# INNOVATIVE PAYMENT SYSTEMS- CORE TO INDIA'S E-FINANCE REVOLUTION

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**Abstract**

*Innovative payment systems are core to India's e-finance revolution. India has adopted a different approach to that of China. e-finance's is the primary aim in India through financial inclusion. For India, the starting point of inclusion rests with changing peoples' cash usage habits. The government and the RBI are focusing on innovative payment systems to ensure financial inclusion by making it easier, quicker, and cheaper to settle payments via mobile phones, with the aim of encouraging a greater variety of savings options.*

*New consumers are likely to focus on flow (payment transactions) rather than borrowing or saving in banks/insurance/equities. All stakeholders (government, banks, and consumers) to benefit as mobile based payment systems introduced nationally – cash loses out. Mobile-based payments are set to receive a boost with IMPS and UPI, improving simplicity, and a wider customer base. The biggest change would be substituting cash transactions with e-money – ramping up financial inclusion. All stakeholders (government (better subsidy distribution), banks (higher transaction volumes), and consumers (ease and cost)), will benefit going ahead. e-money would be yielding a huge $ 15tn opportunity for various stakeholders. Private Banks are best positioned to leverage new technology.*

*This paper examines the likelihood of an e-finance success in India compared with China and how it may evolve going ahead. Researcher attempts to focus on key e-finance trends that are likely to accelerate over the near to medium term in India and the forces that are likely to drive this expansion.*

**Key Words:** e- finance, IMPS, UPI, Financial Inclusion

## Introduction

### E-finance – what is it?

Technically, e-finance is any financial product whose sale or consumption is facilitated electronically – or more specifically, via the internet. The 'e' part of e-finance is supposed to help reduce transaction costs, increase processing efficiency, and provide instant access to information. Some examples across the retail and corporate spectrum are identified below:

**Retail:** Being able to conduct a payment transaction on a mobile phone to a service/product provider without the physical exchange of cash, or being able to borrow from a bank via an online platform without any manual interface.

**Corporate:** Being able to purchase health insurance for their employees online, or shop for loans on the internet or settle payments with vendors/dealers through electronic payment systems.

### China's e-finance model – and why India is different

While the scope of retail e-finance expansion in India remains high given low financial savings penetration, the way it has developed and is likely to continue to develop in India is quite different to the e-finance path taken by China. China's e-finance model is spread across a wide variety of products and business models, which operate predominantly on an online-only platform. The key differences between the Chinese and Indian models, as well as product differences, are illustrated below.

**Table No 1: e-finance business environment: China vs. India**

| China | India |
|---|---|
| Online financial services already being used by 23% of the population | Only 53% of the population have a bank account; internet access is even lower (18% of the population vs. 49% in China). |
| Relatively loose regulation to help ensure credit reaches those not adequately serviced by large banks (especially individuals and small businesses). | While the aim of the regulator is similar (financial inclusion), regulations are tighter and only licensed entities are allowed to extend credit – banks, non -banks, Focus is more on capturing savings and transaction flows and microfinance companies. |

| | |
|---|---|
| e-finance participants are largely conglomerates with an extensive data reach. | Focus also extends to reach as well, but participants are licensed and re gulated e.g. payment banks promoted by telco operators. |
| e-finance participants have no branches or sales force and their products are entirely web based. | e-finance supplements the traditional banking activities of existing participants; no pure online model exists. Pure online models are currently not viable internet penetration and the lack of a robust customer database because of the low level of internet penetration and the lack of a robust customer database. |
| Chinese consumer habits are more adaptable/flexible to webbased modes of business. | Indian consumers' borrowing habits are more branch-centric given conservative lending practices and low internet penetration rates. |

