Research

Industry report

Digitalisation of financial services, payments and remittances market in India

October 2021

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Macroeconomic scenario

COVID-19 pandemic impacts world and Indian economy; bounce back expected in fiscal 2022

According to the provisional estimates released by the NSO, India's real GDP growth in fiscal 2021 stood at -7.3% versus the earlier estimate of -8.0%. After sluggish growth in first half of the fiscal owing to rising Covid-19 cases, gross domestic product (GDP) growth has moved into positive territory in the second half of the year reflecting a pickup in economic activity.

Fiscal 2020 was volatile for the global economy. The first three quarters were ensnared in trade protectionist policies and disputes among major trading partners, volatile commodity and energy prices, and economic uncertainties arising from Brexit. Hopes of broad-based recovery in the fourth quarter were dashed by the Covid-19 pandemic, which has infected more than 236 million people in 224 countries (as of October 7, 2021), leading to considerable human suffering and economic disruption.

The COVID-19 pandemic sharply slowed the Indian economy in the first quarter of Fiscal 2021, but the huge economic costs that it extracted, forced the economy to open up and get back on its feet in the second quarter of Fiscal 2021. What also helped was a sharp cutback in operating costs for corporates due to job and salary cuts, employees exercising work from home options, low input costs due to benign interest rates, crude and commodity prices.

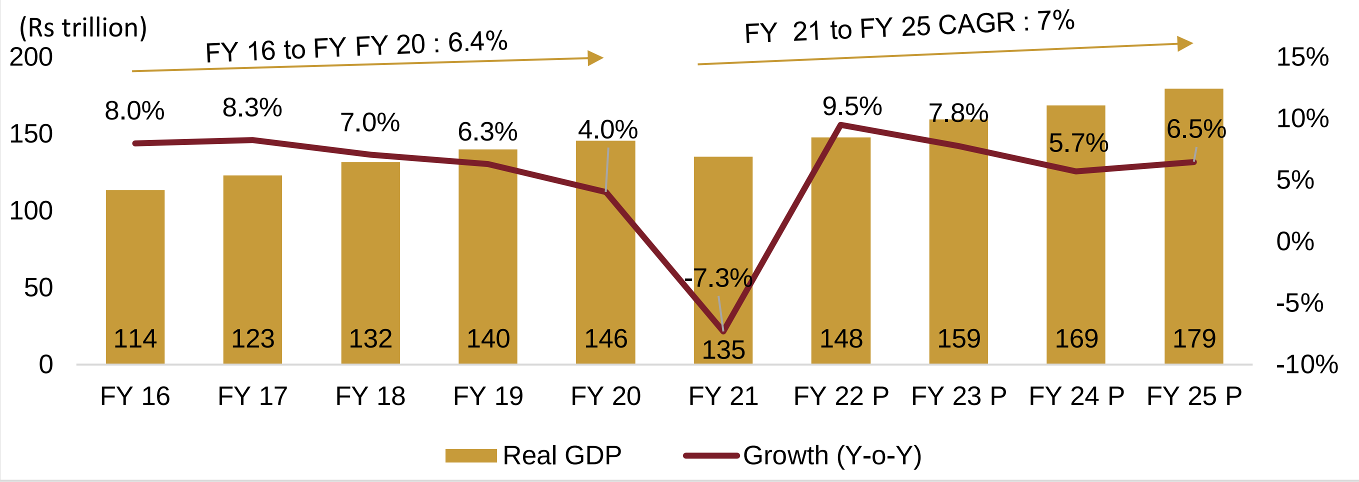
The fierce second wave of Covid-19 pandemic took the healthcare ecosystem to the brink and beyond in Q1 of fiscal 2022, but it did not hit economic activity as hard as the first wave did. The main reason for this would be decentralised and less-stringent lockdowns, which reflect the 'learning to live with the virus attitude' that authorities adopted. Many states also permitted construction and manufacturing activities to continue during the lockdown.

The pandemic came at the most inopportune time since India was showing signs of recovery following a slew of fiscal/monetary measures as nominal GDP grew by 8.8% on year in Q4 of fiscal 2021 as compared to 4.7% in Q4 of fiscal 2020. Having said that, CRISIL Research foresees growth rebounding in Fiscal 2022, on the back of a very weak base, a counter-cyclical Union Budget for Fiscal 2022 pushing investments and some benefit from a rising-global-tide-lifting-all-boats effect. The gradual increase in vaccinations against COVID-19 is also expected to boost confidence and support stronger recovery. Even after the strong rebound, fiscal 2022 real GDP is expected to be only slightly higher than that in fiscal 2020.

The budget's focus on pushing capital expenditure (capex) despite walking a fiscal tightrope however provides optimism and creates a platform for higher growth. Given that the focus of the budget was on investment rather than consumption push, the full impact of the expenditure will be seen in the near term via multiplier effects, and over time, through enhancement of productive capacity. To that extent, CRISIL Research believes that the budgetary provisions help raise the medium-term prospects for the economy.

This budget not only focussed on pushing central capex but also attempted to nudge state government capex. A Reserve Bank of India (RBI) study points out that an increase in capex by the central and state governments by one rupee each induces an increase in output by Rs 3.25 and Rs 2.0, respectively *(Source: RBI Bulletin – April 2019).*

Budgetary support and vaccines expected to boost economic growth



Note: P - Projected

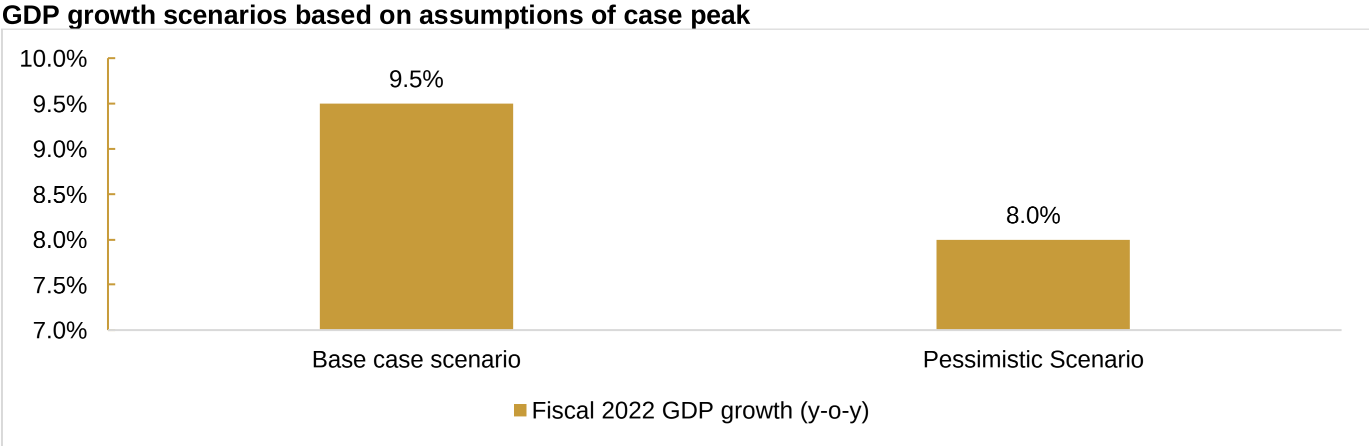
Source: National Statistics Office (NSO), International Monetary Fund (IMF) and CRISIL Research estimates

The possibility of a third Covid wave post the festive season does pose a downside risk to economic growth in fiscal 2022. In the aftermath of the second wave witnessed in the first quarter of the fiscal, many states had implemented localised restrictions in the form of weekend lockdowns, restricting non-essential businesses from operating and/or night curfews to prevent the spread of the infection. Although the Covid cases during 2nd wave have declined to below 40,000 in mid-July 2021 from over 4 lakh cases in 5th May 2021, there is still the looming fear of a third wave.

CRISIL Research forecasts India's GDP for fiscal 2022 to grow by around 9.5% in our base case scenario, assuming that 70% of the adult population will be vaccinated by December 2021 and a third Covid wave does not strike us. Covid-19 vaccinations have also started gaining pace in India. While close to 64% of India's adult population has received the first dose of the Covid-19 vaccine (as of September 19, 2021), 21% of India's adult population has taken the second dose.

A third wave would pose a significant downside risk to the growth forecast, as would a slower-than-anticipated pace of vaccination. We forecast India's GDP to grow by 8% in fiscal 2022 in our pessimistic scenario.

GDP growth scenarios based on assumptions of case peak

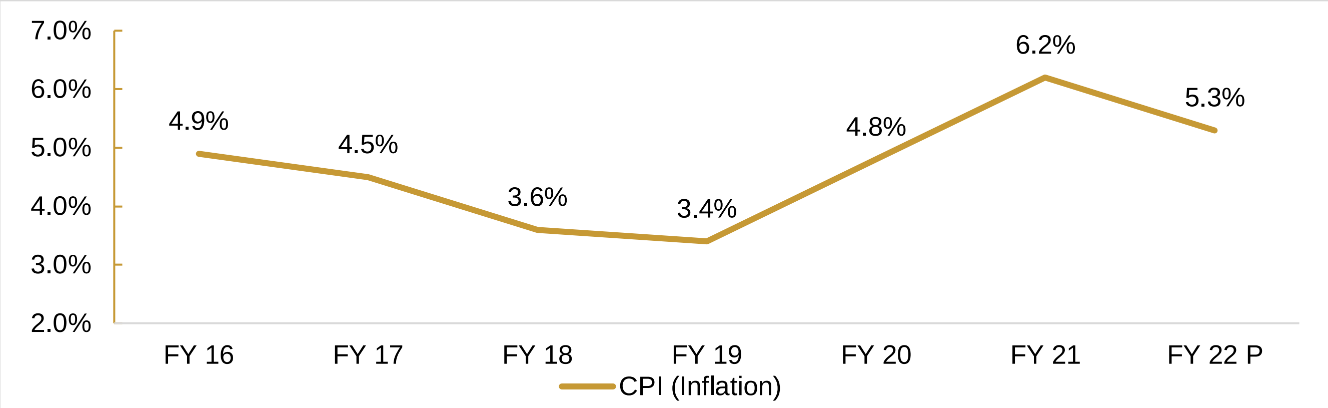


Source: CRISIL Research

In fiscal 2023, CRISIL Research expects growth to remain strong at 7.8% and become more broad-based, as a sufficient proportion of population gets vaccinated by then. This will particularly strengthen growth for contact-based services, which have been the biggest victims. Beyond that, growth is expected to moderate.

Prior to the onset of the pandemic, India's GDP growth slowed on account of existing vulnerabilities such as a weak financial sector and subdued private investment. However, in light of production-linked incentive (PLI) scheme, reduction in corporate tax rate, labour law reforms together with healthy demographics and a more favourable corporate tax regime, India is expected to witness strong GDP growth when the global economy eventually recovers, supported by prudent fiscal and monetary policy.

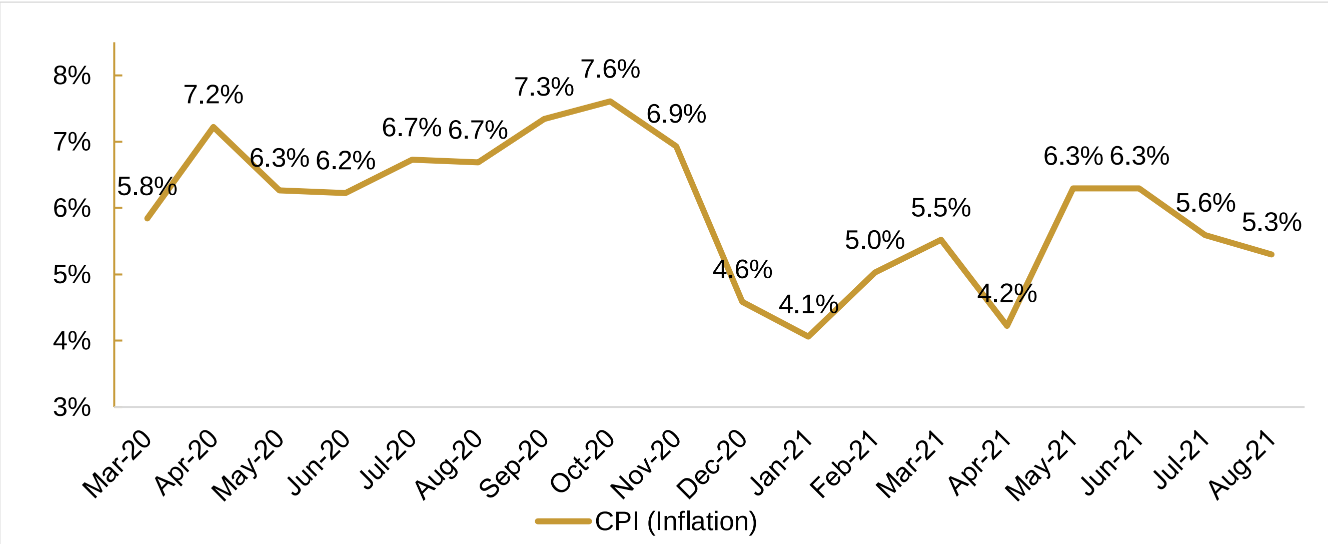
Due to higher liquidity push, inflation moved out of target band



Note: P - Projected

Source: National Statistics Office (NSO) and CRISIL Research

CPI inflation has been on the higher side in recent years



Source: National Statistics Office (NSO) and CRISIL

CPI Inflation was out of RBI's target band of 2-6% from April 2020 to November 2020; however, it remained within RBI's target band from December 2020 to April 2021. In May 2021 and June 2021, the inflation levels observed slight elevation and were out of RBIs target band; however, in July 2021 and August 2021, CPI inflation declined to 5.6% and 5.3%, respectively.

Inflation continues to face pressure from high international commodity prices, including edible oils and metals, which are at decadal highs and crude oil prices which remain beyond the comfort zone at over ~$70 per barrel. Recent data has indicated firms passing on rising input costs to consumers despite weak demand conditions. We expect the pass-through to gain more steam as domestic demand strengthens in the second half of this fiscal.

The lid on overall inflation will be kept by food, as it benefits from the high base of last year. However, the progress of monsoon and impact of rising global food prices will remain a key monitorable. CRISIL pegs fiscal 2022 average CPI inflation at 5.3% for fiscal 2022.

Macroeconomic outlook for Fiscal 2022

Macro variables	FY20	FY21E	FY22P	Rationale for outlook
GDP (y-o-y)	4.0%	-7.3%	9.5%*	The second wave and the resultant localised lockdowns has impeded the path to economic recovery, leading CRISIL to revise down the growth forecast for Fiscal 2022 to 9.5%, from 11.0% earlier. That said, expected pick-up in economic activity post-vaccination and support from global growth would act as positives
Consumer price index (CPI) inflation (y-o-y)	4.8%	6.2%	5.3%	Upside risks on inflation are growing from surging international commodity prices. While producers are bearing a greater burden of rising input costs for now, these could get passed to retail prices once demand recovers. Food inflation could also face pressure from disruptions to the rural economy due to the pandemic's spread, and rising global prices
10-year Government security yield (March-end)	6.2%	6.2%	6.5%	The RBI's unconventional policy measures have been instrumental in keeping G-sec yields at decadal lows, at a time when the bond market is facing an unprecedented rise in Government borrowing. Supply pressures could have a bearing on yields once the RBI starts normalising liquidity. Adverse global developments such as premature withdrawal of monetary easing by US Federal Reserve could further add pressure
CAD (Current account balance)/GDP (%)	-0.9%	1.3%	-1.2%	The trajectory of COVID-19 infections, pace of the vaccination drive, and duration of state lockdowns will have an important bearing on domestic demand and, consequently, import growth. Increased prices of commodities, especially crude oil – India's largest import item – will drive imports. External demand will support exports, backed by strong economic recovery among India's major trading partners in the US, Europe, and Asia
Rs/$ (March average)	74.4	72.8	75.0	With the second wave adversely impacting India's economic recovery, and amid inflationary pressures, the rupee may weaken against the dollar. The current account balance turning into deficit (from a surplus last Fiscal), will exert further downside pressure on the rupee. Some support may be seen due to the RBI's interventions to mitigate volatility. Record high forex reserves and foreign investor inflows, owing to interest rate differential between India and global economies, will also prop up the rupee

**Downward bias*

Note: P – Projected

Source: Reserve Bank of India (RBI), National Statistics Office (NSO), CRISIL Research

GDP to bounce back over the medium term

After clawing back in fiscal 2022, CRISIL Research forecasts India's GDP to grow at 6.0-7.0% per annum between fiscals 2023 and 2025. This growth will be supported by the following factors:

- Focus on investments rather than consumption push enhancing the productive capacity of the economy.
- The production linked incentive (PLI) scheme which aims to incentivise local manufacturing by giving volume-linked incentives to manufacturers in specified sectors
- Raft of reform measures by the government along with a more expansionary stance of monetary policy leading to a steady pick-up in consumption demand
- Policies aimed towards greater formalisation of the economy are bound to lead to an acceleration in per capita income growth

Risks to growth

Covid-19 cases increasing, a third wave this fiscal: The second Covid-19 wave has thrown cold water over the Indian economy that was beginning to warm up after the most severe contraction since Independence. The rash of afflictions that followed forced states to lock down, hurting consumer and business confidence yet again. Mercifully, daily cases seem to have peaked for now, though they remain above the peak of the first wave. But the risks of another wave and tardy vaccinations mean states would be chary of fully unlocking anytime soon. It can have a debilitating impact on economic activity and thereby growth.

Elevated inflation: Significant cost-push pressures on account of surging international commodity prices and supply disruptions has raised cost of production for manufacturing firms. Pass-through to consumer prices could further pose as a headwind to recovery in demand.

Premature tightening of global monetary policies: Resurgence of inflation globally could lead major central banks to unwind their extraordinary easy monetary policies sooner than expected. This could hit sentiment, possibly leading to capital outflows from the Indian economy and some tightening in domestic financial conditions.

Geopolitical developments: External developments, most importantly the US-China trade war, have proved to significantly impact global GDP growth as well as export earnings and capital flows to emerging markets such as India. While there is some respite with the signing of Phase 1 of the US-China trade deal, several issues remain unresolved. Any re-escalation of tensions could again work adversely. Geopolitical developments in the Middle East could also disrupt crude oil supply and prices, likely hurting a wide range of domestic macroeconomic parameters, including current account deficit, inflation and GDP growth.

Persistent stress in financial sector: This has been one of the major drags on GDP growth. Liquidity issues faced by NBFCs and risk aversion amongst lenders has hampered credit growth as well as transmission of monetary policy easing. While credit growth is expected to improve in the current fiscal with stronger GDP growth, the system is expected to continue to face uncertainty over asset quality with the Covid-19 pandemic continuing to cast its shadow on the economy. Easing of constraints and risk aversion in the financial system is critical for pick-up in growth.

India’s GDP to recover sharply

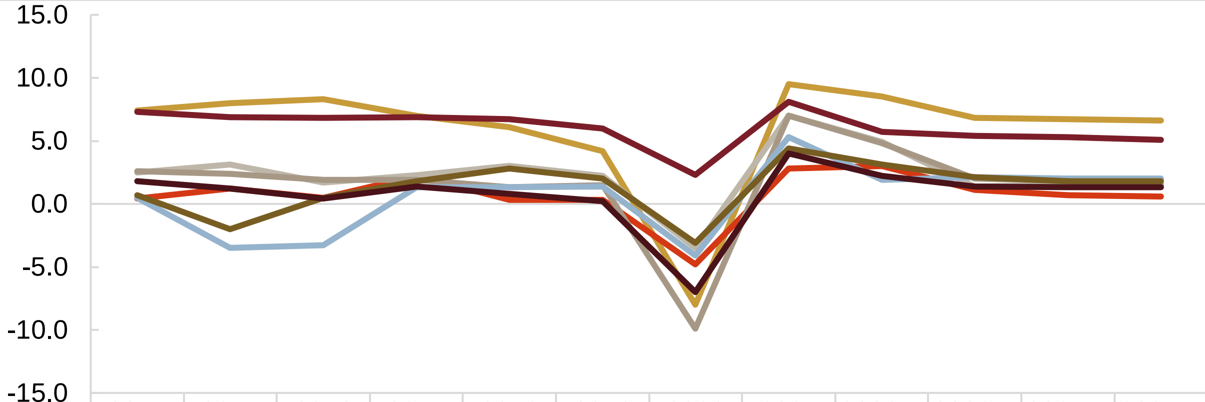
India was one of the fastest growing economies in the world pre-COVID, with annual growth of around 6.7% in between calendar year 2014 to 2019. Over the few years prior to the onset of the pandemic, India’s macroeconomic situation had gradually improved with the twin deficits (current account and Fiscal) narrowing and the growth-inflation mix improving and durably so. The Government adopted an inflation-targeting framework that provides an institutional mechanism for inflation control, while modernising central banking.

While economic growth in calendar year 2020 has been dented due to COVID-19, CRISIL expects the economy to rebound and India to regain its tag of one of the fastest growing economies globally in the medium-term.

Going forward, rapid urbanisation, rising consumer aspiration and increasing digitisation coupled with government support in the form of reforms and policies is expected to support growth. For example, the government has recently announced production-linked incentives across identified sectors with an aim to propel the growth of India as a manufacturing destination. At a macro level, digitalization has led to various benefits like linkage to Aadhaar identity cards, direct benefit transfer and various other government benefits.

The IMF forecasts India’s GDP to grow by 9.5% in calendar year 2021 due to the lower base of calendar year 2020 and approved vaccines and policy measures. At this pace of growth, India is forecasted to be one of the fastest growing economies in the world in 2021. Going forward as well, IMF forecasts India’s GDP to grow at a faster pace than other economies.

India is one of the fastest-growing major economies (GDP growth, % year-on-year)



	2014	2015	2016	2017	2018	2019	2020	2021	2022 P	2023 P	2024 P	2025 P
India	7.4	8.0	8.3	7.0	6.1	4.2	-8.0	9.5	8.5	6.8	6.7	6.6
China	7.3	6.9	6.8	6.9	6.7	6.0	2.3	8.1	5.7	5.4	5.3	5.1
Japan	0.4	1.2	0.5	2.2	0.3	0.3	-4.8	2.8	3.0	1.1	0.7	0.6
United states	2.5	3.1	1.7	2.3	3.0	2.2	-3.5	7.0	4.9	1.4	1.5	1.6
United kingdom	2.6	2.4	1.9	1.9	1.3	1.5	-9.9	7.0	4.8	2.0	1.8	1.5
Brazil	0.5	-3.5	-3.3	1.3	1.3	1.4	-4.1	5.3	1.9	2.1	2.0	2.0
Russia	0.7	-2.0	0.5	1.8	2.8	2.0	-3.1	4.4	3.1	2.1	1.8	1.8
South Africa	1.8	1.2	0.4	1.4	0.8	0.2	-7.0	4.0	2.2	1.4	1.3	1.3

Note: GDP growth is based on constant prices, Data represented is for calendar years, P: Projected

Source: IMF (World Economic Outlook – July 2021 and April 2021 update), CRISIL Research

Along with being one of the fastest growing economy in the world, India ranks fifth in the world in terms of nominal GDP in calendar year 2020. In terms of purchasing power parity (PPP), India is the third largest economy in the world, only after China and the United States.

GDP Ranking of key economies across the world (2020)

Country	GDP Rank	% share (World GDP)	PPP Rank	% share (World GDP,PPP)
United States	1	24.7%	2	15.8%
China	2	17.4%	1	18.3%
Germany	3	4.5%	4	3.4%
United Kingdom	4	3.2%	9	2.3%
India	5	3.1%	3	6.7%
France	6	3.1%	8	2.3%
Italy	7	2.2%	10	1.9%
Canada	8	1.9%	14	1.4%
Korea	9	1.9%	13	1.7%
Russia	10	1.8%	5	3.1%

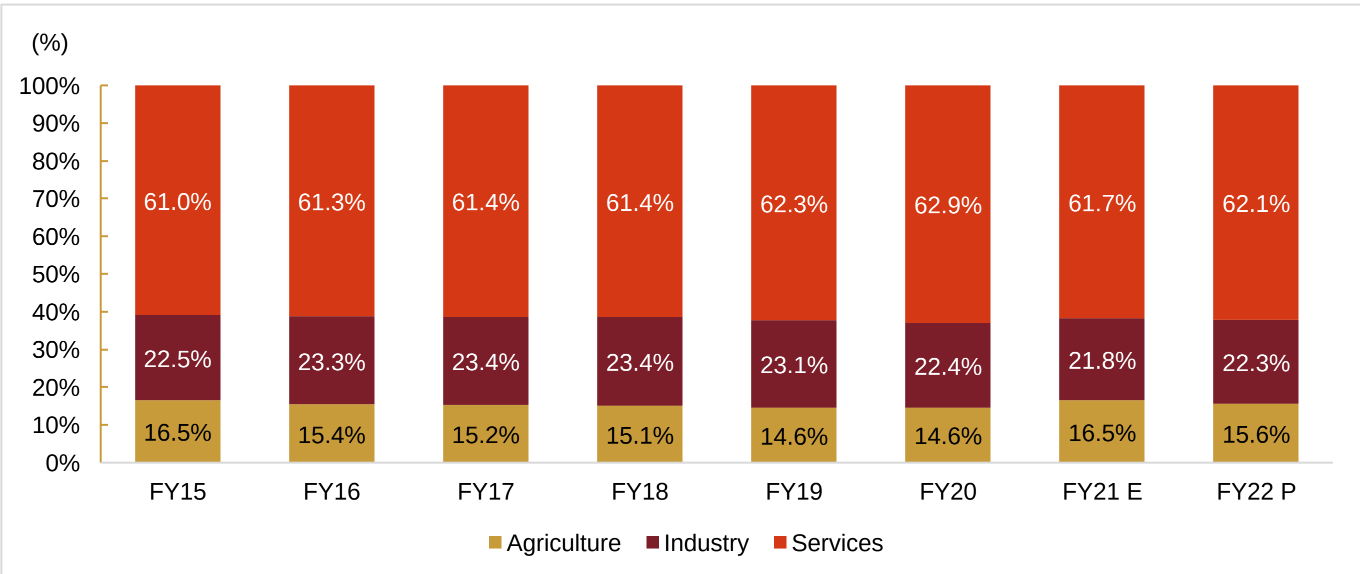
Note: Japan is not considered in the key economies as data for 2020 is not available

Source: World Bank, CRISIL Research

Contribution of various sectors to GDP

As compared to various developed economies, which witnessed a good contribution from manufacturing and industry first and subsequently in services, the Indian transformation story has been different. A notable feature of Indian economy has been the services sector's rising contribution to the overall output of the economy. Over the last three fiscal years ending fiscal 2020, the service sector has grown at a rate of ~7%, thereby taking the contribution of services sector to 62.9% in terms of Gross Value Added (GVA) at constant prices. In fiscal 2021, overall GVA contracted by ~6.5% with industry and services sector contracting by ~7.4% and ~8.4% respectively.

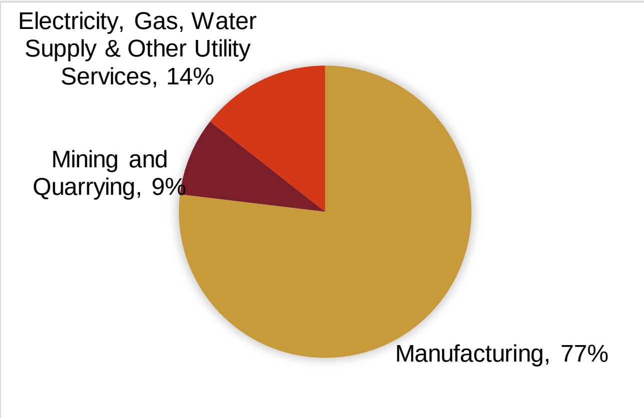
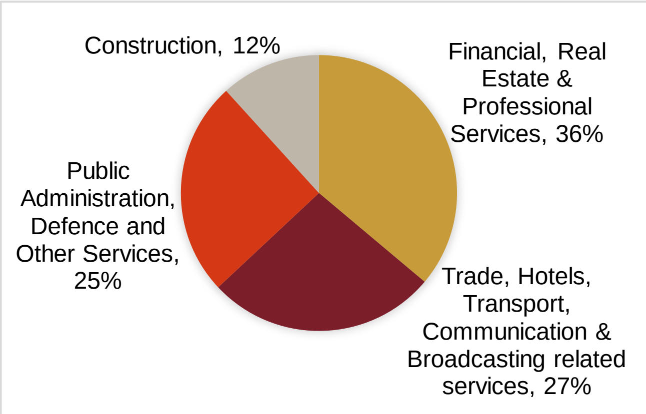
Share of sector in GVA at constant prices



Note: E – Estimated, P - Projected

Source: RBI; CRISIL Research

Industry and services sector can be further classified into sub-sectors. In industry, majority of the contribution comes from manufacturing sector which contracted by ~5% and in the services sectors, highest contribution comes from financial, real estate and professional services segment which witnessed a muted growth of ~1%. Within services sector - Trade, Hotels, Transport, Communication and Services related to broadcasting was severely hit as it witnessed a contraction of ~15% followed by construction which contracted by ~6% in fiscal 2021.

Share of sub-sectors in GVA by Industry (FY21)	Share of sub-sectors in GVA by Services (FY21)
	

Source: RBI, CRISIL Research

Budget turns expansionary with an eye on medium term

India's first union budget after a once-in-a-century global pandemic -- and only the fourth to follow a contraction in its independent history – voted for an infrastructure-led, counter-cyclical Fiscal stimulus to mend the broken economy. The idea clearly, was to push the growth multiplier rather than stoke consumption through steroids, even if that meant stretching the glide path of Fiscal deficit. If there is an overarching picture, it is that this budget sets the tone for much-needed infrastructure growth for the next 3-4 years. That will help both, sustain development and create jobs. But implementation, which is all-crucial, remains the elephant in the room.

Broadly, the budget had five key highlights:

- **Growth-focussed, expansionary**

Significantly, it chose to push the pedal on investment at this juncture. Studies highlight how the positive spill over effects of public investment only amplify during periods of uncertainty. For the Indian economy specifically, capital expenditure (capex) typically has higher multiplier effect than revenue spending, by crowding in private investment. This budget not only focussed on pushing central capex but also attempted to nudge state Government capex. A Reserve Bank of India (RBI) study points that an increase in capex by the central and state Governments by one rupee each induces an increase in output by Rs. 3.25 and Rs. 2.0, respectively.

- **Improved spending quality**

While maintaining focus on capex, the budget also allowed for some normalisation of extraordinary spending that took place in response to the pandemic. That said, it also attempts to improve quality of spends (compared with the pre-pandemic trend). Thus, Government has not only chosen to re-orient expenditure but also has tried to improve the expenditure mix to make way for more capex.

- **Enhanced transparency**

Deficit numbers have shot up. But one reason for this is enhanced transparency in the budget, which lends to their credibility. The budget relies less on off-budget items for funding investments and more on capex allocations. It also puts an end to the practice of funding Food Corporation of India's shortfall through borrowings from National Small Savings Fund (NSSF) and replaces it with budgetary allocation. As per CRISIL estimates, excluding the impact of inclusion of NSSF funds for FCI and Government fully serviced bonds, Fiscal deficit would have been lower about 0.5-1% of gross domestic product (GDP) in Fiscal 2021 and about 0.6% lower in Fiscal 2022

- **An eye on medium term**

It tries to lift the medium-term growth potential through a capex push and sharper focus on financial sector reforms such as:

  - **Recapitalising public sector banks (PSBs) so they can support economic recovery:** The pandemic landed a double whammy on a financial sector that was already weighed down by non-performing assets (NPAs) and slack credit demand. Frontloading of capital infusion for banks (Rs. 200 billion has been provided for Fiscal 2022) to withstand possible asset quality deterioration was an imperative.

  - **Cleaning up bank books:** By creating asset management and reconstruction companies, the intention is to consolidate, manage and dispose of stressed assets of PSBs.

  - **Disinvestment:** In another progressive step for the financial sector, the government, in the budget, also announced its intention to privatise two public sector banks (PSBs) and one general insurance company. The disinvestment process of Air India, BPCL, and Life Insurance Corporation of India (LIC) have been moved to fiscal 2022.

  - **Bank Privatisation:** In another progressive step for the financial sector, the Government, in the budget, also announced its intention to privatise two public sector banks (PSBs) and one general insurance company.

  - **Reforming the beleaguered manufacturing sector:** Manufacturing was in doldrums even before the pandemic struck, and was worst-affected in Fiscal 2021 after services. The budget announced more measures to address that in continuation with the Atmanirbhar Bharat package and production-linked incentive scheme, such as customs duty rationalisation, with particular focus on micro, small and medium enterprises (MSMEs).

  - **Roadmap for public sector investment:** The budget bats for a massive push to infrastructure creation; it intends to augment funds for the flagship National Infrastructure Pipeline and lays down a roadmap to do so by increasing capex, monetising assets and developing instruments for infrastructure financing. That should, as earlier mentioned, have a high multiplier effect on growth and employment.

- **Asset monetisation:** The budget also announced the launch of the National Monetisation Pipeline (NMP) to leverage operating public infrastructure, the first of its kind in India. The Government envisages monetization of roads, railways, airports, and oil and gas pipelines under this initiative. The funding of the National Infrastructure Pipeline will critically hinge on the success of these efforts to monetise existing assets. NMP estimates aggregate monetisation potential of Rs 6 trillion through core assets of Central Government over a 4-year period from FY22-FY25.

Sector-wise monetisation pipeline over the next 4 years

Sector	Estimated Potential (Rs billion)
Roads	1,602
Railways	1,525
Power Transmission	452
Power Generation	398
Telecom	351
Warehousing	289
Mining	287
Natural Gas Pipeline	244
Product pipeline/ Others	225
Aviation	207
Urban Real Estate	150
Ports	129
Stadiums	115
Total	***6,000***

Source: NITI Aayog, CRISIL Research

- **Growth-led approach to heal pandemic-induced scars:** Post-pandemic recovery has been sharply uneven. Manufacturing is recovering faster led by policy support, pent up demand and some shift away from services. Services (especially contact-based ones like trade, hotels, transport and communication) continue to bear the brunt. Smaller firms and micro enterprises have been more severely hit than larger ones. And the rural poor received more support to incomes and jobs than the urban, who were also significantly affected. The budget attempts to correct some of these anomalies. The budget is premised upon infrastructure spending creating jobs for the unskilled and semi-skilled workforce.

All in all, the economy is recovering faster than expected by CRISIL. Consistently good agriculture performance, successful flattening of the COVID-19 curve and a pick-up in Government spending in recent months has reduced the downside to the current Fiscal's de-growth and led to an upward revision in next Fiscal's growth prospects.

Financial services sector in India

Among services, the financial sector is growing with increasing presence and size of the banking industry leading to higher banking penetration in the country. As of March 2010, India had 81 scheduled commercial banks, 82 regional rural banks, and 12,662 non-banking financial companies (NBFCs), which together had deposits of Rs 45 trillion and extended credit of Rs 37 trillion.

In 2013, RBI constituted a committee to study "Comprehensive Financial Services for Small Businesses & Low Income households" headed by Dr. Nachiket Mor. The focus of the committee was to recommend innovative solutions to RBI to accelerate financial inclusion in unbanked and underbanked section of the society in a cost effective way. The committee recommended setting up "high technology—low cost" banking models to accelerate financial inclusion. Subsequently, in 2015, the Reserve Bank of India laid down the framework and licensed 'vertically differentiated banking systems', such as Payments Bank (PBs) and Small Finance Banks (SFBs) with the objective of extending the reach and availability of financial services to hitherto unserved or underserved sections of the society.

SFB licences were granted to 10 institutions with the aim to service the underserved through savings instruments, and supplying credit to small business units, small and marginal farmers, micro and small industries, and other unorganised sectors. RBI also granted in-principle approval to 11 players to launch payment banks. Three players subsequently withdrew their application. Of the remaining eight, seven institutions – India Post Payments Bank Ltd, Airtel Payments Bank Ltd, PayTM Payments Bank Ltd, Fino Payments Bank, Aditya Birla Idea Payments Bank Ltd, NSDL Payments Bank and Jio Payments Bank had commenced operations. In 2019, Aditya Birla Idea Payments Bank announced the winding up of its banking business. The objective of a payments bank is to provide a small-savings account facility, and payment and remittance services to the migrant labour force, low-income households, small businesses and other unorganised sector entities. Both SFBs and Payments banks have grown in terms of presence as well as size at a very fast pace over the last three years.

As of March 2020, all banks and NBFCs in India cumulatively had deposits of Rs. 147 trillion and outstanding loans of Rs. 137 trillion, translating into a 10-year CAGR of 11% in deposits and 13% in credit. As of March 2021, all banks has cumulative deposits of ~ Rs 154 trillion (excluding co-operative banks and payments banks) and credit outstanding of ~Rs 107 trillion (excluding co-operative banks).

Bank group	Number of banks	Number of branches (March 2021)	4 year CAGR (number of branches)	Deposits (Rs Billion) (March 2021)	4-year CAGR (deposits)
Public sector banks	12	92,566	-1%	94,599	4%
Private banks	22	36,676	7%	46,236	16%
Co-operative banks	2550	NA	NA	9,196*	2%^
Foreign banks	46	921	31%	7,520	13%
Regional rural banks	43	22,292	1%	5,169	9%
Small Finance banks	10	5,102	87%	877	105%
Payments bank	6	748	250%	23*	223%^
Total	2,689	158,305		154,400**	

Note: NA: Not available, (*) – Data as of fiscal 2020, (^) – 3-year CAGR (FY17-FY20), (**) – Does not include co-operative banks and payments banks

Source: Reserve Bank of India (RBI); CRISIL Research

Deposits and credit by banks and NBFCs

	Deposits (Rs. Billion)	Outstanding credit (Rs. Billion)
March 2010	49,587	40,606
Banks	49,413	36,410
NBFCs	174	4,196
March 2015	96,692	89,488
Banks	96,417	74,422
NBFCs	275	15,066
March 2021	164,172	185,072
Banks	163,672^	115,288^
NBFCs	500*	29,784
CAGR (2010-2015)	14%	16%
Banks	14%	15%
NBFCs	10%	22%
CAGR (2015-2021)	9%	8%
Banks	9%	8%
NBFCs	13%**	12%

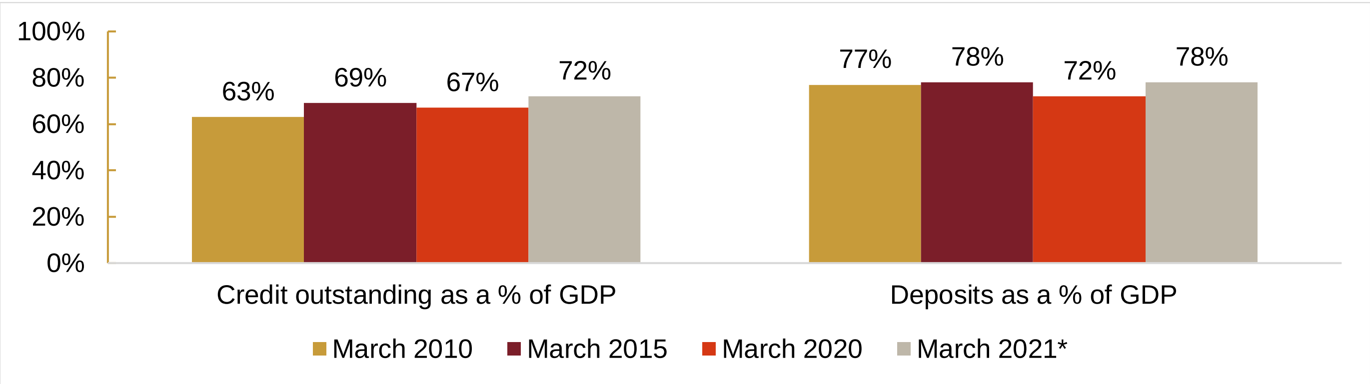
Note: Banks include all scheduled commercial banks, cooperative banks, small finance banks and payment banks

(^) Data for FY21 includes credit and deposits of cooperative banks as of March 2020 and other banks as of March 2021, (*) Data as of March 2020, (**) CAGR for 2015-2020

Source: RBI, CRISIL Research

The overall credit outstanding as a percentage of GDP has been increasing from 63% in fiscal 2010 to 67% in fiscal 2020, India still remains under-penetrated in terms of credit, especially in the rural areas which contribute only 10% to the banking credit outstanding in the country. In fiscal 2021, credit outstanding increased as a percentage of GDP to 72% owing to decline in GDP and government measures to support the impacted segments which led to credit growth.

Trend in overall credit outstanding and deposits as a % of GDP



Note: E- Estimates, (*) - for March 2021, credit outstanding includes estimated number for overall systemic credit, and deposits include only banking deposits

Source: RBI, CRISIL Research

Role of RBI in the financial services sector

RBI, the central bank of India, was established in 1939. Though originally privately owned, since nationalisation in 1949, the Reserve Bank is fully owned by the Government of India. It has been entrusted with a multidimensional role which includes implementation of monetary policy and maintaining monetary stability in the country. The preamble of RBI describes its roles and functions as "to regulate the issue of Bank notes and keeping of reserves with a view to securing monetary stability in India and generally to operate the currency and credit system of the country to its advantage; to have a modern monetary policy framework to meet the challenge of an increasingly complex economy, to maintain price stability while keeping in mind the objective of growth". The primary role of the RBI, as the Act suggests, is monetary stability, that is, to sustain confidence in the value of the country's money or preserve the purchasing power of the currency. Ultimately, this means low and stable expectations of inflation, whether that inflation stems from domestic sources or from changes in the value of the currency, from supply constraints or demand pressures. In addition, the RBI has two other important mandates; inclusive growth and development, as well as financial stability.

In a country where a large section of the society continue to be unserved or underserved in terms of financial services, inclusive growth assumes great significance. Access to finance is essential for poverty alleviation and reducing income inequality. One of the core functions of the RBI, therefore, is to promote financial inclusion that leads to inclusive growth. As the central bank of a developing country, the responsibilities of the RBI also include the development of financial markets and institutions. Broadening and deepening financial markets and increasing their liquidity and resilience so that they can help allocate and absorb the risks entailed in financing India's growth is a key objective of the RBI.

India's financial system is dominated by banks. Their regulation and supervision is therefore important both from the viewpoint of protecting the depositors' interest and preserving financial stability. The RBI, deriving powers from the Banking Regulation Act, 1949, designs and implements the regulatory policy framework for banks operating in India. Over the years, non-banks providing credit and related services have also been bought under the purview of RBI's regulation and supervision.

Central banks are at the heart of a country's payment and settlement system. One of the principal functions of central banks is to be the guardian of public confidence in money, and this confidence depends crucially on the ability of economic agents to transmit money and financial instruments smoothly and securely through payment and settlement systems. The RBI has, over the years, taken several initiatives in building a robust and state-of-the-art payment and settlement system that not only improves the plumbing of the financial system but also its stability.

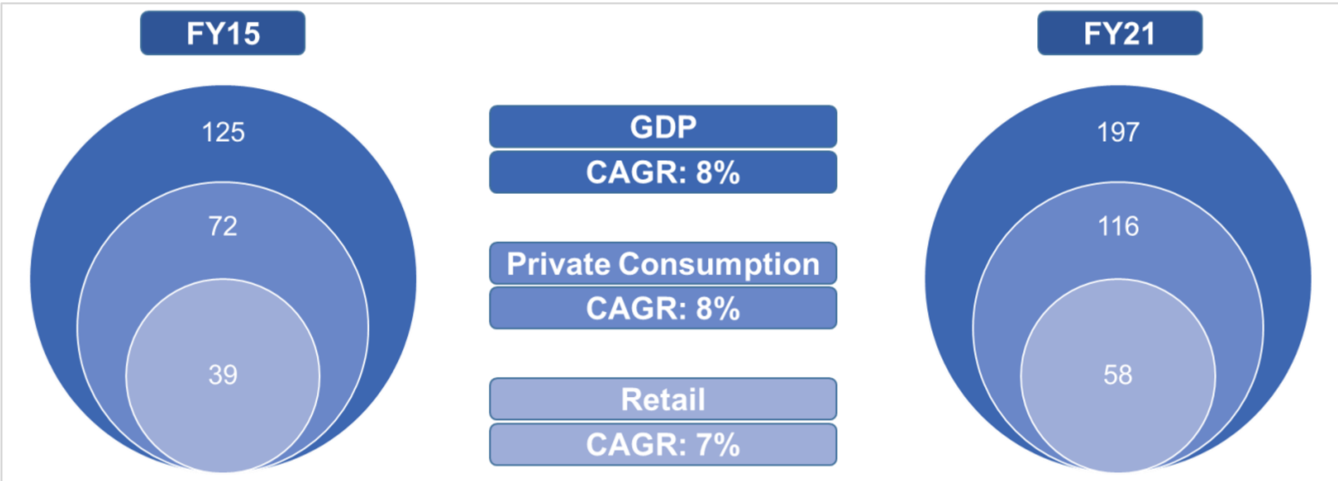
The last two and a half decades have also seen growing integration of the national economy and financial system with the world. While rising global integration has its advantages in terms of expanding the scope and scale of growth of the Indian economy, it also exposes India to global shocks. The crisis of 2007-08 gave a glimpse of financial instability in other economies posing threat to India's financial stability. Hence, preserving financial stability has become an even more important mandate for the RBI.

RBI, under various legal frameworks, is involved in banking functions, issuance of bank notes, monetary policy functions, public debt functions, foreign exchange management, banking regulation and supervision, regulation and supervision of NBFCs, regulation and supervision of co-operative banks, regulation of derivatives and money market instruments, payments and settlement functions, credit information companies regulation functions and consumer protection and promotion functions.

Retail spending in India projected to touch Rs 91 trillion by fiscal 2025; smaller stores and organised retail to co-exist

Payments banks and fintechs have been increasing their presence and reach by increasing touch points through retails outlets which have a widespread presence in India. In India, the private final consumption expenditure (PFCE) was 58% of GDP in fiscal 2021 at Rs 116 trillion and India's retail spending on goods was at ~50% of its private consumption.

India's consumption trend (Rs. trillion)

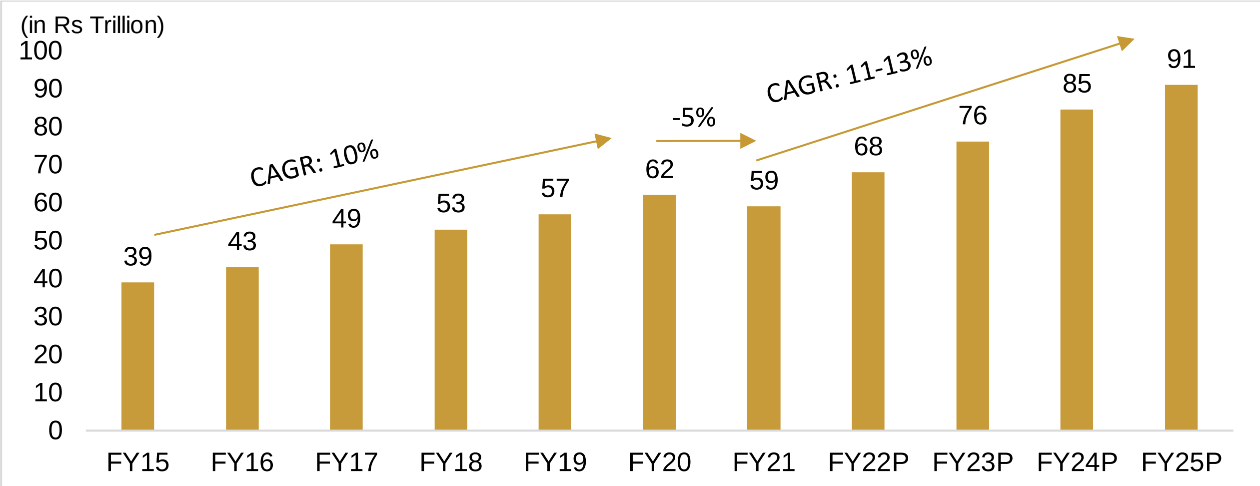


Source: RBI, CRISIL Research

Retail sector is expected to decline in fiscal 2021 in line with decline in GDP and PFCE. With implementation of nationwide lockdown on account of Covid-19, retail consumption has taken a hit. Sale of non-essential goods saw the brunt due to lockdown, but sale of essentials was allowed and thus it witnessed growth. Going forward too, essential products (especially food & grocery) will witness normal growth. However, non-essentials will witness a gradual recovery even during second half of the fiscal on account of impact on incomes due to pandemic. As essentials (food & grocery and pharmacy) form around 56% of overall retail which is expected to have witnessed growth of 8-9%, overall retail is estimated to have contracted by ~5% in fiscal 2021.

Overall retail spends on goods are expected to witness 15-17% growth in fiscal 2022 on account of a low base, full year of store operations, higher discretionary spending and waning impact of the pandemic. In the long run, we project the overall retail sector in India to grow at a CAGR of 11-13% during FY21-25.

Overall retail market to grow at 11-13% CAGR over fiscal 2021 to fiscal 2025



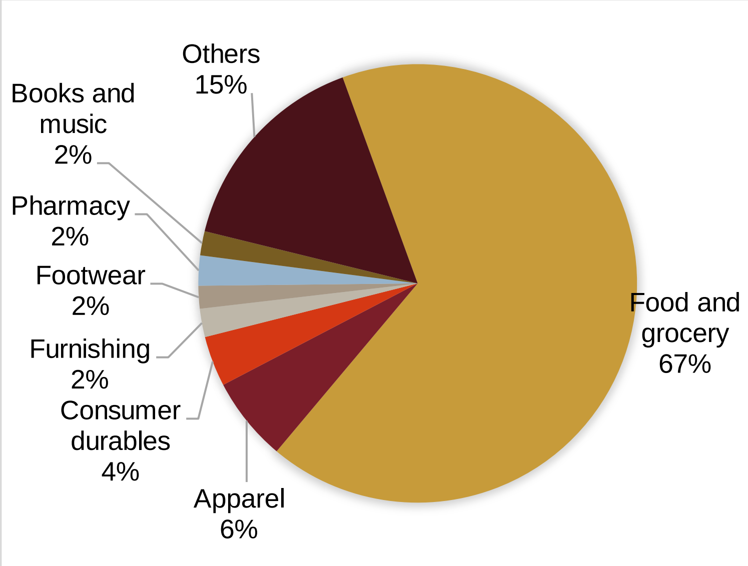
Note: E: Estimated, P-Projected

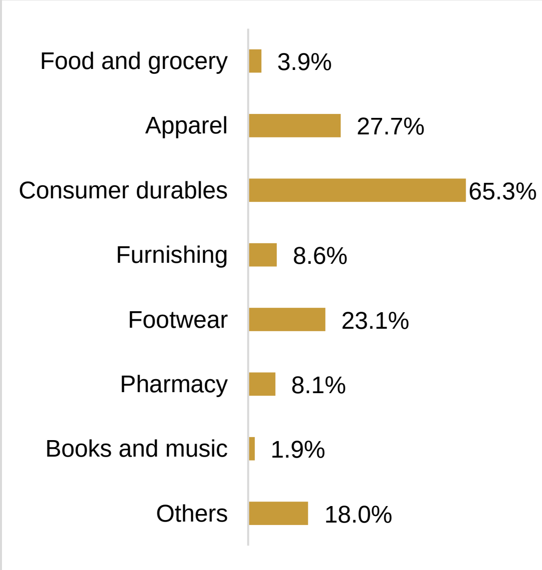
Source: CRISIL Research

While organised retail penetration (comprising both organised brick and mortar stores as well retail spending on e-commerce platforms) in India is increasing at a feverish pace, for large swathes of the Indian population, particularly lower middle class customers and customers in the semi urban and rural areas, small mom and pop stores remain the primary outlet for retail spending.

Amongst various retail categories, food and grocery, which accounts for ~67% of overall retail market, has the lowest organised retail penetration. There are about 12 million mom and pop (kirana) stores spread throughout the country, which are estimated to account for almost 90% of the FMCG sales in the country. Eyeing the huge reservoir of consumer data these stores possess, fintech companies are devising ways to make operations smoother for them — be it by launching apps or point of sale (POS) systems or digitalising their operations and processes. These merchants provide a huge potential for payment banks and fintechs to grow.

Share of various segments in overall retail market (FY21)	**Organised retail penetration (ORP) in various segments (FY21)**





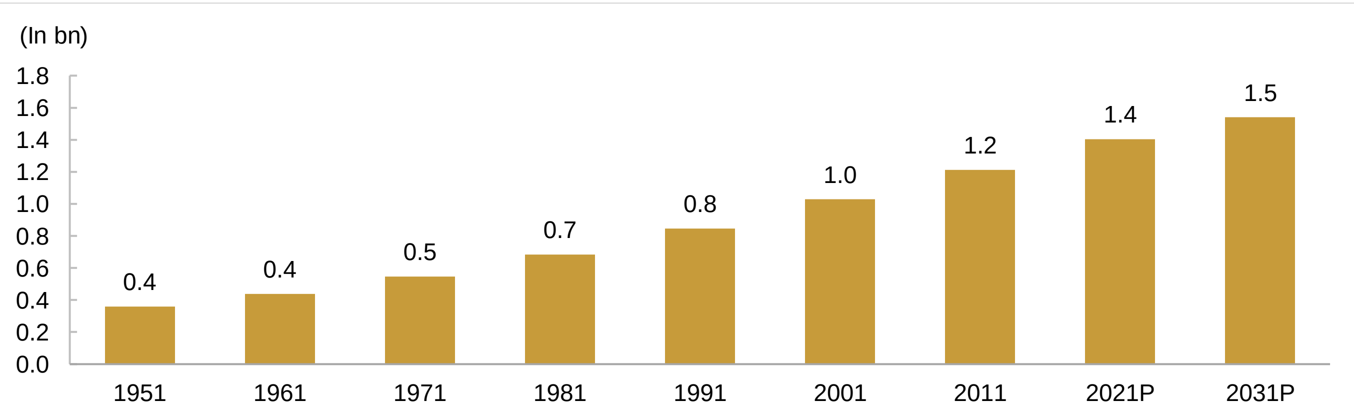
Note: Others includes categories like gems and jewellery, watches, personal care products etc.
Source: CRISIL Research

Key growth drivers

India has world's second largest population

India's population was ~1.2 billion and comprised nearly 245 million households. The population, which grew nearly 18% between 2001 and 2011, is expected to increase about 11% between 2011 and 2021, to 1.4 billion. The population is expected to reach 1.5 billion by 2031, and number of households is expected to reach ~376 million over the same period.

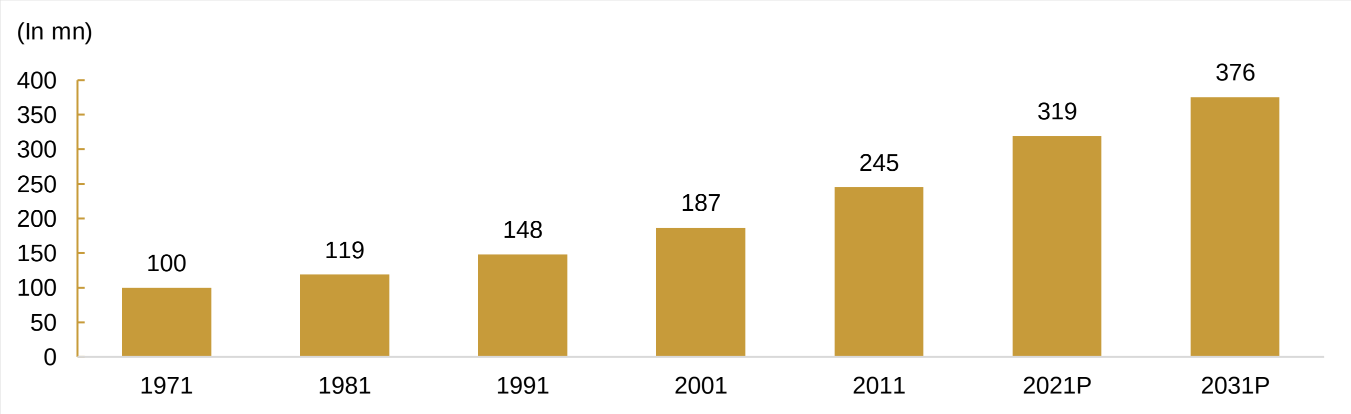
India's population growth trajectory



Note: P: Projected; Data represented is for calendar years

Source: United Nations Department of Economic and Social affairs, CRISIL Research

Number of households in India



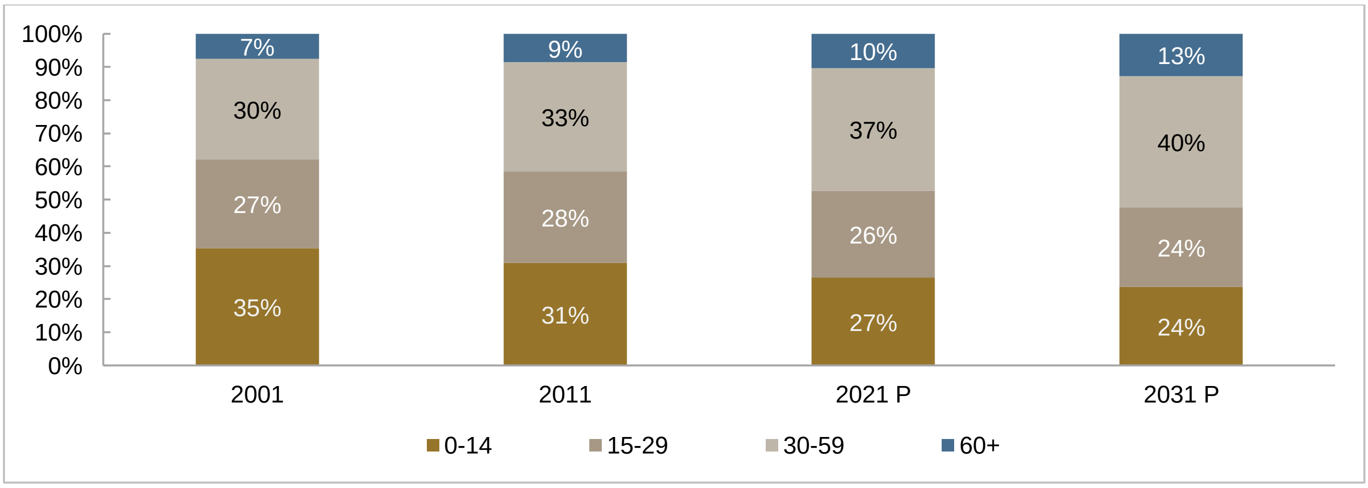
Note: P: Projected; Data represented is for calendar years

Source: Census India, CRISIL Research

Favourable demographics

As of 2020, India has one of the largest young populations in the world, with a median age of 28 years. About 90% of Indians will still be below the age of 60 by calendar 2021 CRISIL Research forecasts that 63% of them will be between 15 and 59 years. In comparison, in calendar year 2020, the United States (US), China and Brazil had 77%, 83% and 86%, respectively, of their population below the age of 60.

India's demographic dividend



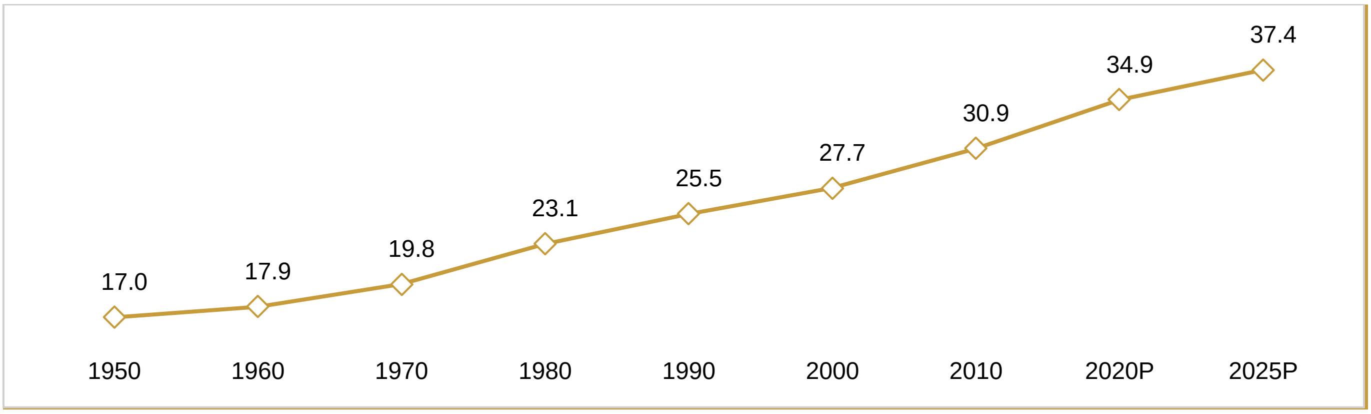
Note: E: Estimated; Data represented is for calendar years

Source: United Nations Department of Economic and Social affairs, CRISIL Research

Urbanisation

Urbanisation is one of India's most important economic growth drivers as it will drive substantial investments in infrastructure development, which, in turn, is expected to lead to job creation, development of modern consumer services and increased ability to mobilise savings. The country's urban population has been rising consistently over the decades. In 1950, it was 17% of total population. As per the 2018 revision of World Urbanization prospects, India's urbanisation was expected to reach to 35% in 2020. This is expected to reach 37% by 2025.

Urban population as a percentage of total population (%)



Note: P – projected; Data represented is for calendar years
Source: Census 2011, World Urbanization Prospects: The 2018 Revision (UN)

Increasing per capita GDP

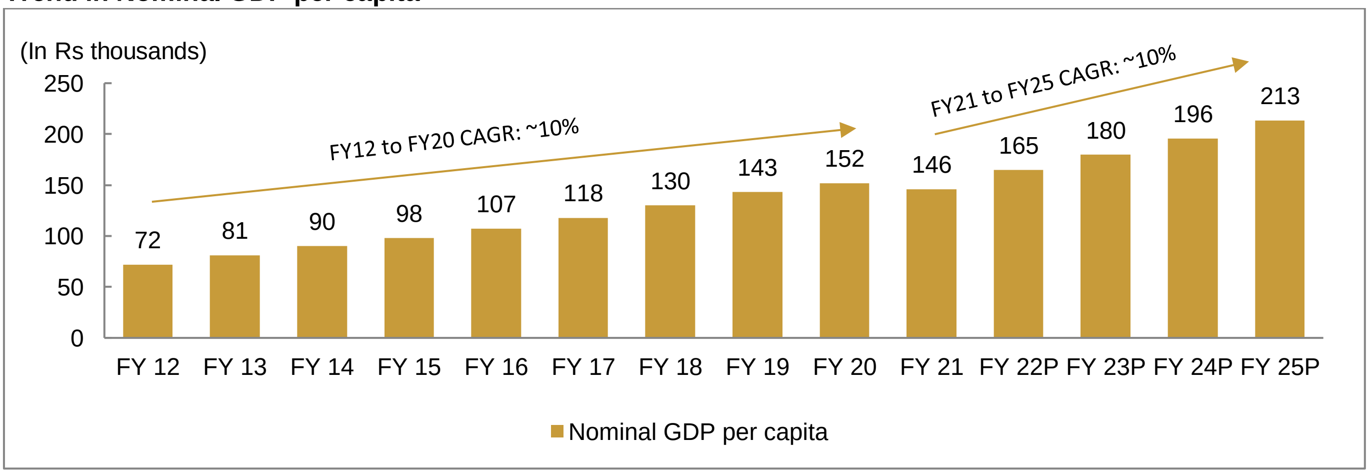
Per capita income is estimated to have contracted by 8% in fiscal 2021 compared with a growth of ~2.9% in the preceding fiscal. CRISIL forecasts that the per capita income will gradually improve with a pick-up in GDP growth and sustained low inflation. This will be an enabler for domestic consumption. As per IMF estimates, India's per capita income (at constant prices) is expected to grow at 6.2% compound annual growth rate (CAGR) from Fiscals 2021-25.

Per capita income

Per capita income	Level in FY21 (INR thousands)		Growth at constant prices (%)									
	Current prices	Constant prices	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21 E	FY25P
	146	100	3.3	4.6	6.2	6.7	6.8	5.7	5.8	2.9	-8.0	6.2*

Note – E: Estimated, (*) - 4-year CAGR growth (FY21-FY25), As per IMF estimates of April 2021
Source – Ministry of Statistics and Program Implementation (MOSPI), International Monetary Fund (IMF), CRISIL Research

Trend in Nominal GDP per capita



Note: P: Projected

Source: MOSPI, World Bank, CRISIL Research

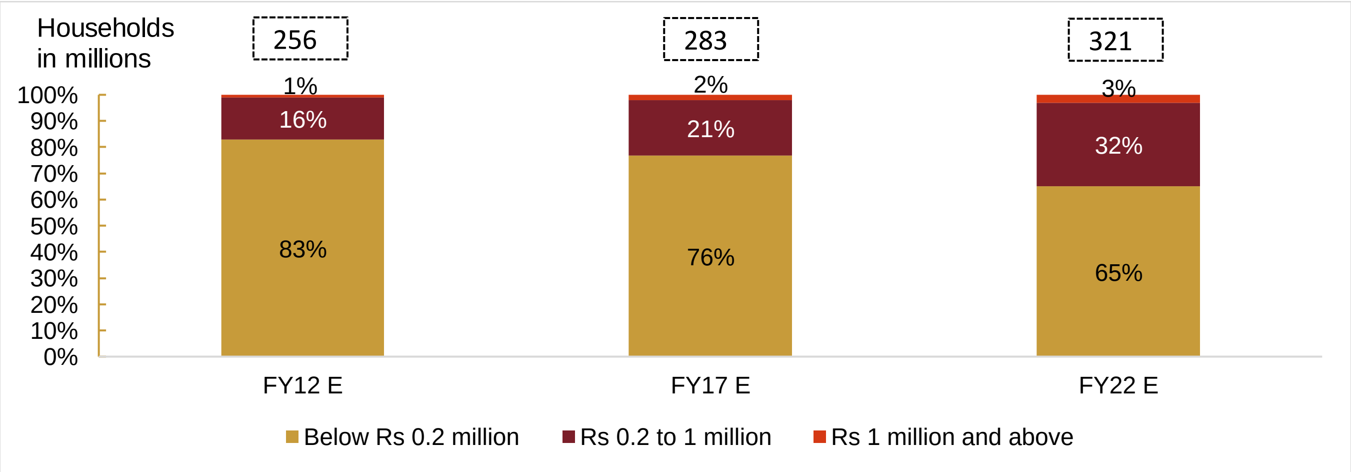
Rising Middle India population to propel economic growth

An estimated 83% of households in India had an annual income of less than Rs 0.2 million in fiscal 2012. This proportion has reduced to reach 76% in fiscal 2017 and is estimated to touch 65% in fiscal 2022, with continuous increase in the GDP and household incomes. Proportion of Middle India (defined as households with annual income of between Rs 0.2 to 1 million) has been on a rise over the last decade and is expected to grow further with rise in disposable incomes.

To illustrate, CRISIL Research estimates that there were 41 million households in India in this category as of fiscal 2012, and by fiscal 2022, they are estimated to increase to 103 million households translating into a CAGR of 10% over this time period. A large number of these households, which have entered the Middle Income bracket in the last few years, are likely to be from semi-urban and rural areas. The rise in incomes in these areas is also evident when one observes the trend in share of deposits coming into banks. As of March 2020, districts outside the top 200 districts, accounted for 30% of total deposits, up from the 25% share as of the same period in 2015.

Consistent improvement in the literacy levels, increasing access to information and awareness, increase in the availability of basic necessities such as electricity, cooking gas, toilets and improvement in road infrastructure has led to an increase in aspirations of Middle India, which is likely to translate into increased opportunities for consumer goods makers as well as financial service providers. In fact, some of these trends are already visible. Smart phone ownership, internet users and the proportion of users accessing social media is increasing at a breakneck speed. Smaller cities and towns (with population less than 1 million) account for a significant portion of sales of e-retailers.

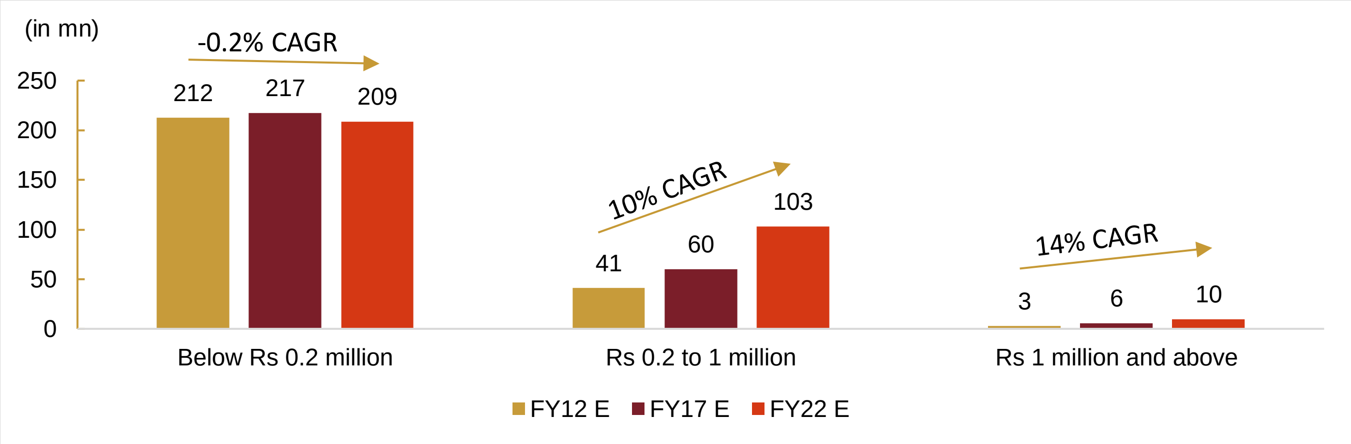
Household distribution by income



Note: E: Estimated, The boxes on top og each bar in the chart represent the total number of households in millions

Source: CRISIL Research

Middle India households to witness high growth over fiscal 2012 to fiscal 2022



Source: CRISIL Research

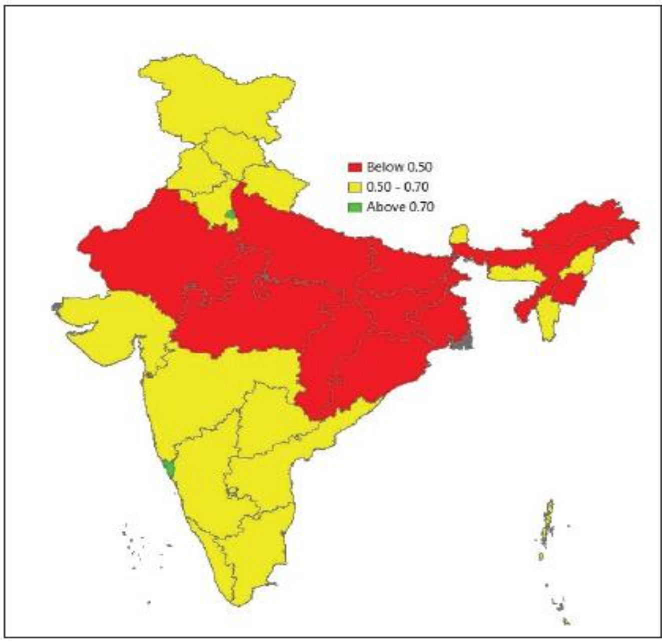
Access to bare necessities across rural areas has improved considerably over the last few years

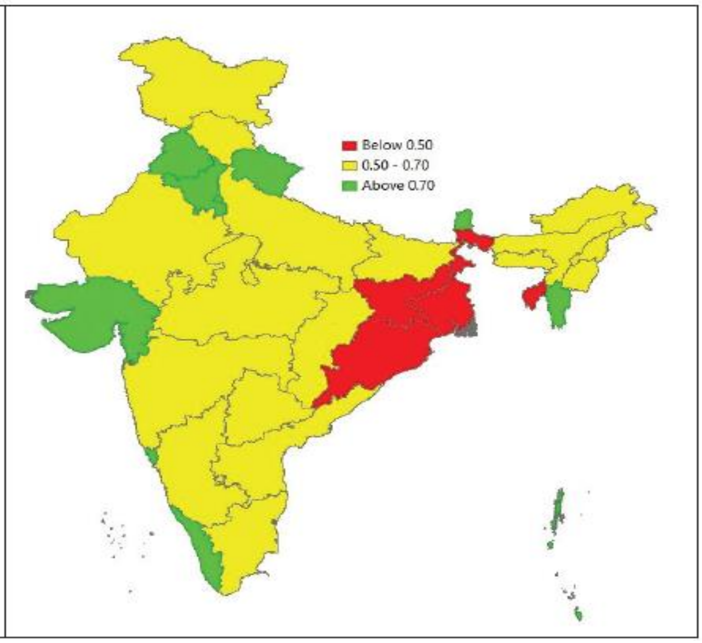
The bare necessities index (BNI), which was included as part of the Economic Survey for 2020-21, indicates how the access to bare necessities in semi-urban and rural areas has improved considerably in the last few years, thereby enhancing the quality of life and aspirations of the populace. The BNI summarises 26 indicators on five dimensions viz., water, sanitation, housing, micro-environment, and other facilities. The BNI has been created for all states for 2012 and 2018 using data from two NSO rounds (69th and 76th) on drinking water, sanitation, hygiene and housing conditions in India. The BNI indicates that access to the bare necessities has improved across all States in the country in 2018 as compared to 2012. Access to bare necessities is the highest states such as Kerala, Punjab, Haryana and Gujarat while it is the lower in Odisha, Jharkhand, West Bengal and Tripura. The improvements are widespread as they span each of the five dimensions. Furthermore, inter-state disparities in the access to bare necessities have declined in 2018 when compared to 2012 across rural and urban areas. This is because the States where the level of access to the bare necessities was low in 2012 have gained relatively more between 2012 and 2018. Access to the bare necessities has improved disproportionately more for the poorest households when compared to the richest households across rural and urban areas.

The below graphs indicate the state-wise values of BNI in 2012 and 2018 for India as a whole as well as urban and rural areas. A higher value indicates better access to bare necessities in a state ad vice-versa. The three colours, green, yellow and red, used in the maps show the level of a state in providing access to bare necessities to its households. Green (above 0.70) indicates high level, followed by yellow (0.50 to 0.70), which indicates medium level. In contrast, red (below 0.50) indicates very low level of access. The difference in colours in a map indicate the regional variation in the access to bare necessities for the households.

