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Cashless Payment in Emerging Markets: The Case of Russia

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ABSTRACT

Cashless payment has rapidly developed in emerging markets following the digitization of finance. In this paper, by calculating the ratio of cashless payment in Russia, we find that it takes the shape of J-curve exponential growth, unlike in other developed and emerging economies. Although debit cards significantly dominate other types of cashless payment, the development of e-money is also significant. Internal and external factors both account for the J-curve exponential growth in cashless payment, and the external factors have a larger impact. We distinguish the peculiar features in the promotion of cashless payment that are peculiar to Russia and highlight the fact that Russia's national payment system was formed to address rising national security and geopolitical risks. Cashless payment is centralized and administered by the Bank of Russia, in order to digitize the financial sector and the government, with the goal of driving the digital economy.

1. Introduction

One of the most prominent features of the global economy at the beginning of the twenty-first century is digitization, particularly in the fintech (financial technology) industry. Financial digitization triggers technological transformations in retail and wholesale finance, promotes the use of digital cash, smart contracts, and open banking (financial digitization 1.0), and facilitates the development of entirely new financial products, such as cryptocurrency, stablecoins,¹ and central bank digital currency (financial digitization 2.0).

The digital transformation (DX) of the global economy has a significant impact on international payment markets, governments, and businesses worldwide. Traditional payment systems are greatly challenged by new market players, large fintech and information technology (IT) firms, which play a pivotal role in both national and international payment systems. Mobile payments with digital currency have boosted the growth of cashless payment and paved new directions for cashless economies around the world. The value of transactions in the global digital payments market in 2020 was estimated at USD 5.44 trillion and is expected to more than double by 2026. The COVID-19 pandemic and its impact on e-commerce by both large and small and medium-size enterprises (SMEs) is likely to increase the use of digital payment across economies.

The rapid development of cashless (digital) payment has attracted

the interest of both academia and business in ideas about cashless economies. A cashless economy is understood as an economy that has no barriers to cashless payments using any method and at any time, in which market actors, such as governments, businesses, and consumers, are well aware of the advantages and the necessity of cashless transactions. One characteristic of a cashless economy is the absence of discrimination between cash and cashless payment instruments, because consumers choose the payment method based on their preferences, rather than on an evaluation of the direct and indirect costs of using a particular payment method or the availability of the necessary infrastructure (Krivoshaya et al., 2017). The development of cashless payment, in particular the introduction of central bank digital currencies, is the next logical and highly anticipated step (Fabris, 2019) in the history of money, which began with the barter system. This system was followed by the use of precious metals as the method of payment, then currency backed by gold, and later by fiat money, whose value is completely indifferent to the material employed. The transition to a cashless society is inevitable, and the speed of this transition depends on the ability and flexibility of the government, business, and consumers in adopting a cashless environment (Fisher, 2020).

Theoretical studies have shown that cashless payment has many advantages for improvement in controlling and protecting security in transactions, reducing transaction costs associated with the circulation of money, improving transaction quality (Fabris, 2019), combatting the

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¹ Stablecoin is a type of cryptocurrency whose price is pegged to a cryptocurrency, fiat money, or exchange-traded commodities, such as precious metals or industrial metals.

shadow economy (Schneider, 2017), and limiting illicit money flows, such as money laundering and counterfeiting (Rogoff, 2016). Despite these obvious, significant advantages of cashless payment for the government, business, and the society as a whole, at present, no countries have completely abandoned cash, because of the risks from doing so: the costs and risks related to electronic infrastructure, the digital divide among portions of the population (e.g., customers who lack digital skills or live in areas with insufficient financial inclusion), security concerns, and others. Nevertheless, the transition to a cashless society is a continuing trend worldwide, and many countries are designing versatile policies to promote cashless payments, rather than eliminating cash.

Previous research demonstrates that DX in the financial industry is developing more rapidly in emerging economies than in advanced countries because of differences in the maturity level of financial systems and financial inclusion. In emerging countries, policy measures support fintech through a larger variety of measures, including the establishment of more flexible financial regulations such as the regulatory sandbox (Bank of Japan, 2021). But, in advanced economies, which already have well-established financial systems, technological transformation occurs at a significantly slower pace because of generally higher levels of resistance to change, low demand from the population for new technologies due to familiarity with the existing service and path-dependency, and high concerns over privacy issues and data protection.

Technologically innovative fintech companies in emerging markets are leapfrogging the payment infrastructure in advanced economies and driving further development of payment systems (Financial Stability Board, 2020). According to the World Payments Report, in 2019 the top five transaction markets were the United States (USD 164 billion), EU (USD 112.6 billion), China (USD 108.7 billion), Russia (USD 44.6 billion), and Brazil (USD 36.9 billion). However, emerging markets dominate in terms of growth rates in the volume of cashless transactions; in 2018–2019, Russia had growth in the volume of cashless transactions of an astonishing 42.3 percent, driven by the adoption of a new national payment system (NPS).² Thus, a new phenomenon has emerged: the so-called digital emerging economies (Ito, 2020), which demonstrate significantly more rapid digitization. The FT-Omdia Digital Economies Index anticipates rapid development of cashless payment in Algeria, Bangladesh, India, and Vietnam in 2022–2024.

A few similarities can be detected in the rapid development of cashless payment in emerging markets. First, cashless payment is mostly promoted by IT and fintech companies, rather than banks (Bank of Japan, 2021), through methods such as mobile and online payment, QR codes, and e-money (Dinh et al., 2018; Kochergin, 2017; Nishimura, 2019; Turrin, 2021).

Second, the purpose of encouraging cashless payment is to facilitate access to financial resources and promote financial inclusion (Donovan, 2012; Mouna & Jarboui, 2021), to increase transparency in public transfers and payments, to minimize corruption, and to limit illicit circulation of cash that is used for financing illegal transactions (Rogoff, 2016).

Third, in emerging economies, such as China, Russia, and Indonesia, cashless payment is facilitated by the rapid development of e-commerce, which transforms customer behavior and increases the volume of online shopping, thus creating demand for new payment technologies.