**Table No 2: e-finance business models: China vs. India**

| China | India |
|---|---|
| Third-party payment companies – intermediaries facilitating online transactions. | Only licensed entities are permitted by the central bank to settle payments, offline as well as online. |
| Financial product distribution – selling money market funds, wealth management products, insurance products. | Given low income and savings levels plus a propensity to save in physical assets and bank deposits, penetration of other financial products remains low and hence e -distribution remains insignificant. |
| P2P lending platforms – connecting borrowers with lenders online, via mobile apps or via agents (offline); crowdfunding – a web-based model for small businesses to raise capital for specific projects from a large number of small investors took off in China in 2013-14. | Lending activities are only permitted by tightly regulated and licensed entities, effectively ruling out a 'true' P2P platform for financial activities. Most P2P platforms are for reward and donation crowdfunding rather than financial crowdfunding. The exchanges regulator – the Securities and Exchange Board of India (SEBI) – is planning to introduce crowdfunding regulations soon, for startups and SMEs. |
| e-finance banks: Operate purely over networks using big data and cloud computing, without the need for physical branches or cash services. | No such entity permitted as yet by the regulator. |
| e-finance insurers: Provide web-based transaction - related insurance services. Only one company so far in China with an e -finance insurance license. | Existing insurance companies can also provide insurance services online. The penetration rate of all policies sold online via insurance companies as well as aggregators is insignificant at 0.18% of total premia paid in 2014 including life, motor, health, a nd other products. The regulator has setup advisory panels to explore opportunities in the e - commerce sector for insurance. |

While internet penetration rates in India are way below that of China, mobile phone penetration rates are significant with 900mn mobile phones in India of which 150m are smartphones. This compares extremely well with other banking touch points in India such as bank branches (125,000), ATMs (180,000), point of sale (POS) machines for acquiring card transactions (1.1mn) and banking correspondents (0.4mn). In addition, based on inputs from our telecom team, researcher expects the 150 mn smartphones to grow to 400mn-500mn over the next 5 years positioning mobile based payments as the main method of settling transactions for all consumers (including those that are currently financially excluded).

**Objectives**

In this paper, researcher attempts to focus on key e-finance trends that are likely to accelerate over the near to medium term in India and the forces that are likely to drive this expansion.

**Research Questions**

The question is where is the starting point of this revolution? What will change to enable this sort of financial inclusion?

**Research Methodology**

The present study is descriptive study. The research takes into business models adopted in china and india for e-commerce and why business model of india is different from china. E-finance market is studied based on trends in physical saving and financial saving of households in india. The factors considered for revolution in financial inclusion are Jan Dhan Yogana policy, Aadhaar card issuance and Mobile payments.

The analysis is based on Secondary data collected from various organizational databases (Reuters, Euromonitor Passport), Company websites, newspapers, government agencies( RBI, World Bank, IMF, NPCI) and other necessary official records, monitoring industry news and developments by consultants, through access to paid databases & magazines. Besides Tables & Charts are used to present and analyze data.

**Findings/Results**

**The e-finance target market**

Since e-finance in essence revolves around financial products, it makes sense to look at the financial products

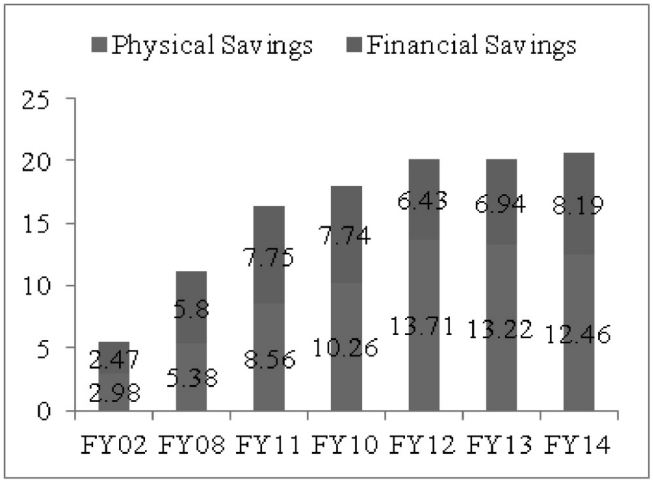
market and in particular how financial savings are channelled into various products by households in India.