Pan-India BNI (Urban + Rural in 2012)

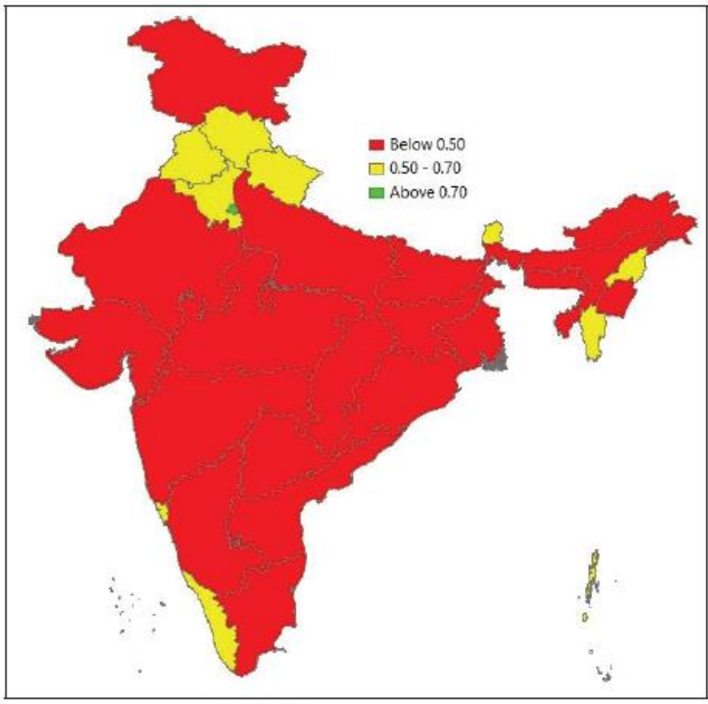
Pan-India BNI (Urban + Rural in 2018)

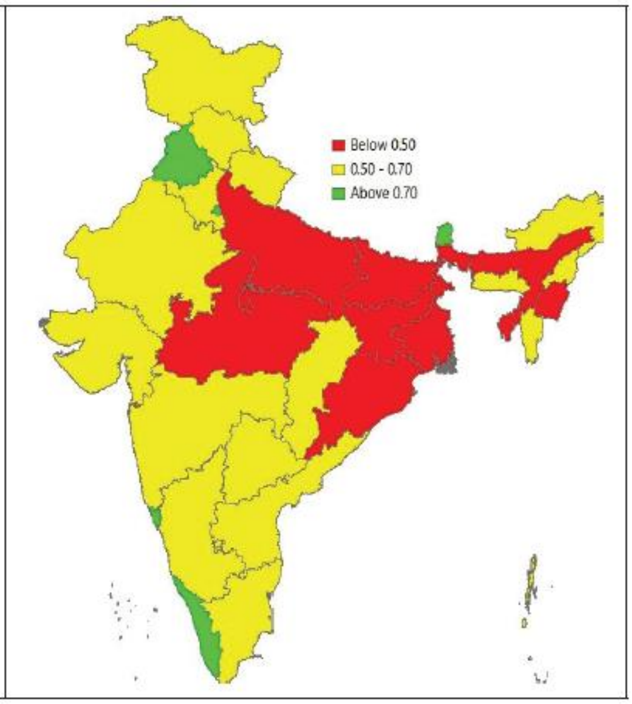




Source: Economic Survey 2020-21

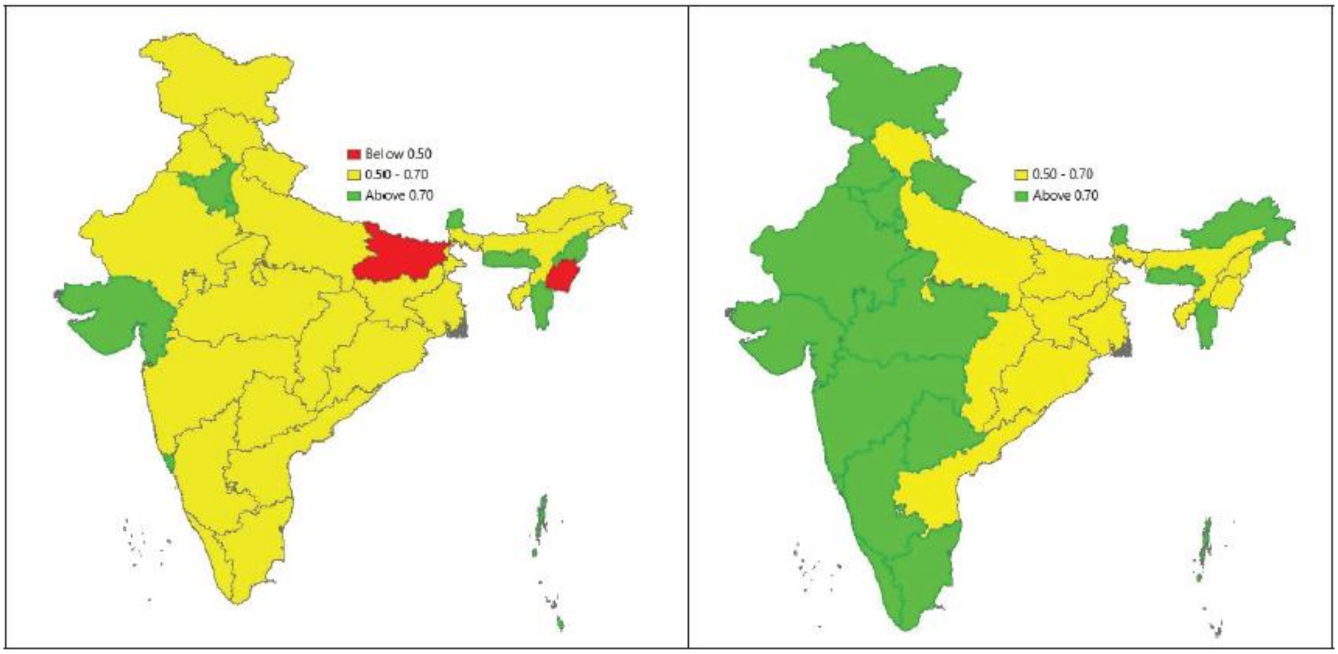
BNI for Rural India (2012) **BNI for Rural India (2018)**





Source: Economic Survey 2020-21

BNI for Urban India (2012) **BNI for Urban India (2018)**

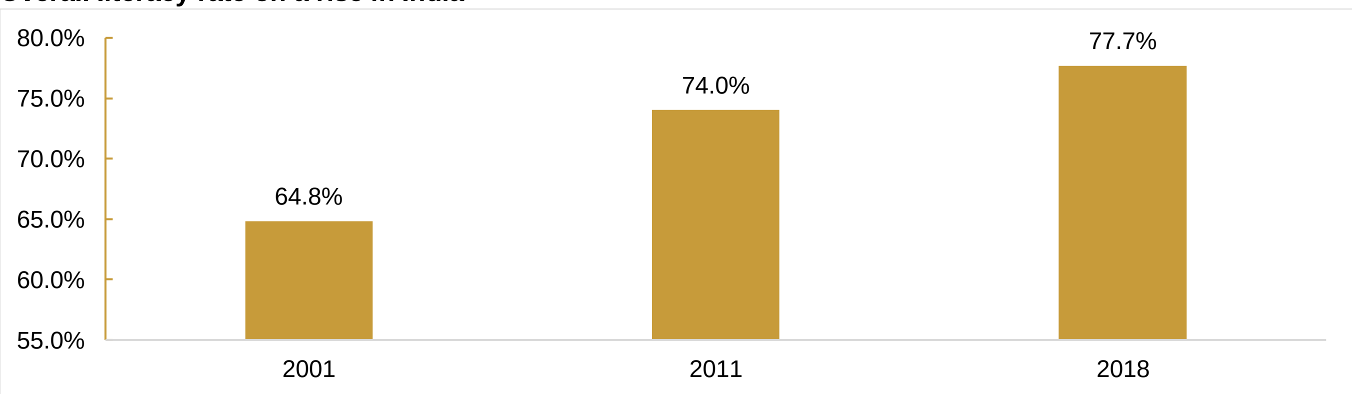


Source: Economic Survey 2020-21

Financial penetration to rise with increase in awareness of financial products

Overall literacy in India is at 77.7% as per the results of recent NSSO survey conducted in 2018 which is still below the world literacy rate of 86.5%. However, according to the National Financial Literacy and Inclusion Survey (NCFE-FLIS) 2019, only 27% of Indian population is financially literate indicating huge gap and potential for financial services industry. The survey defines financial literacy as combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing.

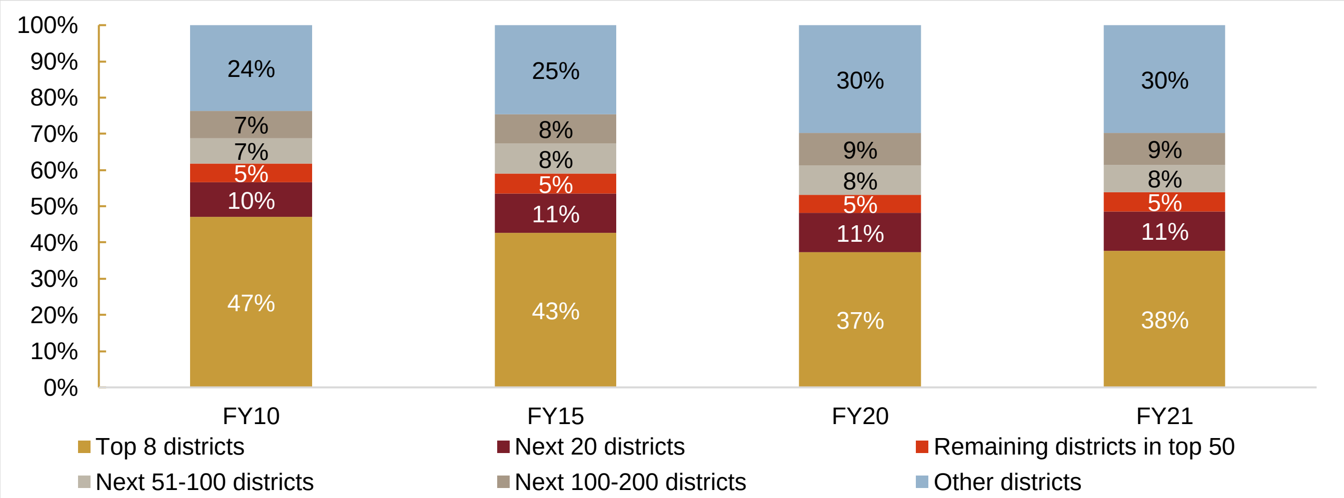
Overall literacy rate on a rise in India



Source: Census 2011, NSO Survey on household social consumption (2017-18), CRISIL Research

With increasing financial literacy, mobile penetration, awareness and the Prime Minister's Jan Dhan Yojana bank accounts (scheme aimed at bringing the unbanked under the formal banking system), there has been a rise in the participation of individuals from non-metro cities in banking. With more people attached to formal banking sector, the demand for financial products in smaller cities has seen a major uptick in recent years. Going forward, CRISIL Research expects financial penetration to increase on account of increasing financial literacy.

Share of top 8 cities in banking deposits exhibits a reducing trend indicating increasing financial penetration



Note: 1) Classification of districts is done based on population as per Census 2011.
2) Mumbai Metropolitan Region (MMR), National Capital Region (NCR), Bengaluru and Kanpur have each been considered as a district.
3) MMR includes Thane and Mumbai, NCR includes Delhi, Gurugram, Gautam Buddha Nagar, Ghaziabad and Faridabad, Bengaluru includes Bangalore Urban and Bangalore Rural, Kanpur includes Kanpur Nagar and Kanpur Dehat
Source: RBI, CRISIL Research

Digitisation aided by technology to play pivotal role in growth of economy

Technology is expected to play an important role by progressively reducing the cost of reaching out to smaller markets. India has seen a tremendous rise in fintech adoption in the past few years and has the highest fintech adoption rate globally of 87% which is significantly higher than the global average rate of 64% (Source: InvestIndia). Among many initiatives by the government, the Unified Payments Interface (UPI) is playing a pivotal role towards financial inclusion. It provides a single-click digital interface across all system for smartphones linked to bank accounts and facilitates easy transactions using a simple authentication method. The volume of digital transactions has also seen a surge in the past few years, driven by increased adoption of UPI. Apart from financial services industry, digitisation in other industries like retail will also play an important role in growth of economy.

UPI usage data statistics

As of month	No of banks live on UPI	Volume of transactions (million)	Amount of transactions (Rs. billion)	YoY growth (on value basis) in transactions (%)
March 2017	49	9	28	NA
March 2018	91	178	242	764%
March 2019	142	800	1,335	452%
March 2020	148	1,247	2,065	55%
January 2021	207	2,303	4,312	99%
February 2021	213	2,293	4,251	91%
March 2021	216	2,732	5,049	145%
April 2021	220	2,641	4,937	227%
May 2021	224	2,540	4,906	125%

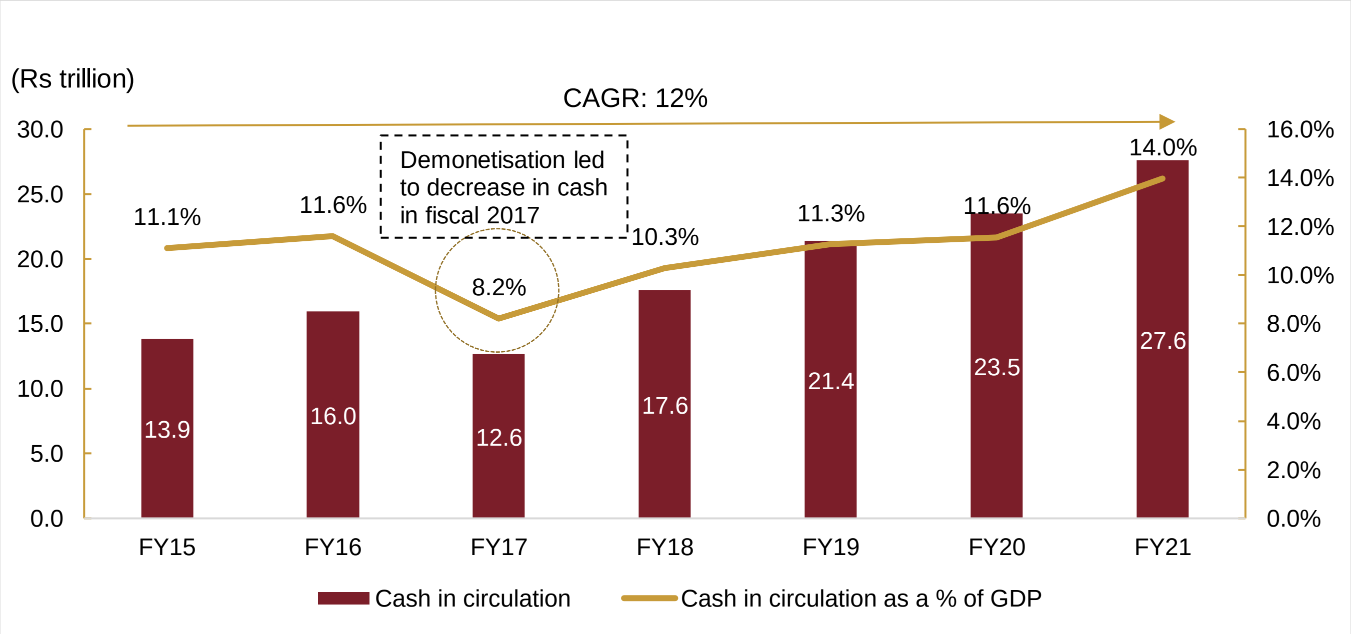
June 2021	229	2,808	5,474	109%
July 2021	235	3,248	6,063	109%
August 2021	249	3,556	6,391	114%
September 2021	259	3,654	6,544	99%

Source: National Payments Corporation of India (NPCI), CRISIL Research

Post demonetisation, cash in the economy is on the rise indicating untapped potential

Despite rise and digital payments enabled through strong growth of fintechs, cash in circulation in the country has increased post demonetisation of high value currency notes in November 2015, indicating a predominant presence of cash in the economy. This means that there is still a lot of untapped potential for offering technology-based solutions and assisted digital solutions to customers to make their day-to-day life much easier.

Cash in circulation to GDP ratio (%)



Source: RBI, CRISIL Research

Rural economy

Rural economy is becoming structurally far more resilient…

At a time when the Indian economy has been severely impacted by the Covid-19 pandemic, the rural economy has been a harbinger of hope.

The rural economy is far more resilient today due to two consecutive years of good monsoon, increased spends under MNREGA and irrigation programmes, direct benefit transfer (DBT), the PM-Kisan scheme, PM Ujwala Yojana for cooking gas, PM Awas Yojana for housing, and Ayushman Bharat scheme for healthcare. To supplement this, there has been a continuous improvement in rural infrastructure such as electricity and roads. These government initiatives have led to lesser leakages and higher incomes in the hands of the rural populace, thereby enhancing their ability and willingness to spend on discretionary products and services.

The structural changes, combined with a positive macro environment, will improve rural business prospects, provide business opportunities for the banking and financial services sector and drive the long term growth of the economy.

….and has been relatively less impacted by Covid-19

The rural economy accounts for almost half of India's GDP and has performed much better than urban India in the aftermath of Covid-19. There are three reasons for this.

First, agricultural activity has continued largely unhindered, normal monsoons and lower spread of Covid-19 in rural areas given the lower population density. Second, the government has pitched in with support by making available an additional Rs 500 billion of funding towards the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) and also disbursing Rs 570 billion towards the PM-Kisan scheme. Third, the structure of the non-agriculture rural economy has helped it bear the Covid-induced shock better. Rural economy contributes to 51% of India's manufacturing GDP, but the rural share in services GDP (excluding public administration, defence and utilities) is much lower at around 26%. With services, with contact-based services being impacted more compared to manufacturing post Covid-19, rural India's relatively higher dependence on both manufacturing and agriculture has helped partly buttress the impact of Covid-19.

Within the rural economy, agriculture itself is set to grow at ~2.5% on-year in fiscal 2021, close to its trend rate.

In large part, the strong agriculture growth will be borne out by the timely onset and well spread south-west monsoon. This means a lot to Indian farmers, a majority of whom depend on rains for kharif sowing and production - that makes up about half of India's annual agricultural output.

Further, higher government procurement of food grains to support the Pradhan Mantri Garib Kalyan Anna Yojana, also spurred higher production. Finally, an increase in minimum support prices (MSPs) promises better returns to farmers.

Measures to counter the pandemic's onslaught on growth

Reserve Bank of India goes all out to combat the crisis

The Monetary Policy Committee (MPC) of the Reserve Bank of India (RBI) slashed the repo rate by 115 basis points (bps) to address financial market stress in the wake of the pandemic and the subsequent lockdown. In an unusual move, the MPC also asymmetrically slashed the reverse repo initially by 90 bps and by another 25 bps and 40 bps subsequently. The repo and reverse repo rates now stand at 4.00% and 3.35%, respectively. To tide over any unwarranted volatility, the MPC also increased borrowing limits under the marginal standing facility (MSF) of the liquidity adjustment facility window from 2% to 3%. The MSF rate now stands at 4.25% (down from 5.40%).

The RBI also announced a host of other measures to address financial market stress due to the pandemic / lockdown:

- **Reducing debt servicing burden through moratorium period:** The RBI initially permitted lending institutions to allow a moratorium of three months on repayment of instalments for term loans outstanding as on March 1, 2020 and defer interest payments due on working capital facilities outstanding. The moratorium was further extended by another three months till August 31, 2020. However, the banks were instructed to provide 10% additional provisioning for availing this benefit, which could be later adjusted against the provisioning requirements for actual slippages. These measures are intended to boost confidence in the economy and provide relief to the borrowers

- **Loan restructuring:** The central bank constituted a committee which identified 26 sectors for restructuring which included aspects related to leverage, liquidity and debt serviceability to be factored by the lending institutions while finalising resolution plans for borrowers. However, only those borrower accounts would be eligible for resolution which were classified as standard, but not in default for more than 30 days with any lending institution as on March 1, 2020

- **Enhancing liquidity**: Apart from reducing repo and reverse repo rate, the RBI reduced the cash reserve ratio (CRR) requirements of all banks by 100 bps to 3% of net demand and time liabilities (NDTL). Further, the minimum daily CRR balance maintenance was reduced to 80% from 90% till June 26, 2020. In view of the exceptionally high volatility in domestic financial markets, the RBI also increased MSF borrowing limit from 2% to 3% of bank's NDTL up to June 30, 2020

- **Supporting financial market liquidity:** The RBI initially announced targeted long-term repo operations (TLTROs) of up to three years' tenure for a total of up to Rs 1 trillion. Liquidity availed under the scheme by banks had to be deployed in investment grade corporate bonds, commercial paper, and non-convertible debentures. Subsequently, TLTROs worth Rs 500 billion were announced specifically for non-banking financial companies (NBFCs) and micro finance institutions (MFIs), with 50% targeted towards small and mid-sized firms. Investments made by banks under this facility would be classified as held to maturity (HTM), and also be excluded under the large exposure framework. In addition, the government announced a Rs 450 billion partial credit guarantee scheme and Rs 300 billion special liquidity scheme, aimed at addressing the concern over credit risk perception on mid and small size non-banks.

- **Pushing credit growth:** The RBI decided to postpone the implementation of net stable funding ratio to October 1, 2021 to encourage banks to lend in these challenging times. Deferring the last tranche of capital conservation buffer to October 1, 2021 was also a step in the same direction. The central bank also announced Rs 500 billion refinancing facility for NABARD (Rs 250 billion), SIDBI (Rs 150 billion) and NHB (Rs 100 billion) to increase credit availability to microfinance, micro, small and medium enterprises (MSMEs) and the housing sector

- **Addressing rupee volatility:** Banks in India which operate International Financial Services Centre banking units have been allowed to participate in the Non-deliverable Forward (NDF) market with effect from June 1, 2020

- **Regulatory changes:** With regards to the moratorium provided on loans, the RBI clarified these measures would not result in asset quality downgrade, nor would it affect the credit history of borrower

- **Measures during second wave of Covid-19:** On May 5, 2021, RBI announced several measures to protect small and medium businesses, individual borrowers from the adverse impact of the intense second wave of Covid-19 across the country. RBI also made provisions for banks to advance loans to businesses and restructure loans for enhancing liquidity in the system to help mitigate the crisis. Restructuring framework 2.0 was announced wherein individuals, small businesses and MSMEs having aggregate exposure of up to Rs 250 million, who have not availed restructuring under any of the earlier restructuring frameworks (including under the Resolution Framework 1.0 dated August 6, 2020), and who were classified as 'Standard' as on March 31, 2021 are eligible to be considered. Restructuring under the proposed framework may be invoked up to September 30, 2021 and shall have to be implemented within 90 days after invocation. Further, for small businesses and MSMEs restructured earlier, banks and NBFCs have also been permitted, as a one-time measure, to review the working capital sanctioned limits, based on a reassessment of the working capital cycle, margins, etc. The RBI also permitted modification of plans under Restructuring framework 1.0 by increasing the period of moratorium and/or extending the residual tenor up to a total of 2 years.

Additionally, the RBI incentivised small finance banks (SFBs) to increase credit flow to small borrowers in two ways: one, by opening a special long-term repo operation (SLTRO) window of Rs. 100 billion for small finance banks (SFBs) for extending loans of up to Rs. 1 million to individuals and small businesses; and two, by classifying on-lending by SFBs to small MFIs with assets as less than Rs. 5 billion as priority sector lending.

In June 2021, the RBI further enhanced the exposure limit for availing restructuring under restructuring framework 2.0 from Rs. 250 million to Rs. 500 million.

'Aatmanirbhar' package is a timely relief amid the pandemic

Liquidity boost for NBFCs

The government announced a Rs 450 billion partial guarantee scheme (for NBFCs) and Rs 300 billion special liquidity scheme for NBFCs, housing finance companies (HFCs) and MFIs, aimed at covering the concern of credit risk perception on mid and small size non-banks.

Change in MSME definition

To bring in more enterprises under the ambit of MSMEs and the relief package being offered by the regulator, the government revised the MSME investment limit across each category and introduced an alternate/additional criteria of turnover buckets to the definition. It further helped remove the difference between the definition of manufacturing based and services based MSMEs. Given below is the composite revised definition of MSMEs in comparison to the old existing one:

Existing and revised definitions of MSMEs

Existing MSME classification			
Criteria : Investment in plant and machinery or equipment			
Classification	Micro	Small	Medium
Manufacturing enterprises	Investment < RS 2.5 million	Investment < Rs 50 million	Investment < Rs 100 million
Services enterprises	Investment < Rs 1 million	Investment < Rs 20 million	Investment < Rs 50 million
Revised MSME classification			
Composite Criteria : Investment and annual turnover			
Classification	Micro	Small	Medium
Manufacturing and Services enterprises	Investment < Rs 10 million and Turnover < Rs 50 million	Investment < Rs 100 million and Turnover < Rs 500 million	Investment < Rs 500 million and Turnover < Rs 2.5 billion

Source: Ministry of MSME, CRISIL Research

Collateral-free loans to MSMEs (Rs 3 trillion)

Banks and NBFCs are directed to offer up to 20% of entire outstanding credit to MSMEs. MSMEs with up to Rs 250 million outstanding credits and Rs 1 billion turnover are eligible for these loans. It will have four-year tenure with a moratorium of 12 months on principal payment and can be availed till October 31, 2020. The government will provide complete credit guarantee cover to lenders on principal and interest amount.

Subordinate debt to MSMEs (Rs 200 billion)

The government is also facilitating the provision of Rs 200 billion as subordinate debt for stressed assets of MSMEs. It will also provide Rs 40 billion as partial credit guarantee support to banks for lending to MSMEs.

Equity infusion in MSMEs (Rs 500 billion)

The government has committed to infuse Rs 500 billion in equity of MSMEs having growth potential and viability. It will also encourage MSMEs to list on stock exchanges.

Clearing MSME dues; guarantee scheme

The government has requested central public sector enterprises to release all pending MSME payments within 45 days. It will boost transaction-based lending by fintech enterprises. Under the Emergency Credit Line Guarantee Scheme (ECLGS), banks will offer Rs 3 trillion government guaranteed loans to MSME borrowers that are not non-performing assets (NPAs) to address short-term liquidity concerns and boost the MSME sector.

Global tenders disallowed up to Rs 2 billion

The government will not allow foreign companies in government procurement tenders of value up to Rs 2 billion. This is likely to ease the competition faced by the MSMEs against foreign companies.

Loan interest subvention scheme (Rs 15 billon)

Under this scheme, the government has provided 2% interest subvention for loans given under Mudra-Shishu scheme. These loans are up to the ticket size of Rs 50,000 and are mostly given by NBFC-MFIs benefiting low income groups customers.

Special credit facility for street vendors (Rs 50 billon)

The government announced this scheme to facilitate easy access of credit to street vendors to offset the adverse effect of pandemic on their livelihoods.

'Aatmanirbhar 3.0' stimulus package rolled out to boost economy in November 2020

The finance minister, on November 12, 2020, announced a stimulus package. Under the package, 12 stimulus measures were rolled out to boost employment in the formal and informal economy, help housing infrastructure, enhancing ease of doing business, extending the deadline for the Credit Line Guarantee Scheme, etc. The announcement was made a day after the government announced a Rs 2 trillion production-linked incentives (PLIs) scheme for boosting identified manufacturing sectors. The government also announced some fresh projects, collaterally boosting employment in the country.

An additional outlay of Rs 180 billion for PM Awaas Yojana (PMAY) Urban was announced, which will help ground 1.2 million houses and complete 1.8 million houses. The move is expected to create additional 7.8 million jobs and improve production and sale of steel and cement, resulting in a multiplier effect on the economy. Stimulus packages worth Rs. 2.65 trillion were announced by the government.

Following are the twelve announcements made in the Aatmanirbhar 3.0 stimulus package:

1. Aatmanirbhar Bharat Rozgar Yojana: Aatmanirbhar Bharat Rozgar Yojana, operational during October 1, 2020 to June 2021 to incentivise creation of new employment opportunities during COVID recovery phase.

2. Emergency credit line guarantee scheme 2.0: Launch of an emergency credit line guarantee scheme 2.0 for guaranteed credit to 26 stressed sectors. Tenure of additional credit under ECLGS 2.0 to be 5 years, including 1 year of moratorium on principal repayment. Emergency credit line guarantee scheme extended till March 31 2021.

3. PLI scheme: Introduction of the PLI scheme in 13 key sectors for enhancing India's manufacturing capabilities and exports.

4. PMAY **–** Urban**:** Rs 180 billion will be provided over the Budged Estimates for 2020-21 for PM Awaas Yojana (PMAY) **-** Urban through additional allocation and extra-budgetary resources. This is over and above Rs 80 billion already budgeted this year.

5. Support for construction and infrastructure **-** Relaxation of earnest money deposit (EMD) and performance security on government tenders.

   - Performance security on contracts to be reduced to 3% instead of 5-10%
   - EMD will not be required for tenders and will be replaced by Bid Security Declaration
   - Relaxations will be given till December 31, 2021

6. Demand booster for residential real estate income-tax relief for developers and home buyers: Increase in the differential from 10% to 20% for the period from the date of the announcements to June 20, 2021 for only primary sale of residential units of value up to Rs 2 billion.

7. Government will invest Rs 60 billion as equity in the NIIF debt platform. Infra project financing of Rs 1.1 trillion will be provided by the government.

8. Government will provide support to farmers with Rs 650 billion for subsidised fertilisers

9. Boost for the rural employment -Enhanced outlays under PM Garib Kalyan Rozgar Yojana: Rs 400 billion was additionally provided in Atmanirbhar Bharat 1.0. Further outlay of Rs 100 billion to be provided for PM Garib Kalyan Rozgar Yojana in the current fiscal.

10. Boost for exports **-** Rs 30 billion to EXIM Bank for lines of credit: Rs 30 billion will be released to EXIM Bank for promotion of project exports through lines of credit under the IDEAS scheme.

11. Capital and industrial stimulus: Rs 102 billion additional budget outlay will be provided towards capital and industrial expenditure.

12. Research and development grant for Covid-19 vaccine development: Rs 9 billion provided for Covid Suraksha Mission for research and development of an Indian Covid-19 vaccine to the Department of Biotechnology

'Kamath Committee' identifies 26 sectors for loan restructuring

On August 7, 2020, the RBI announced the constitution of a committee under the chairmanship of KV Kamath to make recommendations on the required financial parameters for a 'Resolution framework for Covid-19 related stress. On September 4, the committee submitted the report which included aspects related to leverage, liquidity and debt serviceability for 26 sectors which could be factored by the lending institutions while finalising a resolution plan for a borrower. However, only those borrower accounts would be eligible for resolution which were classified as standard, but not in default for more than 30 days with any lending institution as on March 1, 2020. Under this framework, the resolution may be invoked not later than December 31, 2020 and must be implemented within 90 days from date of invocation for personal loans and 180 days for other exposures.

Scope of ECLGS Scheme further expanded post the covid-19 wave

Recently in September 2021, with a view to support various businesses impacted by the second wave of COVID 19 pandemic, the timeline for Emergency Credit Line Guarantee Scheme (ECLGS) has been extended till March 2022 or till guarantees for an amount of Rs 4.5 lakh crore are issued under the scheme, whichever is earlier. Further, the last date of disbursement under the scheme has also been extended to June 2022. As of September 24, 2021, loans sanctioned have crossed Rs 2.86 trillion under the scheme.

In June 2021, the government increased the overall admissible guarantee limit from Rs 3.0 trillion to Rs 4.5 trillion. Along with this, the limit of admissible guarantee and loan amount is increased from 20% to 40% of outstanding for Covid-affected sectors like Hospitality sector, Travel & Tourism sector, Leisure & Sporting sector and Civil Aviation sector, subject to a maximum of Rs.200 crore per borrower.

Earlier, in May 2021, the Government announced the following further modifications to the ECLGS scheme:

- The scope was expanded to cover loans up to Rs. 20 million to hospitals/nursing homes/clinics/medical colleges for setting up on-site oxygen generation plants with interest rate capped at 7.5%
- Additional ECLGS assistance of up to 10% of the outstanding loans as on February 29, 2020 to borrowers covered under ECLGS 1.0 was allowed
- Civil Aviation sector was included in the list of sectors covered
- Ceiling of Rs. 5 billion of loan outstanding for eligibility under ECLGS 3.0 was removed, subject to maximum additional ECLGS assistance to each borrower being limited to 40% or Rs. 2 billion, whichever is lower
- Borrowers who had availed loans under ECLGS 1.0 of overall tenure of 4 years comprising of repayment of interest only during the first 12 months with repayment of principal and interest in 36 months were allowed to increase the tenure to 5 years (repayment of interest only for the first 24 months with repayment of principal and interest in 36 months thereafter)

Earlier, in March 2021, the Government had made the following modifications to the scheme

- The scope of ECLGS was expanded to cover business enterprises in hospitality, travel & tourism, leisure & sporting sectors which had, as on February 29, 2020, total credit outstanding not exceeding Rs. 5 billion and were less than or equal to 60 days past due as on that date.
- The validity of ECLGS was extended up to June 30, 2021 or till guarantees for an amount of Rs. 3 trillion are issued.

Key structural reforms: Long-term positives for the Indian economy

Financial inclusion

According to the World Bank's Global Findex Database 2017, the global average of adult population with an account (with a bank, financial institution, or mobile money providers) was ~69% in 2017. India's financial inclusion has improved significantly between 2014 and 2017, with the adult population with bank accounts rising from 53% (as per Global Findex Database 2014) to 80% in 2017 with concerted efforts by the government to promote financial inclusion and the proliferation of supporting institutions.

As per the Global Findex Database 2017, ~50% of the world's unbanked adults are in India, Bangladesh, China, Indonesia, Mexico, Nigeria and Pakistan. Of the world's total unbanked adults (~1.7 billion), 415 million are from just two countries – India (11% or 190 million) and China (13% or 225 million), because of their huge population.

The two key initiatives launched by the government to promote financial inclusion are the Pradhan Mantri Jan Dhan Yojana (PMJDY) and Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY). Under the PMJDY, the government's aim is to ensure that every household in India has a bank account which they can access from anywhere and avail of all financial services such as savings and deposit accounts, remittances, credit and insurance affordably. PMJJBY is a one-year life insurance scheme that offers a life cover of Rs 0.2 million at a premium of Rs 330 per annum per member, which can be renewed every year. The government has also launched the Pradhan Mantri Suraksha Bima Yojana (PMSBY), which is an accident insurance policy and offers an accidental death and full disability cover of Rs 0.2 million at a premium of Rs 12 annually. As per the Government of India, more than 100 million people have registered for these two social security schemes.

Pradhan Mantri Jan Dhan Yojana (PMJDY) launched in August 2014, is aimed at ensuring ensure that every household in India has a bank account which they can access from anywhere and avail of all financial services such as savings and deposit accounts, remittances, credit and insurance affordably. PMJDY focuses on household coverage compared with the earlier schemes that focused on coverage of villages. It aims to extend banking facilities to all within a reasonable distance in each sub-service area (consisting of 1,000-1,500 households) across India.

As on March 31, 2021, 422 million PMJDY accounts had been opened, of which, 66% were in rural and semi-urban areas, with total deposits of Rupees 1,456 billion.

GST implementation

Introduced on July 1, 2017, the GST is an indirect tax regime that subsumed multiple cascading taxes levied by the central and state governments. Its implementation has spawned structural changes in the supply chain and logistics network in the country. The crux of the GST mechanism is input tax credit, which ensures more players in the supply chain come under the tax ambit. As supply from only registered taxpayers will get input tax credit, businesses and stakeholders will insist on registration of their suppliers and traders, leading to an increase in the share of organised participants. The GST regime has been stabilising fast and is expected to bring more transparency and increase in formalisation, eventually leading to higher economic growth.

PLI scheme to boost manufacturing in the long run

The government has budgeted ~Rs 2 trillion to give incentives to the local manufacturing units in 13 key sectors. The key sectors likely to get benefit from the scheme include automobiles, pharma, telecom, electronics, food, textile, steel and energy. By incentivising production subject to achieving the desired scale, the scheme aims to spawn a handful of globally competitive large scale manufacturing units in the identified sectors. Furthermore, the government also hopes to reduce India's dependence on raw material imports from China. The scheme is expected to provide a boost to economic growth over the medium-term and create more employment opportunities as many of these sectors are labour intensive in nature.

Broad Sector	Segment	Budgeted (Rs. Bn)*	
Automobiles	Advance Chemistry Cell (ACC) Battery	181	441
	Automobiles & auto components	260	
Electronics	Mobile manufacturing and specified electronic Components	409	521
	Electronic/technology products	50	
	White goods (ACs & LED)	62	
Pharma and medical equipment	Critical key starting materials/drug intermediaries and active pharmaceutical ingredients	69	253
	Manufacturing of medical devices.	34	
	Pharmaceuticals drugs	150	
Telecom	Telecom & networking products	122	122
Food	Food products	109	109
Textile	Textile products: MMF segment and technical textiles	107	107
Steel	Speciality steel	63	63
Energy	High efficiency solar PV modules	45	45
Total			**1662**

**Approved financial outlay over a five-year period*
Source: Government websites; CRISIL Research

IBC a key long-term structural positive

The Insolvency and Bankruptcy Code (IBC) is a reform that will structurally strengthen the identification and resolution of insolvency in India. The IBC enhances the credit enforcement structure and provides certainty around the timeframes for insolvency resolution. It attempts to simplify legal processes, preserve value for creditors and provide them with greater certainty of outcome. With this reform, the RBI has sent a strong signal to borrowers to adhere to credit discipline and also encourage banks to break resolution deadlocks by introducing definite timelines. IBC will enhance investors' confidence when investing in India. Internationally, recovery rates have improved significantly after the implementation of bankruptcy reforms, as can be seen in the following table:

Country	Year of bankruptcy reform	Pre-reforms		Five years post-reforms	
		Recovery rate (%)	*Time (years)*	*Recovery rate (%)*	*Time (years)*
Brazil	2005	0.2	10.0	17.0	4.0
Russia	2009	28.2	3.8	42.8	2.0
China	2007	31.5	2.4	36.1	1.7
India	2016	26.0	4.3	43*	1.6*

*Note: * As of 2019*

Source: World Bank, CRISIL Research

Reduction in corporate tax rates to boost capital base of financial institutions

On September 20, 2019, the Finance Minister announced Taxation Laws (Amendment) Ordinance 2019 to make certain amendments in the Income Tax Act, 1961, to allow any domestic company an option to pay income tax at the rate of 22%, subject to the condition that they will not avail of any exemption/incentive. The effective tax rate for these companies will be 25.17% inclusive of surcharge and cess. Also, such companies will not be required to pay minimum alternate tax.

A company that does not opt for the concessional tax regime and avails of the tax exemption/incentive will continue to pay tax at the pre-amended rate. However, these companies can opt for concessional tax regime after expiry of their tax holiday/exemption period. After the exercise of the option they will be liable to pay tax at the rate of 22% and the option, once exercised, cannot be subsequently withdrawn. Further, in order to provide relief to companies which continue to avail of exemptions, the rate of minimum alternate tax has been reduced from 18.5% to 15%.

In addition, to stabilise the flow of funds in the capital market, the provision of not applying additional surcharge as per the Finance Act, 2019, on capital gains arising out of sale of equity share in a company or unit of equity oriented fund or business trust liable for securities transaction tax, in the hands of an individual, Hindu undivided family (HUF), association of persons (AOP), body of individuals (BOI) and artificial judicial person (AJP). The enhanced surcharge will also not apply to capital gains on sale of any security, including derivatives, in the hands of foreign portfolio investors. Also, to provide relief to listed companies that have announced share buyback before July 5, 2019, tax on the buyback of shares will not be charged as per these latest amendments.

The recent amendments could boost the capital base of the financial institutions and help revive growth in the financial services sector, which has been battling with high NPAs, increasing defaults and liquidity concerns. This move could also revive the private capex cycle leading to credit growth in the economy.

Household savings to increase

India's slowing economy took a toll on much-needed savings too, with the savings rate touching a 15-year low, and household savings also falling. This has weakened India's macro-economic position which is already hobbled by low investment and rising external borrowing to fund capital needs. Household savings also declined as consumers spent more in purchasing durables and travelling. Indian households contribute to about 60% of the country's savings. But India remains favourable compared with emerging market peers such as Brazil.

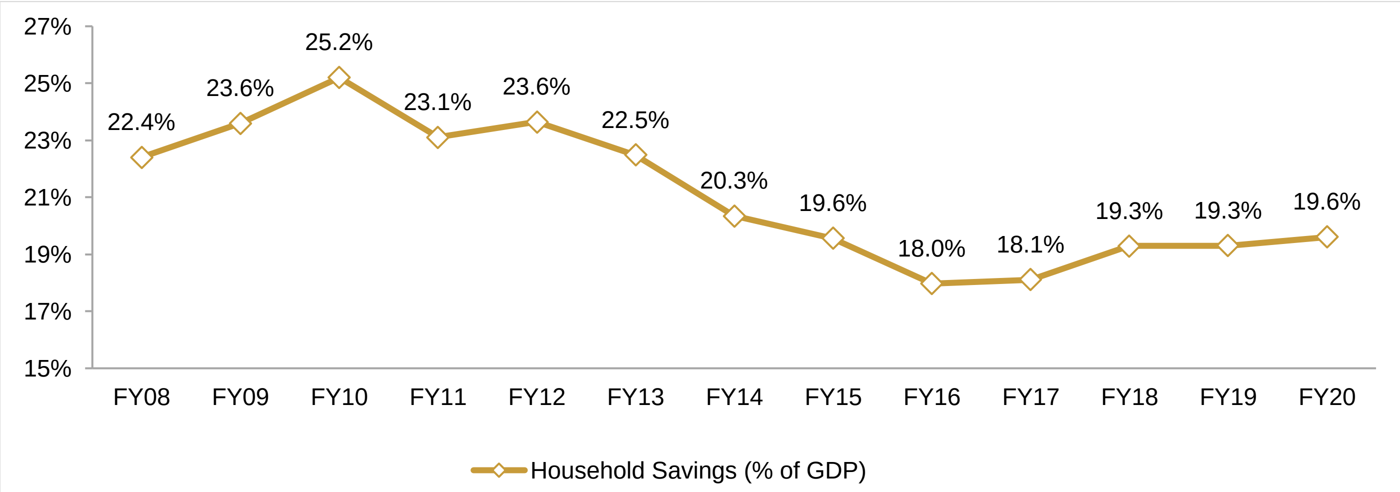
According to World Bank, the savings rate, or the proportion of gross domestic savings (GDS) in GDP in the Indian economy has trended down in the past decade. India's GDS peaked at 36.8% of GDP in fiscal 2008 and dipped to

32.0% in fiscal 2009. That was largely on account of a sharp slowdown in public savings, as the government resorted to fiscal stimulus to address the external shock from global financial crisis (GFC).

CRISIL Research expects India to continue being a high savings economy. However, household savings as a percentage of GDP has been sliding since fiscal 2012, with its share in total savings falling significantly from 23.6% in fiscal 2012 to 18.0% in fiscal 2016. The household savings as % of GDP rose to 19.6% in fiscal 2020. CRISIL Research expects the household savings to increase further on account of expected decline in discretionary spending during the pandemic. However, the absolute amount of savings might not increase at the same pace since the GDP growth is estimated to decline by 7.3% in fiscal 2021.

We are also sanguine on savings rate increasing in the medium-term, as households become more focused post the pandemic-induced uncertainty and start saving for the future.

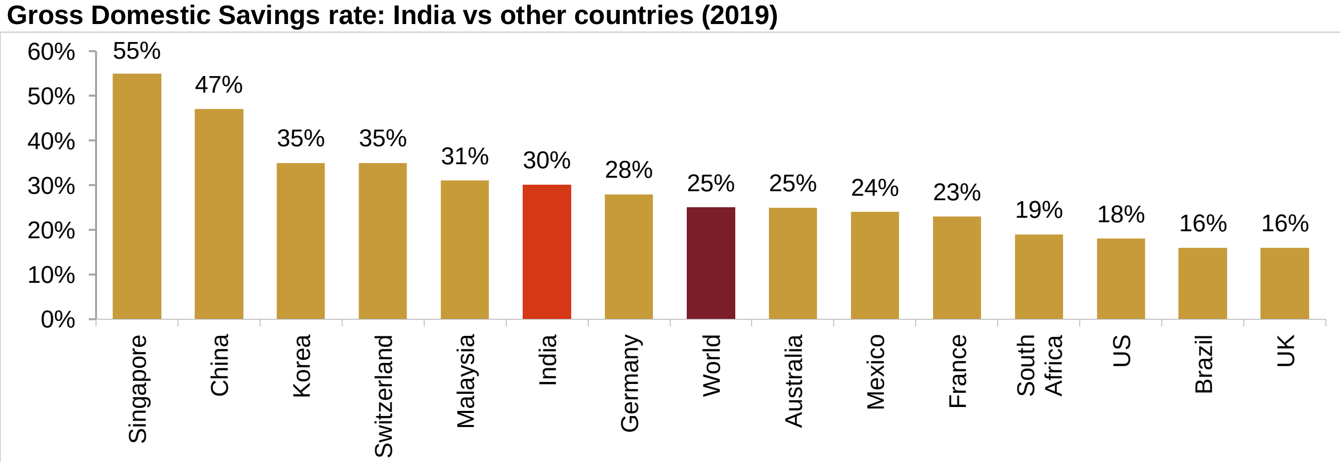
Savings rate has increased marginally in fiscal 2020



Note: E: Estimated

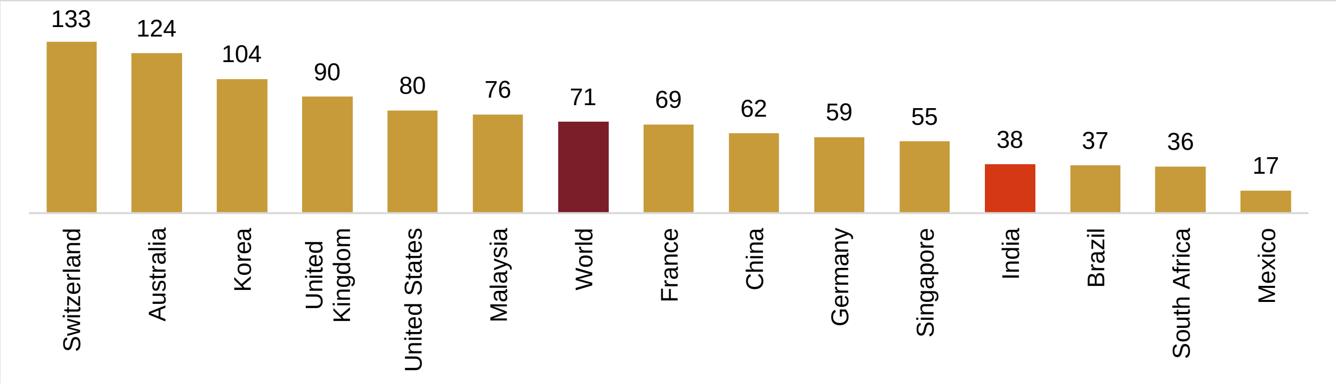
Source: Ministry of Statistics and Programme Implementation (MOSPI), RBI, CRISIL Research

Gross Domestic Savings rate: India vs other countries (2019)



Source: World Bank, Handbook of Statistics on Indian Economy 2018-19, RBI, MOSPI, CRISIL Research

Total credit to households on GDP: India vs other countries (Q4FY21)



**All reporting countries*

Source: Bank of International Settlements, CRISIL Research

Gross domestic savings trend

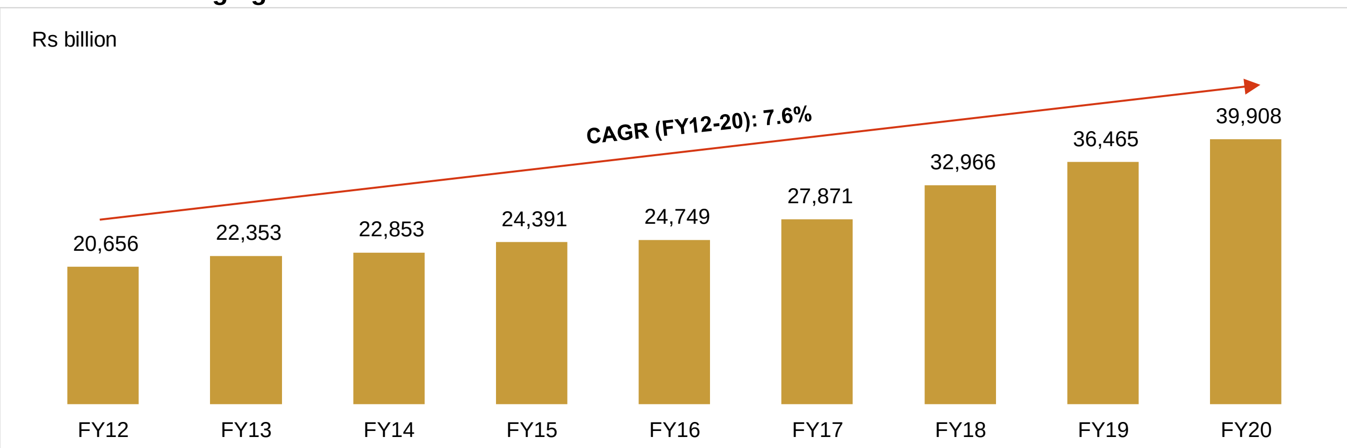
Parameters (Rs billion)	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17	Mar-18	Mar-19	Mar-20
GDS	33,692	36,082	40,200	42,823	48,251	54,807	57,770	63,860
GDP (At current prices)	99,440	1,12,335	1,24,680	1,37,719	1,53,917	1,70,900	1,88,870	2,03,510
Percentage of GDP	33.9%	32.1%	32.2%	31.1%	31.3%	32.1%	30.6%	31.4%
Household sector savings*	22,353	22,853	24,391	24,749	27,871	32,966	36,465	39,908
Percentage of GDP	22.5%	20.3%	19.6%	18.0%	18.1%	19.3%	19.3%	19.6%
Gross financial savings	10,640	11,908	12,572	14,962	16,147	20,564	21,341	22,846
Financial liabilities	3,304	3,587	3,768	3,854	4,686	7,507	7,784	6,641
Savings in physical assets	14,650	14,164	15,131	13,176	15,946	19,442	22,481	23,272
Savings in the form of gold and silver ornaments	367	368	456	465	465	467	427	431

**Net financial savings, savings in physical assets and in the form of gold and silver ornaments*

Note: The data is for financial year ending March; Physical assets are those held in physical form, such as real estate, etc.

Source: MOSPI, National Accounts National Accounts Statistics, CRISIL Research

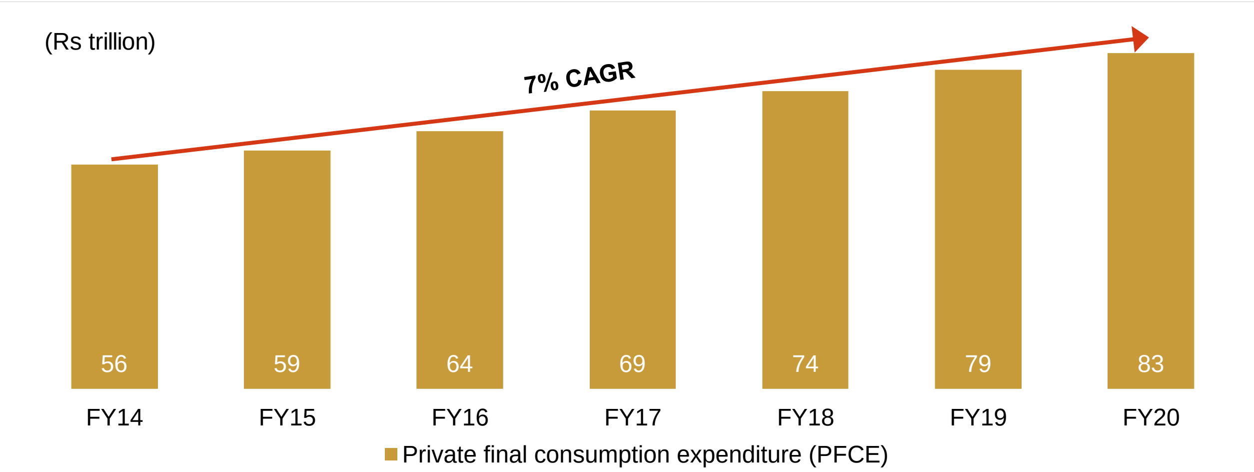
Household savings growth



Note: The data is for financial year ending March

Source: MOSPI, CRISIL Research

Private final consumption expenditure (PFCE) has grown ~7% over fiscal 2014-20

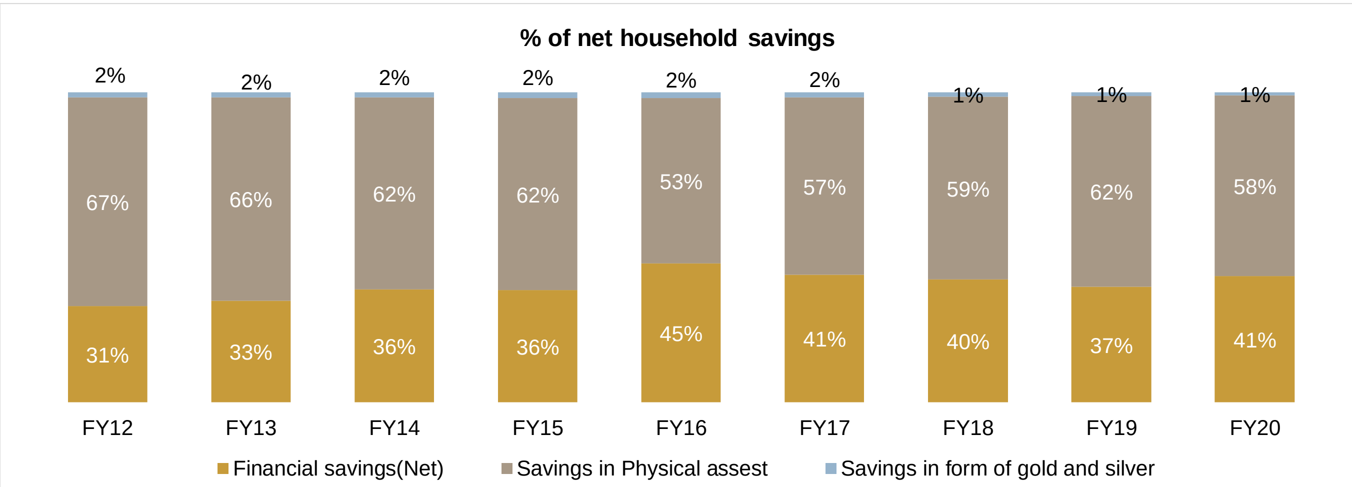


Source: RBI, CRISIL Research

Share of physical savings to remain stable in the wake of Covid

While households' savings in physical assets has declined to 58% in fiscal 2020 from 67% in fiscal 2012, financial savings has witnessed an uptrend to 41% in fiscal 2020 from 31% in fiscal 2012.

With volatility in the financial markets post Covid and the prevalent lower rates of return in the fixed income products on account of accommodative stance of the central bank, sizeable proportion of savings is expected to continue to remain in physical assets. Along with increase in financial literacy, the relative outperformance of financial assets over recent years, and the government's efforts to fight shadow economy activity, we expect the share of financial assets as a proportion of net household savings to increase over the next five years. The rise in financial assets will further boost the investment under mutual funds.



Note: The data is for financial year ending March
Source: Handbook of Statistics on Indian Economy 2018-19, RBI, MOSPI, CRISIL Research

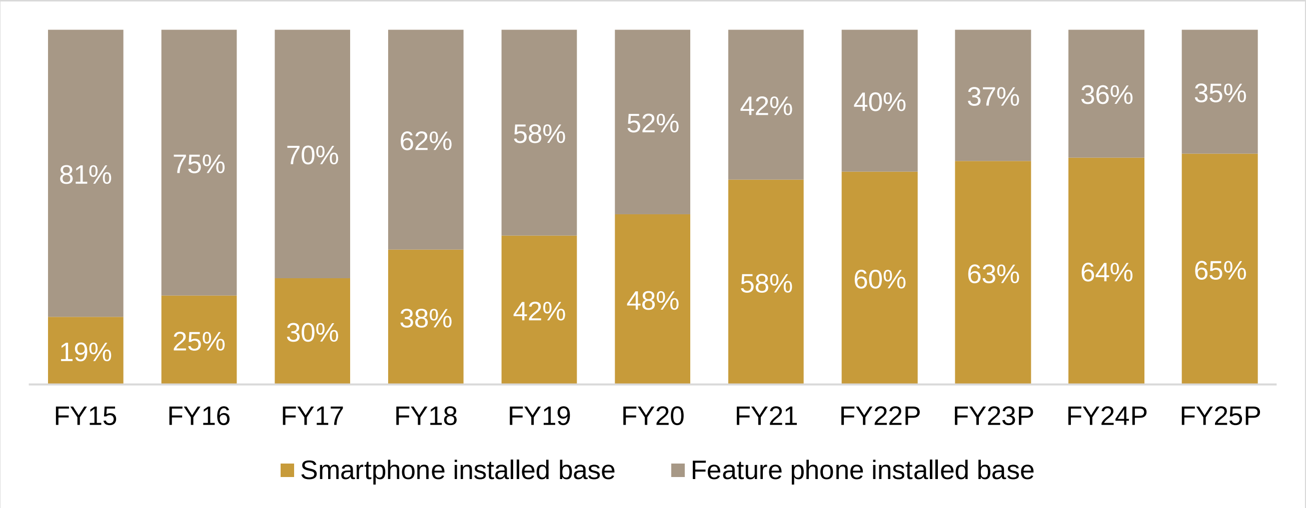
Digitisation: Catalyst for the next growth cycle

Technology is expected to play a pivotal role in taking the financial sector to the next level of growth, by helping surmount the challenges stemming from India's vast geography, which makes physical footprints in smaller locations commercially unviable. Technology is conducive for India, considering its demographic structure where the median age is less than 30 years. The young population is tech savvy and at ease with using it to conduct the entire gamut of financial transactions. With increasing smartphone penetration and faster data speeds, consumers are now encouraging digitisation as they find it more convenient. Digitisation will help improve efficiency and optimise cost. Players with better mobile and digital platforms will draw more customers and emerge as winners in the long term.

In August 2020, RBI has announced a new licence for NUE (new umbrella entity) for retail payments. These NUEs will innovate and compete with NPCI in setting up and managing new payment systems in the retail space.

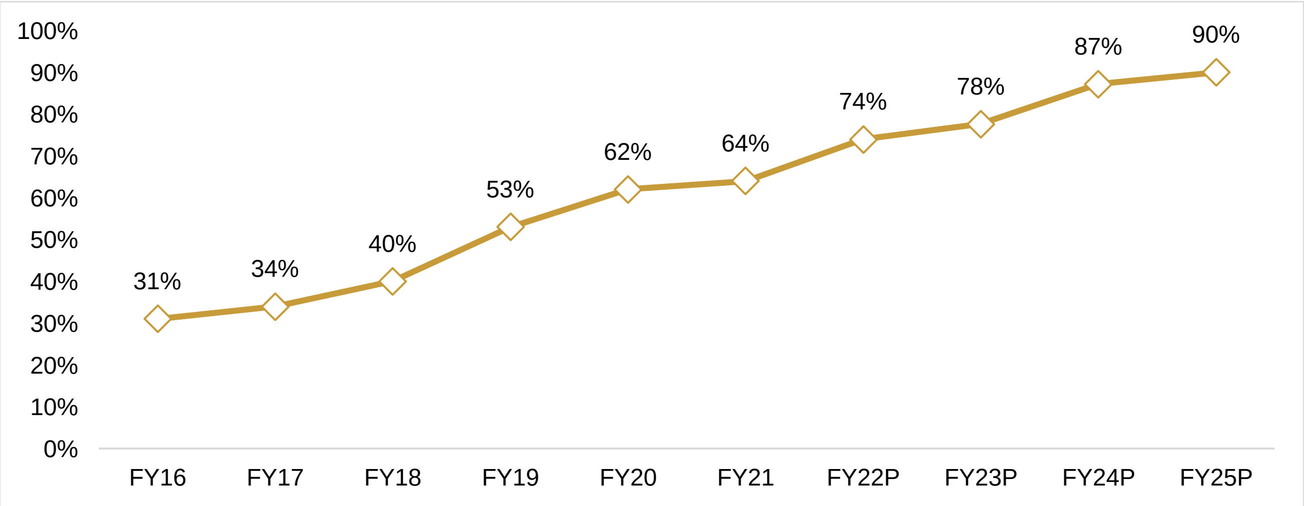
Mobile and internet penetration: Higher mobile penetration, improved connectivity and faster and cheaper data speed, supported by Aadhaar and bank account penetration have led India to shift from being a cash-dominated economy to a digital one.

Data-savvy and younger users to drive adoption of smartphones



Note: P: Projected
Source: CRISIL Research

Data subscribers as a proportion of wireless subscribers to increase significantly through FY25



Note: E: Estimated, P: Projected
Source: Telecom Regulatory Authority of India (TRAI), CRISIL Research

Rise in 4G penetration and smartphone usage

The digital revolution has paved the way for digital payments. India had 1,181 million wireless subscribers as of March 31, 2021, and the number is growing at a steady pace every year. The reach of mobile network, internet and electricity is also expanding the digital payments footprint to remote areas. This is likely to increase the number of digital payment transactions.

All-India mobile and data subscriber base

	FY16	FY17	FY18	FY19	FY20	FY21P	FY22P	FY23P	FY24P	FY25P
Wireless subscribers (million)	1034	1170	1183	1162	1157	1181	1178	1191	1195	1203
Data subscribers (million)	322	401	473	615	720	756	*860*	*925*	*1042*	*1077*
Data subscribers as a proportion of wireless subscribers	31%	34%	40%	53%	62%	64%	74%	78%	87%	90%
4G data subscribers (million)	8	131	287	478	645	719	842	901	1022	1070
4G data subscribers proportion	2%	33%	61%	78%	90%	95%	98%	97%	98%	99%

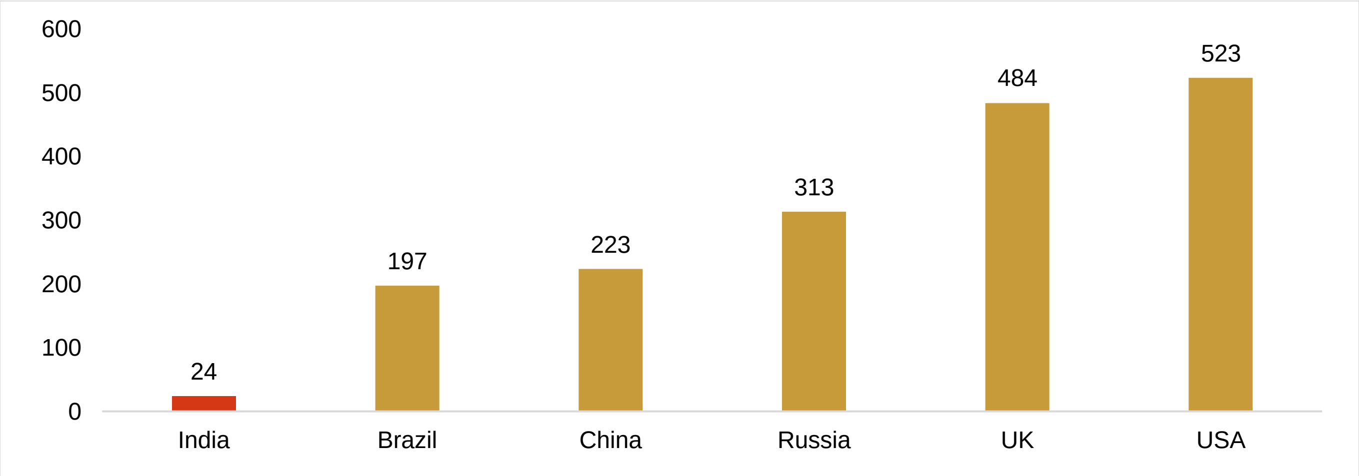
Note: E: Estimated, P: Projected

Source: TRAI, CRISIL Research

Mobile data consumption in India has grown ~25 times in the past five fiscals at a CAGR of ~90%. The proportion of data subscribers is hence expected to rise to ~90% in fiscal 2025 from ~62% at FY 20. India's 4G data rates is at the lower end in the world. So, a combination of affordable handsets, growing consumer preference for data on the go and affordable data tariffs are set to accelerate the adoption of wireless internet in India, leading to a 4G data subscriber proportion at ~100%.

According to Bank of International Settlements, digital payments and per capita transactions in India is low as compared with similar countries. The government has taken multiple initiatives to give a boost to digitalisation in the country. This includes biometric identification of all Indian citizens through the Aadhaar programme, financial inclusion through the 'Jan Dhan Yojana', launch of Aadhaar-enabled payment systems, and push to online tax filings. UPI, which is based on the immediate payment service or IMPS platform, allows a user to transfer money from one bank account to another bank account instantly, and is seen as the next big leap in digital payments. Recent initiatives aimed at addressing the structural issues around lending requirement including GST filings, government launched UPI 2.0.

Number of non-cash payments transactions per capita, per annum (CY 2019)



Source: Bank of International Settlements, CRISIL Research

Consumers are increasingly finding transacting through mobile convenient. CRISIL Research expects the share of mobile banking and prepaid payment instruments to increase dramatically over the coming years. In addition, CRISIL Research expects improved data connectivity, low digital payment penetration and proactive government measures to drive digitalisation in the country, transforming it into a cashless economy.

Government initiatives that have driven digital payments in India

The payments space has seen rapid innovation in the past few years, led by government and regulatory initiatives and changing consumer preferences. JAM (Jan Dhan, Aadhaar and Mobile), demonetisation of high-value currency notes in November 2016, implementation of GST and unveiling of the Unified Payments Interface, or UPI, are some of the notable regulatory initiatives that have spurred growth in the space.

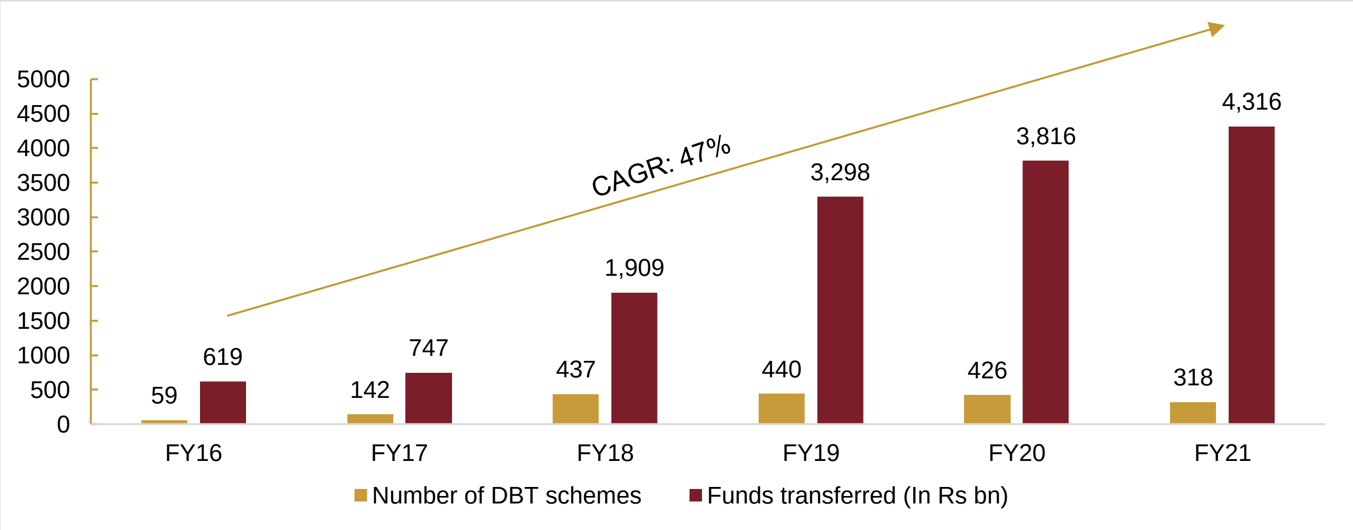
The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. “Faceless, Paperless, Cashless” is one of professed aims of Digital India. Promotion of digital payments has been accorded highest priority by the Government of India to bring each and every segment of our country under the formal fold of digital payment services. The Vision is to provide facility of seamless digital payment to all citizens of India in a convenient, easy, affordable, quick and secured manner.

Aadhaar: Aadhaar, which literally means foundation, is a 12-digit unique identity number issued to Indians based on their biometric and demographic data. It is the world’s largest biometric ID system, with over 1.2 billion enrolled members as of June 19, 2018. Over 99% of the citizens aged 18 and above are now enrolled.

Data collection for Aadhaar is done by the Unique Identification Authority of India under the Ministry of Electronics and Information Technology. Application programming interfaces (APIs) have been developed using Aadhaar to launch payment systems that allow real-time transactions with just a mobile phone.

It also enables the completion of an electronic KYC (know your customer) and the download of digital signatures. With bank accounts, driving licence and mobile phone linked, an Aadhaar card is the most important identification card and has several key benefits.

JAM Trinity - Government on its side introduced JAM Trinity (Jan Dhan, Aadhaar and Mobile) in fiscal 2014 to integrate these infrastructure and digital financial inclusion. With this, the government improved its focus to provide easy access of banking facilities and enhance ability to digitize transactions. This expanded use of digital payments by the government for welfare and served as the biggest launchpad of the ambitious reform of Direct Benefit Transfer (DBT). The government has transferred more than Rs 3.8 trillion in fiscal 2020 through 426 schemes. As of February 2021, total amount transferred through DBT has reached Rs 14.2 trillion.



Source: DBT, CRISIL Research

Demonetisation: On November 8, 2016, the Government of India announced the demonetisation of Rs 500 and Rs 1,000 notes in order to curb black money, corruption, counterfeit currency and terror funding. This has led to increase in transparency, formalisation and digitisation in the country. Customer preference has shifted from cost factors to convenience and ease of performing transactions. Several payment processing firms and FinTech companies leveraged demonetisation to penetrate the market. In an effort to expand their market share and attract customers, many players offered loyalty points, instant cashbacks and referral rewards to their users which further fuelled customer acceptance towards digital modes of payments and transactions.

UPI - A crucial contributor to the Indian digital payments market was the introduction of India's real-time payments platform, Unified Payments Interface (UPI). In 2016, National Payments Corporation of India (NPCI), the country's umbrella organization for payments and the central infrastructure that was created by the Reserve Bank of India (RBI) and Indian Banks Association (IBA), introduced a method called UPI – Unified Payments Interface. This collaborative effort was focused on making India a cashless economy and driving digital payment inclusion.

UPI is a payments system that facilitates instant fund transfer between two bank accounts on a mobile platform, without requiring any detail of the beneficiary's bank account. UPI, which is based on the immediate payment service or IMPS platform, allows a user to transfer money from a bank account to another bank account instantly, making it simpler from a customer perspective. It supports both Peer-to-Peer (P2P) and Peer-to-Merchant (P2M) financial transactions, as well as various other value-added non-financial transactions like real-time balance check and transaction history, to name a few.

Role of RBI – RBI plays a pivotal role in monitoring and supervising the payments system in India. The Payment and Settlement Systems Act, 2007 provides for the regulation and supervision of payment systems in India. The Act empowers RBI to supervise the payment systems in India. Reserve Bank has been continuously setting goals and targets in the form of Payment Systems Vision document, every three years since 2001, presenting the road map for improving the payment systems of our nation. Empowering every Indian with access to a bouquet of e-payment options that is safe, secure, convenient, quick and affordable is Reserve Bank's Payment System's Vision for 2019-2021.

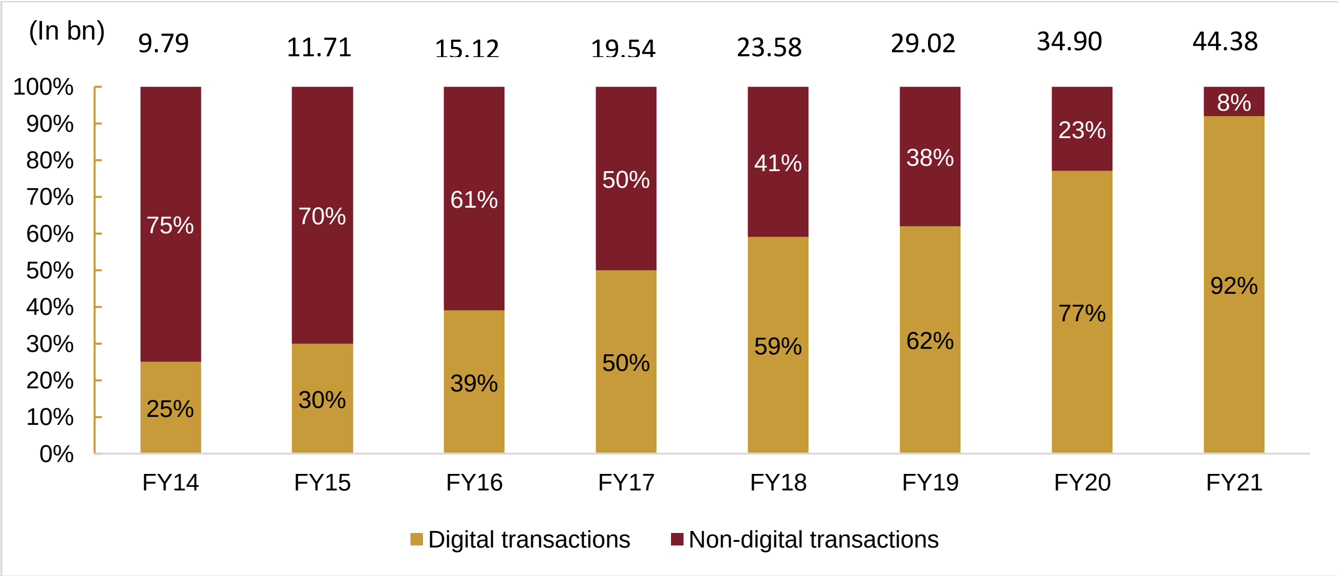
In September 2016, the RBI had proposed setting up of an account aggregator. These account aggregators would provide granular insights into customers' financial assets or their borrowing history with the requisite consent. The four major financial regulators — RBI, Insurance Regulatory and Development Authority (IRDA), Pension Fund Regulatory and Development Authority (PFRDA) and Securities and Exchange Board of India (SEBI) – came together to allow regulated entities under their control to share data with account aggregators after taking user consent. This framework will lead to significant reduction in loan processing time and costs as financial data can be shared digitally.

Role of NPCI - RBI has authorized various Payment System Operators (PSOs) such as NPCI, CCIL, ATM networks, TReDS platform providers, to name a few, to operate payment systems in India. National Payments Corporation of India (NPCI) was established in 2008 by RBI and Indian Banks' Association as an umbrella organization for operating retail payment systems in India. The role of NPCI is to provide infrastructure to the banking system in India for physical and electronic payment systems. NPCI has rolled out a variety of innovative retail payment products viz., IMPS, RuPay card scheme, UPI, NACH, Aadhaar-enabled Payments System (AePS), Aadhaar Payments Bridge System (APBS), NETC, *99# (USSD based) and BBPS. Further, NPCI's alliance with international network partners (Discover Financial Services, Japan Credit Bureau and China Union Pay) has paved the way for international acceptance of RuPay.

Increasing share of digital channels in domestic monetary transactions

The share of different channels in domestic money transfer has changed significantly over the past five years. Banks, for example, are witnessing a change in customer behaviour with fewer customers visiting bank branches for transactions. This change in behaviour was led by demonetisation when cash transactions slowed down, many new accounts were opened and digital banking witnessed a surge in use and continued its growth trajectory. The preference has also shifted from cost factors to convenience and ease of performing transactions, which helps in saving time spent in queues, not disturbing the daily working hours and avoiding any potential monetary loss.

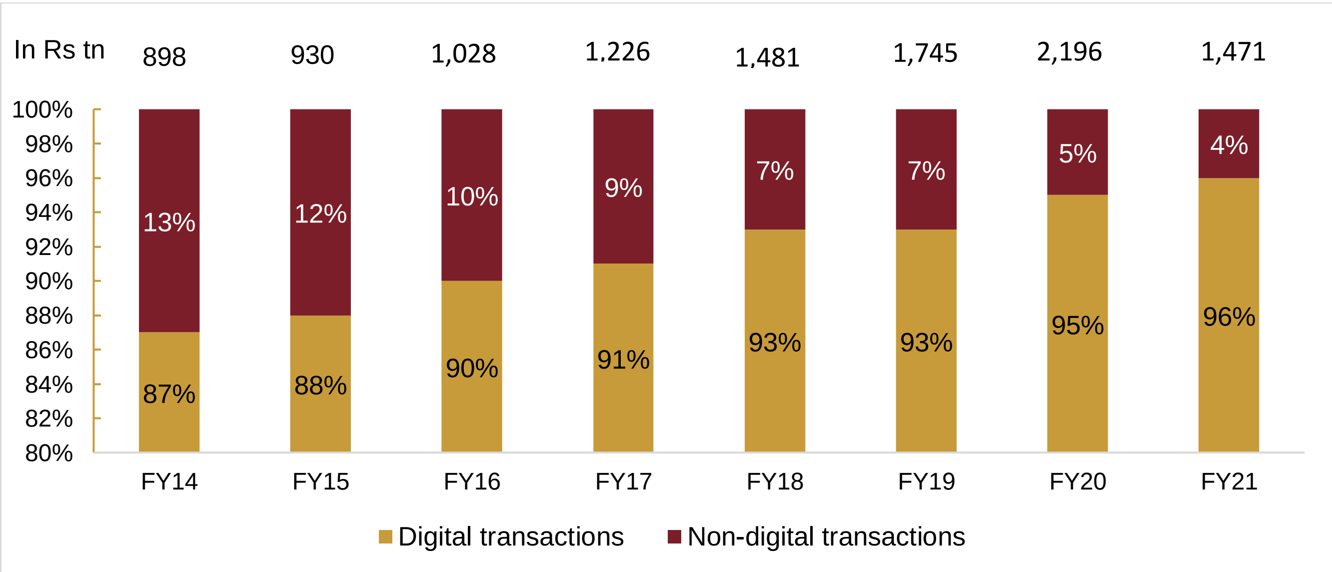
Transactions in volume terms



Note: P: Projected; Digital transactions includes RTGS – excluding interbank clearing, ECS, NEFT, IMPS, NACH, cards and prepaid instruments; Non-digital transactions include cheques/paper clearing and ATM transactions. Amount above each bar indicates volume of transactions in the year.

