The Poster Child

AI, Open Stack & blockchain will make banking* a poster child of resurgent India.

Banks, Regulator and Government need to seize the moment.

* Banks, Fintechs & NBFCS

Key messages

01 100X explosion in machine readable data for lending due to UPI and aggregators - Banks and Fintechs with AI based credit and collection models will gain disproportionately

02 Extension of open stack beyond payments to lending and daily banking will exponentially boost fintech but also expose banks to customer capture by BigTech - Banks should build partnership business model for embedded finance, boldly promote ONDC to blunt the network advantage of closed private ecosystems, and adopt financial holding structure to unbundle fintech premium embedded in their valuations to fund their journey / attract talent

03 Embedded finance to drive credit to SME and Tier 2+ India with 3rd party distribution - Institutional framework needed for 3rd party FLDG and reimagine co-lending as open stack digital marketplace

04 Corporate Bank 2.0 to focus on sector specific digital ecosystem finance solutions - Wholesale debt market deepens to heavy lift industrial, infra and climate transition project finance

Banks

1. Master embedded finance for rural, SME & corporate banking of future
2. Build tech, AI & digital talent with holding structure change
3. Collective action on cyber, digital fin literacy, and Open e-commerce (ONDC)

Government / Regulator

1. Co-lending as a digital marketplace & regulatory framework for FLDG
2. Expedite Blockchain regulation to enable non-currency use cases
3. Digitization of secured lending including Demat of financial assets
4. Address regulatory arbitrage of LSPs/PSPs vs. Banks

Note: 1. LSP - 3rd party platforms acting as loan service provider (unregulated)'; 2. PSP - 3rd party platforms acting as payment service provider (unregulated)

Executive Summary (I/IV)

The Poster Child

Retail payments match the heft of Indian software services in bringing global acclaim to India. Much has been written about the UPI platform including, the so often quoted, advisory from Google to the US government to copy UPI. Payments account for over half the Fintech valuation. Banks, much chastened for failure with bad corporate loans, have a major achievement to feel proud. In coming 5 years, as they extend UPI's underlying open stack philosophy from payments to lending and daily banking, Indian banks would be nurturing the "model banking of the future". None of the large economic blocks – US, EU or China – have yet managed to gain traction with open architecture for their banking due to legacy (US), geopolitics (EU), or simply path dependency (China).

Aggregators to transform lending with 100X more data per small business customer

Rise of small ticket digital transactions and growing popularity of QR codes at small merchants catches the headlines but the real transformative change is the growing 'thickness' of bank account statements of small merchants with rising number of digital payments received by them from identifiable repeat customers. Power of bank transaction analysis in enhancing the discrimination power of credit scoring models is empirically established. With the introduction of aggregators, the financial data across a range of financial institutions and government agencies can be provided to any lender of customer's choice within minutes based on consent. This will create a step change in speed of access and eligibility for loans for small businesses as the machine-readable data available for credit approval, monitoring and collections per customer grows 100X with twin impact of UPI and aggregators.

OCEN to extend open stack idea from payments to lending

UPI is proof of the concept that banking can be envisaged as an open tech stack interconnected to each other and to external entities to reach customers for sales and service. We already notice 95% payments on UPI being originated on 3rd party Payment Service Providers (PSP) who are digital platforms with large customer traffic. The next phase of evolution will take the concept to lending with introduction of Lending Service Providers (LSP) who can leverage API to connect potential borrowers to all possible lenders onboarded onto the Open Credit Enablement Network (OCEN). This introduces transparent competition in lending – banks' core profit pool. It will disproportionately advantage players with advanced data analytics capabilities for credit scoring and fast response times. Value in Fintech space will shift from payments to lending as Fintechs get a level playing field in access to data hitherto confined to bank's closed systems.

Open stack beyond lending to daily banking

Extending open architecture beyond lending to daily banking is just a natural forward step. We already have many Neo banks who provide "daily banking" to customers with a bank operating as utility in the background. We envisage more than 75% of all digital payments and digital loans and 25% of digitally opened accounts to be on 3rd party platforms in 5 years. The power of 3rd parties to originate banking transactions will grow manifold as number of digital platforms with sizeable customer traffic grows rapidly.

Executive Summary (II/IV)

Imperatives for banks

There are 3 imperatives for banks.

1. Banks need to invest aggressively in partnership business model and embedded finance capabilities to harness entire spectrum of opportunities in consumer, SME and corporate banking
    a) While open stack will permit multiple banks on 3rd party digital platforms, in practice the 3rd party digital platforms would like to partner with a few institutions with whom they can collaboratively develop distinctive propositions that enhances their customer experience
    b) Driven by adverse selection, Public Sector Banks have had extremely poor debt experience in small business finance resulting in their declining growth and receding relevance in the important segment. Public sector would benefit, in particular, from partnerships with 3rd party platforms and NBFCs/Fintechs with last mile reach. It is important that co-lending model is reimagined as an open digital marketplace as against a cumbersome to operationalize one bank-to-one NBFC contract
    c) Rising affluence of semi urban India is already starting to reflect in share of non-agriculture retail finance disbursals in semiurban and rural markets inching up (35% to 42% of total between FY18 to FY21). The handicap of scattered demand in hinterland can be addressed through partnerships with entities and networks that have high customer aggregation.
    d) Embedded finance in corporate digital supply chain ecosystems would be a major theme in corporate bank 2.0. Corporate banking would not be the same again post the massive hit that banks have had to take on account of the bad debts in industrial and infrastructure finance sectors. Indian infrastructure development and climate transition needs approximately USD 2 trillion of investment over the next decade as compared to USD 0.5 trillion of total corporate advances on bank books today. We expect only a small part of that to reflect in bank corporate lending books as wholesale debt markets take the heavy lifting on their shoulders. Corporate Bank 2.0 would have higher exposure to consumer and tech industries on their books and consequently more transaction solution oriented and less balance sheet centric demand. Banks would need to pivot to sector specialized digital ecosystem solutions that address pain points in supply chains of the sectors.
2. Need to accelerate talent induction and capacity building in tech, AI and digital domains. Number of tech, analytics and digital employees are growing at 5X industry FTE growth but there is a long way to go. Technology investment by Indian banks is roughly a half lower than global comparable benchmarks and as % of net revenues are stagnant at industry level (1% rise in private sector over 2 years). There is a diverse range of capabilities needed and each is needed at scale to make a difference. For example, banks need to build in-house capabilities in design and vernacular content to make digital self-service convenient and intuitive for non-English speaking mass market.

Executive Summary (III/IV)

Banks do not enjoy "Fintech Premium" in their valuations and neither in their appeal to tech talent. This hinders their capacity to invest against BigTech and Fintech. Financial holding structure that unbundles their fintech capabilities and tech platforms out of their traditional ringfenced banking business can unlock the premiums in financial markets and enable much needed bolder talent acquisition in specialized vehicles inside banking group.

3. Banking industry needs to come together for industry wide initiatives to strengthen their position
   a) Warding off the threat of BigTech: With huge customer traffic, deep pockets, and advanced digital customer experience, BigTech threaten to capture customer relationships and drive bank margins down. Banks need to actively promote Open Network for Digital Commerce(ONDC) platform as an open public platform for digital commerce to blunt the edge of BigTech platforms.
   b) Digital Financial Literacy: Only 12% of non-dormant savings accounts in India are financially active on mobile phones. There has been a 3% rise in number of branches in last 5 years despite consolidation in public sector banks. Much needs to be done to get customers to be not only financially literate but also digitally savvy to benefit from digital channels. Industry level campaign is needed on customer digital financial education.
   c) Industry level cyber fusion center: Rapidly digitizing banking industry needs a shared front against the cyber criminals. Indian banks spend 0.1% of their revenue on cyber security as against 0.5% global benchmark. Banking industry in Israel has a notable example. The Cyber and Finance Continuity Centre (FC3) helps rapidly share incidents, co-ordinate industry response to attacks, and best practice dissemination.

Imperatives for regulator and government

There are four imperatives for attention of regulator and government.

1. Co-lending framework is a great enabler for flow of credit to SME with NBFC bridging the last mile. In its current form, as a one-to-one deal, it is very cumbersome and slow to implement. RBI should reimagine co-lending as an extension of the OCEN framework into the secured lending domain with standardized protocols for a range of issues from credit appraisal, accounting, NPA recognition, security creation and enforcement etc. First Loss Default Guarantee (FLDG) is a powerful enabler of partnerships. We need to institutionalize a regulatory framework to establish FLDG by LSP to a lender with provision of appropriate mandatory regulatory capital to back it. A separate NBFC (FLDG) license may be created for specific purpose of regulating such LSP.

Executive Summary (IV/IV)

2. Regulatory arbitrage between banks and 3rd party service providers (LSP/ PSP / Neo Banks): Banks effectively compete with the 3rd parties for same customer service on their platform Vs 3rd party platform. However, 3rd parties have an advantage in being able to incentivize customers with deals and offers on which banks has regulatory restrictions. This arbitrage has to be addressed along with checks and balances to ensure 3rd parties respect customer data privacy to same extent as banks are expected to do by regulation.
3. Prepare ground for digitization in secured credit: The current disruption is confined to unsecured credit. Secured credit follows a cumbersome process around title check, physical verification, and technical due diligence. Digitization of property / land records and a digital process for creation of mortgage on assets can disrupt the secured lending space in same way as unsecured credit is being disrupted today. Dematerialization of financial assets (including Bank FD) can be leveraged to ensure secured lending against financial assets can be activated on LSP platforms in a purely digital journey.
4. Unlock potential in blockchain: Since the open stack banking already empowers the customer with consent-based control over her data and choice of service providers based on interoperability, Crypto and DeFi applications may not be able to unlock the 10X disruptive impact that they promise in more traditional banking ecosystems in next 5 years. However, block chain applications that enable fractional ownership of otherwise inaccessible assets and can democratize investments by enabling mass market to have access to a diverse range of investment options. This would miniaturize investments in the same way we are witnessing for lending and payments. We should have a regulatory framework to facilitate orderly deployment of block chain applications like NFT to deepen and broaden financial inclusion.

Real benefit of the much-celebrated UPI is explosion in machine readable transaction data in bank statements of small business

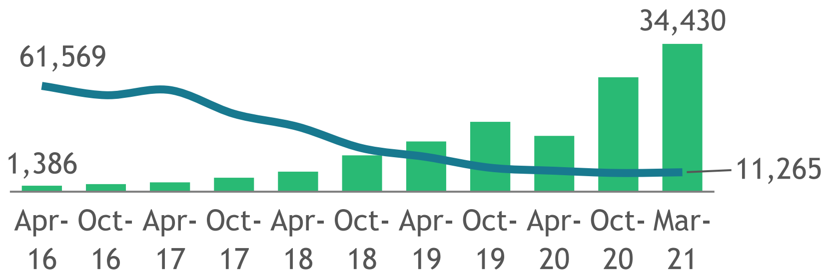
Global acclaim for UPI

"In bleak times for banks, India's digital-payments system wins praise Digital Loans could be next"
— The Economist

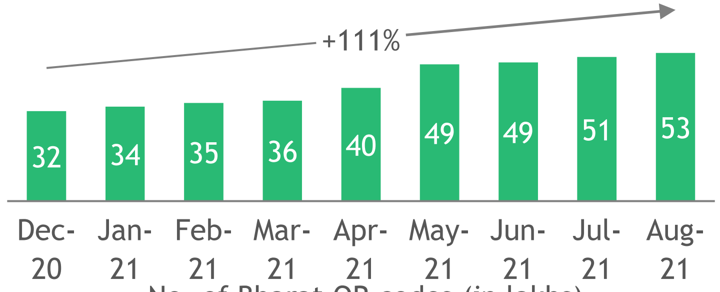
"Google recommends India's UPI-like platform to US Federal Reserve for digital payment"
— HT TECH MAKE LIFE SIMPLE

"'India is a great example': Gates on UPI, country's digital finance model"
— Business Standard

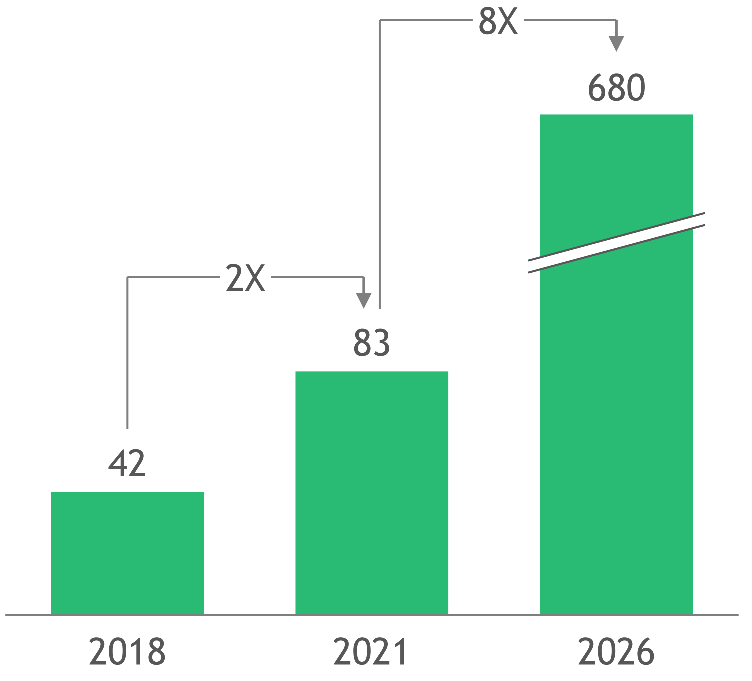
Explosion in digital transaction with reduction in ticket size