Fourth, the promotion of cashless payment in emerging economies is often facilitated by governments, which aim to rapidly digitize their economies and societies, and limited resistance by the public, because of the low level of maturity of their financial systems compared to advanced economies. In theory, the transition to a cashless economy can

be implemented in two ways: a decentralized market-driven approach and a centralized state-driven approach. In fact, many countries apply a combination of both. In addition, government initiatives can restrict the circulation of cash and thus indirectly affect the volume of cashless transactions (Shvandar & Anisimova, 2015). Nevertheless, regardless of the approach, bottom-up initiatives are important in driving cashless payment, as money and payment are based on trust, which cannot be easily established top-down (Arvidsson, 2019). In many emerging economies, this poses a significant problem due to the generally low trust in financial institutions.

Fourth, the COVID-19 pandemic is likely to expand the use of cashless payment in emerging economies as it enables contactless transactions and helps to prevent the spread of the virus.

Although Russia is an emerging economy and has had among the highest growth in cashless payment in recent years, its experience is not similar to the one described above. In this paper, by analyzing the factors that have contributed to the exponential growth rate in cashless payment in Russia, we show that the promotion of cashless payment in the country is extensively driven by the state, orchestrated by the Bank of Russia (the central bank), for the purpose of enhancing national security after the imposition of Western sanctions in 2014 when Russia annexed Crimea. The resilience of the state-driven cashless payment system is confirmed by the fact that the system of domestic payment was not paralyzed after the imposition of the historically numerous economic and financial sanctions imposed on Russia in February–March 2022 over the military escalation of the conflict with Ukraine³. Data from the NAFI Research Center indicate that the use of cashless payment by Russian consumers in March–April 2022 did not significantly change.

Anisimova (2020), Korobeynikova et al. (2020), Krivosheya et al. (2017), and others discuss the theoretical assumptions and potential for the implementation of a cashless economy in Russia, and Gusev (2016) considers the historical preconditions for the formation of the NPS in Russia. A handful of studies analyze cashless payment in different Russian regions or focus on a particular payment method—for instance, mobile payment—and conclude that there is potential for further adoption of smartphone payment (Semereikova, 2020). The dynamics of cashless payment are empirically analyzed in reports and reviews by international organizations (Capgemini Research Institute, 2020) and consulting firms (e.g., Ernst & Young, 2020), which publish annual reports on digitization and short country case studies and international comparisons. Recent studies also highlight the increasing role of financial innovations in consumer behavior in the retail payments market (Krivosheya, 2020a) and consider the benefits of the retail payment markets for Russian consumers (Krivosheya, 2020b).

This study contributes to the existing research on the cashless economy in Russia, which is limited in number, in particular, research studies that analyze the factors accountable for the rapid growth of cashless payments in Russia in the context of the digitization of the global financial industry.

The paper has two goals. First, we conduct a macroeconomic analysis of cashless retail payments in Russia by the type of payment instruments. Second, we aim to identify the factors that are accountable for the rapid growth in the ratio of Russia's cashless payments in comparison to that in other emerging economies.

The remainder of the paper is as follows. Section 2 explains the research methodology. Section 3 presents major estimation results and summarizes the major points in a macroeconomic analysis of cashless retail payment. In Section 4, we consider the impact of external and internal factors on the promotion of cashless payment and define the peculiarities of Russia in promoting cashless payment. Our major

² Growth rates in the volume of cashless transactions in selected economies in 2018–2019: United States: 5.1 percent, European Union: 6.3, China: 30.1 percent, Russia: 42.3 percent, and Brazil: 7 percent (Capgemini Research Institute, 2020).

³ In accordance with the current legislation of Russia, this military conflict should be addressed as “special military operation”. Russia's government denies the accusations of the international community that it has launched a war or military incursion in Ukraine.

findings are presented in Section 5.

2. Methodology and Data

The methodology in this research is based on the calculation of the ratio of cashless payment in Russia and other selected emerging and developed economies and a detailed examination of cashless payment instruments.

Conventionally, the cashless ratio is defined as the ratio of cashless payments using debit cards, credit cards, and e-money in final household consumption, and this indicator is calculated to measure the distribution of the value of cashless transactions in an economy using the following equation:

$$\text{Cashless ratio} = \frac{\text{Cashless Transactions Value}}{\text{Final Household Consumption}} * 100\% \quad (1.0)$$

In addition, we employ a simple regression analysis to confirm the negative correlation between the amount of cash in circulation in the gross domestic product (GDP) and the value of cashless transactions as a share of GDP. We also conducted a macroeconomic analysis of cashless payment by instruments (both the volume and the value of cashless payments) to identify the most popular payment methods.

We obtained the data for this research from the Bank for International Settlements (BIS) and the Bank of Russia's statistics on the NPS and covers the period 2012–2020. Beginning in 2012, the NPS data is collected by the Bank of Russia in accordance with the BIS standards.

In addition, the methodology of this research includes descriptive methods, analysis of secondary statistical data, as well as generally accepted tools for synthesis and international comparison. Primarily descriptive methods are used to examine the impacts of internal and external factors on the rapid promotion of cashless payment.

3. Results

Payment service providers in Russia serve 75 million people, 3.7 million entrepreneurs, and 3.5 million juridical entities (firms). Consumers who use payment services make over 1,500 payment transactions per second with different payment methods; 87 percent of bank customers use digital channels for payment transactions, such as mobile applications, internet banking, and banks' web sites. Trust in cashless payment in Russian society has increased, which is confirmed by the available statistics on cashless payment (Bank of Russia, 2021).

The share of cashless payment based on our calculations is presented in Figure 1. The proportion in China, which is often regarded in the literature as a digital emerging economy, 2,019.0 percent (Ito, 2020; Turrin, 2021), followed by Russia (116.3 percent), South Korea (98.1 percent), Brazil (38.0 percent), and Japan (26.9 percent). In the other countries, it is less than 20 percent.