Source: RBI, CRISIL Research

Transactions in value terms



Note: P: Projected; Digital transactions includes RTGS – excluding interbank clearing, ECS, NEFT, IMPS, NACH, cards and prepaid instruments; Non-digital transactions include cheques/paper clearing and ATM transactions Amount above each bar indicates value of transactions in the year.

Source: RBI, CRISIL Research

Fintech industry in India

Fintechs today are on top of the mind of traditional financial institutions as they watch traditional business models change, and increasingly deliberate whether to collaborate or compete with fintech. The term Fintech is used to describe firms that leverage technology, data, and business insights to provide various financial products and services to customers. The business model of fintech firms differ widely but in almost all cases they use technology to change or support existing way of doing business, and hold the promise of enhancing customer convenience, facilitating access to credit for hitherto unserved or underserved customer segments and/or improving operating efficiency. The emergence of fintech firms has enabled customers create formal records through digital payments or transaction data and thereby improve their access to credit.

Digital payments landscape has the highest number of fintechs in India and now other financial segments like lending, insurance, wealth are also attracting fintechs.

Players using digital medium across different financial segments

Financial segments	Business segments	Examples of such players present in the segment
Payments	Payment banks Payment aggregators P2P Payment solutions Prepaid payment instruments	Fino Payments Bank, Pine labs, PayTM, Razorpay, BillDesk, MSwipe, PayNearby, PhonePe, GooglePay, Mobikwik, PayU
Lending	Digital lenders Intermediaries	LendingKart, Capital Float, Bankbazaar, EarlySalary, LazyPay
Wealth tech	Investment platforms Robo advisors Thematic Investing Discount brokers	Zerodha, Kuvera, FundsIndia, Upstox, Groww, PayTM Money
Insure tech	Digital Insurers Digital insurance advisors	Acko, Digit, Policy Bazaar, VahanCheck, Coverfox
Reg tech	Accounting Tax compliance	Fintellix, FixNix
Open/ Neo banking	Neo banking platforms	Niyo, Open, Jupiter

Digital payments landscape in India is being driven by fintechs along with India's unique digital public infra and embedded offerings. Fintechs are now also expanding beyond their core offerings to increase engagement, the addressable market and to drive monetisation. For example, players like PayTM and PhonePe with core offerings as payments and wallets, respectively, have expanded into e-commerce and investing services. Fintechs, having acquired a substantial user base, are also offering short-term credit and small ticket personal loans in partnership with banks. PayTM, Flipkart and Amazon, for example, provide short-term credit (15-30 days) of Rs 5,000-60,000 for online spends.

In India, growth of fintech has been driven by a confluence of factors:

- **Favourable demographics –** India has a population of close to 500 million Generation Z or Gen Zers– defined as those born after 2001. The most defining aspect of this generation is that they have no idea about what the world was before the internet. In some sense, they are digital natives, and are therefore, more likely to uptake digital products/services, provided that they are relevant to the context in which they operate. Moreover, increasing technology adoption by the millennials (Generation Y), who also form a major proportion of the population, will also drive the growth of technology-oriented platforms and fintechs in India

- **Rising Internet penetration** – The wireless internet subscriber base has grown at a CAGR of 20% from 300 mn in fiscal 2015 to touch 720 mn in fiscal 2020. The wireless internet subscriber base is estimated to be 772 million as of fiscal 2021. CRISIL Research expects over 900 million subscribers to be using the mobile internet by fiscal 2025 due to the ubiquitous availability of high-speed internet services and increasing affordability of services and handsets.

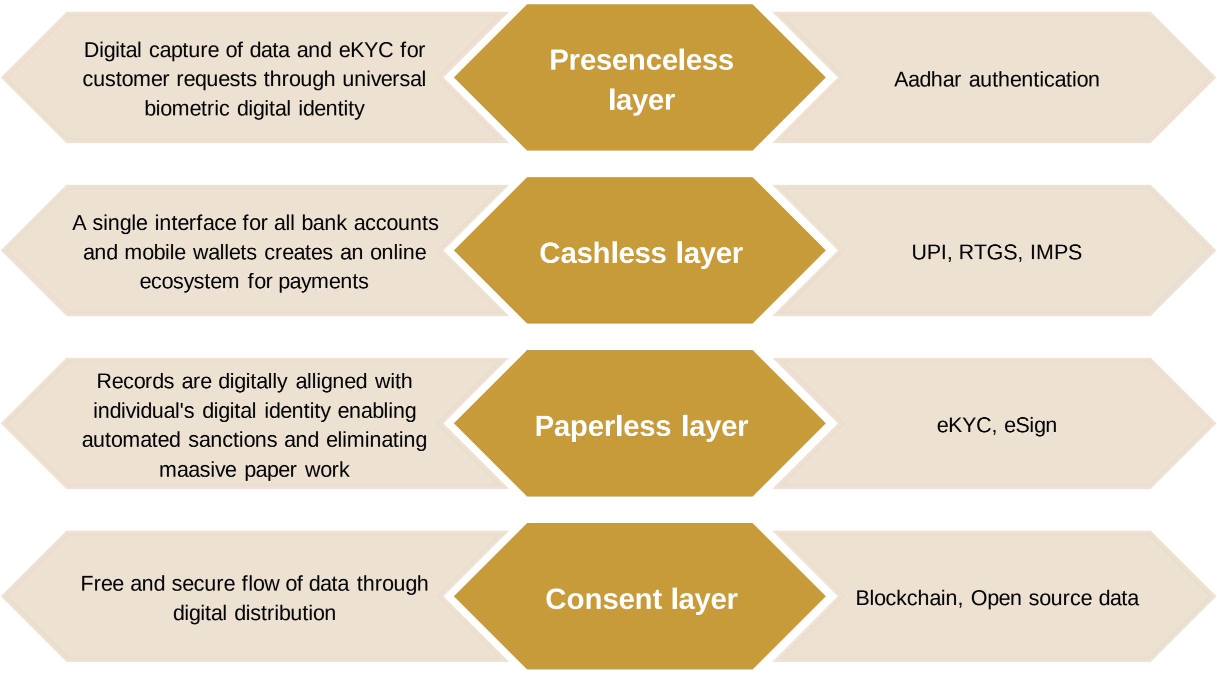
- **Availability of low cost infrastructure –** Payment service providers such as NPCI, Mastercard and Visa and other infrastructure providers such as mobile phone manufacturers and internet service providers have been continuously working towards lowering the cost of digital infrastructure. This has helped support fintech solutions.

- **Changing customer expectations**: With rising incomes and awareness, and development of technology, consumer behaviour and expectations are changing rapidly. Consumers, used to an instant experience, whether for making purchases (through e-commerce websites) or for travelling (through cab hiring firms), are demanding a superior experience from other service providers such as lenders as well – paperless, faster, seamless and convenient. The demographic shift to digitally literate younger consumers and their inclination to constantly look for better deals means customers' propensity to shift has increased, too.

- **Availability of huge amount of data and related intelligence –** Increased use of smartphones coupled with rising internet penetration, use of wearables, telematics, Internet of Things (IoT) and other connected devices is helping players to capture customer data from alternate sources and build social and psychological profiles of customers, thereby enabling accurate and faster decision making. For example, a lot of data on retail customers is being generated whenever they use web search, mobile applications, shop/browse on e-commerce websites, and undertake banking transactions. Using big data analytics, AI and ML, technologies, firms can process the data more efficiently and provide personalized offerings to customers.

- **Key government initiatives** – One of the key initiatives by RBI has been the launch of United Payment Interface (UPI), bringing multiple payments service providers on to a single platform and enabling swift payment. IndiaStack has lowered the cost of consumer on-boarding and transactions significantly.

- IndiaStack provides distinct technology layers:



Source: IndiaStack, CRISIL Research

Government initiatives like JAM (Jan-Dhan, Aadhaar, and Mobile) has enabled government to make Rs 14.2 trillion of direct transfers as of February 2021. Other programs such as Digital India, Start-up India have fuelled the growth of fintechs in India.

Key technologies shaping fintech

Technological developments and continuous progress in the maturity of technologies has helped shape up the fintech market. Application Programming Interface (API) standards, for instance, have enabled different pieces of software from different financial players to interact and exchange data in a secure environment, enabling comparisons and more competition. APIs are the main reason that startups are able to build their products faster.

However, there are challenges as well when it comes to usage of technology. AI, for instance, is dependent on credible and quality data, and therefore, service providers putting in place structured mechanisms for collecting, validating, standardizing and archiving data to make it relevant for AI.

Application of technology by fintech

Cloud

- Offers immense computing power and storage, enabling fintech firms to streamline product offerings according to user demand near real time

Big data and analytics

- Helps companies in gaining insights and predictive analysis based on consumer data and behaviour

Artificial intelligence

- Aides data driven decisions at lower cost to provide innovative experience to customers efficiently

Biometrics

- Enables secure and convenient authentication for KYC, mobile applications and payments

Internet of things (IoT)

- Enables fintech firms to enhance monitoring and risk assessment for services provided to customers

Open source/API

- Transparent and decentralised nature of open source system enables firms to understand challenges and benefits faced by other firms

Blockchain

- Enables companies to explore cost efficient way of operations, assure transparency and quicker & enhanced customer experiences

Machine learning

- Enables easy interpretation of large amount of data of customers through their digital footprints

Robotics

- Helps firms to streamline processes and improve customer experiences

Chatbots

- Chatbots helps in providing an initial layer of customer interaction, bringing in efficiency and higher customer satisfaction

Going forward, India presents a huge opportunity for growth of fintechs owing to high potential in the underpenetrated customer segments. Most fintech firms today target customers who use smartphones and value convenience and timely availability of credit. To attract mid-to-low-income customers and the rural population, there is a need to develop tailor-made solutions and adequate use-cases by overcoming challenges posed by low literacy, lack of trust, low awareness and behavioural factors. Given the improvement in support infrastructure (electricity and internet connectivity and IndiaStack), this segment provides huge potential to grow.

Financial Inclusion

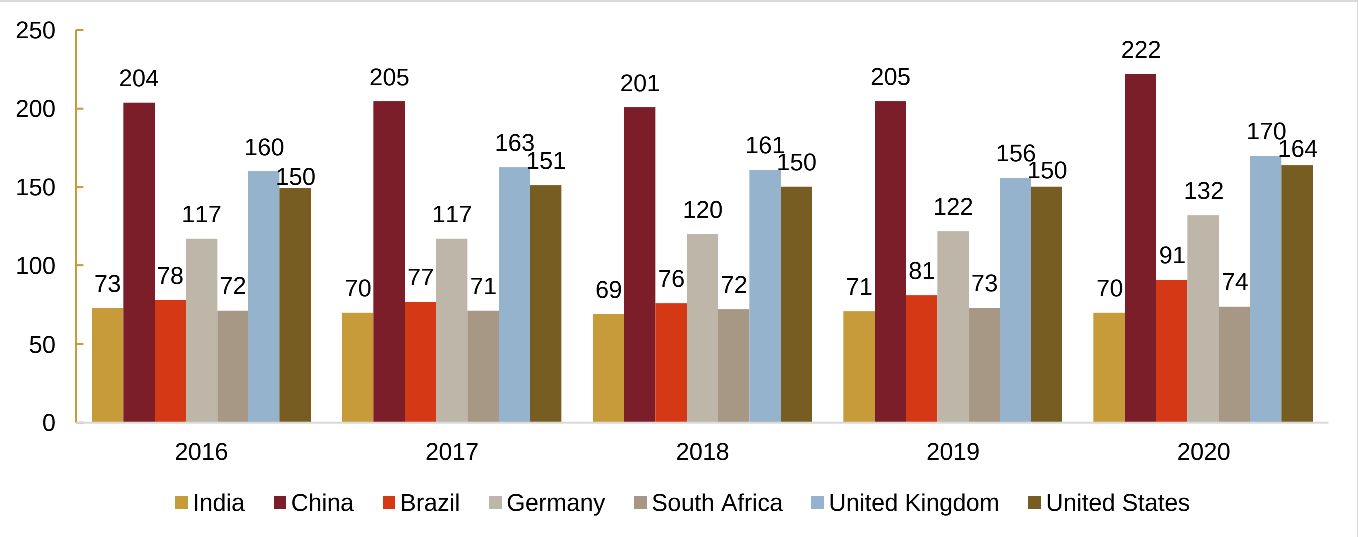
Current scenario and key developments

The COVID-19 pandemic has spread across the world, and India is no exception. The lockdown of nearly 1.3 billion people and a large number of businesses led to disruption and dislocation on a scale never imagined. It slammed the brakes on economic activity and caused enormous human suffering. Nonetheless, with opening of lockdown and businesses restarting, economy is on the path of recovery.

In these unprecedented times, to provide some relief to the customers, the RBI had introduced measures that permits lending institutions to allow a moratorium of six months on repayment of instalments for term loans outstanding as on March 1, 2020. Lending institutions were permitted to defer interest payments on working capital facilities outstanding as on March 1, 2020, by a period of six months which ended on August 31, 2020. However, lending institutions were instructed to provide 10% additional provisioning for on all loans that are overdue but not NPAs (non-performing assets) wherein the moratorium is approved, which could be later adjusted against the provisioning requirements for actual slippage. These measures were required to boost confidence in the economy.

In these times of crisis, financial inclusion as also access to finance becomes more imperative than ever for vulnerable households and businesses to navigate the crises and recover after the pandemic. In terms of the credit to GDP ratio, India has a low credit penetration compared with other developing countries, such as China indicating that the existing gap needs to be bridged. Similarly, in terms of credit to households as a proportion of GDP as well, India lags other markets, with retail credit hovering at around 22% of GDP as of fiscal 2020.

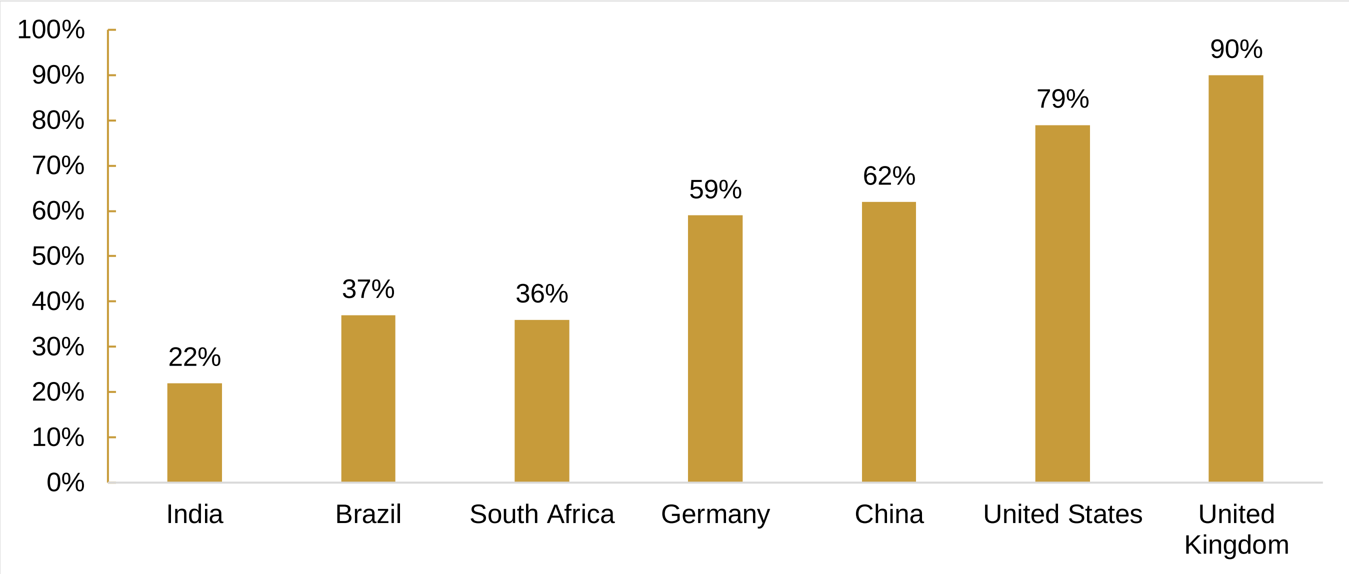
Credit to GDP ratio (%)



Note: Data is represented for calendar years for all countries except India. For India, numbers are for fiscal year

Source: Bank of International Settlements, CRISIL Research

Retail Credit to GDP ratio (2020)



Note: For countries except India, data is represented for calendar years. For India, data represented is for fiscal year 2021.

India's focus on financial inclusion is increasing; however, a large section of the population is still unbanked

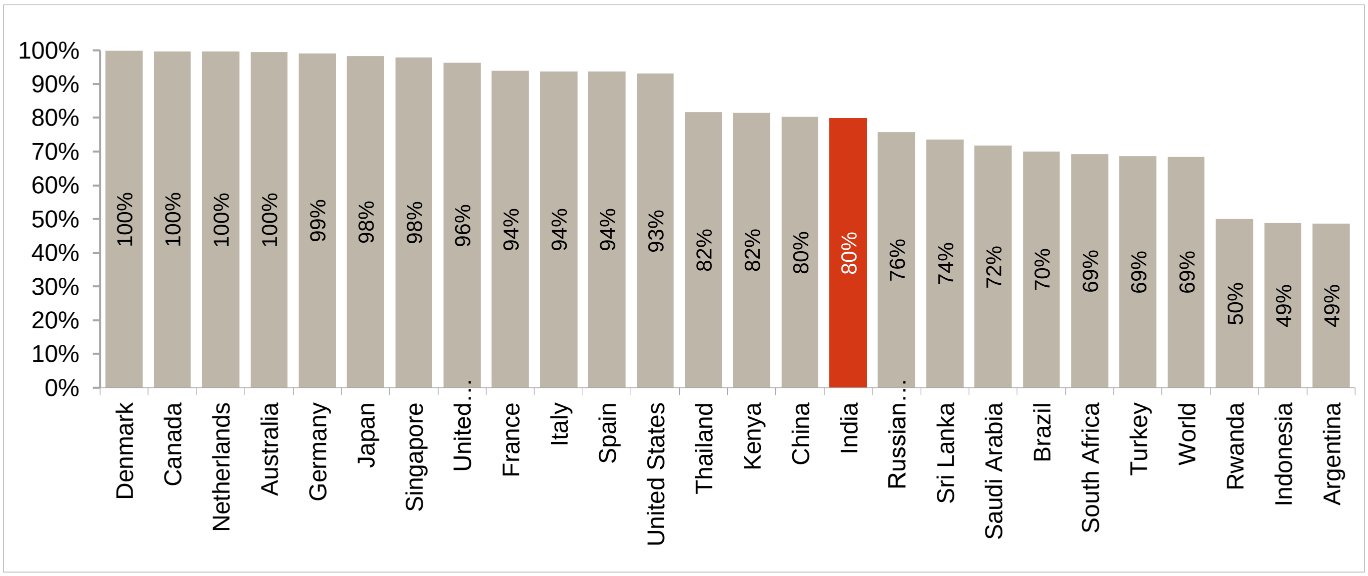
According to the World Bank's Global Findex Database 2017, the global average of adult population with an account (with a bank, financial institution, or mobile money providers) was about 69% in 2017. India's financial inclusion has improved significantly in the past three years, with the adult population with bank accounts rising from 53% (as per Global Findex Database 2014) to 80% (in 2017) with concentrated efforts from the government and the rise of various supporting institutions. Although the rise in the number of bank accounts has not translated into a corresponding increase in the number of transactions and fruitful usage of those accounts.

Financial exclusion is widely prevalent in countries, such as India, due to poverty and low income, financial illiteracy, high transaction costs, and lack of infrastructure (primarily information technology). Consequently, a significant proportion of the population still lacks access to formal banking facilities. According to NABARD All India Rural Financial Inclusion Survey 2016-17, 40% loans were reported as taken from non-institutional investors or informal channels like relative and friends, money lenders and local landlords.

As per the Global Findex Database 2017, ~50% of the world's unbanked adults are in India, Bangladesh, China, Indonesia, Mexico, Nigeria and Pakistan. Of the world's total unbanked adults (about 1.7 billion), 415 million are from just two countries – India (11% or 190 million) and China (13% or 225 million) – because of their huge population.

To tackle financial exclusion, the Indian government introduced the PMJDY, a scheme that facilitates opening bank accounts by the unbanked. However, the effective use of these new accounts, increase in the number of transactions in these accounts and availability of credit remain key challenges, which need to be effectively addressed as borrowings from the formal sources still remains low.

Adult population with a bank account (%): India vis-à-vis other countries

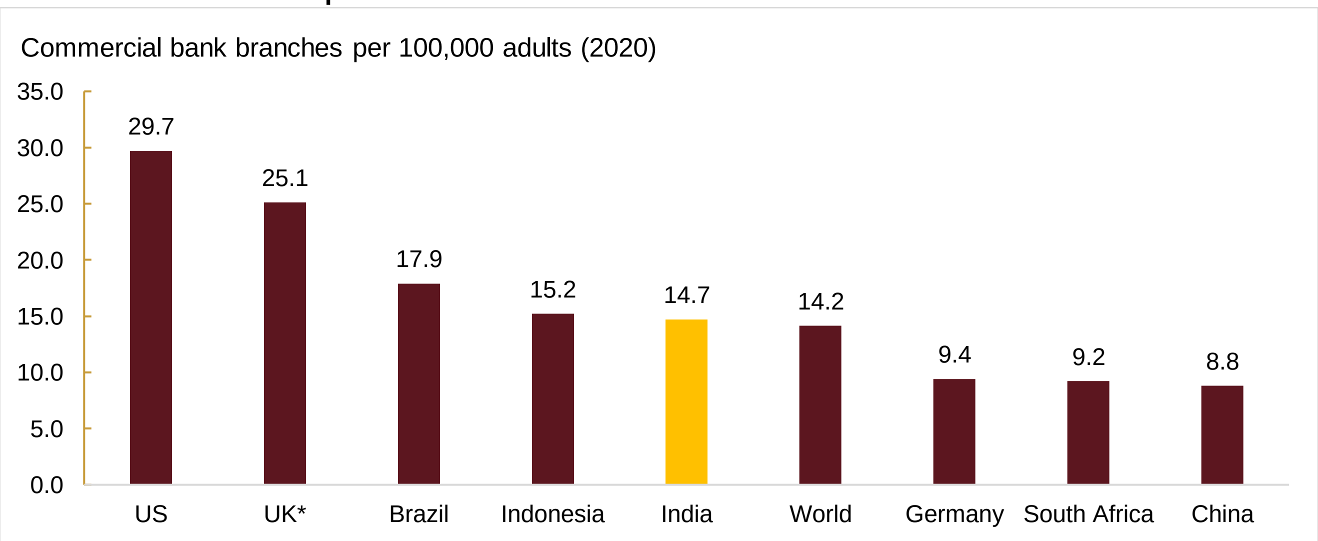


Note: 1. Global Findex data for India excludes northeast states, remote islands and selected districts. 2. Account penetration is for the population within the age group of 15+

Source: World Bank - The Global Findex Database 2017, CRISIL Research

India has lower commercial bank branches and ATM penetration compared to other countries, indicating huge room for financial inclusion and banking services penetration. As of calendar year 2020, India has 14.7 branches and 17 ATMs for 100,000 adults according to World Bank data which is relatively lower than other developing and developed countries.

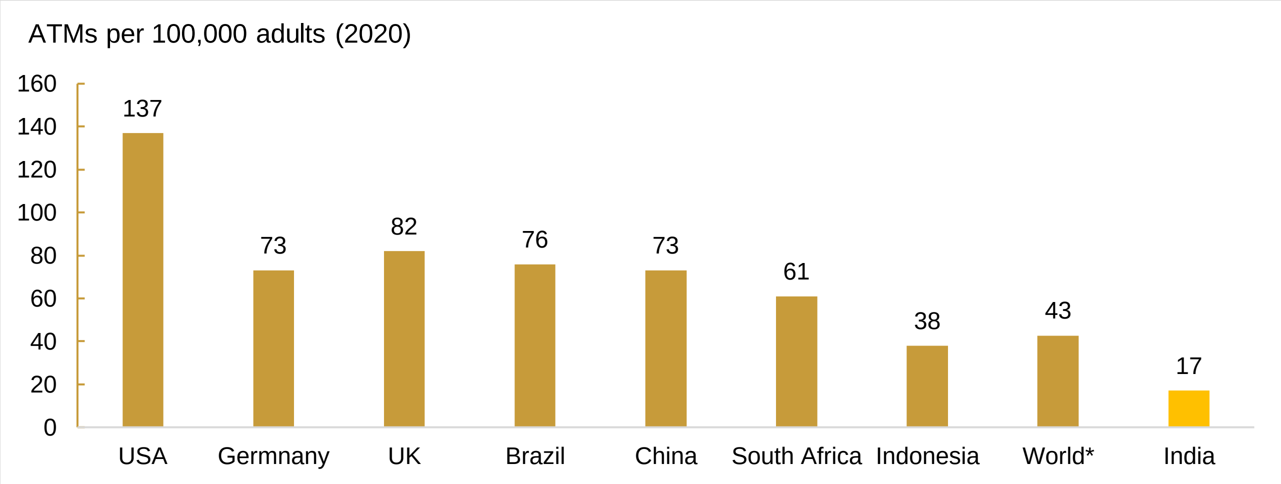
Commercial bank branch penetration across the world



Note: (*) – UK data is as of 2013 calendar year

Source: World Bank, RBI, CRISIL Research

ATM penetration across the world

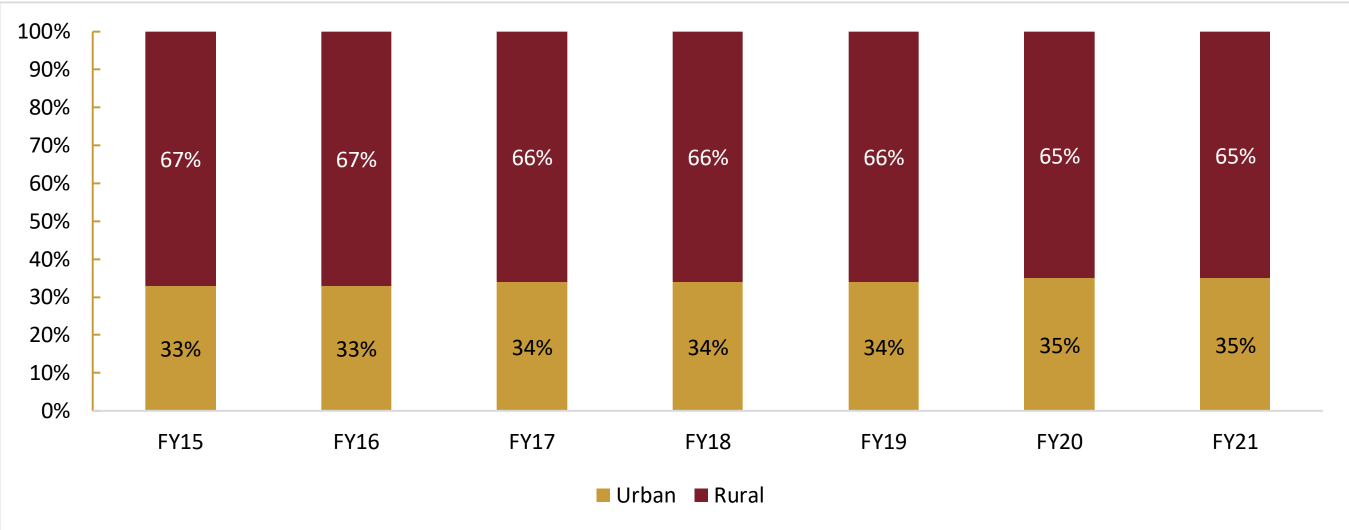


Note: (*) – US data is as of 2009 calendar year

Source: World Bank, RBI, CRISIL Research

The low levels of adults with bank accounts in comparison with various countries can be further explained by the large number of rural households in the country, which account for nearly two-thirds of the total households in the country. The shift in households towards urban regions is taking place albeit at a very slow pace.

Two-thirds of total households are in rural India



Source: World Bank; Census; CRISIL Research

Although the majority of Indian households are located in the rural region, the banking infrastructure in these regions is relatively inferior and, thus, there is a gap in the supply and demand of financial services in the backward regions of the country, which is a pocket of opportunity for the financial services sector.

State wise share of rural population (as per Census 2011)

States	Total population (in thousands)	Rural population (% of total population)	States	Total population (in thousands)	Rural population (% of total population)
Uttar Pradesh	199,812	78%	Chhattisgarh	25,545	77%

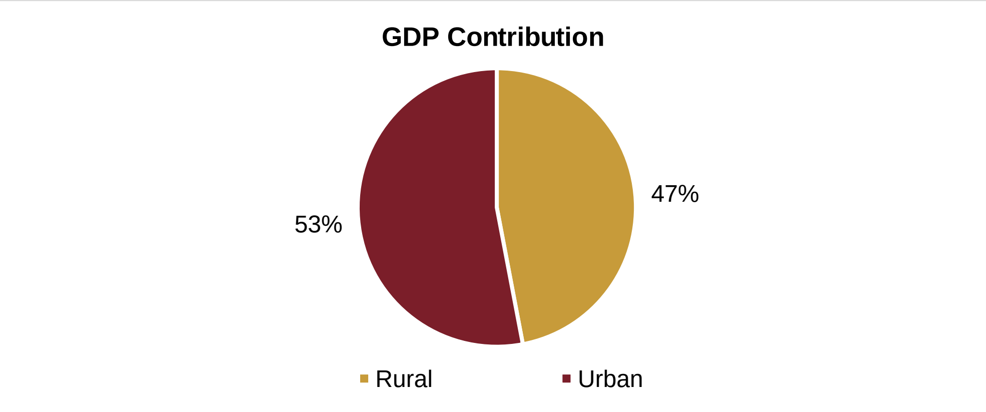
Maharashtra	112,374	55%	Haryana	25,351	65%
Bihar	104,099	89%	Delhi	16,788	2%
West Bengal	91,276	68%	Jammu and Kashmir	12,541	73%
Andhra Pradesh	84,581	67%	Uttarakhand	10,086	70%
Madhya Pradesh	72,627	72%	Himachal Pradesh	6,865	90%
Tamil Nadu	72,147	52%	Tripura	3,674	74%
Rajasthan	68,548	75%	Meghalaya	2,967	80%
Karnataka	61,095	61%	Manipur	2,856	61%
Gujarat	60,440	57%	Nagaland	1,979	71%
Odisha	41,974	83%	Goa	1,459	38%
Kerala	33,406	52%	Arunachal Pradesh	1,384	77%
Jharkhand	32,988	76%	Mizoram	1,097	48%
Assam	31,206	86%	Chandigarh	1,055	3%
Punjab	27,743	63%	Sikkim	611	75%

Source: Census 2011, CRISIL Research

Rural India accounts for about half of GDP, but only about 10% of total credit and 11% of total deposits

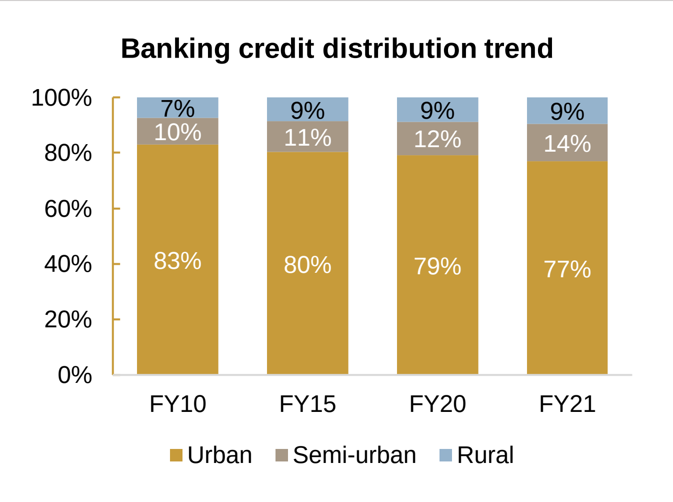
As of March 2020, there were about 640,000 villages in India, inhabited by about 893 million people, comprising about 66% of the country's population. About 47% of India's GDP comes from rural areas. But their share in banking credit and deposits is abysmally low with just 9% of total credit and 11% of total deposits coming from rural areas. The massive divergence in the rural areas' share of India's GDP and banking credit and deposit services compared with urban areas is as an indicator of the extremely low penetration of the banking sector in rural areas.

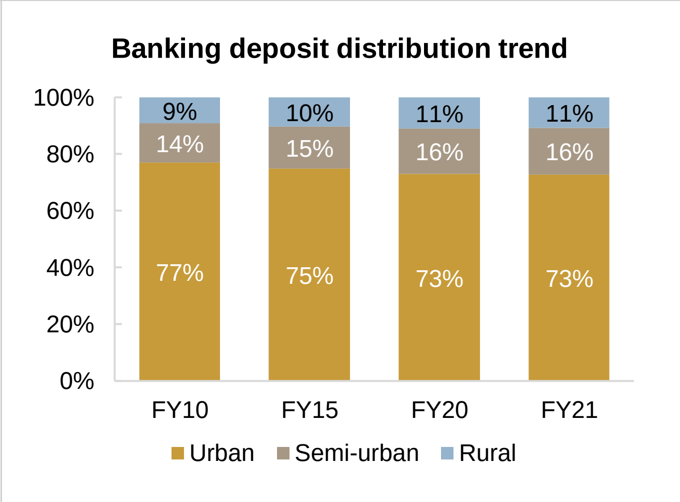
GDP contribution from rural and urban areas



Source: CSO; RBI; CRISIL Research estimates (for GDP contribution as per 2017)

Low share of banking credit and deposit indicates lower penetration in rural areas



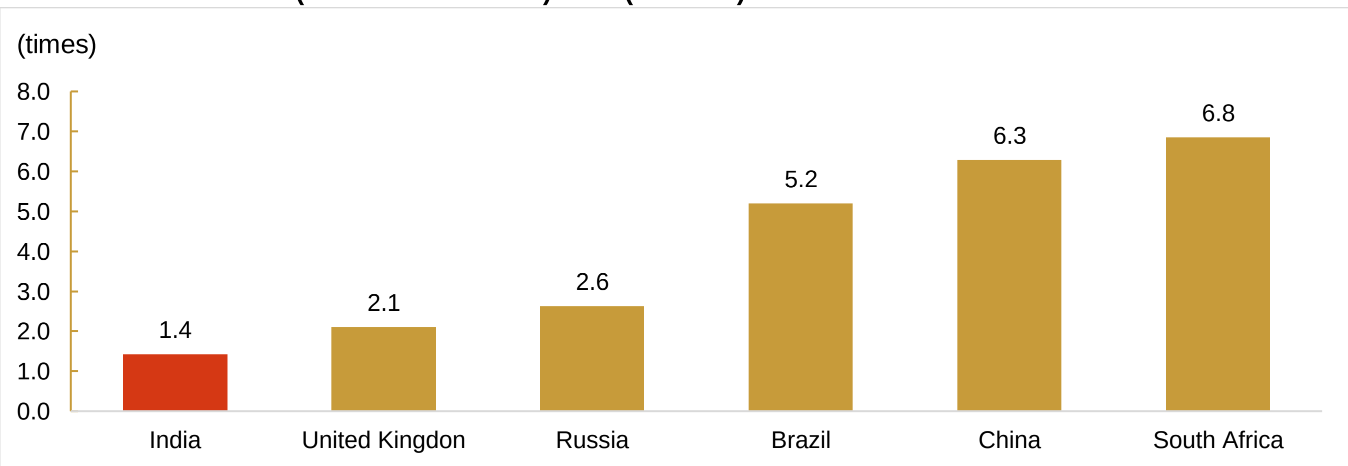


Source: CSO; RBI; CRISIL Research estimates (for GDP contribution as per 2017)

As rural areas in India have lower financial inclusion compared with urban areas and there is less competition for banking services in rural areas compared with urban areas, this presents significant growth opportunities in rural areas.

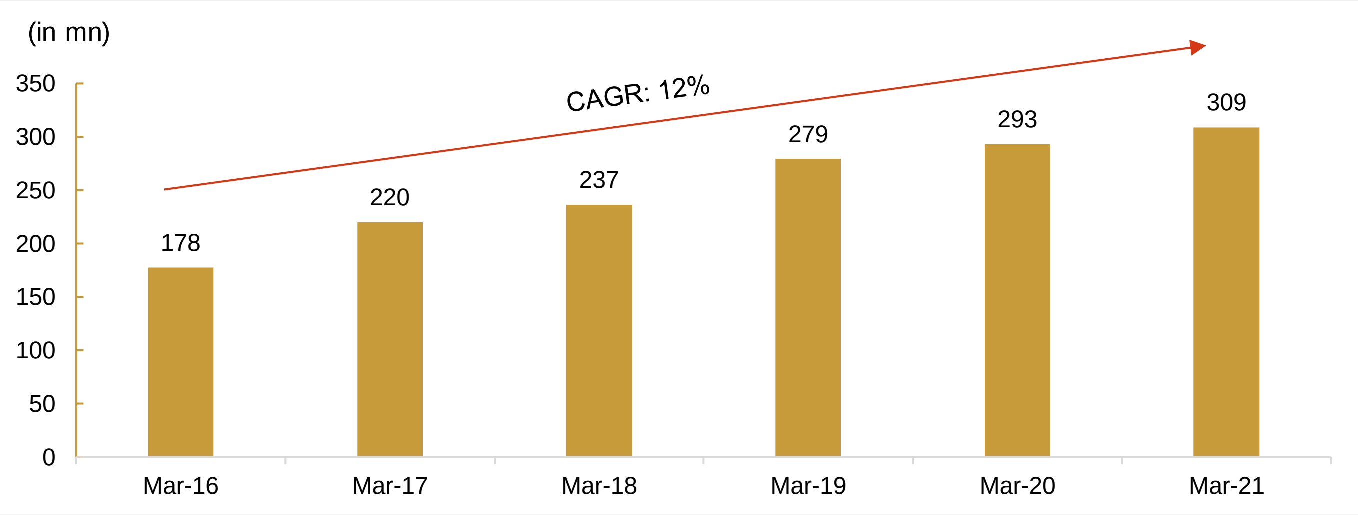
India's ATM withdrawal to Cash-in-circulation ratio lies behind other countries indicating lower debit card penetration is in the country. However, with initiatives like PMJDY focussed towards increasing financial penetration and inclusion, the government has been attempting to change the situation. Under PMJDY, the beneficiaries have been issued RuPay debit cards which has also been a key enabler from rural participation in financial system. As of March 2021, 309 million RuPay debit cards have been issued to 422 million PMJDY beneficiaries. Out of these, 66% of the beneficiaries belong to rural and semi-urban areas.

ATM withdrawal to CIC (Cash in circulation) ratio (CY 2019)



Source: Bank of International Settlements, CRISIL Research

Number of RuPay debit cards issued under PMJDY



Source: PMJDY, CRISIL Research

According to a recent survey done by PRICE (People Research on India's Consumer Economy & Citizen Environment), in partnership with NPCI on Tracking Digital Payments Awareness, Adoption and Use Behaviour of Households, following conclusions were drawn regarding the extent of financial penetration across various groups in India:

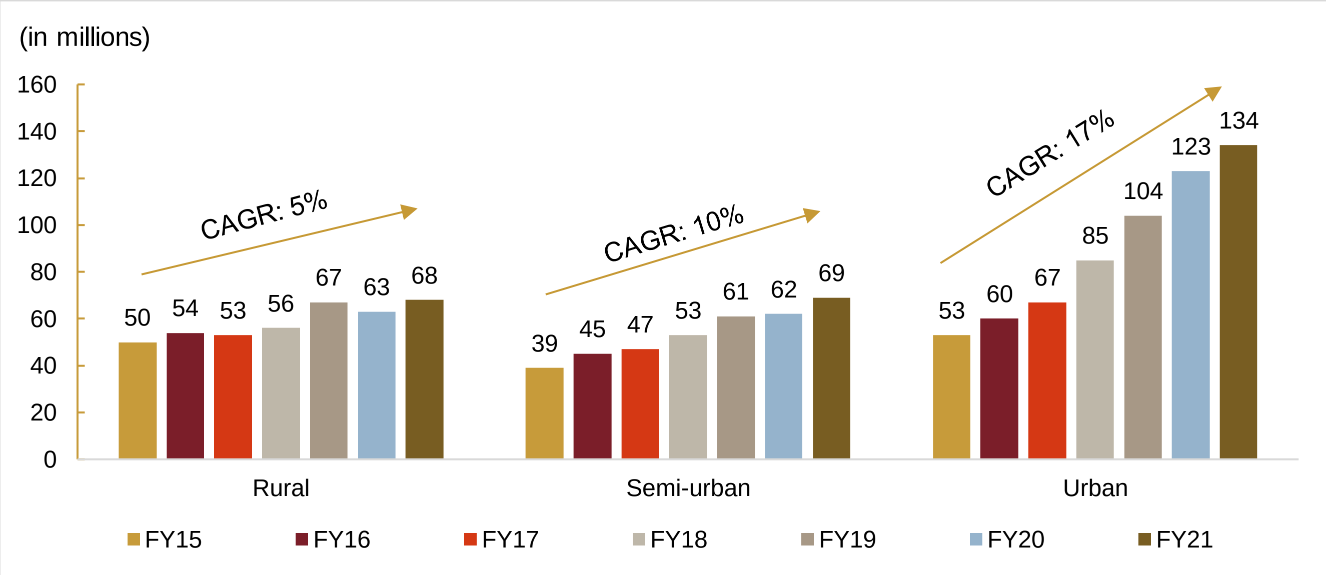
% of households who have	Income groups			Total
	Bottom 40%	Middle 40%	Top 20%	
Bank Account	100%	100%	100%	100%
Get SMS from bank	82%	89%	94%	87%
Showed Aadhaar Card to bank	69%	62%	77%	68%
PSU Bank accounts	85%	73%	66%	78%
Private Bank accounts	7%	12%	13%	10%
Both	7%	15%	22%	13%
Bank Branch < 2 kms from home	53%	54%	53%	53%
ATM < 2 kms from home	58%	59%	67%	60%
Reached by Bank Mitra	54%	56%	62%	56%
Has Debit Card	68%	79%	84%	77%
Uses Debit Card for Cash withdrawal	95%	87%	100%	94%

Note: The households were divided into three groups, the Bottom (40%), Middle (40%) and Top (20%). Bottom 40% had an average household income/ yr of Rs 1,10,000 and 80% of these households lived in rural areas. Middle 40% had average household income/ yr of Rs 1,80,000 and 60% of these households lived in rural areas. Top 20% had average household income/ yr of Rs 3,60,000 and 45% of these households lived in rural areas.

Source: NPCI report titled Digital Payments Adoption in India, 2020

The number of bank credit accounts in rural areas grew at a CAGR of 5% between the end of Fiscal 2015 and the end of Fiscal 2021 and the number of bank deposit accounts grew at a CAGR of 7% between the end of Fiscal 2015 and the end of Fiscal 2021. However, with payments bank increasing their reach and expanding into rural areas and increasing financial awareness, faster growth in rural areas can be expected in the future given the huge untapped potential. Between the end of Fiscal 2015 and the end of Fiscal 2021, the number of credit accounts in semi-urban areas grew at a CAGR of 10% and between the end of Fiscal 2015 and the end of Fiscal 2020, the number of deposit accounts grew at a CAGR of 8%. Between the end of Fiscal 2015 and Fiscal 2021, the number of credit accounts in urban areas grew at a CAGR of 17% and between the end of Fiscal 2015 and the end of Fiscal 2021, the number of deposit accounts grew at a CAGR of 6%.

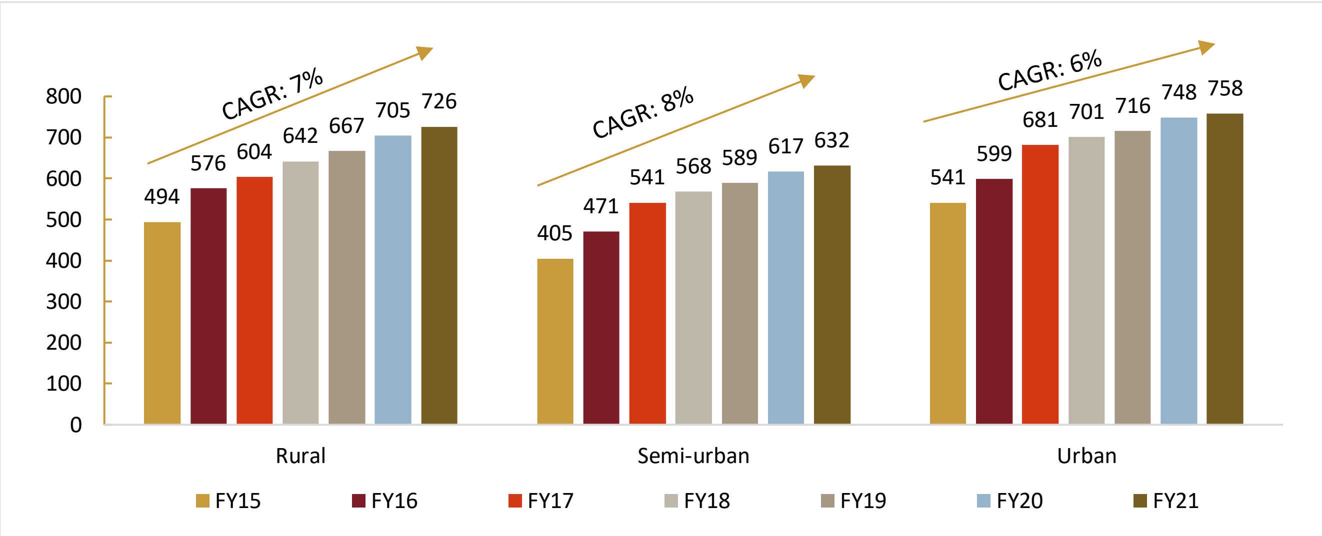
Bank credit accounts in rural, semi-urban and urban areas



Note: Urban includes data for Urban and Metropolitan areas; amounts are as of the end of the fiscal year indicated. Data represents only bank credit accounts

Source: RBI; CRISIL Research

Bank deposit accounts in rural, semi-urban and urban areas (FY21)



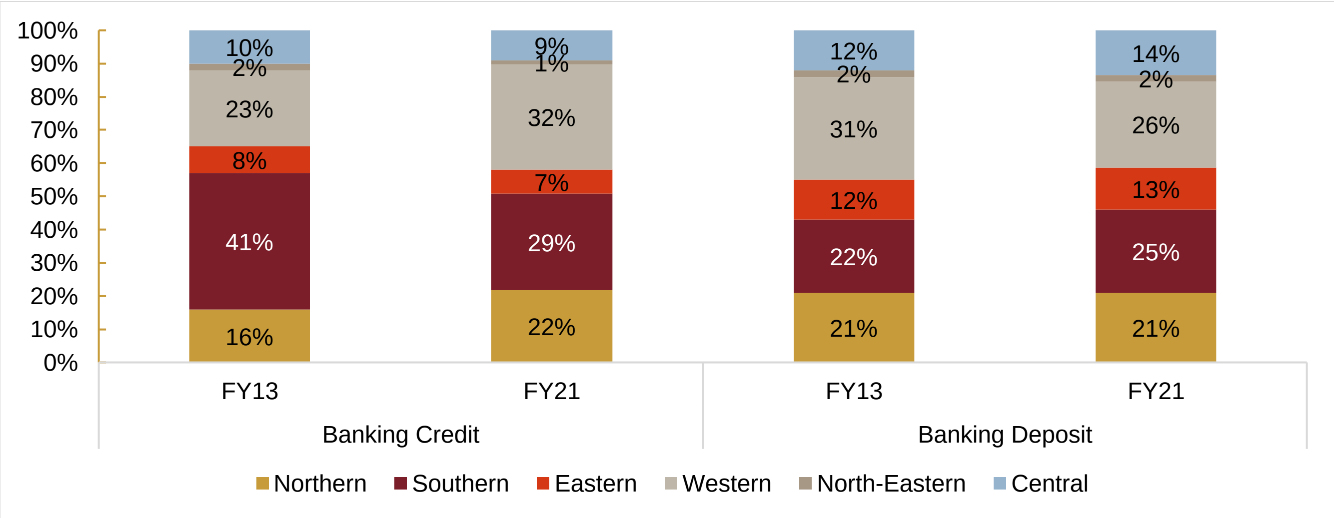
Note: Urban includes data for Urban and Metropolitan areas; amounts are as of the end of the fiscal year indicated. Data represents only bank deposit accounts

Source: RBI; CRISIL Research

Region-wise asymmetry: Central and eastern regions have a lower share in total bank credit and deposits

Bank credit and deposits are predominantly concentrated in the southern and western regions, whereas they have been especially low in the north-eastern and eastern regions. Deposit penetration in the southern region has increased over the past eight fiscal years by 7%.

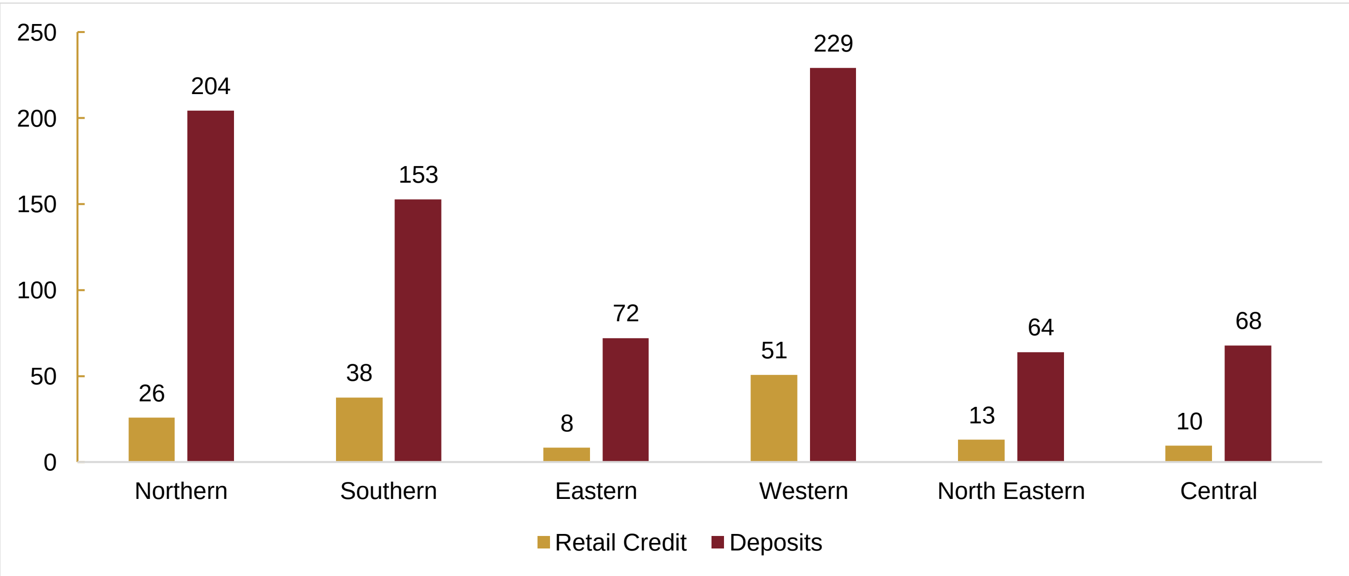
Region-wise share of banking credit and total deposits



Note: The percentages are as of the end of the fiscal year indicated.

Source: RBI; CRISIL Research

Region-wise per capita* banking retail credit and deposits as of the end of FY21 (Rs 000s)



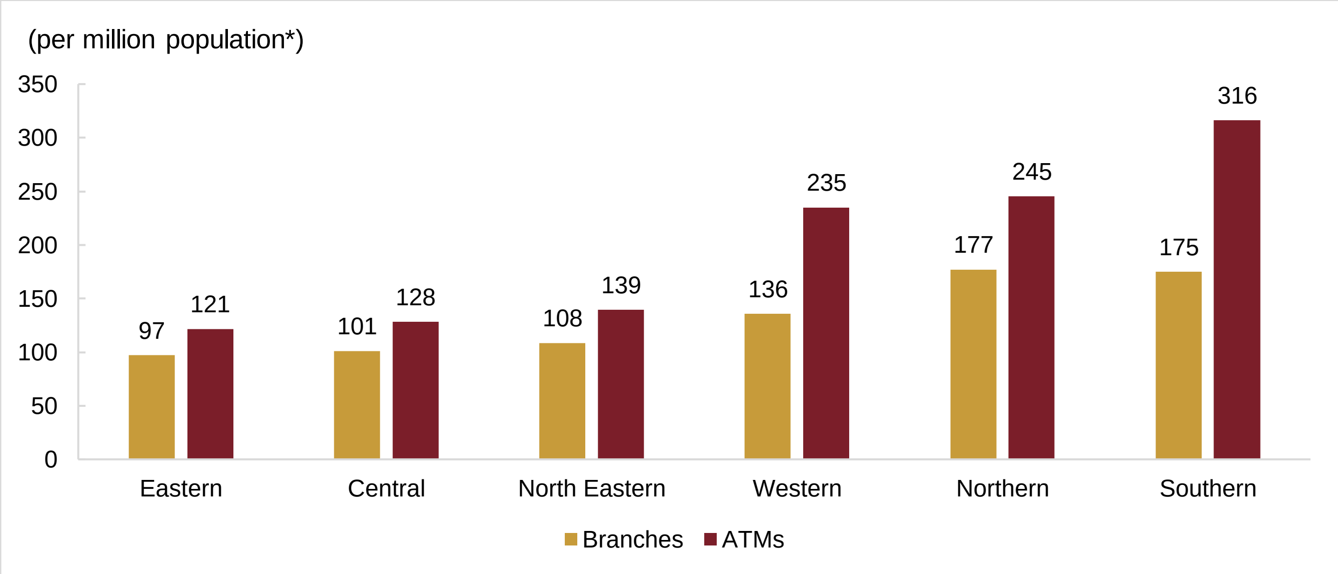
Note: '' population as per the census data of 2011*

Source: RBI; Census India; CRISIL Research

Bank retail credit per capita in the east is the lowest and is nearly five times lower than in the south and west. Low per-capita retail credit as well as deposits in eastern, central, and north-eastern regions compared with other regions implies low penetration of banks in these areas. This provides an opportunity for all lending and deposit accepting institutions to expand in these regions and also expand their reach in specific areas around them. In terms of deposits, the southern region is moderately penetrated compared with the northern and western regions, leaving a lot of headroom for growth for the players to capitalise on.

The number of branches and ATM facilities in the eastern regions, where credit penetration and deposit-base are low is also below those of the southern and western regions, which CRISIL Research believes is largely due to lower focus from the bigger banks.

Region-wise presence of bank ATM and branches (as of March 31, 2021)



Note: '' population is as per the census data of 2011*
Source: RBI; Census India; CRISIL Research

Large variations in deposits and credit outstanding across states and districts

There is a wide variation across states and within various districts in the same state as well in terms of credit, which indicates latent opportunity for providing banking services to unserved or underserved customers. Uttar Pradesh and Bihar are the most populous states in India, accounting for 16% and 9% respectively of overall population in India, as compared to other states like Assam, Jharkhand and Odisha with share of ~3%. Based on bank credit accounts in rural areas, Himachal Pradesh, Odisha, Jharkhand and Bihar have more than 45% of the credit accounts in rural areas compared to Maharashtra, Delhi, Kerala and Mizoram where the share of accounts in rural areas is below 10%. In value terms, bigger states like Maharashtra, Delhi, Kerala and Gujarat have less than 10% of credit outstanding in rural areas compared to Meghalaya, Himachal Pradesh and Jammu & Kashmir with more than 30% of rural credit outstanding.

Maharashtra and Delhi, among the states with high share in overall credit, have more than 70% of total credit outstanding concentrated in the top five districts as of FY21.

State-wise rural credit accounts in banks and top five districts concentration (FY21)

State	No. of districts	% share in overall population in India	Share in overall credit	Credit to Deposit ratio (FY19)	Concentration of credit in top 5 districts	% of credit in rural areas	Concentration of credit accounts in top 5 districts*	% credit accounts in rural areas
Maharashtra	99	9%	29%	95%	90%	2%	73%	8%
Delhi	4	1%	13%	94%	100%	0%	100%	0%
Tamil Nadu	88	6%	10%	102%	62%	11%	44%	26%
Karnataka	83	5%	7%	61%	74%	8%	44%	28%
Gujarat	92	5%	6%	69%	72%	6%	51%	17%
Uttar Pradesh	207	16%	5%	41%	37%	17%	18%	36%
Andhra Pradesh	62	8%	4%	129%	64%	15%	45%	30%
West Bengal	40	7%	4%	46%	73%	13%	46%	45%
Kerala	37	3%	4%	62%	66%	2%	52%	4%
Rajasthan	90	6%	3%	77%	53%	14%	39%	32%
Madhya Pradesh	135	6%	3%	67%	54%	11%	33%	26%
Haryana	62	2%	3%	52%	62%	9%	43%	20%
Punjab	60	2%	2%	54%	60%	21%	47%	29%
Bihar	99	9%	1%	39%	46%	22%	36%	46%
Odisha	69	3%	1%	39%	60%	20%	47%	50%
Chhattisgarh	64	2%	1%	62%	73%	8%	47%	21%
Assam	69	3%	1%	47%	50%	25%	35%	46%
Jharkhand	56	3%	1%	30%	67%	17%	53%	46%
Jammu and Kashmir	43	1%	1%	31%	60%	34%	50%	50%
Uttarakhand	28	1%	1%	35%	89%	21%	81%	31%
Himachal Pradesh	22	1%	0%	31%	74%	57%	67%	69%
Goa	4	0%	0%	24%	100%	16%	100%	30%
Tripura	16	0%	0%	41%	87%	28%	83%	35%
Meghalaya	20	0%	0%	37%	93%	30%	88%	42%
Manipur	25	0%	0%	56%	83%	28%	79%	29%
Nagaland	21	0%	0%	39%	87%	21%	82%	25%
Arunachal Pradesh	30	0%	0%	24%	74%	25%	65%	31%
Sikkim	20	0%	0%	34%	100%	28%	81%	39%
Mizoram	7	0%	0%	43%	85%	7%	100%	7%

Note: Arranged in descending order of share in overall credit outstanding of banks, (*) As of FY20

Source: RBI, CRISIL Research

Similarly in terms of bank deposits, Odisha, Jharkhand, Assam, Himachal Pradesh, Sikkim and Meghalaya have more than 50% of the deposit accounts in rural areas compared to Maharashtra, Delhi and Kerala where the share of accounts in rural areas is below 20%. In value terms, Maharashtra, Delhi, Kerala, Karnataka, Tamil Nadu and Haryana have less than 10% of deposits in rural areas compared to Sikkim, Tripura, Meghalaya, Arunachal Pradesh, Himachal Pradesh and Jammu & Kashmir with more than 25% of rural deposits.

Maharashtra and Karnataka, among the bigger states have more than 75% of total deposits concentrated in the top five districts as of FY21.

State-wise rural deposit accounts in banks and top five districts concentration (FY21)

State	No. of districts	% share in overall population in India	% Share in overall deposits	Concentration of deposits in top 5 districts	% of deposits in rural areas	Concentration of deposit accounts in top 5 districts*	% deposit accounts in rural areas*
Maharashtra	35	9%	21%	85%	3%	52%	18%
Delhi	11	1%	10%	100%	1%	61%	2%
Uttar Pradesh	74	16%	9%	39%	20%	15%	46%
Karnataka	29	5%	8%	79%	7%	44%	30%
Tamil Nadu	32	6%	7%	66%	9%	35%	24%
West Bengal	23	8%	6%	69%	17%	38%	47%
Gujarat	46	7%	6%	61%	11%	42%	26%
Kerala	33	5%	4%	63%	3%	46%	4%
Haryana	14	3%	4%	67%	9%	39%	25%
Rajasthan	22	2%	3%	54%	15%	34%	37%
Punjab	32	6%	3%	56%	21%	46%	32%
Madhya Pradesh	22	2%	3%	51%	12%	23%	32%
Bihar	52	6%	3%	48%	23%	27%	48%
Odisha	38	9%	3%	57%	24%	33%	56%
Andhra Pradesh	30	3%	2%	62%	16%	32%	30%
Jharkhand	24	3%	2%	69%	18%	40%	52%
Chhattisgarh	33	3%	1%	64%	18%	37%	45%
Assam	28	2%	1%	59%	22%	27%	53%
Uttarakhand	13	1%	1%	85%	23%	71%	44%
Jammu and Kashmir	20	1%	1%	68%	28%	50%	50%
Himachal Pradesh	10	1%	1%	73%	61%	67%	74%
Goa	2	0%	1%	100%	23%	100%	34%
Tripura	8	0%	0%	91%	28%	81%	47%
Meghalaya	10	0%	0%	92%	26%	77%	54%
Arunachal Pradesh	13	0%	0%	77%	26%	66%	40%
Nagaland	7	0%	0%	95%	10%	94%	23%
Manipur	10	0%	0%	89%	25%	78%	38%
Mizoram	4	0%	0%	89%	13%	82%	30%
Sikkim	11	0%	0%	100%	28%	100%	51%

Note: Arranged in descending order of share in overall deposits. (*) Data as of FY20

Source: RBI, CRISIL Research

States with low financial penetration present a strong case for growth

Uttar Pradesh, Bihar & Madhya Pradesh has a strong potential for growth in the coming years

GDP growth has been varied across states with Karnataka growing at the fastest rate of 9.9% CAGR (FY 2015-FY 2020), followed by Haryana (9.1%), Gujarat (8.7%) and Andhra Pradesh (8.6%). In the South, states like Andhra Pradesh, Karnataka and Tamil Nadu have huge headroom for growth given the credit penetration and economic growth. Similarly, In the West, states like Maharashtra, Gujarat have showcased good growth in terms of GDP and Gujarat has a relatively lower credit penetration, which provides a huge potential to be addressed.

Uttar Pradesh and Bihar have the lowest credit account penetration among all other states in the country. These states also exhibit lower CRISIL Inclusix score indicating low financial inclusion. With lower financial penetration, these states present huge untapped market and potential for growth in future, as their GDP gradually increases.

State-wise GDP and GDP growth (FY 2021)

States	Real GDP (FY 2020) Rs. Billion	YOY growth	Real GDP growth CAGR (FY 2015-FY 2020)	Credit account penetration	Deposit account penetration^	Branch penetration	ATM penetration	CRISIL Inclusix Score (2016)
Maharashtra*	20391	6.0%	6.6%	32%	164%	108	211	62.7
Tamil Nadu	13129	8.0%	8.0%	14%	182%	147	331	77.2
Karnataka	12010	6.8%	9.9%	9%	190%	157	259	82.1
Uttar Pradesh	11873	4.4%	7.3%	2%	175%	80	96	44.1
Gujarat*	11864	9.2%	8.7%	7%	149%	126	175	62.4
West Bengal	7932	7.3%	6.7%	3%	146%	90	120	53.7
Rajasthan	7116	5.0%	6.4%	4%	123%	101	137	50.9
Andhra Pradesh	6720	8.2%	8.6%	9%	167%	137	231	78.4
Delhi	6344	7.4%	8.2%	25%	277%	197	422	86.1
Haryana	5722	7.7%	9.1%	10%	187%	180	237	67.7
Madhya Pradesh	5618	7.6%	7.9%	4%	133%	89	128	48.7
Kerala*	5594	7.5%	6.7%	11%	200%	180	267	90.9
Punjab	4189	5.3%	6.1%	9%	196%	212	232	70.9
Bihar	4150	10.5%	8.2%	1%	114%	65	71	38.5
Odisha	4024	5.3%	8.3%	4%	137%	113	157	63
Chhattisgarh	2435	5.3%	5.6%	4%	140%	99	129	45.7
Jharkhand	2400	6.7%	5.2%	3%	127%	86	97	48.2
Assam*	2340	6.4%	8.1%	3%	124%	86	117	47.9
Uttarakhand*	1933	6.9%	7.3%	5%	123%	193	239	69
Himachal Pradesh	1244	5.6%	6.9%	5%	180%	217	242	72.3
Jammu & Kashmir*	1128	6.1%	7.3%	8%	151%	125	182	47.8
Tripura	405	9.6%	8.5%	3%	133%	139	123	66.2
Meghalaya	267	8.2%	5.8%	4%	88%	111	121	34.6

Note: 1. (*) – As of FY 2019, (^) – As of FY 2020
2. Credit account penetration is calculated as total number of retail bank credit accounts/population of the state
3. Deposit account penetration is calculated as total number of bank deposit accounts/ population of the state
4. Branch penetration is calculated as Number of bank branches per million people
5. ATM penetration is calculated as Number of ATMs per million people
6. For Credit and Deposit account penetration, this does not represent unique borrowers or depositors, total number of accounts have been considered
7. Andhra Pradesh and Telangana have been considered as one state

8. CRISIL Inclusix, India's first financial inclusion index, was launched in 2013 with the objective of creating a dependable yardstick that would become a policy input to further the cause of inclusion. CRISIL Inclusix weighs three service providers (banks, insurers and microfinance institutions) on four dimensions (branch, credit, deposit and insurance).

Source: RBI, MOSPI, CRISIL Research

CRISIL Inclusix, an index that measures the extent of financial inclusion at a geographical level across all districts in India, reported a score of 58.0 at the end of fiscal 2016 from 50.1 in fiscal 2013 and 35.4 in fiscal 2009. The index score each district in India on a scale of 0 to 100 with 0 being the worst and 100 being the best. The overall improvement of the score in fiscal 2016 was mostly driven by JAM trinity: Jan Dhan Yojana, Aadhaar and mobile.

Kerala had the highest CRISIL Inclusix score as of 2016 with only 1 district having a score less than 70. Goa, Karnataka, Andhra Pradesh are other states with higher Inclusix scores and no districts having a score below 50.

States such as Uttar Pradesh and Bihar, on the other hand, have an Inclusix score below 45, with a large majority of districts – 50% in case of Uttar Pradesh and 65% for Bihar – having Inclusix scores below 40.North-eastern states like Manipur, Nagaland and Meghalaya have the lowest Inclusix scores with hardly any district having a score more than 50.

State	CRISIL Inclusix Score (2016)	Number of districts with CRISIL Inclusix score in the stated range					
		More than 70	60-70	50-60	40-50	Less than 40	Total number of districts
Kerala	90.9	13	1	0	0	0	14
Goa	88.9	2	0	0	0	0	2
Puducherry	87.7	3	1	0	0	0	4
Chandigarh	86.7	1	0	0	0	0	1
Delhi	86.1	1	0	0	0	0	1
Karnataka	82.1	20	5	5	0	0	30
Andhra Pradesh	78.4	10	3	0	0	0	13
Tamil Nadu	77.2	22	8	2	0	0	32
Telangana	72.8	7	3	0	0	0	10
Himachal Pradesh	72.3	9	2	1	0	0	12
Punjab	70.9	9	10	1	2	0	22
Uttarakhand	69.0	3	7	3	0	0	13
Haryana	67.7	7	10	1	2	1	21
Tripura	66.2	2	1	0	5	0	8
Andaman & Nicobar	63.9	1	0	0	0	2	3
Odisha	63.0	6	7	8	7	2	30
Maharashtra	62.7	9	6	8	11	2	36
Gujarat	62.4	10	5	4	7	7	33
Daman and Diu	60.7	0	1	1	0	0	2
Dadra and Nagar Haveli	60.2	0	1	0	0	0	1
Sikkim	60.2	1	0	0	2	1	4
West Bengal	53.7	2	4	5	6	3	20
Lakshadweep	51.3	0	0	1	0	0	1
Rajasthan	50.9	2	3	10	10	8	33
Madhya Pradesh	48.7	3	3	12	15	18	51
Jharkhand	48.2	2	3	2	5	12	24
Assam	47.9	2	4	3	8	10	27
Jammu & Kashmir	47.8	1	2	3	7	9	22
Chhattisgarh	45.7	2	0	5	5	15	27
Uttar Pradesh	44.1	4	4	5	25	37	75
Mizoram	43.2	0	0	1	1	6	8
Bihar	38.5	1	0	0	12	25	38
Arunachal Pradesh	34.7	1	0	2	0	14	17
Meghalaya	34.6	0	0	1	0	10	11
Nagaland	32.4	0	1	0	2	8	11
Manipur	32.0	0	1	0	0	8	9
Total	58.0	156	96	84	132	198	666

Source: CRISIL Inclusix, CRISIL Research

Key steps taken by the government to boost financial inclusion

To improve financial inclusion, especially in rural areas, the government is focusing on improving the overall and rural infrastructure for penetration of financial services as well as empowering the development of parallel supporting institutions. This has provided an opportunity for payment banks and other financial institutions to cater to the unserved population or act as a channel between the larger financial institutions and other service providers to better serve the underserved customers.

Considerable progress has been made over the past 5-7 years to bring unbanked individuals into the formal banking system. The RBI and the government have taken several measures, such as:

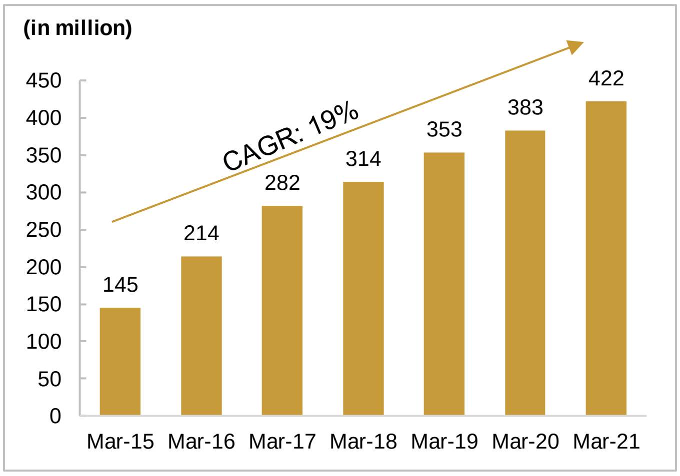
Pradhan Mantri Jan Dhan Yojana

Pradhan Mantri Jan Dhan Yojana (PMJDY), launched in August 2014, is aimed at ensuring affordable access to financial services – banking/savings and deposit accounts, remittances, credit, insurance, and pension.

PMJDY focuses on household coverage as compared with the earlier schemes that focused on coverage of villages. It aims to extend banking facilities to all within a reasonable distance in each sub-service area (consisting of 1,000-1,500 households) across India.

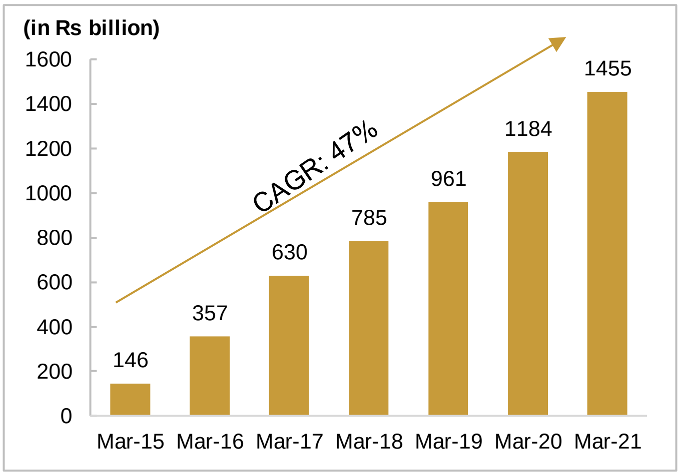
As on March 31 2021, 422 million PMJDY accounts had been opened, of which, 65% were in rural and semi-urban areas, with total deposits of Rs 1,455 billion.

Number of PMJDY accounts



Source: PMJDY; CRISIL Research

Total balance in PMJDY accounts



Source: PMJDY; CRISIL Research

Although the opening of Jan Dhan accounts has increased financial inclusion, the high proportion of zero-balance or dormant accounts is a concern. However, the number of inoperative accounts under PMJDY is declining, as per the official website of the Government of India. The data shows that the percentage of inoperative accounts (of total Jan Dhan accounts) declined from 76.8% in September 2014 to less than 14% in August 2020.

While the government's move to route subsidies through this channel is a major reason for decreasing zero-balance accounts, the increased availability of low-cost financial instruments is popularising formal financial institutions amongst the unbanked population. In fact, since the launch of the insurance and pension Jan Suraksha schemes in August 2015, the proportion of dormant accounts has fallen.

With various other schemes, such as Pradhan Mantri Social Security Schemes including Pradhan Mantri Jeevan Jyoti Bima Yojana, Atal Pension Yojana and Pradhan Mantri Suraksha Bima Yojana being run under PMJDY, people have ample reason to enrol for the PMJDY.

Pradhan mantra Suraksha Bima Yojana: PMSBY was launched on 9 th May 2015. It offers a renewable one year accidental death cum disability cover of Rupees 200,000 to all ·subscribing bank account holders in the age group of 18 to 70 years for a premium of Rs.12/- per annum per subscriber. As of 24 February, 2021, 227 people were enrolled under the scheme and 44,353 claims had been disbursed out of 57,716 claims received.

Pradhan Mantri Jeevan Jyoti Bima Yojana: PMJJBY was launched on May 9, 2015. It offers a renewable one year term life cover of Rs 200,000 to all subscribing bank account holders in the age group of 18 to 50 years, covering death due' to any reason, for a premium of Rs.330/- per annum per subscriber. The scheme is offered / administered through LIC and other Life Insurance companies willing to offer the product on similar terms. As on 24 February, 2021, 100 million people have been enrolled under this scheme and 219,078 claims have been disbursed out of 236,368 claims received.

Atal Pension Yojana: The Atal Pension Yojana (APY) was launched on May 9, 2015 to create a universal social security system for all Indians, especially the poor, the under-privileged and the workers in the unorganised sector. APY is administered by Pension Fund Regulatory and Development Authority (PFRDA). APY is open to all bank account holders in the age group of 18 to 40 years and the contributions differ, based on pension amount chosen. Subscribers would receive the guaranteed minimum monthly pension of Rs. 1000 or Rs. 2000 or Rs. 3000 or Rs. 4000 or Rs. 5000 at the age of 60 years. As of 31 May, 2020, there were more than 22 million subscribers for this scheme.

Pradhan Mantri Mudra Yojana: PMMY is a scheme launched by the Hon'ble Prime Minister on April 8, 2015 for providing loans up to 1 million to the non-corporate, non-farm small/micro enterprises. These loans are classified as MUDRA loans under PMMY. These loans are given by Commercial Banks, RRBs, Small Finance Banks, MFIs and NBFCs. As of 26 March 2021, 244.8 million MUDRA loans worth more than Rs 15 trillion have been sanctioned.