QR code adoption by small merchants



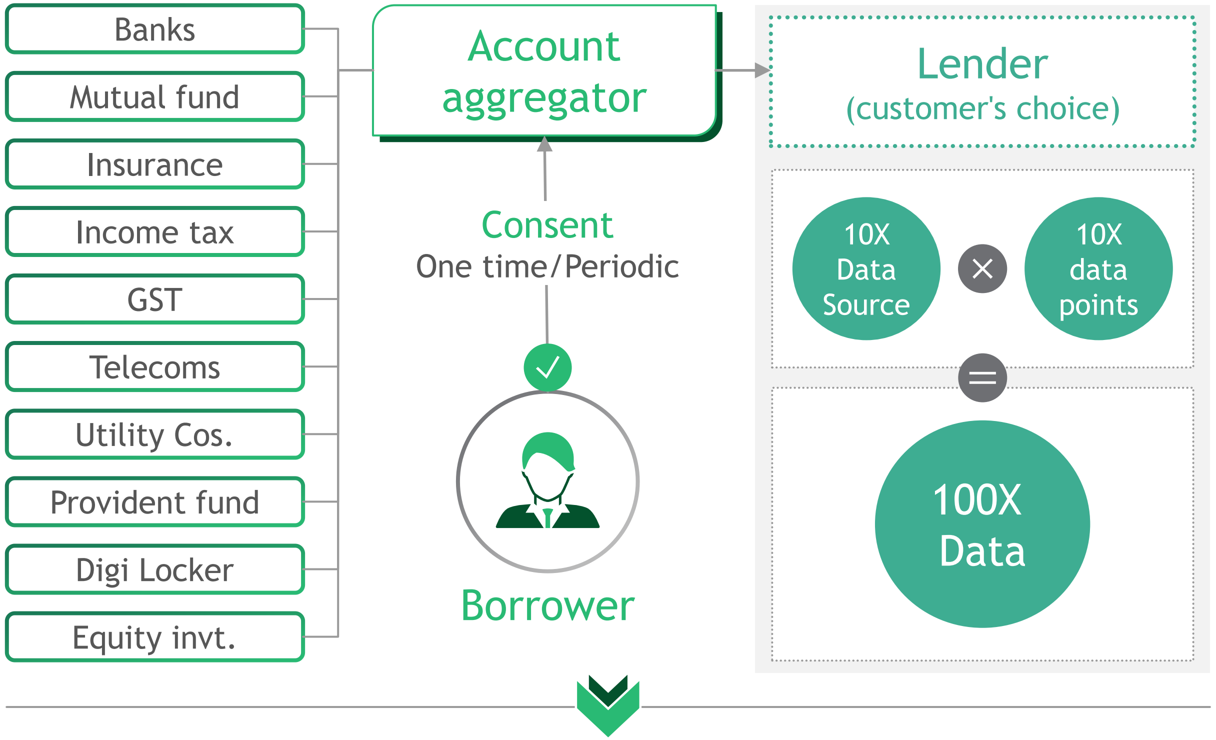
Bank statements will become "thick files" for credit assessment



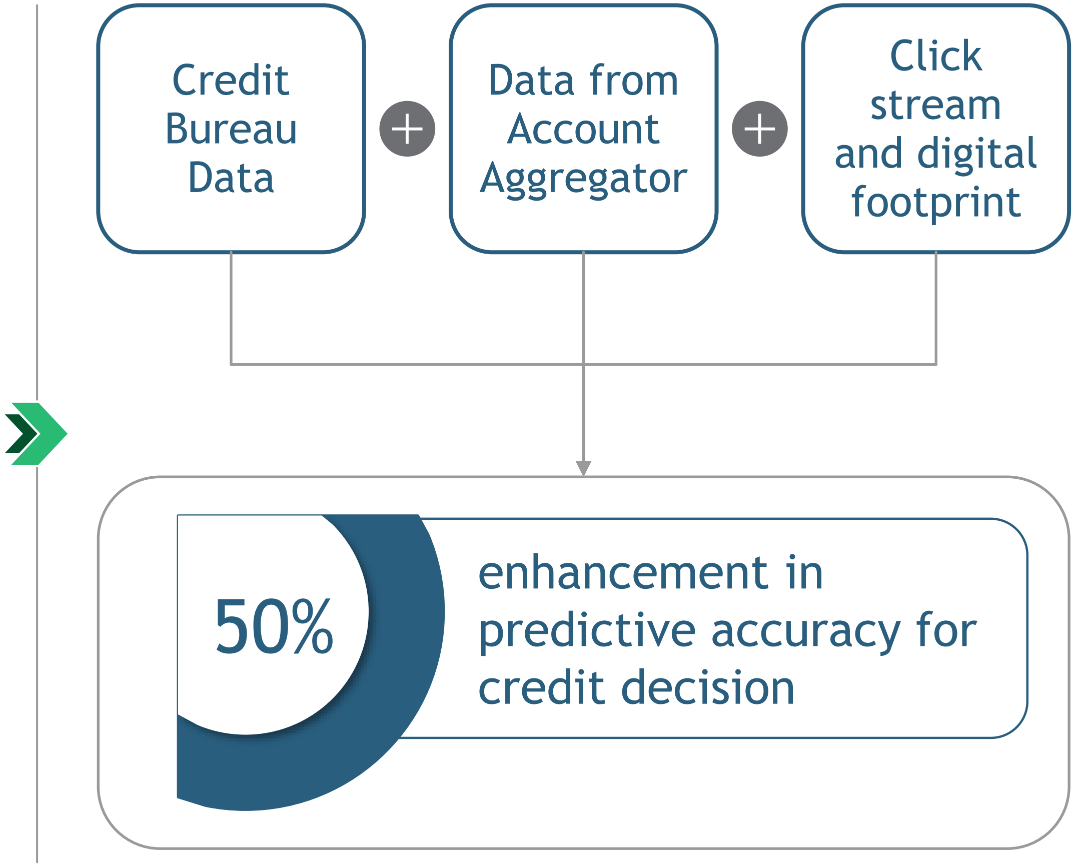
1. Digital transactions include NEFT, IMPS and UPI
2. Assumption: 80% of active SB account will use UPI by 2026 compared to 10-15% in 2021; 50% of active SB account will use Mobile banking by 2026 compared to 10-12% in 2021; number of transaction per UPI and mobile banking enable account has increased in line with past trends

Source: NPCI Statistics, RBI Payment Indicator, FIBAC Trends and Benchmark Report 2021, Press Search, BCG Analysis

Machine readable data available per customer for every lender for lending, monitoring, and collection will grow 100X in 5 years



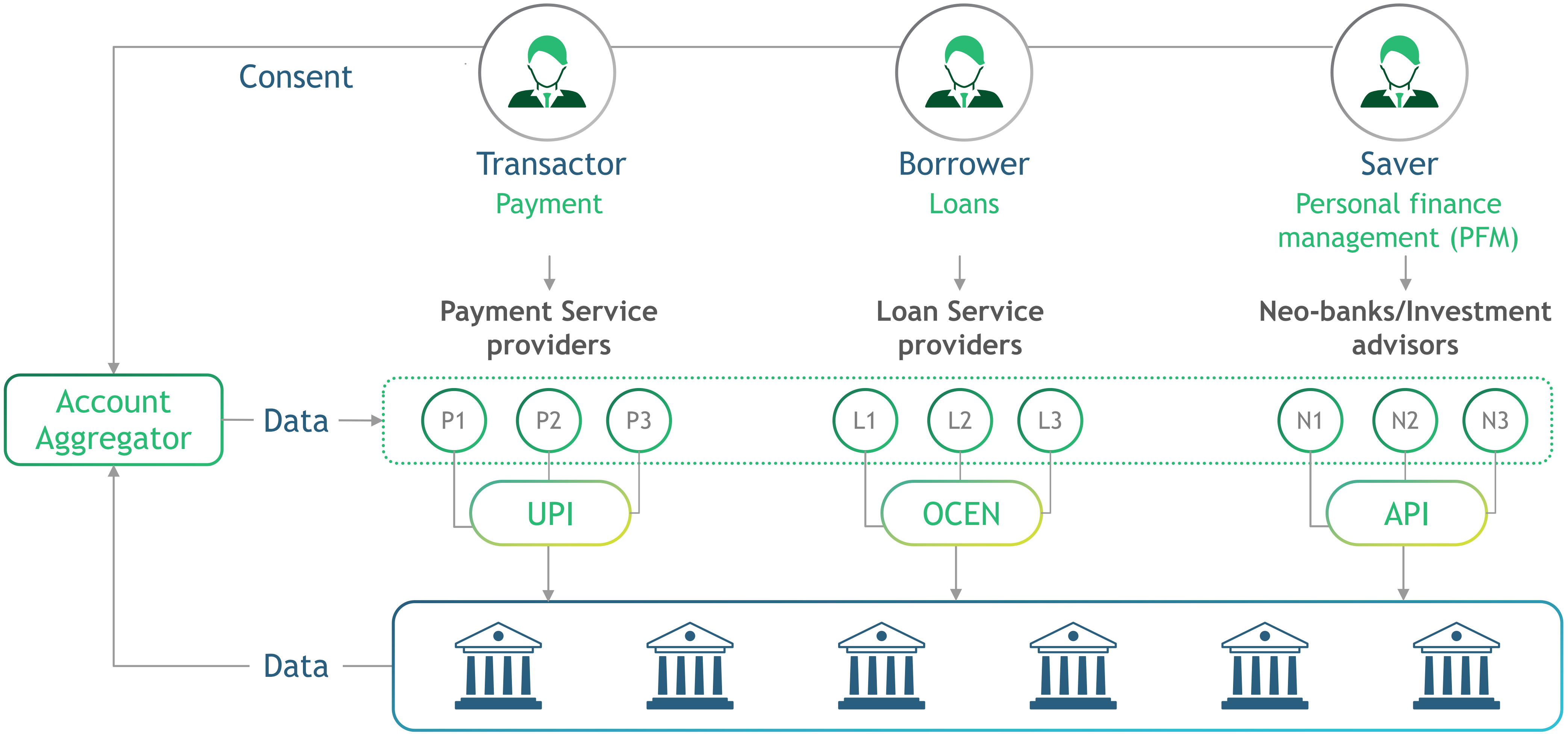
Access to standard format machine readable txn data of all accounts to any lender instantly with customer consent



Source: BCG Analysis

Open stack will extend from payments to lending and daily banking

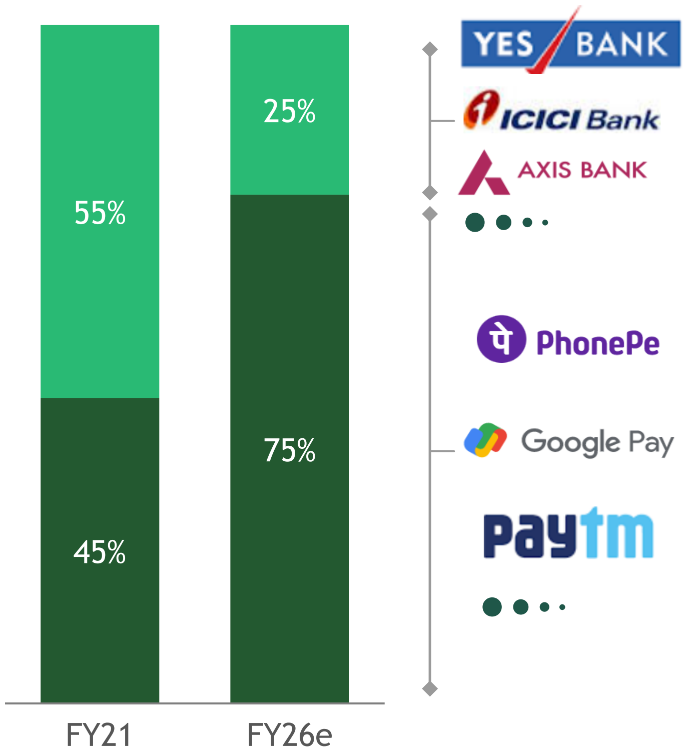
Across products, 3rd party digital intermediaries can anchor bank's client interface



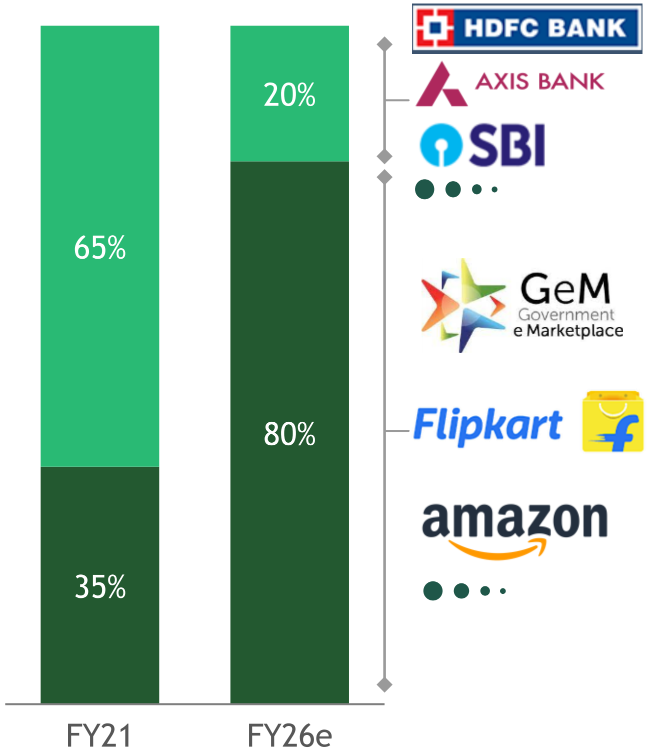
Source: BCG Analysis

The Embedded Future: Banks' digital services will be originated on 3rd party digital platforms