**Table No 3: Split of financial savings trends for households in India**

| | 2002 | 2008 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|
| Financial Savings/GDP | 10.5% | 11.6% | 12.0% | 9.9% | 7.3% | 7.0% | 7.2% |
| Household Savings/GDP | 23.2% | 22.4% | 25.2% | 23.1% | 22.8% | 20.2% | 18.2% |

*Source: RBI, ICICI Prudential presentation*

**Chart No 1: Trends in physical vs. financial savings for households in India**




*Source: RBI*

The proportion of physical savings is relatively high (almost half of the total) highlighting the growth potential for financial savings. Most of these physical savings are in the form of real estate or gold. Even within financial savings, the mix of bank deposits is disproportionately high – and significantly higher than other instruments like insurance or equities.

There is strong evidence to suggest that there is a direct correlation between a rise in per capita GDP and a decline in the percentage of household wealth in physical assets like real estate and bank deposits over the past 20 years in countries such as the UK, the US, and Germany. The same could be true for Asia and specifically India.

Typically, these household savers would have at least one bank account, which they would use to carry out various transactions, payments, and investments. But, there is a large proportion of the Indian population (47%) which does not even have a bank account.

How can they be converted to potential savers? Will e-finance facilitate this process? The answer, researcher believes, is yes, but only over a longer period of time. The reason is that many of these households are in rural areas or the urban poor whose incomes are at or below subsistence levels and thus are net negative or zero savers. Additionally, poor access to bank branches and a tendency to deal in cash has resulted in many of them not having the need for a bank account. This situation could change quickly. How?

If these non-bank users

1) get access to bank accounts quickly, painlessly, and at a low cost,

2) find it's financially rewarding to substitute cash with electronic money for transactions, and 3) see the need to take advantage of the range of products offered by a bank vs. using more traditional methods of borrowing and transferring money, then there is some scope for them to formally enter the banking channel and use it consistently and productively. However, it is unrealistic to expect them to maintain savings in bank accounts and invest in financial products initially. Rather, they could be drawn to bank accounts for transacting and effecting payments provided it costs no more than their current means of doing business or is more efficient from a time perspective vs. their current methods. Hence, it is critical for banks and the government to understand this and attract them to banking channels by providing appropriately designed services bearing the above-mentioned characteristics of simplicity, flexibility, and low cost.

As a consequence, researcher sees three main beneficiaries initially as India's payment systems are revamped. 1) Banks will benefit from financial inclusion as they earn fees on the flow of payments transacted by new customers who are substituting cash with electronic money (however these are not expected to be very remunerative). 2) The government too will benefit (monetarily and socially) by disbursing subsidies in a monetary form directly to the bank accounts of beneficiaries resulting in a greater financial and social impact vs. having dual price points for subsidised goods, prone to leakages and inefficiencies. 3) The consumer will be the biggest beneficiary as payment systems are revolutionised via mobile-based technology, resulting in

greater convenience and improved savings via lower borrowing rates from banking channels vs. informal channels. Over time, as their income levels rise due to improving demographics, they will turn into net savers and potentially invest in instruments like bank deposits, insurance, and equities as well as be in a position to borrow money from the banks.

**Changes that will enable sort of financial inclusion-JAM trinity**

The changes that will enable starting point of this revolution are the three different things – known collectively as the JAM trinity – which are collaboratively catalysing financial inclusion:

**J = Jan Dhan Yojana**

(loosely translated to the People's Wealth Plan). In brief, this an initiative to increase financial inclusion by the Prime Minister by rapidly opening bank accounts for those without one and provide them with basic banking facilities including savings deposits, remittance, credit, health & life insurance, and pension. Between 23 August 2014 and 28 October 2015, 190mn accounts have been opened covering 80% of all Indian households. Combined, these accounts have a total balance of Rs 259bn which translates to an average balance of Rs1,400 per account – low by national average standards – but a significant beginning nonetheless. These new account holders will be incentivised to transact using these bank accounts as the government will credit subsidies (for those who are eligible) to these accounts, plus they will get a startup overdraft facility as well as health and life insurance linked to these bank accounts.