Standup India Scheme: The scheme was launched by the Hon'ble Prime Minister on April 5, 2016. The objective of the scheme is to facilitate bank loans between Rs.1 million and Rs. 10 million to at least one Scheduled Caste (SC) or Scheduled Tribe (ST) borrower and at least one woman borrower per bank branch for setting up a greenfield enterprise. This enterprise may be in manufacturing, services, agri-allied activities or the trading sector. In case of non-individual enterprises at least 51% of the shareholding and controlling stake should be held by either an SC/ST or woman entrepreneur. As of March 31, 2021, 113,441 applications amounting to Rs 254 billion have been sanctioned under the scheme.

Payment banks

Another step taken towards financial inclusion was the RBI granting in-principle approval on August 19, 2015 to 11 players to launch payment banks. The decision came after the recommendations from Nachiket Mor Committee to set up a specialized bank ("Payments Bank") to cater to the low income groups. After the licences were granted to

11 players, three players withdrew their application. Of the remaining eight, seven institutions – India Post Payments Bank Ltd, Airtel Payments Bank Ltd, PayTM Payments Bank Ltd, Fino Payments Bank, Aditya Birla Idea Payments Bank Ltd and Jio Payments Bank and NSDL Payments Bank had commenced operations. In 2019, Aditya Birla Payments Bank Ltd shut down its operations due to mounting losses.

The objective of a payments bank is to widen the spread of payment services and deposit products to small businesses, low-income households, migrant labor workers and other unorganized entities by enabling high volume low value transactions in deposits and payments/remittance services in a secured technology-driven environment.

Payment banks can accept deposits, subject to a cap of Rs. 200,000 per customer, and provide payment and remittance services through channels, such as the internet, branches, business correspondents (BCs) and mobile banking. (The deposit limit was enhanced to Rs 2,00,000 from the earlier limit of Rs 1,00,000 in April 2021.) However, these banks cannot offer credit facilities directly, but can choose to act as a BC of another bank for credit and other services.

Along with maintaining a cash reserve ratio (CRR) with the RBI, payment banks are required to invest a minimum of 75% of their demand deposit balance in government securities eligible under the statutory liquidity ratio (SLR), with maturity of up to one year, and hold a maximum 25% in current and fixed deposits with Scheduled Commercial Banks (SCBs).

Small Finance Banks (SFBs)

Till March 2021, the RBI has awarded SFB licenses to 11 institutions, which aim to service the underserved through savings instruments, and supplying credit to small business units, small and marginal farmers, micro and small industries, and other unorganised sector/lending through informal channels. SFBs are also required to dedicate 75% of their Adjusted Net Bank Credit (ANBC) towards priority sector. Shivalik Mercantile Co-operative Bank (SMCB) had received an in-principal approval from RBI on Jan 6, 2020 and has commenced operations as a small finance bank with effect from 26th April 2021. It became the first urban co-operative bank (UCB) in India to transition to a SFB under the voluntary transition scheme. For the SFBs, nearly 20% of their deposits arise from the rural and semi-urban areas, whereas the credit view shows a geographic skew with 33% of the advances in rural and semi-urban areas as of March 2020. This has led to increasing credit penetration in the rural areas, thereby ensuring financial inclusion. Recently, in June 2021, RBI gave in-principle approval to Centrum Financial Services to set up a small finance bank paving a way for the take-over of Punjab & Maharashtra Co-Operative (PMC) Bank Limited. Resilient Innovations Private Limited (BharatPe) will be an equal partner. The SFB will be guided by the directions and timelines of the RBI on the amalgamation of PMC Bank Ltd.

Microfinance Institutions

MFIs have played a significant role to play in furthering financial inclusion, by providing small ticket loans to customers, usually for productive purposes. As of March 2021, NBFC-MFIs together had a total gross loan portfolio of Rs 880 billion, accounting for 32% of total micro finance loans (excluding SHG) outstanding. Microfinance players are heavily focussed towards rural areas with rural credit accounting for 74% of the overall NBFC-MFI credit.

Business Correspondents (BCs)

In one of its foremost measures, the RBI introduced the BC model of banking outreach in January 2006, aimed at leveraging information and communication technology to widen access to the banking system. BCs are retail agents engaged by banks to offer banking services at locations other than a bank branch/ATM. They are authorised to perform a variety of activities including collection of small-value deposits, disbursal of small-value credit, recovery of principal, collection of interest, sale of micro insurance, mutual fund products, pension products, other third-party products, and receipt and delivery of small value remittances/other payment instruments. In July 2014, the RBI allowed NBFC-MFIs to work with banks as BCs. As of March 2020, 600 million basic savings bank deposit accounts (BSBDA) were opened through BCs.

Aadhaar

Adoption of Aadhaar and Aadhaar authentication in the Indian financial system is expected to transform the financial landscape. To increase financial inclusion, the Unique Identification Authority of India partnered with the RBI, National Payments Corporation of India (NPCI), Indian Banks Association (IBA) and banks to develop:

- Aadhaar Payments Bridge (APB) – The system was launched in 2011 to enable a smooth transfer of all government welfare scheme payments to a beneficiary's Aadhaar Enabled Bank Account (AEBA)
- Aadhaar enabled payment system (AEPS) – A system that leverages Aadhaar online authentication and enables AEBAs to be operated in anytime-anywhere banking mode by the marginalised and financially excluded via micro ATMs

According to the Ministry of Electronics and IT, Aadhaar-generated unique identity covered over 99% of total estimated adult population of India, as of December 2020. An Aadhaar number will be used to verify the identity of a person receiving a subsidy or a service. Disbursements will take place through a centralised electronic benefit transfer system using the unique Aadhaar beneficiary numbers.

The Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Bill, 2016, came into effect on March 25, 2016, to strengthen the role of the Aadhaar card. The Bill aims at providing targeted delivery of subsidies and services to individuals residing in India by assigning them a unique Aadhaar numbers. To reduce the cost of consumer on-boarding and transactions, the government launched IndiaStack. IndiaStack is a set of APIs that allows government businesses, start-ups and developers to utilise a unique digital infrastructure to solve problems, such as presence less, paperless and cashless services delivery.

Also, Aadhaar-enabled micropayments have many features, including elimination of the need for individual KYC requirements by banks for no-frills or basic accounts, and reductions in the direct and indirect KYC cost of financial institutions on account of the UIDAI's 'know your residence' standards being sufficient for authentication.

Aadhaar-enabled payments with clear authentication and verification process allow financial institutions to network with village-based BCs. Thus, customers will be able to withdraw money and make deposits at the local BC. UIDAI's authentication will help banks verify residents both in person and remotely. The electronic transfer, backed by UIDAI's authentication, will help residents transact electronically, reducing the cost of transactions. Also, it has helped reduce the KYC approval turnaround time from the previous 10-15 days, when the customer had to submit various documents for identity and address proof, to almost-instant KYC approval.

As per the Supreme Court's Judgment of September 2018, the Aadhaar Act was held constitutional, however, it was also held that Aadhaar cannot be made mandatory for availing banking services and body corporates/persons were restrained from using Aadhaar details pursuant to a contract only. It further held that the use of the Aadhaar must be backed by a legislation. Accordingly, the amendment in the legislation was brought about in February 2019, whereby banks were allowed to use Aadhaar for KYC but with customer consent. This enabled banks to open instant bank accounts using eKYC based on Aadhaar authentication through the OTP mode. The change in the RBI's KYC guidelines is in line with the changes made by the government to the Prevention of Money-laundering Rules (PMLA) in February 2019 and the Aadhaar and Other Laws (Amendment) Ordinance, 2019 (passed in Lok Sabha in July 2019). The Department of Revenue, vide its circular issued in May 2019, had also notified that all regulated entities may approach their respective regulators to seek Aadhaar authentication facilities. However, fintech companies are still not allowed to use biometrics or OTP-based eKYC and are only permitted to use offline Aadhaar verification. Furthermore, maximum lending through OTP-based e-KYC is Rs 60,000.

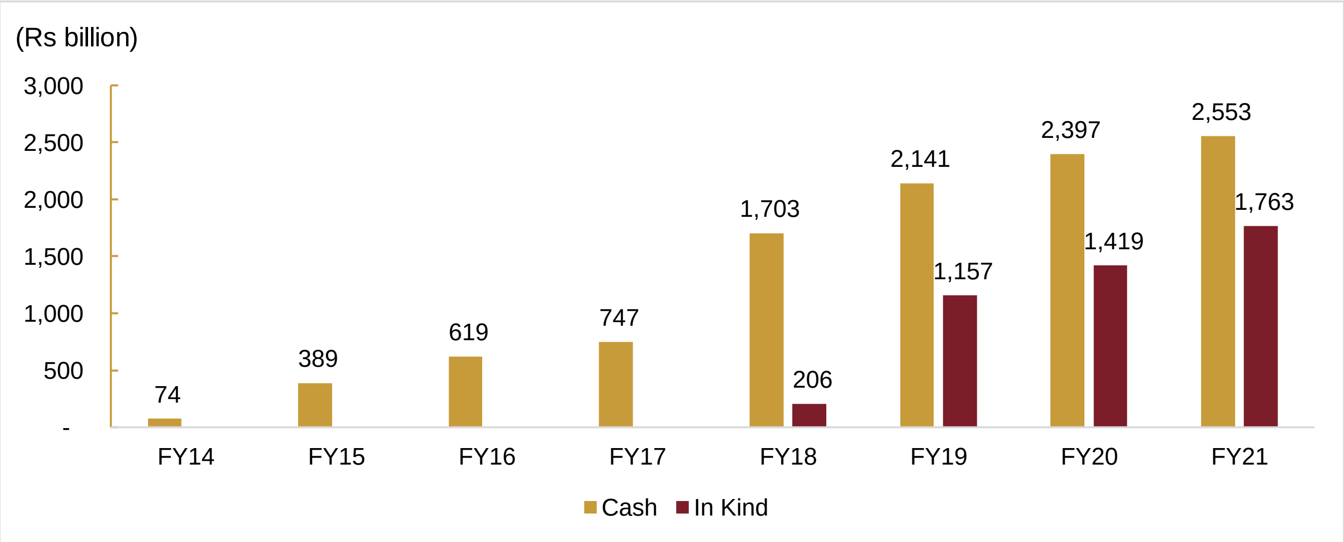
Digital India

An umbrella programme to transform India into a knowledge economy has supported the financial inclusion initiative. Some of the initiatives under this programme include development of digital infrastructure, delivery of government services digitally and improvement in digital literacy, especially in rural India.

Some of the initiatives include:

- **Direct-benefit transfer:** As of end of fiscal 2014, only 28 schemes were covered under the direct-benefit transfer (DBT), where the payment is directly done into the bank account of the beneficiary, This has grown to 427 schemes as of the end of fiscal 2020. This has resulted in fewer slippages, and faster and easier remittance to the intended. This, in turn, is expected to give rise to the usability of agent network for other related transactions, when the money is already in the bank accounts of customers. CRISIL Research expects the availability of funds in the bank accounts of the beneficiaries will support growth in digital transactions.

Amount transferred to beneficiaries through DBT



Note: DBT also includes in-kind transfers which includes transfer of goods and services at very low price or for free to the beneficiaries of various such government scheme

Source: DBT website; CRISIL Research

- **Common service centres 2.0:** This is a service delivery-oriented entrepreneurship model, with a large variety of services made available for citizens. Under Digital India, at least one common service centre (CSC) was envisaged for each of the 250,000 gram panchayats, including the 100,000 operational CSCs launched in the initial version of the programme. The objectives of the programme include:

- Non-discriminatory access to e-services for rural citizens
- Expanding the self-sustaining CSC network to the gram panchayat level
- Empowering District e-Governance Societies (DeGSs) under the district administration for implementation
- Creating and strengthening the institutional framework for rollout and project management, thereby supporting the state and district administrative machinery
- Enabling and consolidating online services under a single technology platform
- Providing a centralised technological platform for delivery of services, transparently to citizens
- Increasing the sustainability of village-level entrepreneurs (VLEs) by sharing maximum commission earned through delivery of e-services and encouraging women to join as VLEs

The services to be provided at the CSCs include agriculture services, education and training services, rural banking and insurance services, entertainment services, utility services, healthcare services, and other commercial services.

- **BharatNet:** This project aims to provide 100 Mbps broadband connectivity to almost all the 0.25 million gram panchayats in the country. Under the first phase of the project, 100,000 gram panchayats were to be connected by laying underground optical fibre cable (OFC). Under Phase-II, targeted to be completed by March 2019, connectivity will be provided to the remaining 0.15 million gram panchayats, using an optimal mix of underground fibre, fibre over power lines, radio and satellite media. As per Bharat Broadband Network Limited (BBNL), ~0.14 million gram panchayats have been linked with this. Moreover, under the 'Digital India program', the government also proposed to provide free-high speed Wi-Fi in 2,500 cities and towns, at an estimated investment of Rs 70 billion. Under the plan, the government aims to set up 50,000-60,000 Wi-Fi hotspots across the country.

CRISIL Research expects, on completion, these projects will help catalyse the growth of digital services to the rural masses, and especially to the lower category of the population. This strengthening of digital infrastructure will help various sectors including healthcare, education, skills training, etc. It would provide the private enterprises with an opportunity to expand their services in these remote underserved areas.

Priority sector lending aimed at facilitating financial inclusion

The definition of 'priority sector' was formalised in 1972, based on a report submitted by the Informal Study Group on Statistics, relating to advances to priority sectors, constituted by the RBI in May 1971. The requirement for PSL as a proportion of Adjusted NBC was set at 33.3% for SCBs in 1979, and raised to the current 40% in 1985. Currently, all banks including foreign banks need to comply with this 40% requirement.

Targets and sub-targets for banks were further classified under the priority sector and revised at intervals. As per the latest regulations, unveiled in 2015, medium enterprises, social infrastructure and renewable energy are part of the priority sector, in addition to the existing categories. Also, non-achievement of priority sector targets has been assessed on a quarterly average basis at the end of the respective year, from fiscal 2017 onwards, instead of annually.

As per the RBI, these sub-divisions include:

- **Agriculture:** For all SCBs, 18% of the ANBC or the credit equivalent amount of off-balance sheet exposure (CEOBE), whichever is higher, is to be extended for agriculture. Within the 18% target for agriculture, a target of 10% of ANBC or CEOBE, whichever is higher, has been prescribed for small and marginal farmers. Also, the sub-target of 10% of ANBC or the CEOBE, whichever is higher, is applicable for foreign banks with 20 branches or more, for lending to small and marginal farmers.

- **Social infrastructure:** A maximum bank loan of Rs 50 million will be extended per borrower to build social infrastructure, including schools, healthcare, drinking water, and sanitation facilities, as well as construction/ refurbishment of household toilets and household-level water improvements in tier II to VI centres. Bank credit to MFIs, extended for on-lending to individuals and to members of self-help groups (SHGs)/ joint lending groups for water and sanitation facilities, will be eligible for categorisation as the priority sector under 'social infrastructure'.

- **Renewable energy**: Bank loans up to Rs 150 million will be given to borrowers for solar-based power generators, biomass-based power generators, wind mills, micro-hydel plants, and for non-conventional energy-based public utilities (street lighting systems), and remote village electrification. For individual households, the loan limit is Rs 1 million per borrower.

- **Microcredit:** As much as 7.5% of ANBC or the CEOBE for all SCBs should be given in the form of microcredit. Further, the sub-target of 7.5% of ANBC or CEOBE, whichever is higher, for banks lending to microenterprises will also be applicable to foreign banks with 20 branches and above from fiscal 2019.

- The RBI has also removed the currently applicable loan limits of Rs 50 million and Rs 100 million per borrower to micro/small and medium enterprises (services), respectively, for classification under the priority sector. Accordingly, all bank loans to MSMEs, engaged in the provision or rendering of services as defined in terms of investment in equipment under the MSMED Act, 2006, will qualify under the priority sector without any credit cap.

- **Advances to weaker sections:** 12% of ANBC or the CEOBE, whichever is higher, must to be extended to weaker sections. Foreign banks with 20 branches or more had to achieve the weaker sections target within five years, between April 1, 2013 and March 31, 2018, as per the action plan submitted by them and approved by the RBI.

- **Education loans:** These include loans and advances granted to individuals only for educational purposes, including vocational courses, of up to Rs 1 million. These loans and advances will be considered eligible for the priority sector.

- **Housing:** The government has tried to bring greater convergence of PSL guidelines for housing loans with the Affordable Housing Scheme and boost low-cost housing for economically weaker sections and lower income groups. Thus, it decided to revise the housing loan limits for PSL eligibility from the existing Rs 2.8 million to Rs 3.5 million in metropolitan centres (with a population of 1 million and above), and from the existing Rs 2 million to Rs 2.5 million in other centres, provided the overall cost of the dwelling unit in the metropolitan centre and at other centres does not exceed Rs 4.5 million and Rs 3 million, respectively.

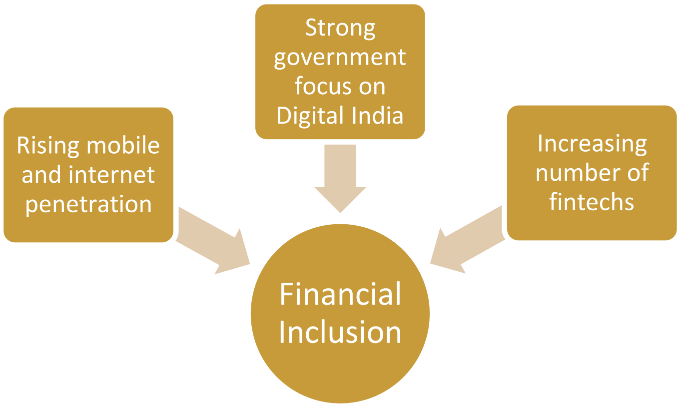
For foreign banks with less than 20 branches, no specific sub-targets for sectors are laid out. For these banks, up to 32% can be in the form of lending to exports and not less than 8% can be to any other priority sector.

In September 2020, RBI new guidelines for PSL, wherein higher weights would be assigned to districts having a relatively lower credit penetration. From FY22, a weight of 125% would be assigned to incremental priority sector credit in identified districts where credit flow is lower and per capita PSL is lower than Rs 6,000. A lower weight of 90% will be assigned to incremental PSL in identified districts where credit flow is relatively higher and per capita PSL is more than Rs 25,000. Other districts will continue to have the existing weightage of 100%. This will incentivise credit flow to credit deficient geographies.

Technology and digitalisation to aid financial inclusion in India

In India, technology has significantly improved the accessibility and affordability of financial services that were previously inaccessible to the unbanked or underbanked masses. In the past nine years, our country has accelerated the pace of financial inclusion. From 40% of Indian adults with a bank account in 2011, this number has consistently increased to 80% in 2018 according to the Global Findex Data. However, lower levels of financial literacy and lack of awareness, especially in rural India has led to only 48% of these accounts being active.

Conventional banking models are not feasible for low ticket size of transactions, deposits, loans, etc. in rural or remote areas and brick and mortar businesses are proving to be an uneconomical proposition for banks. Improving mobile and smartphone penetration, robust infrastructure laid down by the government to enable digitisation and rising number of fintechs in India will help in overcoming the challenges faced by the traditional banking model and lead to higher financial inclusion.



Fintech companies have been at the forefront of the growth in digital payments in India. These include payment companies that facilitate P2P and retail payments through mobile wallets or UPI, such as Paytm, PhonePe, PayU, MobiKwik and FreeCharge, as well as technology companies like Pine Labs and Mswipe who provide hardware and POS devices for digital payments. The foundational digital infrastructure laid by Aadhaar and the India Stack has created the business case for many of these growing fintechs. New smartphone users and people exploring digital payments for the first time can be signed up at minimal costs based on their digital identities. For a number of fintechs, access to the India Stack is fundamental to their business models. Evolving business models of these fintechs and strong focus of government on digitisation from granting licenses to building the infrastructure for digital payments landscape will lead to improving financial inclusion by tapping the underbanked population of India.

Business opportunities available owing to financial inclusion on the asset and liability side

Factors such as lack of documents, migration of individuals for work or other purposes, lack of transaction history with financial institutions, etc., have led to low inclusion of households in the financial system. Also, the costs involved in setting up a network to serve the traditionally ignored categories, such as migrants, rural population, retailers, shop owners, and MSMEs, is high.

In addition, the gap between various regions of the country, as highlighted above, is very wide. However, owing to the government's emphasis and growth of the banking facility in these regions, the gap is slowly getting plugged. This gives financial institutions an opportunity to expand their services in underserved regions.

Key business opportunities among various population categories - assets and liabilites

Migrants - ~100 million migrant workforce
• Remittance services • Account services • Deposit services
Retailers - ~24-25 million retail outlets
• Payments • Loans • Digitalisation of business functions
MSME - ~63.4 million businesses
• MSME loans • Working capital finance • Fee-based services
Rural population - ~ 66% of India's population
• Basic banking services • Personal loans • Bill payments and bookings • Investment in mutual funds and insurance products • Education loans • Gold loans

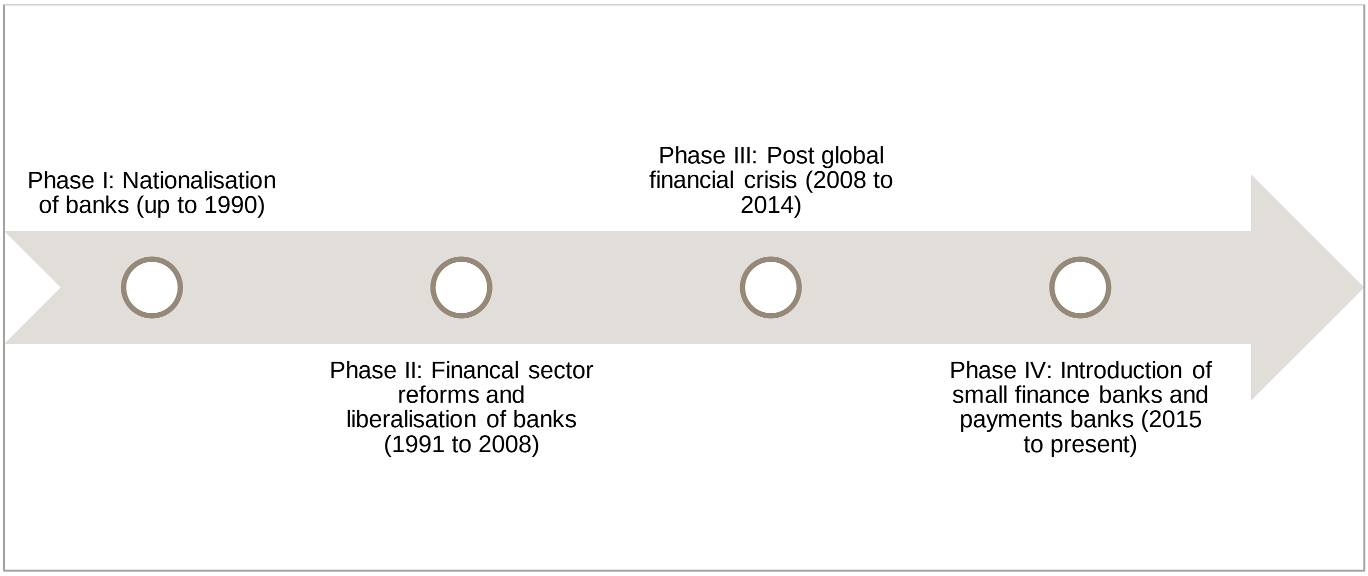
Source: CRISIL Research

Indian banking Industry

Evolution of the Indian Banking Industry

The banking industry plays a crucial role in mobilising savings and stimulating the economic development of a nation. The banking structure in India has multiple layers to cater to the varied and specific requirements of customers. The existing banking structure in the country has evolved over several decades and has been serving the credit and banking services needs of the economy. The evolution of the Indian banking industry can be divided into four phases following independence. Nationalisation of banks in the first phase was one of the biggest structural reforms the industry has seen. In the second phase, the Indian economy was liberalised in 1991 to make it more market- and service-oriented. This move markedly improved the performance and strength of the banking structure. At present, the Indian commercial banking system is very well-developed and comparable with most of the advanced and emerging economies in the world.

Development of Indian banking industry



Source: CRISIL Research

Structural developments in the Indian banking industry and changes related to universal banking licence:

First phase: Nationalisation of banks (up to 1990)	Second phase: Financial sector reforms and liberalisation of banks (1991 to 2008)	Third phase: Post global financial crisis (2008 to 2015)	Fourth phase: Introduction of SFBs and payments banks (2015 onwards)
• Nationalisation of 20 banks in two phases (1969 and 1980)	• 12 new private banks opened between 1991 and 2008	• Two new private banks opened during the period;	• in-principle approval granted to 11 payment banks & 10 SFBs
Key developments: ***Following a series of mergers and amalgamations, the number of commercial banks in the country decreased from 640 in 1947 to 85 in 1969** ***State Bank of India Act, 1955** ***State Bank of India (Subsidiary Banks) Act, 1959** ***Bank nationalisation: Banking Companies (Acquisition and Transfer of Undertakings) Ordinance 1969: Government acquired 14 commercial banks with deposits over Rs 500 million** **1980: The government nationalised six banks with deposits over Rs 2,000 million**	**Key developments:** **January 1993:** **The RBI released guidelines for licencing of new banks** in the private sector. **Ten new banks** were formed on the basis of these guidelines **January 2001:** **The RBI revised the guidelines for new bank licences**. Later, **two new banks** — Kotak Mahindra Bank and YES Bank — were formed	**Key developments:** **August 2010:** The RBI released a discussion paper on the entry of new banks into the private sector **August 2011:** The RBI released draft guidelines for licensing of new banks in the private sector **February 2013:** The RBI released final guidelines for licencing of new banks **September 2013:** A committee was formed, headed by Bimal Jalan, to screen the applications **April 2014:** The RBI granted in-principle approval to IDFC and Bandhan Financial Services to set up banks	**Key developments:** **August 2015:** In-principle approval to 11 applicants to set up payment banks **September 2015:** In-principle approval to 10 applicants to set up SFBs **August 2016:** Guidelines for 'on tap' Licensing of Universal Banks in the Private Sector **October 2016:** Guidelines for SFBs and payment banks **December 2019:** Guidelines for 'on tap' Licensing of Small Finance Banks in the Private Sector

Source: RBI, CRISIL Research

Phase 1: Nationalisation of banks

Following a spate of mergers and amalgamations, the number of commercial banks in the country decreased from 640 in 1947 to 85 in 1969. The first phase of the Indian banking industry's evolution is the most prominent one as it laid down the foundation of the Indian banking industry. It began with the State Bank of India Act (1955), through which the RBI acquired a controlling interest in Imperial Bank of India and it became State Bank of India. However, the government later acquired the RBI's stake in the State Bank of India to avoid any conflict of interest. In a move to smoothen the functioning of the banking industry, the government passed the State Bank of India (Subsidiary Banks) Act in 1959, which made eight state banks associates of the SBI.

The biggest reform during the first phase came with the nationalisation of banks, which occurred in two stages. First, in July 1969, the Government of India acquired 14 large commercial banks with the basic objective of ensuring credit flow to priority sectors of the economy. Second, in April 1980, six more banks, with cumulative deposits of over Rs 2,000 million, were nationalised. This move increased banking penetration in the country considerably.

Phase 2: Financial sector reforms and liberalisation of banks (1991 to 2008)

The period beginning from the early 1990s witnessed the transformation of the banking sector as a result of the financial sector reforms that were introduced as a part of structural reforms initiated in 1991. The reform process in the financial sector was undertaken with the prime objective of creating a strong and resilient banking system. The progress achieved in the areas of strengthening the regulatory and supervisory norms ushered in greater accountability and market discipline among the participants.

Since 1991, the size of the Indian economy in terms of GDP at market prices has increased several times. Consequent to the recommendations of the Narasimham Committee I in 1991, guidelines were released in 1993 with a minimum capital requirement of Rs 1,000 million for new banks. Under the 1993 guidelines, 10 new private sector banks received their licence. In the aftermath of the recommendations of the Second Report of the Narasimham Committee on Banking Sector Reforms, a new set of guidelines were issued in 2001 with the capital requirement of banks set at Rs 3,000 million. Under the 2001 guidelines, two new private sector banks were licenced.

With competition increasing in the immediate aftermath of liberalisation, credit and deposits continued to grow at a healthy 19% and 18% CAGR, respectively, between the ends of fiscal 1991 and 2008. Several players in the private sector acquired critical mass during the phase and the share of private sector increased to 21% by the end of fiscal 2008.

Phase 3: Post global financial crisis (2008 to 2015)

The third phase of the banking evolution started with the global financial crisis. The crisis hit the global banking industry severely and many big global banks collapsed. Foreign banks operating in India significantly withdrew from the credit market in several jurisdictions, and more so where they had branch presence. Growth in lending by foreign banks dropped to 4% and -1% during fiscals 2009 and 2010. The crisis also impacted the growth of the Indian banking industry. However, compared with advanced economies, India faced the global financial crisis of 2007-09 from a position of strength, with the limited openness of the Indian financial system working in its favour. To further strengthen the Indian banking system, multiple measures like Basel III introduction and revised regulatory framework for NBFCs were undertaken by the RBI after the crisis. On December 30, 2011, the RBI released the draft guidelines for Indian banks under Basel III. Final guidelines on Basel III Capital Regulations were implemented in India with effect from April 1, 2013, in a phased manner until March 31, 2019.

Phase 4: Introduction of small finance banks and payments banks (2015 to present)

The fourth phase of the banking evolution started with RBI granting small finance bank licenses to ten players and payment bank licenses to eleven entities in 2015. The objectives of setting up of small finance banks were to further financial inclusion by provision of savings vehicles, and supply of credit to small business units; small and marginal farmers; micro and small industries; and other unorganised sector entities, through high technology-low cost operations. The objectives of setting up of payments banks were to further financial inclusion by providing small savings accounts and payments/remittance services to migrant labour workforce, low income households, small businesses, other unorganised sector entities and other users. In October 2016, RBI came out with operating guidelines for Small Finance Banks and Payments Banks.

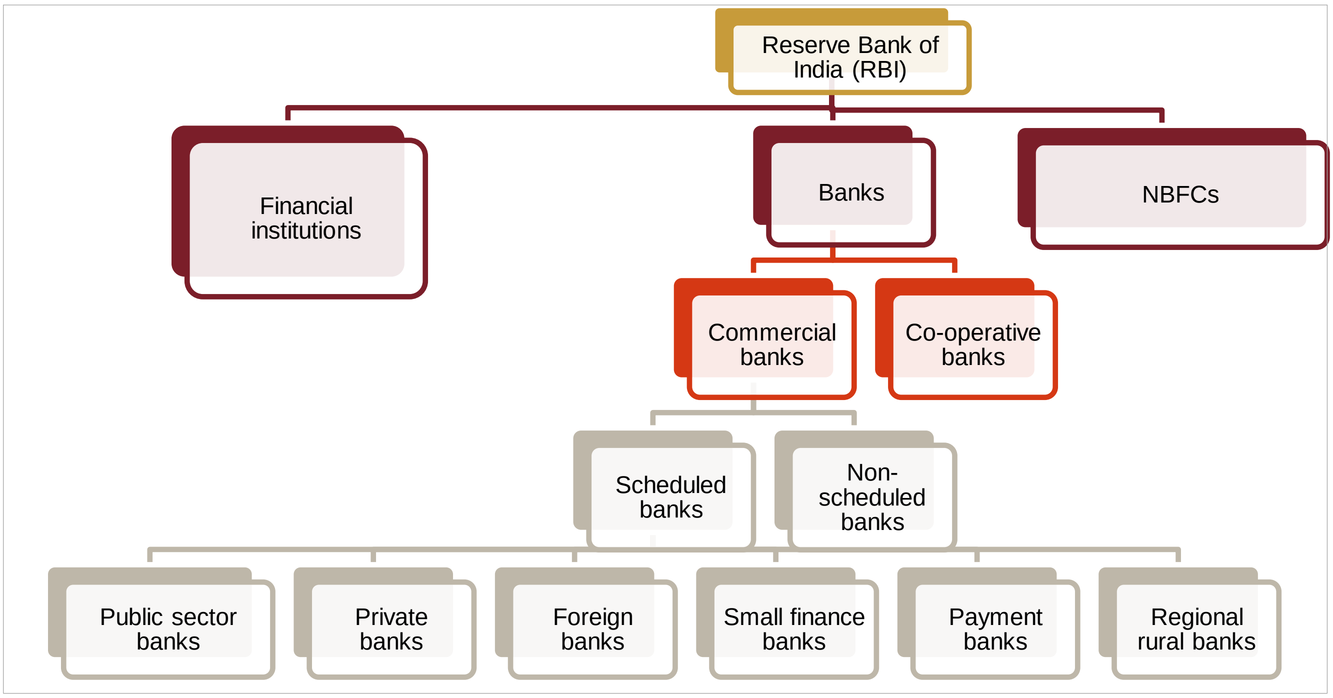
In 2016, RBI also notified on guidelines for 'on tap' licensing of Universal Banks in the Private Sector with an objective to increase competition and bring newer ideas into the banking system. Similarly, in December 2019, RBI notified on guidelines for 'on-tap' licensing of Small Finance Banks in the Private Sector with a similar objective to encourage competition.

In June 2020, the RBI had constituted a five-member IWG (internal working group) headed by Shri Prasanna Kumar Mohanty to examine existing licensing and regulatory guidelines relating to ownership and control, corporate structure and other related issues. In November 2020, the report of the IWG was released. Major recommendations of the group include allowing the large corporate/industrial houses as promoters of banks after necessary amendments to the Banking Regulations Act, 1949, considering well run large Non-banking Financial Companies (NBFCs, with an asset size of Rs 500 billion and above, including those which are owned by a corporate house) for conversion into banks, and relaxing the eligibility criteria for Payments Banks intending to convert to a Small Finance Bank from a track record of 5 years of experience as Payments Bank to 3 years. Other recommendations revolved around corporate structure of Non-operative Financial Holding Company (NOFHC), listing requirements for banks, harmonisation of licensing guidelines, promoter shareholding, initial capital, pledging of shares and ADR/GDR issued by banks.

Banking industry overview

The Indian banking system currently consists of 12 public sector banks, down from 26 owing to the merger of some public sector units to make them more relevant, 22 private sector banks, 46 foreign banks, 43 regional rural banks, 11 SFBs, 6 payment banks, 2,550 cooperative banks. All the banks fall under the purview of the RBI.

Structure of Indian banking system



All India Financial Institutions includes NABARD, SIDBI, EXIM Bank
Source: RBI, CRISIL Research

Key regulatory developments in the banking sector

Changes in interest rate regime

Effective October 25, 2011, the RBI deregulated the deposit rate on savings bank accounts. It also changed the base rate calculation methods to reflect the marginal cost of funds. All floating rate rupee loans sanctioned and credit limits renewed from April 1, 2016 were priced with reference to a bank's marginal cost of funds-based lending rate (MCLR,) which is the internal benchmark for such purposes. The RBI issued a circular on September 4, 2019 making it mandatory for banks to link all floating rate personal or retail loans and floating rate loans to housing, auto and MSME borrowers to an external benchmark with effect from October 1, 2019. Subsequent to the introduction of this system, monetary policy transmission improved and it was decided that all new floating rate loans extended to MSME from April 1, 2020 would be linked to external benchmarks. Effective monetary transmission needs to happen on both sides, to avoid asset liability mismatch, hence banks would like to look at possibilities of linking their liabilities with external benchmark. Banks are free to choose one of the several benchmarks indicated in the circular. Banks are also free to choose their spread over the benchmark rate, subject to the condition that the credit risk premium may undergo a change only when a borrower's credit assessment undergoes a substantial change, as agreed upon in the loan contract.

With the advent of various digital systems and to address various integration issues, there have been efforts to bring industry-wide standards. With respect to loan pricing, banks are being nudged to link the price of all their loans and deposits to an external observable benchmark, but no such regulation applies at present.

Developments related to the licencing of Universal banks in the private sector

The share of public sector banks in the total assets of banks declined from over 90% in the early 1990s to ~74% in March-end 2011. Another drive for providing licences to a limited number of new banks had begun following the announcement in the Union Budget 2011 and as indicated in the RBI's Policy Statement of April 2010.

Further, in February 2013, fresh guidelines for licencing of new banks were issued. The guidelines, *inter alia*, permitted business/industrial houses to promote banks, conversion of NBFCs into banks and setting up of new banks in the private sector by entities in the public sector through a Non-Operative Financial Holding Company (NOHFC) structure. The minimum capital requirement for setting up a bank was Rs 5 billion. In 2014, the RBI granted in-principle approval to IDFC and Bandhan Financial Services to set up banks, both of which commenced operations in fiscal 2016.

Consolidation of public sector banks

The government has been consolidating public sector banks (PSBs) to create banks with stronger balance sheets, rationalize capital structure of the banks, improve efficiency of the banks, diversify risk and improve ability to finance larger projects. The aim is enhance value for stakeholders over a period of time. In 2017, five associated banks (State Bank of Bikaner & Jaipur, State Bank of Mysore, State Bank of Travancore, State Bank of Patiala and State Bank of Hyderabad) and Bharatiya Mahila Bank became a part of SBI. In fiscal 2019, Dena Bank and Vijaya Bank was merged with Bank of Baroda. LIC also acquired a controlling 51% stake in the stressed IDBI Bank

In August 2019, the government further announced its plan to merge 10 state-owned banks into four to strengthen a sector which is struggling with bad loan clean-up and create banks with stronger balance sheet to boost credit growth. The banks which were impacted due to this exercise are as follows:

- Oriental Bank of Commerce and United Bank are merged into Punjab National Bank, making it the second largest nationalised bank in terms of business and branch network
- Canara Bank and Syndicate Bank merged into a single entity, making it the fourth largest PSB after Bank of Baroda
- Andhra Bank and Corporation Bank were merged into the Union Bank of India, creating the fifth-largest lender of the country
- Indian Bank and Allahabad Bank were merged into a single unit, making it the seventh-largest PSB

This merged entities became effective from April 1, 2020 onwards and are expected to reap benefits from economies of scale and synergy with respect to current and saving accounts, network of branches and employees. This exercise is also expected to bring down operational cost significantly and increase banks' ability to absorb shocks.

Licencing of SFBs and Payments Banks

In September 2013, Committee on Comprehensive Financial Services for Small Businesses and Low Income Households, headed by Nachiket Mor, was formed by the RBI. In January 2014, the Nachiket Mor Committee submitted various recommendations, among which it recommended the formation of two new categories of bank called Payments Bank and Small Finance Banks. In November 2014, RBI released the final guidelines for Payment

Banks and Small Finance Banks. In 2015, RBI gave "in-principle" licences to eleven entities to launch Payments Banks and awarded Small Finance Bank licences to 10 players. However, of the 11 in-principle payment licensees, three withdrew their application subsequently. Aditya Birla Idea Payments Bank also closed their operations in September 2019. The payments bank which are currently operational include Airtel Payments Bank, India Post Payment Bank (IPPB), Fino Payments Bank, PayTM Payments Bank, NSDL Payments Bank and Jio Payments Bank.

On-tap Universal banks' licensing in the private sector

After the successful experience of licensing two universal banks in 2014 and granting final approvals for SFBs and payment banks, in August 2016, the RBI released the framework for granting 'on-tap' licences to universal banks in the private sector. Under this facility, the RBI accepts applications and grants banking licence throughout the year. The policy allows aspirants to apply for a universal bank licence at any time, subject to the fulfilment of the set conditions.

Some of the key eligibility features are:

- Minimum 10 years of successful track record of existing NBFCs (that are resident-owned and controlled) / promoter / promoting entity / promoter group / entities / group in private sector (that are resident-owned and controlled). Non-financial business of such entity / group should not account for 40% or more in cases where the total asset of the entity / group adds to more than Rs 50 billion.
- Initial minimum paid-up voting equity capital of Rs 5 billion. Minimum net worth of Rs 5 billion at all times (also applicable to NBFCs converting into banks).
- Aggregate foreign investment limit not more than 74%.
- After getting the licence, as per the guidelines, the entity shall get its shares listed on the stock exchanges within six years of the commencement of business by the bank. The bank shall open at least 25% of its branches in unbanked rural centres (population up to 9,999 as per the latest census). The bank shall comply with the priority sector lending targets and sub-targets as applicable to the existing domestic scheduled commercial banks.

As per the RBI's guidelines, the licensing window will be open on-tap, and the applications in the prescribed form along with requisite information could be submitted to the RBI at any point of time. The applications will be referred to a Standing External Advisory Committee (SEAC) to be set up by the Central bank. The committee will submit its recommendations to the RBI for consideration. The Internal Screening Committee (ISC), consisting of the governor and the deputy governors, will examine all the applications and submit its recommendations to the Committee of the Central Board of the RBI for a final decision to issue in-principle approval. The validity of the in-principle approval issued by the RBI will be 18 months from the date of granting in-principle approval and would thereafter lapse automatically.

On-tap Small Finance Banks' licensing in the private sector

RBI, in December 2019, released the final Guidelines for 'on-tap' licensing of small finance banks in the private sector and opened the window for applicants to approach the regulator at any point in time for on-tap licensing of SFBs. Below are some of the key eligibility features:

- Existing Non-Banking Finance Companies (NBFCs), Micro Finance Institutions (MFIs), and Local Area Banks (LABs) in the private sector, that are controlled by residents and having successful track record of running their businesses for at least a period of five years will be eligible to apply for SFB licence.
- Additionally, existing Payments Banks (PBs) which are controlled by residents and have completed five years of operations will also be eligible to apply for SFB licence.
- The minimum paid-up voting equity capital for small finance banks shall be Rs 2 billion. In case of an existing NBFC/MFI/LAB/PB, the entity shall have a minimum net worth of Rs 2 billion, or it shall infuse additional paid-up voting equity capital to achieve net worth of Rs 2 billion within eighteen months from the date of in-principle approval or as on the date of commencement of operations, whichever is earlier. For cooperative banks, the entity shall have a minimum net worth of Rs 1 billion, which should be increased to Rs 2 billion within five years from the date of commencement of operations.
- Listing of the small finance bank will be mandatory within three years after it reaches the net worth of ₹ 5 billion for the first time.

The SFB will be required to maintain a minimum capital adequacy ratio of 15 per cent of its risk weighted assets (RWA) on a continuous basis, subject to any higher percentage as may be prescribed by RBI from time to time. Tier I capital should be at least 7.5 per cent of RWAs. Tier II capital should be limited to a maximum of 100 per cent of total Tier I capital. Basel II norms will be generally applicable to the small finance banks, unless stipulated otherwise.

As per the RBI's guidelines, the licensing window will be open on-tap, and the applications in the prescribed form along with requisite information could be submitted to the RBI at any point of time. The applications will be referred to a Standing External Advisory Committee (SEAC) to be set up by the central bank. The committee will submit its recommendations to the RBI for consideration. The Internal Screening Committee (ISC), consisting of the governor and the deputy governors, will examine all the applications and submit its recommendations to the Committee of the Central Board of the RBI for a final decision to issue in-principle approval. The validity of the in-principle approval issued by the RBI will be 18 months from the date of granting in-principle approval and would thereafter lapse automatically.

Recently, in June 2021, RBI gave in-principle approval to Centrum Financial Services to set up a small finance bank paving a way for the take-over of Punjab & Maharashtra Co-Operative (PMC) Bank Limited. Resilient Innovations Private Limited (BharatPe) will be an equal partner. The SFB will be guided by the directions and timelines of the RBI on the amalgamation of PMC Bank Ltd. Shivalik Small Finance Bank has already started operations at the beginning of this fiscal after receiving approval to do so as an SFB.

Regulatory development timeline for banking sector

November 1974: Official notification on priority sector lending norms

- In November 1974, banks were advised to raise the share of these sectors in their aggregate advances to the level of 33.33% by March 1979

April 1992: Prudential norms and introduction of Basel I in the Indian banking system

- Prudential norms relating to income recognition, asset classification, provisioning and capital adequacy (Basel I) were introduced in a phased manner

January 1993: Reduction in SLR

- A phased reduction in SLR was undertaken from January 1993. SLR was progressively brought down from the peak rate of 38.5% in February 1992 to the then statutory minimum of 25% by October 1997

April 1993: Phased reduction in CRR

- CRR was progressively reduced effective April 1993 from the peak level of 15% to 4.5% by June 2003

April 1993: Rationalisation of lending interest rates

- Rationalisation of lending interest rates was undertaken from April 1993, initially by simplifying the interest rate stipulations and the number of slabs, and later by deregulation of interest rates. Deposit interest rates, other than those on savings deposits and FCNR(B), were fully deregulated

April 1997: Phasing out maximum permissible bank finance

- The maximum permissible bank finance (MPBF) was phased out from April 1997

March 2000: Change CAR norms for banks

- In order to strengthen the capital base of banks, the capital to risk-weighted assets ratio for banks was raised to 9% from 8%, from the year ended March 31, 2000

January 2001: Revised guidelines on new bank licences

- The RBI revised the guidelines for new bank licences. Two new banks — Kotak Mahindra Bank and YES Bank — were formed

2001-2004: FDI limit in foreign banks

- With a view to liberalising foreign investment in the banking sector, the government announced an increase in the foreign direct investment (FDI) limit in private sector banks under the automatic route to 49% in 2001 and further to 74% in March 2004, including investment by FIIs, subject to guidelines issued by the RBI

February 2005: Policy framework for governance in private sector banks

- A comprehensive policy framework for governance in private sector banks was put in place in February 2005 to ensure (i) ultimate ownership and control was well diversified; (ii) important shareholders were 'fit and proper'; (iii) directors and CEO were 'fit and proper' and observed sound corporate governance principles; (iv) private sector banks maintained minimum capital for optimal operations and for systemic stability; and (v) policy and processes were transparent and fair

February 2005: Guidelines on Basel II issued by the RBI

- In February 2005, the RBI issued the first draft guidelines on Basel II. Initially, the Basel II implementation target was set for March 2007 but was postponed later. The RBI had implemented Basel II standardised approach (for credit and market risks) and basic indicator approach in internationally active banks by March 2008 and other scheduled commercial banks by March 2009

July 2005: Guidelines to banks on purchase / sale of non-performing assets

- To increase the options available to banks for resolving their non-performing assets (NPAs) and to develop a healthy secondary market for NPAs, where securitisation companies and reconstruction companies are not involved, the RBI issued guidelines to banks on purchase / sale of NPAs

November 2005: No-frills account

- Banks were advised to introduce a facility of 'no-frills' account with nil or low minimum balances in November 2005

January 2006: Permission to use services of BCs

- In January 2006, banks were permitted to use the services of non-governmental organisations (NGOs/ SHGs), MFIs other civil society organisations as intermediaries in providing financial and banking services through the use of business facilitator and BC models

July 2007: Revision in credit exposure norms for banks

- Revision in exposure norms for banks

July 2010: Introduction of base rate mechanism for lending by banks

- The base rate system was introduced with the aim of enhancing transparency in the lending rates of banks and enabling better assessment of transmission of monetary policy. With effect from July 1, 2010, all categories of domestic rupee loans were priced only with reference to the base rate and this system was applied to all new loans and to old loans that came up for renewal

2010-2011: Deregulation of savings rate

- Effective October 25, 2011, the RBI deregulated the deposit rate on savings bank accounts

April 2012: Revisions to the guidelines on securitisation transactions

- Guidelines on the minimum lock-in period and minimum retention criteria for securitised loans originated and purchased by banks and NBFCs. These guidelines also cover prudential treatment of transfer of assets through direct assignment of cash flows and the underlying securities, if any

May 2012: Final guidelines on Basel III implementation

- Guidelines on implementation of Basel III capital regulations in India

July 2014: Revised Basel III norms

- Revised guidelines on Basel III capital regulations implemented in India with effect from April 1, 2013, in a phased manner till March 31, 2019

April 2014: New universal banking licence to IDFC and Bandhan

- In 2014, the RBI granted in-principle approval to IDFC and Bandhan Financial Services to set up banks, both of which started operations in fiscal 2016

April 2015: Revision in priority sector guidelines

- Medium enterprises, social infrastructure and renewable energy to form part of the priority sector. The distinction between direct and indirect agricultural priority lending has been dispensed. The priority sector non-achievement would be assessed on a quarterly average basis at the end of the respective year from fiscal 2017 onwards, instead of annual basis as at present

August 2015: Introduction of payment banks

- In-principle approval for setting up payments banks were granted to 11 applicants on August 19, 2015

September 2015: Introduction of SFBs

- On September 16, 2015, in-principle approvals were granted to 10 applicants for setting up SFBs

May 2016: Promulgation of the Insolvency and Bankruptcy Code

- A watershed event that has allowed the valuation of age-impaired assets to be put in persepective. While the transfer of such assets to various asset reconstruction companies was not effective owing to valuation issues, IBC, through its auction mechanism, allows such assets to have executable bids

August 2016: Guidelines for 'on tap' Licensing of Universal Banks in the Private Sector

- Focusing towards increasing the level of competition and bringing new ideas in the system, the RBI decided to grant on-tap universal banking licences to the applicants that satisfy the eligibility criteria

October 2016: Introduction of marginal cost of funds-based lending rate

- This new methodology replaces the base rate system introduced in July 2010. All rupee loans sanctioned and credit limits renewed w.e.f. April 1, 2016 are being priced with reference to the MCLR

October 2016: Guidelines for SFBs and payment banks

- Considering payments banks and SFBs' differentiated nature of business and their focus on financial inclusion, separate operating guidelines for these banks were issued in October 2016. The guidelines elaborate the areas of prudential regulations, risk management, ownership and control regulations, corporate governance, and banking operations to be

November 2016: Withdrawal of legal tender character of existing Rs 500 and Rs 1,000 bank notes

- Withdrawal of currency notes with denominations of Rs 500 and Rs 1,000 from circulation with actions to be taken by citizens and procedure for exchange of the notes and the provision for such facility along with further reporting mechanism for the banks were notified

December 2016: Final guidelines on large exposure framework

- Towards aligning the exposure norms for Indian banks with the Basel Committee of Banking Supervision standards and to further diversify the banks' lending base, on December 1, 2016, the RBI issued final guidelines on LEF, effective April 1, 2019. The exposure limits will consider a bank's exposure to all its counterparties and groups of connected counterparties

December 2018: Guidelines on loan system for delivery of bank credit

- To enhance credit discipline among larger borrowers, the guidelines on the loan system for delivery of bank credit were finalised wherein the minimum level of loan component, effective date of loan, share of woirking capital of loan, amount and tenor of loan, repayment/rollover/renewal of loan component and risk weights related guidelines were issued

June 2019: Revised prudential framework on stressed assets

- In addition to building an incentive for early adoption of a resolution plan, its applicability was also extended to SFBs, NBFC -SI, deposit-taking NBFCs and All India Term Financial Institutions

December 2019: Guidelines for 'on tap' Licensing of Small Finance Banks in the Private Sector

- After a review of the performance of the existing small finance banks and to encourage competition, the Reserve Bank, after gaining experience in dealing with these banks, has considered 'on tap' licensing of these banks. Under this facility, the RBI accepts applications and grants small finance banking licence throughout the year.

September 2020: Banking Regulation (Ammendment) Bill, 2020

- Lok Sabha passed banking Regualtion Ammendment Bill, 2020 to bring urban and multi-state co-operative banks under the supervision of the RBI.
- The bill allows RBI to initiate a scheme for reconstruction of a bank without placing it under moratorium. Also, if the RBI imposes moratorium on a bank, the lender can not grant any loans or make investments in any credit instruments during the moratorium tenure.
- The co-operative banks will be allowed to issue equity, preference, or special shares on face value or at a premium to its members, or to any other person residing within their area of operations. The banks may also issue unsecured debentures or bonds or similar securities with maturity of ten or more years to such persons. Such issues can be made only after prior approval from RBI.

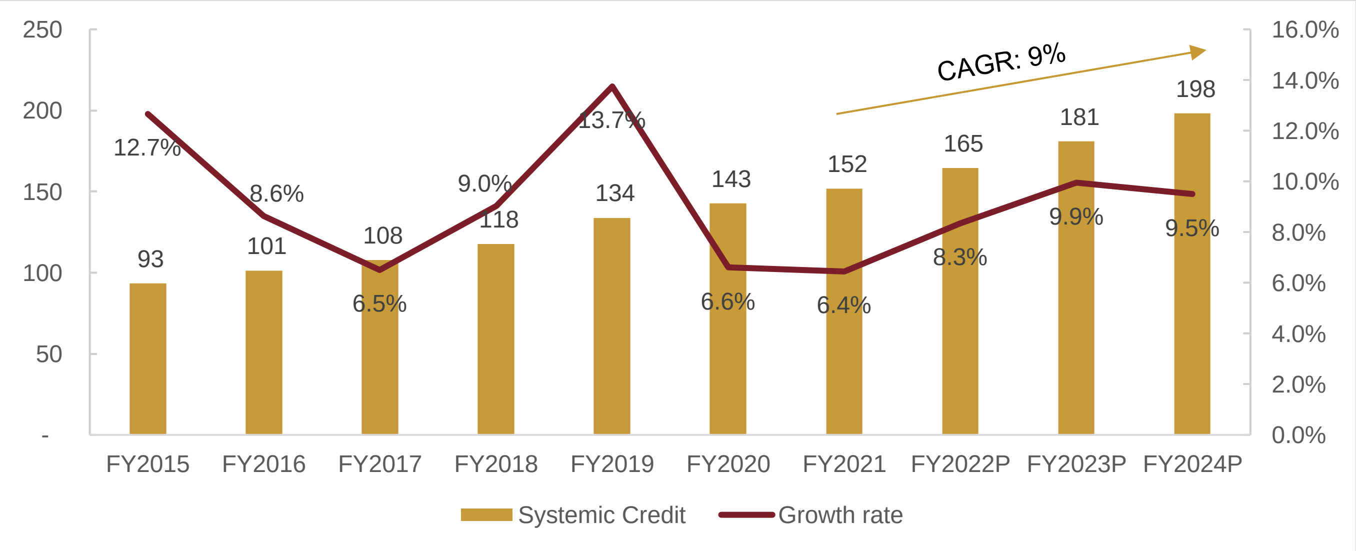
Source: RBI, company reports, CRISIL Research

Systemic credit growth to revive in fiscal 2022

Corporate credit determines the growth in overall credit as it accounts for nearly two-third of systemic credit. Overall systemic non-retail credit grew ~9% in fiscal 2019, driven by mainly public sector undertakings and energy sector (oil and gas and power generation and distribution). The corporate credit of banks grew just ~3% on-year as of March 2019, as demand dropped sharply, and alternate capital market channels opened up. The financial sector, which was already reeling under the NBFC liquidity crisis, saw financial institutions turn cautious towards corporate lending and shift their focus towards the retail segment. While this shift has caused retail credit to drive overall credit growth, it witnessed a slowdown in growth from 18% in fiscal 2018 to 15% in fiscal 2019 on account of a slump in consumption. The slowdown in economic activity, coupled with heightened risk aversion among lenders, has further tightened the overall credit growth to ~6% in fiscal 2020. Retail credit grew by 13.5% in fiscal 2020.

Overall systemic credit growth took a hit in first half of fiscal 2021 on account of a significant slowdown in retail credit and intensifying Covid-19 pandemic which triggered a national lockdown. The pandemic came as a jolt for an already slowing economy with a decadal low growth in GDP, low private consumption, cautious lending by financial institutions, poor capital expenditure (capex), and in turn, weakening credit growth. However, with a slew of government and regulatory measures announced, Indian economy is reviving in the second half of the fiscal. In fiscal 2021, credit is estimated to have grown by ~6% supported by an uptick in economic activity along with pent-up and festive demand. In fiscal 2022, as a result of the budgetary push towards investments, sharp economic recovery and pick-up in private investment, systemic credit growth is expected to pick up to around 8-10% levels. In the following fiscal (FY23), we project systemic credit growth to be in-line with expected nominal GDP growth.

Systemic growth to bounce back in fiscal 2022 and 2023



Note: P: Projected ; Systemic credit includes domestic banking credit, NBFC credit, commercial papers, external borrowings, corporate bonds excluding those issued by Banks and NBFC

Source: RBI, Company Reports, CRISIL Research

Deposit growth to moderate in fiscal 2022 with expected increase in spending

The banking sector enjoyed double-digit deposit growth of ~13% between fiscals 2013 and 2015, driven by highly competitive deposit rates offered by the sector and growing demand for deposits. However, this strong growth slowed to ~7% in fiscal 2016 as the Reserve Bank of India (RBI) cut the repo rate. Subsequently, banks followed suit by reducing deposit and lending rates.

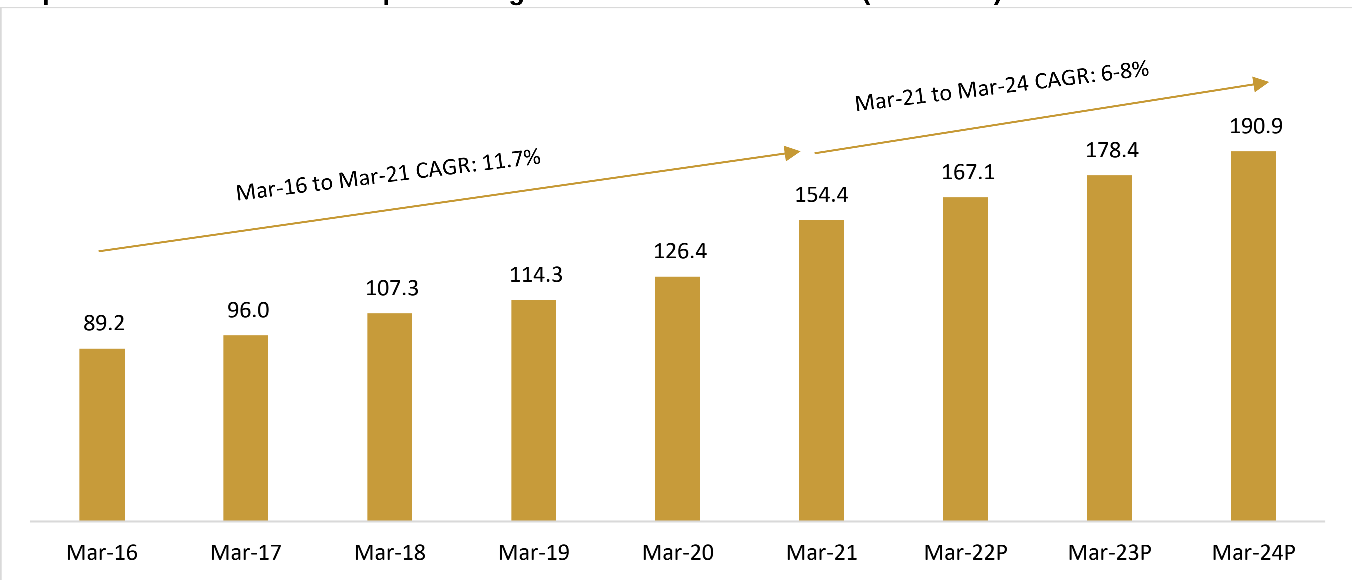
Due to demonetisation in the second half of fiscal 2017, deposit growth jumped back to ~10% with households depositing their savings with banks. As a result, during this period, the deposit-to-household-savings ratio also rose significantly, from 26% in the previous fiscal to near 39% in fiscal 2017. In fiscal 2018, deposit growth rate fell to its lowest in over 55 years to ~6%, as the effect of demonetisation subsided, and households moved their savings from deposits to other lucrative instruments such as shares and debentures. However, in fiscal 2019, deposit growth picked up and clocked 9%, in the wake of capital market volatility and higher deposit rates offered by the banks. In addition, inclusion of more people under the formal financial services channel improved deposit mobilisation as players continued to expand in the unbanked area.

In fiscal 2020, with slowdown in the economy, deposits grew at a moderate ~8%. The banking sector witnessed movement of deposits from private sector banks to public sector banks as one of the private sector bank's gross NPAs spiralled. Towards the end of fiscal 2020, Yes Bank was put under moratorium for 30 days, wherein withdrawal of deposits was restricted before a management change was effected by the regulator and the central government. With lending linked to an external benchmark and in a falling interest cycle scenario, banks have reduced deposit rates to preserve spread.

With the Covid-19 pandemic, nationwide lockdowns and sluggish economic activity, consumer spending took a hit in fiscal 2021. Although the pandemic impacted the income levels, deposits have grown~12% year-on-year as of March 2021. The growth in deposits can be attributed to reduction in spending by consumers and the safe haven provided by banks as people turned risk averse in the aftermath of the pandemic. History too suggests that savings rate tends to increase in uncertain times such as pandemics.

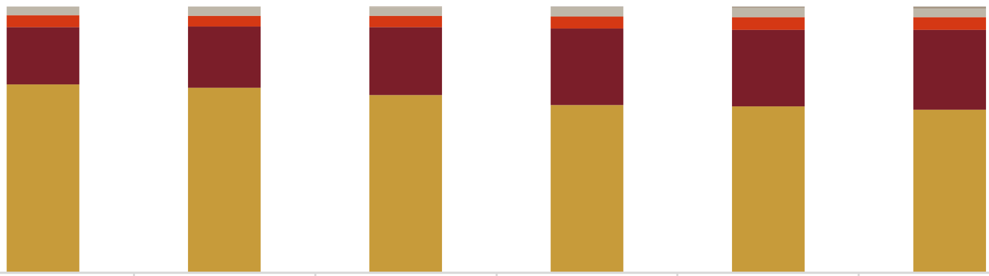
In fiscal 2022, deposits growth is expected to moderate on account of higher spending as the economy revives from the impact of pandemic. Moreover, owing to high deposits growth in fiscal 2021, banks are well placed to support the credit growth. With banks reducing the interest rates in line with market rates, investors are expected to seek alternate avenues to park their funds leading to moderate growth of 6-8% CAGR in deposits between fiscals 2021 and 2024.

Deposits across banks are expected to grow at 6-8% till fiscal 2024 (Rs trillion)



Source: RBI, CRISIL Research

Private Banks continue to improve their share in banking deposits



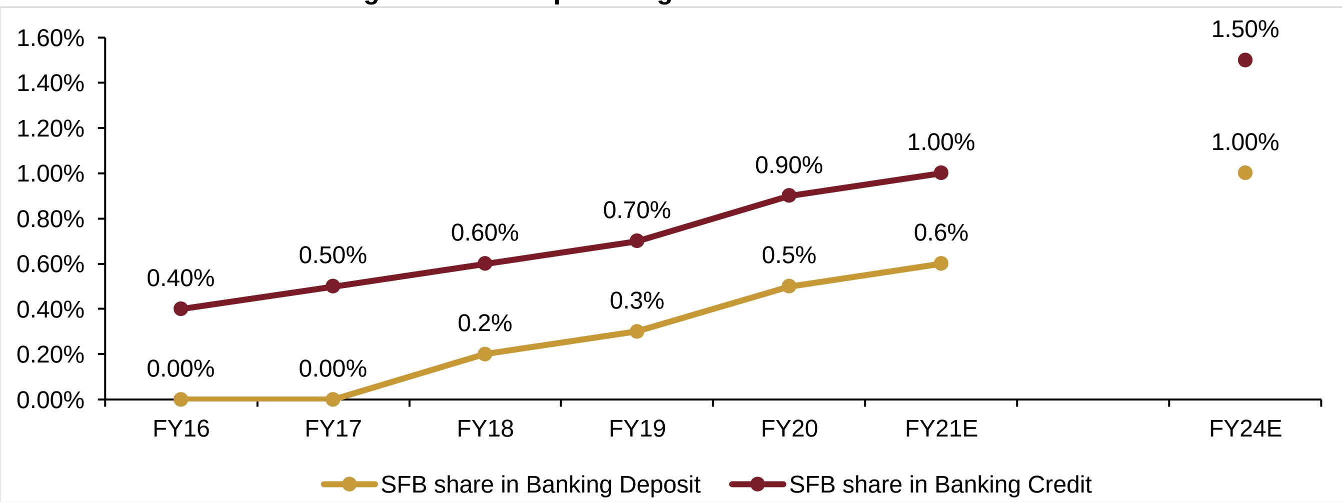
	FY16	FY17	FY18	FY19	FY20	FY21
Payment Banks	0.0%	0.0%	0.0%	0.01%	0.03%	0.03%
SFBs	0.0%	0.0%	0.2%	0.3%	0.5%	0.6%
RRBs	3.2%	3.4%	3.4%	3.4%	3.4%	3.3%
Foreign Banks	4.6%	4.2%	4.2%	4.5%	4.8%	4.9%
Private Banks	21.5%	23.0%	25.4%	28.7%	28.9%	29.9%
PSBs	70.6%	69.4%	66.8%	63.1%	62.4%	61.3%

Note: Payments bank share for FY21 is calculated based on FY20 data.

Source: RBI, CRISIL Research

The share of SFBs in deposits as well as credit has seen a steady rise over the years and is expected to reach 1% and 1.5% respectively by fiscal 2024 from the current 0.6% and 1.0% in deposits and credits in fiscal 2021. This will be on the back of robust growth on account of focused penetration and on the ground reach of these entities in comparison to the other more established player groups.

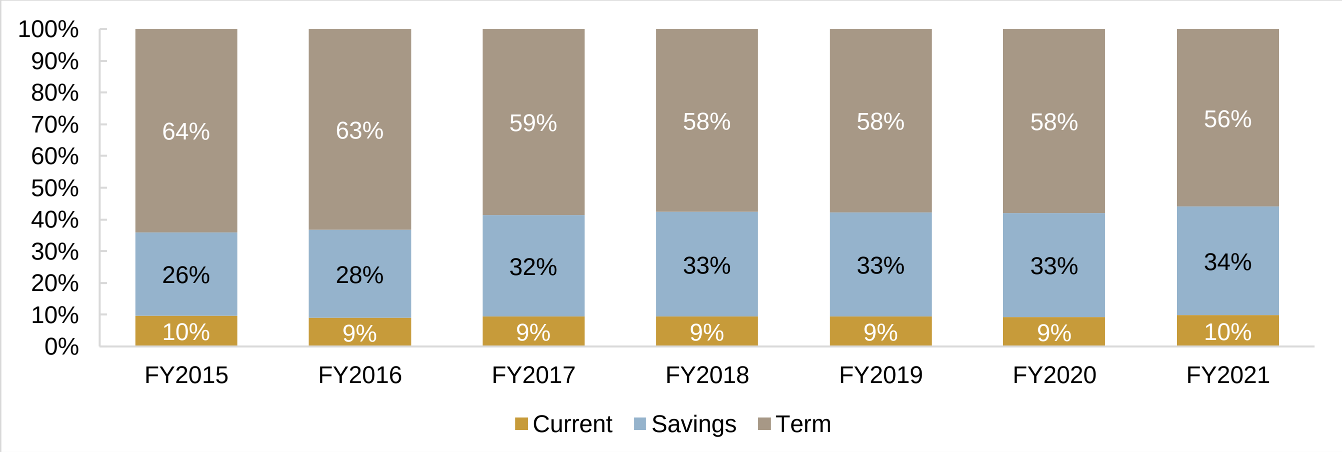
SFBs share in overall banking credit and deposit to grow



Note: E: Estimated

Source: RBI, CRISIL Research

Share of current and savings deposits increased in fiscal 2021



Note: Data includes data for banking deposits of public sector banks, private sector banks, regional rural banks, foreign banks and SFBs

Source: RBI, CRISIL Research

State-wise deposits and share of various deposits (FY21)

States	Total Deposits (Rs bn)	3-year CAGR	Share of deposits in India	Current Deposits	Saving Deposits	Term Deposits
Maharashtra	30,535	10%	20%	15%	22%	63%
Delhi	13,988	7%	9%	11%	24%	65%
Uttar Pradesh	12,872	10%	8%	6%	49%	44%
Karnataka	12,153	13%	8%	11%	31%	58%
Tamil Nadu	10,209	12%	7%	10%	33%	56%
West Bengal	9,091	8%	6%	8%	35%	57%
Gujarat	8,473	10%	5%	9%	34%	57%
Telangana	6,217	14%	4%	18%	32%	50%
Kerala	6,105	12%	4%	5%	32%	62%
Haryana	5,571	15%	4%	10%	37%	54%
Rajasthan	4,788	12%	3%	7%	42%	50%
Punjab	4,670	10%	3%	4%	38%	57%
Madhya Pradesh	4,585	10%	3%	7%	42%	51%
Bihar	4,021	8%	3%	6%	58%	36%
Odisha	3,703	11%	2%	6%	39%	56%
Andhra Pradesh	3,665	10%	2%	7%	41%	52%
Jharkhand	2,589	9%	2%	7%	41%	53%

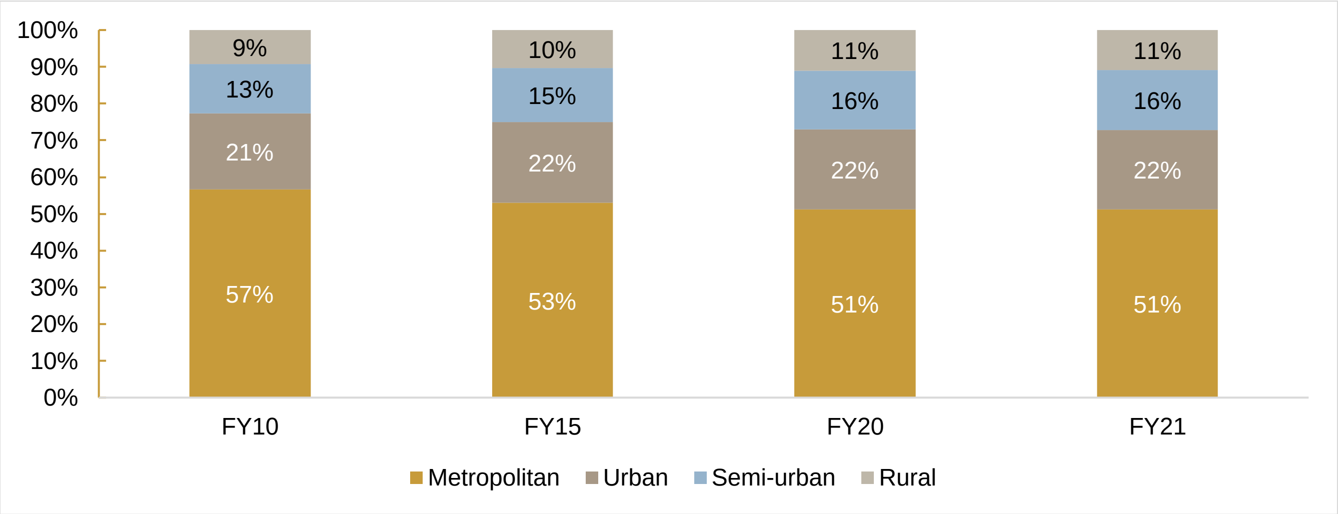
States	Total Deposits (Rs bn)	3-year CAGR	Share of deposits in India	Current Deposits	Saving Deposits	Term Deposits
Chhattisgarh	1,769	10%	1%	9%	47%	44%
Assam	1,756	9%	1%	8%	51%	42%
Uttarakhand	1,668	11%	1%	5%	41%	54%
Jammu and Kashmir	1,433	11%	1%	10%	43%	47%
Himachal Pradesh	1,131	10%	1%	3%	37%	60%
Goa	861	9%	1%	4%	28%	67%
Chandigarh	824	10%	1%	7%	32%	61%
Tripura	287	9%	0%	6%	47%	47%
Meghalaya	262	7%	0%	13%	47%	40%
Puducherry	225	10%	0%	6%	36%	59%
Arunachal Pradesh	199	14%	0%	16%	46%	38%
Nagaland	137	11%	0%	21%	46%	33%
Manipur	126	12%	0%	21%	57%	22%
Mizoram	123	13%	0%	9%	54%	37%
Dadra and Nagar Haveli and Daman and Diu	118	11%	0%	9%	43%	48%
Sikkim	111	9%	0%	7%	38%	55%
Andaman & Nicobar Islands	62	10%	0%	10%	52%	38%
Ladakh	62	NA	0%	17%	47%	36%
Lakshadweep	13	8%	0%	3%	80%	17%
Total	154,400	10%	100%	10%	34%	56%

Note: Data includes data for banking deposits of public sector banks, private sector banks, regional rural banks, foreign banks and SFBs

Source: RBI, CRISIL Research

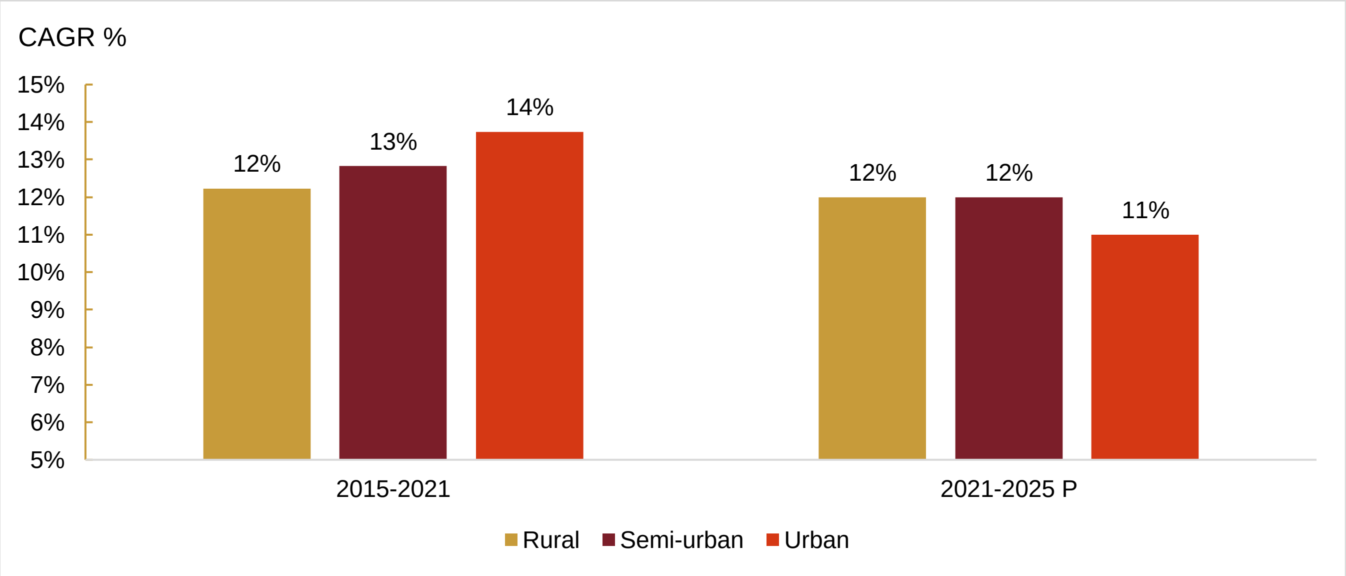
With increasing financial penetration and access to financial services in the rural and semi-urban areas, the share of deposits in these areas have also increase over the last ten years. While the share of metropolitan areas in the deposits distribution has reduced over the years, share of urban areas has remained stable and semi-urban areas have seen an increase in share of deposits.