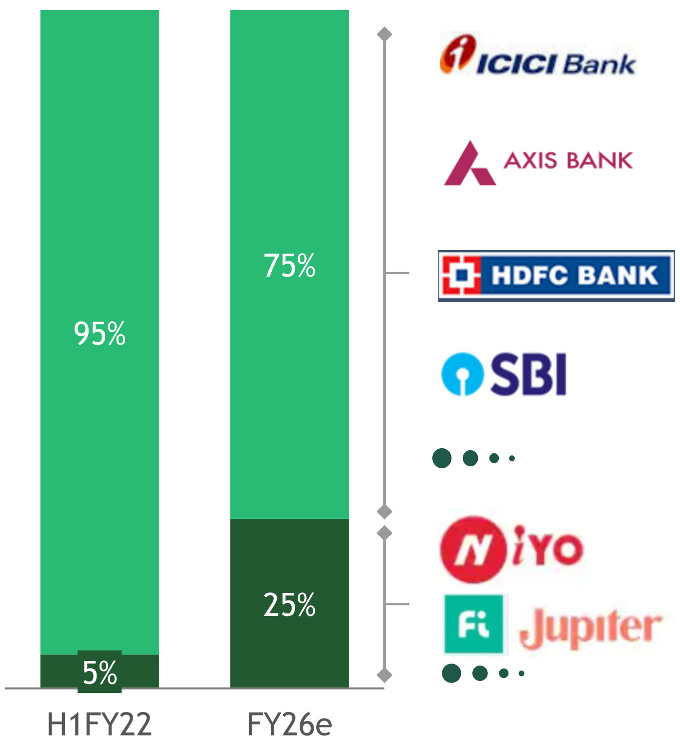
Retail Digital Payments[1] (Volume %)



Unsecured Digital Lending[2] (Volume %)



Savings Account Opened Digitally (Volume %)



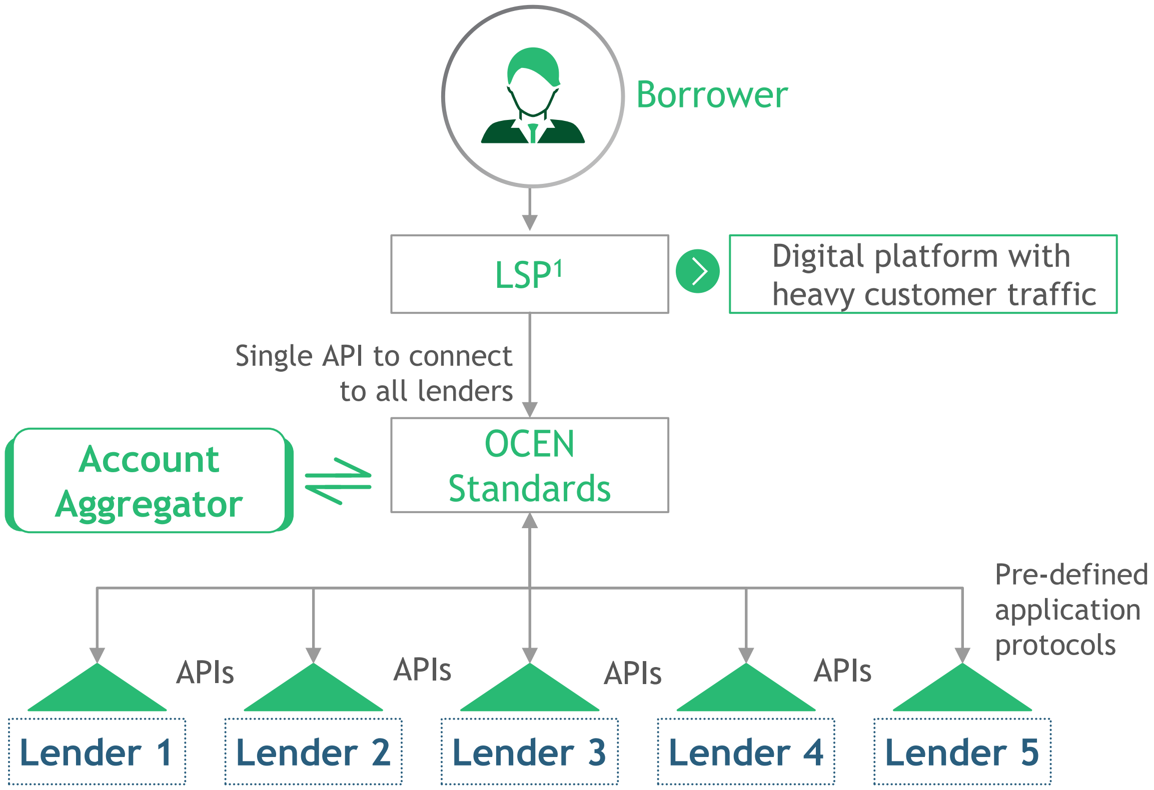
% on banks' digital platform | % On 3rd Party Digital Platform

1. Retail digital payment includes UPI and Mobile Banking Transactions
2. Unsecured Digital Lending includes Personal Loans and 'Buy Now and Pay Later' Loans originated through digital channels

Source: FIBAC Trends and Benchmarks 2021, RBI, BCG Analysis

OCEN is open stack for lending: Any LSP can access multiple lenders with standardized APIs

Open Credit Enablement Network (OCEN)



Universal access – any platform with customer traffic can be an LSP

Competition amongst lenders based on price transparency & speed of response

Premium for **data analytics** capabilities of lenders and quality of customer experience/digital journey

1. Loan Service Provider
Source: BCG Analysis

India's burgeoning digital ecosystem will provide a huge number of platforms for banks to partner with for embedding their services

Fin Tech, Insurance & Investment

- paisabazaar.com
- Chargebee
- bankbazaar.com
- PhonePe
- CRED
- BillDesk
- Pine Labs
- COINSWITCH KUBER
- Razorpay
- slice
- BharatPe
- Paytm
- upstox
- CoinDCX
- Groww
- digit
- ZERODHA
- acko

Alternate lending & Neo Banks

- Rupeek
- finbox
- indiagold
- Jupiter
- Fi
- CreditMantri
- zest
- CREDITVIDYA
- Instant pay
- Zolve
- ePaylater
- Niyo
- LAZYPAY

Industry Platforms

- trivago
- Google
- zomato
- Instagram
- Facebook
- WhatsApp
- OLA
- UltiPro
- makemytrip
- BYJU'S
- OLX
- Tally
- SWIGGY
- intuit quickbooks
- GeM Government e Marketplace
- indiamart
- India Post

E-commerce players

- amazon
- Flipkart
- AJIO
- NYKAA
- Myntra
- bigbasket
- snapdeal
- GROFERS
- naaptol
- firstcry.com
- PharmEasy
- 1mg

Digital model with Offline Partners

Airlines

- spicejet
- IndiGo
- Vistara
- Air India
- AirAsia

Retailers

- croma
- pantaloons
- BIG BAZAAR
- Reliance Retail
- DMart
- vijay sales

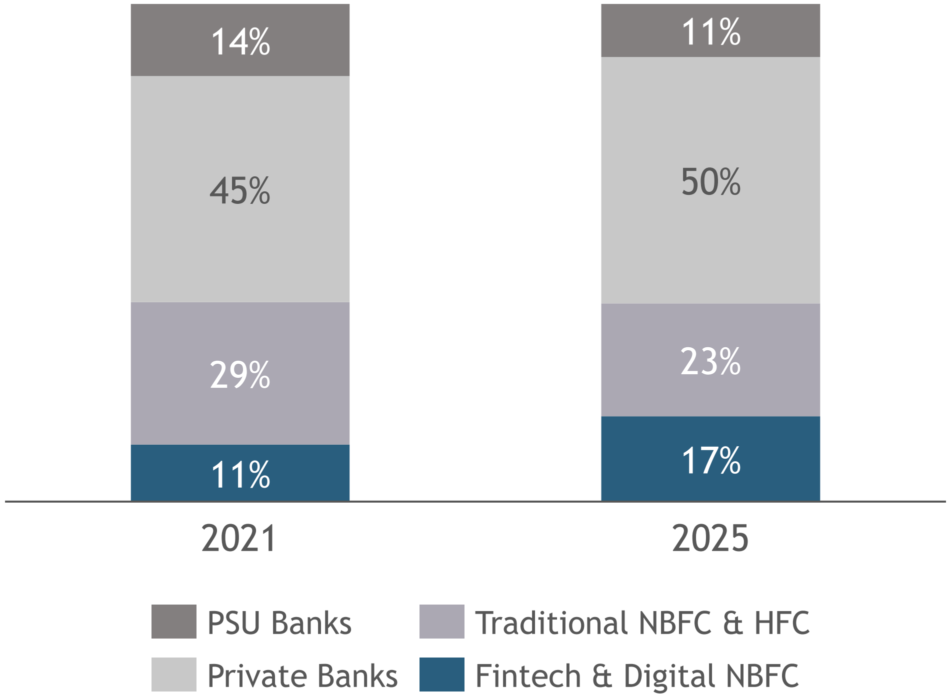
Telcos

- airtel
- Jio
- Vi

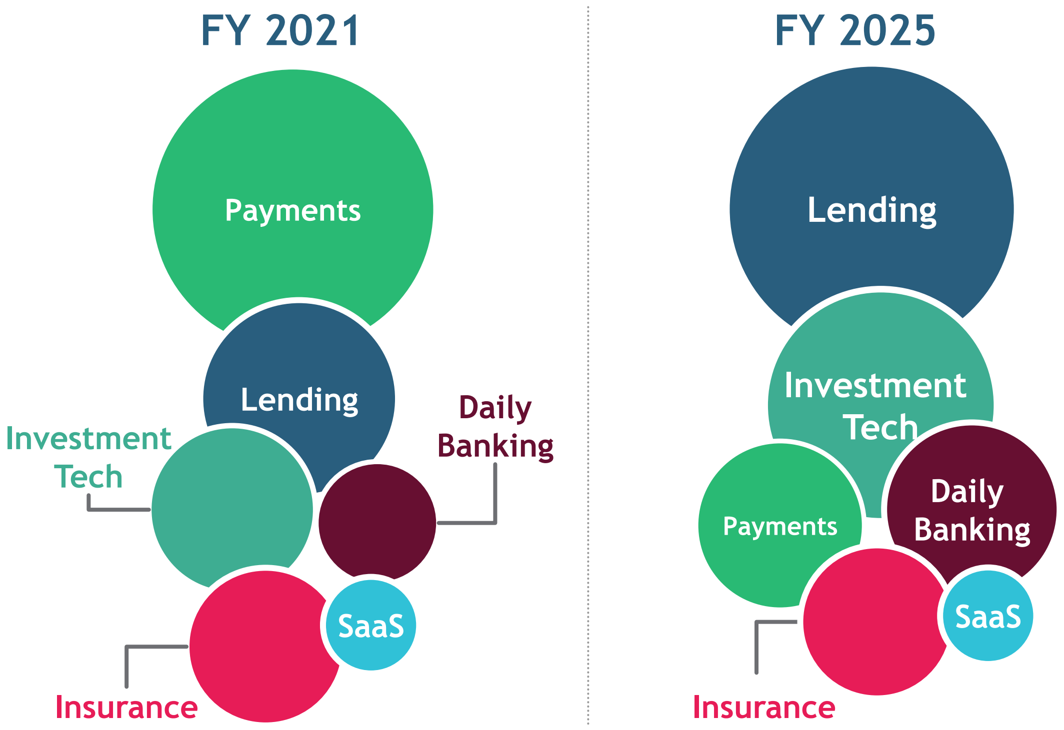
Source: Press Search, BCG Analysis

Pace and profile of value creation in Fintech and Banking is set to change dramatically as lending takes center stage from payments

Split of the market valuation for Indian banks vs. digital attackers



Valuation profile of Fintech to tilt towards lending & investment with level playing field in data



Note: In case of listed entities latest market capitalization is taken, for unlisted/fintech companies the valuation as per last funding round is taken for valuation; 2025 projections done considering the growth rates by segment and future trends expected
Source: Capital IQ, Press, Tracxn, BCG Analysis

Action agenda for banking industry

Unlock embedded finance potential

- Data driven SME finance
- Co-lending as a digital marketplace
- Lending@scale in RUSU with networks
- Digital corporate ecosystem solutions
- Extend e2e digital experience to secured credit

Build partnership business units

- Value based deal negotiation
- Align risk appetite, ops, tech
- Co-creation of customer experience
- Federated learning

Build Tech, AI and Digital Talent

- Tech & AI skills to match partners
- Design skills and vernacular content to engage mass market
- Unlock Fintech premium with holding co structure

Collective action as Industry

- Boldly promote and shape Open Network for Digital Commerce Platform (ONDC)
- Banking Industry Cyber Fusion Hub (e.g., FC3 Israel)
- Digital Financial Literacy campaign

Action agenda for government and regulator

FLDG & Co-lending

- Institutionalizing FLDG from 3rd party platforms with mandated capital requirements
- Reimagine co-lending as a digital market-place instead of 1-1 deal

Arbitrage between banks & LSP/PSP

- Prevent misuse of customer consent for unauthorized customer data capture
- Level playing field in customer incentive, e.g., Customer incentives by banks capped at INR 250