The J-curve growth of Russia's cashless payment ratio, measured as the cashless transaction value in final household consumption, in 2012–2019 is exponential, unlike in other emerging economies. Over that period, Russia's cashless ratio increased from 17.1 percent to 116.3 percent—a sevenfold increase in the value of cashless transactions in final domestic consumption. This rapid growth becomes pronounced beginning in 2015. Although Japan is a developed country, its cashless ratio is relatively low (26.9%) (Gorshkov, 2021b).

Overall, debit cards tend to prevail in emerging economies because of the insufficient development of financial markets and difficulty in nurturing market trust and credibility in the financial system (Figure 2).

In 2000–2021, the share of cashless money balances in circulation in Russia increased from 62.8 percent to 78.6 percent, demonstrating the

relatively high growth of cashless payment (Figure 3).⁴ In fact, cashless payment has developing more rapidly than predicted by the Bank of Russia's forecasts.⁵ However, Russia still lags behind other emerging economies, such as China (96.2%), Brazil (90%), and South Africa (91.5%).

Russia also has the second-highest proportion of the value of cashless transactions in GDP (current prices) among emerging economies (59.1%), and its cash in circulation as a share of GDP is currently 9.6 percent. These two indicators have a negative correlation (Figure 4), suggesting that the promotion of cashless payment has the potential to reduce the amount of cash in circulation or that the speed of the development of cashless payment is presumably higher than the growth rate of cash in circulation.

The alternative method of measuring the penetration of cashless payment is the share of cashless payment in retail payment turnover. Over the period 2012–2020, the share in Russia increased from 13.5 percent to 70.3 percent (Figure 5). Approximately 68 percent of cashless payment uses credit and debit cards (mostly the latter; see below), 1.5 percent use e-money, and 1.2 percent involve other payment instruments.⁶ In 2020, about 70 percent of the cashless payment for goods and services was made with touchless technology, and 25 percent of the payments were made with mobile phones.⁷ The number of cashless payments made per person in the retail sector is 318, which still lags other countries in international comparisons.⁸ Regional discrepancies in cashless payment remain (Necheukhina et al., 2021). However, cashless payments are actively promoted in Russia's regions, though not necessarily in large cities, such as Moscow or Saint Petersburg: In the first quarter of 2019, the regions with the highest share of cashless payments in the region's retail turnover were: Murmansk oblast (58.6%), Republic of Karelia (58.4%), Republic of Komi (57.5%), and Arkhangelsk oblast (56.2%) (Sberbank, 2019). Local governments are actively involved in promoting cashless payment in these regions.

Figure 6 illustrates the total volume of cashless transactions, showing that over the period studied, it increased 2.2-fold for a total of RUB 8.3 trillion in 2020. The volume of transactions with payment by debit and credit cards and e-money has rapidly increased: the increase in the use of these cards increased 2.2-fold in 2010–2020, whereas the use of e-money rose fivefold from 2013 to 2020, when the e-money system was launched.

The value of total transactions in cashless payment almost doubled in 2012–2019 (Table 1). The increase in credit transfers from RUB 483 billion to RUB 812 billion is explained by the expansion of payment services available for business. In 2020, firms opened 1.5 million new bank accounts, increasing the total number of bank accounts to 13 million. Firms are active users of online banking services: 96 percent of payment and transfer requests were submitted digitally.

The value of transactions with credit and debit cards and e-money totals RUB 65 trillion, with an increase in the use of debit cards of 12.2-fold (1,120 percent growth rate), a tripling of the use of credit cards (200 percent growth rate), and rapid increase in the use of e-money. As mentioned earlier, Russians tend to prefer debit cards to credit cards, especially since the Soviet era due to the lack of development of credit

⁴ Calculated as $1 - M0/M2$, where $M0$ is cash in circulation, and $M2$ includes not just cash but balances on current accounts, time and savings deposits at commercial banks, and short-term government securities.

⁵ The Bank of Russia aims for 75 percent by 2023.

⁶ The share of credit and debit cards used for retail payments in selected economies: France and the Netherlands, 55 percent each; Sweden and the United Kingdom, 66 percent; South Korea and the United States, 75 percent; Singapore, 94 percent; India, 44 percent; and Germany, 25 percent.

⁷ In Russia, 80 percent of the point of service (POS) terminals can accommodate touchless technology (compared with 75 percent in the United States).

⁸ The number of transactions in the United Kingdom is 450, in the United States, 500; South Korea, 550; and Singapore, over 750.

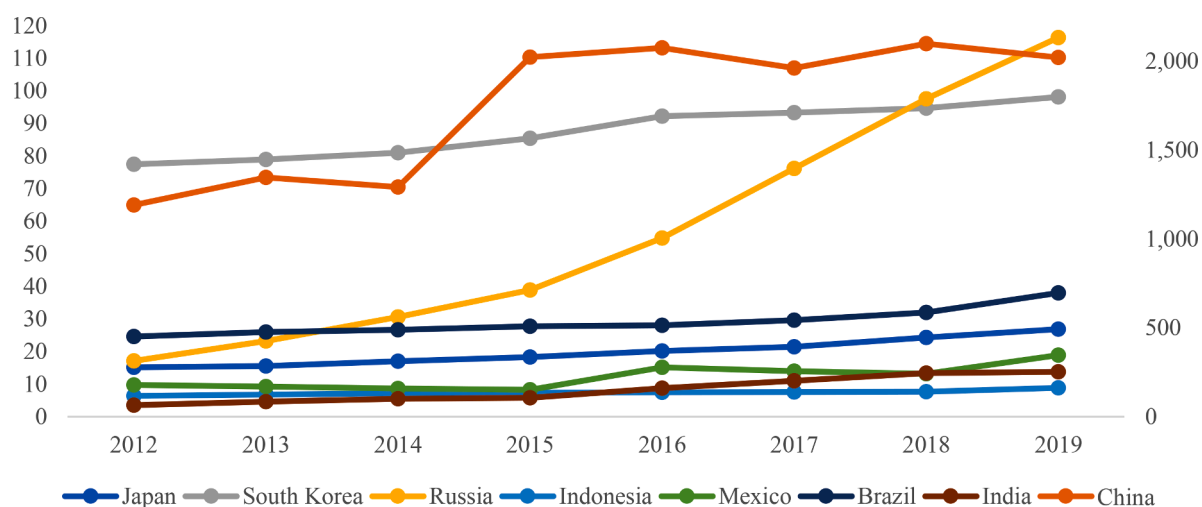


Figure 1. Cashless ratios for selected economies in 2012–2019, in percentage.