Share of bank deposits in rural and semi-urban areas has increased over the last decade



Source: RBI, CRISIL Research

CASA deposits to grow faster in rural and semi-urban areas



Source: RBI, CRISIL Research

Comparison of different business models

	Universal Banks	Small Finance Bank	Payments Bank
Products			
Products offered	• Full spectrum of banking, savings, investment and insurance products	• Can offer savings and investment products apart from credit products / loans • Can act as Corporate Agent to offer insurance products • Cannot act as Business Correspondent to other banks	• Banking services - Demand deposits, ATM/Debit cards, payments and remittance services • Other ancillary services – Cash Management Services, Recharges, Bill Payments, Fast Tag etc. • Can act as Business Correspondent to another bank and offer savings, deposits, credit and investment products • Can act as Corporate Agent to offer insurance products and loan products
Prudential norms			
Capital adequacy framework	• Minimum Tier 1 capital: 7% • Minimum capital adequacy ratio: 9%	• Minimum Tier 1 capital: 7.5% • Minimum capital adequacy ratio: 15%	• Minimum Tier 1 capital: 7.5% • Minimum capital adequacy ratio: 15%
NIM	• No Margin Cap	• No Margin Cap	• No Margin Cap
CRR / SLR	• Maintenance of CRR/SLR ratio mandatory • CRR – 4% • SLR – 18.75%	• Maintenance of CRR/SLR ratio mandatory • CRR – 4% • SLR – 18.75%	• Maintenance of CRR/SLR ratio mandatory • CRR – 4% • SLR - 75% (of its demand deposit balances)
Leverage ratio	• Minimum leverage ratio of 4%	• Minimum leverage ratio of 4%	• Minimum leverage ratio of 3%
LCR (liquidity coverage ratio)/ NSFR (net stable funding ratio)	• Mandatory requirement to maintain liquidity coverage ratio • NSFR applicable to scheduled commercial banks	• Minimum liquidity coverage ratio of 100% by Jan 1, 2021 • NSFR will be applicable to SFBs on par with scheduled commercial banks as and when finalized	• No such requirement
Priority sector lending			
Targeted lending to sectors	• 40 percent for priority sector lending of their Adjusted Net Bank Credit (ANBC) or equivalent off-balance sheet exposure (whichever is higher)	• 75 per cent for priority sector lending of their Adjusted Net Bank Credit (ANBC) ○ 18% of ANBC to Agriculture ○ 7.5% of ANBC to micro-enterprises ○ 10% of ANBC to weaker sections	• Cannot undertake lending activities

	○ 18% of ANBC to Agriculture ○ 7.5% of ANBC to micro-enterprises 10% of ANBC to weaker sections	• At least 50 per cent of loan portfolio should constitute loans and advances of upto Rs. 2.5 million	
Bank loans / market funding	• Access to broader array of market borrowings	• Access to broader array of market borrowings • No access to bank loans	• Access to call money and CBLO market

Source: RBI, CRISIL Research

Global trends in banking

Players in the banking ecosystem in India would need to be cognisant of global trends and new sources of emerging competition, and accordingly refine their strategies. Globally, the following factors are reshaping competitive dynamics:

Web-only banks acting as strong competitors to traditional counterparts: Globally, web-only banks (also known as neobanks) have started eating into the market share of traditional financial institutions in both assets and liabilities. These banks have been able to wean away customers from large established financiers by offering attractive rates of interest on deposits and easier availability of loans. They have, however, still not been able to become the primary account of the customer (salaries, for example, continue to be with traditional banks). For example, Marcus, the digital consumer financial service platform of Goldman Sachs, had $97 billion online retail deposits as of December 2020 ($60 billion as of December 2019) and in the UK, neobanks, Monzo and Revolut, together have ~17 million customers as of March 2021, i.e. 25% of the country's population.

Open banking making customer data available to challengers as well: Technically, open banking refers to a system in which financial institutions' data can be shared for users and third party developers through open application programming interface (API). In simple words, it requires financial institutions to make available customer data to third party service providers, subject to receiving the required authorisation from customers.

Through open banking, financial institutions can access a single view on customer's entire financial profile across multiple institutions, thereby allowing them to serve the customers better and manage risks efficiently. In the US, some large banks, such as JPMorgan Chase & Co, Wells Fargo & Company, and Citigroup Inc, have begun to create their own API networks for open banking.

Open banking came into prominence with the implementation of the 2015 Revised Payment Service Directive in the European Union (EU) and the 2017 open banking directive in the UK. Since then, the movement towards open banking has been gaining ground around the world with the movement towards open banking, pure access to customer data will cease to be a source of competitive advantage for financial institutions in the long run.

Entry of new types of players in lending

Enormous amount of data is collected by players operating in payments, social media, cab aggregation, entertainment, e-commerce, retail logistics, and the food delivery spaces. Using this data, they analyse customer preferences, spending pattern, online footprints, and behavior which helps them in offering seamless, speedy, and customised services to their customers. These companies have also started exploring opportunities in credit by leveraging on this data.

For example, in the US, Amazon provides working capital loans to merchants operating on its platform. PayPal Holdings has made a mark in lending to small businesses by leveraging transaction data rather than data from lending relationships. In India, too, more players in consumer-facing businesses with a repository of data are expected to enter the lending business, which will drive faster expansion of the addressable market.

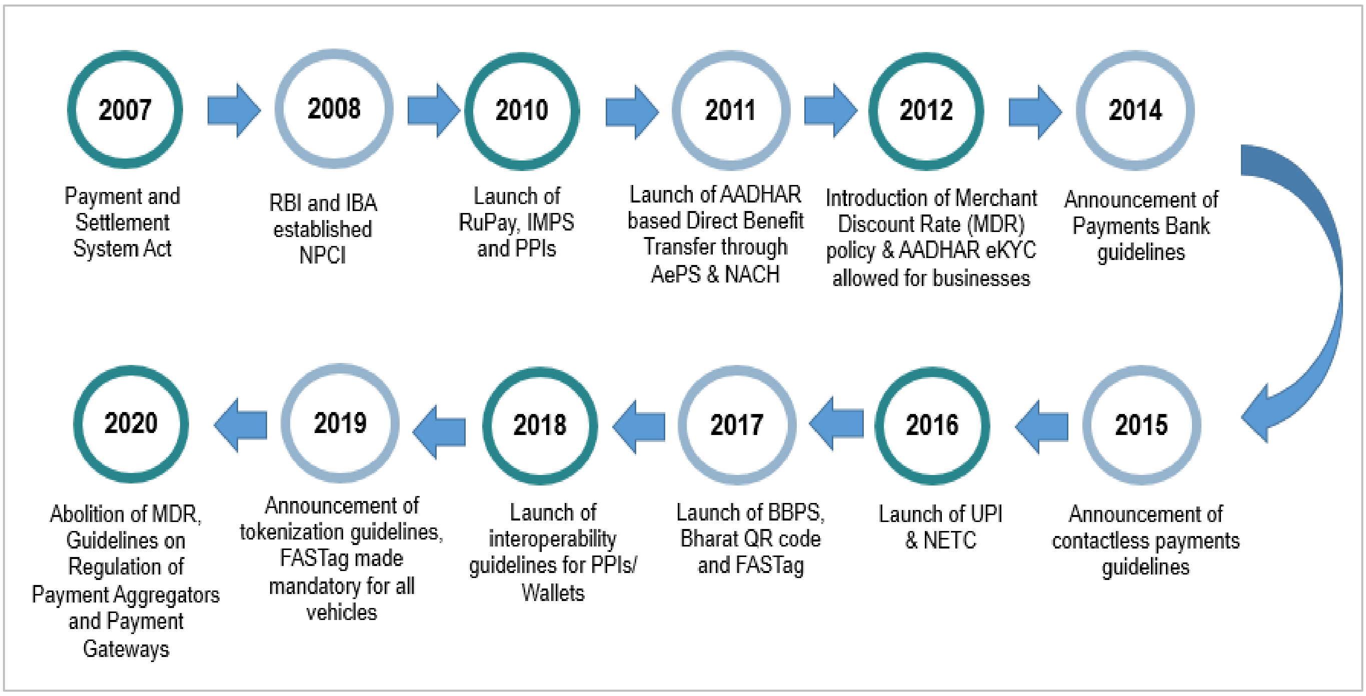
Digitization of transactions and payments in India

Overview and Trends

The Indian digital payment space has seen extraordinary growth in the last few years. The growth has been driven by multiple factors like launch of new payment products, increasing smartphone penetration, increasing mobile internet users driven by lower data charges and a strong push from the government in order to increase adoption of digital channels. The government has used levers such as ubiquitous availability of mobile broadband, increase in smart phone penetration and various incentives for the use of digital payment products to support the country's digital payments journey. In 2008, Reserve Bank of India (RBI) and Indian Bank's Association (IBA) established National Payments Corporation of India (NPCI) to create a robust payment and settlement infrastructure in India. Since, then numerous regulations and guidelines have been passed to facilitate and boost the growth of digital payments in India.

NPCI has a diversified shareholding structure with several prominent public and private sector banks, SFBs as well as players offering payment services picking up stake in NPCI over a period of time. As of November 2020, NPCI had 67 shareholders. At the time of its inception, NPCI had ten core promoter banks – State Bank of India (SBI), Punjab National Bank (PNB), Bank of Baroda (BOB), Canara Bank, Union Bank of India, Bank of India, HDFC Bank, Citibank, HSBC and ICICI Bank.

Evolution of digital payments space in India

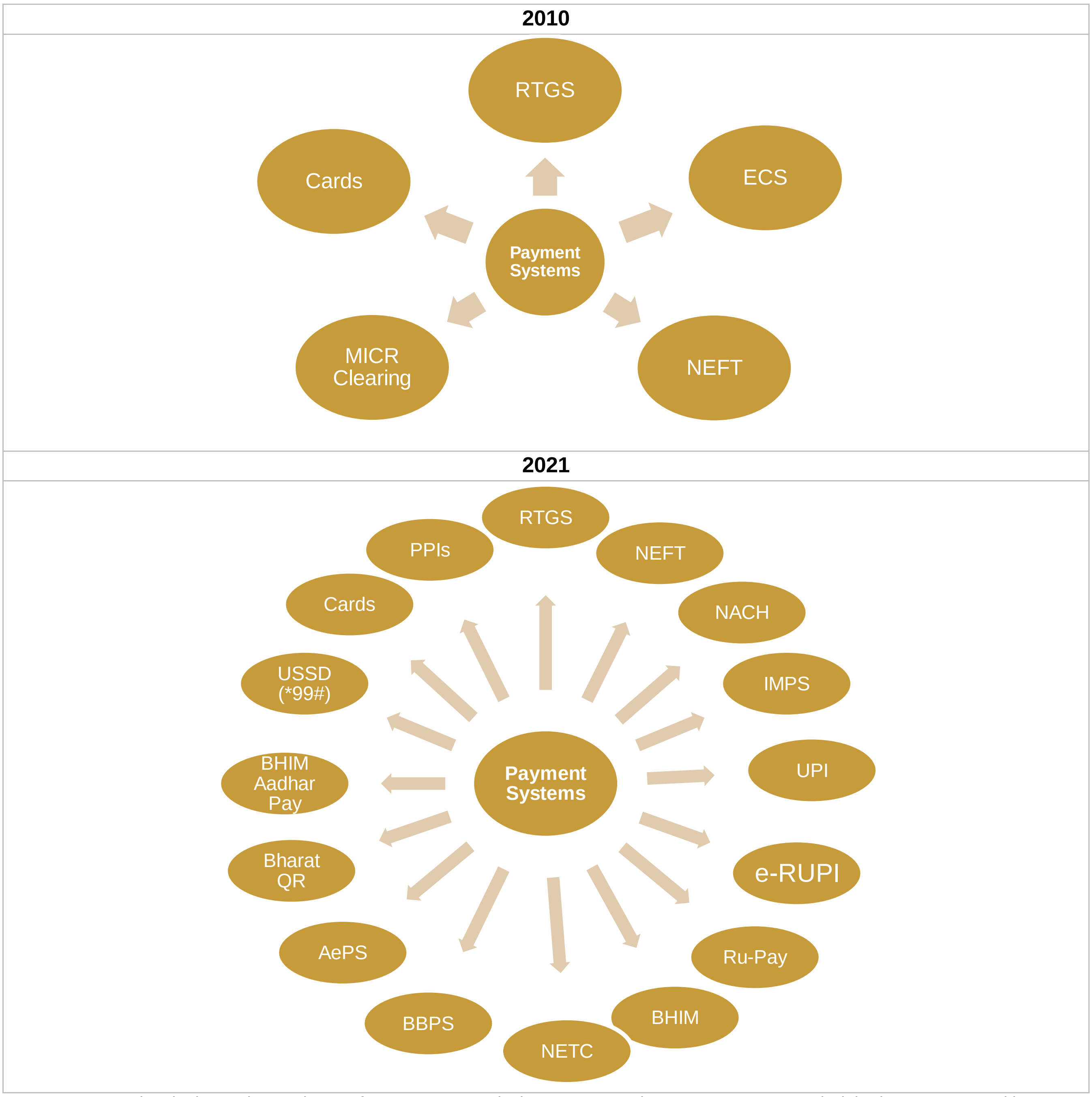


Source: NPCI, RBI, IndiaStack.org, CRISIL Research

Over the last decade, NPCI has launched various innovative products like Unified Payment Interface (UPI), National Electronic Toll Collection (NETC) and Bharat Bill Pay Service (BBPS), AADHAR Enabled Payment System (AePS) and other retail payment and settlement systems. The convenience of these payments systems along with ubiquitous availability of mobile broadband has ensured acceptance as they provided consumers an alternative to the use of cash and paper for making payments. The participation of non-bank fintechs in the payment ecosystem in the form of Prepaid Payment Instruments (PPI) issuers, Bharat Bill Payment Operating Units (BBPOUs) and other third party application providers in the UPI platform has furthered the adoption of digital payments in India. Further, in April 2020, to increase the global outreach of NPCI payments systems, a subsidiary NPCI International Payments Limited (NIPL) was established to export offerings of NPCI in the foreign markets with primary focus on internationalisation of RuPay and UPI.

These innovations have led to the emergence of various players such as Payments Bank (such as PayTM Payments Bank and Fino Payments Bank), Fintechs (such as Razorpay, PayU, and PayTM) and incumbent banks (such as Axis, HDFC Bank, ICICI Bank) too have launched their own digital payment platforms. Consumer apps provided by Google (Google Pay), Amazon (Amazon Pay) and Walmart (PhonePe) have created a strong presence in UPI payments to strengthen their foothold in the digital payments space. These fintechs and usage of their application for payments is also helping the consumers create formal transaction records, which will ease access of credit in times to come.

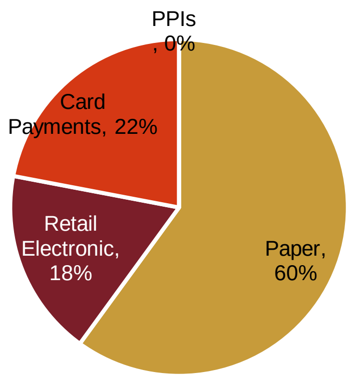
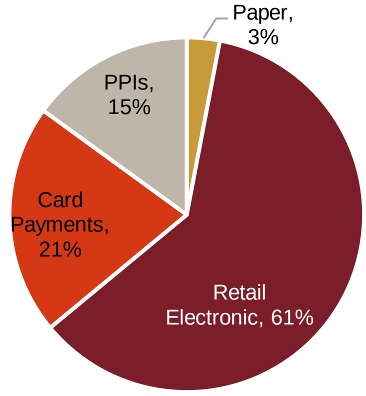
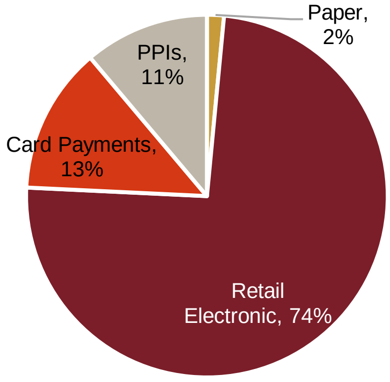
Evolution of India's payment system over the decade



Note: NEFT- National Electronic Fund Transfer, RTGS – Real Time Gross Settlement, MICR- Magnetic ink character recognition, IMPS – Immediate Payment Service, NACH – National Automated Clearing House, BHIM – Bharat Interface for Money, USSD – Unstructured Supplementary Service Data, PPI – Prepaid Payment Instrument, UPI – Unified Payment Interface, AePS – Aadhaar Enabled Payment System, BBPS – Bharat Bill Pay Service, NETC – National Electronic Toll Collection ; Data in the chart shows the types of payment modes and not the market share
Source: RBI – Payment & Settlement System in India, NPCI, CRISIL Research

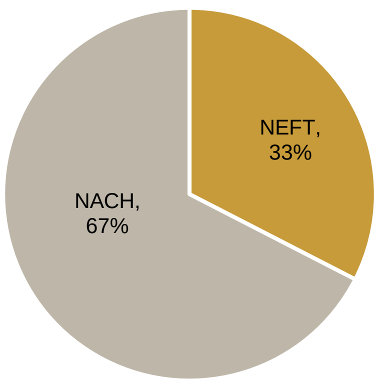
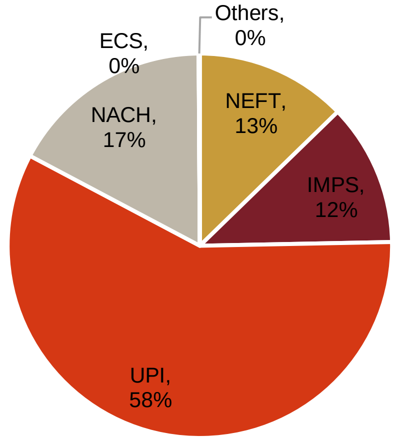
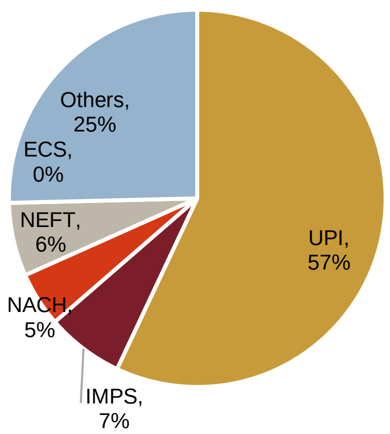
With the advent of various innovative electronic systems and payments products, the Indian ecosystem has witnessed a shift in the payment preference. The share of paper based clearing in terms of volume has reduced from 60% of the total retail payments in FY11 to just 2% of total retail payments in FY21. In terms of value, the share of paper based clearing has declined from 89% in FY11 to 14% in FY21.

Share of retail payment system by volume (FY21)

FY11 Transaction Volume - 2.3 billion	FY20 Transactions Volume – 35.2 billion	FY21 Transactions Volume – 44.2 billion
		

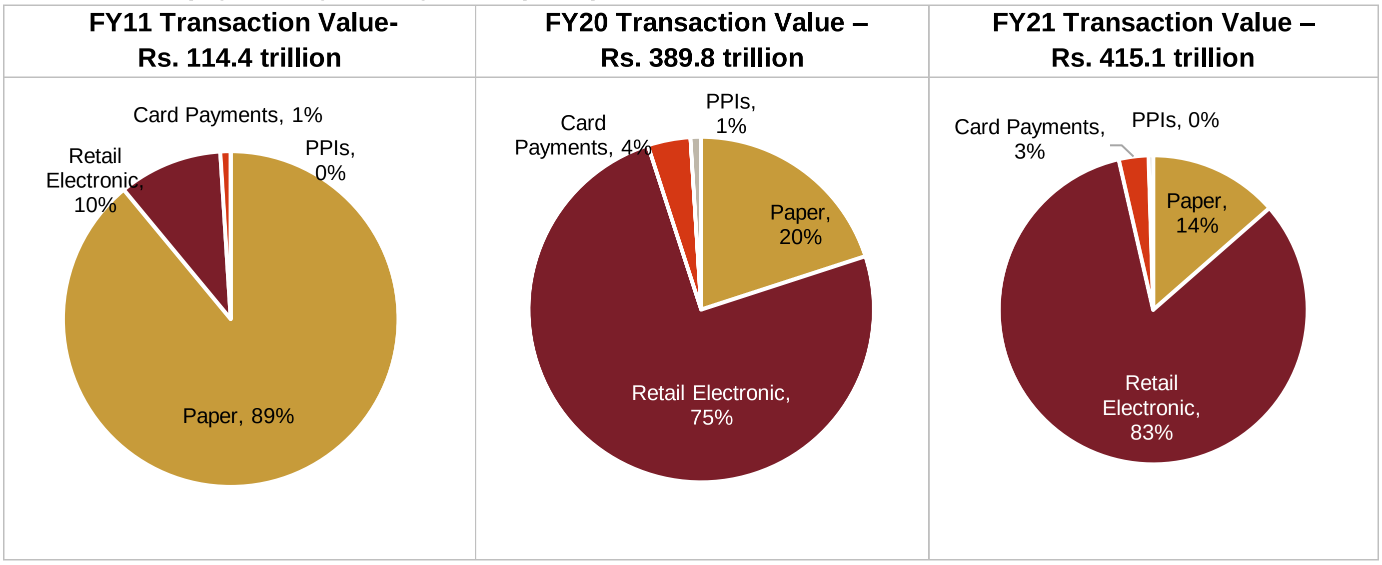
Note: Retail electronic include credit transfers (NEFT, IMPS, UPI) and direct debit transfers (ECS & NACH)
Source: Payment and Settlement System in India - RBI, CRISIL Research

Retail electronic payment mix by volume (FY21)

FY11 Transaction Volume – 0.4 billion	FY20 Transaction Volume- 21.5 billion	FY21 Transaction Volume- 32.8 billion
		

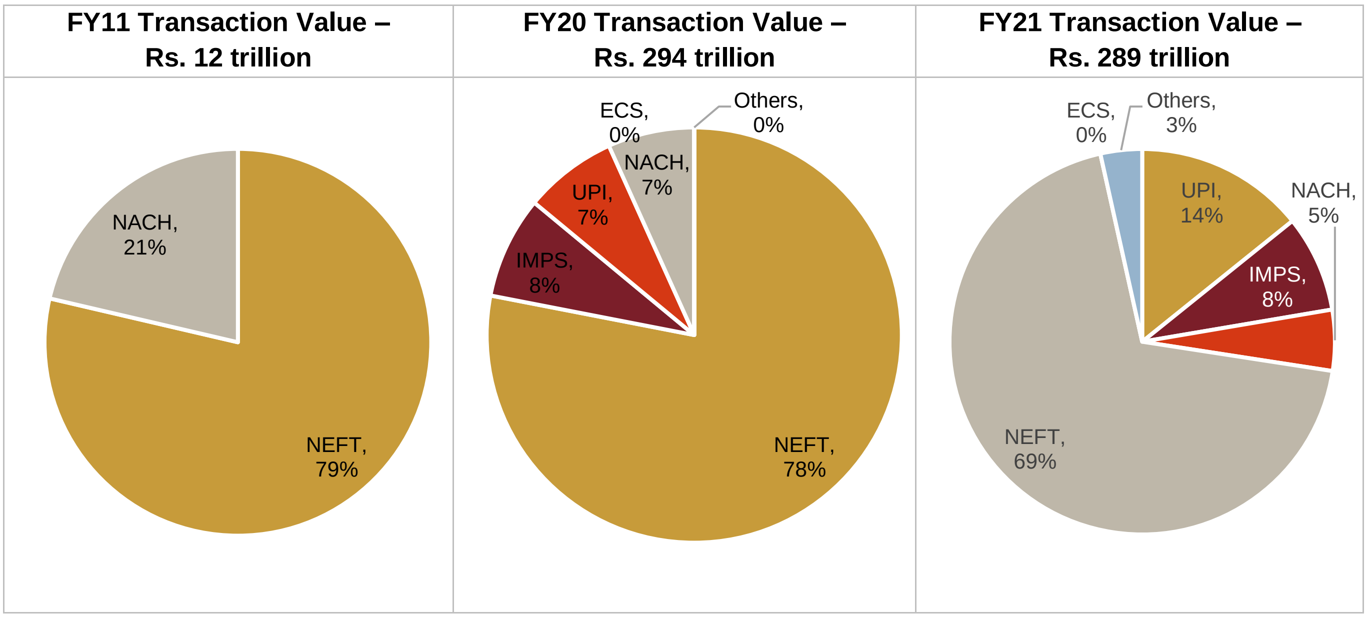
Source: Payment and Settlement System in India - RBI, CRISIL Research

Share of retail payment system by value (FY21)



Note: Retail electronic include credit transfers (NEFT, IMPS, UPI) and direct debit transfers (ECS & NACH)
Source: Payment and Settlement System in India - RBI, CRISIL Research

Retail electronic payment mix by value (FY21)



Source: Payment and Settlement System in India - RBI, CRISIL Research

With changing dynamics, banks and other financial institutions have also adopted newer business models. Payment infrastructure, which earlier used to be a cost centre for banks, has now turned into a core offering and a point of creating differentiation. The customers are now seeking ease of transaction at cost effective prices across various platforms. This has also led to strong collaboration between banks and fintechs to enable payments modernization and financial inclusion.

Digital & Cash Transactions

Surge in digital transaction volumes reflected in rising share

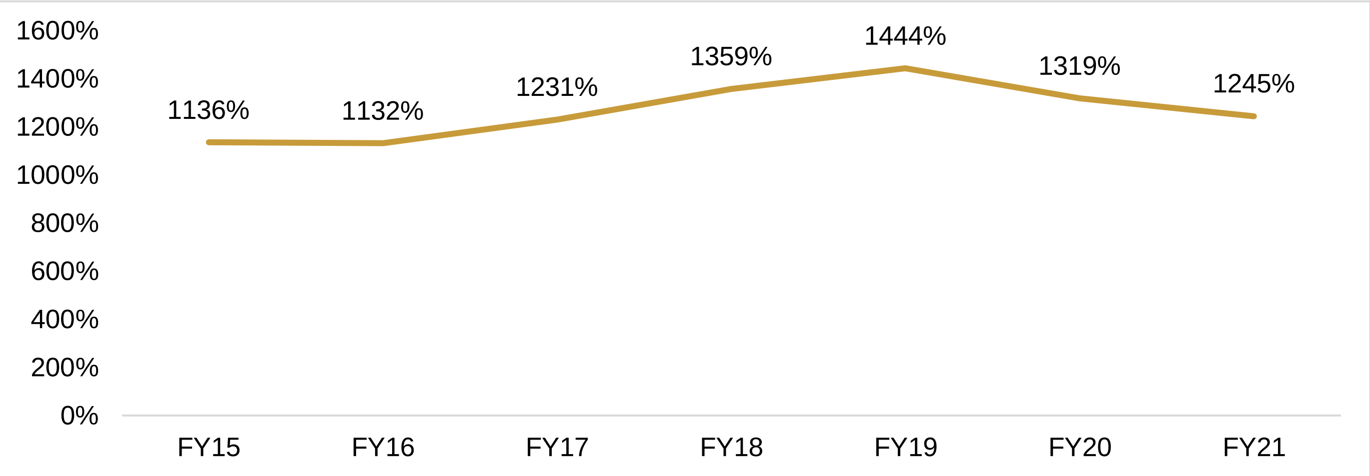
While usage of cash remains high, particularly in person-to-merchant transactions in India, we have observed a surge in digital transactions in the past few years, led by government and regulatory initiatives and changing consumer preferences. JAM (Jan Dhan, Aadhaar and Mobile), demonetisation of high-value currency notes in November 2016, implementation of GST in July 2017 and unveiling of the Unified Payments Interface, or UPI, are some of the notable regulatory initiatives that have spurred growth in the space. Digital payment volumes (*digital transactions includes, Retail Electronic Clearing, Prepaid Payment Instruments, RTGS – excluding interbank clearing, ECS, NEFT, IMPS, NACH and card transactions at ATM)* have more than tripled in the last three years ending FY20.

In volume terms, digital payments transactions have logged a CAGR of 49% from fiscal 2015 to fiscal 2021 owing to factors such as a younger population, rising smartphone penetration, increasing mobile internet users, convenience of transacting digitally, and booming ecommerce sector. The transaction value of digital payments witnessed a CAGR of 9% to reach Rs. 1,379 trillion in fiscal 2021 from Rs 823 trillion in fiscal 2015. The growth rate came down slightly in the immediate aftermath of changes in KYC norms, including voluntary use of Aadhaar identification, being made applicable to prepaid payment instrument (PPI) companies in March 2018, but has bounced back since then. In fiscal 2021 as well, while digital payments transaction volume grew by 14%, transaction value declined by ~15%, mainly owing to a sharp contraction of RTGS payments as a result of Covid-19.

In Q1FY22, transaction volumes for digital payments reached 12.8 billion as compared to 7.2 billion in Q1FY21, thereby registering a growth of 77% on year. The transaction value of digital payments also witnessed a growth of 27% to reach Rs. 365 trillion in Q1FY22 as compared to Rs 286 trillion in Q1FY21. Going forward, the trend is expected to continue as digital payments gain in popularity and become more ubiquitous.

The value of digital transactions as a proportion of private consumption expenditure in between fiscal 2015 and fiscal 2021 also rose from 1136% to 1245%, which shows that the usage of digital transactions for consumption has been on the rise over the past few years.

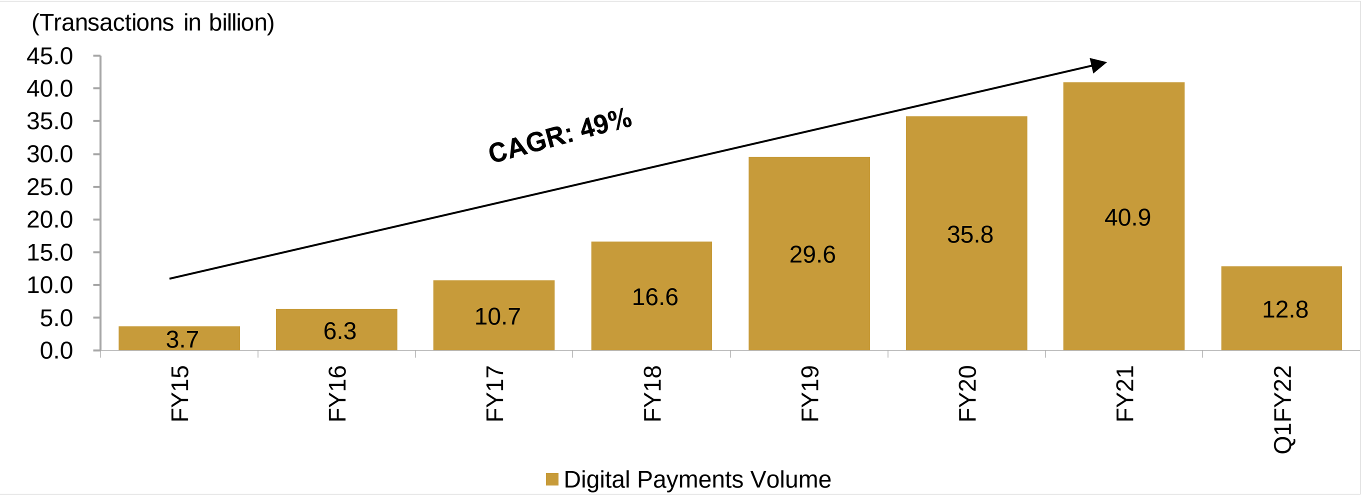
Digital transaction value as a % of private final consumption expenditure (PFCE)



Note: E: Estimated, PFCE is based on current prices

Source: RBI, CRISIL Research

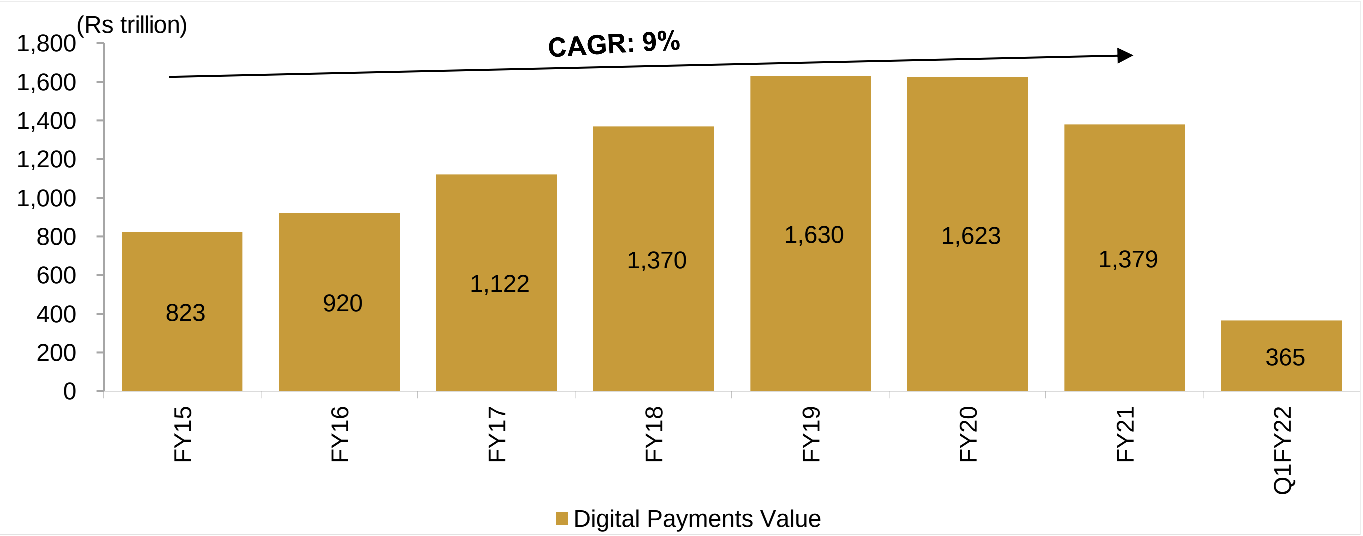
Rapid growth in number of digital payments transactions in India



Note: Digital transactions includes Retail Electronic Clearing, PPIs, RTGS – excluding interbank clearing, ECS, NEFT, IMPS, UPI, Mobile Banking, NACH & card transactions at ATMs

Source: RBI, CRISIL Research

Digital payments transactions growth (in value terms) mirrors the rise in volumes

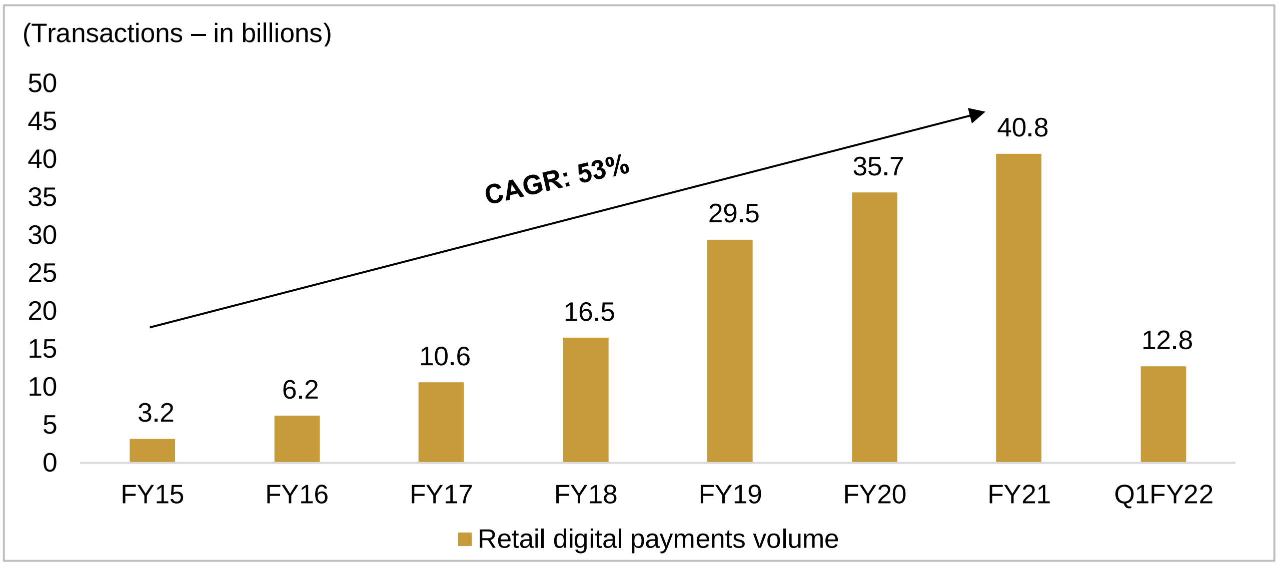


Note: Digital transactions includes Retail Electronic Clearing, PPIs, RTGS – excluding interbank clearing, ECS, NEFT, IMPS, UPI, Mobile Banking, NACH & card transactions at ATMs

Source: RBI, CRISIL Research

In fiscal 2021, retail electronic digital transaction such as UPI, AePS, NETC and BBPS saw a sharp rise in transaction volumes as people preferred to transact via contactless payments system, owing to outbreak of Covid-19, However, the usage of debit and credit cards at POS machines at retail shops saw a decline as most of shops selling non-essential goods, remained shut for almost first half of the year. In fiscal 2021, retail digital payment transaction volume and value grew by 14% and 13% respectively to reach 40.8 billion and Rs. 353 trillion. Going forward as well, the convenience of digital payments, ease of usage, and recipients also increasingly preferring digital payments would result in some sections of consumers continuing to prefer this medium. This, along with the continuous rise in retail spends, will drive growth for digital transactions.

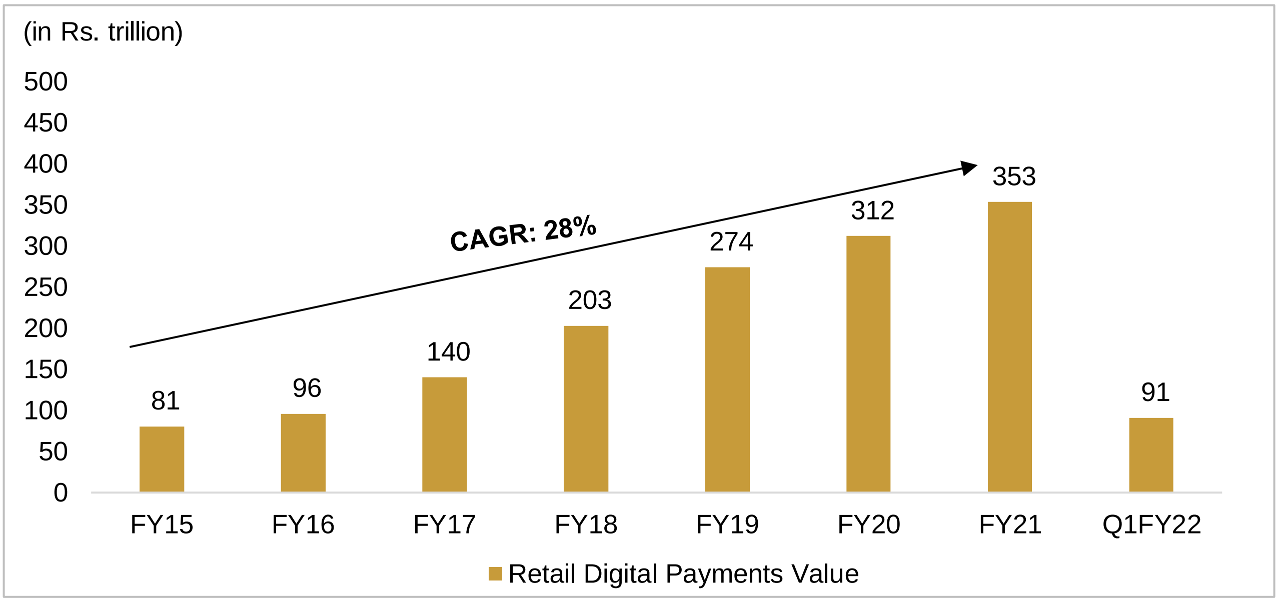
Retail digital payment transaction volumes have grown at 53% CAGR between 2015 and 2021…



Note: Retail digital payments include all digital payments except RTGS and Paper Clearing

Source: RBI, CRISIL Research

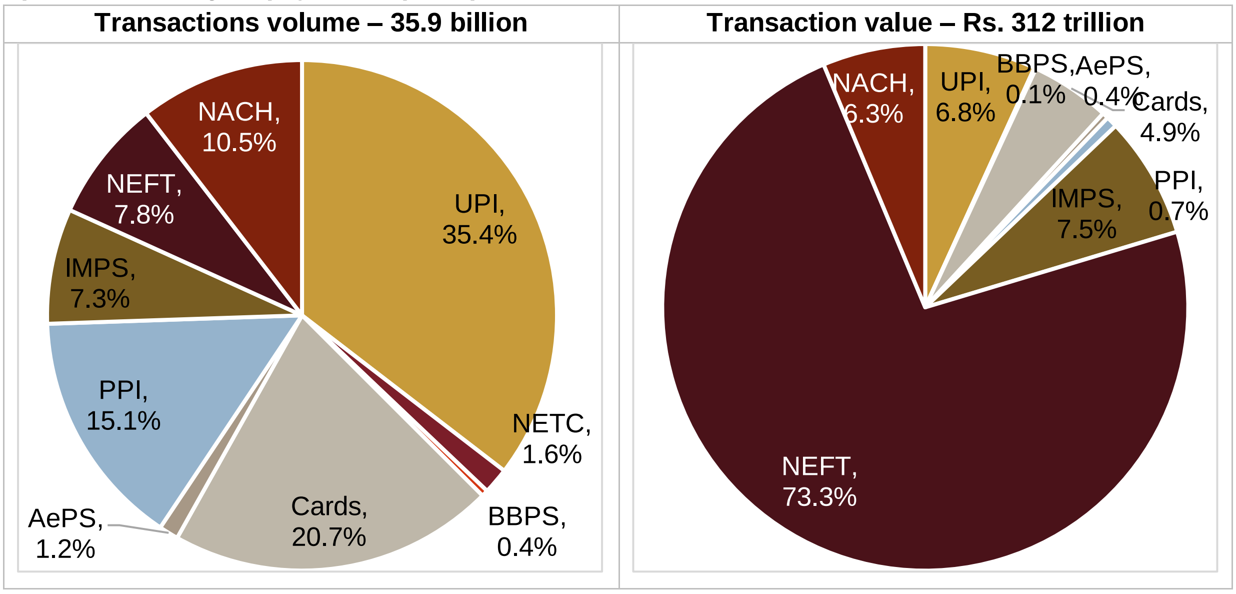
…Value growth in retail digital payments transactions also extremely strong



Note: Retail digital payments include all digital payments except RTGS and Paper Clearing

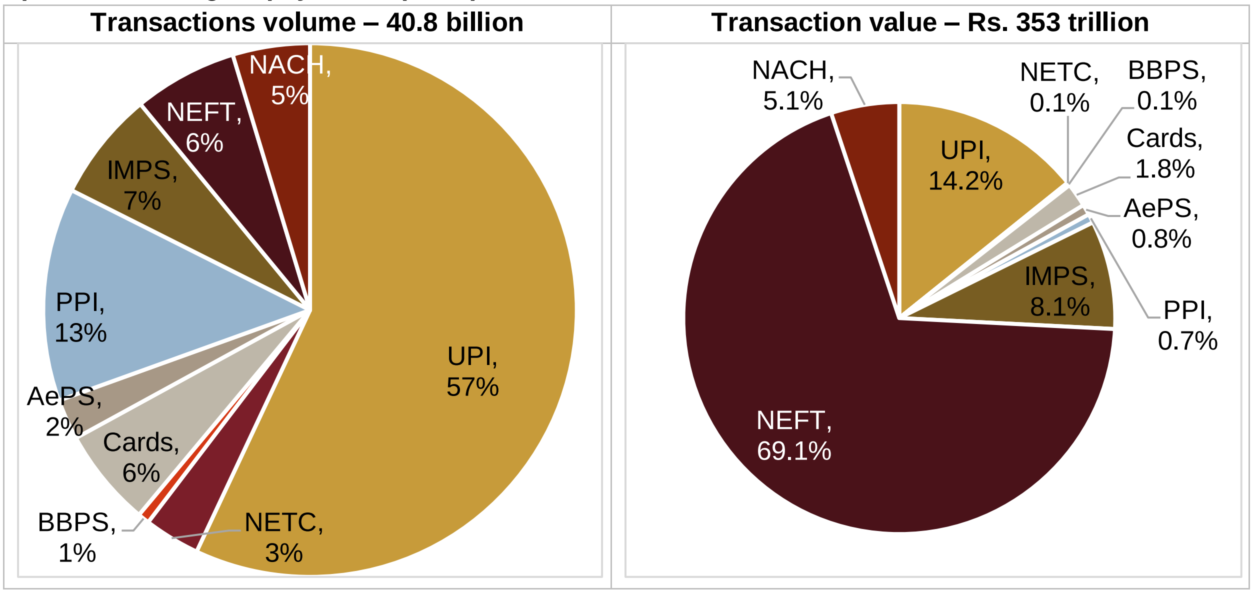
Source: RBI, CRISIL Research

Split of Retail digital payments (FY20)



Source: RBI, NPCI, CRISIL Research

Split of Retail digital payments (FY21)



Source: RBI, NPCI, CRISIL Research

On January 1, 2021, the RBI launched a composite Digital Payments Index (DPI) to capture the extent of digitization of payments across the country with March 2018 as the base period. The index comprises of five major parameters to measure the penetration of digital payments. These include payment enablers, payment infrastructure – demand side factors, payment infrastructure – supply side factors, and payment performance and consumer centricity. Each of these parameters have certain sub-parameters, which in turn consists of various measurable indicators.

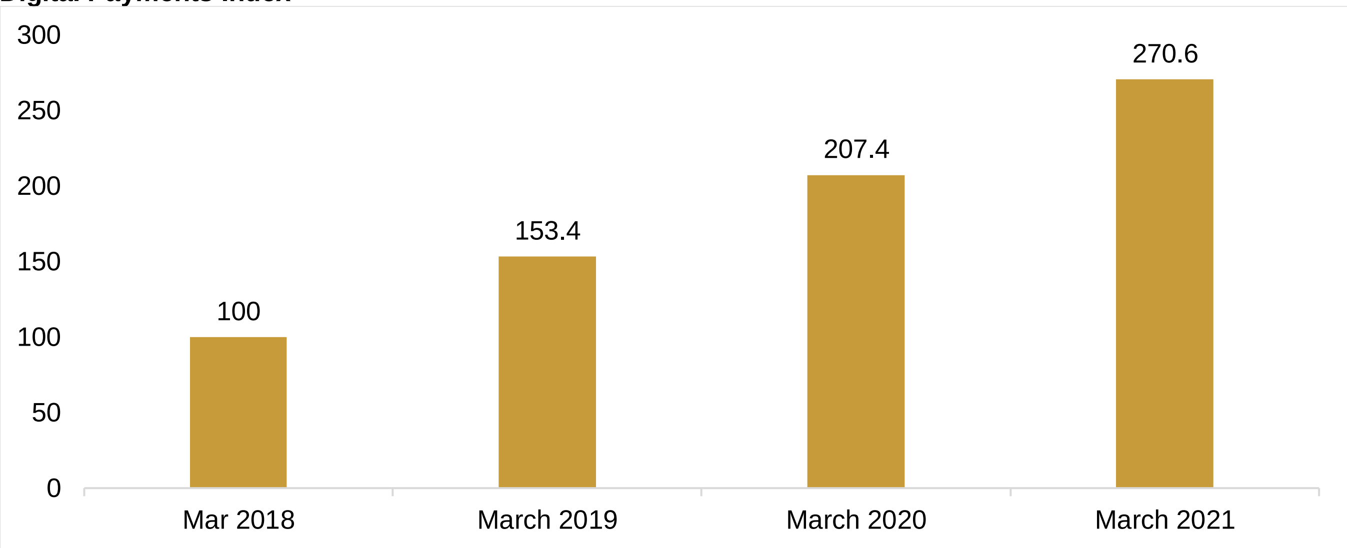
Parameters and Sub-parameters of RBI's Digitals Payment Index

Parameters	Sub Parameters	Parameter Weightage
Payment Enablers	Internet, Mobile, Aadhaar, Bank accounts, Participants, Merchants	25%
Payment Infrastructure – Demand Side	Debut cards, Credit cards, PPIs, FASTag, Customer registered in Mobile and Internet Banking	10%
Payment Infrastructure – Supply Side	Bank branches, Business Correspondents ATMs, POS Terminals, QR codes, Intermediaries	15%
Payment Performance	Digital payments system – Volume and Value, Unique users, Paper clearing, Currency in circulation, Cash withdrawals	45%
Consumer Centricity	Awareness and Education, Declines, Complaints, Frauds, System Downtime	5%

Source: RBI, CRISIL Research

The RBI and government has been continuously pushing for digital transaction over the years to bring in more transparency and reduce the cost of transactions; the launch of DPI is a significant step to measure to progress on this front. The DPI score for March 2018 is set at 100 and it was found to reach 207.4 and 270.6 in March 2020 and March 2021, which shows the growth in digital payments.

Digital Payments Index



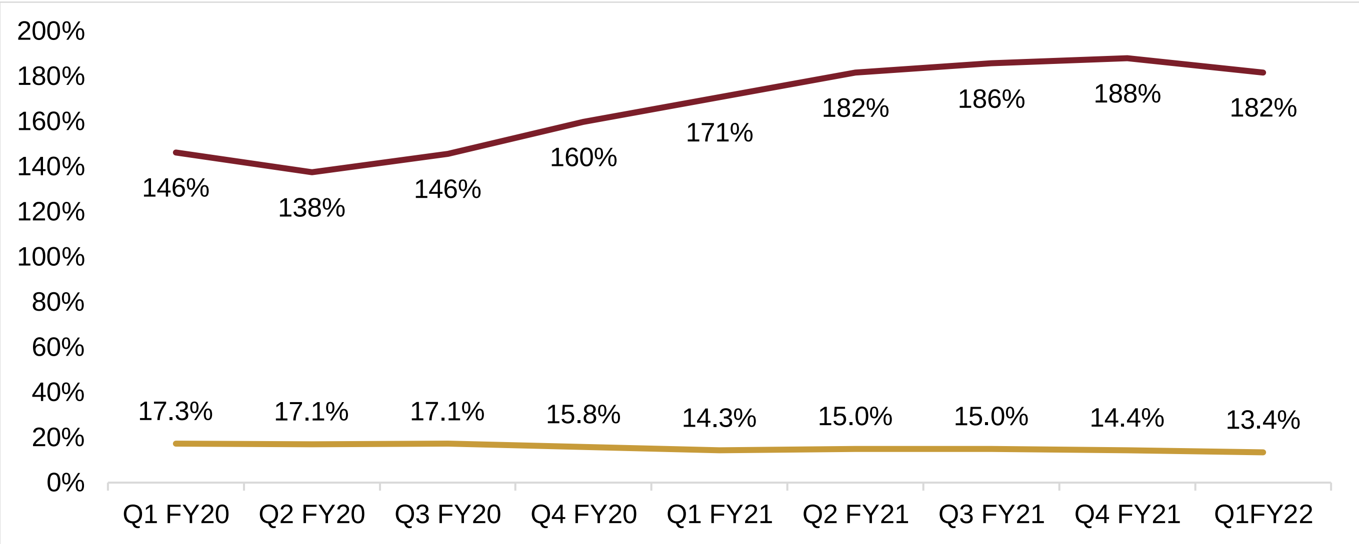
Note: Indexed to 100 as of March 2018
Source: RBI, CRISIL Research

Digital payments continue to rise, but so does ATM withdrawals

While digital payments are rising, cash usage in the economy remains high as evident from the graph below that captures digital payments and ATM withdrawals as a percentage of GDP. The value of withdrawals from ATMs has reached ~Rs. 32 trillion in FY20, up by around 14% from Rs. 28 trillion in FY19. In fiscal 2021, the aggregate value of ATM withdrawals stood at Rs 29 trillion.

While digital payments are increasingly becoming popular, cash also remains a significant mode of doing day-to-day transactions, especially in semi-urban and rural areas. The lack of trust in technology, limited awareness, inadequate payment infrastructure, and poor network connectivity has restricted digital transactions and discouraged people from using these payment modes. As a result, cash is still a preferred mode of payment in rural India due to comfort in transacting through cash. Furthermore, public preference has shifted to withdrawing cash on an as-needed basis instead of making large withdrawals at storing cash at home. Deposits with banks have also swelled over the last couple of years, which is reflected in the rise in currency in circulation.

Retail digital payment and Cash transaction are both on the rise



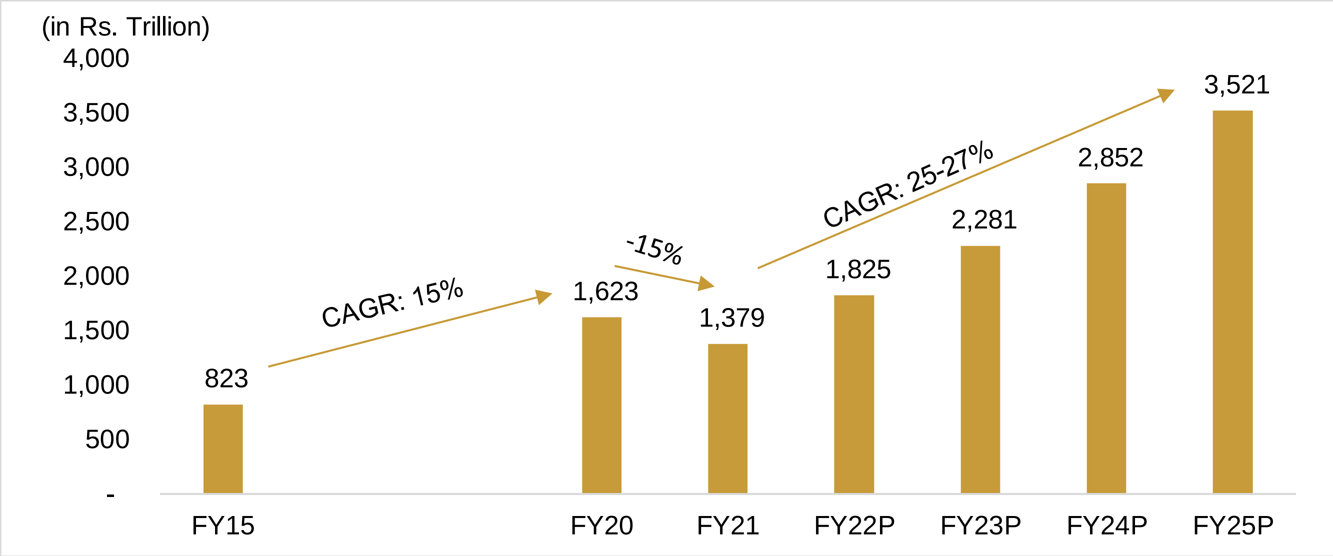
Source: RBI, MOSPI, CRISIL Research

Retail digital payments forecast to grow at 25-27% CAGR during FY21 to FY25

CRISIL Research forecasts the digital payments value in India to reach Rs 3,500 trillion in fiscal 2025 from Rs 1,379 trillion in FY21, translating into CAGR of 25-27% between fiscal FY21 and FY25. The growth in the digital transaction can be attributed to rise in smart phones and mobile internet adoption, convenience offered by digital payments, and ubiquitous availability of payment solutions. Players in the ecosystem as also regulators are continuously evaluating various technology options to come up with cost-effective solutions as well as multiple use cases in order to keep the two parties at the centre of the payments ecosystem – merchants and customers – engaged.

During the same time, retail digital payments is expected to quadruple and reach Rs. 1, 343 trillion by FY25, translating into a 40% CAGR growth over the next four years. CRISIL Research expects regulatory environment to largely favour a nudge towards digital payments and incentivising it, which will lead to faster adoption of digital payments by the consumers, thereby driving growth of retail digital transactions in the time to come.

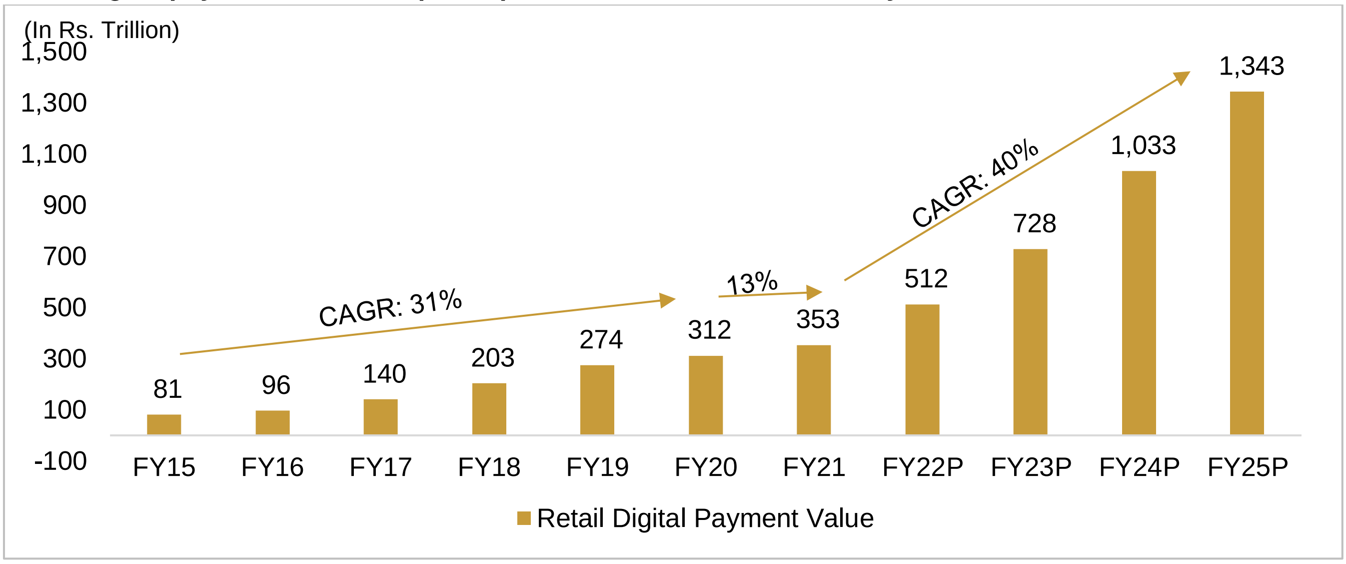
Digital payments value to cross Rs 3,500 trillion by FY25



Note: Digital transactions includes Retail Electronic Clearing, PPIs, RTGS – excluding interbank clearing, ECS, NEFT, IMPS, UPI, Mobile Banking, NACH & card transactions at ATMs, P: Projected

Source: RBI, CRISIL Research

Retail digital payments value to quadruple; to reach Rs 1,343 trillion by FY25



Note: Retail digital payments include all digital payments except RTGS and Paper Clearing

P: Projected

Source: RBI, CRISIL Research

Share of retail digital payments to grow at a faster pace

Year	Retail digital payment-Transaction Value	Retail digital payments as a % of overall digital payments
FY2015	Rs. 81 trillion	10%
FY2020	Rs. 312 trillion	19%
FY2021	Rs. 353 trillion	26%
FY2025P	Rs. 1,345 trillion	38%

Note: P: Projected, Retail digital payments include all digital payments except RTGS and Paper Clearing

Source: RBI, CRISIL Research

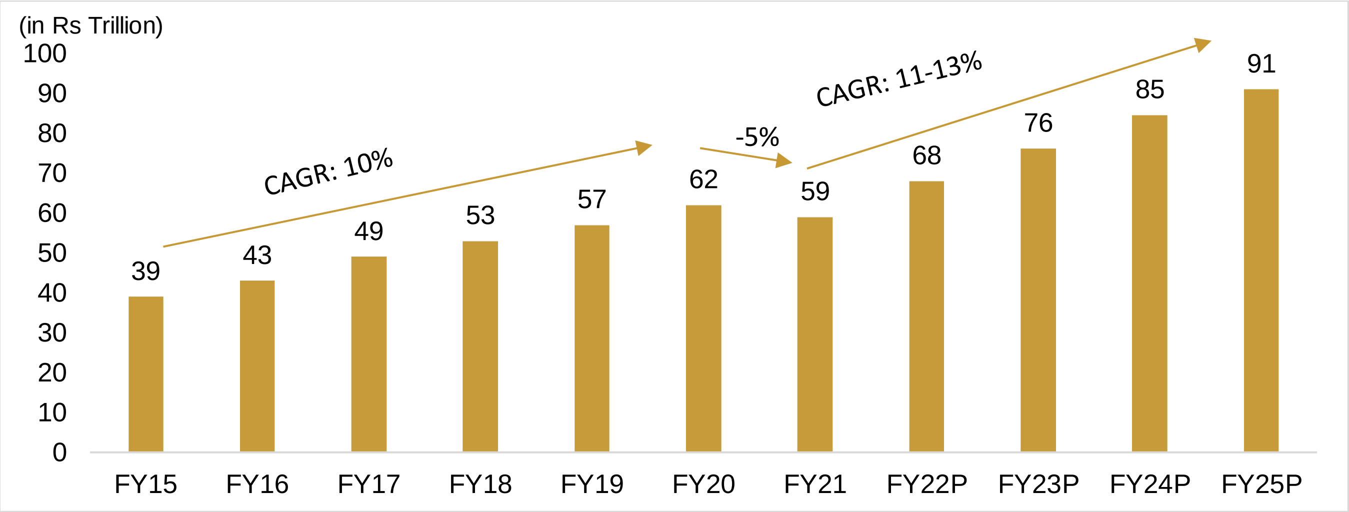
Enablers for growth in digital transactions

In India, the Central bank has been the primary enabler of digital transactions in India. Over the years, it has laid emphasis on the development of digital payment ecosystem, right from conceptualisation, to execution and propelling investments in technology to enable the customer to transact in a seamless manner while addressing security concerns. This, along with rising internet penetration, increasing usage of cards, acceptance and adoption of various payments infrastructure and e-commerce platforms and changing consumer behaviour is expected to enable and drive digital transactions in the country.

Continuous rise in retail spending on goods

Retail spending on goods and services in India has grown at a 5 year CAGR of 10% between fiscal 2015 and fiscal 2020. But, in fiscal 2021, retail consumption saw a hit due to the implementation of nationwide lockdown. However, CRISIL Research expects retail spending to gradually recover in fiscal 2022, on account of low base, full year of store operations and waning impact of the pandemic. In the long run, retail spending is expected to reach Rs. 91 trillion by fiscal 2025, contributing to the digital payments growth in the country.

Overall retail spending to grow at ~11-13% CAGR between fiscal 2021 and fiscal 2025



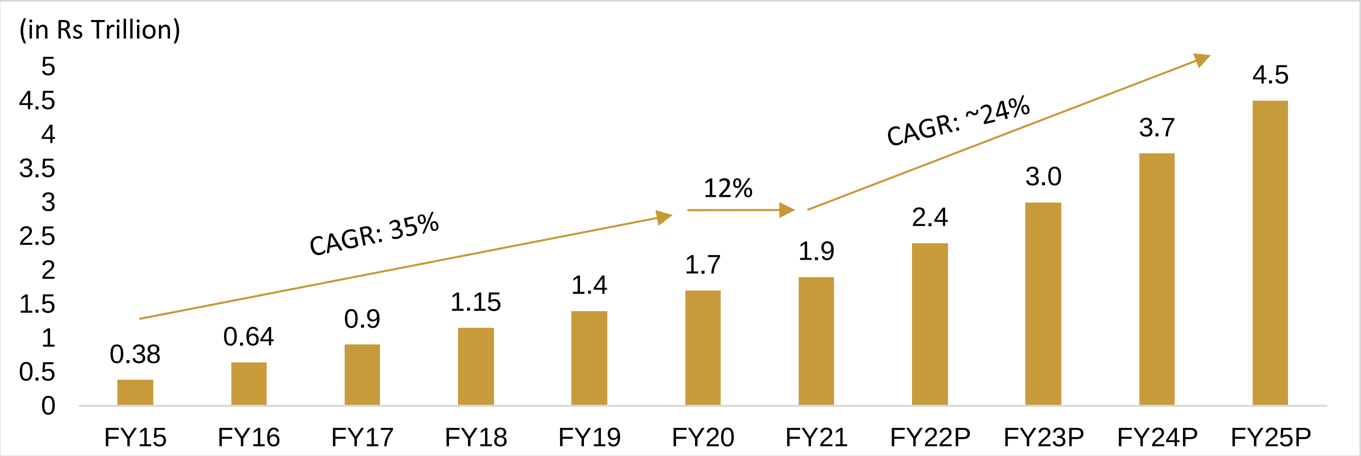
Note: P: Projected

Source: CRISIL Research

Ecommerce spending to drive digital transactions

The Indian e-commerce sector has had a phenomenal run in the recent past. The sector has managed to attract consumers and has grown at a ~35% CAGR from Rs. 0.38 trillion fiscal 2015 to Rs. 1.72 trillion in fiscal 2020 on the back of rising internet penetration, increasing awareness of online shopping, penetration into tier 2 and tier 3 with the help of assisted model (where e-commerce firms tie up with merchants to cater customers) and lucrative deals offered by well-established players and start-ups. As a proportion of total organised retail (organised brick and mortar stores and e-commerce), the share of e-commerce has jumped from 9% in FY15 to 24% in FY20. In fiscal 2021, the e-retailing business is estimated to have grown by ~12%. Going forward, CRISIL Research expects e-commerce sector to grow at a four year CAGR of ~24% to reach close to Rs 4.5 trillion by fiscal 2025, which will necessitate the growth of digital payments in the country.

E-retail continue to grow at a CAGR of ~23-25% between fiscal 2021 and fiscal 2025

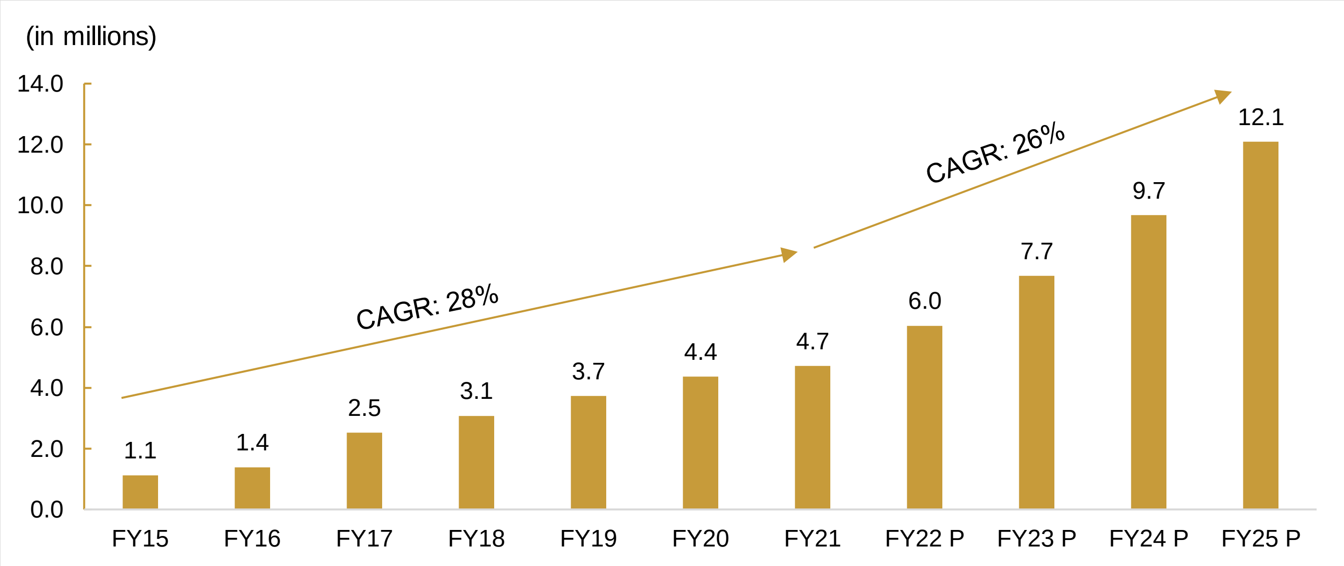


Note: P: Projected
Source: CRISIL Research

Increase in cards and POS terminal to augment digital transactions

Over the last decade, the usage of debit and credit cards in India has increased substantially. Between fiscal 2011 and 2021, the number of debit cards issued in the country has increased from 230 million to 898 million, while issued credit cards has increased from 20 million to 62 million. As more cards are getting issued, there has been a growth in the acceptance infrastructure as well. As of March 2020, the POS infrastructure in the country has more than doubled over the past 5 years to reach 4.4 million terminals, which further increased to 4.7 million terminals at end of fiscal 2021. CRISIL Research expects this trend to continue, resulting in an increase in digital transactions.

Deployment of POS terminals to continue to reach ~12 million by FY2025

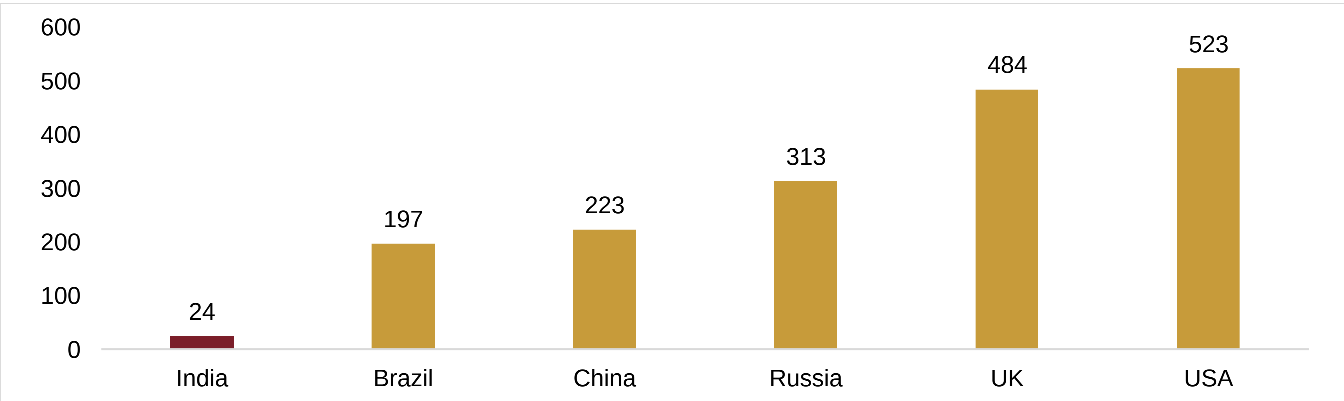


Note: P: Projected
Source: RBI, CRISIL Research

Low penetration of per-capita digital payments transactions

According to Bank of International Settlements (CY 2019), non-cash payments transactions volume per capita in India is the lowest compared to other countries; which presents a strong headroom for growth. The government has taken multiple initiatives to give a fillip to digitalisation in the country. This includes biometric identification of all Indian citizens through the Aadhaar programme, financial inclusion initiatives, launch of UPII and other digital payment systems and giving a push to online tax filings.

Number of non-cash payments transactions per capita, per annum (CY 2019)



Source: Bank of International Settlements, CRISIL Research

Products like contactless and digital cards to enable greater digital transactions

Introduction of contactless cards has enabled users to just tap and pay for transactions under Rs 2,000 by using the card at a contactless payment machine. Payment service providers are exploring innovative payment infrastructure by leveraging host card emulation (HCE) for secure near field communication (NFC) payment transactions. This will enable customers to easily use their cards on their NFC enabled smartphones to make contactless payments. The card issuers are also innovating and have introduced digital or virtual cards in the last one year. The digital card arrives in the individual's mobile application and has features like Touch ID or Face ID for authentication, which increases the convenience of transactions on e-commerce and other platforms. Further, significant growth in users over the last decade for payment apps and wallets such as PayTM, MobiKwik, and PhonePe are also enabling digital transactions in the ecosystem.

Regulatory moves to also spur gradual shift from cash to digital payments

DFS lies at the heart of financial inclusion in India. Despite the government's effort to create interconnected digital infrastructure, the adoption of DFS, especially in rural India, is marred by digital literacy, which has a direct impact on the acceptance of digital products. The lack of trust in technology, limited awareness, inadequate payment infrastructure, and poor network connectivity has restricted digital transactions and discouraged people from using these payment modes. As a result, cash is still a preferred mode of payment in rural India. In the past, lack of documents has been a big deterrent in weaning rural customers away from traditional banking services. However, AePS has helped address this and rural citizens are now carrying out basic digital transactions using their biometric ID and AADHAR.

In August, 2020, RBI released a document setting out the framework to adopt and authorize the establishment of new umbrella entities (NUEs) for retail payments and open the channels to private sector players. According to RBI, setting up of NUEs will address the concentration risk (with NPCI), complement and supplement NPCI's work and enable new innovations to come out at a much faster rate, which will help get more and more people into digital payments. Going forward, CRISIL Research expects that with the help of NUE, multiple use cases will emerge to fill the void in the India payment space and fasten the adoption of digital payments in India.

In January 2021, RBI announced the creation of Payment Infrastructure Development Fund (PIDF) to boost digital payments in Tier 3 cities to Tier 6 cities. PIDF has a corpus of Rs. 3.45 billion, of which Rs. 2.5 billion is from RBI and the remaining from authorised cards networks in India. This fund will be used to subsidize banks and non-banks for deployment of payment infrastructure for those merchants, who still doesn't have access to POS machines. This move is also expected to encourage deployment of point of sale infrastructure, improve digital payments and provide better access of financial services in under penetrated or unpenetrated areas.

Apart from the in rural and semi-urban regions and rising competition among players is expected to fasten the shift from cash to a digital payments:

- **Sustained push from the Banks and FIs:** As legacy system age, they become more expensive to maintain, with fewer resources to ensure stability. Cash handling infrastructure, thus becomes a burden for financial institutions, especially for low value transactions. Hence, fintechs along with banks are now focusing on payments convergence so that costs related to cash may be eliminated, when tapping into new markets. This push will also drive digital transactions as the customers will use reliable technology solutions offered by banks on their own platform or other dedicated platform obtained through collaboration.
- **Targeted campaign to increase customer awareness:** A large section of the Indian population, especially in the smaller cities and rural areas, is simply not aware of digital payments. A targeted campaign to showcase the benefits of digital payments for merchants and consumers alike, even in a small way, could help boost adoption.

- **Increasing competition:** The first wave of adoption of digital payments was driven by ease of transactions and seamless user experience. However, going forward, competition amongst different players to capture market share through various allied services will lead the next wave of growth in digital transaction.

Offline payments mechanism to drive the push for digital transactions

While payment companies have been acquiring merchants and pushing them to move to digital payments platform, the RBI is prodding payment companies to develop offline solutions to help overcome network constraints, which has inhibited the spread of digital transactions particularly in rural areas. Offline payments are transactions that are either processed without a data connection or where the transaction is recorded offline and processed at a different point of time. In the offline mode using cards, the card details of the transaction are stored at the terminal which is used to generate a transaction response for receipt. Later, when the internet connection is established, the stored payment data is processed. Currently, NPCI has one such product – Unstructured Supplementary Services Data (USSD) in its repertoire, which allows non-internet based mobile devices (smartphones as well as basic mobile phones) to avail banking service by dialling option(*99#). But the product has not garnered traction, with just Rs 1.4 billion worth of transactions being recorded in fiscal 2021.

In August 2020, the RBI proposed to allow a pilot scheme for small value payments in offline mode with built-in features for safeguarding the interest of users. Under this scheme, authorised Payment System Operators (PSOs) – banks and non-banks – were allowed to provide offline payment solution using cards, wallets or mobile devices for remote and proximity payments. Post the pilot scheme, the Central bank will decide on formalising the system based on the experience gained.

RBI directives on Digital payments security controls

While digital payments offer ease of transactions as well as convenience to end users, as with any other payment system, the bedrock on which the long-term sustainability of digital payments would stand will be security.

In the wake of rising concerns over digital fraud and data theft, the RBI, in February 2021, unveiled a new set of rules for enhancing digital payment security controls. These guidelines specify security protocols to be adopted in internet banking, mobile applications and cards issued by banks, payment banks, SFBs, and card-issuing non-bank lenders. The guidelines are intended to come into effect within six months.

Some of the directives of RBI include:

- For mobile applications, where the service and authentication tools such as one-time-password are received on the same device, the players are required to come up with better alternatives to authenticate a transaction.
- Reconciliation process of transactions must follow a near-real-time framework, which would ensure that all stakeholders are provided necessary information within a 24-hour time period.
- The web pages of the lenders, which provide digital payment products and services, should not store customer sensitive information in HTML fields, cookies, or any other client side storage.
- The lenders must have a specific section on their digital payment products and services which clarify how customers can lodge complaints in the event of a grievance.
- The applications or web pages provided by the lenders must have a mechanism to mark a transaction as fraudulent for seamless and immediate notification to the lenders.

  In addition, the RBI has mandated that except for card issuing banks, NBFCs and payment banks, no online company or payment aggregator will be allowed to maintain credit or debit card details in their databases for remote transactions. This would impact one click checkout and recurring billing transactions as card holders would be required to enter their credentials each time they initiate a transaction instead of just confirming their three-digit card verification value (CVV) code as they do today.

After chip and PIN-based cards became commonplace for debit and credit cards, identity theft and payment fraud at physical point-of-sales has increasingly become more difficult, and by now turning its focus to online payment frauds, it appears that RBI is laying the ground for tokenisation or some other form of encryption technology.