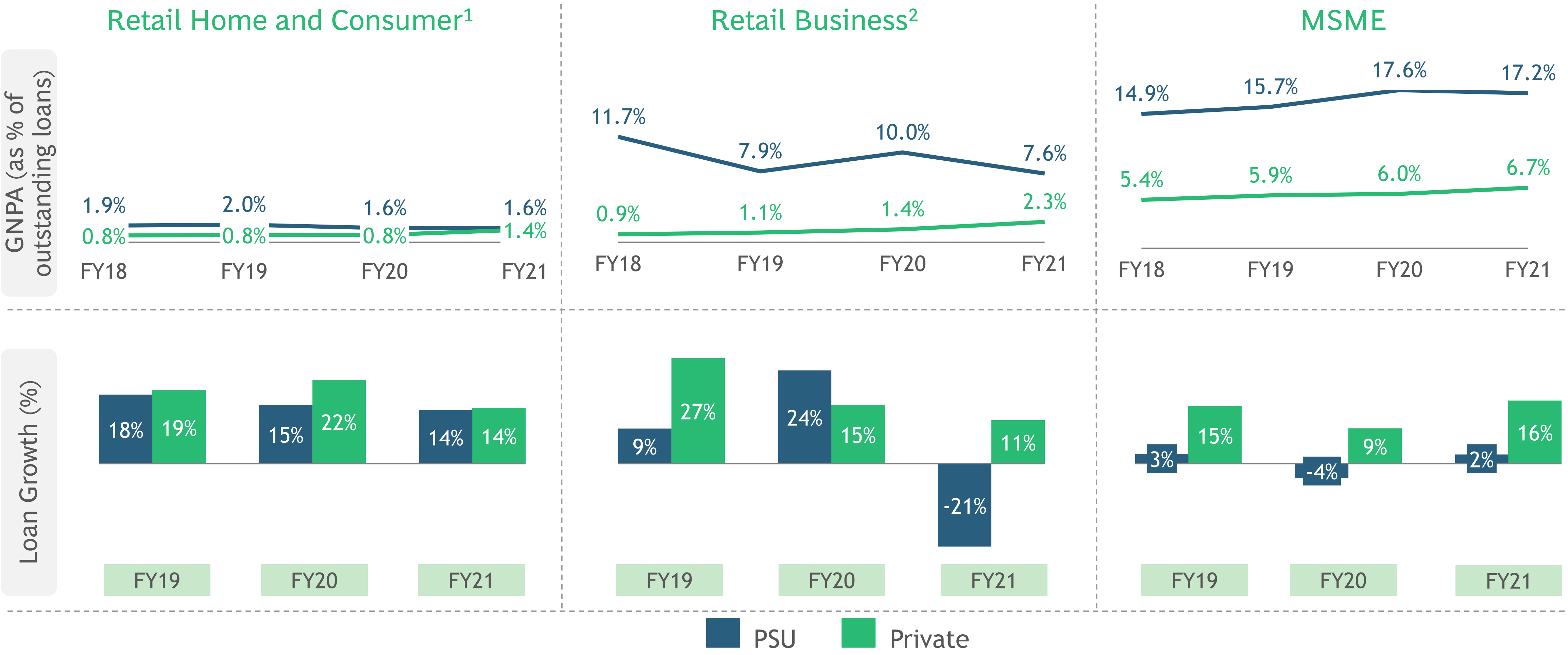
Digitization of secured lending

- Land and property records digitization
- Demat of bank FD to facilitate loan against any bank FD by any lender

Blockchain regulations

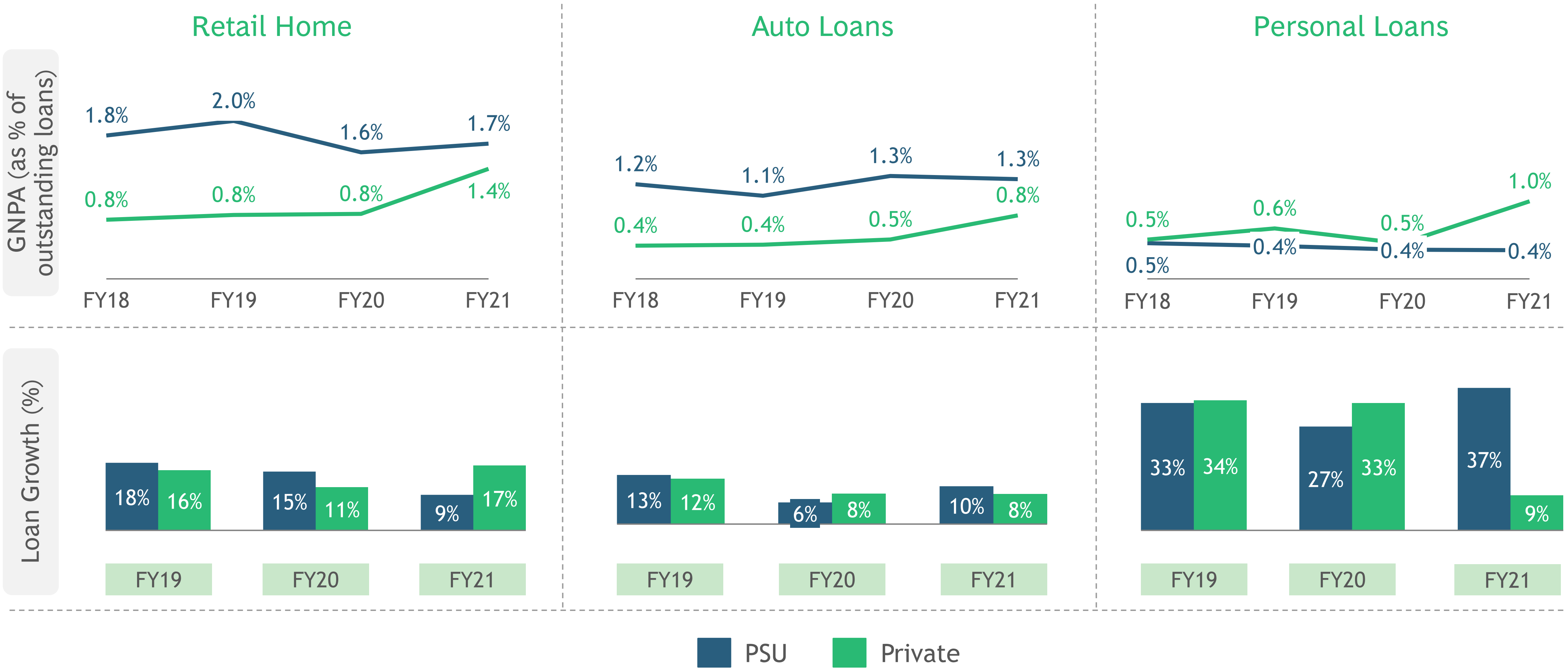
- Regulate blockchain on use case basis
- Facilitate block chain based NFT/wrapped asset token for rapid growth of fractional asset ownership by mass market

PSBs' impressive NPA performance in consumer lending is tribute to the formidable credit bureau; business lending needs entirely new capabilities



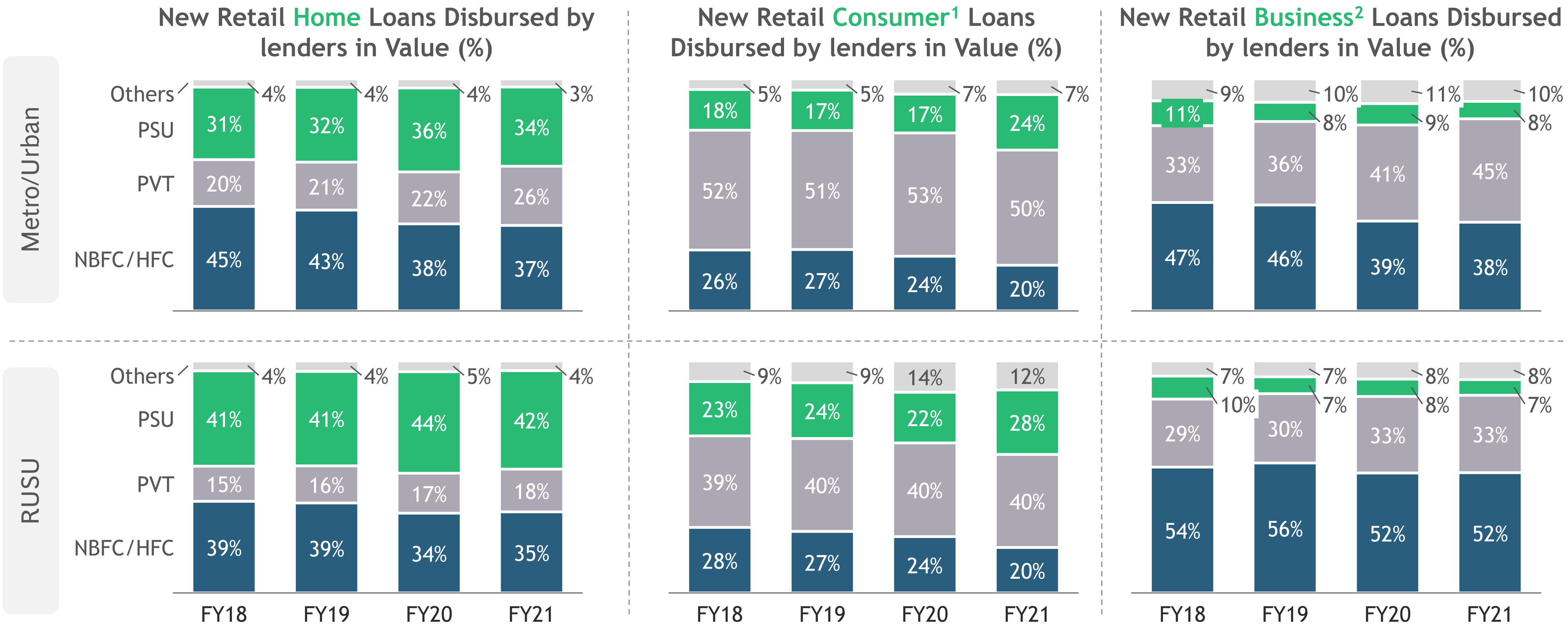
1. Retail Consumer includes Auto Loans, Personal Loans, Consumer Loans, Credit Cards, Gold Loans, Education Loans, Loan against deposits and loans against shares/securities 2. Retail Business includes Business Loans, Loan against Property, Commercial Vehicle and Construction Equipment Loans, Fleet card, Leasing, Loan to Professionals, Mudra loans and Overdrafts
Source: FIBAC Trends and Benchmarks 2021; BCG Analysis

Public sector banks has bridged the gap with private sector on consumer and home loans



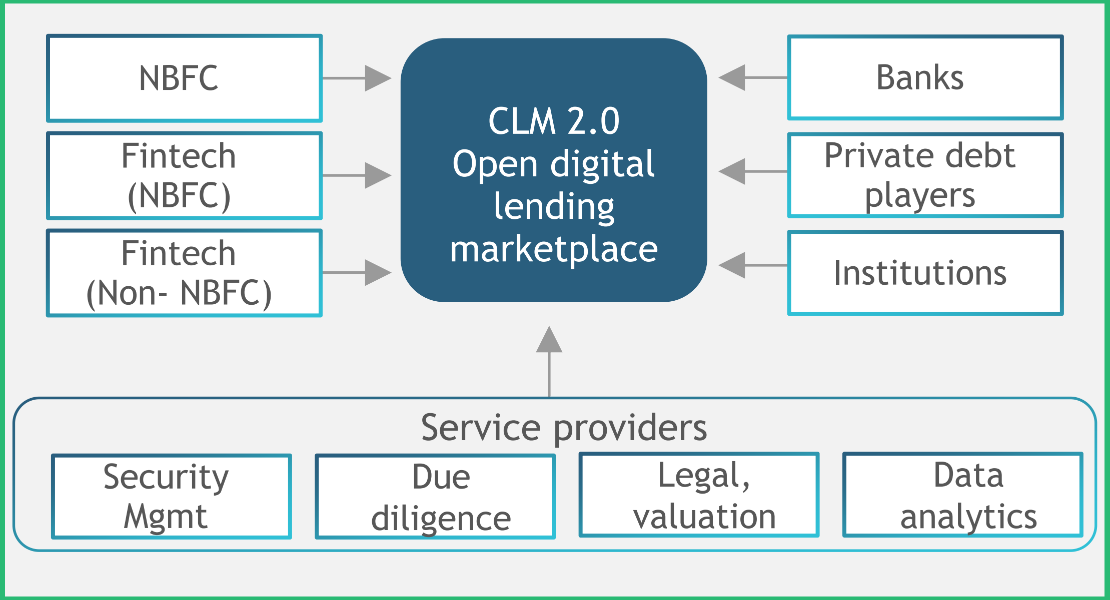
Source: FIBAC Trends and Benchmarks 2021; BCG Analysis

Public sector is losing share in small business lending; NBFCs should be natural last mile partners for reach & risk management



1. Retail Consumer includes Auto Loans, Two-wheeler loans, Personal Loans, Consumer Loans, Credit Cards, Gold Loans and MFI 2. Retail Business includes Business Loans, Loan Against Property, Commercial Vehicle and Construction Equipment Loans 3. Others include FinTech, SFBs, RRBs, MNCs and Co-operative banks
Source: FIBAC 2021; BCG analysis

CLM 2.0 : Co-lending should be envisaged as extension of OCEN for secured lending



RBI should set up a joint industry task force to define standardized protocols for

- Accounting, reporting and NPA recognition norms
- Data information standards; API protocols & interfaces
- Standardized process for Onboarding, Security creation, FLDG creation and enforcement, Collection and recovery
- Definition of metrics for loan appraisal and monitoring