**A = Aadhaar**

(a unique identity number each Indian resident has/will have). This is a 12-digit number supported by biometric data (10 fingerprints and an iris scan of each eye) providing the government and various service providers (like banks) with a database that can be verified and authenticated in an easy and cost effective way online 24/7. As of 15 October 2015, more than 925mn Aadhaar cards have been issued covering 72% of the national population. The government can use this data to verify the identities of beneficiaries and directly credit subsidies to their bank accounts. Similarly, banks could use Aadhaar to run e-KYC online enabling instant verification for banking transactions, making 'single swipe/touch' mobile transactions the defacto method to settle small payments rather than cash (e.g. payments for taxis, newspaper vendors, groceries).

**M = Mobile phones**

With more than 900mn mobile phone subscribers in India, of which 150mn are smartphones, the time is right for retail transactions to migrate to this medium. With the growing success of the Immediate Payment Service (IMPS) system launched by the National Payments Corporation of India (NPCI), the use of mobile phones as a method for making frequent payments is gaining traction. In addition, over the medium term if the Aadhaar database is to be leveraged effectively for such transactions, mobile phones will need to capture biometric data from the user to enable online verification. One method is to capture fingerprints and an alternate method would be to use the phone's camera to capture iris scans. It is essential that these capture mechanisms are low-cost and practical to use for all users.

However, researcher expects this to take shape over the next 3-5 years. The hope is that all three components of this JAM trinity will create a significant impact on mobile banking transactions once they reach a critical mass. Right now, however, bank accounts as well as smartphones are lagging the number of Aadhaar cards in circulation although this is still a good starting point using the IMPS settlement system.

Getting into the details, researcher looks at the potential market size for e-finance starting with e-payments, moving on to e-credit, and finally on to e-wealth (including equities and insurance). Clearly, e-payments remain the biggest opportunity over the near to medium term until wealth levels rise leading to savings and investment opportunities.

**Payments: Overview and the way forward**

**Payments – A brief background**

RBI data gives a good overview of how payments are currently settled in India today. In terms of value, the total value of payments settled in India in FY15 was US$25.8tn, growth of about 11% y-o-y. Wholesale payments dominate at 90% of all payments by virtue of corporate and interbank payments. If we set aside this fact for the moment and focus on the whole retail pie

(US$2.7tn in FY15), it is fairly predictable to see that paper-based payments (i.e. cheques) dominate the pie at about half of all retail transactions. However, the second largest share consists of electronic payments (37% share) dominated by National Electronic Funds Transfer

(NEFT) which are payments made by users via internet banking and settled in batches during the day offering a near real-time, online clearing mechanism. The third largest share of settlements is via cards (14% share) – credit and debit – of which the majority (87%) of transactions are debit card transactions done at the ATM – presumably mainly for cash withdrawals. Mobile banking remains insignificant at 6% market share.

However, in terms of incremental trends researcher see that paper settlements are rapidly being overtaken by electronic payments. Within electronic payments, the key is IMPS, which is growing rapidly and likely to see further acceleration after the launch of Unified Payments Interface (UPI) in 2016, as described in more detail below. IMPS provides users with the facility of instant transfer and settlement 24/7.

If we look at transaction volumes (as opposed to value), cards dominate with a 70% share of retail settlement volumes followed by electronic clearing with 14%, and paper-based at 10%.

In terms of the size of each settlement, the most relevant remains paper-based clearing where the average value per transaction is the highest at Rs 71,000 followed by electronic clearing at Rs 39,000. Surprisingly, mobile payments at Rs 6,000 is higher than the average card transaction value at Rs 3,000. Even IMPS – a fairly recent technological advancement – has average transaction values of Rs 7,000 – more than double that of cards.