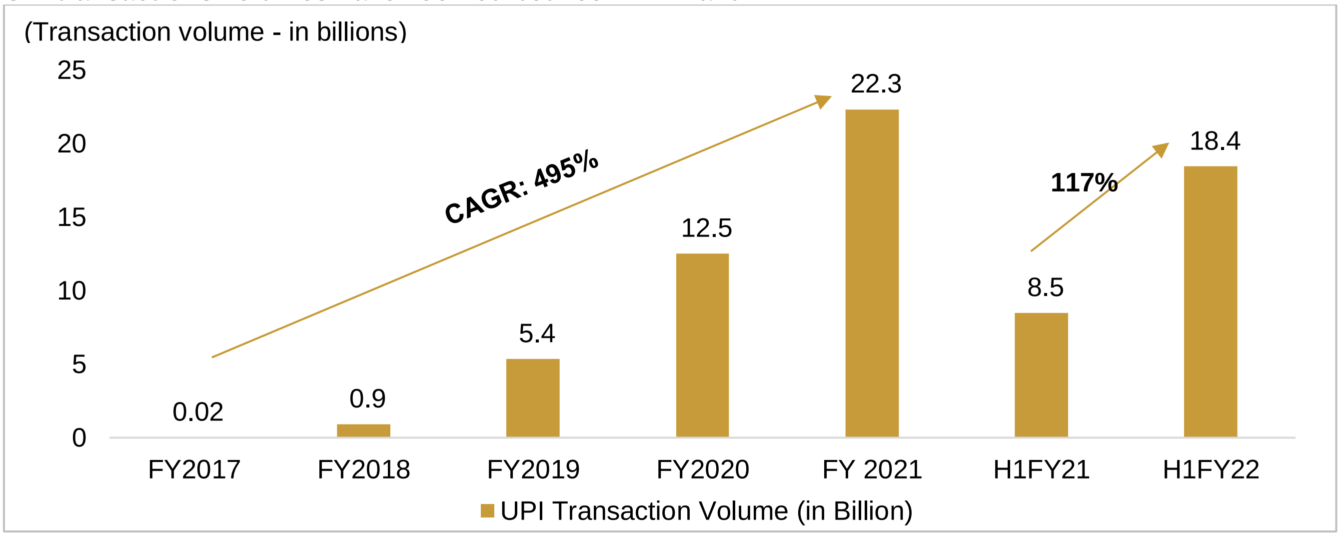
Digital payment instruments

Unified Payment Interface (UPI)

UPI is a mobile based payment system, wherein users can send and receive money instantly using a Virtual Payment Address (VPA). The unique feature of VPA-based transaction is the secure aspect of UPI architecture as it obviates the need for sharing account or bank details to the remitter. It supports person to person (P2P) and person to merchant (P2M) payments and can be used over smart phone (app based), feature phone (USSD based) and at merchant location. Since its launch in 2016, UPI, has witnessed an exponential growth of 495% CAGR in terms of volumes to reach 22.3 billion in fiscal 2021 from 0.02 billion in fiscal 2017. Similarly, the value of transactions has increased from Rs. 0.07 trillion to reach Rs. 41 trillion between fiscal 2017 and fiscal 2020; growing at a CAGR of 393% during the same time. The outbreak of Covid-19 was a minor blip in the growth story as transactions saw a minor drop in early months of FY20-21; however, the shift towards digital transactions through the UPI platform has seen an acceleration since then. UPI recorded its highest number of transactions of 2,234 million and 2,303 million, amounting to Rs. 4.1 trillion and Rs. 4.3 trillion in the month of December 2020 and January 2021 respectively.

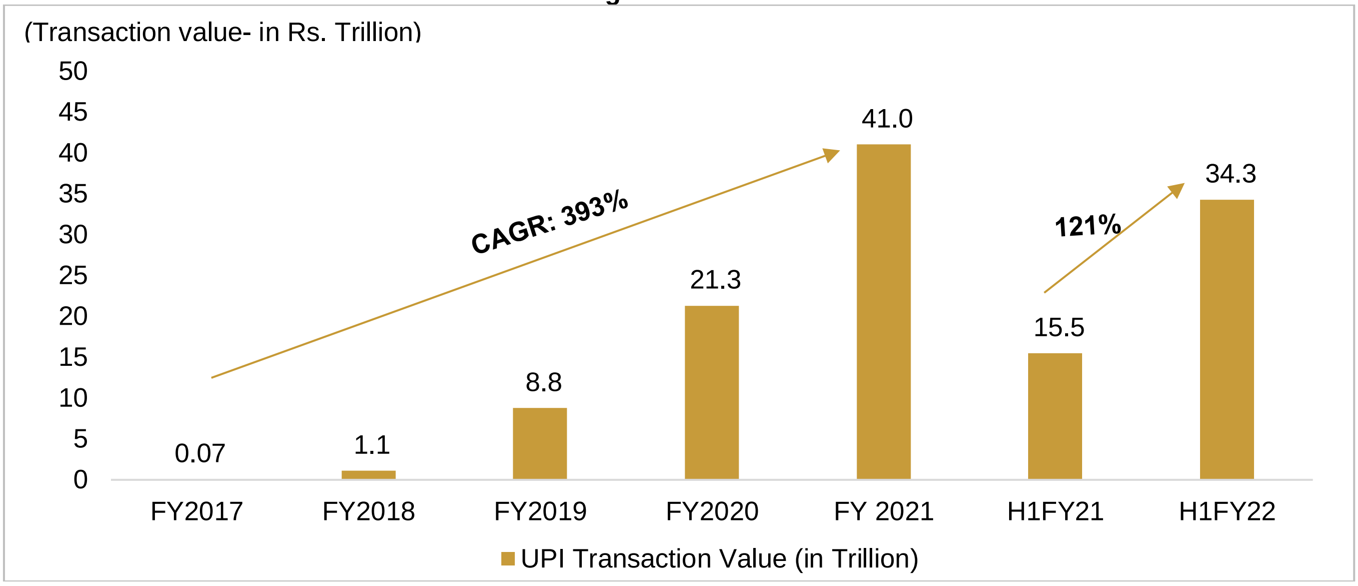
The launch of UPI 2.0 in 2018 saw expansion of its use cases. Invoice verification, linking of overdraft account, additional security through signed intent and QR code were some of the features that were introduced. In July 2020, NPCI also allowed customers to set a recurring mandate with UPI to pay for mobile bills, EMIs, insurance premiums and make mutual fund investments. This is expected to provide a major push to the volumes and revenue of UPI transactions. The government has also mandated a zero merchant discount rate (MDR) for all domestic UPI transactions. CRISIL Research, thus expects that with new payment technologies and increasing use cases across sectors, the growth momentum of digital transaction is expected to continue as evident from FY21 transactions volume, which has already doubled as compared to volumes of fiscal 2020. In H1FY22, the UPI transactions has seen further traction and cumulative transactions volumes and value touched 18.4 billion and Rs. 34 trillion respectively. During the same period in fiscal 2021, transaction volumes through UPI was 8.5 billion and amounted to Rs. 15 trillion.

UPI transactions volumes have zoomed between FY17 and FY21



Source: RBI, NPCI, CRISIL Research

UPI transactions value continue to rise with surge in volumes



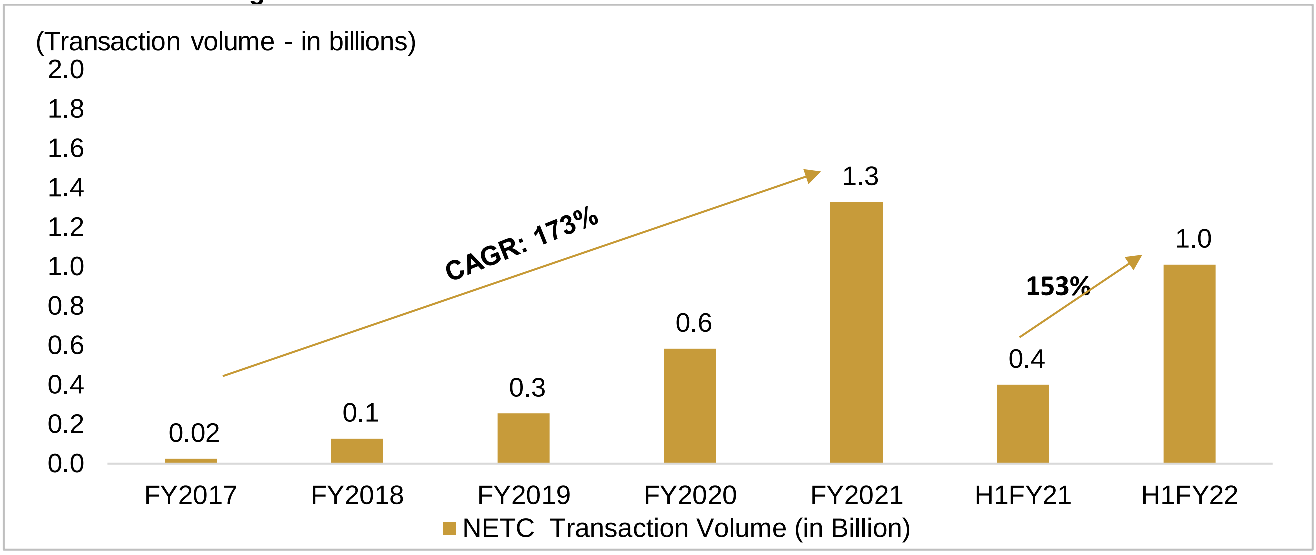
Source: RBI, NPCI, CRISIL Research

National Electronic Toll Collection & Bharat Bill Pay Service

National Electronic Toll Collection (NETC)

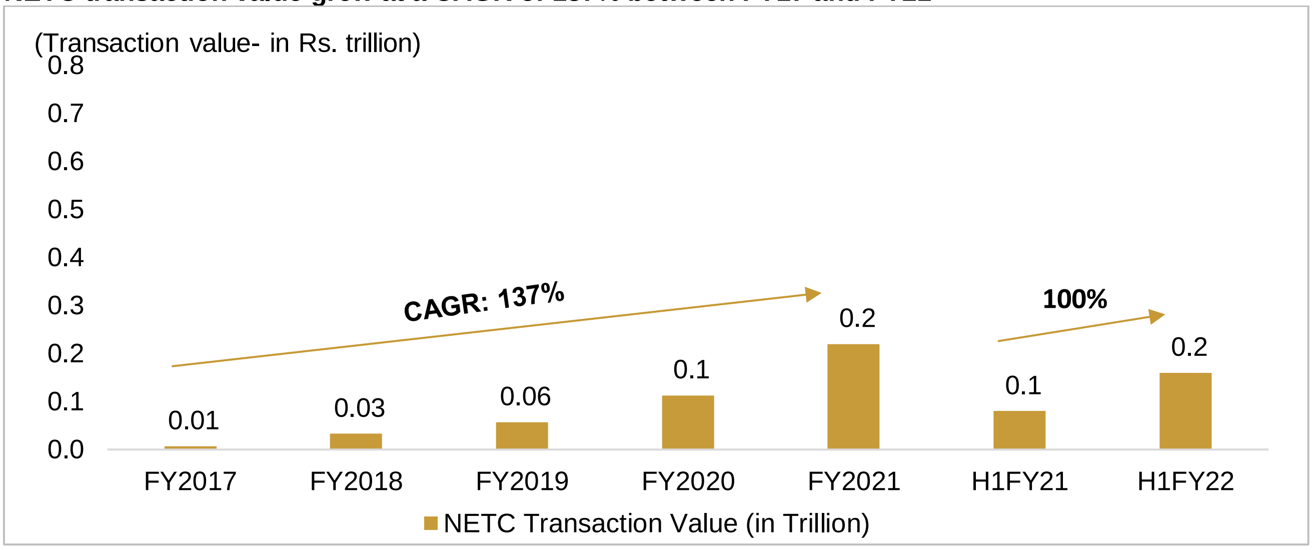
National Electronic Toll Collection is an interoperable nationwide toll payment solution developed by NPCI to meet the electronic tolling requirements. It encompasses a common set of processes, business rules and technical specifications which enables a customer to use their FASTag as payment mode on any toll plaza, irrespective of who is operating the toll plaza. Apart from UPI, BBPS and NETC has also witnessed a strong growth. BBPS has provided an organised platform for bill payments whereas NETC has allowed digitisation of payment at the toll gates on highways and public transport respectively. The government had mandated the use of “FASTag” based toll payments through NETC, with effect from January 1, 2021, which was later extended to February 15, 2021. The FASTag is issued by bank or the Indian Highways Management Company Limited (IHMCL) and affixed on to a vehicle and is linked to an underlying payment instrument and can be used for payment of toll. NETC was witnessing a strong growth with volumes of 35 million, 64 million, 93 million and 110 million in November 2019, December 2019, January 2020 and February 2020 respectively. However, owing to the nationwide lockdown the volume dropped significantly. After economic activity started to resume in the country and restrictions on inter-state travel became relaxed, the volumes gradually returned to over pre-Covid levels to reach 125 million, 138 million and 148 million in November 2020, December 2020 and January 2021 respectively. In H1FY22, the momentum of NETC transactions has continued to grow as it witnessed its highest volume of 201 million and 193 million in August 2021 and September 2021 respectively.

NETC transactions grew at a CAGR of 173% between FY17 and FY21



Source: RBI, NPCI, CRISIL Research

NETC transaction value grew at a CAGR of 137% between FY17 and FY21



Source: RBI, NPCI, CRISIL Research

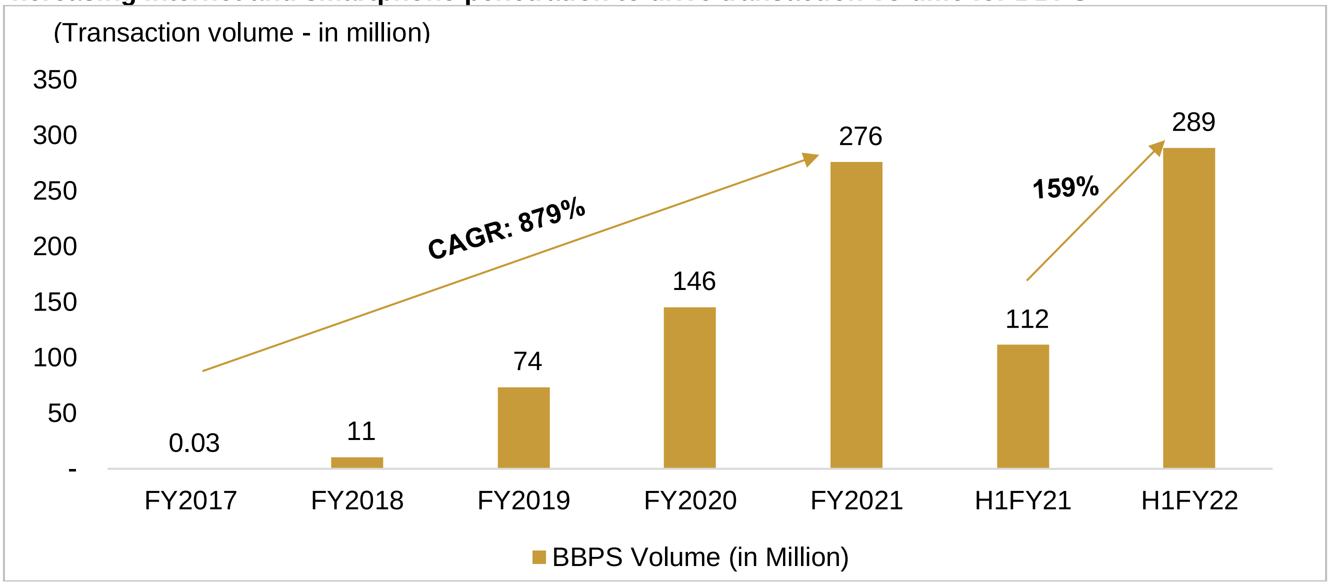
Bharat Bill Pay Service (BBPS)

Bharat Bill Pay to grow with expansion of new billing categories

Bharat Bill Payment system is a Reserve Bank of India (RBI) conceptualised system driven by NPCI. It is a one stop ecosystem for payment of all bills providing an interoperable and accessible "Anytime Anywhere" bill payment service to all customers with certainty, reliability and safety of transactions. If offers myriad bill collection categories like electricity, telecom, DTH and other utility payments. It also offers repetitive payments like insurance premium, mutual funds, credit cards etc. The emergence of Covid-19 has accelerated the digital payment landscape and we have seen a surge in volume of transaction through BBPS. In H1FY22, BBPS transaction volumes and value has crossed overall transactions for whole of fiscal 2021 to reach 289 million transactions amounting to Rs. 513 billion.

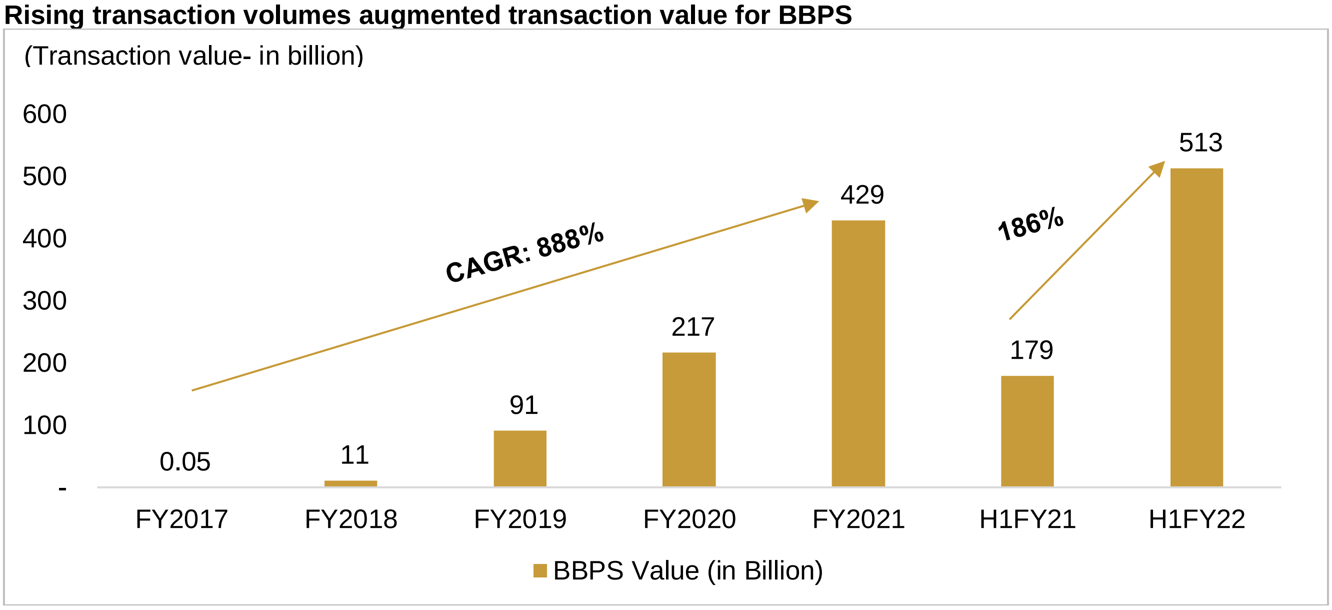
Going forward, revival of commercial activities, improvement in consumer spending, continued on boarding of new billers under existing categories and addition of new biller categories is expected to bring additional transaction volumes. Banks and other mobile application are also integrating their customer facing interface and system to support BBPS which will also aid growth for BBPS. CRISIL Research believes that the consumers who shifted to online mode of bill payment due to Covid-19 will continue to use online mode of payments, going forward. In addition, CRISIL Research expects increasing internet and smart phone penetration will also drive transactions from the rural customers, who will use the platform to make utility bill payments.

Increasing internet and smartphone penetration to drive transaction volume for BBPS



Source: RBI, NPCI, CRISIL Research

Rising transaction volumes augmented transaction value for BBPS



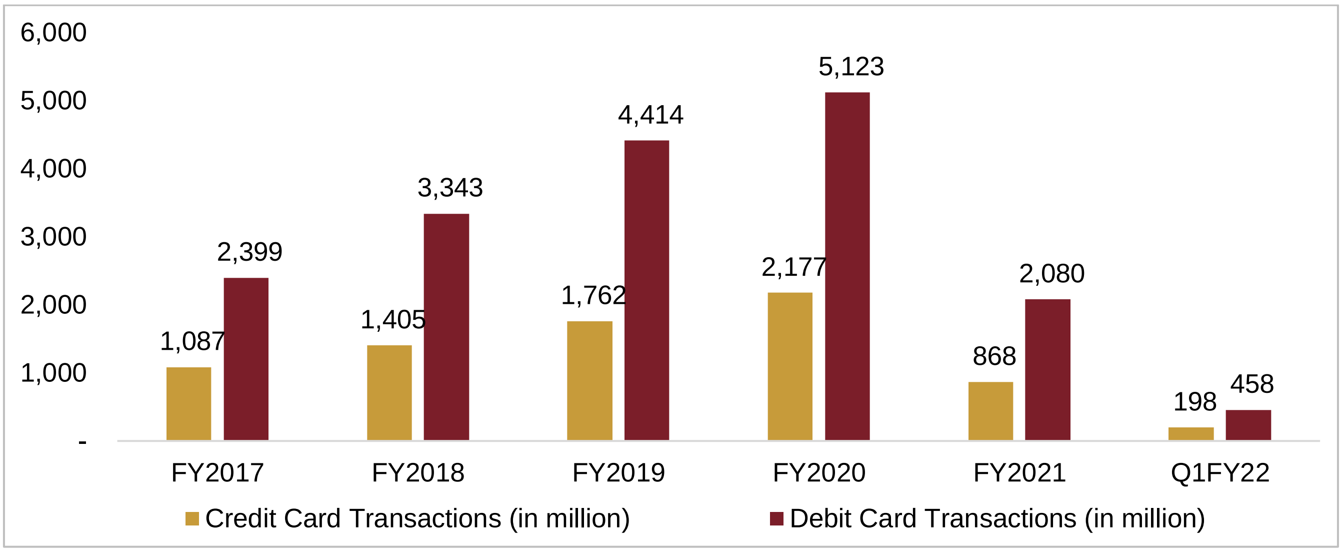
Source: RBI, NPCI, CRISIL Research

Credit and Debit cards

Cards spends more than doubled during fiscal 2017 to fiscal 2020; trend to continue despite blip in fiscal 2021

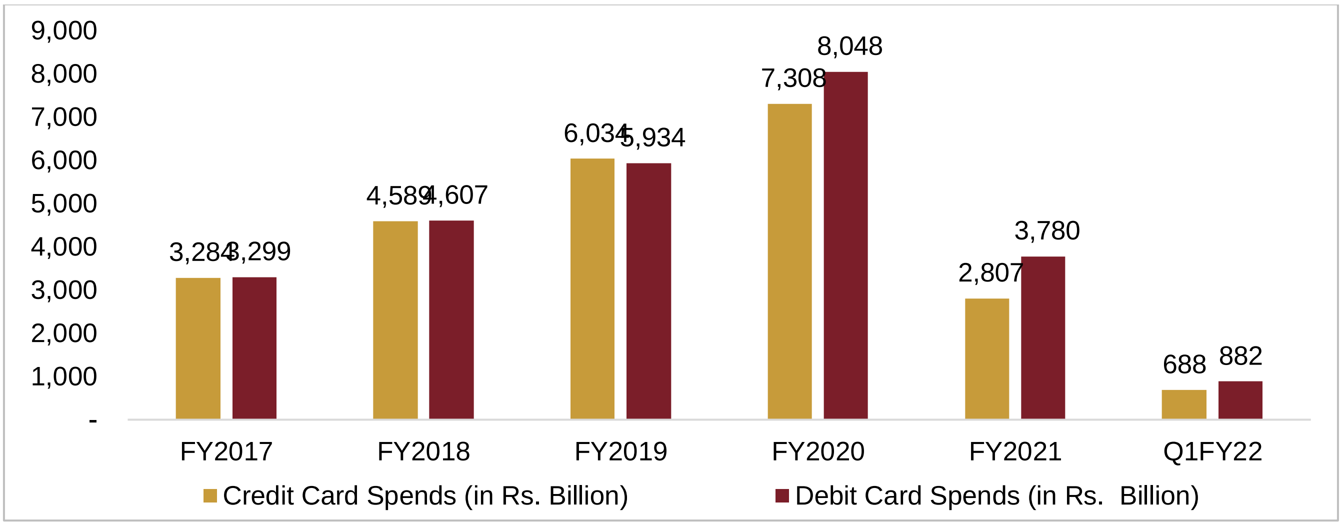
Credit card and debit cards spends have registered a robust growth of 31% and 35% CAGR over a period of 3 years to reach Rs 7.3 trillion and Rs. 8.0 trillion respectively in fiscal 2020. The transaction volumes during the same time has increased at CAGR of 26% and 29% for credit card and debit card respectively. Demonetisation was one of the significant factors that led to faster growth in transaction volume and value of cards. Further, the government's emerging vision of a cash-less society, focus on digitalisation, developments in e-commerce, and availability of point of sale infrastructure have significantly encouraged payments through credit and debit cards.

Government push and availability of POS infrastructure has encouraged card volumes



Source: RBI, CRISIL Research

Credit card & debit card spends grew at 31% and 35% CAGR between fiscal 2017 and 2020 (in Rs. Bn)



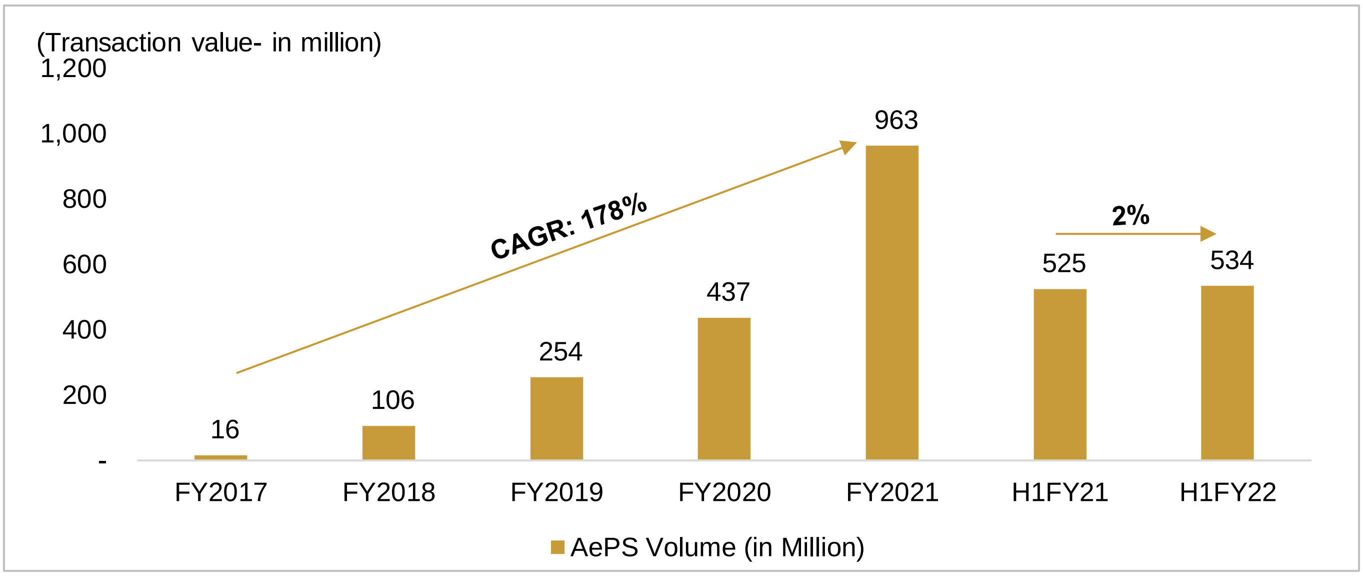
Source: RBI, CRISIL Research

Fiscal 2021 though saw subdued spends on credit as well as debit cards. This is on account of outbreak of Covid-19 which has negatively impacted sectors such as hotels and restaurants, sales at physical stores, tourism and hospitality, which will curtail the growth for this payment mode. In Q1FY22, with reopening of economy, tours and travel, shopping malls etc., the transaction volumes and values for credit and debit cards have witnessed a month on month rise and CRISIL Research expects that the usage of both credit and debit cards will increase with the effect of pandemic expected to wane over a period of time and people returning to spending at physical stores and restaurants. The current pandemic is also expected to bring a change in the customer behaviour, which will lead to a higher adoption of card payments. In March 2019, Ministry of Government and Housing Affairs launched National Common Mobility Card (NCMC), an interoperable transport card which offers a combination of debit/credit with a prepaid cards where debit/credit component would be used in the online environment whereas prepaid card will be used in an offline environment. The adoption of National Common Mobility Card (NCMC) is also expected to convert a large chunk of cash transactions in public transport in the urban regions and boost digital transactions through cards.

AADHAR Enabled Payment System (AePS)

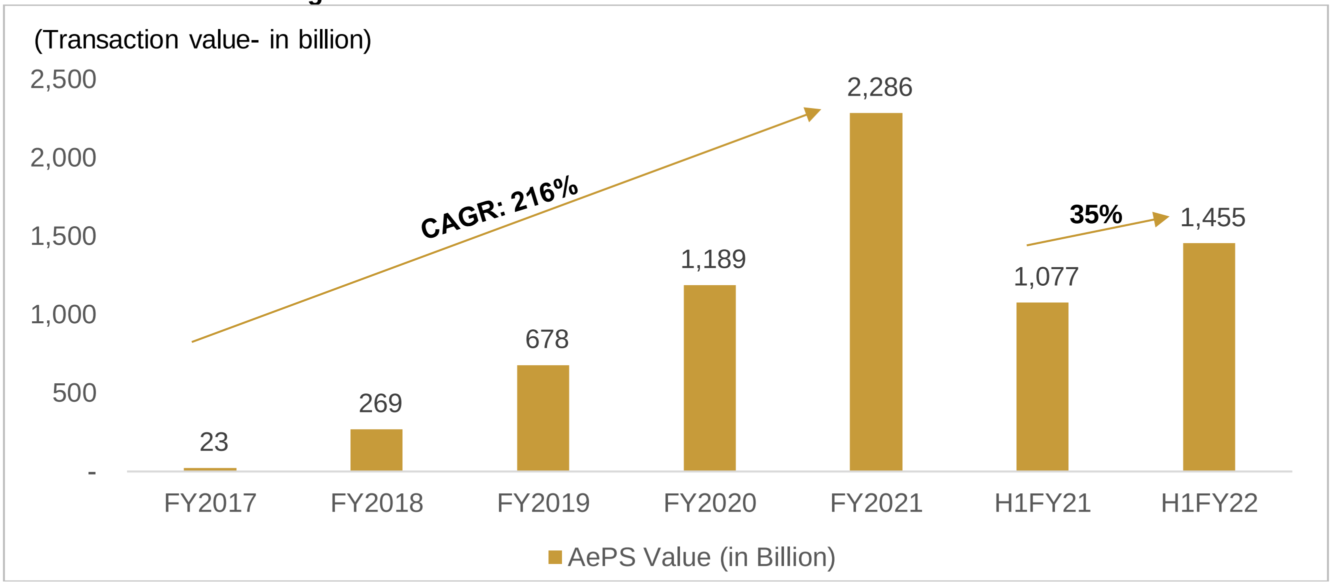
AADHAR Enabled Payment System (AePS) is a bank led model that uses AADHAR authentication to allow interoperable transactions at POS terminals. It was launched with an objective to facilitate banking services in the underbanked regions of the country. Since its launch in 2016, AePS has seen a strong growth in its transaction volume; volumes increased at a CAGR of 178% between fiscal 2017 and fiscal 2021. In terms of value, it has increased at a CAGR of 216% during the same period. Post-Covid, the usage of AePS has jumped manifold, indicating the increasing convenience of this channel as also the change in customer behaviour. In H1FY22, the AePS transactions volume has witnessed a growth of 2% compared to the same time in fiscal 2021.

AePS transaction grew at a CAGR of ~178% between FY17 and FY21



Source:RBI, NPCI, CRISIL Research

AePS transaction value grew at a CAGR of 216% between FY17 and FY21



Source:RBI, NPCI, CRISIL Research

Prepaid payments instruments (PPIs)

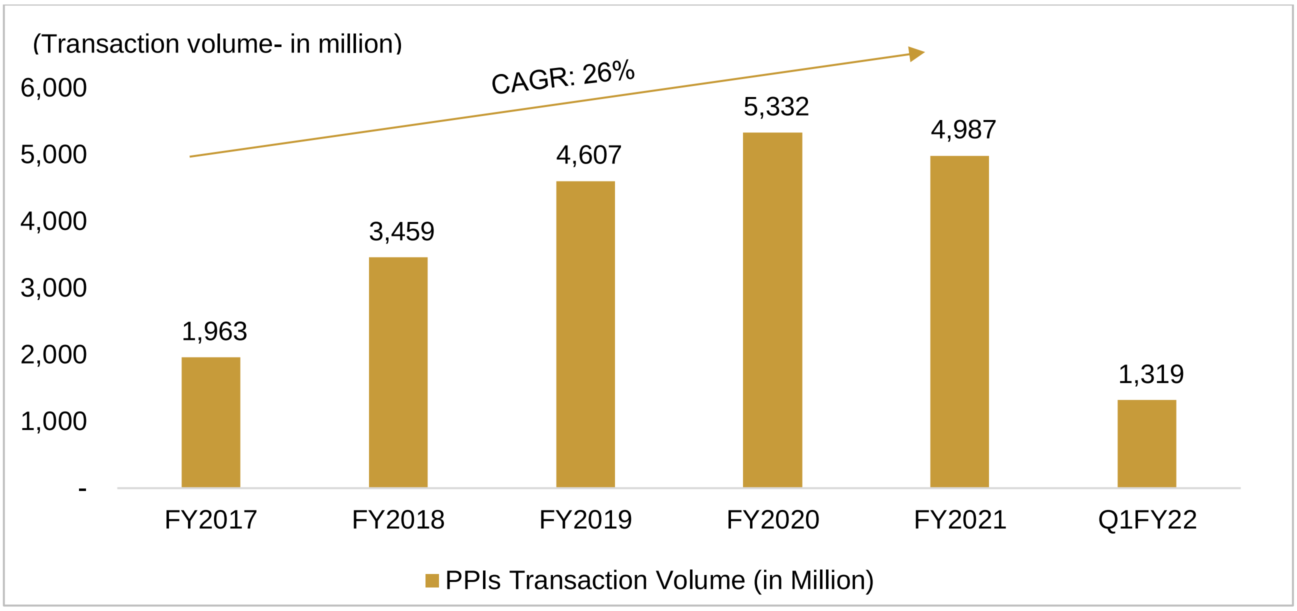
PPIs are instruments that facilitate purchase of goods and services, remittance facilities etc. against the value stored in such instrument. These instruments have been in the market since 2002, but its usage has been limited to gift cards, foreign exchange cards and meal cards (Eg: Sodexo cards) for general usage. The usage of PPIs became more prevalent after December 2019, when a new type of PPI was launched which can be loaded/re-loaded from a bank account/credit card and can be issued based on essential minimum details obtained from the customer. Interoperability was also allowed amongst the PPIs which provided the customers an option to use the card at various outlets without the need for multiple on-boarding at multiple issuers. While consumers have benefitted from this convenient payment option, the merchants have also adopted PPIs due to relatively lower cost associated in setting up infrastructure and processing payments. PPIs thus witnessed a growth of 26% CAGR in terms of volume and 24% CAGR in terms of transaction value between fiscal 2017 and fiscal 2021.

In April 2021, RBI proposed to make interoperability mandatory for full KYC PPIs and for all acceptance infrastructure and also allowed cash withdrawals from full KYC PPIs. In order to incentivize the migration of PPIs to full-KYC, the RBI also increased the upper limit that customers can store in PPIs from the earlier level of Rs. 1,00,000 to Rs 2,00,000. In addition, PPIs will also have access to NEFT and RTGS channels. While these measures are expected to enhance the functionality of wallets, the requirement of full KYC may continue to limit the uptake of PPIs. Players also will have put in place appropriate incentives and use-cases to propel PPI adoption.

RBI's measures to enhance the functionality of PPIs

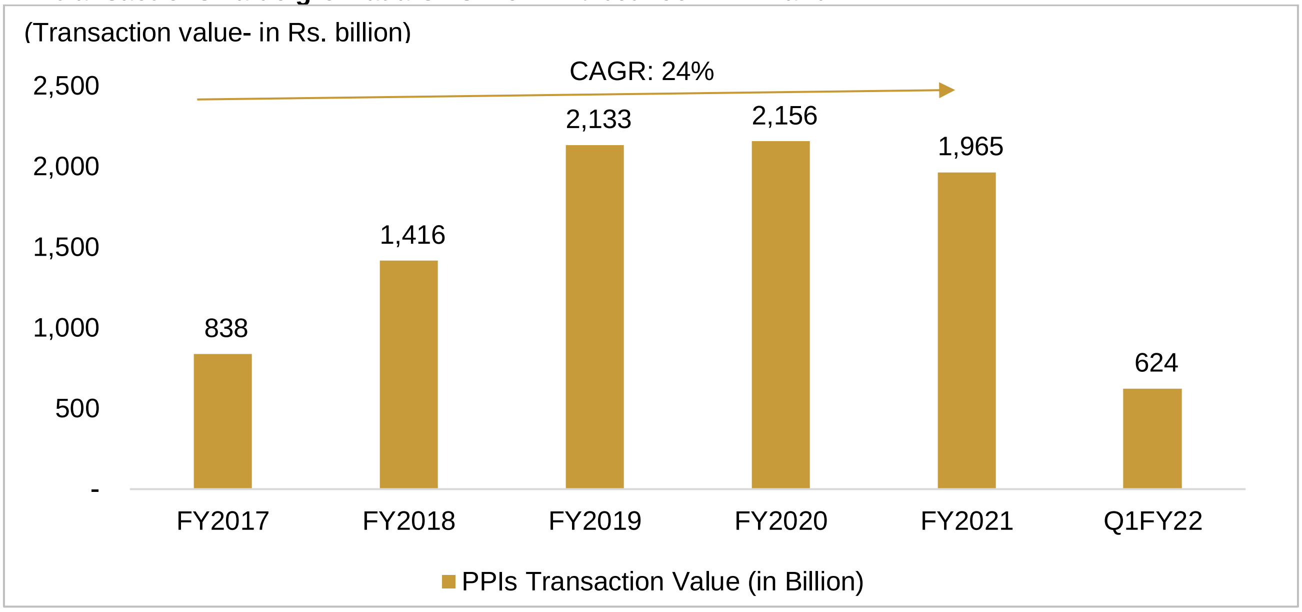
Source: CRISIL Research

PPI transaction volume estimated to grow at a CAGR of 26% between FY17 and FY21



Source:RBI, CRISIL Research

PPI transactions value grew at a CAGR of 24% between FY17 and FY21



Source:RBI, CRISIL Research

Payment Banks

Overview of Payment Bank Licence

In 2013, the RBI constituted a committee to study "Comprehensive Financial Services for Small Businesses & Low Income households" headed by Dr. Nachiket Mor. The focus of the committee was to recommend innovative solutions to accelerate financial inclusion in unbanked and underbanked section of the society in a cost effective way. The committee recommended setting up of a specialized bank ("Payments Bank") to cater to the low income groups. The draft guidelines for setting up Payments Bank were issued by the RBI in July 2014, and comments were sought from various participants by August 2014. Finally, the RBI has released the final guidelines for licensing of Payments Bank in November 2014.

The guidelines were announced with aim to create a banking entity which is adequately capitalised, financially inclusive and has a competitive business model.

Guidelines for Payments Bank Licence

Parameters	Guidelines
Objective	• Widening the spread of payment services and deposit products to small businesses, low-income households, migrant labor workers and other unorganized entities by enabling high volume low value transactions in deposits and payments/remittance services in a secured technology-driven environment.
Eligible Promoters	• The eligible entities which can set up a payment bank include an existing non-bank, prepaid instrument issuers (PPI) & other entities such as individuals / professionals; Non-Banking Finance Companies (NBFCs), corporate BCs, mobile telephone companies, super-market chains, companies, real sector cooperatives; that are owned and controlled by residents; and public sector entities. • The promoter/promoter group can also enter into a joint venture with an existing scheduled commercial bank to set up a payment bank. If the promoter succeeds in obtaining a payment's bank licence, it would be required to set up the payment bank under a separate structure unless it is an existing PPI licence holder opting for conversion into a payments bank.
Scope of activities	• The payments bank shall confine its activities to further the objectives for which it is set up. Therefore, the payments bank is permitted to set up its own outlets such as branches, Automated Teller Machines (ATMs), Business Correspondents (BCs), etc. to undertake only certain restricted activities permitted to banks under the Banking Regulation Act, 1949. • The payment banks can accept demand deposits (Non-NRI deposit), issue ATM/ debit cards/PPIs, offer remittance services (incl. cross-border remittances) and internet banking services, act as a BC for another bank and undertake non-risk sharing simple financial services activities not requiring any fund commitment, such as distribution of MFs, insurance products, pension products, etc. and undertake utility bill payments.

	• Given that the primary role of payments bank is to provide payments and remittance services and demand deposit products to small businesses and low-income households, payments banks are restricted to holding a maximum balance of Rs. 100,000 per individual customer. On 7th April 2021, the limit was further increased to Rs. 200,000 per individual customer.
Deployment of Funds	• The payments bank cannot undertake lending activities. Apart from amounts maintained as Cash Reserve Ratio (CRR) with RBI on its outside demand and time liabilities, it will be required to invest minimum 75 per cent of its "demand deposit balances" in Government securities/Treasury Bills with maturity up to one year that are recognized by RBI as eligible securities for maintenance of Statutory Liquidity Ratio (SLR) and hold maximum 25 per cent in current and time / fixed deposits with other scheduled commercial banks for operational purposes and liquidity management.
Capital Requirement	• The minimum paid-up equity capital of the payments bank shall be Rs. 1 Bn. The payments bank shall be required to maintain a minimum capital adequacy ratio of 15 per cent of its risk weighted assets (RWA) on a continuous basis, subject to any higher percentage as may be prescribed by RBI from time to time. Tier I capital should be at least 7.5 per cent of RWAs. Tier II capital should be limited to a maximum of 100 per cent of total Tier I capital.
Promoter Contribution	• When the payments bank reaches the net worth of Rs.5 Bn, and therefore becomes systemically important, diversified ownership and listing will be mandatory within three years of reaching that net worth. • The promoter's minimum initial contribution to the paid-up equity capital shall be at least 40% for the first 5 years.
Foreign Shareholding	• Foreign shareholding has been allowed up to 74% (automatic route up to 49% of the paid up capital and approval route beyond that till 74%) • At all times, at least 26 per cent of the paid-up capital will have to be held by residents. In the case of Foreign Institutional Investors (FIIs) / Foreign Portfolio Investors (FPIs), individual FII / FPI holding is restricted to below 10 per cent of the total paid-up capital, aggregate limit for all FIIs /FPIs / Qualified Foreign Investors (QFIs) cannot exceed 24 per cent of the total paid-up capital, which can be raised to 49 per cent of the total paid-up capital by the bank concerned through a resolution by its Board of Directors followed by a special resolution to that effect by its General Body. • In the case of NRIs, the individual holding is restricted to 5 per cent of the total paid-up capital both on repatriation and non-repatriation basis and aggregate limit cannot exceed 10 per cent of the total paid-up capital both on repatriation and non-repatriation basis. However, Non-Resident Indian (NRI) holding can be allowed up to 24 per cent of the total paid-up capital both on repatriation and non-repatriation basis provided the banking company passes a special resolution to that effect in the General Body.
Other Conditions	• At least 25% of a Payments Bank's physical access points (own or others' network; not branches) have to be in rural centers

Source: RBI, CRISIL Research

In August 2015, the RBI gave “in-principle” licences to eleven payment banks. These new banks were expected to accelerate financial inclusion in India. However, of the 11 in-principle payment licencees, three withdrew their application subsequently. Aditya Birla Idea Payments Bank also closed their operations in September 2019. The payments bank which are currently operational include Airtel Payments Bank, India Post Payment Bank (IPPB), Fino Payments Bank, PayTM Payments Bank, NSDL Payments Bank and Jio Payments Bank.

Payments Bank in India

Name of the Payments Bank	Year of Incorporation	Year of Commencement of Operation
Airtel Payments Bank	November 2016	November 2016
Fino Payments Bank	April 2017	June 2017
PayTM Payments Bank	November 2017	November 2017
Jio Payments Bank	November 2016	April 2018
India Post Payments Bank	September 2018	September 2018
NSDL Payments Bank	October 2018	October 2018

Source: Company Website, CRISIL Research

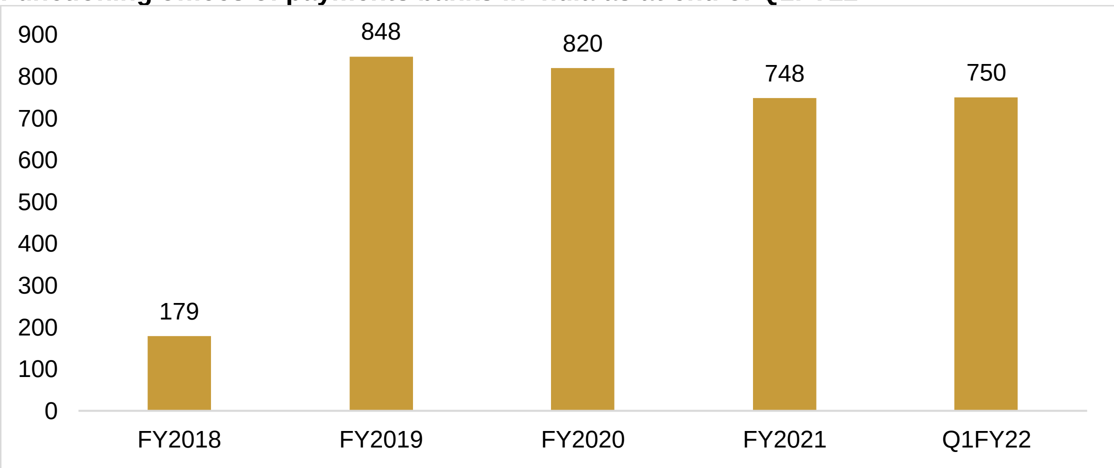
As per the guidelines for on-tap licensing of small finance banks (SFB) in the private sector, released in December 2019, payments banks can also apply for conversion into SFB after five years of operations, if they are eligible otherwise based on the guidelines.

Payment Banks have led to proliferation of non-branch type touchpoints

After granting of Payment Bank licence, it is seen that, true to the form, the payment banks have set up a vast network of touchpoints by leveraging established nature of some of their parent network and through collaboration. For instance, Fino Payments Bank has widened its network through collaboration and partnerships with Bharat Petroleum to use their outlets as digital banking points. Fino’s digital kiosk acts as a last mile service point in the underpenetrated regions of the country. Fino Payments Bank has also tied up with Rajcomp, which runs Government of Rajasthan’s citizen service initiative under which e-Mitra points of Rajcomp will act as a banking point of Fino Payments Bank and provide banking services to customers. This extensive alternative banking channel has brought about a paradigm shift in the way people used to avail banking services. Now, the customers need not travel long to go to a traditional bank branch, instead, they can visit the local banking touchpoint at their convenience and avail assisted digital banking services such as new account opening, deposit, withdrawal, money transfer and utility bill payments.

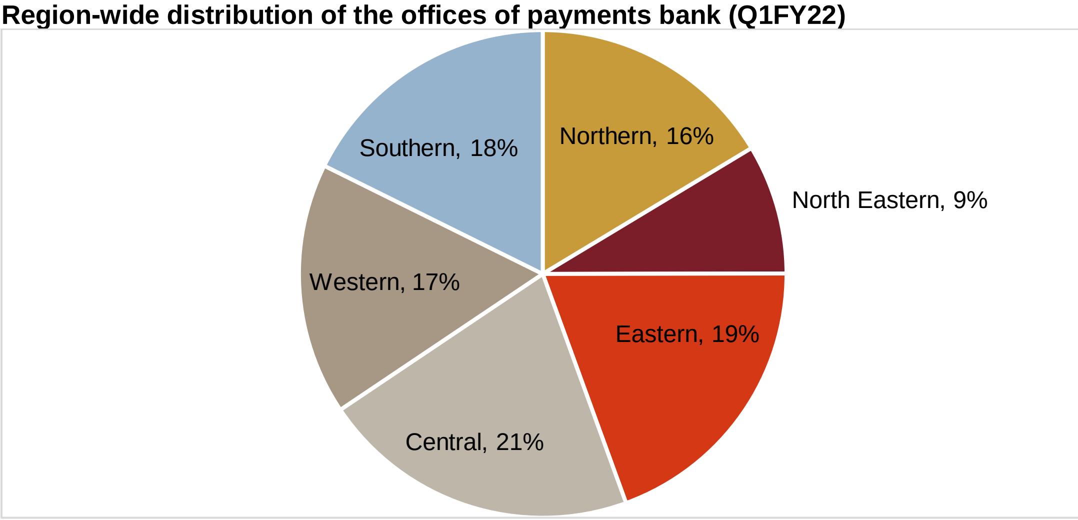
Airtel Payments Bank, on the other hand, has leveraged its parent’s network of retailers and Kirana shops and India Post Payment Bank has enabled the post offices in India to provide payment banks services.

Functioning offices of payments banks in India as at end of Q1FY22



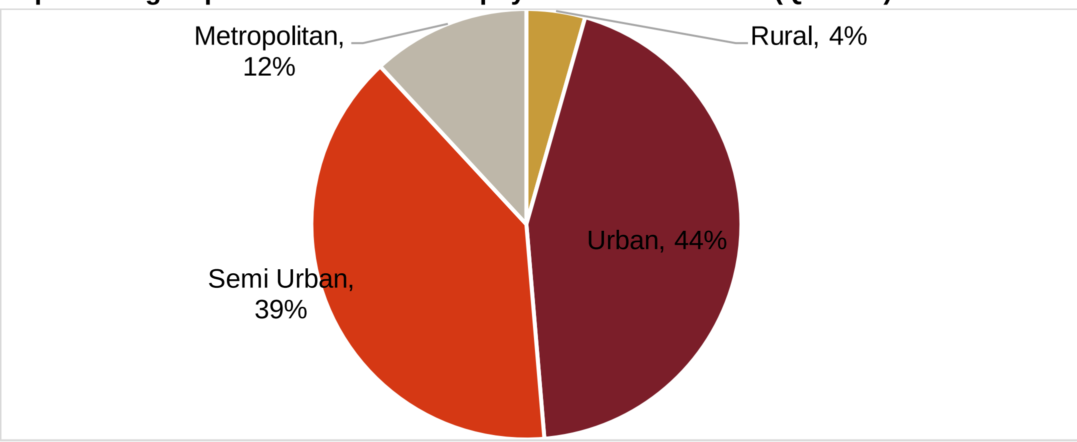
Note: Data includes only functioning offices and no banking touchpoints
Source: RBI, CRISIL Research

Region-wide distribution of the offices of payments bank (Q1FY22)



Note: Data includes only functioning offices and no banking touchpoints
Source: RBI, CRISIL Research

Population group wise distribution of payments bank offices (Q1FY22)



Note: Data includes only functioning offices and no banking touchpoints
Source: RBI, CRISIL Research

Rural areas has the least presence of payments bank functioning offices, whereas urban areas has the highest number of functioning offices as of Q1FY22. However, these functioning offices form a very small proportion of total number of touchpoints of payments banks, as they leverage on their vast network of merchants and doorstep service providers to provide banking and related services in the last mile.

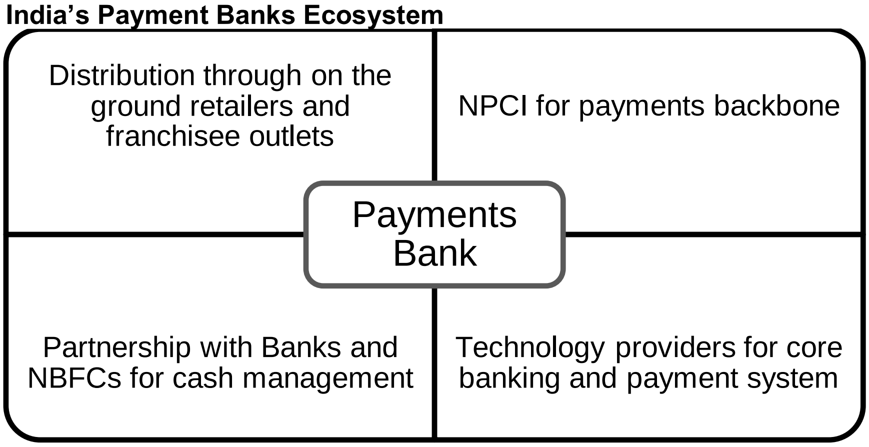
For instance, Fino Payments Bank had nearly 0.72 million banking touchpoints at end of June 2021. India Post Payments Bank had a network of 0.14 million access points and 0.17 million doorstep bankers who provide financial service to the customer at the end of fiscal 2020. At end of fiscal 2021, PayTM Payments Bank allowed consumer to make payments though its 0.087 million online merchants and 21 million in-store merchants. Airtel Payments Bank, which is the only payments bank with a mobile network operator (MNO) parent had approximately 0.5 million banking touchpoints as on October 7, 2021, leveraging on its parent's existing network of retailers who provide mobile connections and recharges at their shop. These touchpoints have enabled payments bank to garner an increasing share of the deposits pie.

The payments bank are looking to increase their footprints and are continuously deepening their penetration across various states and regions. For example, Fino Payments Bank has set a target to establish a network of 1 million customer touchpoints by March 2023. Going forward, CRISIL Research expects payments banks will continue to increase their touchpoints and collaborate with other players as required to cater to the needs of customers through their ecosystem.

The Payment Banks Ecosystem

In order to build a comprehensive suite of low cost banking and payment services for the huge customer base, payment banks collaborate with multiple partners across distribution networks, the national payment infrastructure, technology providers and banking and payment providers. Payment banks rely heavily on the use of various interoperable platforms through services enabled by NPCI for facilitation of digital transactions.

India's Payment Banks Ecosystem



Source: CRISIL Research

To summarise, payment banks leverage distribution, technology and partnerships to maximise their outreach and effectiveness as it allows them to go Phygital i.e. have a mix of physical outlets via merchant networks and partnerships combined with digital platform enabled solutions/offerings at these merchants. This operating model allows potential customers with a choice of availing financial services with assistance from agents at the banking outlet/touchpoints or availing self-service through the mobile banking application.

Payment banks' make use of the phygital model in rural areas

Banking transactions are largely a trust affair, and therefore, banks have traditionally relied upon a physical branch along with digital presence to be able to build trust with customers. However, physical models have not worked in rural banking due to high costs, while India's rural customers are not ready to go completely digital financially. Hence, the banks are relying upon the phygital model (also known as an assisted-digital model) – a combination of digital channel and human touch at the front end to assist customers – to address the pain points of a rural customer – limited accessibility, financial and digital literacy.

Some of the key advantages of using phygital model include:

1. **Digitization of customer cash:** Cash transaction is the primary reason for account dormancy in rural India. The local banks and other financial institutions, through their Phygital model could digitize customer income and expenses, which could drive account primacy and encourage banking behavior.
2. **Phygitisation of local merchants:** The financial institutions could leverage the local merchant or kirana stores as a trust point, where the customer will get assistance in adopting digital mode of using financial services i.e. helping the customer in downloading the application, checking their balances and making a fund transfer. The familiarity of the merchant and the handholding will boost customer confidence of being able to manage such transaction on their own. The financial institutions can later elevate these local merchant to the status of a banker, thereby establishing their touchpoint and trust-point in a scalable and cost effective manner.

The phygital model, thus has created new value propositions and helped companies respond with far greater efficiency. Going forward, this model of operation is expected to build organizational resilience through more anytime, anywhere touchpoints and increase opportunities for mutually beneficial partnerships with various stakeholders.

However, not all payments banks operate in the rural and semi-urban regions, indicating variations in their business model and target customer segments. For instance, Fino Payments Bank uses the phygital model (assisted digital model) to drive business through scale in the rural and semi-urban regions. On the other hand, PayTM Payments Bank has a stronger focus on large cities and urban areas and primarily operates through digital channels.

Customer segment and products of Payments Banks

Payment banks generally focus on four key customer segments – unbanked, underbanked, small size businesses and youth in semi-urban areas through differentiated value propositions. During the start of their operations, the primary channel for payment banks is usually agents, who help their customer in understanding the digital models and gradually shift them to a self-service digital channels to avail banking services using a mobile application.

Customer segment & value proposition of payment banks

Customer segment	Unbanked	Underbanked	Small Size Business	Youth in Semi-urban regions
Target customers	Low income individual, domestic workers and migrant workers	Low income individual, domestic workers and migrant workers	Mobile network operator agents, Small merchants and kirana stores, Agri-traders & small service providers	Youth, students who are well acquainted with mobile wallets
Products	Savings A/c & Mobile wallets, Loan disbursements through tie-ups with Banks and NBFCs and distribution of Insurance & investment products	Savings A/c & Mobile wallets, Loan disbursements through tie-ups with Banks and NBFCs and distribution of Insurance & investment products	Savings A/c, Current A/c, Loan disbursements through tie-ups with Banks and NBFC and distribution of insurance & investment products	Mobile wallets, CASA
Transaction type	Domestic money remittance, Cash-in and Cash-out, Bill payments	Domestic money remittance, Cash-in and Cash-out, Bill payments	Cash-in and Cash-out, Bill payments, Money Transfers	Digital transactions through wallet
Primary Channel	Agents are primary touch points	Agents are primary touch points	Agents, Self-service	Self-service

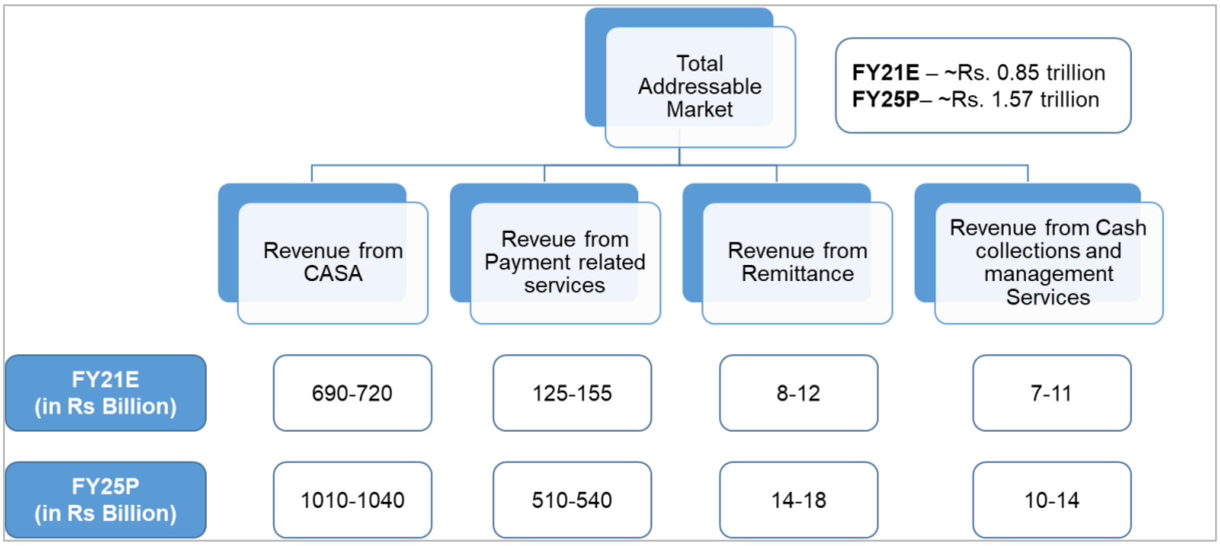
Source: CRISIL Research

Apart from payments bank, there are other players who provide similar services such as cash-in cash out, remittance services, ticket bookings, recharges and bill payment. For example, EbixCash is a payments oriented business which provides money transfer services, travel bookings, insurance and wallet services. Oxigen Services also allows customers to make mobile/DTH recharges, money transfer through banks and the Oxigen wallet

Addressable market (revenue from CASA, payment services, remittance and cash collection and management) expected to grow at 16% CAGR between FY21 and FY25

Addressable market refers to the potential revenue pool available for an entity focused on providing CASA deposit accounts in rural and semi-urban areas and the entire range of payment and remittances related services across urban, semi-urban and rural areas. CRISIL Research estimates the addressable market to be approximately Rs. 0.85 trillion in fiscal 2021. We project this market to grow at a CAGR of 16% over the next 4 years to reach Rs. 1.57 trillion by fiscal 2025, largely driven by strong growth in the payments space due to technology and changing consumer behavior.

Total addressable market is estimated to be at Rs 0.85 trillion in fiscal 2021



Note: E: Estimated. P: Projected; Revenue from CASA is for rural and semi-urban regions

Source: RBI, Company Reports, Company Website, CRISIL Research estimates

Deposits for payment banks grew by ~64% in fiscal 2020

Deposits collected by payments banks grew by 64% in fiscal 2020. Cumulatively, the quantum of deposits rose from Rs 25.7 billion as at the end of FY19 to reach Rs. 42.1 billion as of FY20. During this time period, payment banks witnessed a 46% on-year increase in their revenues. Their operational expenses also increased by 46% over the last fiscal owing to expansion in banking touchpoints, which has increased the aggregate consolidated losses of payment banks. In aggregate, the six payment banks made net losses to the tune of Rs.8.14 billion in FY20.

In fiscal 2021, overall deposits for payment bank (excluding India Post Payments Bank) grew by 29% to reach Rs. 43.1 billion. PayTM Bank deposits had a total deposit of Rs.34.5 billion (excluding FDs with partner banks), whereas Fino Payment Bank witnessed a growth of 107% on year in deposits to reach Rs. 2.4 billion.

Payments bank focusing on increasing volumes, touch points with customers and cross sell to turn profitable

While payment banks in India cumulatively are not profitable, PayTM Payments Bank and Fino Payments Bank are having profitable operations. Fino Payments Bank turned operationally profitable in the fourth quarter of FY20 and remained profitable thereafter. PayTM Payments Bank reported a net profit of Rs 0.3 billion in FY20 whereas Fino Payments Bank reported a net profit of Rs. 0.2 billion in FY21. Payment banks are leveraging their strength to reach out to their core customer base, enhance volumes and turn profitable. They have been launching new products to provide a bouquet of products and services to their customers under the payment banks umbrella and ensure stickiness.

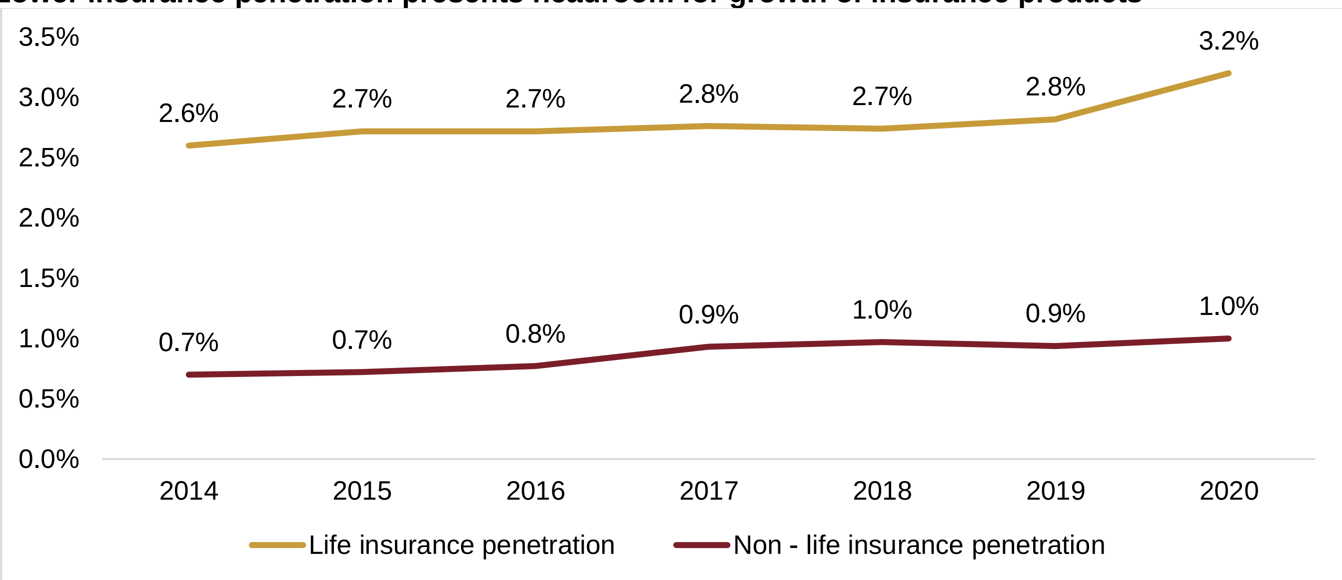
For instance, in December 2020, IPPB, due to its massive distribution network has set up a full suite of banking services and launched its new digital payments app “DakPay” to cater to the financial needs of various sections of the society – be it sending money or making payments enabling cashless ecosystem using a virtual debit card. The DakPay service is aimed at providing not only banking services, but also postal financial services at doorstep, thorough the postman of Indian Post. Apart from this, IPPB is also focusing on pan India government to customer (G2C) payments, especially rural direct benefit transfers.

Fino Payments Bank is also looking to utilise its massive network to reach out to customers and has enabled microcredit and gold loans on behalf of various banking partners. It has also leveraged its strong capability to manage bulk and retail cash on behalf of various MFIs and NBFCs, which has increased its cash management business.

Airtel Payments Bank has been leveraging its network of retailers to cross sell financial products. It has also entered into a partnership with Mastercard to develop customised financing products for farmers and MSMEs in India. One such product is a digital platform to educate farmers on advance farming methods and provide them with means to connect to the marketplace, while enabling them to receive payments directly in their Airtel Payments Bank account.

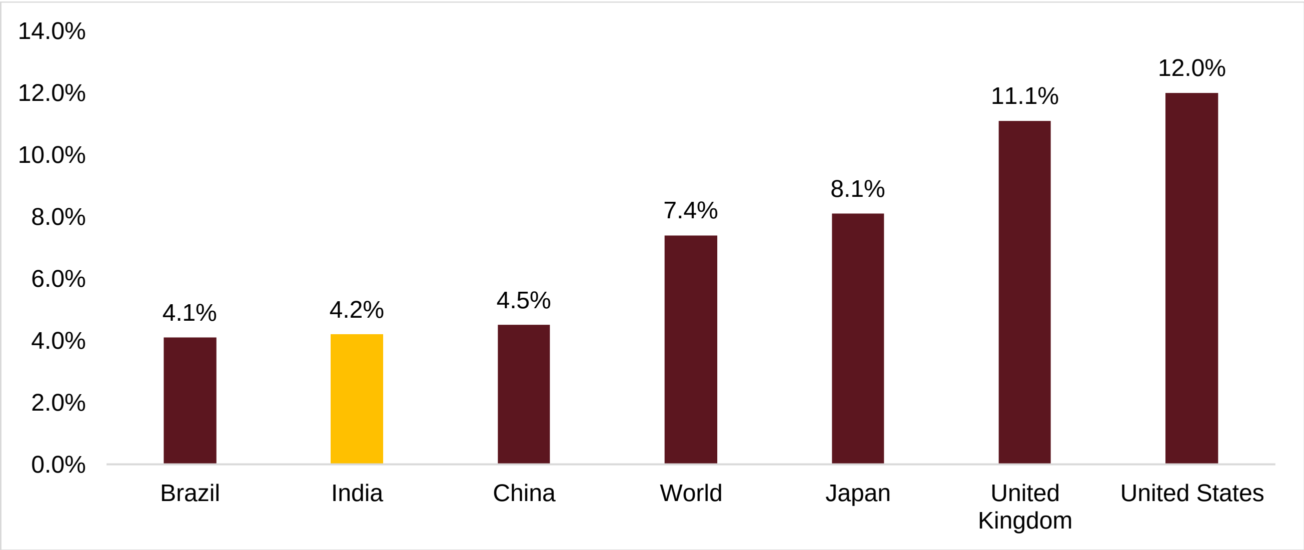
With credit penetration as well as the penetration of insurance and mutual funds still at a very low level, cross sell to retail unserved and/or underserved customers remains an attractive opportunity for payment banks. For example, although mutual fund penetration (mutual fund AUM as a percentage of GDP) has grown from 8.7% in fiscal 2002 to ~15.9% in fiscal 2021, penetration levels remain well below those in other developed markets, which presents an opportunity for payments banks to cross sell investment products to customers in rural and semi-urban areas.

Lower insurance penetration presents headroom for growth of insurance products



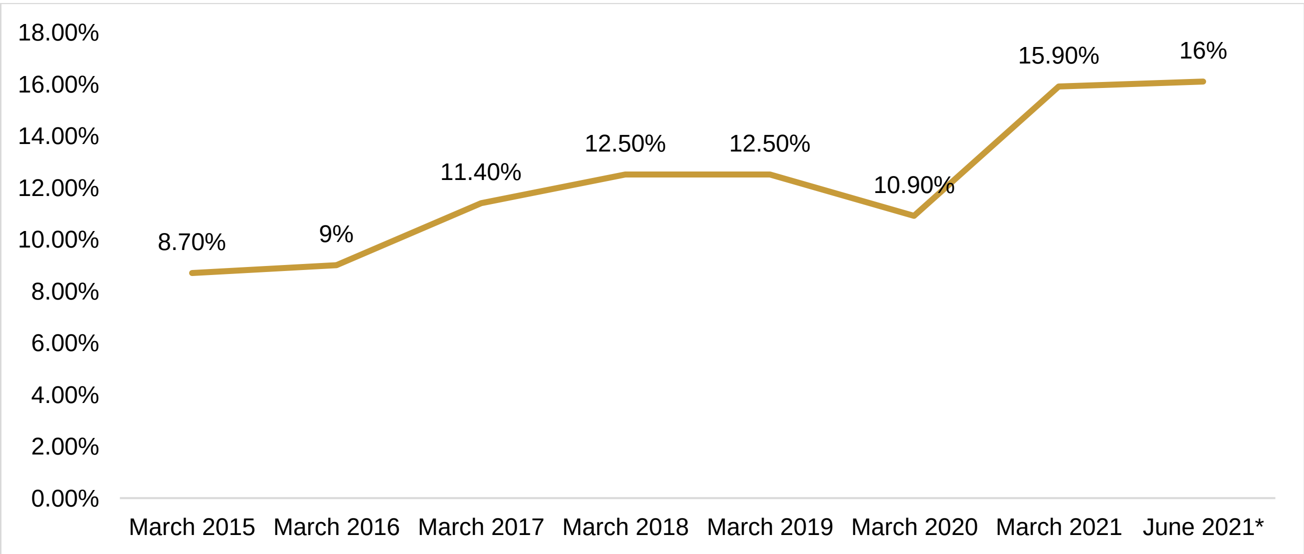
Note: Insurance penetration is measured as ratio of premium to GDP
Source: IRDA, Swiss Re 3/2021, CRISIL Research

Insurance penetration in India is low compared to other countries (CY2020)



Note: Insurance penetration is measured as ratio of premium to GDP
Source: Swiss Re 3/2021, IRDA, CRISIL Research

Mutual fund penetration (Mutual Fund AUM as % of GDP)

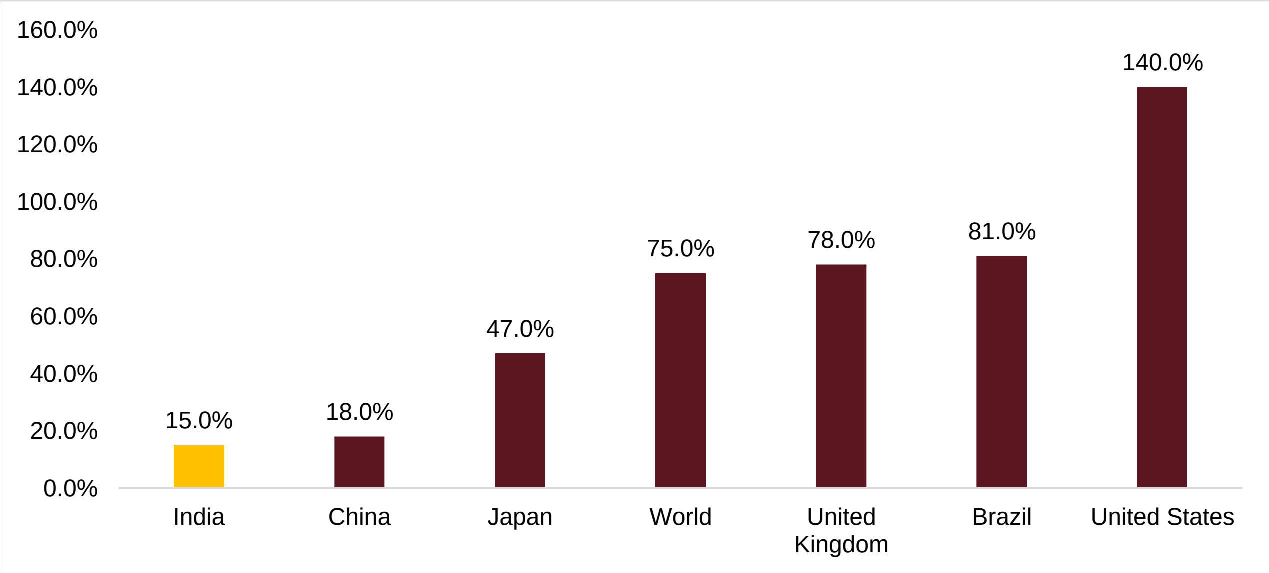


Note: Based on end of fiscal AUM and GDP at current prices, * Calculated on annualised GDP
Source: AMFI, IMF, RBI, CRISIL Research

Mutual fund penetration in India is lower as compared to other countries

India’s mutual fund penetration (AUM-to-GDP) is significantly lower than the world average of 75% and also lower than many developed economies such as the US (140%) and the UK (78%) and key emerging economies such as Brazil (81%).

Mutual fund AUM as a % of GDP in India is low compared to other countries (2020)



Note: AUM data as of CY 2020: Q4 for all countries; only open-ended funds have been considered. Includes, equity, debt and others. GDP is based on current prices estimation by IMF in world economic outlook April 2020.

Source: IMF, IIFA, CRISIL Research

Peer Comparison of Payments Banks

In this section, we have compared various payment banks operating in India on the basis of publicly available information.

Jio Payments Bank and NSDL Payments Bank are well capitalised compared to its peers

All the payment banks are well capitalised. As of end-fiscal 2021, Jio Payments Bank and NSDL Payments Bank had a capital adequacy ratio of 2347% and 230% respectively. This is followed by Airtel Payments Bank and India Post Payments Bank with a total capital adequacy ratio of 90.2% and 79.2% respectively in fiscal 2020. Fino Payments Bank has a capital adequacy ratio of 56.25% as at end of March 2021.

Fino Payments Bank has 2nd highest number of branches after India Post Payments Bank

India Post Payments Bank had the highest number of branches (650), followed Fino Payments Bank (54). PayTM Payments Bank had the highest quantum of deposits amongst payment banks, with deposits of Rs 34.5 billion as of March 2021, followed by India Post Payments Bank. The higher quantum deposit for India Post Payment Bank is on account of its large network of functioning offices. Fino Payments Bank also has the second largest network of banking touchpoint at 0.72 million after PayTM Payments Bank at 21 million.