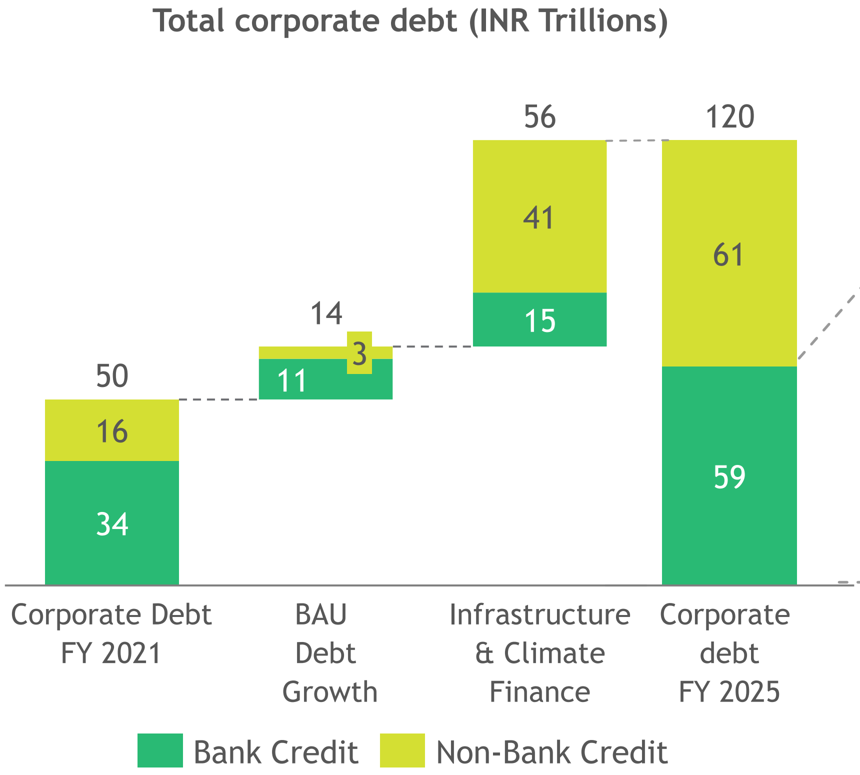
Institutionalize FLDG by 3rd party digital platform / LSP with appropriate regulatory capital

A Potential Scenario

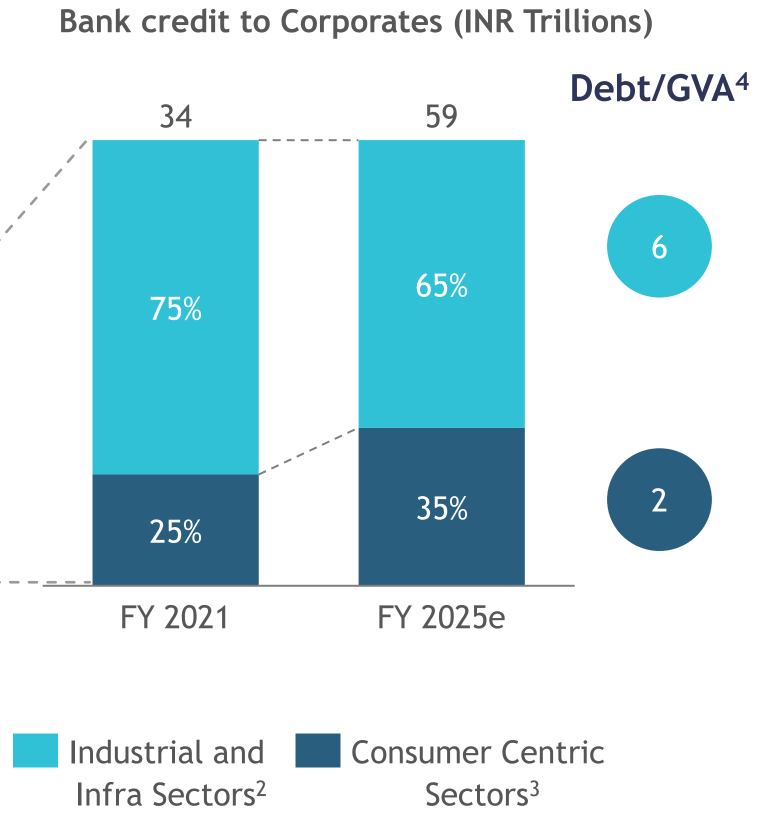
- Any entity acting as LSP to be eligible for NBFC (LSP) license
- NBFC LSP to be allowed to provide FLDG to balance sheet providers
- NBFC LSP to maintain capital as per defined guidelines

Corporate Bank 2.0: Banks need to pivot to sector specific, digital ecosystem solutions for industry with embedded finance

Banks will have smaller share of the massive investment in climate sensitive infra growth



Nature of demand served by the new corporate bank will be different



Banks would need to rethink their strategy to focus on sector solutions

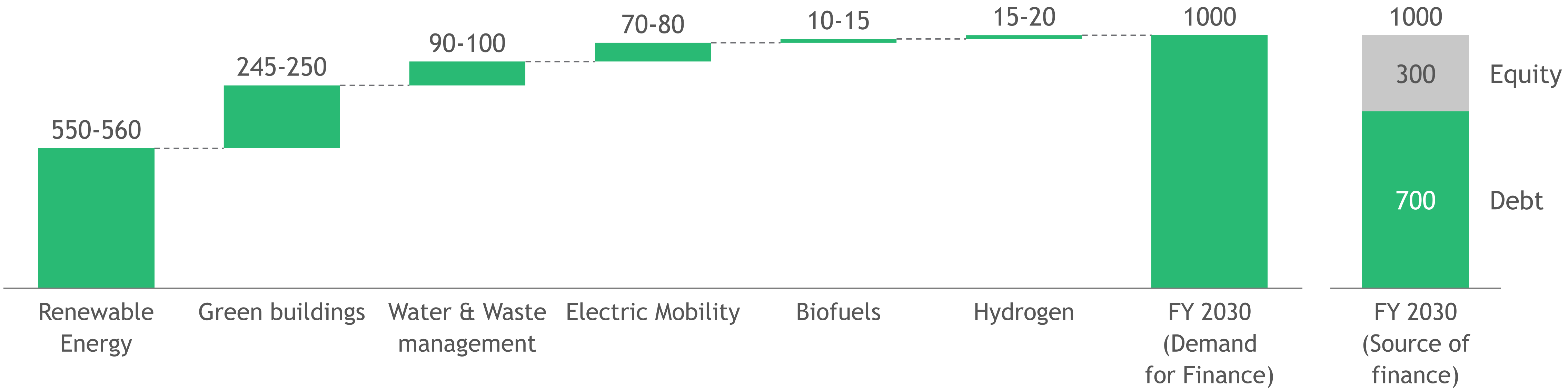
- Embedded finance solutions in corporate supply chain ecosystems
- Industry specialized mid office teams in "squad" models
- Creation of Industry ecosystem solutions that solve pain points in industry value chain
- Sector specialized credit process and risk models

1. National infrastructure pipeline
2. Industrial and Infra Sectors includes; Utilities, Real Estate, Materials, Industrials and Energy
3. Consumer centric sectors includes; Consumer staples, consumer discretionary, communication services, information technology & Health care
4. GVA = Gross Value Added; MoSPI data for GVA by industry and Debt in Debt/GVA indicates amount of bank credit taken by sector to generate GVA

Source: Capital IQ, RBI Sectoral deployment of the bank credit; Priority sector lending and lending to NBFC is not accounted for in the data, BCG Analysis

India's climate transition finance needs $1T investment by 2030 across sectors; primary burden to be on wholesale market

Investment required across sectors by 2030 (in billion $)



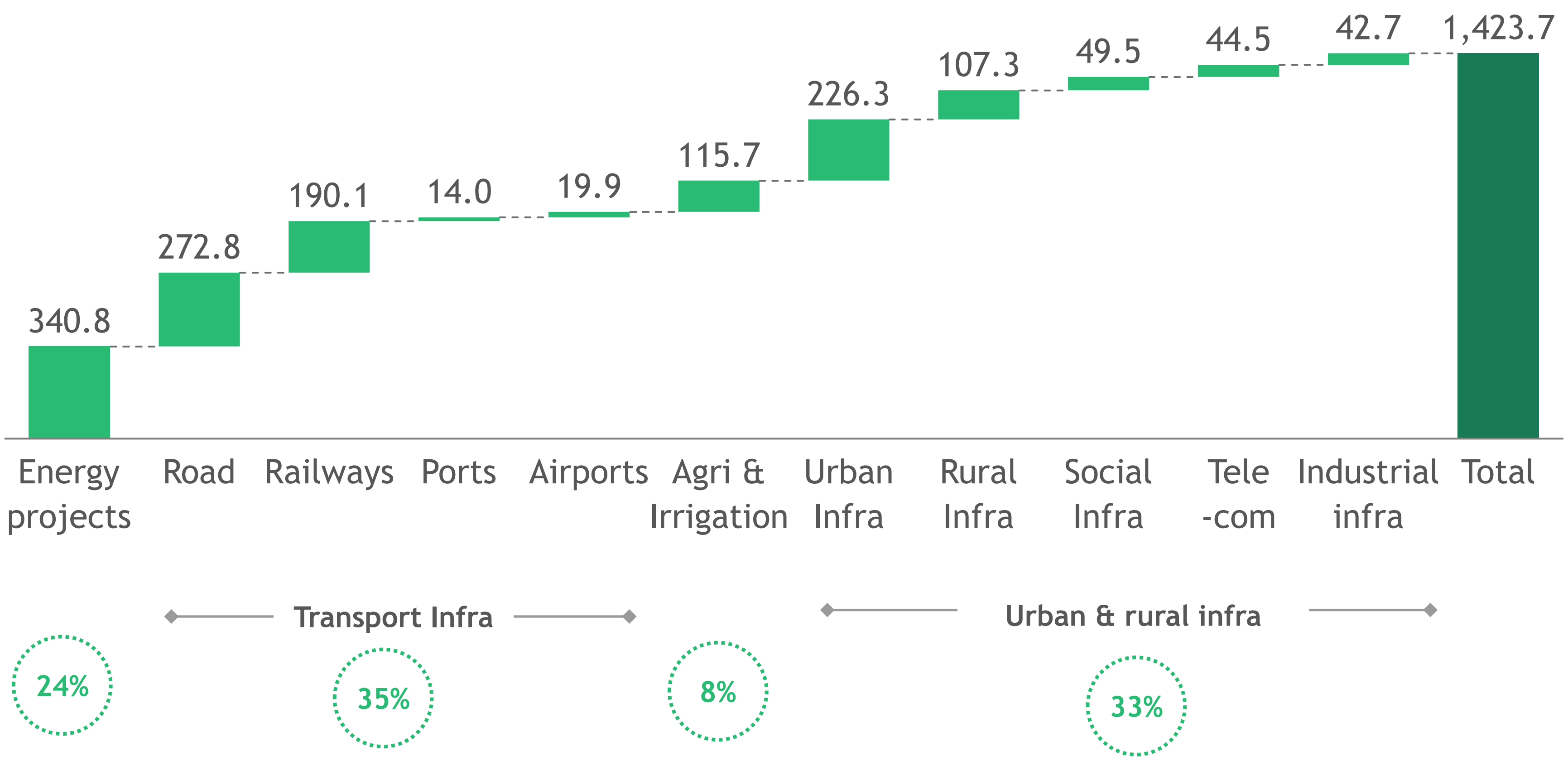
- RE Power plants
- Group captive
- T&D
- Solar panels
- RE Storage

- Vehicle production
- Battery production
- Charging infra
- Vehicle purchase

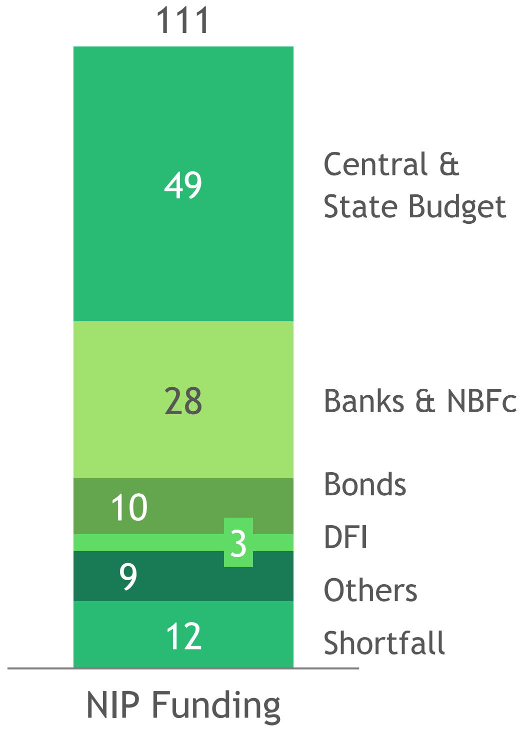
Source: IEA Energy outlook, IGBC, FAME, Ministry of Power, BCG analysis
Based on India's climate commitment on RE by 2030

India's infrastructure investment to be $1.4 trillion by FY 25; primary funding to be from wholesale market/public exchequer

Projects lined up under NIP ($ in Billions)



Sources of funds (in INR Lakh Cr.)