**Table No 5: A summary of volumes and value as well as per transaction amount is detailed below.**

| | Volumes (mn) | Value (Rs bn) | Per transaction amount (Rs) |
|---|---|---|---|
| Mode | FY15 | FY15 | FY15 |
| Paper clearing | 1,197 | 85,434 | 71,403 |

**Table - 4 Market share of total retail settlements**

| | | |
|---|---|---|
| Paper clearing | 10% | 48% |
| Retail electronic clearing | 14% | 37% |
| Cards | 71% | 14% |
| Prepaid payment instruments | 3% | 0% |
| Mobile banking | 1% | 1% |
| Total | 100% | 100% |

*Source: RBI*

**Pros & Cons of various retail payment methods**

Clearly, paper clearing is a less efficient way to settle transactions. Even for people with bank accounts it is inconvenient to carry a chequebook around everywhere. Personal cheques are largely not accepted at several points of payment including stores as they are not settled instantly and carry the risk of insufficient balances of the payer. However, high value payments are generally carried out using cheques, although NEFT (electronic transfers) is rapidly catching up.

NEFT remains the main method of electronic transfer, which is typically settled the same day. The average value per transaction as well as total value of NEFT transactions in FY15 is very similar to those settled by cheques, which suggests that forms of electronic payment are gaining popularity.

Card-based settlements (credit and debit) appear to be very popular based on their share of transaction volumes at 70% but have not really picked up in terms of value, stagnating at 12- 14% share over the past 3 years. Even average values settled appear on the low side at Rs3,000. The majority of transaction volumes and values are for debit cards used at ATMs (presumably mainly for cash withdrawals).

The highest growth rates, however, are seen in mobile banking (currently only 1% share) and IMPS within electronic channels (less than 1% share) but with incremental share of 6% and 4%, respectively, researcher feels this is indicative of the trend going forward.

**The way ahead – substitute cash**

Researcher summaries the above that retail payments, which offer quicker settlement and are convenient to execute, are likely to gain market share going forward.

However, rather than cannibalise existing methods of settlement, the regulator's and the government's aim is to increase the size of the overall pie by targeting users who are not yet part of the formal system and still rely on making payments in cash. If one looks at data on retail transactions carried out in cash vs. other channels; there is a significant skew towards cash at 87% (2012 data).

**Table No 6: Retail transactions in India**

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|
| Cash transactions | 90.6% | 90.0% | 89.7% | 89.5% | 87.9% | 86.6% |
| Other retail trans. (card, electronic, paper) | 9.4% | 10.0% | 10.3% | 10.5% | 12.1% | 13.4% |

*Source: EuroMonitor Passport*

If we compare India with other emerging markets, we see further evidence of India's high cash intensity as the proportion of notes and coins in circulation is more than double that of other nations.

**Table No 7: Notes and coins in circulation as a % of GDP**

| | |
|---|---|
| India | 12% |
| Mexico | 5.30% |
| Brazil | 3.90% |
| South Africa | 3.70% |

*Source: IMF International Financial Statistics, 2013*

**Table No 8: Estimated size of retail transaction market**

| | FY13 | FY14 | FY15 |
|---|---|---|---|
| **(Rs bn)** | | | |
| Formal channels | 150,640 | 163,637 | 177,464 |
| Cash | 1,124,178 | 988,737 | 1,005,627 |
| **Total** | **1,274,818** | **1,152,374** | **1,183,091** |
| **%mix** | | | |
| Formal channels | 13% | 14% | 15% |
| Cash | 87% | 86% | 85% |
| **% y-o-y** | | | |
| Formal channels | | 9% | 8% |
| Cash | | -12% | 2% |
| **Total** | | **-10%** | **3%** |

*Source: RBI, EuroMonitor Passport*

Unsurprisingly, users in urban areas still prefer to settle their payments in cash partly due to tradition and partly due to a reluctance to change; however, in rural areas, the main reason for using cash is because of the lack of convenience or access to formal channels. Even within urban areas there is a section of the urban poor – low-income service providers – who remain financially excluded. It is this segment of the population that the government is looking to include into formal banking channels.