Peer comparison (FY2021)

Players	Deposits (in Rs. Billion)	Net worth (in Rs. Billion)	CRAR (%)	Branches**	Banking Touchpoints (in millions)
PayTM Payments Bank	34.5	4.8	62.4*	6	21#
India Post Payments Bank*	8.55	5.7	79.2	650	0.14
Airtel Payments Bank	5.96	3.2	90.2*	31	0.5^
Fino Payments Bank^	2.51	1.5	54.84	54	0.72
Jio Payments Bank	0.17	1.3	2,347	9	NA
NSDL Payments Bank	0.07	1.4	230	1	NA

*Note: * Data is for FY20; ** Data is for 9MFY21; ^ Data is for Q1FY22, #Includes in-store and online merchants, Table is arranged based in decreasing order of Deposits*

Source: Company Website, Company Reports, CRISIL Research

Operational performance of payments banks

The below table shows the transaction done on cards issued by payments bank at ATMs and POS.

Fino Payments Bank has the second highest outstanding card and volume of transactions

As of August 2021, Fino Payments Bank had the second highest outstanding debit cards of 2.88 million after PayTM Payments Bank (66.06 million). In terms of transaction volume, Fino Payments Bank has processed 6.9 million transactions through debit cards at POS and ATMs in fiscal 2021. Fino Payments Bank overtook Airtel Payments Bank in terms of transaction volume and value of transactions at ATM/PoS in FY21.

Volume and Value of transactions and card issued (August FY21)

Players	Debit cards outstanding (in million)	Value of transaction at ATM & POS (in Rs billion)	Volume of transaction at ATM &POS (in million)
PayTM Payments Bank	66.06	36.44	18.10
India Post Payments Bank	2.22	0.84	1.42
Airtel Payments Bank	1.97	1.70	1.83
Fino Payments Bank	2.88	11.81	4.43
NSDL Payments Bank	0.18	0.07	0.10

Note: Data for value and volume of transactions includes transaction done through both ATM & POS (April 2021 to August 2021)

Source: RBI, CRISIL Research

Volume and Value of transactions and card issued (FY21)

Players	Debit cards outstanding (in million)	Value of transaction at ATM & POS (in Rs billion)	Volume of transaction at ATM &POS (in million)
PayTM Payments Bank	63.77	84.53	46.06
India Post Payments Bank	1.11	0.37	0.70
Airtel Payments Bank	1.72	2.69	4.46
Fino Payments Bank	2.26	17.12	6.91
NSDL Payments Bank	0.1	0.1	0.20

Note: Data for value and volume of transactions includes transaction done through both ATM & POS in fiscal 2021, Transactions is calculated basis monthly level data as on 4th June 2021

Source: RBI, CRISIL Research

Volume and Value of transactions and card issued (FY20)

Players	Debit cards outstanding (in million)	Value of transaction at ATM & POS (in Rs billion)	Volume of transaction at ATM &POS (in million)
PayTM Payments Bank	57.53	69.6	57.42
Airtel Payments Bank	1.19	2.4	6.54
Fino Payments Bank	1.11	11	5.45

Note: Data for value and volume of transactions includes transaction done through both ATM & POS

Source: RBI, CRISIL Research

Product mix of various payments banks

The table below details the products and services being offered by various payment banks in India. Apart from the offering a suite of products and services to customers in the hinterland, Fino also acts as a correspondent for partner banks and enables digital financial transactions for customers at the bottom of the pyramid on behalf of various banking partners.

Banks in general levy charges to customer on non-maintenance of minimum balance requirement on monthly or quarterly frequency. In addition, other charges such as SMS or debit card charges are also levied to the customer on an annual/monthly or quarterly basis. Subscription based accounts are those wherein charges are paid by the customer for availing a savings account with no minimum balance requirement and they also get debit card as well as SMS facilities on payment of an annual subscription fee. These accounts provide free transaction limits (cash deposits, cash withdrawals, debit card withdrawals and fund transfer charges) on monthly basis, post exhaustion of which only the transaction fees will be levied to the customer.

In July, 2020, Fino Payments Bank also launched a new product– Bhavishya, a subscription based savings account for minors in the 10-18 years age bracket to make children banking ready and inculcate a savings habit. The product is targeted at capturing rural population in the early stages of their financial journey and as they become adults, account holders could plan their financial goals in a much better way. The annual subscription charges for the account stand at Rs 349 annually (inclusive of GST). Fino Payments Bank is the only bank to offer a subscription-based savings account in India.

Product wise comparison

Products	Fino Payments Bank	Airtel Payments Bank	India Post Payments Bank	PayTM Payments Bank	NSDL Payments Bank
Savings & Current A/C	✓	✓	✓	✓	✓
Sweep Account Facility	✓	✗	✓	✓	✗
Mobile Wallet	✓	✓	✗	✓	✗
Debit Card	✓	✓	✓	✓	✓
Payments	✓	✓	✓	✓	✓
Cash Management Services	✓	✓	✓	✗	✗
Insurance	✓	✓	✓	✗	✓
Doorstep Banking	✓	✓	✓	✓	✗
Business Correspondent Business	✓	✗	✗	✗	✓

Source: Company Website, CRISIL Research

Business segment wise comparison

Products	Fino Payments Bank	Airtel Payments Bank	India Post Payments Bank	PayTM Payments Bank	NSDL Payments Bank
CASA Business	Savings and Current A/C, Sweep Account	Savings and Current A/C	Savings and Current A/C, Sweep Account	Savings and Current A/C, Sweep Account	Savings and Current A/C
Remittance	Mobile Wallet, Money Transfer	Mobile Wallet, Money Transfer	Money Transfer	Mobile Wallet, Money Transfer	Money Transfer
POS/Payments	Debit card	Debit card	Debit card	Debit card	Debit card
Cash Management Services	Cash collection	Cash collection	Cash collection	NA	NA
Financial Product Distributor	Insurance	Insurance	Insurance	NA	Insurance
Banking Service	Door step Banking and Business Correspondent	Door step Banking	Door step Banking	Door step Banking	Business Correspondent

Source: Company Website, CRISIL Research

Fino Payments Bank posted a net profit in fiscal 2021

As of end-fiscal 2021, Airtel and Fino Payments Bank had a total revenue of Rs. 6.2 billion and Rs. 7.9 billion respectively. Airtel Payments Bank posted a net loss of Rs. 4.3 billion during the year, whereas Fino Payments Bank reported profits of Rs. 0.2 billion in fiscal 2021. During Q1FY22, Fino Payments Bank reported a revenue growth of 37% on year and its net profit rose by 69% on year to Rs 31 million.

Profitability of players in fiscal 2021

Players	Revenue (in Rs. Billion)	Revenue per touchpoint (in Rs)	Net Profit (in Rs. Billion)	RoE (%)
PayTM Payments Bank	19.9	NA	0.2	4.1
Fino Payments Bank	7.8	12,211	0.2	14.6
Airtel Payments Bank	6.2	12,544	(4.3)	(144.3)
NSDL Payments Bank*	0.6	NA	(0.1)	(9.3)
India Post Payments Bank*	0.5	1,667	(3.3)	(58.2)
Jio Payments Bank	0.1	NA	(0.9)	(52.7)

*Note: Players are arranged in decreasing order of revenue, * Data for fiscal 2020*

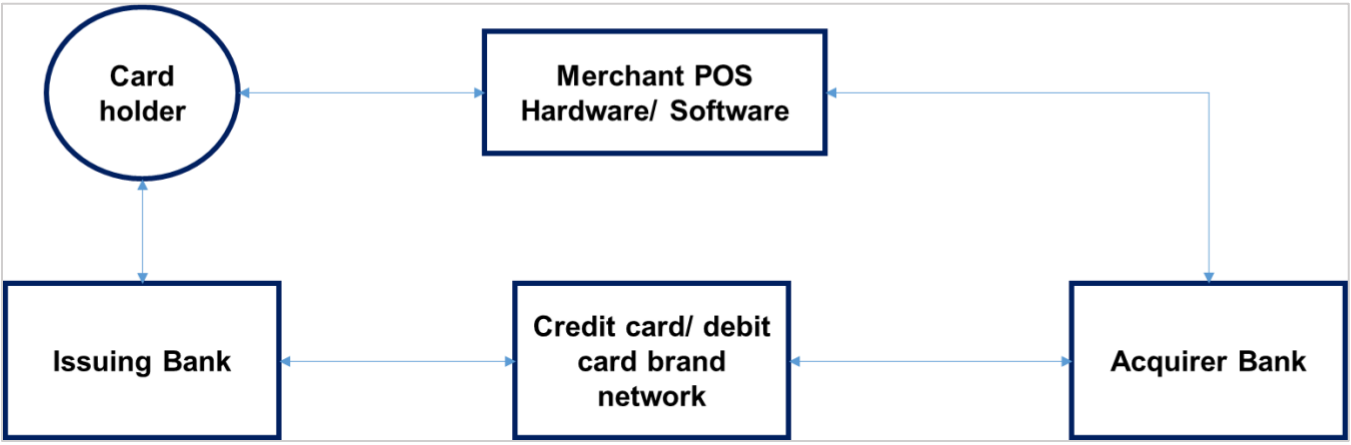
Source: Company Reports, CRISIL Research

Point of Sale (POS) Market

POS market overview

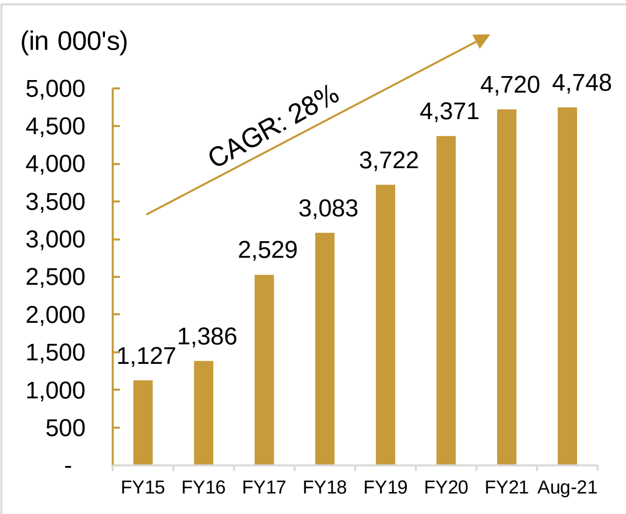
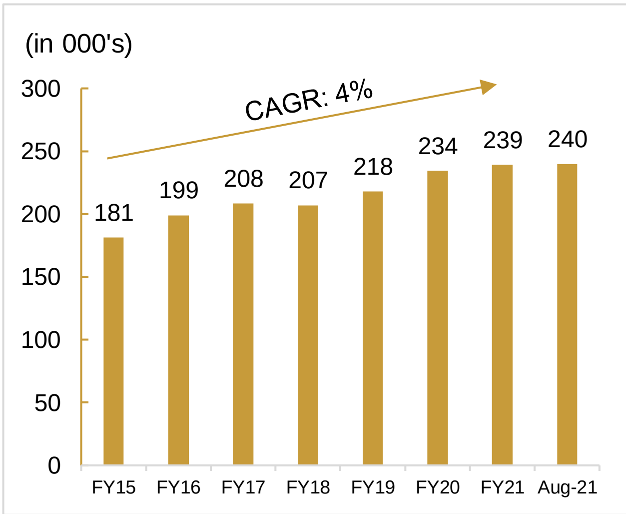
PoS terminals are devices typically used at a retail location to capture payment information electronically and - in some cases - on paper vouchers. These terminals are setup by acquirers and may accept payment through cards, or other means. PoS terminals are also used for cash withdrawals using debit cards / open loop prepaid cards issued by banks. The limits for such withdrawal are up to Rs 1000/- per day in Tier I and II centres and up to Rs. 2,000/- per day in Tier III to VI centres. Customer charges, if any, on such cash withdrawals are not more than 1% of the transaction amount.

Typical working of POS terminals



Source: CRISIL Research

In India, there were 4.7 million PoS terminals and 0.24 million ATMs deployed across the country as on March 31, 2021. As of August 2021, there were 4.75 million POS terminals in India. ATMs and PoS terminals have grown at a CAGR of 4% and 28%, respectively over the past five years. While the number of ATMs (a "cash" infrastructure) has grown at a low pace, the growth of non-cash infrastructure, mainly depicted by PoS, has been significant. This can be attributed to benefits like lower cost of acquisition and higher mobility offered by POS terminals compared to ATMs. The stupendous growth in PoS has given further fillip to digitization in India.

PoS terminals have grown five-fold in the last 5 years …	… ATMs grew at a 4% CAGR over the same period
	

Note: E-Estimated

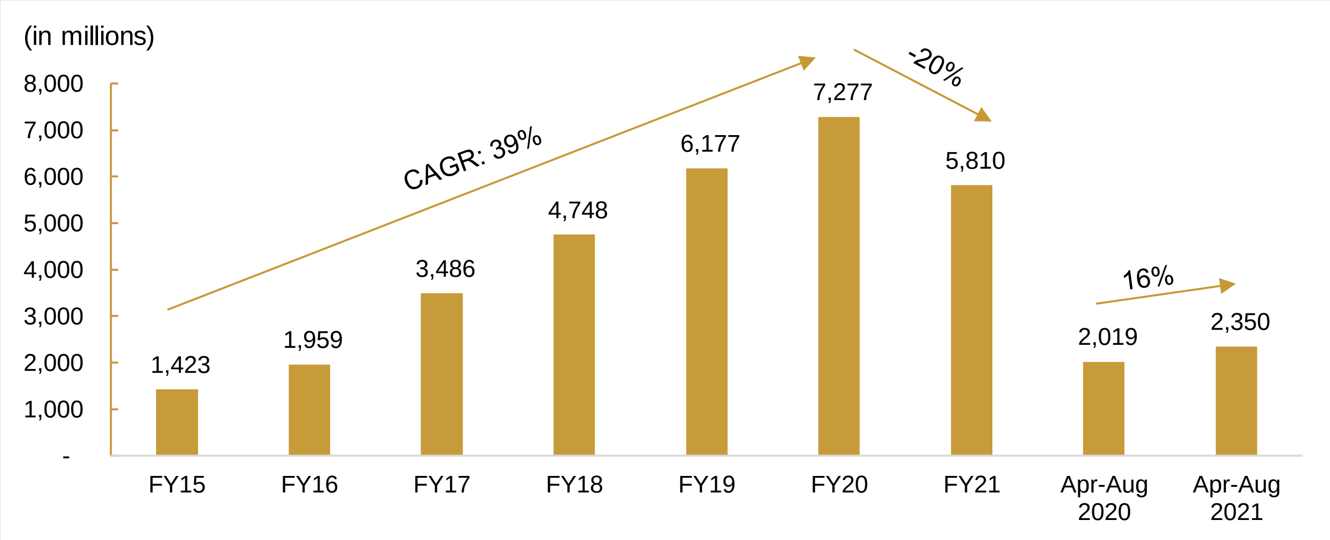
Source: RBI, CRISIL Research

Demonetisation led a sudden uptick in PoS based transactions

PoS transactions volume and value have grown at a 39% and 36% CAGR respectively over fiscal 2015 to fiscal 2020. In fiscal 2017, demonetization led to a huge increase in number of PoS terminals and PoS-based transactions with 78% year on year growth in volume of transactions and 65% year on year growth in volume of transactions. In fiscal 2017, after demonetization was announced in November 2016, a sudden increase in the volume of PoS transactions was observed with 119% growth in second half of fiscal 2017 over first half of fiscal 2017. Subsequent to the announcement of demonetization in November 2016, in a span of four months from December 2016 to March 2017, 0.93 million PoS machines were added; in contrast, as of November 2016, the total stock of PoS machines installed was 1.6 million.

The momentum in both PoS installations and transaction volumes has not abated since then. Driven by increasing PoS penetration, rising disposable incomes and government initiatives towards a cashless economy, the transaction volume and value have also been growing at a fast pace. In fiscal 2021, however, due to the Covid-19 pandemic induced lockdown, transaction growth has declined due to lower usage of PoS terminals. In first half of fiscal 2022, the second wave impacted transaction volumes and value in the months of April and May. However, recovery has been observed in the month of August and transaction volumes in April to August 2021 were around 2.3 billion recording 16% growth over the same period last year and corresponding transaction value was Rs 5.9 trillion during April to August 2021 recording 48% growth over the same period last year.

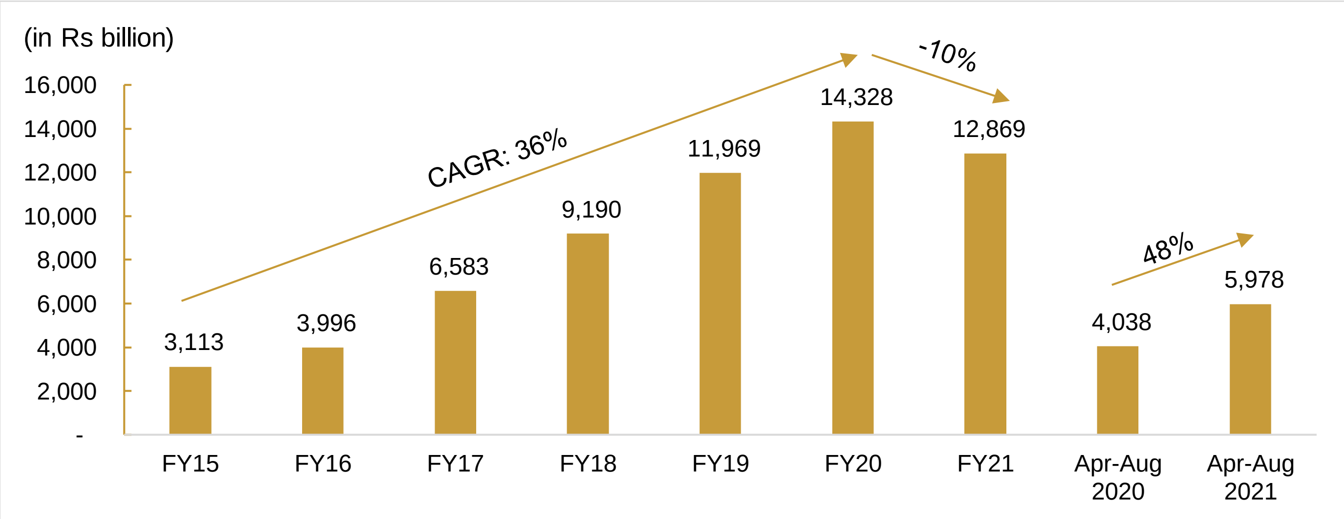
PoS based transactions grew at a 39% CAGR over fiscal 2015 through fiscal 2020, but declined in fiscal 2021 due to Covid-19 impact



Note: E-Estimated

Source: RBI, CRISIL Research

Value of PoS based transactions also grew at a 36% CAGR over fiscal 2015 through fiscal 2020, but declined in fiscal 2021 due to Covid-19 impact



Note: E-Estimated

Source: RBI, CRISIL Research

Reduction in Merchant Discount Rate (MDR) also drove the increase in PoS based transactions

In order to boost digital payments and acceptance, the government has reduced the MDR rates for debit cards over the years. The government, in January 2020, also introduced zero MDR for certain modes of payments like RuPay debit cards, UPI and UPI QR codes. This move led to an increase in acceptance of PoS terminals amongst merchants and an increase in transactions. For payments made through credit cards, MDR continues to be applicable. Before the government removed the MDR on certain payment modes, the applicable MDR rate was 0.6% for transactions above Rs 2,000 with a maximum cap of Rs 150 per transaction through RuPay debit cards and 0.3% with maximum cap of Rs 100 per transaction through BHIM UPI.

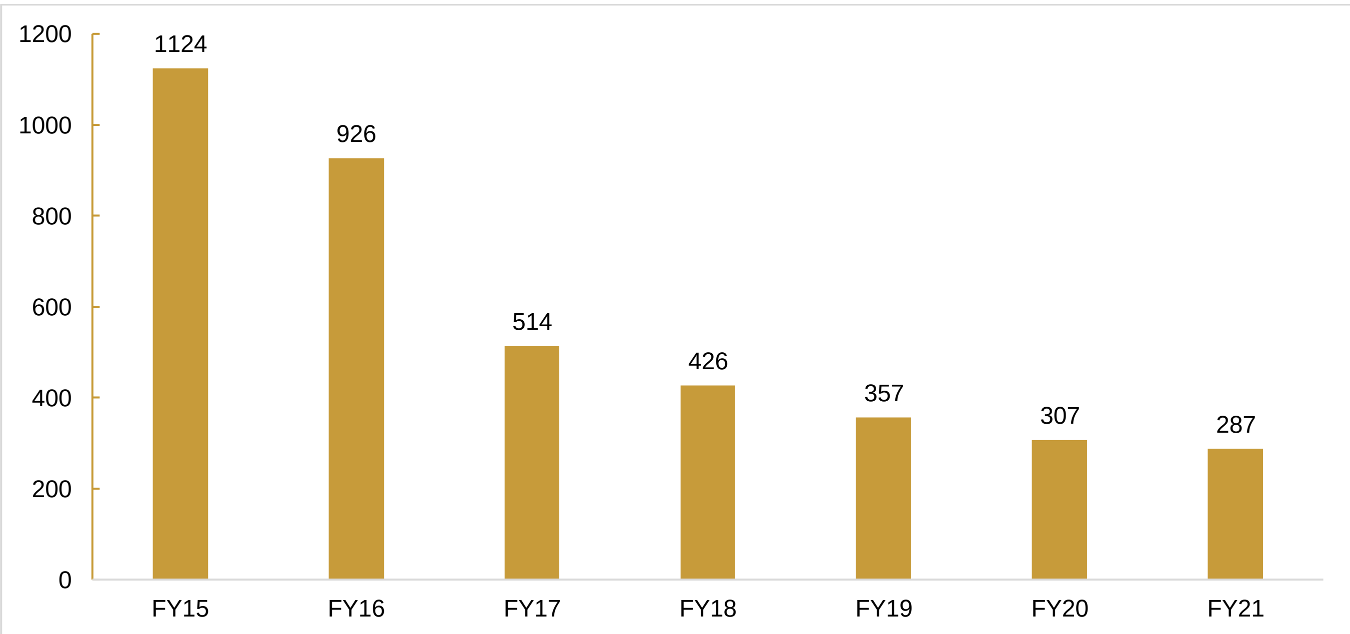
MDR is the commission charged by bank and service providers for providing digital payments and settlement infrastructure. When a credit card is swiped on a POS machine, the merchant is charged a fee by the bank for using the POS machine. This fee is then divided between acquiring bank (financial institution that maintains merchant's bank account), issuing bank (credit card issuer) and card network (Visa, Mastercard, Rupay).

The reduction in MDR has led to some concerns that the speed of deployment of PoS devices may be impacted as infrastructure providers may not find it economical to deploy PoS machines in some regions. Ostensibly, to address such concerns, the government, in the Union Budget 2021-22, earmarked an amount of Rs 15 billion towards a scheme that will provide financial incentive to promote digital modes of payment.

India still lags behind in terms of PoS penetration despite high growth in deployed PoS terminals

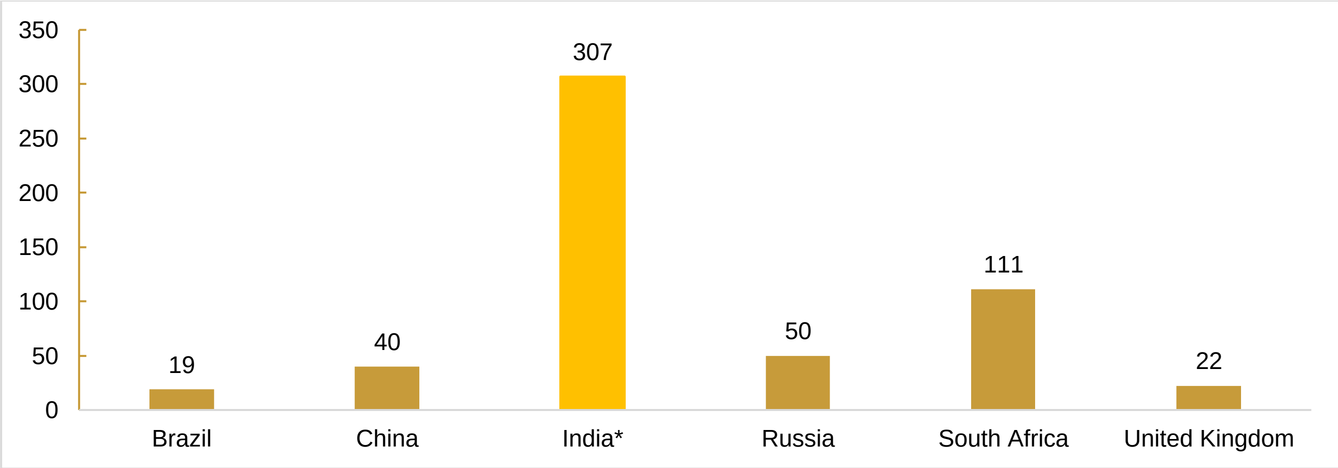
Over the last six years, India has made considerable progress with reference to the absolute number of PoS terminals deployed in the country. However, the number of people served per PoS terminal continues to be high at 287 as of fiscal 2021. Compared to other countries, India still has the highest number of people served per PoS terminals, which indicates enormous untapped potential for PoS terminals in the country. Moreover, most of the PoS terminals are located in large urban cities, while in rural areas and smaller districts the penetration of PoS terminals is far lower.

People served per PoS terminal reduced considerably over fiscal 2015 to fiscal 2021, but remains at higher levels



Source: RBI, CRISIL Research

India has the highest number of people served per PoS terminal compared to other countries



Note: For India, the data is as of March 2020. For other countries, the data is as of December 2019

Source: BIS, RBI, CRISIL Research

Private sector banks have lion's share in the PoS market; Payments Banks are increasing their presence

As of August 2021, private banks account for majority of the PoS devices installed in India with 67.7% share followed by public sector banks (25.5%). Payments banks have also started penetrating this market by increasing their market share from 0.3% as of March 2019 to 5.7% as of August 2021.

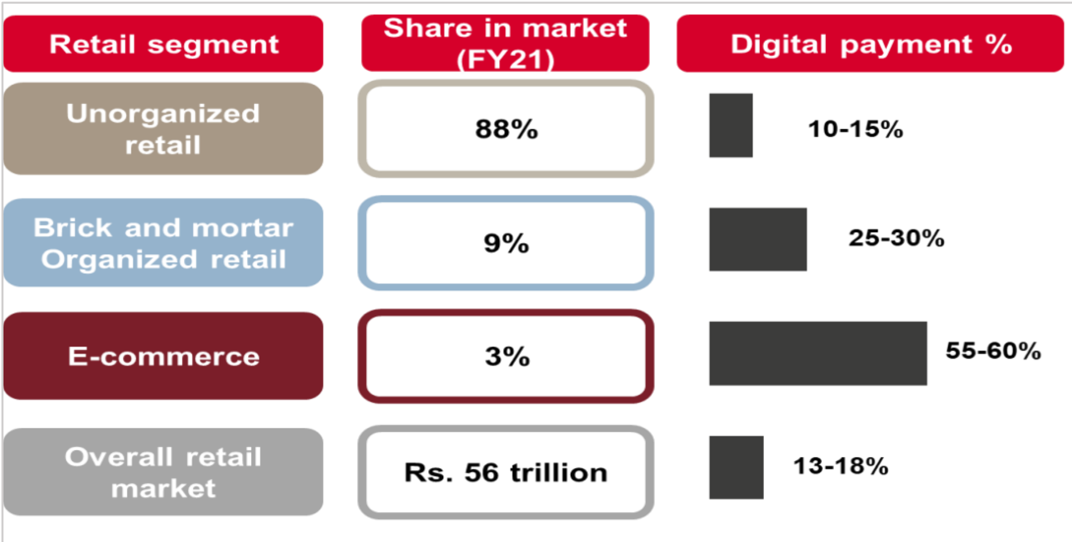
Share of various bank groups in deployed PoS terminals (as of August 2021)

Bank group	Number of PoS terminals	Market Share
Private Banks	3,215,369	67.7%
Public Sector Banks	1,209,936	25.5%
Payments banks	272,691	5.7%
Foreign Banks	42,797	0.9%
Small Finance Banks	6,767	0.1%
Total	4,747,560	100.0%

Source: RBI, CRISIL Research

Retail industry provides huge potential for growth of PoS market in India

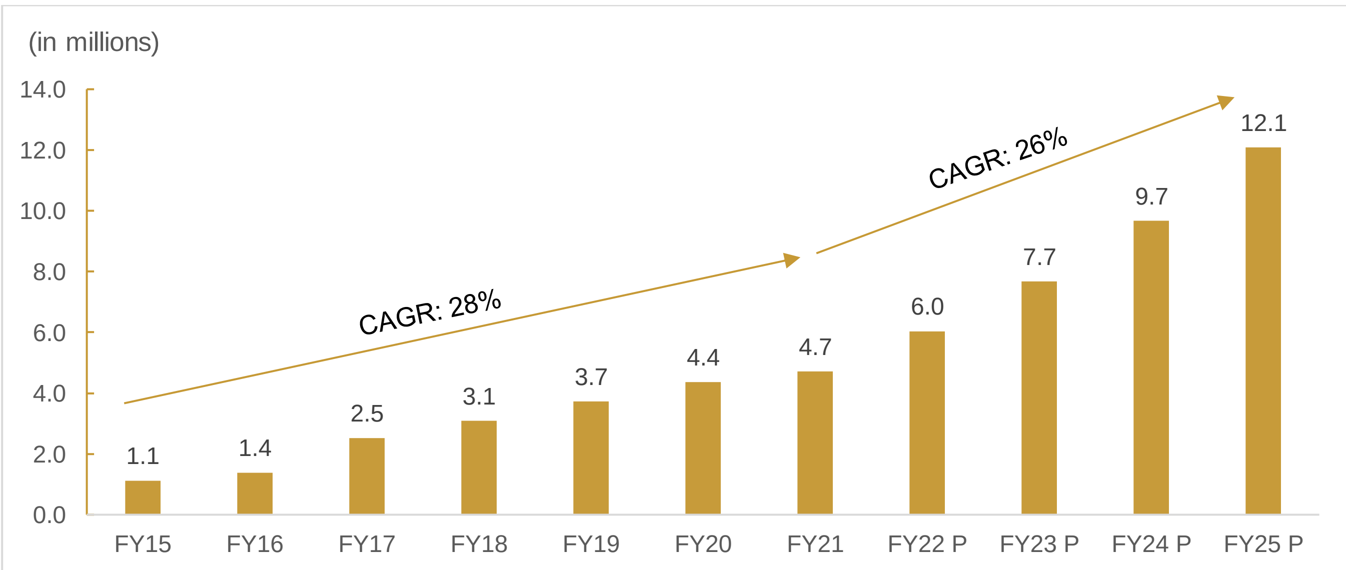
Retail industry deploys the highest proportion of PoS terminals in India. Share of digital payments in overall retail industry is estimated to be in the range of 13-18% as of fiscal 2021. Within the retail industry, organised retail industry is growing at a fast pace especially in urban areas which has also led to faster growth in PoS transactions. In fiscal 2021, organized retail industry is estimated to account for only 12% of overall Rs 56 trillion retail market. CRISIL Research estimates that 25-30% of the transactions (in value terms) at a pan-India level currently take place through digital payment modes in the organized retail segment. The corresponding percentage is estimated to be much higher at 55-60% for the e-commerce industry. With the expected increase in organized retail penetration in the country and adoption of e-commerce as well as an increase in the proportion of digital payments, both these segments will contribute to PoS market growth.



Source: CRISIL Research

Majority of the retail industry is still captured by the unorganized segment and most of the retail spending in rural and semi-urban areas happens through unorganized retail stores which are relatively underpenetrated in terms of PoS deployment. CRISIL Research estimates that only 10-15% of the transactions (in value terms) at a pan-India level currently take place through digital payments mode in the unorganized retail segment; in small unorganized stores located in semi-urban and rural areas, the proportion of retail digital payments are estimated to be much lower than this nation-wide average . This segment of the retail industry provides huge potential for growth of PoS market in India.

Number of PoS terminals to grow at a 26% CAGR over fiscal 2021 to fiscal 2025



Note: P-Projected

Source: RBI, CRISIL Research

Movement towards O+O in retail industry to also create growth opportunities

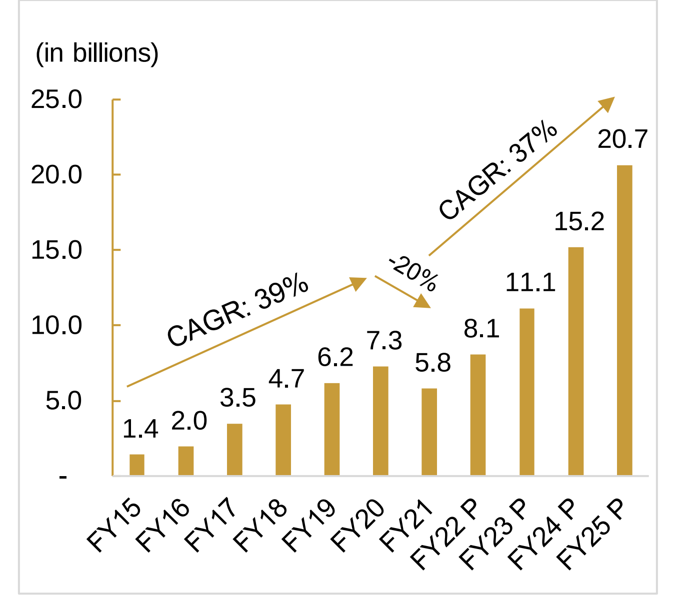
Online plus offline (O+O) refers to business models wherein online vendors are increasingly looking at creating a physical presence for customer fulfilment and physical stores are developing an online presence in order to woo customers. This encompasses in-store pick up of items purchased online, allowing items purchased online to be returned at a physical stores and allowing physical store customers to place orders online through appropriate technology interventions.

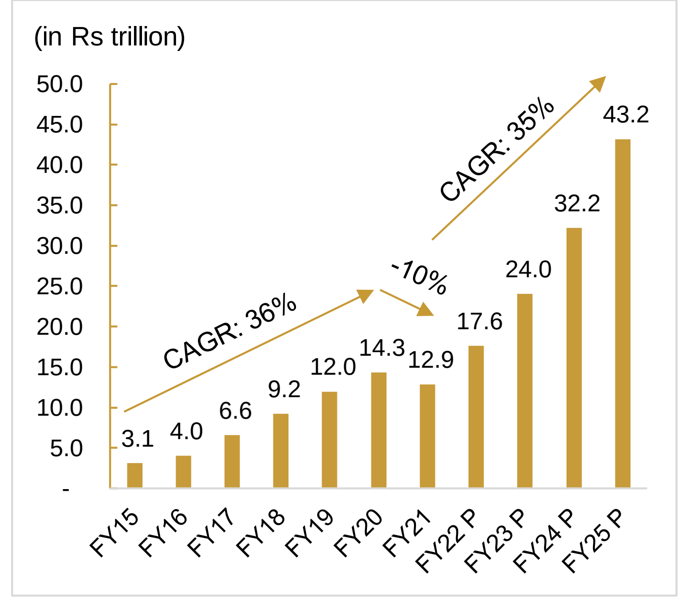
Besides increase in the proportion of digital transactions in the retail industry, we also foresee increasing opportunities due to increased emphasis on online plus off-line play, more popularly known as O+O. Traditional brick and mortar players are increasing their online presence, and at the same time, online players are investing in creating an on-the-ground presence. This trend will be influenced by technological progress, changes in customer behaviour, and entry of new consumer brands in the market place. The onset of the Covd-19 pandemic, demonetisation of high value currency notes and implementation of GST have also acted as catalysts in accelerating the O+O shift.

Transactions growth to be driven primarily by increase in PoS terminals

Between fiscal 2015 and 2020, transaction volume and value has grown at a 39% and 36% CAGR respectively. However, majority of this growth came immediately after demonetisation in fiscal 2017. In fiscal 2021, the transaction volumes and value for POS declined by 20% and 10% respectively. However, with economy opening up, CRISIL Research expects the transaction volumes to grow at 37% CAGR from fiscal 2021 to fiscal 2025 to reach 21 billion transactions through PoS terminals. Transaction value is expected to grow at 35% CAGR over the same period to touch Rs 43 trillion. Expected increase in PoS terminals along with improvement in credit and debit card penetration and changing consumer behaviour are key factors that will support the growth in transactions through PoS.

PoS transactions to grow at 23% CAGR over FY20 to FY25…	**…leading to a growth of 25% CAGR in value of PoS transactions**





Source: RBI, CRISIL Research

Growth drivers

Majority of the growth in transactions will come from robust increase in number of PoS terminals. Other factors like low debit and credit card penetration and usage in the country and changing consumer behavior towards digital payments will also lead to increase in PoS based transactions.

Higher Debit card usage: As of August 2021, there are 914 million debit cards which indicates that debit card penetration in India is at 67%. Despite considerable presence of debit cards, the number of transactions per debit card at a PoS terminal annually is only 6 which is very low. With increasing financial literacy and acceptance of payment infrastructure, usage of debit cards is expected to improve which will lead to growth in transactions.

Increase in Credit card penetration: As of August 2021, there are only 64 million credit cards outstanding, leading to a credit card penetration of only 4.7% in India. With growth in the number of credit cards issued, PoS transactions would also witness a concurrent increase as more than 50% of credit card transactions occur through PoS terminals.

Changing consumer behavior: With increasing push from government towards digital payments, the consumer behavior towards the same has also been evolving. After demonetization, consumers started adopting these modes of payment and have gained confidence in transacting digitally. Covid-19 pandemic has also given a further impetus to consumers for transacting digitally. However, this change is more prominent in urban areas. In rural and semi-urban areas, cash is still preferred for many transactions. Going forward, with higher digital payments penetration and increasing trust of consumers in digital payments, transactions are also expected to increase.

Growth, on the supply side, in PoS terminals will be primarily driven by the following factors:

Regulatory push through PIDF: In January 2021, RBI announced the creation of Payment Infrastructure Development Fund (PIDF) to boost digital payments in Tier 3 cities and Tier 6 cities. PIDF has an initial corpus of Rs. 3.45 billion, of which Rs. 2.5 billion is contributed by RBI and the remaining from authorised cards networks as well as card-issuing banks in India. This fund will be used to subsidize banks and non-banks for deployment of payment infrastructure for those merchants, who still don't have access to POS machines. This move is also expected to encourage deployment of point of sale infrastructure, improve digital payments and provide better access of financial services in under penetrated or unpenetrated areas.

Salient features regarding operationalisation of PIDF

<table>
<tr><td>Objective</td><td>The objective of PIDF is to increase the number of acceptance devices multi-fold in the country. The Scheme is expected to benefit the acquiring banks / non-banks and merchants by lowering overall acceptance infrastructure cost.</td></tr>
<tr><td>Validity Period</td><td>3 years from January 2021, extendable by 2 more years, if necessary</td></tr>
<tr><td>Target</td><td>Increasing payments acceptance infrastructure by adding 3 million touch points – 1 million physical and 2 million digital payment acceptance devices every year
The primary focus of the scheme is to create payment acceptance infrastructure in Tier-3 to Tier-6 centres. Special focus will be given to North-eastern states
Tentative distribution of targets across the centres is 30% in tier 3 and tier-4 centres, 60% in tier 5 and tier 6 centres and 10% in north-eastern states
Merchants providing essential services (transport, hospitality, etc.), government payments, fuel pumps, PDS shops, healthcare, kirana shops will be targeted</td></tr>
<tr><td>Funding</td><td>Initial contribution of Rs 2.5 billion from RBI, Rs 1 billion from authorised card networks and card issuing banks basis the number of debit and credit cards issued by them
Recurring contribution from card networks and card issuing banks based on their turnover as well as for banks, the number of new debit and credit cards issued by them.</td></tr>
<tr><td>Claims management</td><td>Maximum cost of physical acceptance device eligible for subsidy is Rs 10,000 (including one-time operating cost up to a maximum of Rs 500).
Maximum cost of digital acceptance device eligible for subsidy is Rs 300 (including one-time operating cost up to a maximum of Rs 200)
Acquirers meeting or exceeding their targets and/or ensuring greater utilisation of acceptance devices in terms of transactions to be incentivized and vice-versa
Subsidised amount of cost of physical and digital payment acceptance devices (as a percentage of total cost of the device) based on location of deployment will be as under:
<table>
<tr><th>Location</th><th>Physical payment acceptance device</th><th>Digital payment acceptance device</th></tr>
<tr><td>Tier 3 and tier 4 centres</td><td>30%</td><td>50%</td></tr>
<tr><td>Tier 5 and tier 6 centres</td><td>40%</td><td>60%</td></tr>
<tr><td>North eastern states</td><td>50%</td><td>75%</td></tr>
</table></td></tr>
</table>

Source: RBI, CRISIL Research

Offering other value added services to merchants: Major players in the industry have also started focusing on value added services that can be provided to the merchants acquired through PoS sales. Given the high cost of merchant acquisition, acquirers have been working towards introducing new revenue streams in the business by offering various PoS solutions. These include billing management, sales analytics, GST solutions, expense management applications inventory management software etc.

Data collection through POS software enables the players to provide value added services to the merchants. The type of data collected can include customer details (such as purchase trends), payment method used, inventory details (as POS software is typically synchronized with inventory software), tax details, employee productivity, sales trend (repeat sales data, time of sale, merchandise purchased) and even geographic location and demographic data. POS data can thus enable the service provider to track spending trends at a city or an area level or a retail segment level, which can enable them to provide customized merchant solutions.

Changing merchant mindset: The retail merchants are making attempts to attract customers and enhance customer experience by offering flexible payment solutions (such as buy now pay later) through the PoS terminal. This shift in the retailer or merchant mind-set will increase the acceptance of payment infrastructure leading to growth in PoS terminals.

Emergence of newer technology: With introduction of newer payment methods such as Near Field Communication and QR codes based systems in India, the PoS segment is also evolving with improved technology usage to accommodate these newer methods of payments. Along with technology upgrade, the players in the industry are also working towards making technology affordable. For example, PayTM, in March 2021, announced the launch of a smart PoS application, which can convert mobile phones into card payment machines.

Domestic Remittances

Overall Market Size

Domestic remittance transfers predominantly refers to migrant workers sending money from the places where they work to their homes in other states/regions for meeting the needs and day-to-day expenses of their family members.

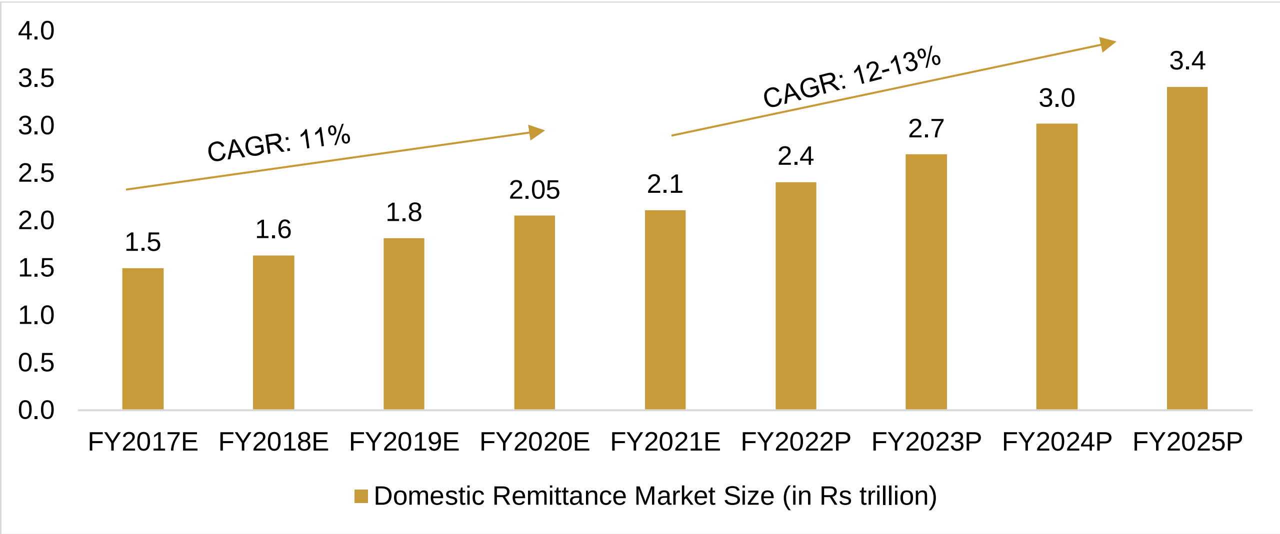
As the urban population in India has consistently been increasing, we are witnessing an increasing trend of migration from villages and smaller semi-urban areas to larger cities and towns As per the census 2011 data, India had 456 million migrants (38% of the total population) as compared to 307 million migrants (30% of the total population) in 2001. The number of migrants who moved from rural to urban areas also increased from 52 million in 2001 to 78 million in 2011, leading to a rise in share of rural to urban migrant in the population from 5.1% in 2001 to 6.5% in 2011. The number of migrants in the total population is expected to have further increased over the last decade, leading to strong growth in the domestic remittances market. While recent data on the number of migrants in India is not available, the Economic Survey 2021 notes that 6.31 million migrant workers travelled to their home towns through Shramik Special trains from May to August 2020 after the onset of the Covid-19 pandemic and nation-wide lockdown.

CRISIL Research estimates the total domestic remittances market to be just a shade over Rs 2 trillion in fiscal 2020. Between fiscal 2017 and 2020, this trend in migration of population has continued, leading to an 11% CAGR growth in the domestic remittance market.

In fiscal 2021, the covid-19 pandemic and the nationwide lockdown plummeted the remittance flow in the first half of the year, triggered by sudden job loss and the migrants returning to their home states. However, the remittances picked up in the second half of fiscal 2021 on account of government schemes such as Prime Minister Garib Kalyan Yojana and resumption of economic activities.

Going forward, CRISIL Research expects remittances to gradually increase as the economic situation comes back to normal in fiscal 2022. In the long term, digital India and financial inclusion initiatives in the country is expected to support remittances growth, with more and more people availing remittance services for funds transfers to remote areas. We project the market to touch Rs 3.4 trillion by FY25, translating into a ~12-13% CAGR in remittances during FY20-25, notwithstanding the small blip in growth in FY21.

Domestic remittance market to grow at a 12-13% CAGR between fiscal 2021 and fiscal 2025



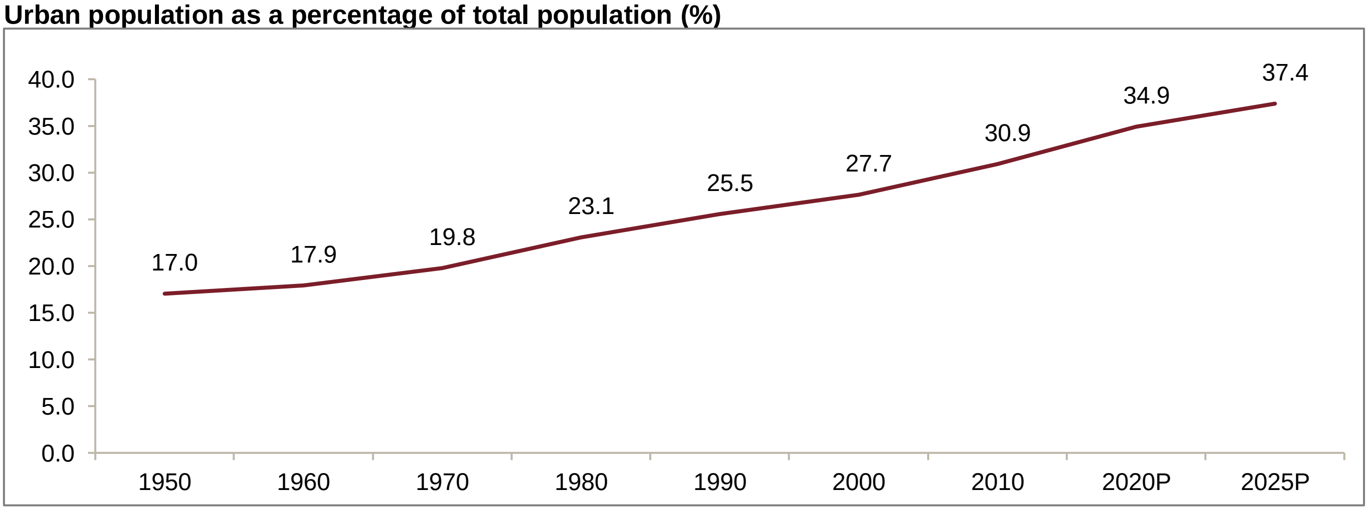
Note: E: Estimated, P: Projected
Source: Economic Survey 2017, CRISIL Research

Growth drivers

Urbanisation and migration of population to urban regions to drive growth

Urbanisation is one of India's most important economic growth drivers as it will drive substantial investments in the country, which, in turn, is expected to lead to job creation, development of modern consumer services and increased ability to mobilise savings. The country's urban population has been rising consistently over the decades. In 1950, it was 17% of total population. As per the 2018 revision of World Urbanization prospects, the proportion of urban population in India was estimated at 34% as of 2020. This is expected to reach 37% by 2025, which will drive growth in the domestic remittances market in the times to come.

Urban population as a percentage of total population (%)



Note: P - Projected

Source: Census 2011, World Urbanization Prospects: The 2018 Revision (UN)

Revival of economy to aid remittances

India's GDP growth is expected to clock 9.5% in fiscal 2022 after declining in fiscal 2021 . Further improvement in activities such as infrastructure and real estate development will see labourers returning back to city to take up their jobs. This is expected to result in a rebound in remittance services in the medium term.

Improvement in financial system infrastructure to drive remittances

According to the G20 National Remittance Plans of 2019, India is committed to increase remittances market competitiveness, improve financial infrastructure and pursue policies to reduce remittance rates. Thus, the government is expected to continue to focus towards deepening of financial infrastructure in the remote parts of the countries through product innovation and harnessing of new technologies. This will enhance the outreach of payments systems including remittances service, through active participation and co-operation with regional players for establishing standard protocols for larger systemic benefit. For example, within a short span of time, we have witnessed UPI becoming a very popular payment system, across platforms and applications due to strong government focus, increase in use cases, and the convenience offered.

Emphasis on Direct benefit transfer (DBT) by the government

The transfer of government subsidies and payments directly into the bank accounts of beneficiaries has helped cut out middlemen and enable better targeting of subsidies. The DBT scheme has achieved greater effectiveness with the help of Jan Dhan accounts. The government is targeting to bring all government schemes gradually under the ambit of DBT, which will cut leakages and improve the transparency in the system. Customers availing of government subsidies, on their part, will be required to avail of remittance services to withdraw funds deposited into their accounts instead of relying on unorganised middlemen.

Growing BC penetration and emergence of newer channels for remittance

The channels use for remittance vary largely as companies use channels like NEFT, IMPS, RTGS, PPIs and new modes of payments like NPCI's enabled Aadhaar enabled payment system (AePS). Much of the domestic remittance in India currently happens through agents or touchpoints who acts as business correspondent (BCs) for banks and provide a range of basic banking services. As more and more payment based fintechs are entering the industry, digital wallets are increasingly becoming popular for P2P transactions. Compared to traditional methods, they're also faster, cheaper and convenient. Sending money from one digital wallet to another account is instantaneous, wherein the sender just require the phone number of the recipient. The recipient can link the mobile wallet for credit directly into the bank account or cash out the remittance at any other convenient time.

Revenue model of service providers in the remittance business

The market for domestic remittance was once dominated by India Post and a multitude of informal service providers. However, over the past decade, the banks have developed various models to provide remittance services and acquire a larger share of this market opportunity. Domestic money remittance (DMR) enables a walk in customer to transfer funds to any bank account, anywhere in the country. The customer just has to deposit the amount to be transferred to the DMR agent or the agent at the banking touchpoint, who would then transfer the amount using NEFT or IMPS to the beneficiary. The majority of the costs associated with the remittance is towards API usage and commission paid to the agents who facilitate the transactions. The customer can also choose to remit funds directly through the mobile based platform using the phone number of the beneficiary.

The revenue source for the DMR providers is primarily dependent on the volume of transaction. They earn a fee, which is paid by the sender. The domestic remittance charges are set as an absolute amount, which varies across different slabs of amount transferred. Overall, as a proportion of the amount remitted, the charges vary between 0.5%-1.0percent of the fund transferred. The scale of operations of the DMR providers, availability of touchpoints, trust and convenience offered to the customer is also forms a critical part of the remittance business.

Players	Charges for Fund Transfer
Fino Payments Bank	• With Fino Payments Bank (Through Mobile Banking) – Free • Within Fino Payments Bank (Through Merchants) – Rs. 10 • Within Fino Payments Bank (Through Branch) – Free • Fino to Other Bank (Through Mobile Banking)- Rs 5- Rs. 15 • Fino to Other Bank (Through Merchants & Branch) – Rs. 5 to Rs. 15
Airtel Payments Bank	• Within Airtel Payments Bank (Internet & mobile banking, USSD) – Free • From Airtel Payments Bank to other banks (NEFT) – Free • From Airtel Payments Bank to other banks (IMPS) – 1% of remittance amount
India Post Payments Bank	• Within India Post Payments Bank (IPPB) – Free • IPPB to other banks (Mobile banking)- Rs. 5-10 (IMPS), Rs. 2.25- Rs. 20 (NEFT), Rs. 24-Rs. 50 (RTGS) • IPPB to other banks (Through Touchpoints)- Rs. 10-50 (IMPS), Rs. 2.25- Rs. 25 (NEFT), Rs. 24-Rs. 50 (RTGS)
PayTM Payments Bank	• IMPS, UPI, NEFT Transfers – No charges • Domestic transfer through PayTM Banking Point – Min Rs. 10 or 1% of the remittance amount (whichever is higher)

Note: The charges is as per disclosures on the websites of the companies as of mid-March 2021

Source: Company websites, CRISIL Research

Guidelines for mobile banking transactions in India

Mobile phones, as a medium for extending banking services, have attained greater significance because of their ubiquitous nature. The rapid growth of mobile users in India, through wider coverage of mobile phone networks, have made this medium an important platform for extending banking services to every segment of banking clientele in general and the unbanked segment in particular. In order to ensure a level playing field, RBI brought out a set of operating guidelines for adoption by banks in October 2008, which were further updated in 2011, 2014 and 2015.

In December 2011, limits of mobile banking transactions was increased from Rs. 1,000 to Rs. 5,000 and the norms for domestic money transfers was also relaxed.

In December 2014, RBI directed banks to provide easy registration option to the customers and sought a higher degree of standardization in the above process. In order to address the challenge in extending the facility of Mobile pin (MPIN) generation to the customers registered for mobile banking, RBI allowed banks to explore different options. In order to quicken the process of MPIN generation and also widen the accessibility to their mobile banking registered customers, banks was also allowed consider adopting various channels / methods such as:

- Through the ATM channels (similar to option available for change of PIN on their own ATMs as well as in inter-operable ATM networks)
- Through an option provided in the Unstructured Supplementary Service Data (USSD) menu for mobile banking (both their own USSD platform, if any, as well as under the inter-operable USSD Platform for mobile banking)
- Banks' own internet banking website, with necessary safeguards
- Use of MPIN mailers (like PIN mailers for cards)
- Common website can also be designed as an industry initiative

Banks could also undertake customer education and awareness programme in multiple languages through different channels of communication to popularise their process of mobile banking registration/activation and its usage etc. In December 2015, RBI further extended the channels to be used for customer registration to include phone banking and IVR to fasten the process for customer registration which was critical for mobile banking operations.

The guidelines contains all rules / regulations / procedures prescribed to be followed by banks for operationalising mobile banking in India and is applicable to all commercial banks (including Regional Rural Banks), Urban Cooperative Banks, State Cooperative Banks and District Cooperative Banks.

Currently, under the RBI guidelines:

- Banks are permitted to offer mobile banking services (through SMS, USSD or mobile banking application) after obtaining necessary permission from the Department of Payment & Settlement Systems, Reserve Bank of India.
- Banks which are licensed, supervised and having physical presence in India, are permitted to offer mobile banking services. Only banks who have implemented core banking solutions are permitted to provide mobile

banking services. Banks may also use the services of Business Correspondent appointed in compliance with RBI guidelines, for extending this facility to their customers.

- Banks are required to put in place a system of registration of customers for mobile banking. Banks should strive to provide options for easy registration for mobile banking services to their customers, through multiple channels, thus minimising the need for the customer to visit the branch for such services. The time taken between registration of customers for mobile banking services and activation of the service should also be minimal.

- Banks are permitted to offer mobile banking facility to their customers without any daily cap for transactions involving purchase of goods and services. However, the banks may put in place per transaction limit depending on the bank's own risk perception, with the approval of its Board.

- Transactions up to Rs 5000/- can be facilitated by banks without end-to-end encryption. The risk aspects involved in such transactions may be addressed by the banks through adequate security measures.

- In order to facilitate the use of mobile phones for remittance of cash, banks are permitted to provide fund transfer services, which facilitate transfer of funds from the accounts of their customers for delivery in cash to the recipients. The disbursal of funds to recipients of such services can be facilitated at ATMs or through any agent(s) appointed by the bank as business correspondents.

Regulations governing domestic money transfer in India

Prior to 2011, only banks were permitted to initiate money transfers in the country subject to adherence of KYC/AML guidelines. A large number of people, particularly the migrant population, who do not have access to formal banking channels face difficulties in using the authorized channels for transferring funds. Hence, in October 2011, RBI introduced new guidelines to provide certain relaxations to provide money transfer facilities in a safe, secure and efficient manner across length and breadth of the country.

The relaxations include:

- Liberalising the cash pay-out arrangements for amounts being transferred out of bank accounts to beneficiaries not having a bank account and enhancing the transaction cap from the existing limit of Rs. 5,000 to Rs. 10,000 subject to an overall monthly cap of Rs. 25,000 per beneficiary.

- Enabling walk in customers not having bank account (for instance migrant workers) to transfer funds to bank accounts (of say family members or others) subject to a transaction limit of Rs. 5,000 and a monthly cap of Rs. 25,000 per remitter.

- Enabling transfer of funds among domestic debit/credit/pre-paid cards subject to the same transaction/monthly cap as mentioned above.

- In addition, Banks/non-banks were directed to put in place a robust system of safeguards including velocity checks and alerts to customers about credit into accounts using this facility. Any unusual spurt in volume of credits in a particular account/group of accounts shall be immediately investigated and appropriate authorities shall be alerted regarding suspicious transactions. RBI also mandated such fund transfers to be effected on a real/near real time basis and the Inter-bank settlement of funds to be effected using RBI approved payment systems only.

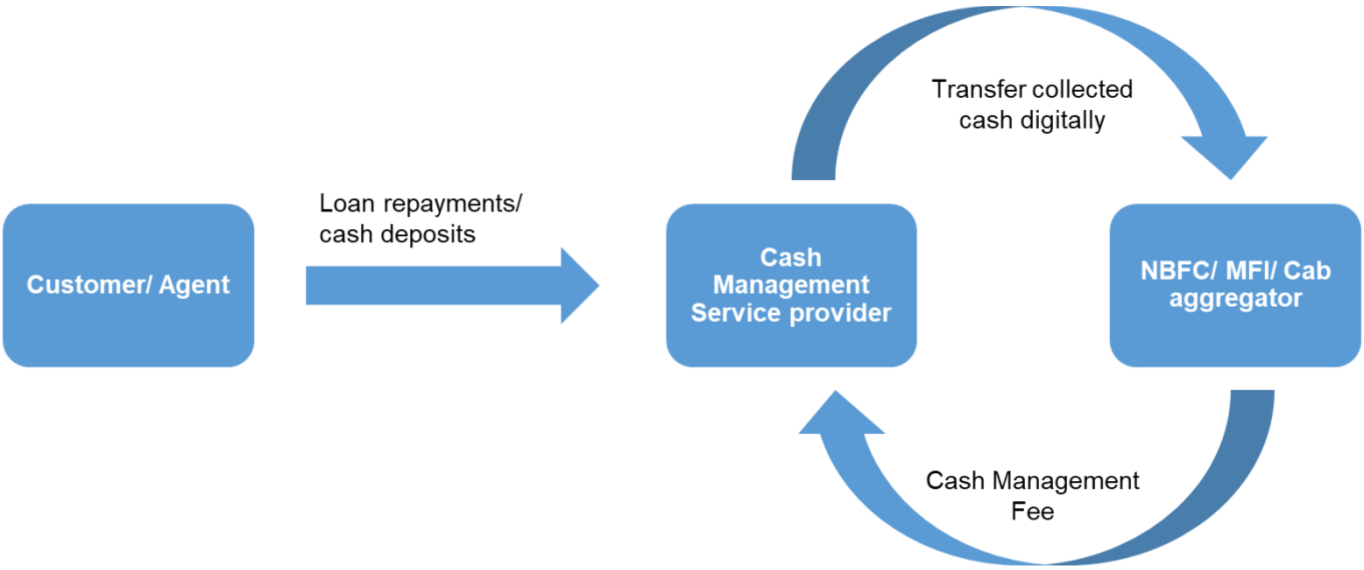
Cash Management Services (CMS)

CMS market overview

A cash management service can be explained as automated cash management solutions that help in managing the inflow and outflow of cash. Players in this industry have leveraged their deep distribution network in under banked regions to develop a cash management system for periodical (eg: monthly / quarterly) collection of cash for NBFCs/ MFIs/ Cab aggregators. The CMS enables faster realisation of funds at a reduced cost for these NBFCs / MFIs and customers to easily deposit their periodical repayments/ EMIs. By providing additional services like cash withdrawals, remittances and payments along with cash management services, the CMS providers balance their cash flows. In an ideal model, cash-in equals cash-out and the cash flows are perfectly balanced. For example, for Fino Payments Bank, the CMS business helps it achieve a cash neutral business as it complements the merchant led digital banking model where MATM and AePS services form the cash-out aspect of the business and CMS forms the cash-in aspect of the business

A typical process involves a customer going to any CMS provider's outlet to deposit the cash/ EMI by providing some loan details like mobile number or loan number, based on which the transaction is done. The same process also applies to agents of NBFCs and MFIs who can deposit the collected cash at a service provider's outlet instead of travelling to a bank branch for depositing the collected cash, resulting in reduced costs of collection for these institutions. The financial institutions thus serviced by CMS providers pay a fee in exchange for these repayment collection transactions enabled by CMS providers. This cash management fee forms the revenue for CMS providers. The cash management charges are estimated to be in the range of 0.5-1.0% of the collections amount.

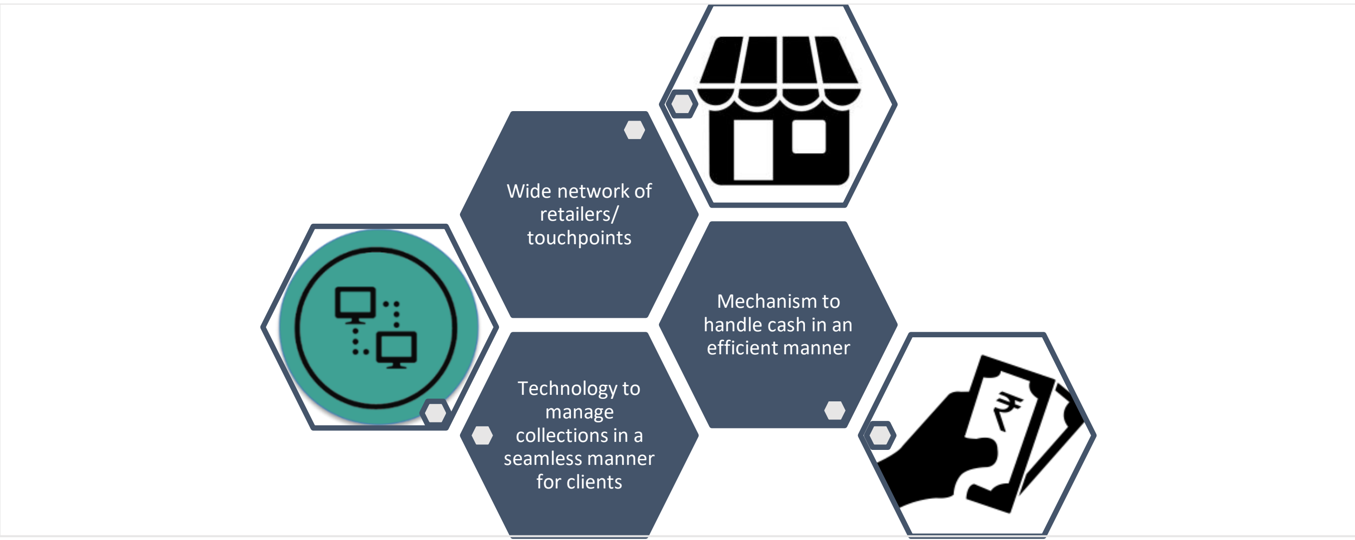
Typical cash management transaction



Source: CRISIL Research

A strong network of retailers act as touch points for collection of EMIs and helps CMS providers to service NBFC/ MFIs who do not have such extensive reach. Players are also using this business model to service cab aggregators, where the cab drivers may need to deposit the cash payments earned by them.

CMS providers capitalise on reach, technology and cash handling efficiency

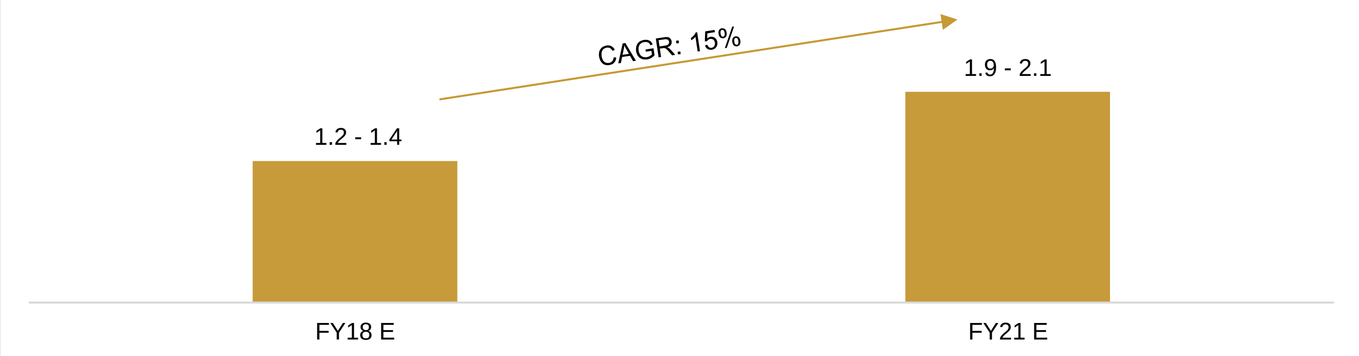


Source: CRISIL Research

High proportion of cash based repayments of MFIs and NBFCs will support CMS growth

While adoption of digital payment modes has been increasing in the country, the semi-urban and rural areas are still quite underpenetrated as far as digital payment modes are concerned, owing to lack of awareness and lower literacy levels leading to higher cash intensity. NBFCs and MFIs focused towards these geographical segments and those targeting customers with relatively poor financial literacy therefore deploy collection agents and/or deploy their own teams to collect repayment of loans due from their customers. CRISIL Research estimates that in fiscal 2021, cash collections as a proportion of overall NBFC retail credit repayments is around 29-31%, slightly lower as compared to 31-33% in fiscal 2018. This reduction can be attributed to increasing awareness, usage and penetration of electronic and digital modes of payments. Although the proportion of cash collections in the total repayments received by NBFCs and MFIs has reduced, the amount of repayment collection in cash, in absolute terms, is estimated to have increased from Rs 1.2-1.4 trillion in fiscal 2018 to Rs 1.9-2.1 trillion in fiscal 2021. This increase can be attributed to the growth in the loan book of NBFCs in the preceding years and higher cash collections in loan segments like microfinance loans, two wheeler loans, commercial vehicle loans, gold loans and MSME loans.

Loan repayment collections in cash for NBFCs and MFIs (Rs trillion)



Source: CRISIL Research estimates

Significant potential for CMS providers in the MFI partner segment

The microfinance industry focuses on the rural customer segment extensively. As of March 2021, 71% of the loan outstanding of MFIs was accounted for by rural customers (Source: Sa-Dhan Quarterly MF report (Q4-FY21)). Total loan outstanding of the microfinance industry was Rs 2,593 billion (excluding SHG) as of March 2021 with NBFC-MFIs accounting for 32% of the loans. Considering the customer profile that these MFIs cater to, maintaining the asset quality of the portfolio is one of their primary focus areas and hence repayment collections is a significant area of operations.

According to a study on adoption of cash-light models among MFIs in India commissioned by Microfinance Institutions Network (MFIN), in the fourth quarter of fiscal 2017, only 5% of the total MFI repayment was through cashless modes. Over the last few years after demonetisation, the MFIs have increasingly focused on cashless disbursement but cashless collections still account for a very low proportion. According to Sa-Dhan, proportion of cashless disbursements for MFIs stood at 79% for last quarter of fiscal 2021(Source: Sa-Dhan Quarterly MF report (Q4-FY21)). As of 2021, CRISIL Research estimates the cashless collections to be only 6-8% of MFI repayments. While the proportion of cashless collections would increase going forward, we do not foresee a significant spurt in the same because of the literacy level of MFI customers and inadequate infrastructure in rural areas. Thus, there exists significant potential for the CMS providers to process these repayment transactions digitally and cater to the requirements of MFIs.

NBFCs penetrating deeper into semi-urban and rural segments to drive CMS growth

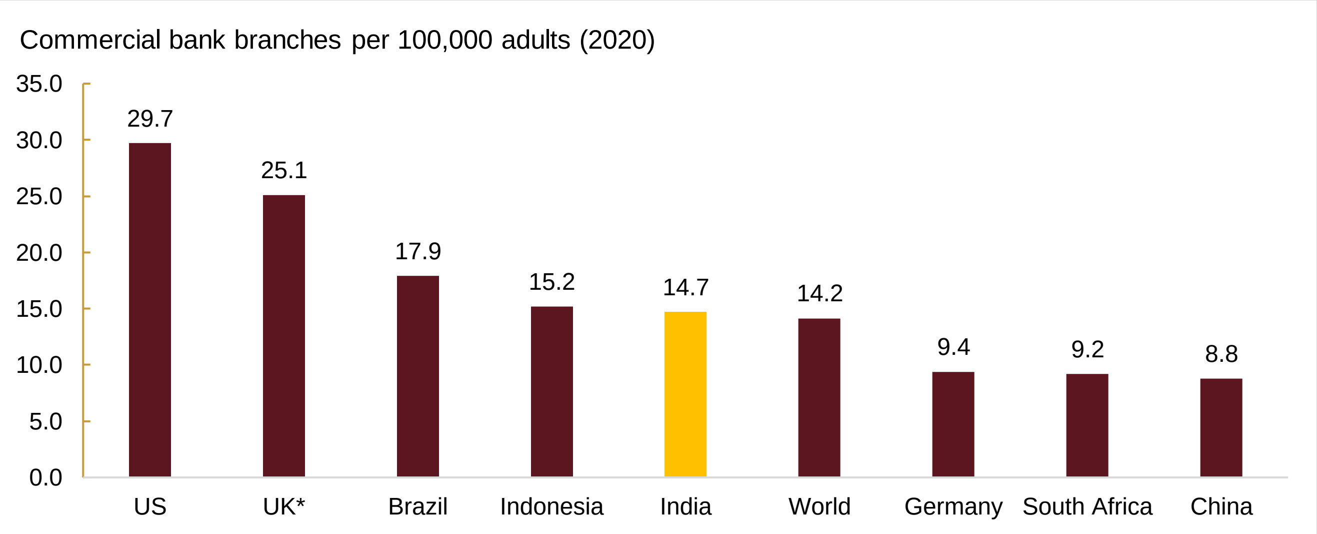
The top 50 districts in the country, which can be considered as metro and urban areas, are estimated to account for 50-55% of the retail credit of NBFCs as of fiscal 2021. These top 50 districts contribute to 24% of the population. The remaining 45-50% NBFC retail credit is across the remaining districts, which are relatively lesser penetrated in terms of financial services. Increasing penetration of financial services in rural and semi-urban areas will support the credit growth in these areas going forward.

NBFCs have a diversified portfolio catering to various consumer segments and adoption of cashless collections is more common in NBFCs compared to that in MFIs. However, retail credit segments like two wheeler loans, tractor loans, commercial vehicle loans, gold loans and MSME loans, which predominantly cater to rural and semi-urban population, still have a high proportion of repayments collected through cash. CRISIL Research estimates the proportion of cash repayments in the overall retail credit collections of NBFCs to be in the range of 25-30%, which provides potential for CMS providers to grow their business and cater to NBFCs focussed on these retail loan segments.

Lower bank branch penetration also to drive growth for CMS providers

Bank branch penetration is low in India compared to other countries in the world. This causes an inconvenience to customers of MFIs and NBFCs to deposit their repayments/ EMIs to bank branches, especially in rural areas where electronic and digital modes of payments have very low penetration. CMS providers, who operate through a wide network of retailers or kirana stores, offer a convenient mode of transaction for these customers. Number of branches per hundred thousand adults are only 14.6 for India compared to other developed and developing countries where this number is relatively high.

Commercial bank branch penetration across the world



Note: (*) – UK data is as of 2013 calendar year

Source: World Bank, RBI, CRISIL Research

Moreover, in India, there is a huge gap in bank branches serving rural areas and urban areas. In rural areas, number of bank branches per hundred thousand population is only 6 compared to the 23 in urban areas. CMS providers, through wide reach and presence, are trying to capture this untapped potential.

Players providing Cash Management Services in India

In India, various players in the financial services industry provide cash management services including commercial banks, payments banks and CMS service providers who also operate as a business correspondent. However, the types of services offered by commercial banks and other players are quite different. Commercial banks offer a whole suite of cash management services (also known as treasury management) to large corporates and businesses, as a value added service, which include assessing market liquidity, managing cash flow and investments. They also offer solutions to manage receivables and payables for their customers. For example, HDFC Bank, under wholesale banking segment, provides CMS as a value added service which includes collections and payments services.

Payment Banks and CMS providers acting as business correspondents are mainly involved in cash collection services for NBFCs and MFIs through EMI collection at touch points. Some of these players also offer cash collection services to cab aggregators or food aggregators. For example, Bankit offers CMS to various institutions like Arohan, Ziploan, Indiabulls Housing Finance etc. Among Payment Banks, Airtel Payments Bank offer CMS to NBFCs and MFIs and Fino Payments Bank also offers the service to multiple clients.

AADHAR Enabled Payment System (AePS) / Micro-ATM (MATM)

Overview

AADHAR Enabled Payment System (AePS) is a bank led model that uses Aadhaar authentication to allow interoperable transactions at Micro-ATMs (MATM) / POS terminals which was launched in 2016. Under this system, Aadhaar number is used not only to identify the beneficiary but also authenticate transactions. The financial services offered through AePS include cash withdrawal, cash deposit, balance enquiry, Aadhaar to Aadhaar fund transfer. The non-financial transactions include - demographic authentication, best finger detection (BFD) and e-KYC. Micro ATMs were introduced by NPCI to encourage cashless transaction in India.

Micro-ATM is a portable device used by a merchant or a business correspondent to connect to his/her bank, authenticate customers and perform transactions. Although it is called micro-ATM, it does not have cash storage or dispensation facilities. The cash balances are reflected online but physical cash is deposited with or handed out by the merchant or a BC. The micro-ATMs are based on a bank-led model for financial inclusion, where the Aadhaar infrastructure is an overlay on the existing banking and payments infrastructure and support transactions such as deposits, withdrawals, funds transfer, balance enquiry & a mini-statement. The advantages of using a micro-ATM is that its cost of deployment is low as compared to a normal ATM and it is an interoperable device which can work with any bank.