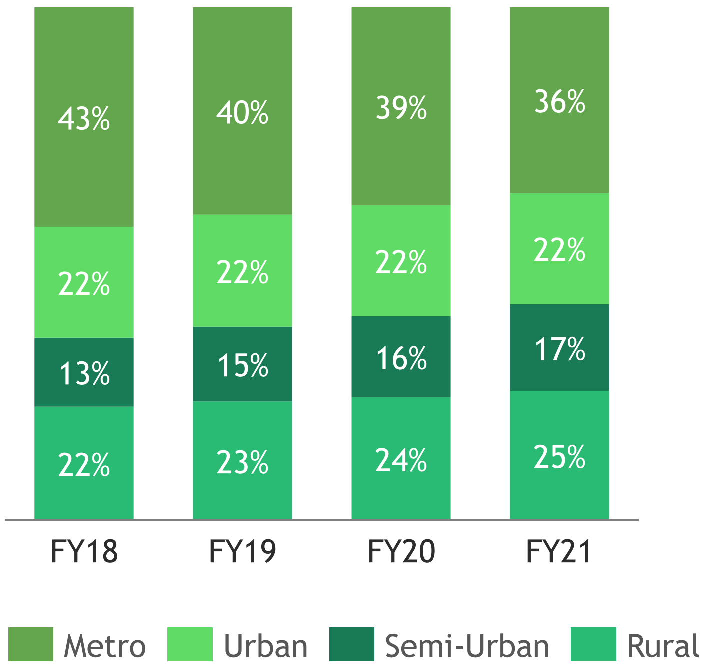
1.Rural Infrastructure includes rural housing, pipeline water, sanitation, rural roads 2.Urban infra includes pipeline water, slum rehabilitation, public transportation 3.Social infra includes schools, hospitals & colleges 4.Energy projects include conventional power, petroleum & natural gas and renewable energy 5.Phasing yet To be decided

Source: Taskforce on National Infrastructure Pipeline for 2019-2025, BCG analysis, Announced on 31 Dec 2019

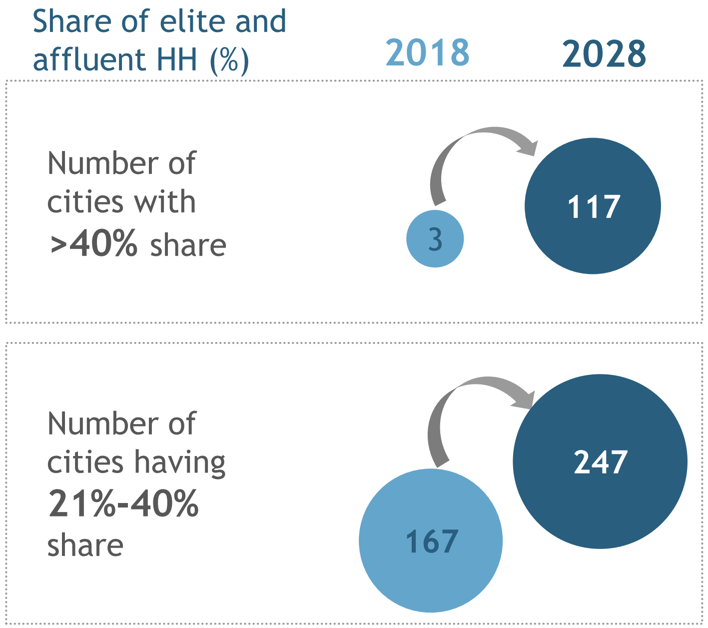
Increasing affluence beyond urban centers to increase latent demand for finance in tier 2 markets; early signs visible

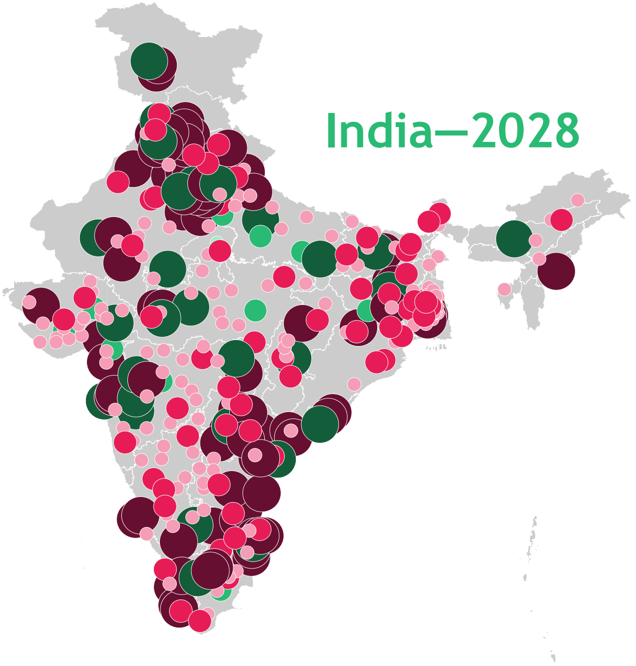
Disbursement in non agri retail lending in non-urban centers rising steadily

New retail loans disbursed by region in Value (%)



Growing affluence to accelerate demand for finance in Tier 2 and beyond markets





Share of elite and affluent HHs (%)

Metro and tier 1 cities: > 40 · 31 to 40 · 21 to 30

Tier 2 and 3 cities: > 40 · 31 to 40 · 21 to 30

1. Retail Loan includes Auto Loans, Personal Loans, Home Loans, Consumer Loans, Business Loans, Loan Against Property, Gold Loan, Credit Cards,, Commercial Vehicle and Construction Equipment Loans
2. Customer segments defined on the basis of Annual Household Income (AHI) Affluent (AHI$15.4K-30.8K), Elite (AHI>$30.8K)
3. Source: FIBAC Trends and Benchmarks; BCG analysis; CCI City Income Projections 2018, BCG CCI analysis

Range of rural platforms can be leveraged for "embedded finance" penetration in semi-urban India

Post network
(1200 mn+ customers)

Ration Shops
(**200 Mn+** households)

Payment Apps
(**150 Mn+** customers)

SHG Network
(**130 Mn+** members)

E-Commerce
(**120 Mn+** customers)

Village Milk Collection Centers
(**90 Mn+** dairy farmers)

AAA Health Cadre
(**19 Mn+** women)

Agri FPOs
(**1.5 Mn+** farmers)

(XX) Reach of respective aggregation points

Source: BCG Analysis

Success in embedded finance needs a comprehensive strategy and operating model

Embedded finance vision

Partner terms

Partner Selection
- Dominant vs regular players
- Multi-country vs local
- Scale & Exclusivity

Economics
- Fee vs risk sharing
- Loss leader ? (x-sell)
- Fit within risk appetite

Customer Ownership
- Who owns the customer
- Right/rules to cross sell
- Engagement model

Go to Market Choices

Product
- Lending –BNPL, Auto, Unsec, business lending
- BAAS – payments, collections, KYC, etc.

Policy & Risk
- Custom scorecard
- Standardized policy
- Recursive learning

Customer Experience
- Level of integration w/ partner journey
- Pre-Post purchase journey
- Broken journeys (off/online)

Support Set Up

Finops
- Process automation
- Fee reconciliation
- Exception management

Call centre
- Drop off management
- Dedicated partner support

Key Enablers

Technology
- API strategy:
- Plug and play kits
- Flexible IT standards

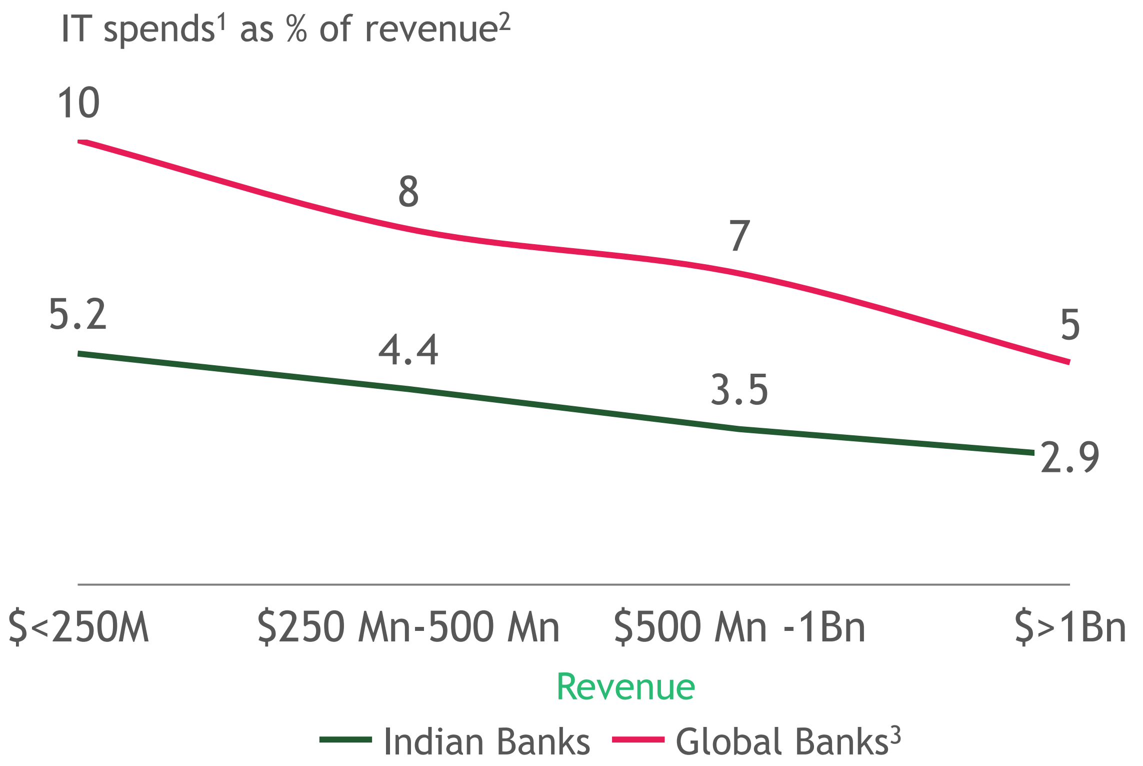
Federated Learning
- Data enrichment and Customer DNA
- Data mesh from diverse sources

Org & KPIs
- Central vs Country
- Dedicated team, SPOCs for tech, risk etc.
- KRAs/KPIs
- New talent, fail fast

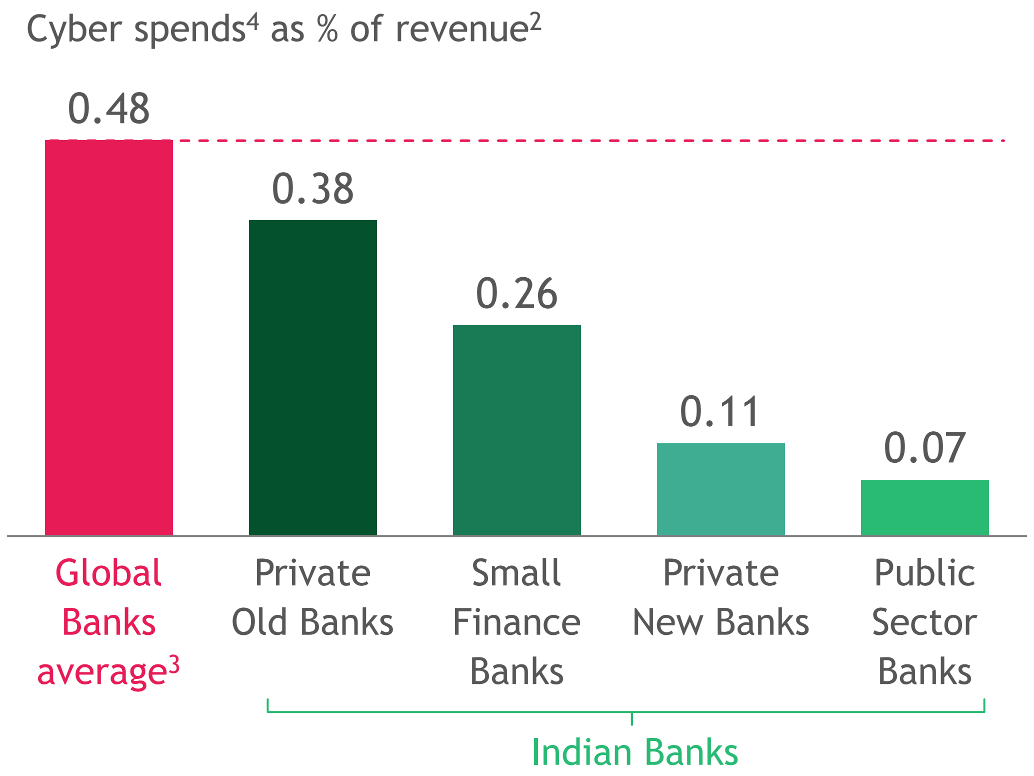
Compliance
- Regulatory
- Cybersecurity
- Country data regulations

Banks would need to up their tech and digital capabilities (I/II)

Total IT spends for Banks basis revenue size



Cyber spends for Banks basis lender category



1. IT Costs include Capital Expenses as well as Operating Expenses adjusted for depreciation and amortization; 2. Revenue is computed as Net Interest Income + Other Income; 3. Global benchmark includes banks and other FI 4. Cyber spends include total spends by bank to get protection from cybercrimes such as phishing, stalking, spamming, spoofing, hacking, ransomware attacks, and other physical and digital frauds that compel individual banks to secure their network and servers