Combining the above data and analysis, even if 20% of the current cash market converts to formal retail payment channels, it would effectively double the size of the latter. Another way to look at the potential market for electronic payments is the currency in circulation by denomination.

**Table No 9: Currency in circulation, FY15**

| Denomination (Rs) | Vol (mn pcs) | Value (Rsbn) | % by vol | % by value |
|---|---|---|---|---|
| 2 and 5 | 11,672 | 46 | 14% | 0% |
| 10 | 30,304 | 303 | 36% | 2% |
| 20 | 4,350 | 87 | 5% | 1% |
| 50 | 3,487 | 174 | 4% | 1% |
| 100 | 15,026 | 1,503 | 18% | 11% |
| 500 | 13,128 | 6,564 | 16% | 46% |
| 1000 | 5,612 | 5,612 | 7% | 39% |
| **Total** | **83,579** | **14,289** | **100%** | **100%** |

*Source: RBI*

An interesting statistic is the number of times cash is turned over in the economy annually.

Combining the above-mentioned data for FY15, the total currency in circulation of Rs14.3tn was turned over about 70x in one year to arrive at total estimated cash payment settlements of Rs1,005tn.

According to the central bank, the 10 Rupee note in circulation is the highest in terms of volume, about a third of all notes in circulation. It happens to be one of the most commonly used currency notes for cash transactions particularly in rural areas where financial inclusion is minimal.

Accordingly, this could be perceived to be the initial target market for digitisation of cash starting with the Rs300bn worth of ten Rupee notes. Assuming a similar

turnover of 70x, the potential market size implied would be about Rs21tn or about 11% of the total retail transactions in India – almost equivalent to the size of card transactions settled – not small by any standard.

**Other interesting statistics further support the move to electronic payments:**

- According to Nandan Nilekani – the ex-CEO of the Aadhaar project – initiated by the government and a key driving force behind the UPI system, e-commerce should grow about 4x in 5 years. Further, he expects 40% of e-commerce payments, which are digital today, to increase to 80% in 4 years, implying that digital e-commerce has the potential to increase 8x in 4-5 years.
- There are 900mn mobile phones in operation in India today for which recharge is done at an average of Rs 25 four times per month. The industry estimate is that there are 3.0bn-3.5bn mobile recharges happening per month of which only 3-4% are done digitally (via e-wallets). As the ease of payments from digital wallets in mobile phones increases, this 3-4% is likely to grow exponentially.
- The government's direct benefit transfer (DBT) program is already seeing 3m transactions per day occurring for LPG subsidies alone, equivalent to about 1bn transactions per year reaching 120m customers, saving the government Rs150bn. If other subsidies (kerosene, food, electricity, and water) are included, that 1bn transactions could rise to 4bn transactions annually resulting in total savings of Rs 3tn or US$50 bn per year.

This is a significant potential market for the government, the regulator, and banks to tap. Thus, the NPCI – the umbrella institution for retail payment systems – has launched the UPI, which is undergoing testing currently and a formal launch is likely in early 2016. Researcher believes that UPI is likely to revolutionise retail payments in India over time as it relies on Aadhaar data for quick transaction verification and account authentication.

**UPI – the upcoming revolution**

The UPI payment architecture facilitates 2-factor authentication of payments in a single click/swipe on mobile phones using biometric data already available in the Aadhaar database.

This would satisfy the requirements of simplicity, flexibility, and low-cost for potential e-finance users who are currently outside the banking system. In a way, this system would work similar to how the "Apple-Pay" system currently works in the US where users swipe their mobile phones to pay for various retail transactions. However, UPI has the added advantage in that it works across mobile phone hardware and different operating systems.