There are various participants involved in the deployment of a micro-ATM network, the roles of which are as follows:

a. **Issuing bank:** The issuing bank is the bank that owns the customer relationship, and stores account details in its Core Banking Systems (CBS). The customer banks with the issuing bank and interacts with it for any queries, it serves as a touch point for authorizing transactions, carrying out transactions and dispute resolution.

b. **Acquiring bank:** The acquiring bank is the bank that owns the BC relationship at the transaction point. An acquirer is often a traditional bank that contracts with a payment processing company or may also a payment processor that does not offer regular banking service.

c. **Business Correspondent (BC):** A BC is appointed by the bank providing access to basic banking services using micro-ATM. Banks may either appoint an individual BC or a corporate BC, who further can appoint sub-agents. BC may own the customer as well.

d. **Technology Service Provider (TSP):** TSP provides technology to the acquiring Bank to support BC operations.

e. **Multilateral switch:** The multilateral switch is used in the case of 'off-us' transactions to provide interoperability. It routes transactions from the acquiring bank to the issuing bank, and routes the authorization, settlement and reconciliation messages. An 'off-us' transaction in case of funds transfer may involve multiple banks, viz., the acquiring bank, the issuing bank, and the recipient's bank and the process is put through by the multilateral switch. This multilateral switch is operated by NPCI and other interbank switch vendors.

f. **UIDAI**: The Aadhaar platform supports the micro-payments platform by providing methods for secure authentication of an individual, using the Aadhaar number and demographic data, biometrics and OTP. The secure authentication provided by the UIDAI facilitates interoperability among micro-ATM devices operated by different banks, much like the existing ATM network.

Requirements for AePS transactions

Even though Aadhaar Enabled Payment Systems does not need any document nor any card, it does require one to link Aadhaar to their bank account. The main requirements of an AePS transaction are as follows:

Prerequisites for AePS transaction

Requirements by	Merchant		Customer	
Bank Account	✓	Required for transfer of funds to Merchant's Bank account	✓	Money will be transferred from the payer's account
Business Correspondent	✓	Required for operating AePS micro-ATM device	✗	Not required by customer
Aadhaar	✓	Mandatory	✓	Mandatory
Aadhaar registered with Bank	✓	Merchant's bank account has to be linked to his Aadhaar for making transactions	✓	Aadhaar number to be mapped to bank account for authentication
Biometric scanner	✓	Required for biometric authentication with Aadhaar	✗	Not required by customer
Micro ATM	✓	Required for initiating payments using Aadhaar no. / fingerprint scanner	✗	Not required by customer

Source: NPCI, CRISIL Research

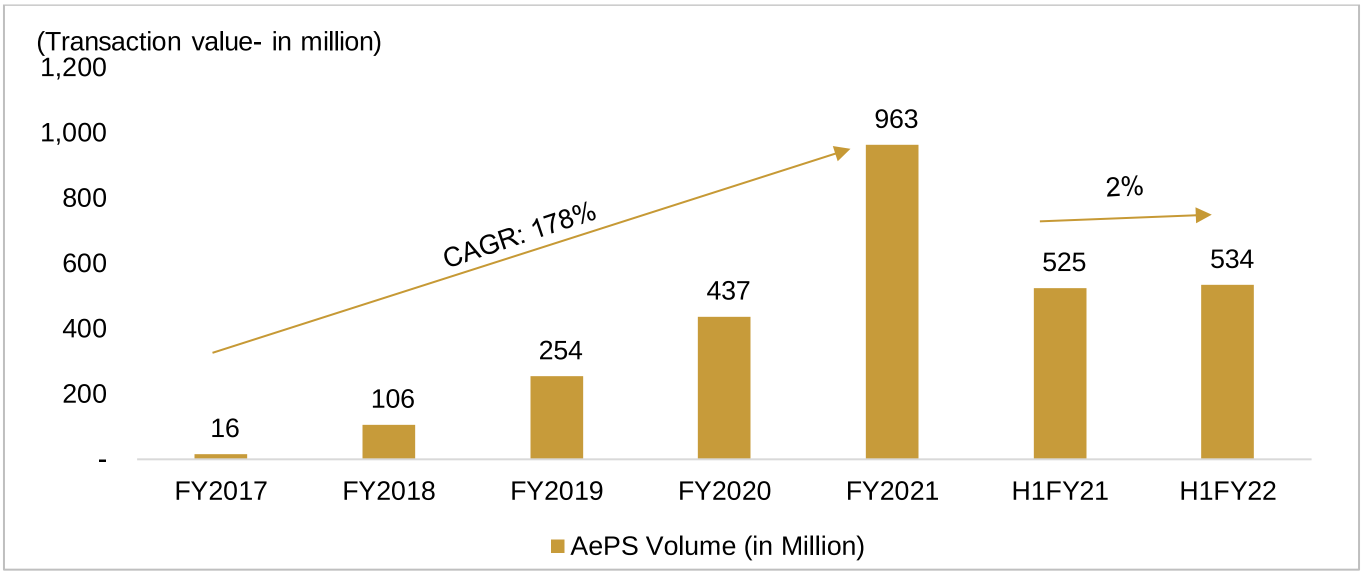
AePS transactions grew by 92% in fiscal 2021 to touch Rs 2,286 billion

Over the past few years, AePS transaction over MATM has witnessed a strong growth, with transaction volumes increasing at a CAGR of 178% between fiscal 2017 and fiscal 2021. In terms of value, it has increased at a CAGR of 216% during the same period. The micro-ATMs have added impetus to the financial inclusion efforts as the banks can rely on the micro-ATM infrastructure to reach the unbanked and under-banked regions of the country, thereby allowing the customer to access secured banking facilities at their doorsteps. The micro-ATMs deployed in the country have also increased at a fast rate to reach 0.49 million as of August 2021 from 0.28 million as of May 2020. The development also shows the government's push towards digital technology for making banking services accessible to the masses.

AePS transactions have seen an unprecedented and substantial surge in April 2020 in terms of transaction handled. In April 2020, AePS transaction volume and value increased by over 150% and 45% over March 2020. This indicates that the outreach of the BC and micro-ATMs payment mechanism spread widely during and post the lockdown in the rural areas of the country. Direct Benefit Transfer Schemes (DBT) announced by the central government has also encouraged the rural populace to actively avail services to receive the cash supports transferred to their Aadhaar linked banked accounts. Further, the support from telecom operators to setup AePS infrastructure for last mile connectivity of BCs and micro-ATMs boosted enrolment numbers for use of AePS transactions.

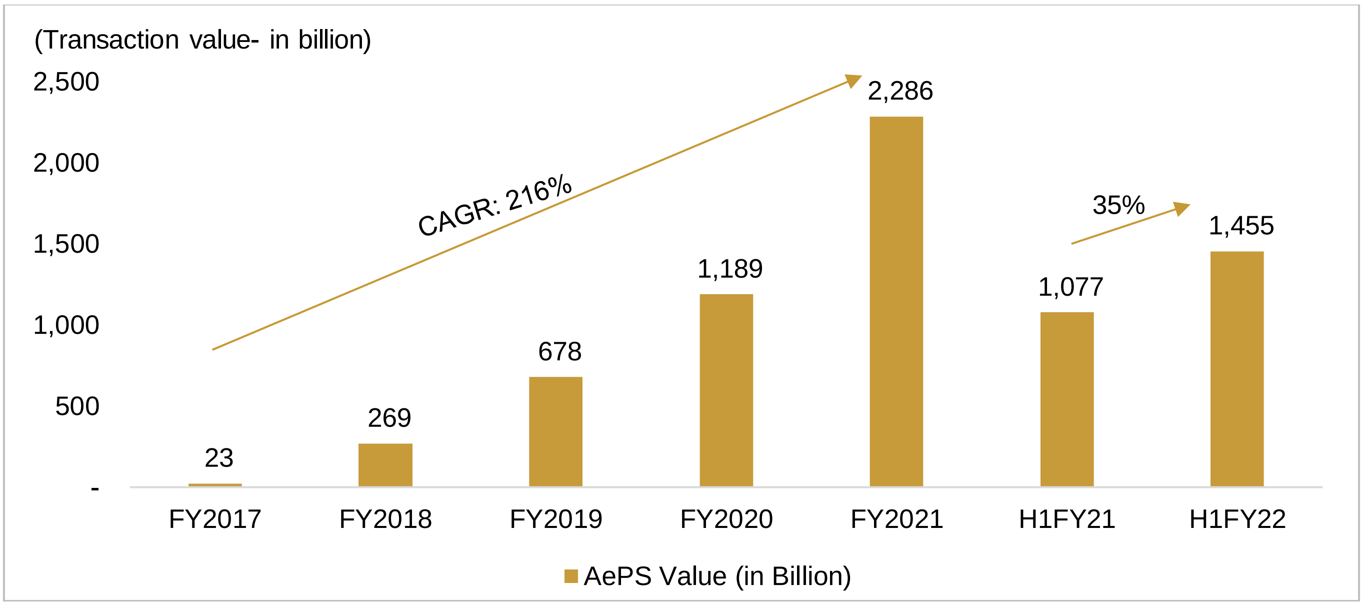
In the month of January 2021, AePS transaction value stood at Rs. 220 billion as compared to Rs. 147 billion in April 2020 and Rs 199 billion in June 2020, which indicates that customers enrolled in AePS ecosystem continue to avail AePS service in greater measure and this is expected to drive growth in the coming years. Cumulatively, in fiscal 2021, AePS transactions (in value terms) rose by 92% to touch Rs 2,286 billion as compared to the same period last year. In H1FY22, AePS transactions volume has reached 534 million, registering a 2% growth as compared to same time in the last fiscal. AePS transaction value have also witnessed a growth of 35% to reach Rs. 1,455 billion as compared to Rs1,077 billion in H1FY21.

AePS transaction have zoomed between FY17 and FY21….



Source:RBI, NPCI, CRISIL Research

…And so have AePS transaction value between FY17 and FY21

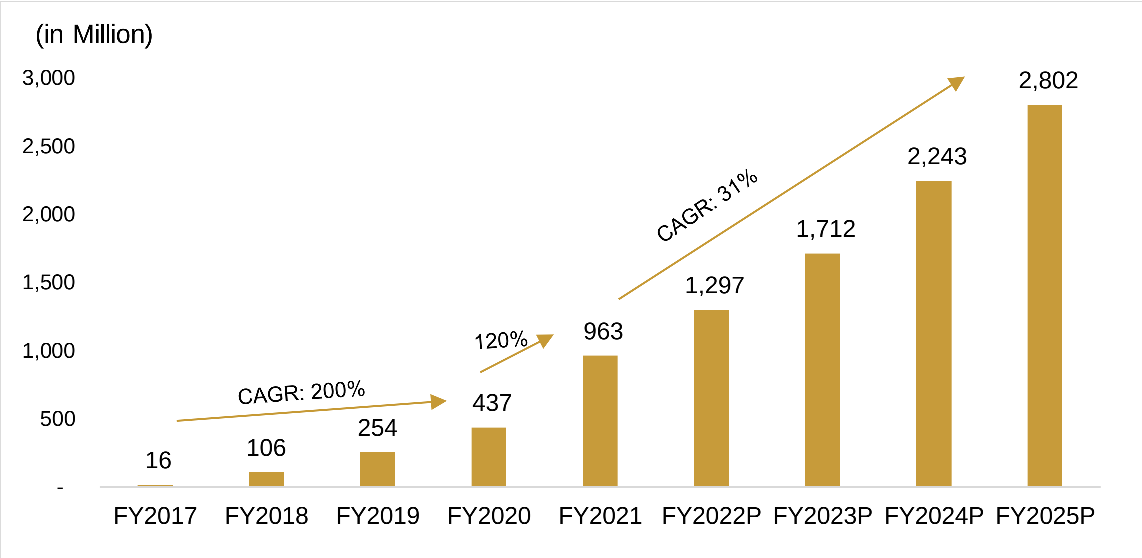


Source:RBI, NPCI, CRISIL Research

AePS transactions value to jump five-fold between FY20-25

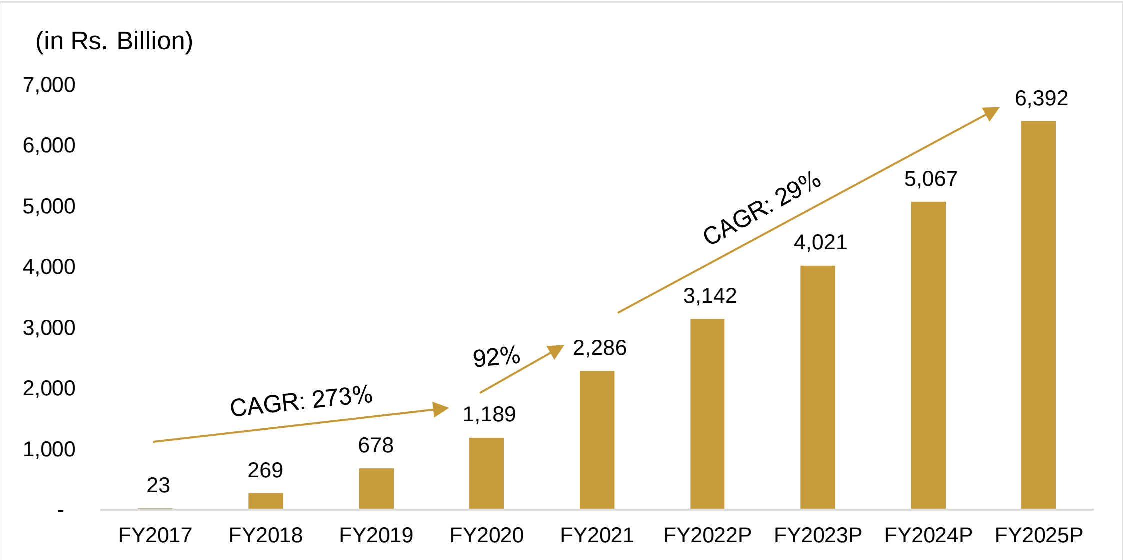
Going forward, CRISIL Research expects AePS transactions volume and transactions value to grow at a 31% and 29% respectively between fiscal 2021 and fiscal 2025. Consequently, AePS transactions value are projected to touch Rs 6.4 trillion by fiscal 2025. The growth will be driven by increasing business correspondent and micro-ATM penetration to reach the remote regions of the country. Further, development of new use-cases and adoptions of steps such as biometric and iris authentication to curb transaction failures are also expected to drive transaction volumes and value in the coming years.

AePS transactions volume to grow at 31% CAGR between fiscal 2021 and 2025



Note: P: Projected
Source: NPCI, CRISIL Research

AePS transactions value to grow at 29% CAGR between fiscal 2021 and 2025



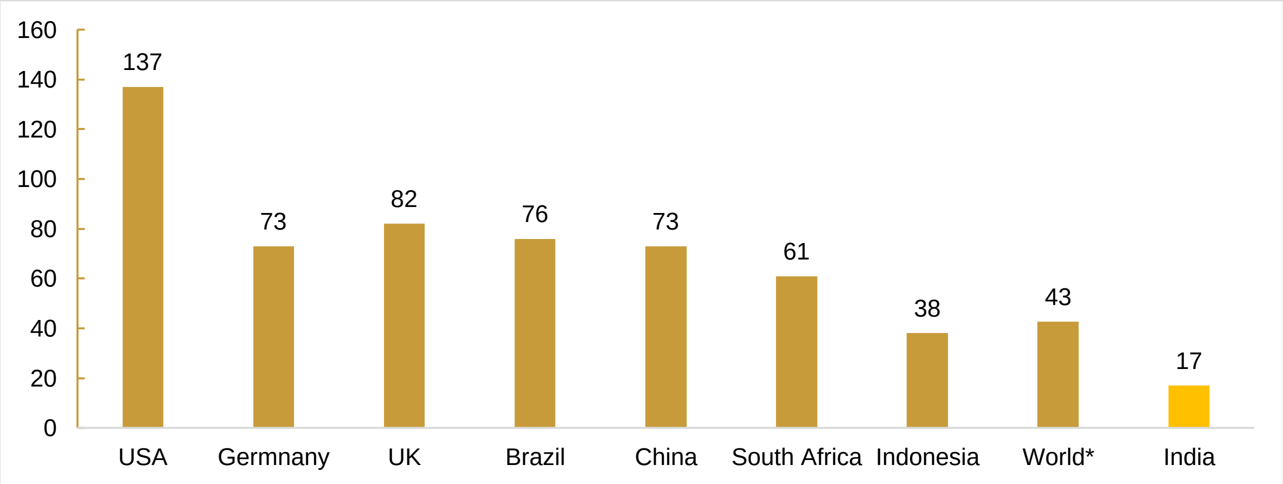
Note: P: Projected
Source: NPCI, CRISIL Research

Growth Drivers

Under penetration of ATMs in rural areas presents a big opportunity for micro-ATMs

According to *"Report of the Committee to Review the ATM Interchange Fee Structure"* by RBI, the ATM access in India lags most of the emerging markets and large economies like Russia, China, South Africa, US, UK, etc. with only 21 ATMs being available per 100,000 adults in the year 2019. While the overall ATM access in India is low, the ATMs are also unevenly deployed across rural and urban areas. Close to 65% of population live in rural areas but only 20% of ATMs are deployed in rural centres and rest being in metro, urban and semi-urban centres. Thus, there is a huge requirement for ATM deployment in India to make it accessible to masses and make it even more available in semi-urban & rural centres where it is highly underserved. This poses a great opportunity for micro ATMs to cater to the growing demand and deepen penetration to reach the last mile of the country and address the challenges faced by rural population in fulfilling the cash withdrawal requirement.

ATMs per 100,000 adults (2020)



Note: (*) – US data is as of 2009 calendar year

Source: World Bank, RBI, CRISIL Research

New use cases and increasing transaction efficiency to maintain momentum for AePS transactions

AePS dominates rural geographies with high dependence on cash-in cash out transactions from bank and remittances. In Q2FY21, it emerged as a critical cash out medium for migrants, workers and other informal sector workers. However, issues such as recurring transaction failure, especially for off-us transactions and problems in reconciliation of failed transactions restricted the uptake of AePS. Going forward, increasing use cases of the micro-ATMs and AePS such as utility bill payments and insurance premium payments in the rural areas as also adoption of Iris and face biometrics to curb transaction failures is expected to increase usage of AePS over micro-ATMs.

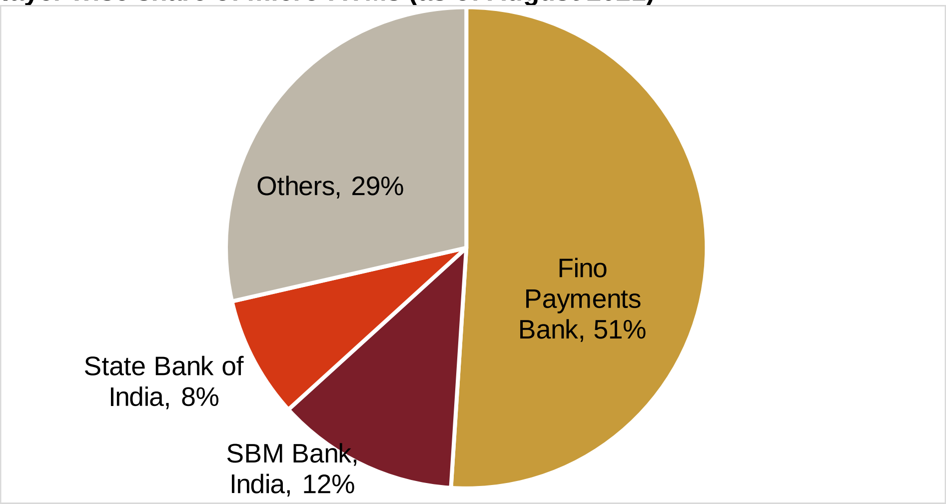
Increasing BC penetration to drive AePS transactions over micro-ATMs

According to National Strategy for Financial Inclusion (NSFI) for the period 2019-2024, RBI has come up with slew of measures such as introduction of pilot Centres for Financial Literacy (CFLs) to strengthen financial literacy and training programmes for skill up-gradation for performance of BCs for effective delivery of financial services. The RBI has also advised all State/Union Territory Level Bankers' Committees (SLBCs/UTLBCs) in October 2019 to identify one district in their jurisdictions and allot it to a member bank with a significant footprint, with a view to expanding and deepening of the digital payment ecosystem in the country. The endeavour is to make the district 100 per cent digitally enabled within one year. Continued focus of the Central government and RBI on digital payments using Aadhaar to authenticate transactions over micro-ATMs and business correspondent outlets is expected to fuel the growth for AePS transactions in the coming years.

Competitive landscape

As of August 2021, there were 0.49 million micro-ATMs deployed in the country. With 0.25 million devices being deployed by Fino Payments Bank, it has the largest network of micro-ATMs in India. As of August 2021, about 51% of the micro-ATM deployed in the country is from Fino Payments Bank followed by SBM Bank (12%) and State Bank of India (SBI) at 8%

Player wise share of micro-ATMs (as of August 2021)



Note: Others include data for all banks excluding Fino Payments Bank, SBI and SBM Bank

Source: RBI, CRISIL Research

Revenue model for service providers

The micro-ATM service providers provide payment solution to the retailers to manage all forms of payments, including debit/credit cards, Bharat QR code, Aadhaar Pay and UPI. The retailers provide a one-time fee to the service providers for procurement of devices and a transaction processing fee to MATM/AePS service providers. In addition, some MATM/AePS service providers also earn a transaction processing fee from partners who use their API for facilitation of transactions. The cost for owning a micro-ATM/POS machine ranges between Rs 3,000 – Rs. 5,000 for the retailers, whereas other high-end POS terminals price ranges between Rs. 10,000 – 15,000. The transaction charges range between 0.25-0.40% percent of the transaction amount, which is paid to micro-ATM service provider.

Banking technology solutions

API Landscape

An application programming interface (API) is primarily a development tool that essentially bridges a gap between digital services, thereby allowing one application to access information or capabilities of another. But, over the past few years, APIs have been elevated from a development technique to a business model driver. Organizations are increasingly using APIs to build an ecosystem involving various partners to unlock new value for their businesses. In order to leverage their strength, the APIs are now managed like a product – one built on top of a potentially complex technical footprint that includes legacy and third party systems, which can be shared, reused and monetized to extend the reach of service providers and open up new revenue streams.

Evolution of API

The idea behind APIs has existed since the beginning of computing, however, in the last decade, its usage has grown significantly due to a fast pace of adoption of agile delivery models. This has put a higher emphasis on rapid experimentation to enable processing of transactions between different elements in the technology solution stack.

Evolution of APIs	Remarks
1960-1980	The era saw basic interoperability leading to programmatic exchange of information using simple network protocols. Example of some of these techniques include Advanced Research Projects Agency Network (ARPANET) and Transmission Control Protocols (TCP)
1980-1990	From simple transmission, the APIs were refined using interfaces, procedures etc. to build on the existing infrastructure and provide additional services which could allow remote interaction across different entities lying in different networks
1990-2000	Between 1990 and 2000, the industry saw middleware technologies which lies between the operating systems and applications running on it. The middleware allows communication and data management for distributed application. Some techniques which was predominantly used in this time were message oriented middleware and service oriented architecture.
2000-Present	In today's time, businesses build APIs to enable and accelerate new service development and offerings. During the last few years, we have seen the emergence of API economy and witnessed **software as a service (SaaS), platform as a service (PaaS) and infrastructure as a service (IaaS)** becoming an important mode for of delivering solutions. This is a cost effective way for enterprises to use specific programmes and resources in a flexible or variable cost model rather than buy them outright and install them on their technology stack. In the same way as plug-and-play model has worked for software service providers, a plug and play banking equivalent – **banking as a service (BaaS)** is now evolving and doing so for financial services

Traditionally retail banks owned end-to-end service delivery by integrating experience, process and products; however, this approach came under attack with the advent of fintechs which started to compete for customers by proving a superior user experience leveraging technology. This forced banks to rethink their business model – leading to an emergence of banking as a service.

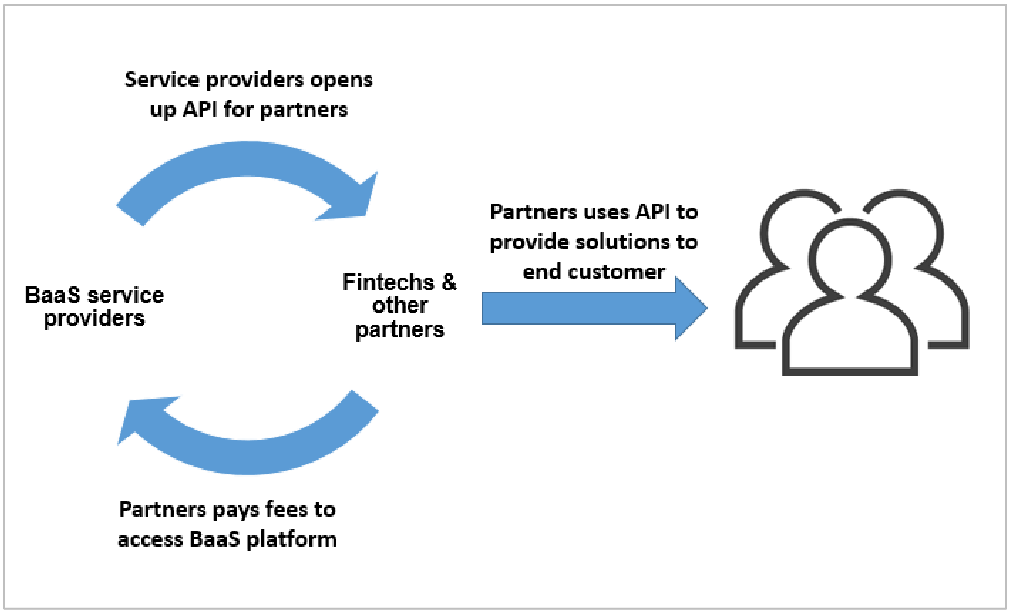
A lot of established banks such as ICICI Bank and HDFC Bank today offer similar API banking services for fintechs, aggregators, merchants, third party service providers, direct selling agents (DSAs) and API developers to build various applications using their open API in areas of payments, customer servicing and sourcing. For instance, HDFC Bank offers APIs for NEFT and RTGS payments that enables external partners of the bank to perform payment transactions. ICICI Bank offers an “EasyPay” payment API which allows institutions to collect money from their customers. It generates QR code for the merchant, receives money from the customer and updates the status of the transaction. These open banking integrations have also brought digital inclusiveness to smaller towns and rural regions, and enhanced the awareness and relevance of banking services and products for rural India.

However, for larger banks, these APIs form a very small part of their revenue, and are created with the objective of better connecting with their target customer base. Given the wide market expanse and the diversity of customer base, there exists considerable opportunity for players to work on new use cases targeting specific segments – for example, unbanked and underbanked segments. Fino Payments Bank, for example, offers APIs to business correspondents that enables them to provide services to their customers in semi-urban and rural areas in a cheaper and faster manner. YAP provides a bank-in-box service that enables digital platforms, fintechs as well as brick-and-mortar offline businesses to connect with other fintechs, public platforms such as UPI, licensed banks and NBFCs to offer specific solutions to their end-users.

Banking as a service (BaaS) model begins with a third party service provider paying a fees to a financial institution, who opens its API to the new fintech/third party provider, thereby granting access to systems and information that will be necessary to build a new financial or banking product for the end consumer. This allows the financial institutions that launch their BaaS platforms to create new revenue streams which include charging clients a monthly fee for the platform and an additional variable cost based on the service used. The API ecosystem value chain has three participants:

- **API/BaaS Providers** – They choose which business assets to make available as an API, under what terms and conditions and what will be roles and responsibilities for the provider
- **API Consumer** – These involves the partners who under the designated terms and condition build on the existing API to enhance the experience on an existing product or make a new product available to the end user
- **End User** – The end user is someone who does not see the API, rather draws benefit by undertaking a transaction from the use of application that is provided

Banking as a service (BAAS) business model



Source: CRISIL Research

Beyond adding a new revenue stream arising out of sale of technology, developing a BaaS solution also allows financial institutions to establish relationships and forge partnerships with new fintechs and entities with emerging business models, thereby keeping themselves ahead of the trends. In addition, continuous development and enhancement of API also allows the service provider to react faster to the market changes through faster adoption of newer technology and reduce time to reach the market.

Relevance of API infrastructure providers in Indian context

The financial services ecosystem in India is undergoing a metamorphosis, given the rapid disruptions due to technology. On one hand, we are witnessing the emergence of large and specialised fintech players who are offering their services across multiple domains such as payments, credit, wealth management, insurance and broking. On the other hand, several businesses in consumer-facing segments are looking to provide financial solutions to their customers and suppliers. Given the extant regulatory environment, many of these businesses would require partnerships with licensed banks, NBFCs and fintech players to offer financial services to their customers. However, bandwidth constraints and lack of focus often inhibits the ability of larger entities to focus on such initiatives. It is here that the licensed banks offer their core banking solutions via the use of APIs to various fintechs and other partners, enabling them to provide differentiated products for specific use cases to their customers.

Growth Drivers

Focus on creating differentiated user experience to boost usage of APIs

The companies are employing responsive websites, interactive mobile applications and other user friendly digital interfaces to enhance their interactions with customers. API capabilities allow the fintechs and other partners to implement newer ideas arising from design thinking for providing services such as payments, mobile wallets and collections. This ensures they are able to provide various services under a single platform to their customers, thereby enhancing the experience and also aiding in customer stickiness.

Newer business use cases and ease of access to drive growth for API providers

APIs enable companies to leverage the capabilities of other organizations, thereby reducing their cost of owning the technology and applying resources for maintenance. Continued growth of this asset light model to build businesses around APIs rather than rebuilding it from scratch will drive growth for the API service providers. Continued innovation and focus on development of new tools by API providers in areas of retirement planning, portfolio management and other such relevant use cases around their existing platform will also drive revenues for the API based service providers. API companies can also offer bundled and integrated offerings with different pricing options to their customers and allow them to avail features and benefits based on their business requirements.

To conclude, the rapid growth of APIs has been triggered by steps taken by various entities in this space to leverage the benefits of technology to offer low-cost banking solutions. Given the evolving context post Covid-19 pandemic, it is clear that technology will play a much larger role in financial services and adoption of newer technology will continue to increase through various partnerships between banks and fintechs as well as other consumer-facing entities. Essentially, APIs can provide the rails on which fintechs and other incumbents can build new-use cases keeping in mind their target customer segment. CRISIL Research believes that platform centric models, which run through APIs, will continue to gain traction with potential API customers preferring agile and asset-light business models, while enhancing focus on offering relevant solutions to customers.

Peer Benchmarking

The banking and payments landscape in India is evolving at a rapid pace with the emergence of new players such as

- Small finance banks and payment banks that offer a host of solutions to their target customers which includes underserved and unserved people in rural and semi-rural areas of India
- Infrastructure solutions providers such as PoS and payment gateway companies looking to provide a host of value added services such as buy now pay later (BNPL) solutions, working capital loans and other value added services including customized / small ticket size products to attract middle-income / lower middle-income class on their platforms
- Pure play payment and remittance companies looking to top up their payment offerings with other solutions such as credit and investment solutions
- Neo banks attempting to tap niche customer segments such as MSMEs
- BaaS and API focused players providing the infrastructure that enables their customers building new products for specific use cases to integrate with licensed banks, NBFCs, and fintechs

While the nuances underlying the business model and the target customer segment of these companies may be different, there is a common underlying thread across all these players i.e. to leverage technology effectively to provide a range of services in a seamless and more efficient manner to their customers. Moreover, several players are also seeing improvement in the unit economics, with an increase in size and scale.

Given that many of these businesses in India are at a nascent or early growth stage of their life cycle, we opine that it is pertinent to look at global comparables as well. Therefore, in this chapter, we have compared both Indian and global players operating in the following spheres – payments and remittances, PoS solutions, neo banks, digital banks, and banking technology solutions. We have given a brief overview of the business and operations of each of these entities, their vintage, and the trend in their financial performance (wherever available). Our analysis reflects considerable variation in the target customer segments, focus areas, stage of evolution, scale and profitability of each company. While many of the companies in India are growing at an extremely strong pace, profitability remains elusive for 10 of the 13 companies we looked at (based on FY20 financials). Going forward, building sufficient scale on both sides of a transaction (customers as well as merchants), putting in place reliable technology and systems, building new use cases relevant to the target segment and thereby enhancing transaction frequency, looking beyond payments to cross sell other services to customers and having relevant partnerships will be critical to the success of entities focused on this space.

Indian Peers

Players in Payments and Remittance Business

Company Name	Year of Inception	Company Overview
Bharat Pe (Resilient Innovations Pvt. Limited)	2018	• BharatPe is an offline acquirer of merchants providing a QR code for UPI payments, POS machine for card acceptance, and loans to small merchants. • The company's mobile application is a full-stack service app for merchants across small and medium businesses, offering loans, investments, insurance and other financial services. • The company revenue stood at Rs. 129 million in its first year of operation (fiscal 2020). **Operational Data*** Merchants: 5 million+ Transaction value: $7 billion (Annualized), Transaction Volume : 50 million+ (Monthly) POS machines deployed: 35,000+ (YTD since July 2020)

Financials for the year (ending March)	Net worth (Rs million)	Revenue (Rs million)	Revenue growth (%)	EBITDA (Rs million)	PAT (Rs million)	EBITDA Margin (%)	PAT Margin (%)	RoE (%)
2020	7,761	129	NM	-2,155	-2,162	-1,669%	-1,675%	-28%

Company Name	Year of Inception	Company Overview
BillDesk (IndiaIdeas.com Limited)	2000	• BillDesk is an online payment gateway company owned by IndiaIdeas.com Ltd offering billers, banks and customers a comprehensive bill presentment, payment and management service. • The company provides payments platform for enterprise wide electronic payments and collections, related reconciliation and settlement operations across multiple delivery channels and wide range of payment methods. • Its technology, payments services and its processing network are used by many organizations across diverse industry segments such as, banking, financial services, telecom, insurance, utilities, education, entertainment and e-commerce businesses. • The company has been witnessing higher revenue growth sequentially over the last three years ending FY20. • In Sept 2021, BillDesk's acquired by PayU, the Prosus(Naspers)-owned fintech for US$ 4.7 billion

Financials for the year (ending March)	Net worth (Rs million)	Revenue (Rs million)	Revenue growth (%)	EBITDA (Rs million)	PAT (Rs million)	EBITDA Margin (%)	PAT Margin (%)	RoE (%)
2020	21,850	14,389	30%	3,277	2,315	23%	16%	11%
2019	19,544	11,077	19%	2,448	1,519	22%	14%	10%
2018	12,027	9,293	15%	2,231	1,303	24%	14%	11%

<table>
<tr><th>Company Name</th><th>Year of Inception</th><th colspan="7">Company Overview</th></tr>
<tr><td>Infibeam Avenues Limited</td><td>2007</td><td colspan="7">Infibeam operates an online payment system with technology platform solutions. The company operates as a payment processor for online merchants, websites and commercial users for which it charges a fee on successful transactions.
Infibeam's payment system, CCAvenue, provides nearly 250 payment options in India, processing payments across 27 international currencies that enables online and mobile payments for merchants.
Infibeam also provides a host of services like money transfer, recharge, travel, insurance, cash collection, prepaid cards, AePS and BBPS through various platforms such as the Government e-Marketplace (GeM), Bharat Bill payment services (BillAvenue) and hospitality solution (ResAvenue), among others.
The company has maintained a stable PAT Margin of 6-8% over the last three years.
<u>Operational Data</u>
Merchants: 3 million, Active agents: 30,000+ (March 2021)
Transaction value stood at Rs 1.4 trillion with 182 million transaction in FY21
Payments revenue share: 78%, Platforms revenue share: 22% (FY21)</td></tr>
<tr><th>Financials for the year (ending March)</th><th>Net worth (Rs million)</th><th>Revenue (Rs million)</th><th>Revenue growth (%)</th><th>EBITDA (Rs million)</th><th>PAT (Rs million)</th><th>EBITDA Margin (%)</th><th>PAT Margin (%)</th><th>RoE (%)</th></tr>
<tr><td>2021</td><td>26,571</td><td>5,858</td><td>-2%</td><td>605</td><td>494</td><td>10%</td><td>8%</td><td>2%</td></tr>
<tr><td>2020</td><td>26,353</td><td>5,954</td><td>7%</td><td>1,391</td><td>599</td><td>23%</td><td>6%</td><td>1%</td></tr>
<tr><td>2019</td><td>25,995</td><td>5,539</td><td>81%</td><td>988</td><td>617</td><td>18%</td><td>7%</td><td>2%</td></tr>
</table>

<table>
<tr><th>Company Name</th><th>Year of Inception</th><th colspan="7">Company Overview</th></tr>
<tr><td>Instamojo Technologies Pvt. Limited</td><td>2012</td><td colspan="7">Instamojo provides cloud based payment processing solution for businesses and merchants. It is an on-demand payments and ecommerce platform that empowers micro-entrepreneurs, startups, MSMEs.
The company has pioneered "Payment Links" in India, which is an easy to start and easy to integrate payment solution, enabling entrepreneurs and businesses to quickly get started with collecting payments online.
Products: MojoPayments (payment services), MojoCommerce(enabling sellers to create and manage online store), Mojo Capital (small business loans), Mojo Express (shipping and logistics)
While the revenue of the company has been growing at a 46% CAGR over fiscal 2018 and 2020, the losses have expanded over the same period.
<u>Operational Data*</u>
Payment links: 3 million+
Online stores created: 50,000+
Loans disbursed: Rs 2 billion+</td></tr>
<tr><th>Financials for the year (ending March)</th><th>Net worth (Rs million)</th><th>Revenue (Rs million)</th><th>Revenue growth (%)</th><th>EBITDA (Rs million)</th><th>PAT (Rs million)</th><th>EBITDA Margin (%)</th><th>PAT Margin (%)</th><th>RoE (%)</th></tr>
<tr><td>2020</td><td>196</td><td>348</td><td>18%</td><td>(123)</td><td>(137)</td><td>-36%</td><td>-39%</td><td>-87%</td></tr>
<tr><td>2019</td><td>120</td><td>294</td><td>80%</td><td>(78)</td><td>(85)</td><td>-26%</td><td>-29%</td><td>-83%</td></tr>
</table>

2018	83	163	161%	1	(1)	1%	-1%	-7%

Company Name	Year of Inception	Company Overview						
One Mobikwik Systems Pvt. Limited^	2009	• MobiKwik is a fintech platform, operating businesses in consumer payments, payment gateway, and financial services. • The MobiKwik wallet can be used across a host of payments services, including bill recharges, utility bill payments, cab bookings, ticket bookings, payments for groceries, as well as payments to online digital and offline retail stores. Besides, the company cross sells insurance and other third party products. • The company has witnessed strong revenue growth between fiscal 2018 and 2020 as well as decreasing losses in the same period. **<u>Operational Data</u>** • Registered users: 101.37 million (March 2021) • Merchants: 3.44 million (3.37 million physical stores), Billers: 283 (March 2021) • Revenue from consumer payments business: 73%, Fintech business: 21%, Payment gateway business: 7% in fiscal 2021						
Financials for the year (ending March)	**Net worth (Rs million)**	**Revenue (Rs million)**	**Revenue growth (%)**	**EBITDA (Rs million)**	**PAT (Rs million)**	**EBITDA Margin (%)**	**PAT Margin (%)**	**RoE (%)**
2021	(200.13)	2,951	-18%	(1,089)	(1,113)	-37%	-38%	NM
2020	(308.52)	3,591	136%	(954)	(999)	-27%	-28%	NM
2019	(15.73)	1,524	83%	(1,497)	(1,480)	-98%	-97%	NM

Company Name	Year of Inception	Company Overview						
Oxigen Services India Pvt. Limited	2004	• Oxigen Services India is a payment solution and remittance service provider in India. It is involved in the business of service aggregation and distribution utilising mobile, POS and web for online payment processing and money transfer services. • It provides a payment processing platform for leading service providers across various industries like telecom, DTH, utility bill payments, bookings for hotels and movie tickets, mobile wallet top-ups, and airline and railway ticketing services. • The company has been witnessing a declining trend in revenues and profit margin of the company has also turned negative between fiscal 2018 and 2020 **<u>Operational Data</u>** Touchpoints: 200,000 (April 2019)						
Financials for the year (ending March)	**Networth (Rs million)**	**Revenue (Rs million)**	**Revenue growth (%)**	**EBITDA (Rs million)**	**PAT (Rs million)**	**EBITDA Margin (%)**	**PAT Margin (%)**	**RoE (%)**
2020	364	3,143	-44%	(192)	(365)	-6%	-12%	-67%
2019	730	5,590	-46%	(446)	(634)	-8%	-11%	-62%
2018	1,312	10,313	-62%	(179)	22	2%	0%	2%

<table>
<tr><th>Company Name</th><th>Year of Inception</th><th colspan="7">Company Overview</th></tr>
<tr><td>PayTM
(One 97 Communications Ltd)</td><td>2010</td><td colspan="7">PayTM is a financial services company that offers full-stack payments & financial solutions to consumers, offline merchants and online platforms owned by One97 Communication Limited. It also operates as a Payments Bank.
PayTM offers a digital goods and mobile commerce platform and is a payment solutions provider to e-commerce merchants using a semi-closed wallet.
Products and services offered by PayTM include DTH/mobile recharge, utility bill payments, travel bookings, insurance, investment in stocks and mutual funds, e-commerce and wallet services.
<u>Operational Data</u>
In fiscal 2021, it has existing users network of 333 million and over 21 million registered merchants, of which over 50% of registered merchants hold an account with Paytm Payments Bank. It has ~64 million savings accounts and offers interest rate of 2.5% p.a.
Issued a cumulative of ~ 9 million FASTags and partnered with 270 toll plazas in fiscal 2021
App downloads: 40 million
Transaction Value - Rs 4.6 trillion (June 2020), Transaction volume - 4.8 billion (June 2020)</td></tr>
<tr><th>Financials for the year (ending March)</th><th>Net worth (Rs million)</th><th>Revenue (Rs million)</th><th>Revenue growth (%)</th><th>EBITDA (Rs million)</th><th>PAT (Rs million)</th><th>EBITDA Margin (%)</th><th>PAT Margin (%)</th><th>RoE (%)</th></tr>
<tr><td>2021</td><td>65,162</td><td>31,868</td><td>-5%</td><td>(13,829)</td><td>(17,010)</td><td>-43%</td><td>-51%</td><td>-23%</td></tr>
<tr><td>2020</td><td>84,114</td><td>33,506</td><td>-1%</td><td>(26,395)</td><td>(28,332)</td><td>-79%</td><td>-85%</td><td>-39%</td></tr>
<tr><td>2019</td><td>60,360</td><td>33,916</td><td>3%</td><td>(38,637)</td><td>(39,596)</td><td>-114%</td><td>-117%</td><td>-58%</td></tr>
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<table>
<tr><th>Company Name</th><th>Year of Inception</th><th colspan="7">Company Overview</th></tr>
<tr><td>PayU Payments Pvt. Limited</td><td>2011</td><td colspan="7">PayU operates as an online payment gateway and payment service provider. It offers a variety of other products such as PayU Buttons, Payment links and Excel Plugin.
PayU also launched LazyPay in 2017, an alternate lending platform to offer credit solutions such as Small Ticket Credit (Buy Now Pay Later), App-based loans (Instant personal loans) and Point of Sale Credit (Merchant EMI).
Over the last three years ending FY20, the company has been witnessing strong revenue growth. While it is still making losses at the EBITDA level, the quantum of losses has been coming down.
<u>Operational Data*</u>
Merchants: 450,000+</td></tr>
<tr><th>Financials for the year (ending March)</th><th>Net worth (Rs million)</th><th>Revenue (Rs million)</th><th>Revenue growth (%)</th><th>EBITDA (Rs million)</th><th>PAT (Rs million)</th><th>EBITDA Margin (%)</th><th>PAT Margin (%)</th><th>RoE (%)</th></tr>
<tr><td>2020</td><td>9,676</td><td>12,163</td><td>35%</td><td>(677)</td><td>(983)</td><td>-6%</td><td>-8%</td><td>-10%</td></tr>
<tr><td>2019</td><td>9,873</td><td>9,011</td><td>49%</td><td>(917)</td><td>(1,207)</td><td>-11%</td><td>-13%</td><td>-13%</td></tr>
<tr><td>2018</td><td>8,022</td><td>6,056</td><td>95%</td><td>(1,333)</td><td>(1,498)</td><td>-22%</td><td>-25%</td><td>-17%</td></tr>
</table>

Company Name	Year of Inception	Company Overview
Phone Pe Pvt. Limited	2015	• PhonePe is a mobile payments app that allows users to transfer money instantly by using their mobile number. Its online payment system is based on Unified Payments Interface (UPI) and a digital wallet. • The company offers services such as money transfers, Recharges, bill payments, credit card payments, Gold purchase, Online and offline merchant payments, Mutual funds and Insurance **<u>Operational Data</u>** As of February 2021:- Registered Users: 280 million, Monthly active users: 112 million Merchants: 17.5 million, Billers: 1200+ Total number of transactions: 1.07 billion Annual Transaction Value: $337 billion

Financials for the year (ending March)	Net worth (Rs million)	Revenue (Rs million)	Revenue growth (%)	EBITDA (Rs million)	PAT (Rs million)	EBITDA Margin (%)	PAT Margin (%)	RoE (%)
2020	12,851	4,272	74%	(16,872)	(17,715)	-395%	-415%	-159%
2019	9,420	2,458	401%	(18,993)	(19,047)	-773%	-775%	-371%
2018	847	490	185%	(7,826)	(7,910)	-1596%	-1613%	-843%

Company Name	Year of Inception	Company Overview
Razor Pay Software Pvt. Limited	2014	• Razorpay is a payments gateway provider. It is a platform that enables businesses to accept, process, and disburse payments through a wide suite of products. • It gives access to all payment modes including credit card, debit card, net banking, UPI and popular wallets including JioMoney, Mobikwik, Airtel Money, FreeCharge, Ola Money, and PayZapp. • In addition, it has also built a neo banking platform for MSMEs, and offers business banking and credit products through tie ups with banks. • The company has seen extremely strong growth in revenues in the last 3 years ending FY20, and net losses too have narrowed. **<u>Operational Data*</u>** Online merchants: 5 million+

Financials for the year (ending March)	Net worth (Rs million)	Revenue (Rs million)	Revenue growth (%)	EBITDA (Rs million)	PAT (Rs million)	EBITDA Margin (%)	PAT Margin (%)	RoE (%)
2020	2,475	5,194	163%	(30)	(62)	0%	-1%	-3%
2019	1,235	1,975	114%	(33)	(33)	-2%	-2%	-3%
2018	760	922	257%	(26)	(128)	-3%	-14%	-34%

*Note: *: Based on website disclosures as on March 20, 2021; ^Consolidated financials*

Source: Company reports, Company websites, CRISIL Research

Players in POS Business

<table>
<tr><th>Company Name</th><th>Year of Inception</th><th colspan="7">Company Overview</th></tr>
<tr><td>Innoviti Payments Solutions Pvt. Limited</td><td>2002</td><td colspan="7">Innoviti develops payments processing, credit distribution, and payments management software solutions.
Products offered: uniPAYNEXT, a unified payment and card management system for retailers; TotalEMI, a solution that provides consumers the option of paying for their purchases in installments; and G.E.N.I.E, a smart marketing platform for retailers and dealers.
Innoviti also offers short term loans to dealers through its partner banks on its lending platform smelending.com
<u>Operational Data</u>
POS terminals*: 150,000+
Transaction Value: $6.5 billion (Annually as of September 2020)
Monthly throughput: $7000 per POS terminal (September 2020)</td></tr>
<tr><th>Financials for the year (ending March)</th><th>Net worth (Rs million)</th><th>Revenue (Rs million)</th><th>Revenue growth (%)</th><th>EBITDA (Rs million)</th><th>PAT (Rs million)</th><th>EBITDA Margin (%)</th><th>PAT Margin (%)</th><th>RoE (%)</th></tr>
<tr><td>2020</td><td>105</td><td>564</td><td>31%</td><td>(466)</td><td>(562)</td><td>-83%</td><td>-100%</td><td>-147%</td></tr>
<tr><td>2019</td><td>660</td><td>430</td><td>69%</td><td>(285)</td><td>(333)</td><td>-66%</td><td>-77%</td><td>-40%</td></tr>
<tr><td>2018</td><td>989</td><td>254</td><td>40%</td><td>(335)</td><td>(382)</td><td>-132%</td><td>-151%</td><td>-63%</td></tr>
</table>

<table>
<tr><th>Company Name</th><th>Year of Inception</th><th colspan="7">Company Overview</th></tr>
<tr><td>Mswipe Technologies Pvt. Limited</td><td>2000</td><td colspan="7">Mswipe provides PoS-based digital payments solutions and other value added services to merchants. It also enables consumers to obtain loans at the PoS through tie ups with vendors as well as lenders.
While its revenues have grown in the range of 35-40% each year during the last 3 years ending FY20, its losses expanded in FY20.</td></tr>
<tr><th>Financials for the year (ending March)</th><th>Net worth (Rs million)</th><th>Revenue (Rs million)</th><th>Revenue growth (%)</th><th>EBITDA (Rs million)</th><th>PAT (Rs million)</th><th>EBITDA Margin (%)</th><th>PAT Margin (%)</th><th>RoE (%)</th></tr>
<tr><td>2020</td><td>2,831</td><td>3,721</td><td>36%</td><td>(801)</td><td>(1,481)</td><td>-40%</td><td>-22%</td><td>-42%</td></tr>
<tr><td>2019</td><td>4,302</td><td>2,745</td><td>37%</td><td>(154)</td><td>(613)</td><td>-22%</td><td>-6%</td><td>-17%</td></tr>
<tr><td>2018</td><td>2,805</td><td>2000</td><td>42%</td><td>(271)</td><td>(673)</td><td>-34%</td><td>-14%</td><td>-32%</td></tr>
</table>

<table>
<tr><th>Company Name</th><th>Year of Inception</th><th>Company Overview</th></tr>
<tr><td>Pine Labs Pvt. Limited</td><td>1998</td><td>The company is one of the largest players in PoS machines in India. Besides transaction processing, it offers value added services such as billing to merchants.
It also enjoys a very strong market position in consumer financing through PoS and gift cards processing. It has tie ups with a number of banks to offer no-interest EMIs to both debit and credit card customers.
Products and services: POS terminals, online payment gateway, Payment APIs</td></tr>
</table>

		• Revenues have been growing at a stupendous pace, but at the net level, its losses have widened. **Operational Data*** Number of merchants: 150,000, Touchpoints: 450,000						
Financials for the year (ending March)	**Net worth (Rs million)**	**Revenue (Rs million)**	**Revenue growth (%)**	**EBITDA (Rs million)**	**PAT (Rs million)**	**EBITDA Margin (%)**	**PAT Margin (%)**	**RoE (%)**
2020	2,524	7,016	43%	596	(577)	8%	-8%	-20%
2019	3,253	4,913	62%	869	(33)	18%	-1%	-1%
2018	2,281	3,030	55%	449	(25)	15%	-1%	-1%

*Note: *: Based on website disclosures as on March 20, 2021*

Source: Company reports, Company websites, CRISIL Research

Players in Neo banking business

Company Name	**Year of Inception**	**Company Overview**						
InstantPay India Limited	2013	• InstantPay is a neo-banking platform providing a range of banking services. • The company offers accounts, payments, cards, business loans, investments, insurance and other services. The company made loss of Rs 17 million on revenues of Rs 1,802 million in FY20. **Operational Data*** Customer base: 10 million monthly active customers Transaction Value - $1 billion (quarterly); Transaction volume - 1 million (daily) Bank partners - ICICI Bank, Axis Bank, IndusInd Bank and YES Bank						
Financials for the year (ending March)	**Net worth (Rs million)**	**Revenue (Rs million)**	**Revenue growth (%)**	**EBITDA (Rs million)**	**PAT (Rs million)**	**EBITDA Margin (%)**	**PAT Margin (%)**	**RoE (%)**
2020	(19)	1,802	67%	(16)	(17)	-1%	-1%	154%
2019	(3)	1,077	43%	(3)	(3)	0%	0%	413%
2018	1	753	1007%	(25)	(26)	-3%	-3%	-187%

Company Name	**Year of Inception**	**Company Overview**						
Niyo Solutions Inc. (Finnew Solutions Pvt Ltd)	2015	• Neo banking platform offering savings bank accounts, prepaid cards, forex cards and direct MF investing through its platform in partnership with various banks. Besides, it also offers small ticket loans to its customers						
Financials for the year (ending March)	**Net worth (Rs million)**	**Revenue (Rs million)**	**Revenue growth (%)**	**EBITDA (Rs million)**	**PAT (Rs million)**	**EBITDA Margin (%)**	**PAT Margin (%)**	**RoE (%)**
2020	995	295	36%	(866)	(877)	-293%	-297%	-124%
2019	418	217	414%	(318)	(323)	-147%	-149%	-89%
2018	305	42	1269%	(82)	(84)	-194%	-198%	-54%

Company Name	Year of Inception	Company Overview						
Open Financial Technologies Pvt. Limited	2017	• Open is a neo-bank which provides business banking service that combines everything from banking to invoicing & automated bookkeeping in one place. It offers digital banking service for startups and small and medium enterprises. • Products and services: Accounts, Payment gateway, Cards, Business loans, APIs, Virtual card, UPI, Autopay, Accounting and Invoice Management • The company witnessed an exponential growth on a smaller base in fiscal 2020 along with contraction in losses.						
Financials for the year (ending March)	**Net worth (Rs million)**	**Revenue (Rs million)**	**Revenue growth (%)**	**EBITDA (Rs million)**	**PAT (Rs million)**	**EBITDA Margin (%)**	**PAT Margin (%)**	**RoE (%)**
2020	1,754	86	1551%	(408)	(422)	-474%	-490%	-41%
2019	321	5	NA	(62)	(70)	-1193%	-1337%	-42%
2018	8	-	NA	(23)	(16)	NA	NM	-214%

*Note: *: Based on website disclosures as on March 20, 2021*
Source: Company reports, Company websites, CRISIL Research

Players in Payments Bank business

Company Name	Year of Inception	Company Overview				
Airtel Payments Bank	2016	• Airtel Payments Bank was launched by Bharti Airtel, India's largest telecom provider, to support the cashless revolution promised by the Government of India. It was the first payments bank in India to go live nationally. • Products and services: Savings bank account, Money transfers, Recharges, Travel bookings • With improving revenue streams, the losses for the company have also reduced over last three fiscals ending FY2020. **Operational data*** Customer base: 30 million, Active users: 14 million (March 2020) Touchpoints: 500,000 Transaction Value: Rs 500 billion (annualized)				
Financials for the year (ending March)	**Net worth (Rs million)**	**Revenue (Rs million)**	**Revenue growth (%)**	**PAT (Rs million)**	**PAT Margin (%)**	**RoE (%)**
2021	3,216	6,171	30%	(4,344)	-70%	-144%
2020	2,805	4,743	86%	(4,646)	-100%	-196%
2019	1,933	2,544	59%	(3,388)	-140%	-159%
Company Name	**Year of Inception**	**Company Overview**				
Fino Payments Bank	2017	• Fino Payments Bank (FPB) is promoted by Fino Paytech Ltd. The bank provides banking services to its target customers using technology platforms such as Aadhaar-enabled Payment System (AePS), mPOS devices, Micro ATMs, tablet or mobile. On the digital front, the bank offers mobile banking app BPay, online account opening, Netbanking and UPI.				

		• FPB's 'phygital' approach is backed by deep distribution across the country, leveraging technology and entering into relevant partnerships to make banking simple, convenient and paperless. • The company has the largest network of Micro-ATMs in India with 55% market share in micro-ATMs deployed in the country as of March 2021. • The company's revenues are next only to PayTM amongst payment banks in India. It turned profitable at the net level in Q4 FY20 and reported a profit of Rs. 205 million in fiscal 2021 **Operational Data** Banking customers: 20 million (June 2020) Merchants: 3,66,861 (June 2021), Touchpoints*: 7,24,671 (June 2021) Transaction Value – Rs. 390 billion (April – June 2021); Transaction volume – 123 million (April-June 2021)

Financials for the year (ending March)	Net worth (Rs million)	Revenue (Rs million)	Revenue growth (%)	PAT (Rs million)	PAT Margin (%)	RoE (%)
2021	1,505	7,909	14%	205.00	3%	15%
2020	1,300	6,913	86%	(320.00)	-5%	-22%
2019	1,621	3,711	61%	(624.00)	-17%	-32%

Company Name	Year of Inception	Company Overview
India Post Payments Bank	2018	• India Post Payments Bank (IPPB) was set up under the Department of Post, Ministry of Communication with 100% equity owned by Government of India. IPPB's reach and its operating model is built on the key pillars of India Stack - enabling paperless, cashless and presence-less banking in a simple and secure manner at the customers' doorstep through a CBS-integrated smartphone and biometric device • Key products and services offered by IPPS include deposits, money transfer, DBT, third party products like loans, insurance, investments and post office saving schemes, bill and utility payments and enterprise and merchant payments. • In December 2020, IPPS launched a new digital payment app "Dakpay" to provide digital, financial and assisted banking services. • The operating expenses have increased drastically for the company between fiscal 2018 and 2020 leading to sharp expansion in losses. **Operational Data** Customer base: 40 million+ (February 2021) Touchpoints: 136,078+ banking access points and 174,000+ doorstep bankers Transaction volume - 125 million (September 2019-September 2020), Transaction Value: Rs 336 billion (September 2019-September 2020)

Financials for the year (ending March)	Net worth (Rs million)	Revenue (Rs million)	Revenue growth (%)	PAT (Rs million)	PAT Margin (%)	RoE (%)
2020	5,740	547	13%	(3,339)	-810%	-58%
2019	5,743	482	21%	(1,651)	-348%	-24%
2018	7,990	398	-12%	11	3%	0%

Company Name	Year of Inception	Company Overview
PayTM Payments Bank	2017	• PayTM Payments Bank is a mobile-first bank with zero balance - zero digital transaction charge account facility. The bank offers accounts (savings and current), debit card, payment wallet and payment services such as NACH, FASTAG, IMPS, UPI and NEFT. • It was the first payment bank to turn profitable in fiscal 2019. **Operational Data** • In fiscal 2021, it has existing users network of 333 million and over 21 million registered merchants, of which over 50% of registered merchants hold an account with Paytm Payments Bank. It has ~64 million savings accounts and offers interest rate of 2.5% p.a. • Issued a cumulative of ~ 9 million FASTags and partnered with 270 toll plazas in fiscal 2021 • App downloads: 40 million • Transaction Value - Rs 4.6 trillion (June 2020), Transaction volume - 4.8 billion (June 2020)

Financials for the year (ending March)	Net worth (Rs million)	Revenue (Rs million)	Revenue growth (%)	PAT (Rs million)	PAT Margin (%)	RoE (%)
2021	4,812	19,875	-10%	179	1%	4%
2020	3,976	22,062	32%	299	1%	8%
2019	3,678	16,673	131%	198	1%	6%
2018	3,486	7,219	NM	(207)	-3%	-8%

Company Name	Year of Inception	Company Overview
Jio Payments Bank	2016	• Jio Payment Bank is owned by Reliance Industries Limited and it started its commercial operations in 2018 with the aim to simplify financial inclusion in India. • It allows customer to make recharges, pay bills and transfer money from MyJio application or by visiting the Jio Payments Bank outlet. All these transactions use biometric Aadhaar to enable secure transactions. • The company has witnessed a 28% on-year revenue growth in fiscal 2020 and has also been profitable at the net level.

Financials for the year (ending March)	Net worth (Rs million)	Revenue (Rs million)	Revenue growth (%)	PAT (Rs million)	PAT Margin (%)	RoE (%)
2021	1,256	133	-32%	-897	-677%	-53%
2020	2,152	194	28%	5	3%	0.2%
2019	2,147	152	NA	(11)	-7%	-0.7%

Company Name	Year of Inception	Company Overview
NSDL Payments Bank	2018	• NSDL Payments Bank commenced its operations in October 2018 to support the initiative of providing simplified banking services. It has its flagship NSDL Jiffy

		application, which provides secure processing of transactions and a banking experience (including facilitation of investments in mutual funds) • The company has seen tepid growth in revenue over the past two years, whereas operational expenses grew at a faster rate leading to widening of losses.

Financials for the year (ending March)	Net worth (Rs million)	Revenue (Rs million)	Revenue growth (%)	PAT (Rs million)	PAT Margin (%)	RoE (%)
2020	1,047	64	8%	(139)	-218%	-12%
2019	1,259	59	9%	(65)	-110%	-6%

*Note: *: Based on website disclosures as on March 20, 2021*
Source: Company reports, Company websites, CRISIL Research

Global Peers

Players in Payments and Remittance Business

<table>
<tr><th>Company Name</th><th>Country and Year of Inception</th><th colspan="8">Company Overview</th></tr>
<tr><td>Afterpay Limited</td><td>Australia, 2015</td><td colspan="8">• Afterpay Limited provides payments solutions for customers, merchants, and businesses in Australia, New Zealand, the United States, Canada, and the United Kingdom.
• It operates on a "Buy now, Pay later" business model providing purchase financing to the customers by splitting payments into 4 installments for both online and in-store purchase at zero interest.

<u>Operational Data</u>
Active customers: 13.1 million (December 2020)
Active merchants: 74,700 (December 2020)</td></tr>
<tr><th>Financials for the year (ending June)</th><th>Net worth (USD million)</th><th>Revenue (USD million)</th><th>Revenue growth (%)</th><th>EBITDA (USD million)</th><th>PAT (USD million)</th><th>EBITDA Margin (%)</th><th>PAT Margin (%)</th><th>R&D (% of revenue)</th><th>RoE (%)</th></tr>
<tr><td>2020</td><td>719</td><td>395</td><td>97%</td><td>19</td><td>-217</td><td>5%</td><td>-4%</td><td rowspan="3">NA</td><td>-3%</td></tr>
<tr><td>2019</td><td>493</td><td>201</td><td>86%</td><td>-7</td><td>-33</td><td>-4%</td><td>-17%</td><td>-11%</td></tr>
<tr><td>2018</td><td>140</td><td>108</td><td>391%</td><td>12</td><td>-7</td><td>11%</td><td>-6%</td><td>-5%</td></tr>
<tr><th>Company Name</th><th>Country and Year of Inception</th><th colspan="8">Company Overview</th></tr>
<tr><td>Global Payments Inc.</td><td>USA, 1967</td><td colspan="8">• Global Payments Inc. provides payment technology and software solutions for card, electronic, check, and digital-based payments in the Americas, Europe, and the Asia-Pacific.
• The company operates through three segments: Merchant Solutions, Issuer Solutions, and Business and Consumer Solutions.
• In Merchant Solutions segment, the company offers authorization services, settlement and funding services, customer support and help-desk functions, chargeback resolution, terminal rental, sales and deployment, payment security services, consolidated billing and statements and on-line reporting. It also offers value-added services, including analytic and engagement tools, payroll and human capital management services and reporting.
• In Issuer Solutions, the company offers solutions to manage card portfolios, commercial payments and e-Payables solutions. In addition, account management and servicing, fraud solution services, analytics and business intelligence, cards, statements and correspondence, customer contact solutions and risk management solutions are also offered.
• In Business and Consumer Solutions, the company offers general purpose reloadable prepaid debit and payroll cards, demand deposit accounts and other financial service solutions to the underbanked and other consumers and businesses.

<u>Operational Data</u>
Merchants: 3.5 million (December 2020)
Transaction Volume*: 50 billion (annualized)
Revenue share from businesses (FY20): Merchant Solutions (63%), Issuer Solutions (26%), Business and Consumer Solutions (11%)</td></tr>
</table>

Financials for the year (ending December)	Net worth (USD million)	Revenue (USD million)	Revenue growth (%)	EBITDA (USD million)	PAT (USD million)	EBITDA Margin (%)	PAT Margin (%)	R&D (% of revenue)	RoE (%)
2020	27,487	7,466	51%	2,552	605	34%	8%	5.84%	2%
2019	28,054	4,942	46%	1,701	469	34%	9%	6.21%	3%
2018	4,186	3,386	-15%	1,279	484	38%	14%	6.29%	12%

Company Name	Country and Year of Inception	Company Overview
GMO Payment Gateway Inc.	Japan, 1995	• GMO Payment Gateway, Inc., together with its subsidiaries, provides financial services and integrated payment related services. • It operates through three segments: Payment Enhancement Business, Payment Processing Business, and Money Service Business. • The company offers PG multi-payment service, a payment platform that provides credit card payment, convenience store payment, account transfer, and multi-currency credit card payment. • It also provides GMO payment after delivery; Ginko Pay Base System, a smartphone app that enables payments to be made by an immediate debit from the bank account; and GMO-PG processing platform, which helps financial institutions or financial service providers start payment-related services. **Operational Data** Operating stores: 160,535 (December 2020) Transaction Value: JPY 5.8 trillion, Transaction Volume: 2.57 billion (FY20) Revenue share from businesses (FY20): Payment Processing Business (70%), Money Service Business (28%, Payment Enhancement Business (2%)

Financials for the year (ending September)	Net worth (USD million)	Revenue (USD million)	Revenue growth (%)	EBITDA (USD million)	PAT (USD million)	EBITDA Margin (%)	PAT Margin (%)	R&D (% of revenue)	RoE (%)
2020	301	299	23%	100	69	33%	23%		25%
2019	248	244	2%	90	45	37%	19%	NA	19%
2018	234	239	26%	63	38	26%	16%		18%

Company Name	Country and Year of Inception	Company Overview
PayPal Holdings Inc.	USA, 1998	• PayPal is an online payment system that operates one of the largest digital payment platforms globally. It helps consumers as well as businesses accept and make payments online in more than 200 countries across the world and across more than 100 different currencies. • Its payment solutions include PayPal, PayPal Credit, Braintree, Venmo, Xoom, Hyperwallet, and iZettle products. • The company's payments platform allows consumers to send and receive payments, withdraw funds from their bank accounts, and hold balances in their PayPal accounts in various currencies. • It also offers gateway services that enable merchants to accept payments online with credit or debit cards, as well as digital wallets

<table>
<tr><td></td><td></td><td colspan="9"><u>Operational Data</u>
Customer base: 348 million including 29 million merchants (December 2020)
Transaction Value - $936 billion (CY 2020); Transaction Volume – 15.4 billion (CY 2020)</td></tr>
<tr><th>Financials for the year (ending December)</th><th>Net worth (USD million)</th><th>Revenue (USD million)</th><th>Revenue growth (%)</th><th>EBITDA (USD million)</th><th>PAT (USD million)</th><th>EBITDA Margin (%)</th><th>PAT Margin (%)</th><th>R&D (% of revenue)</th><th>RoE (%)</th></tr>
<tr><td>2020</td><td>20,063</td><td>23,230</td><td>29%</td><td>6,265</td><td>4,202</td><td>27%</td><td>18%</td><td>12%</td><td>23%</td></tr>
<tr><td>2019</td><td>16,929</td><td>18,051</td><td>15%</td><td>3,631</td><td>2,459</td><td>20%</td><td>14%</td><td>12%</td><td>15%</td></tr>
<tr><td>2018</td><td>15,386</td><td>15,633</td><td>19%</td><td>2,970</td><td>2,057</td><td>19%</td><td>13%</td><td>12%</td><td>13%</td></tr>
<tr><th>Company Name</th><th>Country and Year of Inception</th><th colspan="8">Company Overview</th></tr>
<tr><td>Venmo</td><td>USA, 2009</td><td colspan="8">• Venmo is a mobile payment service owned by PayPal. It is an app-based digital wallet platform for consumer payment and also offers debit and credit cards to its customers.
• The company designs and develops an online payment and community platform which enables its users to make and share payments, connect with other users, and transfer money from their bank.

<u>Operational Data</u>
Users*: 60 million, Active accounts: 52 million+ (December 2019)
Transaction Value: $102 billion (CY 2019)</td></tr>
<tr><td>Financials</td><td></td><td colspan="8">NA</td></tr>
<tr><th>Company Name</th><th>Country and Year of Inception</th><th colspan="8">Company Overview</th></tr>
<tr><td>Xoom Corporation</td><td>USA, 2001</td><td colspan="8">Xoom is an international money transfer service, owned by PayPal, that enables its customers to send money and prepaid mobile phone reloads to people and pay bills for people around the world.</td></tr>
<tr><td>Financials</td><td></td><td colspan="8">NA</td></tr>
<tr><th>Company Name</th><th>Country and Year of Inception</th><th colspan="8">Company Overview</th></tr>
</table>

Yeahka Limited	China, 2011	• Yeahka is a payment-based technology platform in China providing payment and business services to merchants and consumers. • The company's principal business lines include one-stop payment service and technology-enabled business services which consists of marketing services, merchant SaaS products, and fintech services. **<u>Operational Data</u>** Active payment service customers (Merchants): 5.5 million (December 2020) Active business service customer: 982,000 (December 2020) Active payment consumers: 645 million+ (December 2020) Transaction Value: RMB 1.5 trillion (FY20) Revenue share from businesses (FY20): Payment Services (80%),Business Services (20%)

Financials for the year (ending December)	Net worth (USD million)	Revenue (USD million)	Revenue growth (%)	EBITDA (USD million)	PAT (USD million)	EBITDA Margin (%)	PAT Margin (%)	R&D (% of revenue)	RoE (%)
2020	475	350	128%	351	441	15%	19%	6%	34%
2019	-83	340	3%	353	85	16%	4%	3%	-13%
2018	-120	149	NA	33	-183	3%	-18%	9%	NA

*Note: *: Based on website disclosures as on March 20, 2021, Financials is converted from local currency to USD considering exchange rate on 31st March 2021*

Source: Company reports, Company websites, CRISIL Research

Players in Digital Banking Business

Company Name	Country and Year of Inception	Company Overview
Atom Bank plc	UK, 2014	• Atom Bank plc provides banking services through smartphones, tablets, phablets, phones, and Internet in the United Kingdom. • It offers a range of products including fixed deposits, accounts, mortgages, business loans, and secured loans to customers. **<u>Operational Data</u>** Customer base: 65,000 (October 2018)

Financials for the year (ending March)	Net worth (USD million)	Revenue (USD million)	Revenue growth (%)	EBITDA (USD million)	PAT (USD million)	EBITDA Margin (%)	PAT Margin (%)	R&D (% of revenue)	RoE (%)
2020	269	64	22%	-81	-91	-128%	-143%		-32.60%
2019	290	52	103%	-35	-110	-68%	-211%	NA	-46.40%
2018	184	26	1600%	-56	-72	-221%	-282%		-44.20%

Company Name	Country and Year of Inception	Company Overview
Monzo Bank Limited	UK, 2015	• Monzo is a digital-only bank platform and marketplace that allows customers to access a range of products and services. • The company offers current, business, joint, and individual savings accounts; and overdrafts and loans in the United Kingdom, and the United States. It also offers customers the ability to transact through a mobile application. **<u>Operational Data*</u>** Customer base: 5+ million

Financials for the year (ending February)	Net worth (USD million)	Revenue (USD million)	Revenue growth (%)	EBITDA (USD million)	PAT (USD million)	EBITDA Margin (%)	PAT Margin (%)	R&D (% of revenue)	RoE (%)
2020	176	94	248%	51	-157	54%	-167%	0.60%	-94%
2019	158	27	641%	-68	-65	-253%	-239%	1.30%	-55%
2018	77	4	2117%	-45	-42	-1234%	-1148%	0.00%	-82%
Company Name	**Country and Year of Inception**	**Company Overview**							
Revolut Limited	UK, 2015	• Revolut is a digital bank for consumers and business. • Retail services - Electronic money and payment services through prepaid cards, currency exchange, P2P payments and cryptocurrency exposure • Business services - Multicurrency exchange, prepaid corporate cards, international and domestic bank transfers to MSMEs. • Revolut offers various products like Accounts, Wealth, Payments, Insurance, etc. **<u>Operational Data</u>** Customer base: 12+ million (March 2020)							
Financials for the year (ending December)	**Net worth (USD million)**	**Revenue (USD million)**	**Revenue growth (%)**	**EBITDA (USD million)**	**PAT (USD million)**	**EBITDA Margin (%)**	**PAT Margin (%)**	**R&D (% of revenue)**	**RoE (%)**
2020	572	304	35%	-269	-282	-88%	-93%	14.1%	-80%
2019	132	226	178%	-142	-145	-63%	-64%	8.4%	-73%
2018	266	81	360%	-45	-45	-55%	-55%	9.3%	-28%
Company Name	**Country and Year of Inception**	**Company Overview**							
Starling Bank Limited	UK, 2014	• Starling is a digital bank serving personal and business consumers. It also offers B2B banking and payments services. • Its retail banking app offers personal, business, joint, Euro, USD, child and current accounts. The Starling Marketplace offers customers in-app access to third party financial services. **<u>Operational Data</u>** Customer base*: 2 million+ Retail card Transactions Volume: 82 million (FY19), Retail card transaction value: GBP 1.6 billion (FY19)							
Financials for the year (ending November)	**Net worth (USD million)**	**Revenue (USD million)**	**Revenue growth (%)**	**EBITDA (USD million)**	**PAT (USD million)**	**EBITDA Margin (%)**	**PAT Margin (%)**	**R&D (% of revenue)**	**RoE (%)**
2019	95	33	371%	-66	-67	-202%	-204%		-103%
2018	36	7	41%	-37	-37	-531%	-532%	NA	-92%
2017	45	5	1%	-15	-15	-299%	-301%		-47%

*Note: *: Based on website disclosures, Financials is converted from local currency to USD considering exchange rate on 31st March 2021*

Source: Company reports, Company websites, CRISIL Research

Players in POS Business

Company Name	Country and Year of Inception	Company Overview							
Square Inc.	USA, 2009	• Square Inc is a merchant services aggregator and a mobile payment company. • The Company develops point-of-sale software that helps in digital receipts, inventory, and sales reports, as well as offers analytics and feedback. Square also provides financial and marketing services. • Business products and services - POS Hardware, POS software, financial services • Individual products and services - Mobile payment services **Operational Data** Customer base: 36 million monthly transacting active customers on its mobile payment application CashApp (December 2020) For business segment, Payment Value - $103.7 billion (FY20); Payment volume - $2 billion (FY20)							
Financials for the year (ending December)	**Net worth (USD million)**	**Revenue (USD million)**	**Revenue growth (%)**	**EBITDA (USD million)**	**PAT (USD million)**	**EBITDA Margin (%)**	**PAT Margin (%)**	**R&D (% of revenue)**	**RoE (%)**
2020	2,681	9,497	102%	-14.9	213	0%	2%	9%	10%
2019	1,715	4,713	43%	31	375	1%	8%	14%	26%
2018	1,120	3,298	49%	-32	-38	-1%	-1%	15%	-4%
Company Name	**Country and Year of Inception**	**Company Overview**							
Verifone Holdings Inc.	USA,1981	• VeriFone is a player in the merchant point of sale (POS) payment systems market, with over half of its annual sales from providing POS payment terminals that enable merchants to accept payment cards. • Its product portfolio also comprises of contactless and countertop systems as well as electronic cash register and payment devices, PIN pads, indoor and outdoor unattended payment solutions, wireless handheld payment devices, and point-of-sale receipt printers. **Operational Data*** Transaction Volume: 10.3 billion (annualized)							
Financials	NA								

*Note: *: Based on website disclosures as on March 20, 2021,Financials is converted from local currency to USD considering exchange rate on 31st March 2021*

Source: Company reports, Company websites, CRISIL Research

Players in Banking as a Service (BaaS) business

Company Name	Country and Year of Inception	Company Overview
Bankable Limited	UK, 2010	• Bankable provides a range of payment solutions under a “Banking as a Service” model wherein the solutions are available in the form of white-label self-service platforms as well as via APIs • The company’s services include Virtual Ledger Manager (VLM), a cloud based virtual account solution that offers cash management for global corporates; Digital Banking, a platform that offers digital banking; Payment Card Programmes, a prepaid card programme management service; and E-wallet. • It serves to industries, such as travel, telco, bank, insurance, and FinTech.

Treezor	France, 2016	• Treezor, SAS operates a banking platform that facilitates payment management for merchants, collaborative platforms, and banks. The company offers a B2B and multi-channel solution covering the entire payment chain. • The company's products include acquisition online, card program, payment SEPA, marketplace and crowdfunding, KYC and compliance, e-wallet and core-banking, bin-sponsorship, white label jacket, and local currency. • The company has issued more than 850,000 Mastercard payment cards as of 2019

*Note: *: Based on website disclosures,, Financials is converted from local currency to USD considering exchange rate on 31st March 2021*

Source: Company reports, Company websites, CRISIL Research

About CRISIL

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