Note: Analysis has been made based on 28 Banks

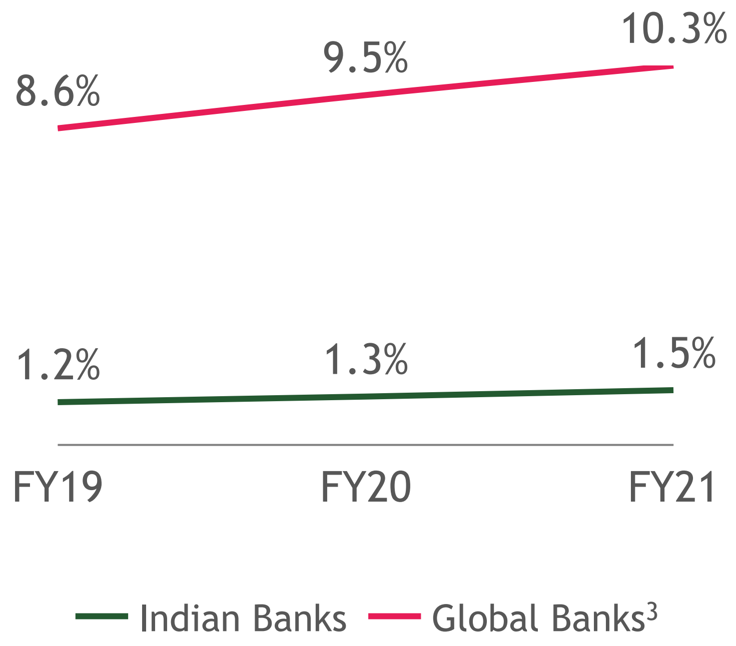
Source: FIBAC Trends and Benchmarks 2021, RBI, Capitaline, Annual Report, Gartner, BCG analysis

Banks would need to up their tech and digital capabilities (II/II)

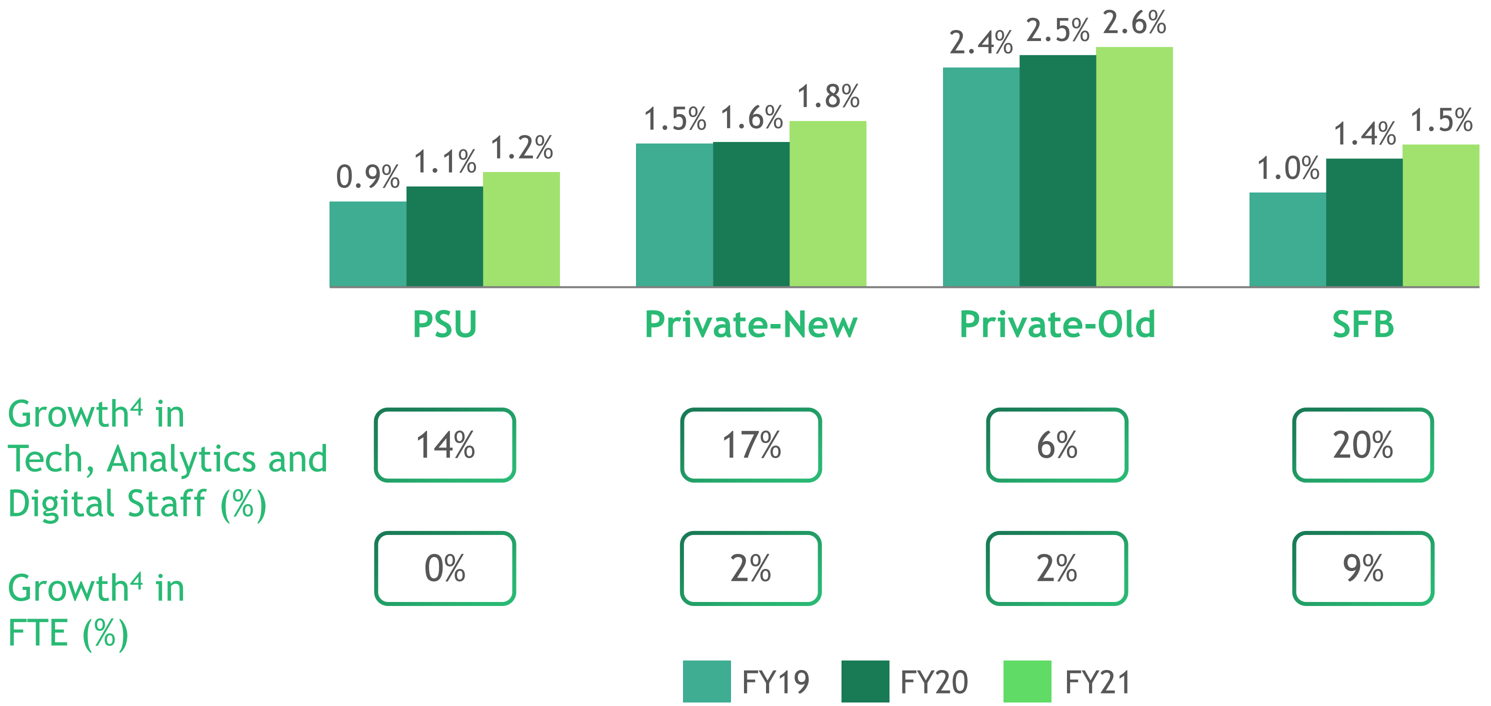
Tech, AI & Digital team needs to grow faster

Technology, Analytics and Digital Staff[1] by FTE[2] (%)

% Tech staff[1] for Indian & Global banks



% of Tech staff[1] basis Indian lender category



1. Staff includes MIS, Business Intelligence Unit and Analytics Staff, IT Staff (including data center staff), Digital Staff (includes Digital Marketing, Social Media Staff, Digital Customer Experience, Digital Design Staff, Digital Banking Channel Staff); These include inhouse as well as contractual employees but exclude outsourced employees 2. FTE are full time employees; 3. Global banks include banks and Financial Institutions 4. Growth of FY21 over FY20

Note: Analysis has been made based on 27 Banks: 11 PSU, 4 Private-New, 7 Private-Old and 5 SFBs

Source: FIBAC Trends and Benchmarks 2021; BCG analysis

Embrace holding structure that unbundles fintech premium embedded in valuation and creates vehicles to attract talent

Holding Company (Listed)

Unlisted

BaaS — BaaS

Traditional banking services
- Ring fenced regulated business
- End to end digitized
- Balance sheet & risk management

Consumer & Digital Financial Services
- LSP
- PSP
- Neo banking
- Securities
- Block chain token
- Consumer finance

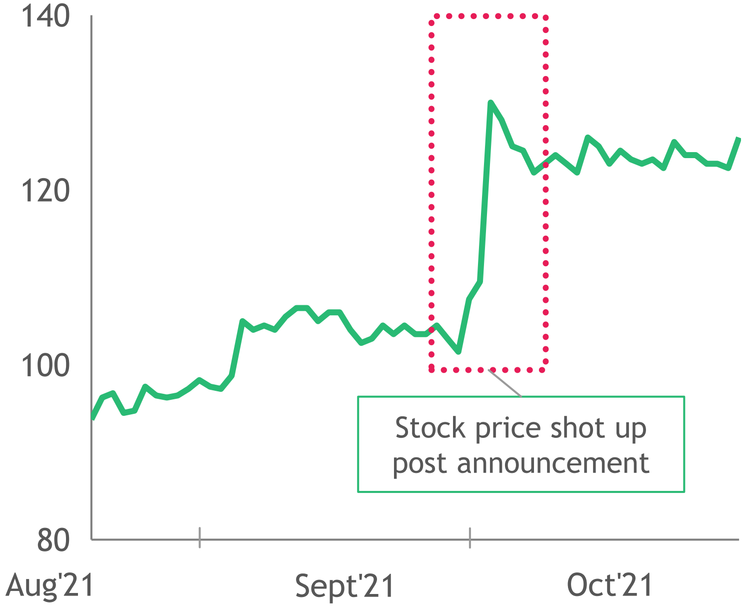
Digital Platform & Technology Services
- Ecosystem & marketplaces
- Technical services
- Industry supply chain solution/platform
- Platform as a service (PaaS)

Traditional banking services	Consumer & Digital Financial Services	Digital Platform & Technology Services
• Majority balance sheet	• Investors and strategic partners	• Specialized new talent • Distinct HR policies, compensation model & culture

Example: SCB

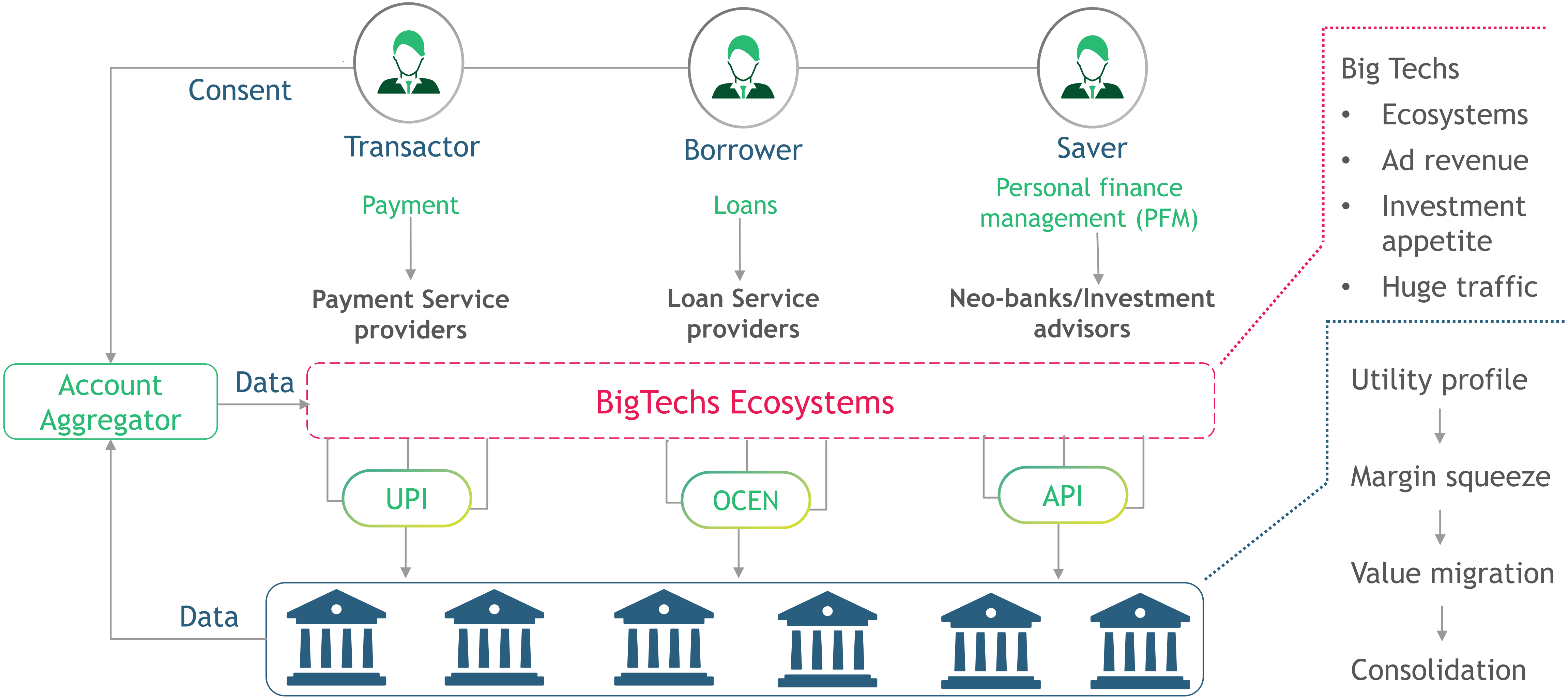
Siam Commercial Bank (Thailand) unlocked 30% value on announcement of new holding structure

Stock price (Baht)



Source: Siam Commercial Bank Special Analyst Presentation Sept 2021; Stock Exchange of Thailand (SET)

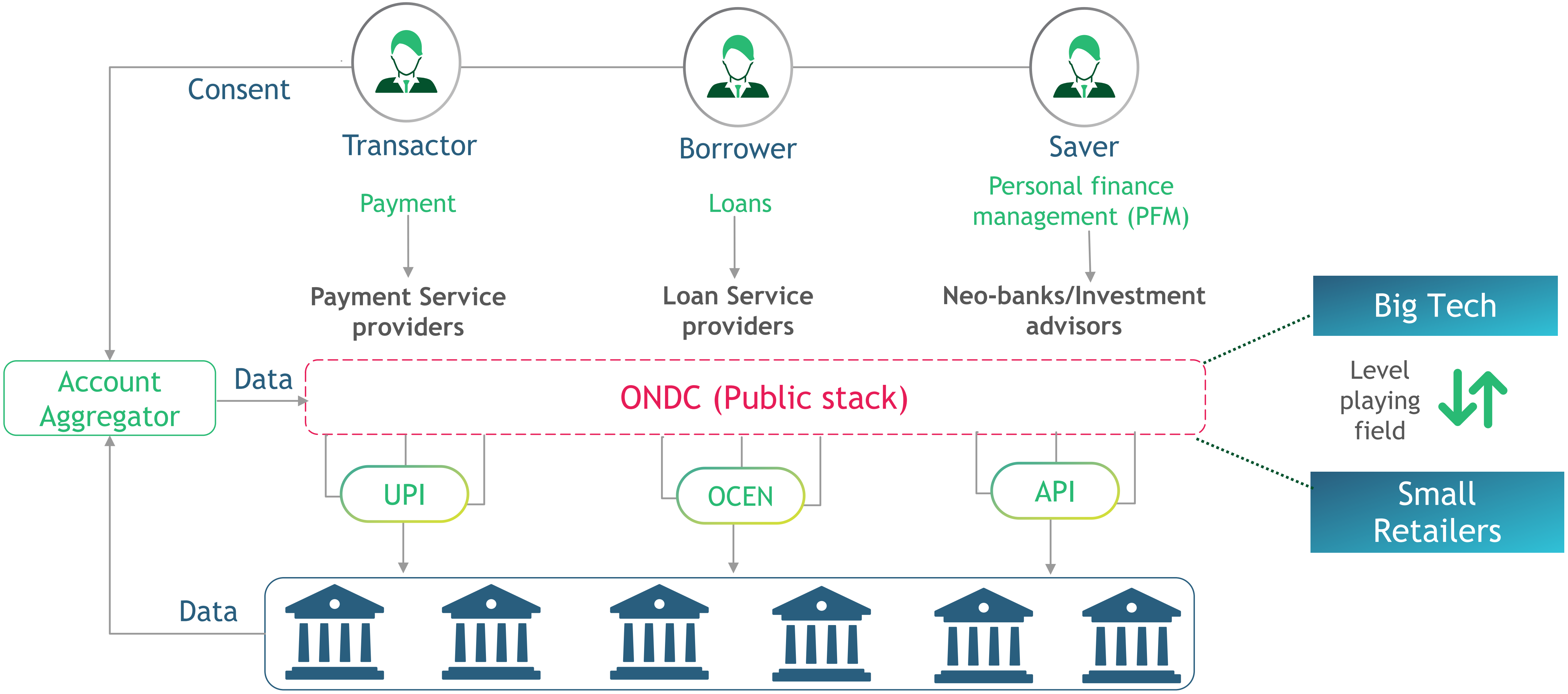
Could "BigTech" use open stack to capture customer relationships?