Why will UPI work? Simply put, mobile phones are ubiquitous, so too are Aadhaar id's, with the government having already opened 190m new bank accounts – or in other words, because of the enabling environment created by the JAM trinity.

**Key features of UPI**

- **Simplifying authentication:** One-click 2-factor authentication possible using mobile + any other factor (password, PIN, biometrics- no data entry). Since the mobile no. is bound to the device there is no need for a mobile-based password.
- **Ability to use mobile phones as a primary device for all payments -** P2P, C2B, B2C. Benefit: Lower cost as password/PIN architecture is not required
- **Ability to use mobile phones for both payments (push) and collect (pull) transactions,** including facilities like snooze until 'pay by' date. Benefit: Increases scope of use for regular payments like ECS (backbone of an automated electronic bill payment service).
- **Payment details need not reveal bank or individual details** but could simply be an alias (virtual address), email id or a mobile number residing in the payer's address book. Benefit: Enhanced security.
- **High interoperability** across all payment players, all mobile phones and OS - (JAM trinity of 1bn).

Thus, it is quite apparent from the above that executing a payment instruction on a mobile smartphone is likely to be a much simpler affair than the current procedure where 2-factor authentication involves entering 2 verifiers. Additionally, UPI ensures that the user can set up multiple aliases and need not reveal his/her personal/bank details. For every transaction, the first factor authentication is the mobile phone number itself thus eliminating the need of an SMS-based password. The second factor authentication could capture the user's biometric

information, such as an iris scan or fingerprints thus providing the user with a touch-less, simple 2-factor authentication as this biometric data is verified against the Aadhaar database online.

Besides allowing quicker payment settlements to merchants, this technology can facilitate person-to-person money transfers as UPI allows interoperability between wallets and bank accounts, which is not possible in the current setup. However, for this to be successful there has to be sufficient cash-in/cash-out points to enable conversion of money from digital to cash and vice-versa quickly and conveniently. This infrastructure is likely to be set up by the new payment banks that have recently been licensed, especially the telco operators, who have a large number of touch points across the country that can be converted to cash-in/cash-out points.

However, taking a more radical view of things, every person has the potential to become a cash-in/cash-out point (e.g. if somebody is out of cash they can request their neighbour to Provide them with some physical cash and simultaneously transfer digital money to their Wallet/bank account).

However, given that UPI is dependent on hardware acceptability and also users' willingness to link up their Aadhaar details with their bank account (which is fairly lax), it will take time for the above to become reality. Meanwhile, IMPS is already a reality where something similar is already happening – i.e. peer-to-peer payments, peer-to-merchant payments, and even merchant-to-merchant payments – using relatively simple technology. Once the ecosystem of merchants who accept IMPS payments reaches a critical mass, users are increasingly likely to migrate from other forms of payment to mobile-based IMPS.

**Key Beneficiaries of e-payments revolution**

Researches sees three key segments benefiting from the digitisation of payments in India, banks, the Government and consumers:

**1) Banks**

Be it existing commercial banks or upcoming payment banks, both will ultimately enjoy a collaborative relationship, although initially payment banks are likely to be more innovative and disruptive in their offerings. As cash transactions are substituted with electronic ones, with banks being the only authorised settlement entities, they stand to benefit from significantly higher transaction volumes. While the fee structure may see disruptive pricing initially, ultimately there will be a higher number of customers entering the banking system who will potentially generate demand for other banking products apart from payment services, such as time deposits, personal and home loans, and ultimately alternate savings products like insurance, and equities. Thus, the revenue model of existing commercial banks for retail payment services will need to be proactive and adaptive to competition entailing greater investment in technology and marketing while revenues from new customers will be less profitable, given the lower fees involved and lower ticket sizes.

However, a 'disaster' scenario for existing commercial/universal banks driven by predatory pricing from the new payment banks can be ruled out almost entirely as the regulator's track record in discouraging disruptive pricing practices is well recognised. The payment banks could provide deposits at high rates and transactions at low rates, but in all likelihood these would be entry strategies rather than their sustainable business strategy as they would need to fund these losses for a relatively long period of time (5-10 years) before they become profitable. Who would fund them – retail investors, PE funds, institutional investors? Investors would demand relatively rational and sustainable business plans from these banks before funding them.

**2) Government**

It stands to benefit in two ways – financially from the more efficient distribution of subsidies via the direct transfer of money to the new accounts under Jan Dhan Yojana as well as socially, as the recipients of this money achieve greater financial security and an improvement in their quality of life vs. the leakages in subsidy distribution earlier.

This new subsidy distribution program, known as the Direct Benefit Transfer (DBT) scheme now covers 146mn of the potential 160mn LPG users. so far in H1FY16, subsidies amounting to Rs 88bn have been transferred through DBT to subsidise LPG, which averages out to Rs 1,200 per user on an annualized basis.

**3) Consumers**

Are the main beneficiaries of a revamped payment system as the ease of doing transactions on mobile devices increases. Payments to merchants for various goods and services as well as person-to-person money transfers could become so easy that the volume of transactions is likely to increase exponentially, reducing the amount of cash in circulation over time. Some examples of rural and urban beneficiaries include:

- Users remitting money from their workplace in urban centers to their family in villages via their mobile phones vs. traditionally using more inefficient money orders via postal services.
- Urban users making payments for small value goods and services (e.g. grocery purchases, taxi fares) via mobile phones vs. using cash.

As these users see the benefits of lower cost bank accounts offering these services and as rural touch points are increased – both of these could be led by the newly-licensed payment banks as well as select commercial banks – we could expect an increase in electronic payments vs. cash in the system.

**E-wallets: An easy way to pay**

E-wallets have had an impact in making this payment process easier. For example: PayTm – the largest e-wallet provider in India – has already garnered 100mn customers and generates higher transaction volumes than any other bank. However, we should bear in mind that customer loyalty and stickiness will become increasingly difficult in a competitive scenario, unlike banking customers who tend to be fairly sticky.

E-wallets are classified as Prepaid Payment Instruments (PPIs) per Indian regulation. PPIs are payment instruments that facilitate the purchase of goods and services, including funds transfer, against the value stored in them. PPIs can be issued as smart cards, magnetic stripe cards, internet accounts, internet wallets, mobile accounts, mobile wallets, paper vouchers, and any such instrument that can be used to access the pre-paid amount.

**PPIs that can be issued in the country are classified under three categories**

**(i) Closed system payment instruments:** Are issued by an entity for facilitating the purchase of goods and services only from it, but do not permit cash withdrawal or redemption by the holder.

**(ii) Semi-closed system payment instruments:** Can be used for the purchase of goods/services, but do not permit cash withdrawals or redemption by the holder.

**(iii) Open system payment instruments:** Can be used to purchase goods and services, and also permit cash withdrawal at ATMs.

In India, the most popular forms of e-wallet are those on mobile phones or mobile wallets. These m-wallets are gaining relevance driven partly because of the growth in e-commerce and increasing smartphone penetration. As per RBI data, mobile wallet transactions grew at a CAGR of 58% from FY13-15 but amounted to only 0.005% of total non-cash payment transactions as of end-FY15.

Capturing the rapidly increasing e-commerce transaction volumes, greater customer engagement and retention, and/or gathering and leveraging of customer transaction data are some of the key factors around which e-wallets in India are being designed. E-wallets cannot earn money on the balances that are retained in the wallet as it has to be kept in an escrow account and, as per the guidelines, no interest is payable by the bank on such balances.

**How does India compare with China?**

**Table No 10: Comparison of India and China – key drivers (2014) for e-Finance**

| | India | China |
|---|---|---|
| Account at financial institution (% of population) | 53% | 79% |
| Domestic credit penetration (% GDP) | 55% | 169% |
| