customer experience and meeting customers' changing requirements. While the resulting digital evolution could redefine the industry landscape, we believe the dominant players, and maybe a few others, will proactively adapt and remain resilient.

Preferences: Customer is king

Customers are constantly looking for and migrating toward quick and easy ways of managing their finances, and fintech makes this possible. Thailand has a large middle-aged population, and that segment prefers convenience. Thai customers are increasingly digital savvy. They lean toward online bank transactions rather than visiting a local branch, and this trend is visible in both the urban and rural areas. The sound mobile internet penetration in Thailand supports banks' digital transformation. We believe Thai banks' brick-and-mortar presence will continue to shrink and the form and utility of bank branches will change over the next few years. We think this poses a high risk to Thai banks because the customer base expects digitized financial solutions that could be offered by non-bank alternatives.



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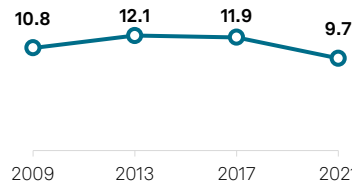
Average app rating of five largest banks



Note: Bangkok Bank, Kasikornbank PCL, Krung Thai Bank, Siam Commercial Bank, Bank of Ayudhya. Sorted by total assets. Source: Google Play Store Ratings.

Commercial bank branches

Per 100,000 adults

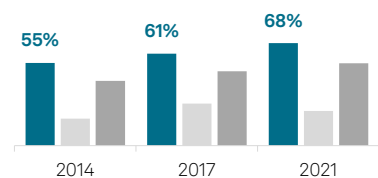


Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

Share of population with a credit or debit card

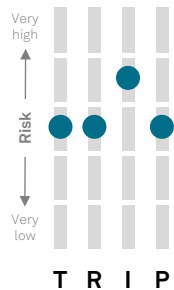
Aged 15+

■ Thailand ■ South Asia ■ World



Source: World Bank, The Global Findex Database.

Austria | Conservatism Meets Overcapacity



Key Takeaways

- Structural sector impediments remain key obstacles to banks' efforts to fully embrace digital opportunities.
- Additional investment in infrastructure and systems will be required to unleash the potential of new technologies.
- Conservative and relatively stable customer preferences should give Austrian Banks sufficient time to adjust to financial innovations.



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Technology: Midranking digital innovation

Austria ranks 10th in digital performance in the EU, according to the European Commission, behind frontrunners like the Nordics, Netherlands, and Ireland. Connectivity issues, due to the limited availability of both fast broadband and very high-capacity networks, has impeded digital progress but is being tackled by Austria's 2030 broadband-strategy. We regard the technological infrastructure to be sufficient to provide standard banking services. We consider Austrian banks' digital client services to be at a level that enables them to compete equally with alternative financial services providers.

Regulation: Balancing innovation and resilience

Austrian regulators are striving to lay the supervisory groundwork for innovation to flourish while also ensuring a level playing field for all participants. Digital transformation has been identified as supervisory priority for 2023, with an eye on promoting the stability of digital systems and expanding the resilience to cyber risks. Austrian regulators have established a sandbox, where innovative business models can be tested while complying with supervisory requirements. In a joint effort with banks and software providers, regulators have also created an integrated reporting model that aims to streamline banks' reporting requirements and improve consistency.

Industry: Efficiency is improving, but laggards remain

The banking sector's operating efficiency is improving, thanks to a mix of higher interest rates and management's increased focus on digitalization. However, the average cost-to-income ratio of about 65% remains mediocre in an international context and leaves banks with limited room to invest more heavily in technology, in our view. Structural sector impediments, such as the comparatively high number of banks and legacy information technology systems remain key obstacles to banks' efforts to embrace scale benefits and fully harness the potential of new technologies and digital opportunities. However, we currently don't consider banks' core business model to be under threat from fintechs because their product offerings are too limited.

Preferences: Cash is still the dominant payment option

Cash is still the preferred means of payment for 45% of Austrians, compared to 22% for the euro area. Austrians' preference for cash actually increased between 2019 and 2022, during the COVID-19 pandemic, when cashless payments gained in popularity in many European countries. The large number of banks and the wide availability of ATMs (at about 1,000 per 1 million inhabitants) also speaks to a national preference for more traditional banking. Despite this, more than 90% of the population has access to digital payments, meaning that the potential for tech disruption is limited more by preference than technology.

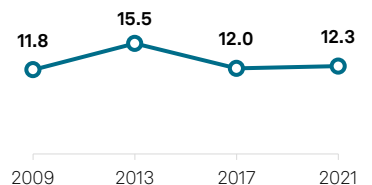
Average app rating of five largest banks



Note: Raiffeisen Banking Group, Erste Bank/Savings Banks, UniCredit Bank Austria, Bawag PSK, Volksbanken-Verbund. Sorted by total assets. Source: iOs App Store Ratings.

Commercial bank branches

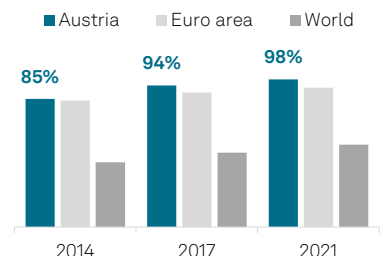
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Belgium | Big Banks Lead The Digital Transformation



Key Takeaways

- Digitalization of Belgium's banking sector is at an advanced stage and banks can handle competition from fintechs.
- Customer preferences are shifting toward digital banking, although privacy and security concerns persist.
- Larger banks will fare better in the digitalization race than smaller rivals, which lack sufficient scale and investment capacity to replace legacy IT systems.



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Technology: Digital technology implementation varies

Belgium regularly tops global digital technology adoption rankings, comparing favorably to most European peers. While large banks have embraced regulatory technology solutions and automation (including robo-advice services and automated credit scoring), small banks are laggards. Belgium's network infrastructure has room for improvement, compared to some European nations, especially when it comes to fiber deployment and the rollout of 5G. The government has, however, targeted upgrades to infrastructure with various initiatives.

Regulation: Innovation-friendly and in line with EU standards

The National Bank of Belgium (NBB) and the Financial Services and Markets Authority have jointly established a fintech portal to provide a single point of contact aimed at fostering dialogue between fintechs, incumbent banks, and the regulator. This has successfully accelerated technological development in the Belgian financial services sector, in our view. The absence of a sandbox approach to innovation in Belgium is notable.

Industry: Large banks are well positioned, but not invincible

Belgium's banking industry is quite resilient and highly concentrated, with the four largest banks accounting for most domestic system assets. Those incumbents have typically been the first movers in various digital transformation waves. We believe that digitalization is unevenly affecting the Belgian banking sector and that larger banks stand to reap greater benefits as their stronger digital offers become a differentiating competitive factor. Smaller banks, which have been tech laggards due to a lack of scale and profitability required for investment, are accelerating their digital shift. However, we consider fintechs to be the major threat to incumbents' saving product revenues.

Preferences: Belgian customers are agile, and the digital banking adoption rate is increasing

The Belgian population is tech savvy and over 80% use online banking services, a high level of penetration that is just behind the leading European markets in the Nordics, Netherlands, and Ireland. As highlighted by an NBB fintech survey, the biggest challenges for incumbent banks will be finding ways to increase mobile functionality and competing with the services offered by challenger banks, while AI and big data are likely to offer opportunities to reinforce their leadership position.

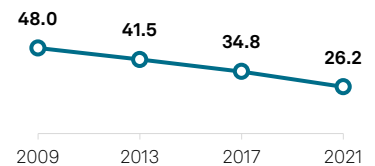
Average app rating of five largest banks



Note: BNP Paribas Fortis, KBC Bank, Belfius Bank, ING Bank Belgium, Argenta Bankieren. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

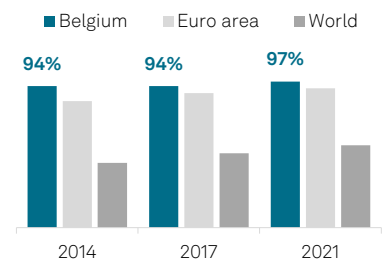
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

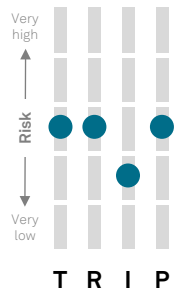
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Czech Republic | A Digital Frontrunner In The CEE



Key Takeaways

- The Czech banking sector is a digital leader among Central and Eastern European (CEE) countries.
- Strong earnings capacity and the benefits of belonging to larger, Western European banking groups fosters investments in digitalization.
- Regulators are not pushing digitalization, but customer preference for digital banking is driving innovation.