Source: BCG Analysis

Beat the open stack with an open stack

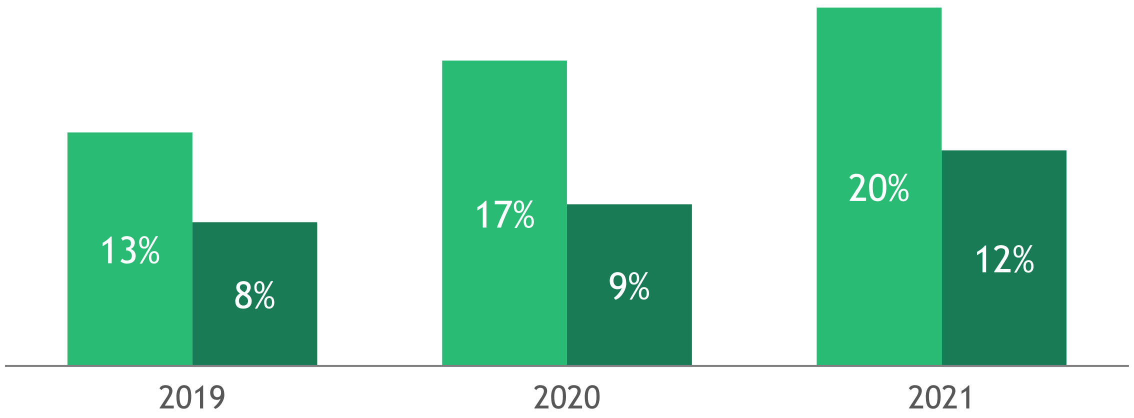
Banks should boldly co-promote Open Network for Digital Commerce (ONDC) public platform



Source: BCG Analysis

Need for higher digital financial literacy: Room to cover in digital adoption by mass market before we can rationalize branches @scale

Digital adoption rising but a lot of room to cover



% of active SB accounts holders that login to app

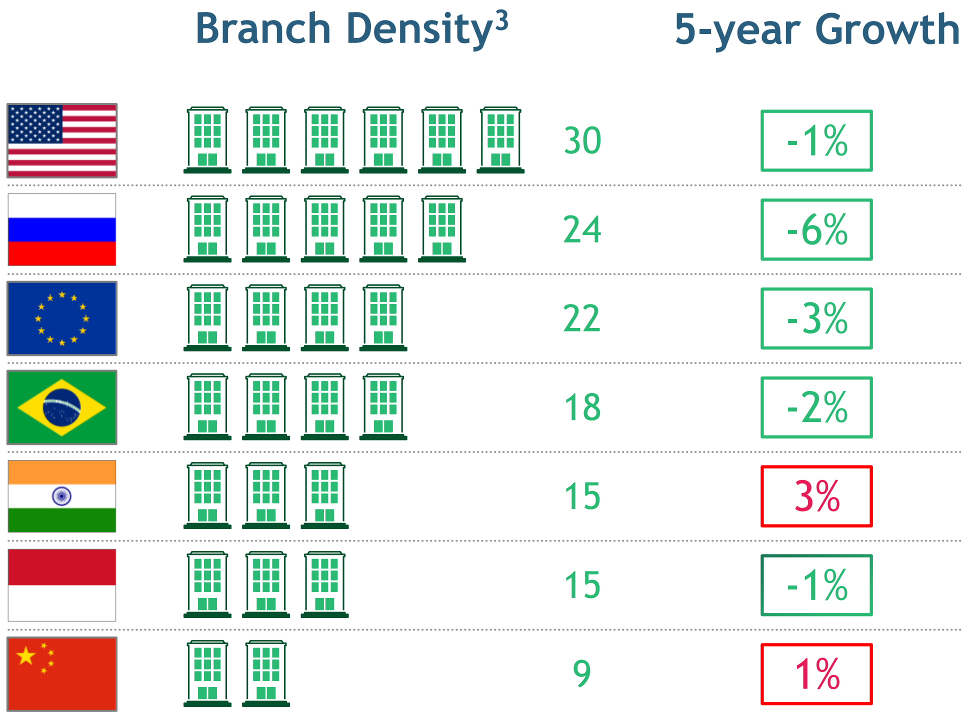
% of active SB accounts holders doing financial transaction on app

% of active savings bank account **NOT** using mobile banking app

87% Public Sector Banks

55% Private Sector Banks

India is the only large economy with rising number of branches; China to stagnate soon at branch density approx. 50% of India

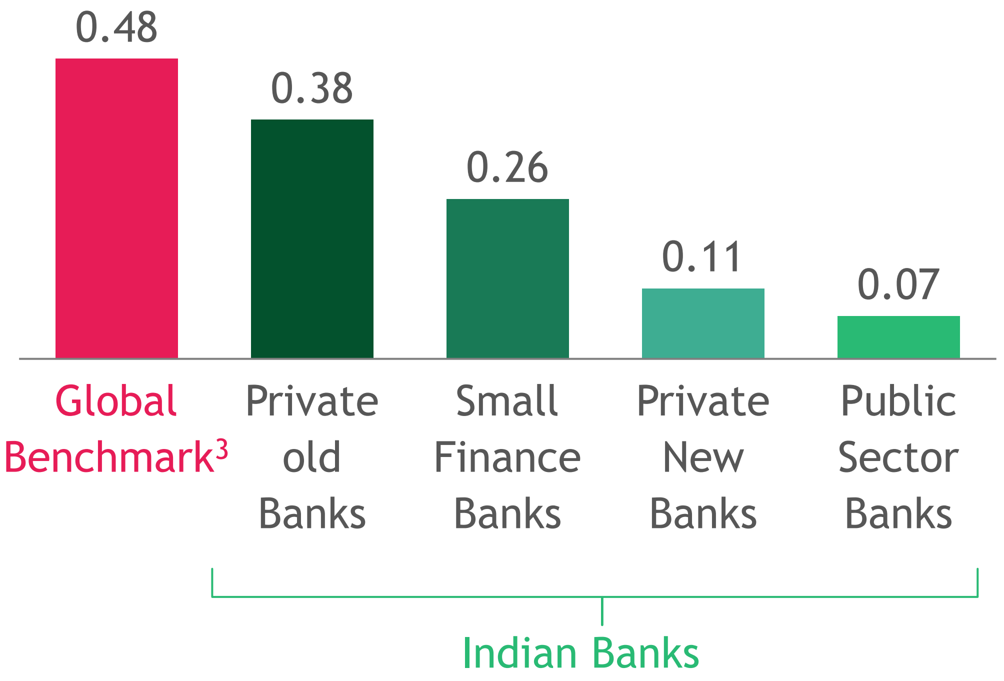


1. Accounts active on Mobile Banking defined as accounts with at least 1 login to Mobile Banking in the last 6 months (as of 31 March) ÷ active number of savings account
2. Financially active on a channel defined as at least 1 user initiated financial transaction in last 6 months (as of 31 March) ÷ active number of savings account
3. Branch density is number of branches per 100000 adults

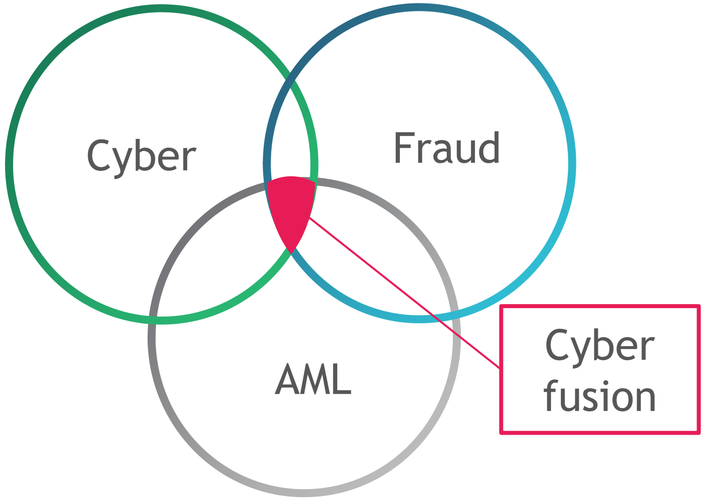
Note: Analysis has been made based on 27 Banks: 6 PSU-Large, 4 PSU-Medium 6 Private-New, 7 Private-Old Banks and 4 SFBs;
Source: FIBAC Trends and Benchmarks 2021; BCG analysis

Cyber threats are rising exponentially : “Cyber Fusion” approach is needed

Cyber spends[1] as % of revenue[2] for FY21



Cyber fusion—the required approach to put forward an integrated response

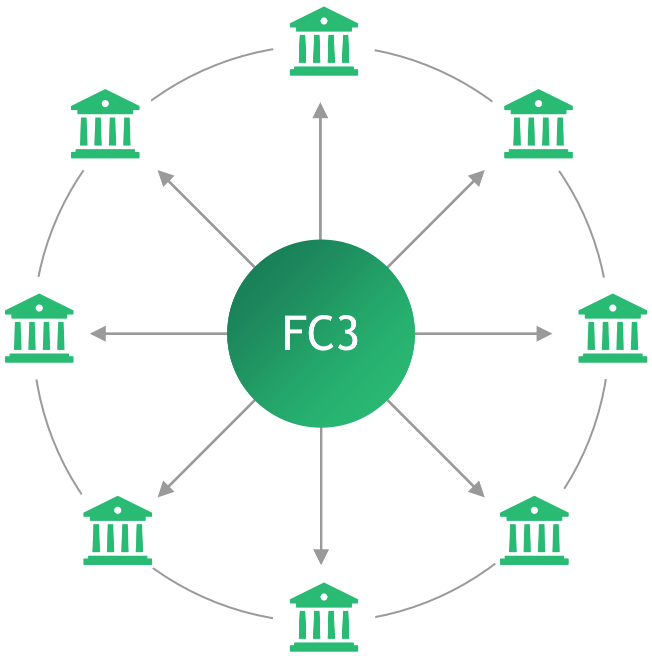


- Integrated and automated operations
- Multidisciplinary team
- Real-time data capture and sharing

1. Cyber spends include total spends by bank to get protection from cybercrimes such as phishing, stalking, spamming, spoofing, hacking, ransomware attacks, and other physical and digital frauds that compel individual banks to secure their network and servers; 2. Revenue is computed as Net Interest Income + Other Income; 3. Global benchmark includes banks and other FI Note: Analysis has been made based on 28 Banks
Source: FIBAC Trends and Benchmarks 2021, RBI, Capitaline, Annual Report, Gartner, BCG analysis

Israel banking industry set up a shared unit "FC3" to rally their collective might against cyber threat

FC3[1] Israel - A collaborative defense mechanism for the banking industry



- 01 Banks share information on frauds, cyber threats and attacks with FC3
- 02 Collaboration with worldwide FIs and data analytics at FC3
- 03 Proactive threat identification and issuing alerts
- 04 Tech assistance to patch vulnerabilities
- 05 Operate response team & provide incident handling

1. Cyber and Finance Continuity Center – A sub-center of the National Cybersecurity Emergency Response Team in Israel

Source: BCG analysis

Expedite digitization of land & property records to significantly smoothen secured lending

Digitally accessible property records

Easily verifiable, transparent and tamper proof records

Lower processing fees charged for customers (charged today as 0.5% to establish title chain)

TAT reduction through E2E digital customer journey

Source: BCG Analysis

Dematerialization of all financial assets will facilitate quick access to secured lending on 3rd party platform / LSP

Dematerialize all financial assets (e.g., Bank FD)

Develop platform and protocol for **interoperability** of dematerialized financial assets

Define **standard protocols** to mark lien on securities held in Demat form in real time from 3rd party platforms

LSPs/Financial institutions should be able to offer loans secured by financial assets basis lien marked in e2e digital format

Blockchain based Non-Fungible Tokens (NFT) enable fractional ownership of range of assets to democratize investment for masses

Art

Commodities

Debt

Currencies

Human Talent

IP

Invoices

Real Estate

Source: Press Search, BCG Analysis

Need comprehensive approach for blockchain to promote regulated development

Currency tokens

Threat to Financial system stability?

Stable coin and CBDC[1]

To be issued/ regulated by RBI

Wrapped Asset & NFT[2]

To be regulated by respective regulators, viz. SEBI, Forwards Markets Commission (commodities) etc.

1. CBDC – Central bank digital currency; 2. NFT – Non-fungible tokens

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