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Upcoming contours of the banking sector in the context of the digital evolution of the financial market

Igor' B. Turuev, Evgeniya O. Shashkina ✉

Moscow State institute of international relations (MGIMO University), Moscow, Russian Federation

✉ shashkina.e@inno.mgimo.ru

Abstract. The study raises the problem of changing landscape of the banking sector in view of upgraded ways of interaction between financial intermediaries and their clients and financial product engineering in the digital era. The relevance is determined by the weakening positions of traditional banks and the need to develop a competitive strategy. The research is aimed to identify a list of main directions of the banking sector adaptation to digital realities. With the help of theoretical systematization method the authors reveal that through digitalization of a banking client customer journey that eliminates physical barriers of money transfer between market participants and through the modification of the banking product profile (including product bundling approach) digital technologies make price, product and sales of distribution competition tougher. Rivalry is also fostered by new market entrants whose organizational and legal status may range from a traditional bank's digital satellite (with a shared banking license but on a separate brand) to a IT company's fintech project in partnership with a bank. As a consequence, traditional banks face diminishing operations margins and returns on capital. In order to maintain financial soundness banks should follow the best practices of new entrants' business model organization, including omnichannel approach, maximum monetization of the bank's infrastructure, banking services technologization, cross-industry partnerships for "package" sale of products.

Keywords: fintech, digital banking, business model, digital channels

Authors' contribution. Turuev I.B. — research concept and design, supervision, correction of results; Shashkina E.O. — research concept and design, data collection, data analysis, text writing.

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Контуры банковского сектора в условиях цифровой эволюции финансового рынка

И.Б. Туруев, Е.О. Шашкина ✉

✉ shashkina.e@inno.mgimo.ru

Аннотация. Поднята проблема изменения ландшафта банковского сектора с учетом усовершенствования способов взаимодействия финансовых посредников с клиентами и финансового инжиниринга в эпоху цифровых технологий. Актуальность темы определяется ослаблением позиций традиционных банков и необходимостью разработки конкурентной стратегии для них. Цель исследования — сформировать перечень основных направлений адаптации банковского сектора к цифровым реалиям. С помощью метода теоретической систематизации установлено, что через цифровизацию банками клиентского пути, которая устраняет физические барьеры для перемещения денежных средств между участниками рынка, и через модификацию «образа» банковского продукта (в т.ч. с учетом перехода к пакетному предложению услуг) технологии усиливают конкуренцию между банками ценой, продуктом и каналами продаж. Соперничество также нарастает из-за выхода на рынок новых участников, организационный и правовой статус которых может варьировать от «банка-спутника» традиционного банка (с общей банковской лицензией, но на отдельном бренде) до финтех-проекта по предоставлению финансовых услуг в партнерстве с банком. Как следствие, традиционные участники рынка сталкиваются с сокращением маржинальности операций и рентабельности капитала. Для поддержания финансовой устойчивости банки должны следовать лучшим методам организации бизнес-моделей новых участников, таким как омниканальный подход, максимальная монетизация банковской инфраструктуры, технологизация банковских услуг, межотраслевые партнерства для «пакетной» продажи услуг.

Ключевые слова: финтех, цифровые банковские услуги, бизнес-модель, цифровые каналы

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Introduction

Digitalization has affected all economic sectors without exception. One of the first sectors to experience the benefits and new challenges of remote services was the banking sector. Starting from the launch of Home and office banking services by Bank of Scotland in 1985 online banking was gathering momentum. While up to 2008 internet banking and telephone banking were the cutting-edge channels of distant client servicing, the modern stage of banking sector digital transformation was marked by the appearance of smartphones as a mean of bank-client interaction and new market entrants (fintech startups) that managed to fill the gaps in the quality and the variety of financial services left by banks (Barroso, Laborda, 2022; Alam, Gupta, Zameni, 2019).

The tendency to banking sector priority over other industries in digital transformation was driven by the following factors:

- High margin of operations in the banking sector, which attracted technology developers;
- High frequency of customer interaction with banks, which made incentives for simplification of interaction.

Digital technologies have democratized the financial services industry, in particular by increasing physical accessibility to services. That is the case in point in low-income countries and countries with substantial number of unbanked populations which experienced exponential growth of banking sector assets in the digital age. In countries with high saturation of financial services, the role of technologies is also crucial: thanks to the industry digitalization, the information transparency of the sector has significantly increased, so the efficiency of placing temporarily available funds has climbed exponentially.

The purpose of this study is to identify a list of main directions of the banking sector adaptation to digital realities that determine the current contours of the banking sector. In the process of research, we must solve the following tasks:

- To define the list of financial and non-financial institutions involved in digital transformation of the financial market as well as their role and place in new, digitalized processes of financial services provision;
- To reveal the interdependences between institutional, organizational and business triggers of the banking sector transformation influenced by digital technologies;
- To identify the economic effects of the industry digitalization on traditional banks;
- To identify a list of measures offsetting the negative economic consequences of digitalization for traditional banks with the view to maintain their financial sustainability.

The relevance of the study is dictated by the need to systematize factors and directions of the banking sector transformation, inspired by the transfer of all business processes into a digital environment, and to develop strategies for traditional banks' (incumbents') maintaining market positions in the highly competitive environment.

By now, there is a body of scientific literature devoted to the problem of digital transformation of the banking sector. At the empirical level, studies demonstrate the dependence of financial parameters of the banking sector (market share, transaction yield, operational efficiency, profitability) on the degree of development of digital technologies in general and the fintech industry (as a group of independent technology companies developing solutions for the automation of a range of front- or back-office operations) in particular (Murinde, Rizopoulos, Zachariadis, 2022; Karim, Lucey, 2024; Wang, Xiuping, Zhang, 2021; Dong et al., 2020). The success of independent fintech companies is determined by a number of country-specific economic, technological and social determinants (Haddad, Hornuf, 2019; Stolbov, Shchepeleva, 2023).

At the theoretical level, "one-sided" studies consider channels of transformation of banks under the influence of digital technologies, which ultimately affect the financial position of a bank. For example, a number of papers consider business models of banking in the digital era (Brandl, Hornuf, 2018; Blakstad, Allen, 2018; Porter, Rousse, 2016; Navaretti, Calzolari, Pozzolo, 2017; Anand, Mantrala, 2019). The classification of product digital innovations can be seen in some works (Gomber et al., 2018; Tidjani, 2021; Hanafizadeh, Amin, 2022). Scientists have long been focused on the institutional transformation of the banking industry (the break of non-bank financial institutions into the market of services traditionally considered as banking) (Frost et al., 2019), however, not so many researchers pay attention to the fact that in addition to fintech companies, large IT companies, social networks, etc. enter the market. So savings of population are redistributed among different segments of the financial sector, with digital technologies opening entire industries to the mass consumers (Lu, 2018).

To the best of our knowledge, there are no articles describing interconnectedness between channels of traditional banking sector transformation.

Methods

The authors propose an interdisciplinary study based on general scientific methods: analysis, systematization, classification, induction, comparison.

The data on the level of banking services proliferation and digital services adoption is picked from the World bank's The global findex database.

To reveal the tendencies the authors estimated the value of the financial sector assets based on the data from financial sector assessment program conducted by IMF nearly every 5 years. To unify the financial market segmentation across countries the authors used the following approaches:

- Fund management companies were combined with brokerage and dealer companies and other securities market participants into a single segment;
- State pension funds were not included in the financial assets;
- Development banks' assets were not included in the financial sectors assets, as they do not manage the population's savings and temporarily free funds of business.

On the basis of the assessment of the main financial intermediaries and the volume of the financial sector (as a sum of its market segments values) the authors calculated the share of the main market segments and their dynamics. The share variation up to +/– 2 p.p. is considered immaterial.

The analysis period covers 2010–2024. For comparison of dynamics by years, at least 5 years lags for every country sector were used. The start and end years were chosen according to the availability of the statistics.

While forming the sample of countries for the analysis, 2 criteria were applied:

- substantial development of digital technologies in the country;
- availability of the IMF Financial System Stability Assessment report (an exception is made for Russia) as the single data source ensures the comparability of estimates.

Results and analysis

The diagram (Fig. 1) summarizes the results of the research of interconnectedness between directions of the banking sector transformation under the influence of digital technologies.

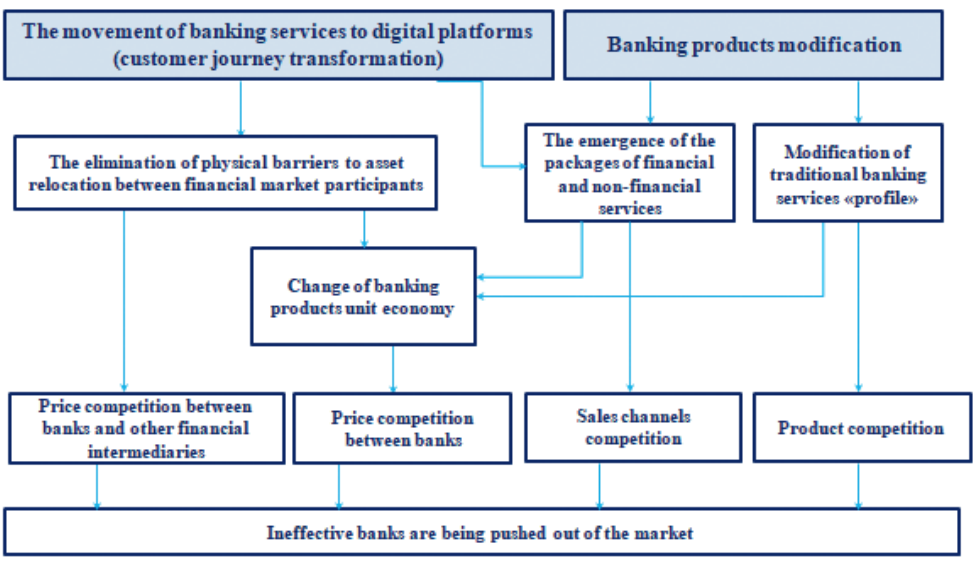


Figure 1. Interconnectedness between directions of the banking sector transformation in the era of digital evolution of financial markets

Source: compiled by I.B. Turuev, E.O. Shashkina.

The fundamental causes of banking institutions profile transformation fueled by digital technologies development are the changes to the banks' sales channel and banking products modification.

Under the influence of **banking services moving to digital platforms** it's become technically possible to open a bank account and manage personal finance

distantly that strongly leveraged financial services accessibility in countries with poorly developed infrastructure (Murinde, Rizopoulos, Zachariadis, 2022). Since 2011 the share of the banked population surged in such regions as Sub-Saharan Africa, Middle East & North Africa, Latin America, East Asia and Pacific (Fig. 2). Hereinafter the countries in these regions will be referred to as "countries with rapid development of banking services" as opposed to "countries with high saturation of banking services" in developed regions (mainly North America and Europe). The first group of countries witnesses significant real growth of banking sectors assets (nominal growth adjusted for accumulated inflation) up to 7% on the example of Russia, Kazakhstan and Saudi Arabia, while the second one faces mainly real decline of banking sector assets (Table 1). However, Japan with almost 4%-growth rate became an exception from the group of highly saturated banking sectors.

In view of the surging population and banking services penetration the number of world adult population (aged 15+) with a bank account has increased by 1.3 billion people during the period under review.

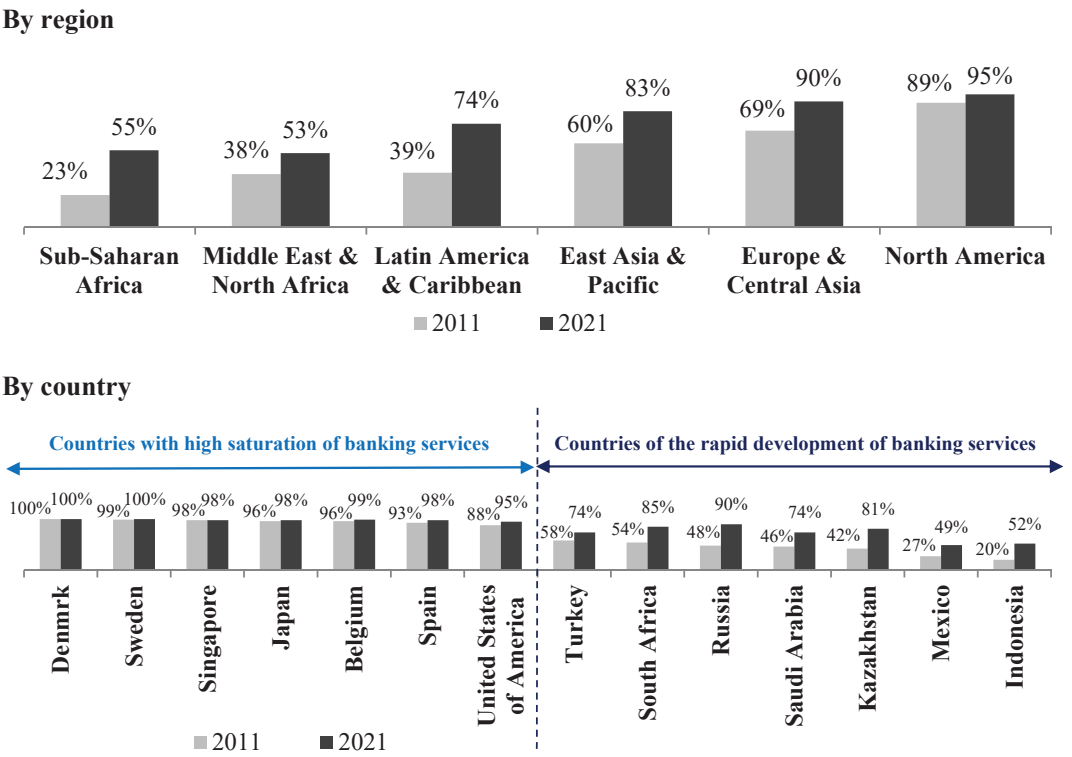


Figure 2. Share of population aged 15+ with an account in 2011–2021

Source: The global index database 2021[1].

[1] The global findex database 2021: financial inclusion, digital payments, and resilience in the age of COVID-19. Retrieved 16 November 2024 from https://www.worldbank.org/en/publication/globalfindex

Table 1

Banking sector assets real growth on the example of 6 countries

Indicator	Countries with high saturation of banking services			Countries of the rapid development of banking services		
	Denmark	Belgium	Japan	Saudi Arabia	Kazakhstan	Russia
Period of analysis	2010–2018	2010–2021	2010–2022	2010–2022	2010–2022	2014–2023
Length of period, years *(1)*	8	11	12	12	12	9
Accumulated inflation for the period, % *(2)*	10	21	8	29	151	79
Assets at the end of the starting year, bln national currency *(3)*	7 527	1 151	1 371	1 411	12 032	73 424
Assets at the end of the last year, bln national currency *(4)*	7 770	1 159	2 236	3 621	44 562	167 647
Assets growth rate, % *((5)= (4)/(3)–1)*	3	1	63	57	270	129
Assets real growth rate, % *((6)=(5) — (2))*	–7	–20	55	27	119	50
Annualised assets real growth rate, % (=(1+*(6)*)^(1/*(1)*)–1)	–0.8	–2	3.7	7.1	6.8	4.6

Source: IMF[2], Bank of Russia[3] and macrotrends.com[4] statistics.

On top of the share of the banked population, the statistics of digital payments received or made show that more than 2/3 of the world total population (Fig. 3) (or 90% of world banked population demand digital banking services as of 2021). The approach to the country sample clustering into 2 groups based on average level of financial services penetration remains.

[2] IMF. Financial sector assessment program. 2024. Retrieved November 16, 2024 from https://www.imf.org/en/Publications/fssa

[3] Bank of Russia. Russian financial sector survey. 2023. Retrieved November 16, 2024 from https://cbr.ru/Collection/Collection/File/49075/fs_review_2023.pdf

[4] Historical Inflation rate by year. Retrieved 16 November 2024 from https://www.macrotrends.net/2497/historical-inflation-rate-by-year

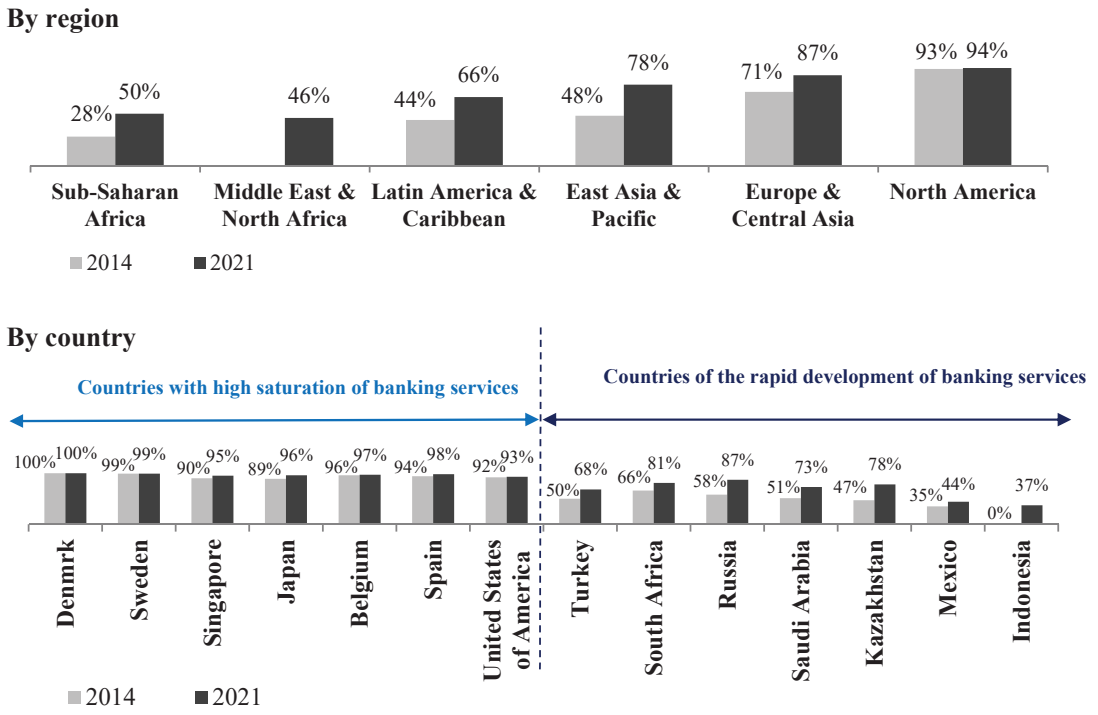


Figure 3. Number of population aged 15+ that received or made digital payment in 2014–2021

Source: The global findex database 2021[5].