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Technology: Solid infrastructure and IT talent foster innovation

Czech banks are well equipped to offer technology solutions for standard banking services thanks to nearly 100% 4G cellular network coverage and fast broadband. What's more, employment of IT talent in the Czech banking sector (as measured by IT graduates per 1,000 bank employees) is among the highest in the European Union. This supports banks' digital progress, in our view. IT front-end solutions and advanced features, like digital assistants, are prominently used by Czech banks to increase digital sales and optimize cost efficiency by reducing manual activities.

Regulation: Czech regulators are hands-off

Regulators neither promote digitalization nor seek to protect banks from fintechs or bigtechs that could disrupt the sector with financial innovation. Like many other European countries, the Czech central bank has established a fintech contact point to promote communication between new entrants and supervisors. Czech regulators have not defined a strategy to supervise existing banks' business-model risks, yet most participants belong to large Western European banking groups. That reduces risk as regulators of the parent groups are pushing digital resiliency and preparedness.

Industry: Strong profits enable investment in digitalization

Czech banks are highly profitable and cost efficient. They continue to successfully digitalize their businesses models with the investment of a significant share of budgets dedicated to those changes. The five largest banks in the country (currently about 70% of market share) belong to large European banking groups. They typically benefit from their groups' economies of scale but could also be denied the agility and speed to effectively implement solutions ahead of their parents. That said, we have seen cases where subsidiaries digitalization is better than that of their parents.

Preferences: Leading online banking penetration

The Czech population is highly digital literate and has the highest online/mobile banking penetration among CEE countries. Banks appear fully aware of the importance of mobile banking and continue to invest heavily in their applications to meet client expectations, leading to solid app ratings among the top five banks. The use of digital payments has increased significantly, particularly since the COVID-19 pandemic. Smaller branch networks are also a result of clients' digital affinity and support the banking sector's cost efficiency.

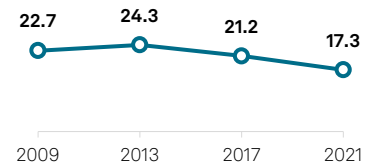
Average app rating of five largest banks



Note: CSOB, Ceska, Komerčni, UniCredit Bank Czech Republic, Raiffeisenbank. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

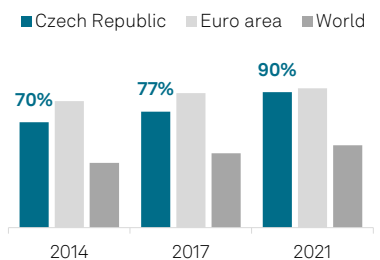
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

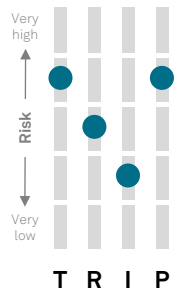
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Denmark | Banks Are Digital Leaders In Europe



Key Takeaways

- Danish banks enjoy sound profitability, partly thanks to their state-of-the-art digital product offerings.
- The current regulatory framework fosters innovation while holding non-banks to strict requirements and supervision.
- Clients' preferences, the entry of challenger banks, and fintechs are pushing banks to maintain significant investment in digitalization.



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Technology: Leading digital infrastructure sets the foundation

Danish banks have traditionally shown a high level of innovation, with close links to established suppliers of technology in the country. Technological progress is creating increasingly complex networks and new solutions, forcing banks to step up investment to maintain their digital leadership. Banks tailor their products and services in a way that makes the best use of new technologies, while internal cost efficiency benefits from resilient digital infrastructure. A strong domestic internet network is a key enabler, in our view.

Regulation: Tight regulation reduces fintech disruption threat

In 2018, the Danish government presented its strategy for Denmark's digital growth, with the aim of supporting the digital transformation of the private sector. As in many other countries, a regulatory sandbox was launched in Denmark the same year, giving fintech's the opportunity to test new technologies in close collaboration within the financial sector. The Danish Financial Services Authority appears to be demanding in its approach to non-banks, which impedes the entry of new rivals and simultaneously protects incumbents from the threat of market disruption.

Industry: Sound profitability enables further digital investments

The Danish banking sector is highly competitive, albeit it has become increasingly concentrated, with the four largest banks representing about 70% of domestic lending. Sound profitability allows banks to absorb large IT investments that improve operating efficiency through digitalization and automation. As the Danish fintech sector expands, we see a trend toward collaboration between incumbents and fintechs. However, the fintech sector is still developing, providing incumbent banks with some protection against disruption.

Preferences: Danish customers expect much from banks

Danish consumers have largely embraced digitalization and there is a continuous movement toward more self-service. As of 2021, 95% of the population are using online banking services, and noncash payment solutions became the norm a long time ago. High client expectations are putting pressure on banks to keep their products and services up to date. Consequently, Danish banks are becoming more digitally oriented to satisfy customers' evolving preferences and demands.

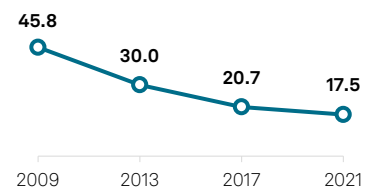
Average app rating of five largest banks



Note: Danske Bank, Nykredit, Nordea, Jyske Bank, DLR Sydbank. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

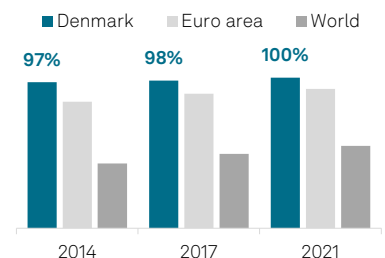
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

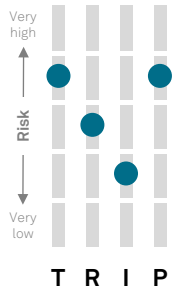
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Finland | Finnish Banks Are Digital Pioneers



Key Takeaways

- Finland's banks are at the forefront of digitalization globally in line with their continuous investments in technology and talent.
- The country's infrastructure remains the backbone for digital innovation and supports the transition to a cashless society.
- Tech-savvy customers' demand for seamless and convenient banking solutions is the key disruption risk for banks.



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Technology: Advanced infrastructure backs innovation

Finland ranked No. 1 on the EU's Digital Economy and Society Index in 2022 and digital competence and cyber security are among its strengths. Thanks to its strategy of collaboration, Finland is a forerunner in 5G both in terms of network expansion and research and development, which will aid innovation in the banking industry. This ensures that banks, financial institutions, and their customers will have a seamless and secure connection with increased reliability and speed.

Regulation: The focus on digitalization is increasing

Given the Finnish banking sector's early-mover status, we see the Finnish Financial Supervisory Authority (FSA) as monitoring rather than promoting innovation. Digitalization is one of the FSA's key supervisory focus areas. We understand it will closely monitor the impact on financial stability and is developing supervisory best practices to benefit customers. The FSA's FinTech Helpdesk is an example of its support for fintechns, but we see its role as neutral for fostering innovation for now.

Industry: Record profitability enables new investments in tech

The banking sector remains highly concentrated and interconnected through major banks' pan-Nordic operations. Banks' strong profitability due to high interest rates and cost-efficient operations position them well to increasingly invest in digital capabilities (including automation and artificial intelligence) thereby warding off disruption. Banks have announced additional tech talent hirings and increased digitalization budgets. Incumbents have also embraced collaboration with fintechns, for example through accelerator models, enabling greater opportunities for growth and data access.

Preferences: Digital-savvy customers demand new services

Finland adopted digital banking services a long time ago, with electronic banking introduced in the 1990s. The economy has moved from using cash to other forms of payments much faster than other countries, and cash transactions account for less than 10% of payments. This rests on customers' confidence in institutions like banks, advanced financial literacy, and openness to new digital technologies in banking. Although daily banking is almost fully digitalized, the Finnish population somewhat lags those in other Nordic countries in the adoption of mobile wallet solutions, due to the fragmentation of the mobile payment market.

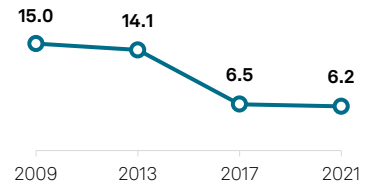
Average app rating of five largest banks



Note: Nordea, OP Financial Group, Danske Bank (Finland), Aktia Bank, S-Bank. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

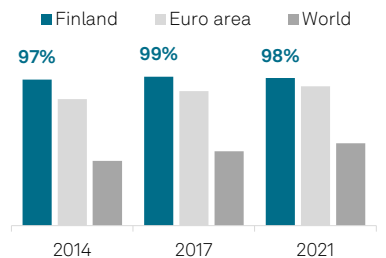
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

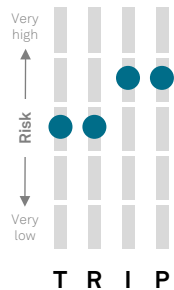
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

France | Digitalization Makes Headway



Key Takeaways

- Consolidation has occurred around established banks after several independent online players and fintechs proved unable to compete and generate sustainable profit.
- Digital services have led to only marginal cost savings due to still high IT investment and continuing demand for large branch networks.
- The development of legislation on crypto assets and regulators' increasing focus on cyber security are positives for banking sector digitalization.