Note: The data for China are measured on the righthand axis.

Source: BIS statistics.

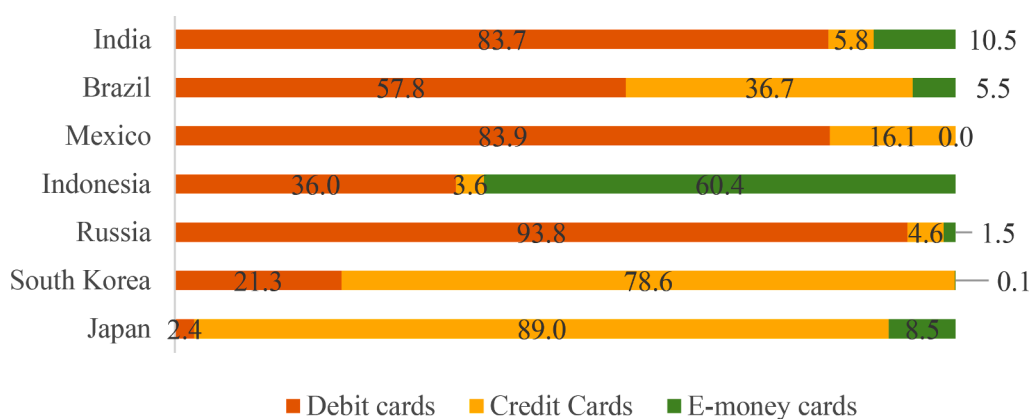


Figure 2. The share of cashless payments by instrument in 2019, in percentage.

Note: Calculated as a share of each instrument in the total value of cashless payment.

Source: BIS statistics.

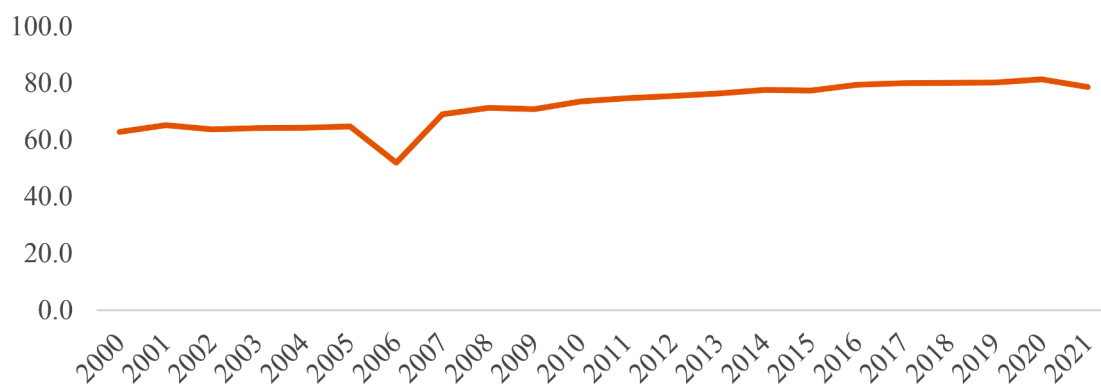


Figure 3. Share of cashless money balances in circulation in 2000–2021, in percentage.

Source: Bank of Russia.

card instruments at that time. In addition, most debit cards are issued by companies to direct deposit workers' salary to their bank accounts. Then, the debit cards are largely used to withdraw cash from those accounts, thus, simultaneously stimulating both cashless payment (to them) and the circulation of cash (by them).

However, the statistical data show that cash withdrawals have grown at a significantly lower rate than other types of cashless transactions: in 2010–2019 the volume of transactions remained nearly the same; the value of cash withdrawals increased eightfold, whereas other cashless transactions increased by a factor of 45 in terms of volume and by a

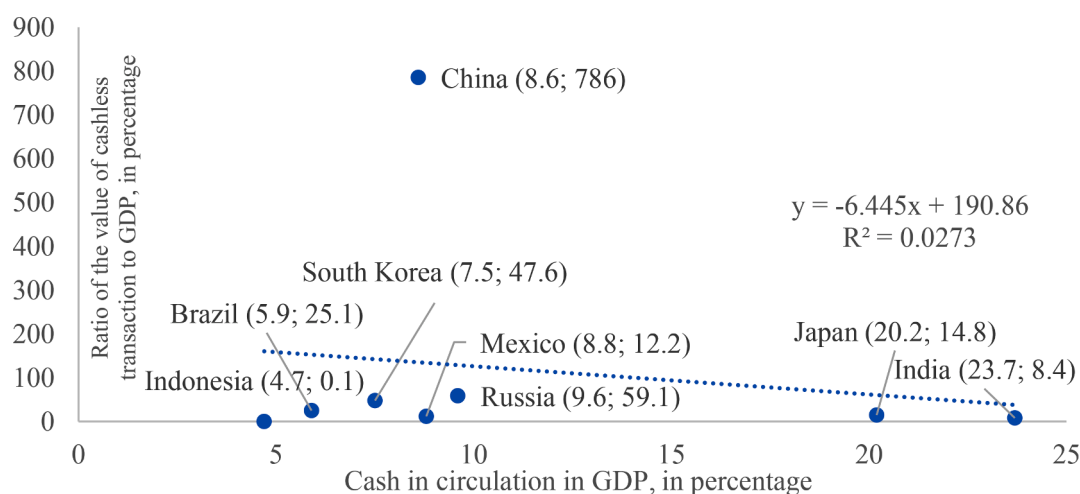


Figure 4. Results of the simple regression model, data for 2019, in percentage

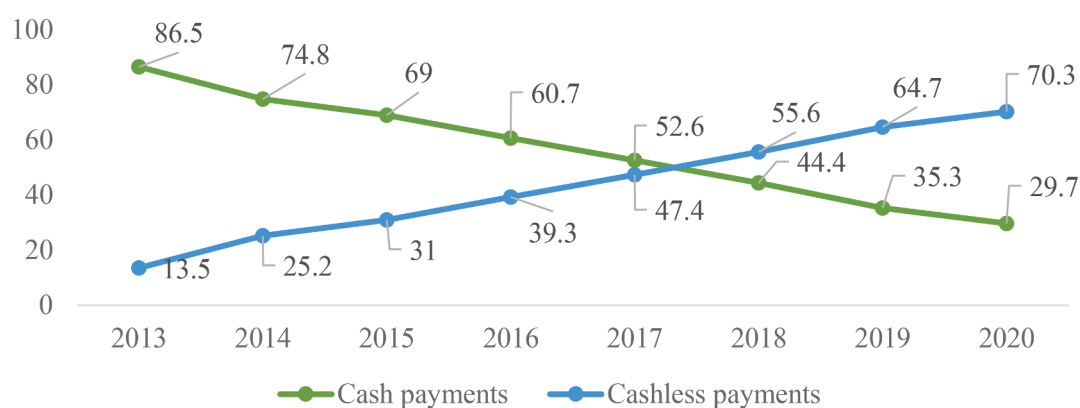


Figure 5. Share of cash and cashless payment in retail payment turnover, in percentage.

Source: Bank of Russia (2021, 11).

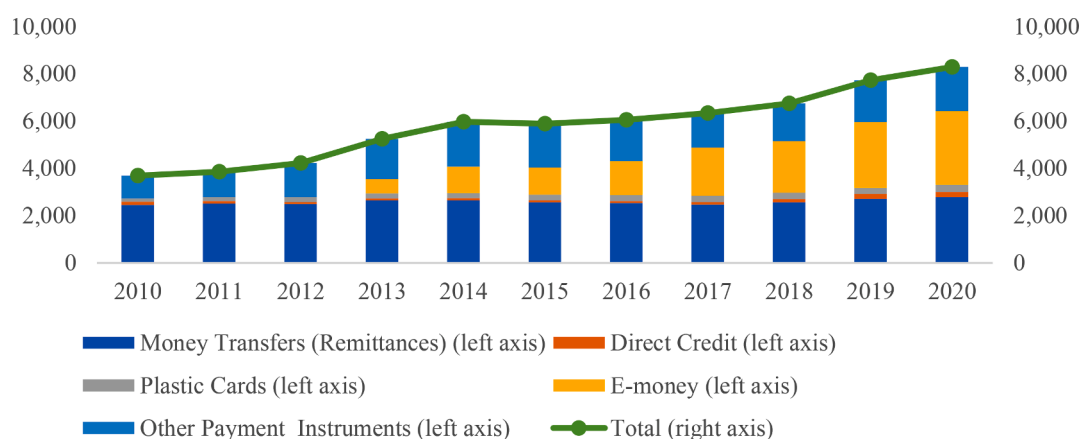


Figure 6. Volume of cashless transactions by instrument (number of transactions).

Source: Bank of Russia statistics.

factor of 46 in terms of transaction value.

For Russian consumers, cashless payment and money transfers using credit and debit cards and automatic payment with online banking remain the most popular services. Their popularity is rising: In 2020, 98.9 percent of digital payment requests by individuals were accepted by banks. According to the Boston Consulting Group, 30 percent of individuals used online banking more often in 2020 than in 2019.

Mobile money transfers have also increased: In 2020, 111 million transactions were made, with a total of RUB 795 billion (a sixteen-fold increase in transaction volume and a thirteen-fold increase in money transfer transactions). Nevertheless, their use by Russians raises significant security concerns (Semereikova, 2020).

The COVID-19 pandemic accelerated further expansion of cashless payment. Banks and non-banking institutions began to adjust to the new

Table 1
Total Value of Cashless Payments, trillion RUB

Type of Cashless Payment	2012	2013	2014	2015	2016	2017	2018	2019	Growth rate in 2012-19, %
Credit transfers	483	553	636	726	651	693	750	812	68.1
Direct credit	1	2	2	2	2	2	2	2	100.0
Debit cards	5	7	11	15	22	34	47	61	1,120.0
Credit cards	1	1	1	1	2	2	3	3	200.0
E-money	0	1	1	1	1	1	1	1	n.a.
Other payment instruments	5	5	7	8	8	9	8	11	120
Total	495	569	658	752	686	741	810	891	80
USD/RUB official average exchange rate as of December 1st (Bank of Russia)	30,7373	32.8807	55.7704	69.7048	62.0913	58.5739	67.3353	62.9325	–

Source: BIS statistics.

system by promoting remote payment, developing digital technologies and ecosystems and providing digital products and services (Korobeynikova et al. 2020). According to the Bank of Russia (i.e., Central Bank of the Russian Federation), the share of cashless payments increased about 3 percent in 2020 due to the COVID-19 pandemic. The reason for this low contribution due to COVID is the digital divide: cashless payments are less utilized by older age groups that could not use mobile payment and online shopping during the mandatory self-isolation period and needed help of volunteers to do shopping, and cash withdrawals increased (Anisimova, 2020). However, this trend is likely to be short term as the government is actively promoting the penetration of debit cards among elder groups of population.

4. Discussion

In this section, we consider the factors that account for the J-curve exponential growth in Russia's cashless ratio in 2012–2019. We summarize them into groups of internal and external factors (Figure 7).

4.1. Internal Factors

The evolution of cashless payment in Russia is related to changes in the cashless payment market and to government initiatives. The former refers to the emergence of payment system providers and operators as well as institutional changes in the consumption behavior. The latter is the goal of the government and municipalities to establish e-government and promote the digital economy.

Previous research (Gusev, 2016) shows that prepaid card business played a critical role in the formation of online (and, later, cashless) payment in Russia, where cashless payment initially developed for two reasons: a consumption boom in the early 2000s, which created the need for new payment methods, and new patterns of consumption, which put

pressure on financial institutions to provide better payment services.

In the early 2000s, retail commercial banks started issuing credit and debit cards with revolving credit and launched the development of a domestic network of ATMs for cash withdrawals, which generated high commission income for banks from fees charged to customers for those withdrawals. These credit and debit cards were later offered as a part of “salary projects,” and many banks issued debit cards to employees and pushed employers to directly debit salary payments to their bank accounts. This initial stage in the development of cashless payment was not successful, as many customers avoided using ATMs because of the high cash withdrawal fees. In addition, ATMs could not provide other services for which demand was high among customers, such as bill paying for utilities or mobile phones (Gusev, 2016).

This led to the introduction of cash kiosks by retail payment companies, which offered prepayment services for a variety of activities. The popularity of the system peaked in 2009, when Russia had 100,000 such cash kiosks in operation. The market for retail payment evolved, enabling the establishment of the payment service Qiwi in 2007 through the merging of two companies: E-port (which sold scratch cards for charging mobile phones) and the United System of Fast Payments (Ob'edinennaya Sistema Momentalnykh Platezhey, a system of payment terminals). Qiwi eventually became the most dominant player on the market. After its initial public offering, its business grew from payment terminals to the introduction of a personal wallet (e-wallet), which enabled consumers to link this personal wallet to a mobile phone number. The firm, whose headquarters are in Cyprus at present, is listed on the NASDAQ and MCX.

In the early 2010s, because of significant improvements in mobile communications technology, online consumption has risen, and this led to the emergence of e-wallets, for the payment of utility bills, obtaining loans from third parties, and person-to-person (P2P) cash transfers.

The government-backed initiatives came out of the idea to launch a national identity system, which would enable information related to municipal services, medical insurance, and other federal services to be embedded in the chip on a plastic card and potentially linked to a national payment system of cashless payment for government services. The government intended to solve the problem of paying in cash for public services in order to increase the transparency of payment under conditions of endemic corruption and low-quality public services as well as to prevent money laundering. The first initiatives to launch a national payment system were announced in October 2005. The state-owned Sberbank, the largest bank in Russia, with the most extensive customer network in the country, launched the Sbercard system in 2007 for the purpose of connecting state-owned enterprises and banks, sometimes via mandatory adoption of the card. The initial goal of the government was to educate consumers to use payment cards and, by doing so, to give access to the most socially insecure segments of the population. This government initiative, however, ran into obstacles, such as problems with production of the cards and end-user acceptance; the Sbercard failed to be transformed into the planned Universal Electronic Card (Gusev, 2016).

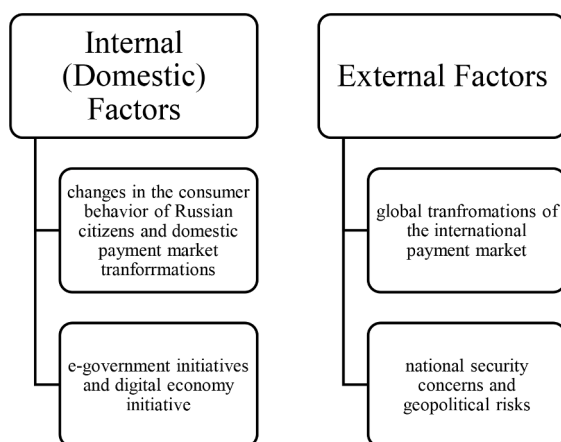


Figure 7. Factors that account for the rapid growth in cashless payment in Russia

Thus, the internal (domestic) reasons include changes in consumer behavior and factors related to the domestic payment market that were due to changes in that market in the early 2000s. At that time, demand for new payment instruments due to consumption trends created new consumer expectations for faster and more convenient payment services. Other internal factors were the government initiatives to establish a universal payment system in order to increase transparency and efficiency of public payments in conditions of endemic corruption and poor quality of public services, thus promoting the concepts of e-government and digital economy.

4.2. External Factors

The rapid increase in cashless payment is partially explained by the adaptation of Russia to trends in the international payment markets, such as changes in consumer behavior caused by the rapid development of e-commerce, the emergence of new payment technologies, the entry of big tech firms to the international payments markets, growing demand for interoperability of different payment systems, enhanced government regulation of payment markets (Gorshkov, 2021b), and rapid development of central bank digital currencies (Gorshkov, 2021a).

For instance, e-commerce is rapidly developing in Russia, thus boosting consumer demand for speedy and convenient cashless payment. There are many payment service providers, however, a few big players dominate the market: 65 percent of the bank accounts are opened at Sber.⁹ The active market entry of big tech into payment services is particularly pronounced in emerging and developing economies because of their low levels of financial inclusion and has grown because of the COVID-19 pandemic (Financial Stability Board, 2020). The share of contactless cashless payment implemented by big tech in Russia is estimated at 20 percent and is still growing.

The predominant external factors that account for the J-curve exponential growth in cashless payment in Russia are national security concerns and geopolitical risks. The decision to go cashless and develop the NPS was triggered first by the Wikileaks revelations in 2010 when it became obvious to government officials that foreign countries had the means to analyze Russian payment data (Gusev, 2016) and later in 2014 by growing concerns about potential blocked electronic payments after several Russian banks were denied service by the US-based Visa and Mastercard because of financial sanctions imposed on them (Gorshkov, 2020b).

Overall, the NPS is an attempt at localization of the cashless environment in order to reduce the systemic risk in globalization and stimulated the market entry of international payment systems such as Google Pay (2016) and Apple Pay (2016). Google, Amazon, Alibaba, and other big tech firms introduced versatile payment solutions; however, Russia did not develop any similar alternatives. These national security concerns resulted in the construction of the so-called Kremlin firewall (enhanced protection of some economic sectors) and created a convincing argument for the reallocation of budgetary funds to the information technology sector (Medvedev, 2020) and the financial industry, thus, enhancing the state-led digitization of the financial sector.