In countries with high share of banked population **financial technologies removed administrative barriers to population savings relocation between all types of financial intermediaries** due to:

- Distant banking services provision;
- Faster banking transactions processing;
- Higher information transparency as a result of the emergence of banking services aggregators (marketplaces).

Apart from "technical" prerequisites of savings relocation from the banking sector to more profitable and riskier financial instruments: stocks, investment funds, pension funds (Haddad, Hornuf, 2019; Lu, 2018; Turuev, Shashkina, 2022), the following factors fostered the tendency:

- Financial markets witness the increase in required returns and risk-appetite of the population fueled in part by rising financial inclusion and financial literacy.

[5] The global findex database 2021: financial inclusion, digital payments, and resilience in the age of COVID-19. Retrieved 16 November 2024 from https://www.worldbank.org/en/publication/globalfindex

- Financial engineering is gaining momentum, financial intermediaries can better cater for every client's need (for instance, for the past several years cryptocurrency investment funds and long-term savings program by pension funds have appeared).
- Negative interest rates caused by the quantitative easing policy conducted by Central banks took place in many developed countries up to 2022 and devalued deposits as a mean of savings.
- Government supports population's investment activities aiming at the rise in stock market capitalization, in particular, by providing tax benefits for investment accounts.

Financial market assets dynamics in the 15-country sample in Table 2 show that in last 14 years (2010–2024):

- In 11 observations banking assets share used to decline, moreover, in 9 cases out of 11 the turn-down was in favor of asset management companies and brokers.
- In 3 observation banking sector positions were stable (materiality limit is 2 p.p.);
- Only in 1 case (Turkey) banking assets share used to expand.

Thus, financial technologies **boosted competition between financial market participants for the savings,** that particularly the case for countries with high level of banking services penetration. Besides, with digital channels of banking services sales coming to the front and administrative barriers removing, competition between incumbent banks has become stronger, including due to fully digital banks entering the market.

The signs of growing competition are the surging market concentration index in countries with the most developed fintech ecosystem (Murinde, Rizopoulos, Zachariadis, 2022) as well as significant **pressure on banking operations margin** in the context of **price competition between banks** (Turuev, Shashkina, 2023).

Fintech development triggers institutional transformation of the banking sector. Fintech industry specializes on services satisfying only one of many customer needs. For instance, there are niche companies such as payment services, credit marketplaces, personal finance management, investment management, etc. However, there are companies providing comprehensive services — "digital banks"[6]. Despite the name, organizational and legal status of such firms may vary drastically.

Table 3 shows the typology of digital banking services; Appendix 1 presents the well-known examples of every type of "digital banks".

While adding financial services to their digital channels, companies from non-financial industries (telecom operators, retail and wholesale trade, IT goods and services) aim at higher consumption of the main product with high average cheque (Turuev, Shashkina, 2022) or receiving synergetic effect from the collection or analysis of the clients' consumption history.

[6] Hereinafter the phrase "digital banks" taken in quotation marks defines companies positioning themselves as digital banks (the brand name is a bank) despite their organizational and legal status.

Table 2

The financial sector asset's structure

Financial sector	Period	Banking sector, %	Insurance, %	Pension funds, %	Asset management, mutual funds, brokers, %	Other, %
Russia	Q4'2014	93	2	3	3	0
	Q4'2023	77 ▼	2	2	18 ▲	1
Turkey	Q4'2010	85	2	1	9	4
	Q3'2021	91 ▲	2	2	4 ▼	1
Kazakhstan	Q4'2010	80	2	15	3	0
	Q4'2022	68 ▼	3	22 ▲	5	2
Sweden	Q4'2010	77	14	1	9	0
	Q4'2021	54 ▼	15	16 ▲	16 ▲	0
Indonesia	Q4'2010	76	10	3	9	2
	Q4'2023	76	13 ▲	3	7	1
Saudi Abaria	Q4'2010	74	2	19	5	0
	Q4'2022	65 ▼	1	23 ▲	10 ▲	0
Spain	Q4'2012	73	6	2	11	9
	Q2'2023	75	5	3	13	4
India	Q4'2010	65	14	0	14	7
	Q1'2024	54 ▼	13	0	25 ▲	8
Denmark	Q4'2010	64	13	12	10	0
	Q4'2018	55 ▼	18 ▲	12	14 ▲	0
Belgium	Q4'2010	63	14	1	22	0
	Q4'2021	53 ▼	17 ▲	2	28 ▲	0
Japan	Q4'2010	62	16	5	9	8
	Q4'2022	61	12 ▼	8 ▲	13 ▲	6
Mexico	Q3'2011	56	7	15	17	5
	Q4'2021	48 ▼	8	23 ▲	17	4
Singapore	Q4'2013	52	4	0	44	0
	Q4'2018	43 ▼	4	0	53 ▲	0
South Africa Republic	Q4'2010	41	9	36	11	2
	Q4'2020	37 ▼	19	15 ▼	15 ▲	14
United States of America	Q4'2010	25	10	21	30	11
	Q4'2019	19 ▼	11	24 ▲	39 ▲	3 ▼

Note: ▼ sufficient decline in market share compared to the previous period (more than 2 p.p.);
▲ market share growth compared to the previous period (more than 2 p.p.).
Source: IMF[7] and Bank of Russia data[8].

[7] IMF. Financial sector assessment program. 2024. Retrieved 16 November 2024 from https://www.imf.org/en/Publications/fssa

[8] Bank of Russia. Russian financial sector survey. 2023. Retrieved 16 November 2024 from https://cbr.ru/Collection/Collection/File/49075/fs_review_2023.pdf

Table 3

The universe of digital banking services

Type	Description of the companies' organizational and legal status and business model	Founders
Digital-only bank	A new company is granted a banking license. Alternative naming in scientific literature is a challenger bank.	Venture investors (including VC funds), Bigtech companies, telecom operators, marketplaces, central banks
Transitional bank	Incumbents that shifted to a fully digital business model (without any physical branches).	
Microfinance or e-money company under the "digital bank" brand	A company operates under a microfinance or e-money license which limits clients' transaction volume.	
Fintech projects partnered with incumbents	IT company provides services in partnership with an incumbent: • IT company provides an interface for banking services; • Client savings are placed with a traditional bank. Unlike other types of digital banking services, business processes involve 2 participants, thus, the project income is shared between them. Alternative naming is a neo-bank (Schmidt-Jessa, 2023).	
Digital satellites of traditional banks	A separate legal entity is established to provide fully digital services under a separate brand name within a banking group. Alternative naming is a beta bank (Schmidt-Jessa, 2023).	Traditional banks

Source: compiled by I.B. Turuev, E.O. Shashkina.

If we rank the types of organizational and legal models of digital banking services according to their degree of financial resilience and to the potential negative social effect on financial services consumers in case of a "digital bank" shutdown, we will receive the following order:

1. The most resilient cases are fintech projects in partnership with incumbents and digital satellites because in case of the project closure its clients' accounts stay with the main bank or migrated to it. However, reputational risks still remain as while clients are transferred to the main bank, the tariff policy for the banking products may change not in the clients' favor. According to some estimates, more than 70% of digital banks are affiliated with incumbents and it's the determining factor of their commercial success (Bataev, Rodionov, 2020; Turki, Nahidi, 2022).
2. Clients put their money at higher risks, if they place savings with a newly established digital bank (greenfield project) or a transitional bank (brownfield project). Still, the risk profile of such banks varies according to the principal investor type:
   a. If a bank is created inside an ecosystem of financial and nonfinancial services (hereinafter ecosystem is defined as a digital business environment bringing together partners and services to fulfill

clients' needs with maximum efficiency and effectiveness (Fedotova, Averina, 2023)), the probability of default is much lower because, as a rule, the principal company of the ecosystem disposes a vast customer base to which the bank can access. Such business models reduce a bank's cost of customer acquisition and allow it to reach its breakeven point earlier.

b. The most economically unfavorable scenario of a challenger bank is the creation of a bank from scratch at the expense of private investors, venture funds or institutional non-core investors (for whom investments are non-strategic, exclusively financial), because there are high risks of a bank's struggling to reach a breakeven point.

3. The riskiest case for depositors is placing money with an e-money company as in accordance with the rules of financial companies' regulation of most countries, clients' deposits are not eligible to insurance.

However, despite the abovementioned financial resilience and reputational risks all the forms of digital banking are more predisposed to cybersecurity risks than traditional banks, including phishing attacks, malware and ransomeware, DDoS attacks, insider threats and social engineering (Asmar, Tuqan, 2024). From our point of view, digital banks' users are more susceptible to social engineering strategies that are better prevented by bank managers during face-to-face interaction. However, machine learning tools such as NLP for social engineering detection, deep learning approaches, user behavior analysis and modeling may substantially reduce cyber-risks. That's why while choosing the least risky digital bank, a user should take into consideration cybersecurity mechanisms implemented in a bank (apart from its financial resilience level).

The variety of legal statuses of digital banking projects is predisposed by the regulatory environment. In almost all countries digital banks are treated by regulators on par with traditional banks as the former are prone to the same financial risks as the latter (credit, interest rate, liquidity, market risks, etc.)[9]. That's why, digital banks' operations should be licensed, among other norms they should fulfill capital adequacy, liquidity and risks concentration requirements. At the market launch and hypothesis testing stage digital banks opt for restricted licenses (microfinance and e-money company) or a partnership with traditional banks. With significant business scaling, digital banking projects apply for a banking license, like Square, Monzo, Revolute, Klarna, SoFi did (Appendix 1).

However, some economies (mainly in East Asia & Pacific region, where according to the data in figure 2 at the start of the fintech boom (2010) financial inclusion level was low and as of 2021 there was still room for expansion) preferred to apply exemptions to digital projects in order to stimulate financial services consumption and cashless currency circulation. Softer regulation includes "grace

[9] Ehrentraud, J., Ocampo, D.G., & Vega, C.Q. Regulating fintech financing: digital banks and fintech platforms. 2020. Retrieved 16 November 2024 from https://www.bis.org/fsi/publ/insights27.pdf

period" for digital banks after their obtaining licenses (Singapore, Malaysia)[10] and milder ownership requirements (Korea, Taiwan)[11].

Despite the easy access to digital banks' services (including onboarding process) and the variety of granted services (including non-traditional financial services, for instance, crypto currency wallets) that distinguish digital players from incumbents, **price for services remains the most valuable competitive advantage of new entrants.**

Although the three main types of banking services — active, passive and intermediation operations — are still in place, with the invention of digital technologies the image of banking products has changed significantly. Digital banking services providers belong to the IT sector that ruined the banking sector in traditional understanding by putting mobility, flexibility and speed in the forefront. As may be seen from the institutional hierarchy in Table 2, licensed banks are no more exclusive providers of financial services, their monopoly is being eroded.

Primarily, fintech transformed the payments and money transfer industry (Wang, Xiuping, Zhang, 2021; Dong et al., 2020; Gomber et al., 2018; Kowalewski, Pisany, Slazak, 2022). The methods of payments have been expanded with the payment infrastructure simplification:

1. The share of cashless payments has surged due to cash payments restrictions inspirited by regulators that seek to put the currency circulation under total control.
2. Over the past 10–15 years, mobile payments (NFC technology in Apple/Google/Samsung Pay; QR code payments and payment stickers) have become widespread.
3. Along with international and national payment systems local systems (at the level of a single bank) has come into the arena. That's particularly the case for systemically important banks on oligopolistic market. Local payment systems become possible when the clients' and the merchants' accounts are with the same bank, so the information exchange takes place within one bank and funds transfer is made by debiting one account and crediting another without centralized payment providers involvement. The examples of such systems are SberPay in Russia and Kaspi Pay in Kazakhstan.

As for passive banking operation:

1. Passive operations innovations are strongly associated with new forms of payments. That's why all methods of payments should be technically available to all current accounts' holders.
2. Central banks digital currencies come to the stage and compete with traditional currency circulation that put pressure on the volume of deposits in "traditional" currencies.

[10] Lessons from the rapidly evolving regulation of digital banking. 2021. Retrieved 16 November 2024 from https://www.mckinsey.com/industries/financial-services/our-insights/lessons-from-the-rapidly-evolving-regulation-of-digital-banking

[11] Ehrentraud, J., Ocampo, D.G., & Vega, C.Q. Regulating fintech financing: digital banks and fintech platforms. 2020. Retrieved 16 November 2024 from https://www.bis.org/fsi/publ/insights27.pdf

As for credit services:

1. To meet the demand for loans for small and medium-sized businesses, individual entrepreneurs with risky projects fintech companies set up crowdlending platforms. For banks this tendency means segregation of credit risks among several entities (in case of an own crowdlending company within the banking group) or monetization of the denied loans (in case of banks' partnership with third-party crowdfunding sites).
2. The sector faces credit expansion due to complex loan offering ("package" services or product bundling), ad hoc credit facilities (for instance, BNPL) are gaining momentum.
3. Credit rating methodology has been upgraded due to the broadening of the information sources used to assess clients' risk profile that facilitated bank crediting. For instance, Webank, Mybank in China and Mercato Pago in Brazil reflect this tendency.

Banking products in the digital era are significantly improved with the help of cutting-edge technologies such as artificial intelligence and big data mainly in credit operations and investment management, distributed ledger technologies in contract securing and automated control of operations.

Thus, the formation of a more **consumer-friendly bank product improves the competitive position of the originating bank.**

Unit economics of banking products of the new format **differs radically** from traditional ones. For example, with the appearance of the QR code payment method, international payment systems were excluded from the transaction process. Moreover, card-issuing banks are deprived of the interchange fee (a component of the acquiring fee that is paid to the card-issuing bank for the client's every card transaction) with the proliferation of QR code payments. Thus, the cost of acquiring services for merchants and the margin of banks' transactional business lose ground.

Apart from the transforming banking products profile, customers face the change in consumption process: according to studies, fintech companies create innovations in the field of business models (Brandl, Hornuf, 2020; Alam, Gupta, Zameni, 2019; Nel, Boshoff, 2022). In our opinion, there are the format of service delivery, the channel and the moment of sale of banking services, the offers of related services that are innovating. In the digital age, **the "package" offer of services** has intensified through:

1) the integration of non-bank services into the bank's mobile application (a bank becomes a donor of the client base for third-party companies within the framework of an agency agreement),
2) offering banking services complementary to the main goods or service (a bank becomes a recipient of customers).

In the first case, a bank-based ecosystem of financial and non-financial services is created to monetize the client base. "Package" offer of services allows improving **banking products unit economics** due to agency fees for selling of the third-party services through the bank channel or due to the cross-sell of banking services. Often

this commission income is redistributed to customers in the form of loyalty program bonuses or cashbacks, thus, **banks realize price competition with peers.**

In the second case, e-commerce platforms as exclusive partners of a bank allow to sell banking products through their mobile app or Internet site that let banks **compete with peers in sales channels**. The typical synergic partnerships areas:

- Credit services are complementary to real estate and motor vehicle transactions;
- In the sectors of goods and services of daily consumption (supermarkets, messengers, transport services, etc.) banks can provide unique payment facilities.

Discussion

As a result of the 3 types of competition (price, product, channel) between banks and other financial intermediaries, economic and technical availability of financial services for consumers increases, however, financial resilience of market participants reduces. Thus, scientific studies note the decline in bank profitability associated with digital transformation trends (Thakor, 2020).

In response to the situation, banks:

1. Revise their cost structure, primarily, by reducing branch network (Khan et al., 2024).
2. Look for new sources of income, such as, agency fee for the sale of non-bank services.
3. Partner with third party companies that can be used as a channel for a bank's products sale.

Research suggests that the clients' loyalty is primarily predetermined by price and the quality of service (Zyberi, Kllapi, 2022). The utility of the service (whether the need is fully satisfied) was prioritized over the convenience of using the bank's site or mobile application (Kitsios, Giatsidis, Kamariotou, 2021).

The role of the following factors of the banking sector development cannot be overestimated:

1. The degree of financial markets regulation, for example, in terms of the possibilities for IT companies to provide banking or quasi-banking services (for instance, BNPL that is widespread in countries with looser financial and consumer protection regulation[12]) without a license or with simplified licenses (money lender license / consumer finance license, etc.; payment institution / e-money institution / third-party payment license, etc.[13]).
2. Consumers' inertia (Belozyorov, Sokolovska, Kim, 2020) that is higher in countries with developed banking sector and well-established payment

[12] Buy now, pay later: a cross-country analysis. BIS Quartely review. 2023. Retrieved 16 November 2024 from https://www.bis.org/publ/qtrpdf/r_qt2312e.pdf

[13] The bigtech risk in finance. IMF. 2021. Retrieved 16 November 2024 from https://www.imf.org/external/pubs/ft/fandd/2021/05/big-tech-fintech-and-financial-regulation-crisanto-ehrentraud.htm

instruments (King, 2018; Shashkina, 2020), than in countries with emerging banking sectors (Latin America & Caribbean, East Asia & Pacific).

In accordance with the abovementioned, banks should focus primarily on producing a customized product that meets the client's requirements at the best price.

In emerging countries (mainly in Latin America and Southeast Asia) where cutting-edge payment infrastructure is created not by banks but by established IT companies:

1. Who have substantial capital to set up a financial company;
2. Whose core business is far from financial services sector; however, the availability of financial infrastructure increases demand for the company's main product.

In this group of countries financial subsidiaries of IT companies compete with incumbents by comprehensive ecosystem-based product. Thus, local systemically important banks with investment potential should consider the creation of a bank-centric ecosystem; other banks should seek to participate in IT-centric ecosystems:

- Through commercial partnership: as a partnering bank in fintech projects, *or*
- Through investment partnerships with IT companies, becoming an ecosystem bank through a complete change of business model: 1) digital-based, 2) customized to offer basic ecosystem services.

The ecosystem tendency of banking sectors in such countries results in improving share of net commission income in overall operation income.

Investment strategy of ecosystem organization has the following advantages:

- Easiness of corporate management of the subsidiary company that provides digital services;
- Higher revenues from the ecosystem services according to the IFRS due to the balances consolidation effect;
- Flexible pricing (the ability to combine subscription and transaction-based fees for services).

However, at the modern stage commercial partnership option of ecosystems is more preferable due to the financial constraints of investment ecosystems:

- Since 2022 venture capital investors demonstrate strong preference to profitable businesses due to rising inflation, key rates, required rates of return and geopolitical uncertainties[14], while the owners of digital services companies pursue market capitalization to sell their shares to larger companies, not profits (Montalban, Frigant, Jillien, 2019),
- Stringent regulation of banks' investments in non-core assets (higher risk-weighted assets coefficients is applied for such banks' investments while calculating capital adequacy ratios)[15].

[14] Pulse of fintech H2'22. Global analysis of fintech investment. KPMG. Retrieved 16 November 2024 from https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2023/02/pulse-of-fintech-h2-22-web-file.pdf

[15] Risk management of bank participation in ecosystems and invesments in immobilized assets. Bank of Russia. 2021. Retrieved 16 November 2024 from https://www.cbr.ru/Content/Document/File/131002/report_24112021.pdf

In developed countries the situation is opposite: due to the ingrained habit of cashless money circulation and easiness of doing business for small and medium enterprises the environment for fintech companies' origination is favorable. The innovation in client service amounts to substantial financial benefit to the client accompanied by digital channel availability. The cases in point are British Revolute, Monzo, Starling bank and German N26. With plenty of independent digital banks in such countries, as part of the strategic response to the novel market structure incumbents, especially international banking groups, segregate brands of companies and develop satellite, fully digital banks within the group along with the development of the digital channel of products distribution of the main bank. In order to maintain financial resilience of the main business, incumbents tend to reduce the number of offices and non-productive costs that results in lowering cost-income and cost-assets ratios.

Any traditional bank paving the way to digital business model faces 2 key alternatives: creating digital analogues of services through its own R&D or through M&A with fintech companies. Investment relations between banks and IT companies mainly occur in capital-intensive supporting technologies (Big Data, Artificial Intelligence, Distributed ledger technology, Cloud computing, Open API, Internet of things) (Shashkina, 2020; Campanella et al., 2020).

As a result of the 3 types of competition, traditional banks that struggle to adapt to the new economic and technological order are pushed out of the market. The signs of market position loss are the following:

- Market share decline;
- Decline in ROE and ROA higher than industry average drop (in general, digital technologies have cut the banking sector's excess profits and normalized banks' profitability).

The reason for the banks' financial performance deterioration is the decline in the operations' margin that leads to weak operational efficiency (maintaining or increasing level of cost-income ratio). Net interest income, which is under pressure by competition, makes the main contribution to the dropping margins. Net commission income may be held at the current level if banks find new sources of income.

In the current situation the image of an effective bank is as the following:

1. Onmichannel banking servicing with emphasis on digital channels availability and convenience. However, traditional banks, both systemically important and regional ones, should adhere to hybrid approach in channels organization to provide high-quality services to people with low digital literacy and citizens of small and medium cities where digital adoption level is much lower. Phygital offices that combine physical presence of client managers in offices and usage of digitals tools, for instance, bank's mobile apps for clients' identification and electronic signing of documents, may be an ideal variant for banks.
2. Maximum monetization of the entire banking infrastructure, for example,
   a. placing logistics centers in bank branches (for goods delivery services);

   b. usage of mobile application as an interface for the sale of not only banking services;
   c. monetization of the bank's expertise in tax management, risk management, legal advice.
3. Permanent development of new business models of financial products distribution.
4. Technological transformation of traditional banking services, such as
   a. Development and connection of blockchain-platform for cross-border payments, electronic mortgage transactions, guarantees, securities issues etc.;
   b. Big data collection and their analysis using machine learning methods to determine the level of creditworthiness of a borrower,
   c. AI preparation of investment recommendations, analysis of client complaints, etc.
5. Willingness to expand the product line beyond traditional banking services. Some examples of what has already been implemented by banks around the world:
   a. Partnership with central banks to provide clients with digital currency access;
   b. Partnership with companies providing digital services, that are complementary to banking products (ecosystem of non-financial services), in order to monetize the bank's client base (Turuev, Shashkina, 2022). In our opinion, the most synergetic to banking business industries are mobile operators, sale of goods, real estate and motor vehicles.

Conclusion

Fintech as a branch of the IT sector has ruined the banking sector in traditional understanding. Digital transformation of the banking sector amounts not only to the transition to remote service channels, but also to the change in the business model of banking services.

From our point of view, digital banking will continue to evolve:

1. Saturation of financial services hasn't been reached in the preponderance of emerging economies, and digital technologies are a catalyst for the spread of financial services in countries with forming payment infrastructure. Furthermore, in all countries without exception the government pursues total shift to cashless money circulation to control financial transactions and conduct monetary policy more effectively, thus, trigger digital financial services development with the help of milder regulation, tax incentives, etc.
2. Competitive and regulatory pressure on banks' margins will continue, thus, incumbents will be forced to enhance their operational efficiency and labor productivity by substituting digital servicing channels for the physical ones.

3. Banking services consumers' demand for digital banking is also projected to remain as digitalization carries benefits by enhancing information transparency (ability to compare products from different market participants with minimal transaction costs) and removing administrative barriers to savings transfer between the financial market participants.

In the era of digitalization incumbents face 3 types of competition (channel, product and price) at the same time, so only those banks that can quickly adapt to the new format of banking activities will be able to maintain their market position.

While determining the format of banking services, ways of interacting with customers, etc., banks should take pattern of fintech companies that provide exclusively digital banking services. Despite the diversity of legal and organizational forms in which such projects exist (digital bank with its own license, digital satellites of incumbents, transitional banks, microfinance or e-money operators, fintech-projects in partnership with traditional banks), all of them follow the same tendencies:

Monetization of all available infrastructure, including the use of the banking application to sell third-party non-bank services;

1. Banking services technologization aimed at product time-to-market reduction, customer servicing time reduction, customization of products;
2. "Package" sale of products, including use of digital channels (website and mobile application) of third parties to offer banking services.
3. However, tradition banks that already possess physical infrastructure should not abandon it at all, instead, phygital offices should be a priority to satisfy needs of all categories of clients, including of those from regions with low level of digital adoption.

In case of large systemically important banks that possess enough financial resources M&A's with fintech companies may be an ideal variant to acquire cutting edge digital tools of operations analysis, monitoring and maintenance (AI, bigdata, DTL) to make banking products technologized.

Thus, the boundaries of banks are blurred: banking services increasingly act not as a separate service, but as an element in the customer journey.

At the same time, digital banking incurs additional risks for its users and the financial system as a whole:

1. Financial resilience loss and reputational risks in case of digital banks' failure in the result of inability to reach the breakeven point. For instance, American Finn, French Seabank, British Bo bank were closed. Despite several years of operations in the market such digital banking projects as American Varo bank, Brazilian Nubank, Norwegian Aprila bank and Danish Lunar bank suffered losses as of 2022.
2. Higher cyber-attacks risk due to the prevailing digital channel of interaction between a bank and a customer.

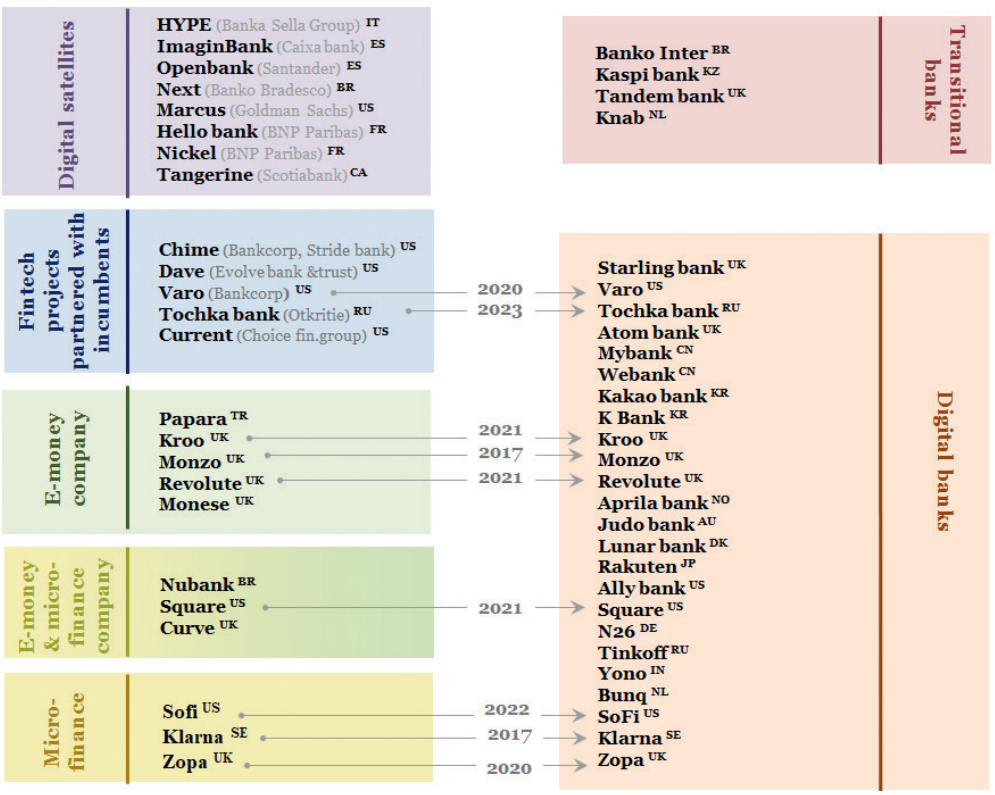
3. Regulatory gaps due to central banks' inability to keep up with all the new developments in digital banking.

Future studies should consider measures of adaptation of the existing regulatory legal acts in order to capture the abovementioned risks. Measures should include but not be limited to the following areas for adjustments:

1. Additional measures of control over digital banks' operational efficiency and profit margins.
2. Due to unified client identification across all ecosystem services legislation should better describe the process of clients' personal data management.
3. Standards of consumers informing about the banking service providers, regardless of the brand under which the service is provided, etc.

Appendix 1

Digital banking typology (the best known examples)



Legend:

- (Caixa bank) – 1) for digital satellites – the principal bank in the group of companies sharing the banking license; 2) for fintech projects originated by IT companies – the partnering bank
- UK, US, etc. – country of origin
- 2020 → - fintech projects, e-money and microfinance companies that obtained a banking license in relevant year

Source: compiled by I.B. Turuev, E.O. Shashkina.

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Bio notes / Сведения об авторах

Igor' B. Turuev, doctor of economic science, professor, Department of international finance, Moscow State Institute of International relations (MGIMO University), 76 Prospect Vernadskogo st., Moscow, 119454, Russian Federation. ORCID: 0000-0002-9640-7475. SPIN-code: 8347-7075. E-mail: i.turuev@inno.mgimo.ru

Туруев Игорь Борисович, доктор экономических наук, профессор кафедры международных финансов, Московский государственный институт международных отношений (МГИМО МИД России), Российская Федерация, 119454, Москва, Проспект Вернадского, д. 76. ORCID: 0000-0002-9640-7475. SPIN-код: 8347-7075. E-mail: i.turuev@inno.mgimo.ru

Evgeniya O. Shashkina, Candidate of sciences in economics, Department of International finance, Moscow State Institute of International relations (MGIMO University), 76 Prospect Vernadskogo st., Moscow, 119454, Russian Federation. ORCID: 0000-0003-4638-4647. SPIN-code: 8540-0878. SCOPUS ID: 57466995500. E-mail: shashkina.e@inno.mgimo.ru

Шашкина Евгения Олеговна, кандидат экономических наук, кафедра международных финансов, Московский государственный институт международных отношений (МГИМО МИД России), Российская Федерация, 119454, Москва, Проспект Вернадского, д. 76. ORCID: 0000-0003-4638-4647. SPIN-код: 8540-0878. SCOPUS ID: 57466995500. E-mail: shashkina.e@inno.mgimo.ru