Technology: Extensive services and continued investment

All large French banks offer exhaustive online products and have dedicated, pure-online bank subsidiaries. French banks also continue to invest in payment services, notably through domestic banks' CB joint venture, which provides an interbank payment network that is a direct competitor to Visa and Mastercard.

Regulation: Regulators are developing their digital awareness

Cyber risk regulations are defined at an EU level, and EU authorities are showing increasing interest in the regulation of crypto assets. The European Central Bank has announced plans to conduct a new cyber resilience stress test in 2024. French domestic regulator, the ACPR, is also monitoring banks' cyber resilience, AI-led applications, and digitalization of the banking market. Business-model risks which could emerge due to new technologies remain a top priority for supervisors.

Industry: Consolidation around traditional actors

French banks' broad business models (combining banking and insurance) are vulnerable to digital disruption from focused fintech actors that target more profitable operations. Traditional banks are responding to the risk with enhancements to their digital offers, reduced branch numbers, and development of their own online banks. That has improved their ability to resist competition, while independent digital players face very high entry costs and an unproven path to profitability. Several independent, pure-online players, including fintechs, have ceased activity in recent years, to the benefit of traditional banks' online subsidiaries.

Preferences: Digital adoption tempered by proximity demands

French clients expect multi-channel banking services, with comprehensive self-service apps, and personalized services for important operations, according to a study by the ACPR. Pure-online players thus primarily offer basic digital services (regular payments and savings accounts) and some specialized services (brokerage) where margins are tighter. Cooperative banks, in particular, have retained large branch networks to maintain proximity to clients, especially in rural areas, despite significant investment in digitalization.



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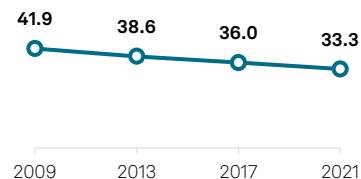
Average app rating of five largest banks



Note: BNP Paribas, Crédit Agricole, BPCE, Société Générale, Crédit Mutuel. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

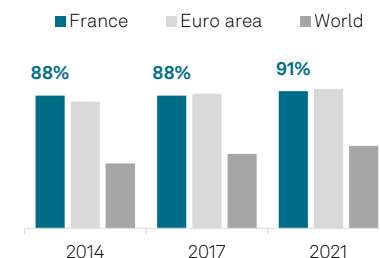
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

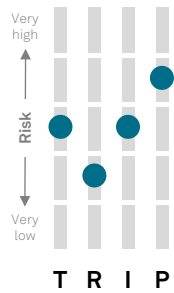
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

GCC | Gradual Market Disruption



Key Takeaways

- Good IT infrastructure and increasing demand for digital banking solutions make the GCC a more favorable environment for fintech than nearby markets.
- We expect regional regulators to continue protecting banking system stability while trying to unlock digital opportunities.
- Disruption is yet to reach lending or investment services, which remain dominated by human interactions and traditional banks.



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Technology: Solid foundations and a desire for progress

The Gulf Cooperation Council (GCC) countries provide a more favorable environment for fintech adoption than other emerging markets. The GCC scored an average 53.2 on the technology pillar of the 2022 "Network Readiness Index", compared with 34.9 for the Middle East and Africa and 60.7 for high-income countries. Despite that, key elements required for banking digitalization are still in their infancy, including broad adoption of big data, artificial intelligence (AI) analytics, and cloud computing. These technologies are, however, important for GCC governments' national transformation plans, which aim to diversify their economies away from hydrocarbons.

Regulation: Protecting banks and unlocking opportunities

Authorities in the GCC are wary of disrupting their banking systems, which play key roles in funding their economies in the absence of broad domestic capital markets. However, they are encouraging financial innovation with supportive initiatives such as open banking (notably in Saudi Arabia), and the promotion of fintech sandboxes and accelerators. Efforts to maintain banking system stability extend to safeguarding the sector from potential major disruption by nonregulated entities, new market players, and big technology companies. The latter's involvement in the GCC is reportedly limited to the provision of payment services (such as Apple Pay and Samsung Pay).

Industry: Banks seem ready and are disrupting themselves

Infrastructure investment has enabled GCC banks to pursue digital channel growth and minimized the impact of the COVID-19 pandemic on their operations. Established banks sponsored the launch of online-only banks (Nomo in Kuwait, MashreqNeo in the UAE) to cater to increasing demand for digital solutions. We previously identified payment as the most susceptible industry to disruption and have seen this materialize in the region, with an increasing number of fintech firms offering solutions. Banks have responded by creating their own payment arms, which secured new investors through partial divestments. Broader availability of data, data analytics, and AI could strengthen banks' risk management and enhance sales through more-targeted marketing initiatives.

Preferences: Demand led by expat and youth populations

GCC-based demand for fintech offers is being driven by lower costs for service provision and speed of execution. The large expatriate population, particularly low-income workers transferring money back home, is a significant source of demand for inexpensive, higher-speed money transfer companies. The region's youth are also spurring demand for digital services. However, lending is still primarily conducted via human interaction, while distribution of investment products is dominated by traditional banks, which have the confidence of the general-public and regulatory protection.

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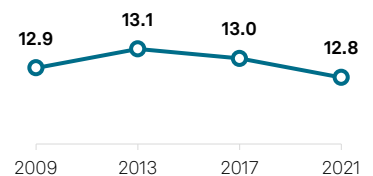
Average app rating of five largest banks



Note: Qatar National Bank, First Abu Dhabi Bank, Saudi National Bank, Al Rajhi Banking and Investment Corporation, Emirates NBD. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

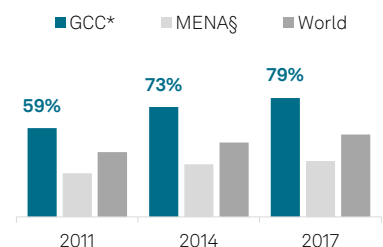
Per 100,000 adults



Note: Median values of Kuwait, Oman (excl. 2021), Saudi Arabia, UAE, and Qatar. Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

Share of population with a credit or debit card

Aged 15+



*Median of Bahrain, Kuwait, Saudi Arabia, UAE, and Oman and Qatar (2011 only). \$Data estimated for 2014. MENA--Middle East and North Africa. Source: World Bank, The Global Findex Database.

Germany | The Digital Transformation Is On Track



Key Takeaways

- German banks have made tangible progress in digitalizing their retail business models, accelerating digital sales, and improving cost efficiencies.
- We think intense sector competition has pushed banks to increase their digitalization efforts to meet changing client expectations.
- Digital disruption and cyber risks are a top priority for regulators. We expect greater supervision of these risks.



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Technology: Material investment is increasing digital services and reducing costs

German banks have defined digitalization as a key strategic pillar. Full implementation will take years, but there are already tangible gains from the automation of simple banking services that reduce complexity and costs. Banks are focused on reshaping their IT operations toward leaner and more secure systems. Many are migrating to cloud-based systems that offer simplified IT architecture while still leveraging data. The extensive use of legacy systems and software means large-scale transformation is necessary, which also comes with significant execution risks, in our view.

Regulation: Scrutiny of business and cyber risks is increasing

Germany's central bank (Bundesbank) and financial supervisory authority (BaFin), as well as the European Central Bank have defined general business model risk and cyber risk as among the top-three supervisory priorities. Regulators are encouraging banks to develop transformation plans and execute them to improve business models and digital resiliency. We understand the country's banking supervisors are undertaking targeted reviews and on-site inspections that could lead to future regulatory actions, particularly with regards to cyber risks. The war in Ukraine has increased cyber risk, which is reflected in an uptick in attacks on German banks since 2022.

Industry: Higher interest rates boost margins, but cost control is still underway

German retail banks' margins have benefited from sharply higher interest rates while plans to improve cost efficiency remain a work in progress. Consolidation, through branch cuts and domestic mergers, supports this positive trend, in our view. Banks are also opting for remote and self-service offerings to increase digital sales. Some innovative fintechs have become important parts of Germany's financial sector, though we have not observed a material shift in client bases away from traditional banks.

Preferences: Customers have basic product expectations and remain glued to cash

Card and mobile payments have materially increased in recent years, yet most of the German population still uses cash in daily transactions (63% of all payments were in cash in 2022, compared to 59% across the euro area). We believe banks have to offer omnichannel banking and products to meet prevailing client expectations. The high app ratings given to large German banks reflect both the apps quality and their ability to meet clients' basic banking demands.

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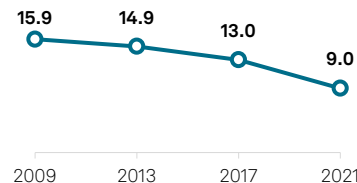
Average app rating of five largest banks



Note: Volksbanken Raiffeisenbanken, Sparkassen, Deutsche Bank, Commerzbank, UniCredit Bank. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

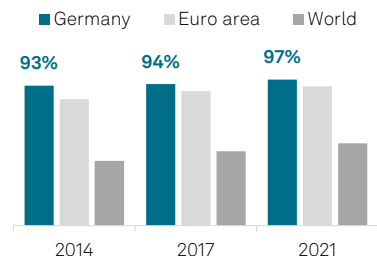
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

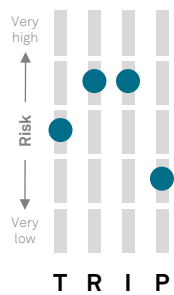
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Hungary | Digital Laggards Are Becoming Smart Followers



Key Takeaways

- Hungarian banks are mostly digital laggards compared to other banks in Central and Eastern Europe (CEE) but digital capabilities have improved significantly over recent years.
- Client adoption of digital banking services also lags that of nearby countries.
- The central bank (MNB) actively promotes and incentivizes digitalization of banks' business models, which differentiates it from other regulators, in our view.

Technology: Materially better capability but low penetration

Digital access to banking products has improved significantly in recent years, but utilization of digital sales channels remains very low compared to CEE peers, both in the retail banking and enterprise banking sectors. Adoption is facilitated by close to 100% 4G coverage and widespread fast broadband access, yet low financial literacy and overall low penetration of financial services are barriers to full digitalization of the banking market.

Regulation: The central bank's hands-on approach is actively pushing banks towards digitized business models

MNB has implemented measures to support the emergence of new players (such as a regulatory sandbox, innovation hub, comprehensive digital surveys, and reports to increase transparency) and serves as an accelerator for domestic bank digitalization. We consider this promotion of banking sector digitalization to be more proactive than among many European peers and that it poses a risk to slower adapting institutions. Individual banks may find it difficult to keep pace with new guidelines and reporting standards, while also facing stricter regulatory requirements.

Industry: Banks dominating the fintech market

Hungarian banks' IT capital expenditure lags that of their European peers, with an average IT development budget/total IT budget of about 29%, compared to the EU average of 39%. We consider most banks in the country to be at a digital adoption phase or to be latecomers. At the same time, taxes have reduced bank profits considerably over recent years, which has reduced IT spending capabilities. Fintechs' and bigtechs' share of the banking market is largely immaterial. Of about 150 Hungarian fintechs, 80% are micro or small businesses that mostly operate in the business-to-business sector, e.g., financial software development.

Preferences: Customers more complacent compared to peers

Banks are increasingly supporting online banking penetration with pricing incentives. However, enrollment for digital channels is still below the CEE average (at about 80% versus 90%), and old practices remain popular--about one third of the population still receives paper bank statements. About 38% of bank customers use both physical and digital channels, while just 25% are exclusively online. Openness to digital banking declines with age and increases with education level and household income per capita, according to a recent MNB survey.



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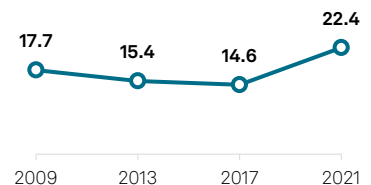
Average app rating of five largest banks



Note: OTP Bank, MBH Bank, K&H, UniCredit Bank Hungary, Erste Bank. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

Per 100,000 adults

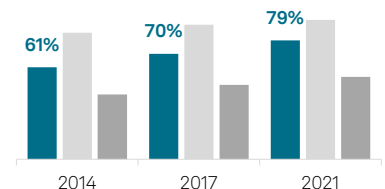


Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

Share of population with a credit or debit card

Aged 15+

■ Hungary ■ Euro area ■ World



Source: World Bank, The Global Findex Database.

Iceland | Digitally Advanced With Untapped Potential



Key Takeaways

- Significant utilization of financial technology has set the stage for the further digitalization of consumer banking.
- Reforms and legislation that encourage digitalization and foster innovation will be crucial to maintain momentum.
- Incumbent banks are European leaders in digital services, but tech-savvy customers and emerging competition pose disruption risks.

Technology: At the forefront of digitalization

Iceland is among the frontrunners in digital service and infrastructure and ranked sixth globally in the U.N.'s 2022 E-Government Development Index. With 5G available to most Icelanders and more than half of the population already frequent e-shoppers, we believe digitalization and innovation will continue to drive change in the retail banking industry.

Regulation: Strong foundations but continued effort is needed

Due to the financial sector's digital proficiency, we believe the regulator monitors rather than promotes banking sector innovation. In recent assessments, the IMF concluded that further efforts are required to boost digital penetration, increase innovation potential, and reduce the regulatory burden on start-ups. In tandem with initiatives to digitize government and infrastructure, we expect a greater focus on fostering innovation and monitoring its effects on financial stability. Moreover, as a new member of the Nato Cooperative Cyber Defence Centre Of Excellence, we expect Iceland will close the cyber security gap to comparable nations.

Industry: Fintech collaboration is central to innovation

Iceland's three incumbent banks offer significant fintech solutions and are far ahead of their European peers. For example, 99% of private customer interactions and an increasing share of core product sales are conducted via digital channels. Competition is coming from challenger banks (such as Kvika, Indó, and Meniga), which are using technology to overhaul usual banking practices. The incumbent banks' strong profitability and cost-efficiency provide a good basis for investment and development to ward off disrupters while the small Icelandic market and the krona are barriers to foreign competition.

Preferences: Tech-thirsty Icelanders will drive innovation

Icelanders were early adopters of digital banking and cashless payments, with cash-to-GDP at an impressively low 1.2% by the early 2000s. Digital wallets and contactless payments, including via fitness devices such as Garmin-Pay and Fitbit-Pay, are gaining traction and thus making Iceland an interesting market for emerging Nordic fintechs. The population's continued demand for convenient and technologically seamless banking will ensure incumbent banks remain under pressure to innovate and will continue to be the main source of disruption risk to the sector.



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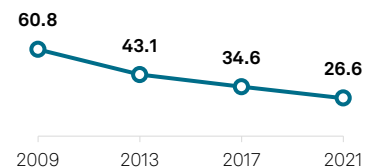
Average app rating of five largest banks



Note: Lansbankinn, Islandsbanki, Arion Bank, Kvika. Sorted by total assets. Source: iOs App Store Ratings.

Commercial bank branches

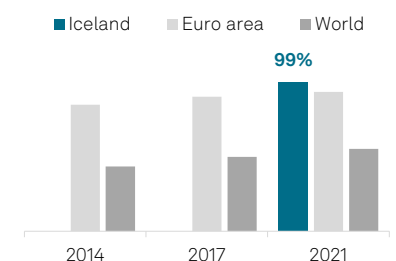
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

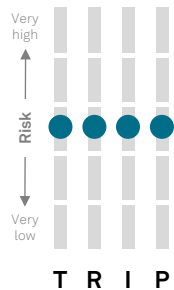
Share of population with a credit or debit card

Aged 15+



*2014 and 2017 figures not available. Source: World Bank, The Global Findex Database.

Ireland | Collaboration Rather Than Competition



Key Takeaways

- Tech disruption risks are limited in the short- to medium-term by customer stickiness and basic product and service expectations.
- A focus on dealing with legacy banking issues has slowed adoption of new technologies, though Ireland has the infrastructure and talent to become a European fintech leader.
- Much of the innovation that has emerged has come from collaboration with tech companies and has focused on improving banks' operational efficiency.

Technology: Solid infrastructure underpins tech adoption

Ireland's technology infrastructure and ecosystem is among the best in Europe and includes significant 5G coverage, a notably high share of IT specialists in the workforce, and robust innovation hubs. This has enabled banks to implement new technologies such as cloud computing, blockchain, and AI, through partnerships with technology providers as well as via internal development. Innovation has mainly focused on improving efficiency rather than the provision of tech-enabled customer services.

Regulation: Support for innovation and start-ups

The state's "Ireland for Finance" plan made technology and innovation a main pillar of financial sector development. The government and the Central Bank of Ireland have established enterprise agencies to invest in and collaborate with fintech, and they offer fiscal incentives to foster the development of start-ups and new technologies. We view this as a good starting point to promote tech development in the financial services sector. However, these initiatives slightly lag those of other regulators as, for instance, there is still no sandbox approach to innovation in Ireland.

Industry: Core improvements are almost complete, now it is time to catch up on tech and digital

Over the past decade Irish banks have focused on solving legacy issues, including asset quality weaknesses and poor efficiency. In the meantime, fintech companies, which benefit from lower-cost operating structures, have emerged as relatively strong competitors in some subsectors. Now that the banks' legacy issues are largely solved, and with higher interest rates supporting significant revenue growth, there should be an opportunity to invest in tech and digital improvements.

Preferences: Tech familiarity and behavioral shifts should accelerate adoption of new technology

Customers' reluctance to switch banks and generally basic expectations regarding services and products have weighed on adoption of digital solutions. Yet behaviors have started evolving. Largely due to its relatively young population, Ireland ranks third in the use of mobile payments across the eurozone, while the number of daily mobile interactions between clients and banks has almost double over the past three years.



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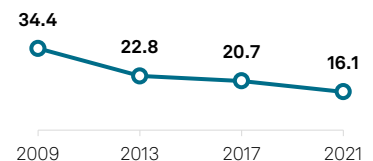
Average app rating of three largest banks



Note: Bank of Ireland, AIB Group, Permanent TSB. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

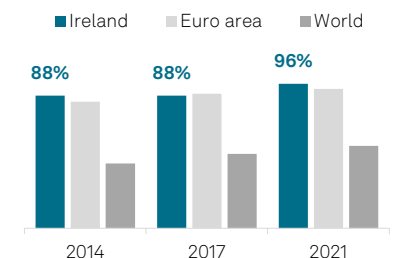
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

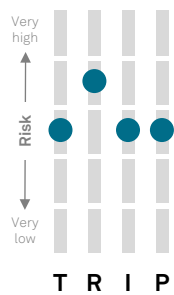
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Israel | Digitalization Is Underway Despite Limited Tech Disruption



Key Takeaways

- Tech disruption of retail banking and penetration by fintechs has been limited by customer loyalty and market concentration.
- Regulation has been focused on facilitating competition and promoting technological innovation.
- Banks' significant investment in digitalization is supported by increased margins stemming from higher interest rates and cost saving initiatives.

Technology: Increased spending augmented by fintech collaboration

Israeli banks' significant investment in digitalization is targeted at improving customer service and efficiency, though adapting core systems to the new technology remains a challenge. We expect IT spending will remain high and that implementation will take years. Fintechs have only a modest presence in Israel and, in general, seem to have little appetite for entering the market due to its limited scale and growth potential. However, we believe that local banks are looking for opportunities to collaborate with fintechs that can help them adapt their business models to meet on-going challenges.

Regulation: New initiatives seek to increase competition

While the main objective of the Bank of Israel (BoI) remains to preserve financial stability, we expect it will continue to promote regulations and policies with the objective of enhancing competition over the coming few years. These efforts have already included separating credit cards companies from several banks, the establishment of a credit bureau (to minimize the information disparities between players), the development of systems enabling customers to easily switch banks, and the grant of a license for the first fully digital bank.

Industry: Banks benefit from interest income and efficiency

Israeli banks' profit margins have benefited from a sharp increase in interest rates and the implementation of programs to reduce costs and improve efficiency, both of which have provided greater scope for investment in new technology. Market concentration is high, with the top three banks accounting for 75% of deposits. This dominance supports the banks' ability to lead technological innovation. As such digital banking services are growing rapidly, while branch numbers are falling, though at a slower pace than the OECD average.

Preferences: Digital wallet adoption could prove a long-term challenge for banks

Israel's diverse population is reflected in its varied banking preferences. Use of digital wallets continues to expand rapidly, while payments made with cash decline gradually (to about 21% of payments in 2022). That shift benefits banks and credit card companies, which receive a commission for each transaction and thus stand to grow their revenues. However, over the long-term, digital wallet adoption could pave the way for alternative payment processing systems that may challenge one of the banks' core activities.



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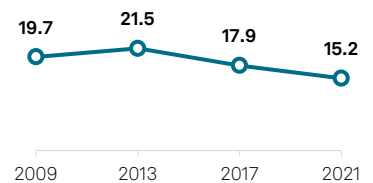
Average app rating of five largest banks



Note: Bank Leumi, Bank Hapoalim, Mizrahi Tefahot Bank, Discount Bank, First International Bank. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

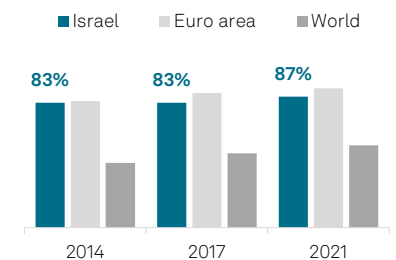
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

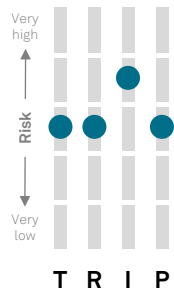
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Italy | Habits And Branches Slow Digitalization



Key Takeaways

- Most banks are rapidly enhancing internal processes, offering multichannel solutions, improving the customer experience, and trying to keep abreast with innovation.
- Differences in terms of digitalization are significant, reflecting banks' different earnings profiles and consequent investment capacity.
- Regulators appear increasingly active in preventing and tackling the risks associated with digitalization, particularly cyber security and violation of money laundering rules.

Technology: Improving digital offerings but at different speeds

We see no inherent obstacles to digital innovation or adoption of digital services in Italy. Banks are investing in digitalization and making significant efforts to improve their clients' digital experience. There are however significant differences across banks, linked to the resources available for investment. That has pushed small- and mid-sized banks to increasingly share technology capabilities and platforms to achieve their digital goals. Legacy infrastructure and organizational deficiencies can also hinder progress.

Regulation: A focus on digitalization's challenges and risks

The Bank of Italy considers cybersecurity, customer protection, and violation of anti-money laundering regulation as the key risks arising from greater digitalization, use of external providers, and open banking initiatives. Italy's adoption of open banking rules facilitates third-party fintech services, but we expect significant adoption of fintech platforms will be slower than in other countries. Italy's financial supervisory authorities oversee a regulatory sandbox for fintech activities, which was established in 2021.

Industry: Higher rates support investment, but legacy assets remain costly

Rising interest rates will support bank profitability and investment capacity, though structural issues (the high-cost base) continue to constrain some banks' ability to earn their cost of capital. M&A and liquidation has led to material consolidation, but weaker banks will still struggle with the challenges of increasing digitalization. Multichannel banking has enabled most banks to retain their client base despite challenges from innovative fintechs. Traditional banks' pace of digitalization and investment is strongly correlated to their branch reduction programs. Established but agile banks that combine in-person financial advisors with advanced digital platforms are gaining market share in wealth management at the expense of some laggards.

Preferences: Adoption of basic digital services, but cash rules

Mobile and online banking usage has grown rapidly over the past five years, albeit from relatively modest levels. That was primarily driven by new digital offerings and efforts to reduce branch utilization. Customer preferences remain generally conservative and basic, contributing to the stickiness of market shares at traditional financial services providers. Cashless transactions have increased by 44%, compared to pre-pandemic levels, but about 60% of daily transaction are still in cash.



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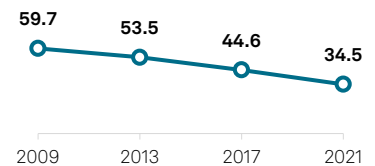
Average app rating of five largest banks



Note: Intesa Sanpaolo, UniCredit, Banco BPM, Gruppo Bancario Cooperativo, BPER Banca. Sorted by total assets. Source: iOS App Store Ratings.

Commercial bank branches

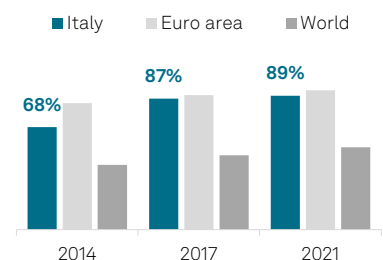
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

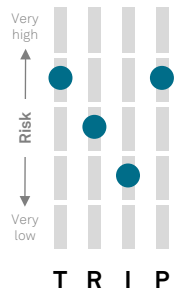
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Norway | Ready For The Next Phase



Key Takeaways

- Real-time settlement facilitates smooth transfers for consumers who are tech confident and demand convenient and swift digital solutions from banks.
- The development focus is expanding beyond the saturated retail market to the provision of digital banking services for small and midsize enterprises.
- Regulators facilitation of digital innovation has established incumbent banks as leaders relative to EEA counterparts.

Technology: The relevant framework is in place

Norway's digital savviness is evidenced by its ranking ahead of the EU on the Digital Economy Society Index (DESI). Successive governments have backed digitalization to strengthen productivity and thus worked to foster high levels of digital competence and inclusion. Cash transactions are virtually non-existent--98% of the population have credit or debit cards and most bank accounts are connected to an instant payment app, called Vipps. The rollout, in 2020, of a common infrastructure for real-time payments has provided Norway's banks with one of the world's most advanced payment-settlement systems.

Regulation: Hands-on regulators are fostering digitalization

Regulators have taken a proactive approach to developing digital expertise. The Norwegian Data Protection Agency, in 2021, launched a sandbox to help companies develop AI products while protecting privacy. In late 2022, Norway's central bank, Norges Bank, provided access to the source code for a central bank digital currency (CBDC) sandbox. Norges bank will analyze and test the implications of a Norwegian CBDC over the next two years. Both sandboxes will seek to emulate the success of the Norwegian Financial Supervisory Authority, which in 2019 launched a regulatory sandbox for fintech companies, which we consider to be a major contributor to increasing the pace of Norway's technological innovation.

Industry: Lean operations and advanced digital platforms

Norway's digitally-advanced banks have adopted innovations from the fintech sector and incorporated automation opportunities over several years. As a result, their operating efficiency is high compared with European peers. Consistent investment is the norm and helps ensure up-to-date developments are incorporated across different operations. Households have been the primary target for digital product offerings to date and we anticipate a broadening of the range of online products for small and midsize enterprises over the coming years.

Preferences: Cashless consumers demand digital solutions

Cash was used in about 3% of transactions in 2022, according to Norges Bank, making Norway the most cashless Nordic country. The number of bank branches in the country has fallen successively over many years but appears to be plateauing with banks moving toward a more omnichannel approach to ensure customers have access to advisory services if needed. That said, Norwegians aversion to cash and digital familiarity will continue to drive demand for digital services and innovation and should encourage banks to maintain their technological lead.



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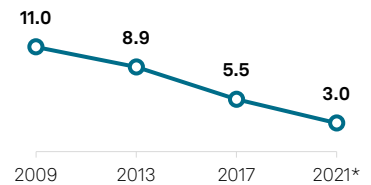
Average app rating of five largest banks



Note: DNB, Sparebank 1 SR, Sparebanken Vest, Santander, Sparebanken Sør. Sorted by total assets. Source: iOs App Store Ratings.

Commercial bank branches

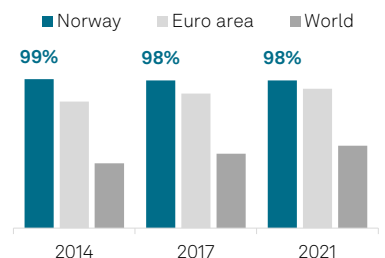
Per 100,000 adults



*Estimate. Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

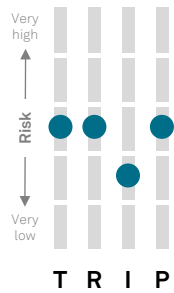
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Poland | Digital Competence Reduces Risks



Key Takeaways

- Digitalization of Poland's banking sector is at an advanced stage and banks are prepared for competition from fintechs.
- Good profitability, despite government intervention and legal costs for some banks, and strong cost efficiency support investment capacity.
- Banks' digital competence, customer preferences, and competition lead to constant progress on new product offerings.



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Technology: Competition and IT competence fuel innovation

The digital affinity of customers, especially younger clients, and good 4G and broadband coverage, support the uptake of digital banking products and self-service transactions. Also, banks benefit from the availability of local IT talent, as shown by the relatively high number of IT graduates per 1,000 bank employees. Retail clients recognize the strengths in mobile banking, since the five largest Polish banks have the highest average app rating in CEE. Implementation of cloud infrastructure supports the digital transformation through new products and more efficient processes.

Average app rating of five largest banks



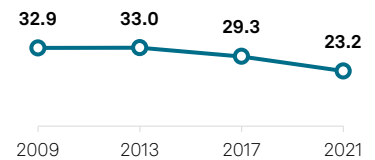
Note: PKO, Bank Pekao, Santander Bank Polska, ING Bank Slaski, mBank. Sorted by total assets. Source: iOS App Store Ratings.

Regulation: The framework has little influence on disruption risk

We consider that Poland's supervisory framework for banks neither protects incumbent banks nor favors expansion of new entrants. Banking regulation focuses on traditional financial and nonfinancial risks but also tries to encourage financial innovation, through an innovation hub and a virtual sandbox. These enable supervised entities but also other players to test their business assumptions and technological solutions through an open API interface with technological assistance from the regulatory body. Beyond that, the regulator merely monitors the digital progress of banks and reacts, if needed.

Commercial bank branches

Per 100,000 adults



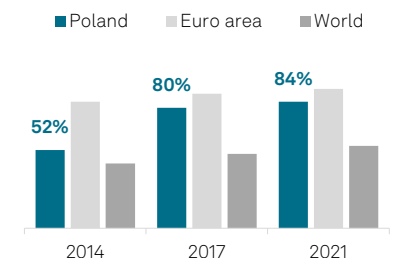
Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

Industry: Good investment capacity and cooperation with fintechs reduce disruption risk

Despite government intervention and sizable legal costs linked to mortgage loans in foreign currency, we expect no material cut back in IT investments among domestic banks. Banks are already benefitting from previous infrastructure investments, have extensive partnerships with fintechs to improve their product offerings, and enter joint ventures. These include a project involving the top seven local banks that operate the BLIK mobile payment solution. This initiative has defended the banking sector against international payment providers like PayPal, securing this revenue channel and reducing reliance on credit card networks.

Share of population with a credit or debit card

Aged 15+

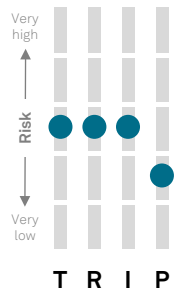


Source: World Bank, The Global Findex Database.

Preferences: Mobile banking is showing growth

Overall, online banking penetration is lower than the average in the EU (and in the comparable Czech market). Especially in more rural areas and among the older population, we observe a preference for using traditional bank advisory services through branches. Nevertheless, more than 50% of new current accounts are opened through digital channels, a higher share than in other CEE countries. These clients tend to be younger and an attractive customer segment for banks.

Portugal | Continued Investment, Manageable Risk



Key Takeaways

- Bank digitalization somewhat lags Europe as it has been delayed by infrastructure gaps, customer conservatism, and the previous focus on working out problem exposures.
- Digitalization is now a priority for banks, and the sector is well positioned to manage the shift and material investment in technology over, at least, the next five years.
- Fintechs and bigtechs are not an imminent competitive threat and we view regulation as favoring neither incumbent banks nor potential tech rivals.



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Technology: Further digitalization remains a priority

Portugal's adoption of new technology has been patchy. For example, Portuguese companies' use of cloud computing lags the EU-average, as does 5G coverage--particularly in rural areas. We expect some of the gaps to close, notably with help from the EU Next Generation Funds' digital component. Portuguese banks were slow to begin upgrading and transforming legacy IT systems, because they were busy working out problem exposures. They are now gradually catching up with their European neighbors in terms of automation, simplification, and digitalization of customer services.

Regulation: A predominantly neutral stance

We do not think that Portugal's regulator proactively fosters fintech innovation. There is a fintech association, called FinLab, that supports startups engaged in financial services, but there is no regulatory sandbox. Policymaking related to data privacy, artificial intelligence, crypto assets, and cyber is overseen by the European Central Bank. However, we consider Portugal's stance toward crypto to be friendlier than most of Europe, with no taxes on earnings from crypto, in most circumstances.

Industry: Limited disruption from fintech and bigtech companies

The highly concentrated and efficient Portuguese banking system is well positioned to retain its loyal customer base, affording it time to continue investing in its digital transformation. Ownership of local banks by larger Spanish banks provides synergies that aid digitalization. The local fintech industry is fragmented and largely business-to-business focused, acting more as collaborator than a threat to incumbent banks. Bigtech companies might pose a risk in the long-term but have, for now, not entered lending activities in Portugal.

Preferences: A digital shift is underway, but customers remain traditional

We consider the average Portuguese retail customer to be more traditional than in other European countries. This is largely due to the preferences of more rural populations and high branch network density, which facilitates face-to-face relationships. Portuguese customers' online bank usage is still lower than the EU average. That said, COVID-19 accelerated a shift to digital transactions, and cash versus card usage in Portugal is now at about the EU average. Policymakers have also sought to improve the population's digital skills, which are now at broader EU levels.

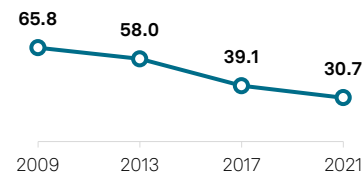
Average app rating of five largest banks



Note: Caixa Geral de Depositos, Banco Comercial Portugues, Santander Totta, Novo Banco, Banco BPI. Sorted by total assets. Source: iOS App Store Ratings,

Commercial bank branches

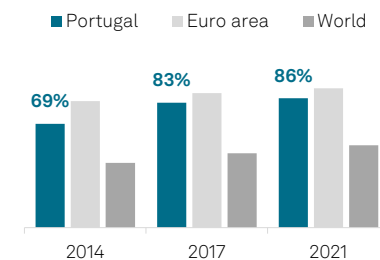
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

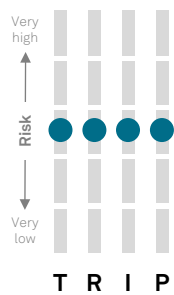
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Slovenia | Digitalization Follows Years of Transformation Of The Banking Sector



Key Takeaways

- Slovenian banks have been de-risking their balance sheets over the past decade after the big banks in the country were rescued in 2012-2013.
- After successful bank privatizations until 2020, management teams have been increasing their attention toward digitalizing business models.
- Clients follow a wait-and-see approach, giving banks flexibility on the timing of product innovations, while regulation is defined at the European level.

Technology: Banks are fast followers and show willingness to adapt their business models

Slovenian banks have seen rapid uptake of digital offerings by their clients in recent years, accelerated by the pandemic. Digital banking customers increased significantly, while e-commerce in the country unsurprisingly also shot up. The use of online channels gave banks more reasons to cut their branch networks: We estimate branches were below 20 per 100,000 adults at year-end 2022. Banks have increased their budgets to fund change, while large banks benefit from IT talent pools across related companies in Eastern Europe.

Regulation: Slovenian regulators benefit from EU laws on cyber and business model risks

A large part of the banking sector is either directly or indirectly regulated by the Single Supervisory Mechanism (SSM), the cross-border supervisor in the euro area. As a result, national regulations benefit from initiatives that are defined by lawmakers across Europe. Cyber risk requirements, defined on the EU level, and a recent push by the SSM to embed business model risks as a key risk area in banks' strategies are helping to increase the quality of supervision in Slovenia, in our view.

Industry: No threat from disruptive fintechs and sufficient earnings buffers for investments

We see limited threat from fintechs in Slovenia, considering the small size of the country and dominant market leaders that increase barriers to entry. Banks have gradually increased their profitability since 2014 and managed to reduce nonperforming assets substantially. Higher earnings buffers enable them to innovate with new products. That said, we see limited efforts to improve internal IT architecture, for example by moving to the cloud.

Preferences: Clients are adapting to banking innovation

While the client base has increasingly adapted to online and mobile banking in recent years, we see limited signs of client migration between banks that would pressure banks to accelerate digitalization. For example, banks' deposit betas, which measure the pass-through of higher interest rates from banks to depositors, are one of the lowest in the euro area. This implies that clients tend to stay with their banks and are not forcing changes to norms, including improvements to products and user experience.



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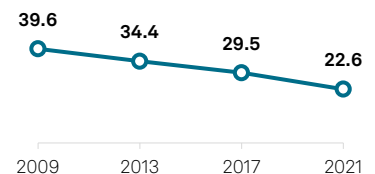
Average app rating of five largest banks



Note: Nova Ljubljanska Banka, Nova Kreditna Banka Maribor, SKB banka, Banka Intesa Sanpaolo d.d., UniCredit Banka Slovenija. Sorted by total assets. Source: iOs App Store Ratings.

Commercial bank branches

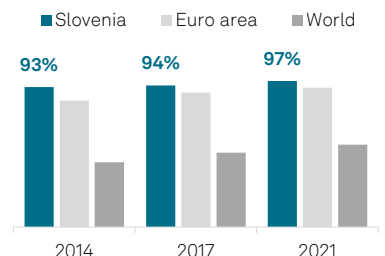
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

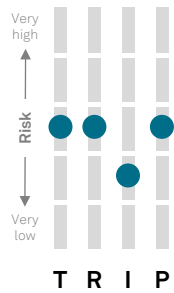
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Spain | Delivering On Digital Transformation Plans



Key Takeaways

- Banks accelerated their digitalization through the pandemic and continue their multiyear transformation, keeping pace with gradually shifting but still traditional customer preferences.
- We think incumbents will remain the leading providers of banking services, supported by solid investment capacity. Fintechs represent a limited threat and are acting as collaborators on specific projects.
- Regulatory focus on banks' operational, digital, and cyber resilience is in line with European standards.

Technology: Gradual tech adoption is modernizing infrastructure

Banks are embracing IT change through the automation and simplification of systems and processes, the migration of part of their business to the cloud, and the use of artificial intelligence, mainly to improve customer service and risk management. Legacy IT infrastructure co-habits with new systems and technology and integration will take years. Larger players are at the forefront of innovation and tech-led improvements to customer service, yet midsize banks have also improved their websites and apps.

Regulation: Increasing focus on emerging digital disruption risks

The Bank of Spain is aligned with the EU regulators' focus on regulating crypto assets and artificial intelligence and fostering cyber and digital resiliency across banks. Spanish fintechs are largely unregulated as tech-like business models usually don't require a banking license. Spanish fintechs that do require a license tend to apply to EU regulators. The local regulator fosters fintech innovation through a regulated sandbox, though the process is bureaucratically heavy, and we do not expect it to be a disruptive force favoring fintechs.

Industry: Strong banks and limited competition from fintechs

Spanish banks are strongly positioned to continue their multiyear digital transformation, which has already reduced legacy operating infrastructure such as branch networks and IT systems, delivered competitive client servicing, and helped secure adequate efficiency improvements over the past decade, particularly after COVID-19. Banks tend to rely mostly on internally developed digital solutions and some have their own digital brands/banks. Improving profit margins will allow banks to continue investing in digitalization and remain competitive with fintechs. Spain's fragmented fintech industry doesn't represent a threat to incumbent banks and tends to play the role of collaborator rather than challenger.

Preferences: Customers value omnichannel interactions, but remain traditional

While preferences remain more traditional than elsewhere in Europe, COVID-19 accelerated customers' digital banking adoption. The omnichannel system gives banks some leeway to modernize and expand their digital offerings, likely to the long-term benefit of customers' experience. The use of cash has reduced materially since 2019 (falling by 14 percentage points) but remains the preferred payment method, accounting for 51% of all transactions by value, which is above the EU average.



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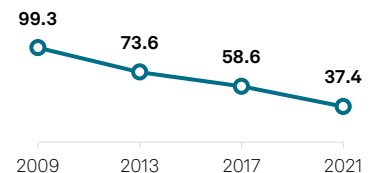
Average app rating of five largest banks



Note: Caixabank, Banco Santander, BBVA, Banco Sabadell, Bankinter. Sorted by total assets. Source: iOs App Store Ratings.

Commercial bank branches

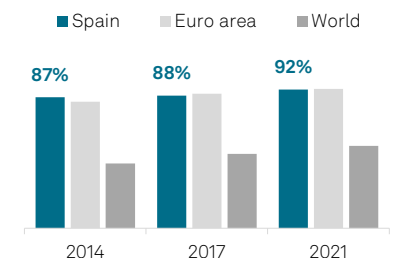
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

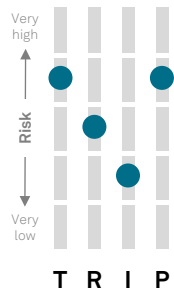
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Sweden | Customers Drive Pioneering Digitalization



Key Takeaways

- Digital banking services are the norm in a nearly cashless society.
- Cooperation among banks has led to the development of widely used digital service platforms, but investment is required in payment clearing and anti-money laundering systems.
- Regulator's light-touch has enabled startups to deliver customer-focused innovation, while increasing surveillance of digital infrastructure investment should support further development.



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Technology: Payment infrastructure enables digitalization

Sweden ranks fourth in the EU Digital Economy and Society Index, well ahead of the EU average (ninth), and has a newly revised four-year plan to become a leader in the digital transformation. Cash-based payments are virtually non-existent and digital-payment solutions are enabled by extensive internet coverage. Swedish fintechs have led the development of systems that enable digital banking. The central bank (Riksbank) is also at the forefront of developing the e-krona, which is likely to be the first central bank digital currency in Europe.

Regulation: A neutral stance regarding digital disruption

Sweden's place at the forefront of financial digitalization is at odds with the state of its payment clearing organization, known as Bankgirot, which needs modernization. The Riksbank has increased its surveillance of payment infrastructure, while P27 (the bank-owned parent of Bankgirot) is expected to re-launch a stalled modernization program in the coming quarters. The regulatory framework appears flexible but largely neutral for financial services innovation. Since 2018, Sweden's Financial Supervisory Authority's (FSA) innovation center has provided a contact point for companies with new business models, but we do not believe the FSA sees its role as fostering disruption.

Industry: Collaboration underpins digitalization, for now

Sweden's concentrated banking sector has delivered competitive product development, sophisticated client servicing systems, and operational cost-efficiencies. Cooperation and collaboration among incumbent banks has led to shared digital platforms--including BankID (the national electronic identification system) and mobile payment solution Swish--that have facilitated the digitalization of traditional financial services. Further investment to modernize the payment system and on anti-money laundering systems is necessary. Disruptive fintech companies, such as payment group Klarna, are deploying new client-focused technologies that could spur competition and drive margins lower.

Preferences: Customers are driving digital developments

Swedes' generally high level of education and digital familiarity has fostered extremely strong preferences for innovative, digital services. This is visible in the nation's extremely low cash usage--credit and debit card ownership has been over 98% since 2014, while the average Swede made just four ATM withdrawals in 2022. Clients' digital maturity has forced the financial and banking sectors to accelerate development of digital platforms to ensure they remain competitive and stay relevant.

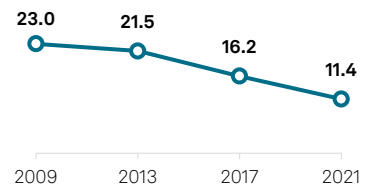
Average app rating of five largest banks



Note: SEB, Handelsbanken, Swedbank, SBAB, Lansforsakringar. Sorted by total assets. Source: iOs App Store Ratings.

Commercial bank branches

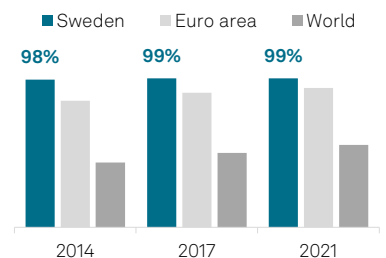
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Switzerland | Smart-Follower Banks For Sedate Customers



Key Takeaways

- A lack of economies of scale leads to limited attractiveness for new market entrants.
- High regulatory hurdles have prevented the presence of foreign banks and have not been supportive of digital disruption.
- Digitalization targets differ depending on bank size and most market participants are employing a fast-follower approach.
- Culturally, change in customer behavior is slow-paced with Swiss clients continuing to prefer relationship-based banking.

Technology: State-of-the-art technology access

Switzerland continues to lead global innovation indices and offers a deep tech-talent pool for banks and fintech companies alike. This has only partially been absorbed by the Swiss retail banking sector, and we believe that domestic banks predominantly use a fast-follower approach in their retail strategies, not intending to become digital leaders. We think that Swiss banks show overall good progress in digitalizing processes and services and we expect domestic banks will adopt new trends.

Regulation: More conservative regulatory stance

Regulation has sometimes prevented full digitalization of banks' business models, for example the plan for a digital identity credential was only approved in recent years. However, we believe that legislation has started to slowly adapt and has become more proactive. FINMA's established framework allows new players to operate within a sandbox environment (enabling small-scale testing of new products and services in a controlled regulatory environment) or apply for a regulatory-light license. Regional priorities prevent consolidation and hamper efficiency improvements in retail banking, but also shield the sector from massive disruption.

Industry: No rush to become digital frontrunners

A lack of economies of scale in retail banking limits the country's attractiveness for international competitors. We consider the relatively small customer base, high labor needs because of four official languages, and different regulatory framework compared with the EU as the Swiss market's highest barriers for foreign banks. We observe differences in digital advancement between larger and smaller banks, especially in mortgage lending, while less so for digital pension solutions and the deposit business.

Preferences: Gradual change in customer behavior

In our view, Swiss customers largely do not demand pure online retail banking products and digital banks have not yet established full alternatives to traditional banks. It will be important to offer a seamless switch between distribution channels and we expect digital services, such as online mortgages, to play only a minor role. Swiss customers still favor relationship-based banking and prefer personal advisory for wealth management or for important life decisions, such as a first mortgage financing and pension plans. In general, we see increasing customer interest in more complex digital banking products, yet final purchase decisions are still made at branches.



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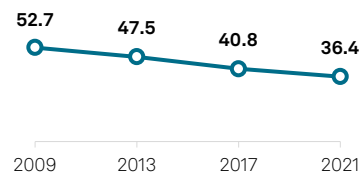
Average app rating of five largest banks



Note: UBS (including CS), Raiffeisen Schweiz Genossenschaft, Zuercher Kantonalbank, PostFinance, Julius Baer. Sorted by total assets. Source: Apple iOs Store Ratings.

Commercial bank branches

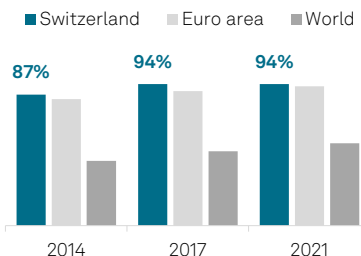
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: IMF, Financial Access Survey.

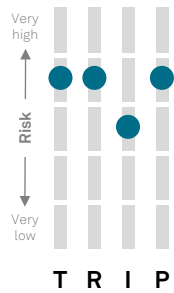
Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

U.K. | Still Leading The Digital Transformation



Key Takeaways

- The U.K. banking system is digitally advanced with sector competition and elevated investment driving technological development.
- Proactive regulators, access to capital for nascent fintechs, and deep pools of tech talent continue to fuel digitalization and innovation.
- Customers' preference for digital banking is accelerating and banks are meeting the challenge with strong investment enabled by solid earnings.



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Technology: The ecosystem drives innovation and competition

The U.K. offers a favorable environment for technological growth, enabling challenger banks and fintechs to disrupt the competitive environment and shape the technological landscape. Industry initiatives, like open banking competition rules, have supported this transformation by deepening the financial information available to banks and developers and by fostering an advanced system of products that drive innovation. Technological capability is supported by wide 5G coverage, that enables rapid adoption of fintech services by consumers. The attractiveness of the U.K.'s fintech ecosystem continues to attract strong investment flows, making the U.K. a European fintech leader.

Regulation: Innovation is supported by the government's stance

Technological innovation and security are priorities for the government, as evidenced by initiatives relating to distributed ledger technology, central bank digital currencies, and operational resilience. Programs like the Financial Conduct Authority's regulatory sandbox and innovation hub provide the U.K. with one of the world's most forward-thinking regulatory environments. The government has proposed some further transformation of the regulatory system, as part of broader financial reforms, but its commitment to tech advancement is clear. We still consider failures in operational resilience, whether caused by internal controls or cyber attacks, to be a material risk to the sector.

Industry: Solid and rising profitability enables systemwide investment in technology as digital banks apply pressure

The U.K.'s six largest banks account for 80% of gross loans. Strong earnings and clear investment agendas have enabled these incumbents to invest heavily in tech capabilities, removing physical branches, back-office personnel, and to enhance customer facing applications. This has enabled incumbents to remain competitive even as the country's main digital banks (such as Monzo, Revolut, and Starling) have accumulated millions of customers between them. Smaller U.K. banks have recognized the need to modernize but often lack the financial resources to digitalize at the scale and speed required. This has enabled digital banks to win clients and revenue from the top 25 U.K. banks.

Preferences: Customers favor digital services

The U.K. is one of the world's most cash-light economies. Most payments are card-based, while contactless payment and mobile wallets are also gaining popularity. U.K. banks are adapting to changing preferences with industry leading apps and more in-app offerings. The most digitally advanced incumbents are on a path to offer completely digitalized remortgaging services. Strong investment and growing capabilities are reflected in high app ratings for the top five banks and has delivered efficiency and material cost reductions for the largest incumbent banks.

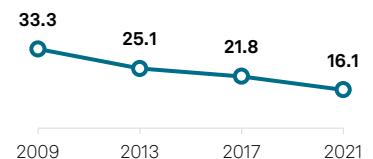
Average app rating of five largest banks



Note: Barclays, HSBC, Lloyds, NatWest, Santander. Sorted by total assets. Source: iOs App Store Ratings.

Commercial bank branches

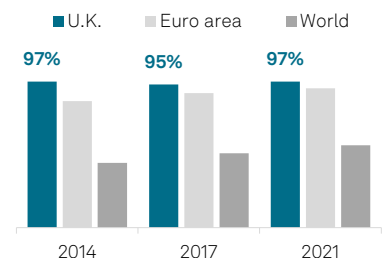
Per 100,000 adults



Branches of credit cooperatives, credit unions and savings banks not covered. Source: LINK, Office for National Statistics (ONS). Includes also building societies.

Share of population with a credit or debit card

Aged 15+



Source: World Bank, The Global Findex Database.

Related Research

- [Global Banks Country-By-Country Midyear Outlook 2023: Resilience Will Be Tested](#), July 20, 2023
- [Global Economic Outlook Q3 2023: Higher For Longer Rates Is The New Baseline](#), June 28, 2023
- [Future Of Banking: E-Krona Will Extend Sweden's Digital Lead](#), March 1, 2023
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