In 2014, to address these external threats, the Bank of Russia established the National Payment Card System (NPCS), which currently processes all domestic transactions with credit and debit cards and serves as a clearinghouse for the Mir payment system, which issues its own cards. The share of Mir plastic cards in the total volume of transactions has been steadily growing (Figure 8). As of January 2021, 95 million cards were issued, accounting for 30 percent of the card issuance in Russia. Mir cards are distributed to pensioners, public sector

employees, and others who receive social welfare payments. Mir cards are currently accepted in member countries in the Eurasian Economic Union (EEU) and other countries that are popular destinations for Russian tourists.¹⁰

Another government initiative to address external challenges and boost cashless payment was the establishment of the Quick Payment System, which was first introduced and tested by the Bank of Russia in 2018.¹¹ The QPS launched full operations in 2019, and the system currently allows consumers to make instant money transfers by mobile phone without the recipient's account info as well as to make payments using QR codes for purchases and utility bills, 24/7/365. The daily limit for money transfers is 600,000 rubles, and money transfers of less than 100,000 rubles initially were exempted from commission fees.¹²

The increase in both the volume and value of transactions via QPS is impressive: in 2019–2020, the volume of transactions increased seventeen-fold and their value thirteen-fold. As of April 2021, 214 banks and 109,000 SMEs in retail and commercial trade are members of the QPS, and the number of transactions totaled 223 million, worth RUB 1.5 trillion (Bank of Russia, 2021). In 2020, 95 percent of the money transfers occurred in Moscow and its environs.

The share of remittances among individuals using the QPS is 15 percent of the total amount of money transfers by banks, and, according to the Bank of Russia's estimates, it is expected to increase to 25 percent by 2023. The Bank of Russia also intends to conduct pilot tests of the QPS for international remittances in the EEU, introduce opportunities to deposit cash via the system, and expand the system to government-to-consumer (G2C) and consumer-to-government (C2G) transactions, such as direct deposit of salaries, taxes, duties, and fines.

Thus, the current institutional structure of Russia's NPS is administered almost entirely by the Bank of Russia, which is its rule maker and regulator and an active market participant, providing services via its payment system and other types of payment infrastructure, such as the NPCS and the QPS. Cashless payment in Russia is administered under the NPS, which was established based on the federal laws no. 86-FZ, "On the Central Bank of the Russian Federation," July 10, 2002, and no. 161-FZ, "On the National Payment System," June 26, 2011. Cashless payment is implemented by the following (primarily state regulated) institutions:

- Money transfer operators, comprising the Bank of Russia, the state-owned development bank VEB.RF, and credit organizations (banks).¹³
- Operators of the payment system, consisting of the Bank of Russia, credit organizations, and non-credit organizations.
- Operators of the payment infrastructure, including operational centers (POS-terminals), payment clearinghouses, and settlement houses.

¹⁰ Abkhazia, Armenia, Belarus, Vietnam, Kazakhstan, Kyrgyz Republic, Turkey, Uzbekistan, Tadjikistan, South Ossetia, and Cyprus. The first transactions were tested in Great Britain and South Korea.

¹¹ QPS is also known as the Fast Payment System.

¹² The banks participating in the QPS have the right to establish their own daily limit, however, it should not be below RUB 150,000.

¹³ A credit institution is a legal institution that conducts banking operations as stipulated by the license issued by the Bank of Russia. Credit institutions are not allowed to engage in industrial production, commercial trade, or insurance activities. There are two types of credit institutions: banks and non-bank credit institutions. The key distinction between them is the number of banking operations allowed. The majority of non-bank credit institutions in Russia act as settlement banks in the securities market (Bank of Russia, 2011).

⁹ The former name is Sberbank, which is the largest state-owned commercial bank. The name Sber was selected to highlight the bank management's ambitions to reposition itself as a giant IT (fintech) company by rebranding the bank's name.

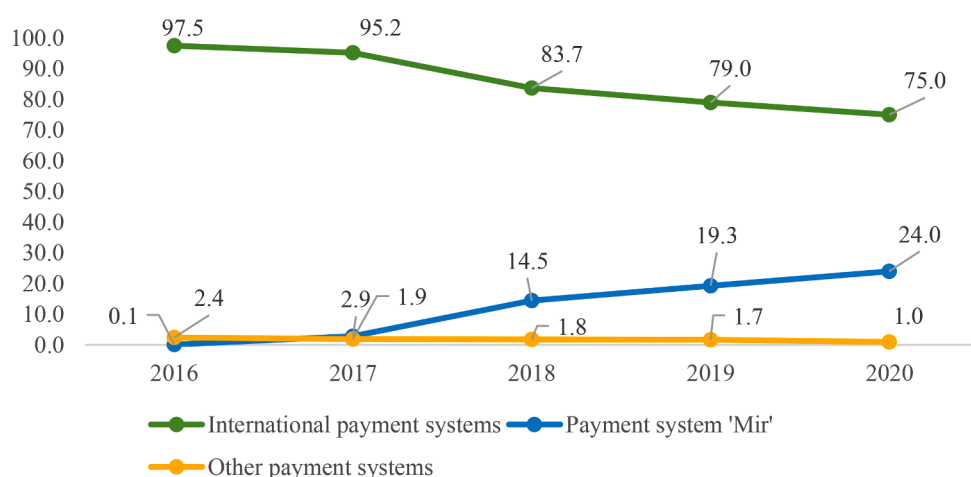


Figure 8. Share of payment systems in transaction volume, in percentage.

Source: Bank of Russia (2021, 9).

- E-money operators (commercial banks)¹⁴
- Federal Post Services (Russian Post and the Post of Crimea)

In addition, the Bank of Russia has been actively promoting financial digitization 2.0. In October 2020, it published the report “On Digital Ruble,” for public consideration and outlined its major features in “The Concept of Digital Ruble,” in April 2021. The digital ruble will not be a cryptocurrency; rather, it will be issued and guaranteed by the Bank of Russia and will be accessible both online and offline from customers’ e-wallets at commercial banks (Gorshkov, 2021).¹⁵ The Bank of Russia designed the platform for the digital ruble and conducted its first pilot tests in February 2022.

4.3. Russian Peculiarities in the Promotion of Cashless Payment

A macro-analysis of cashless payment shows an increase in the share of cashless money balances in circulation in Russia in recent years, with a significant increase in the volume of transactions and the value of cashless payment with credit and debit cards (mainly the latter), e-money, and mobile devices. Cashless payment expanded across Russia, triggered by the increased use of payment cards and mobile phones, the spread of online banking, and significant improvement in the regional payment infrastructure.

The analysis of cashless payment and the factors that contribute to their growth distinguish Russia from other emerging economies in its rapid promotion of cashless payment.

First, in contrast to the rapid development of mobile payment in China, Vietnam, and India, of QR payments (China), and of e-money (Indonesia), the development of cashless payment in Russia was initially driven by the use of debit cards as the predominant payment method. Financial inclusion is higher in Russia than in other emerging economies, even though it lacks maturity and sophistication in comparison to

advanced economies, which is confirmed by the low share of payment using credit cards. Mobile payment and other online technologies, such as the QPS, were introduced only recently but have risen in popularity.

Second, the introduction of new payment technologies in Russia is driven by the Bank of Russia, hence, by the state, with limited participation by big tech and fintech firms. Thus, state dominance of the financial industry has expanded.

Third, the J-curve-shaped growth rate in the volume of cashless payment is largely due to national security concerns and geopolitical risks, which have increased significantly since the first imposition of financial and economic sanctions in 2014. Thus, promoting cashless payment to boost financial inclusion, which is typical of other emerging economies, is not necessarily the primary agenda in advancing a cashless economy in Russia.

The resilience of the newly constructed, state-driven NPS was tested in March–April 2022, when the majority of sanctions were imposed on the Russian economy, followed by the market exit of Visa and Mastercard from the Russian market. A research survey conducted by the NAFI Research Center of 1,600 respondents over 18 years old in 53 regions in Russia demonstrates that 68 percent of the population continues to use cashless payment, even though the share of cashless payment declined by 4 percent in comparison to 2021. Sixty-three percent of the respondents reported that they had not encountered any problems with cashless payment when shopping in person or online, and 33 percent experienced difficulties, in particular, among those age 18–35 (NAFI Research Center, 2022). The decision by international payment card brands to leave Russia will drive further growth of Mir cards, which can be used for domestic payment. For international payment, there is a rapid shift toward the Chinese UnionPay system.

5. Conclusions

Cashless payment is developing more quickly in Russia than in other emerging and developed economies. As part of its digitization 2.0, Russia also intends to launch a digital currency, beginning with a pilot in February 2022. So far, the sanctions imposed on Russia in March–April 2022 have had an insignificant impact on the volume of domestic cashless payments.

The rapid increase in Russia’s cashless payment ratio is driven primarily by the increase in payment with debit cards; however, the use of credit cards and e-money payment also contribute to the J-shaped exponential growth in cashless payment.

Internal and external factors both account for this J-curve exponential growth, but the impact of the latter is significantly larger. The former come from global challenges that pose the risk that Russia will be

¹⁴ According to the federal law “On the National Payment System,” e-money is defined as money provided by one party (provider) to another party (recipient) who confirms the transfer without having a banking account. There are currently three types of e-money: (1) personal, (2) anonymous, and (3) corporate. Personal and anonymous e-wallets can be established only by individual customers, whereas corporate e-money can be established only by firms and entrepreneurs. Transactions are not allowed among corporate clients, but P2P (person to person) and P2B (person to business) are permitted. Electronic transactions by firms that provide professional services in the securities market, such as clearing or settlement services related to investment funds, mutual funds, or private pension funds are not regarded as e-money in Russia.

¹⁵ Commercial banks have their own e-wallets at the Bank of Russia.

left behind, if the Russian market fails to adapt to new technological advancements and transform the payment infrastructure. The latter poses a potential risk that Russia will be excluded from international payment systems as a result of greater political confrontation between Russia and the West, which led to the imposition of economic and financial sanctions due to the situation in Crimea in 2014. Conditions in March–April 2022 confirm that Russia's concerns over SWIFT and international payment systems were founded, thus, providing evidence that the construction of the NPS administered by the Bank of Russia was a reaction to perceived serious geopolitical and national security risks in 2014. The COVID-19 pandemic and a new round of international sanctions in 2022 are among the external factors, as they will drive further expansion of domestic cashless payment and replace international card brands with the Mir NPCS.

The first wave of financial sanctions and threats regarding SWIFT and international payment motivated the state-driven approach to the promotion of cashless payment, with the Bank of Russia playing a guiding role. The Bank of Russia plays a dominant role in the promotion of cashless payment, as it serves as the rule maker of the NPS, the market participant providing payment services via its payment system and other payment infrastructure, such as the NPCS and QPS, and the regulator controlling the activities of other payment providers. Banking payment providers and other payment providers are increasing their shares, but it is incomparable to that of the Bank of Russia and other state-owned banks.

Thus, the transition toward a cashless economy in Russia is to largely centralized and administered by the Bank of Russia, which aims to digitize the financial sector, and the government, whose ambition is to create a digital economy and e-government (so-called digitization from above).

The state-driven approach to digitization is not detrimental per se, however, it raises privacy and security concerns for the market participants. Excessive government penetration of this sector creates uncertainty for market participants and generates fear about the level of authoritarian control of the economy. Considering that state participation in the financial industry is already extremely high (Gorshkov, 2020a), Russia's government is thus advised to better ensure the safety, privacy, and appropriate use of cashless payment in the domestic market.

Cashless payment is bound to increase in the coming years due to COVID-19, the Russian government initiative to introduce a digital ruble, and external pressure on Russia's economy due to the imposition of international sanctions. However, the speed of their development might be hindered by local barriers, such as the problems of a digital divide and financial inclusion, geographic variations in the provision of cashless payment, and the generally low level of trust in the financial system. External pressure on Russia's economy might also slow the further development of cashless payment in the long run. Further research is needed to examine these issues.

Declaration of Competing Interest

The author declares that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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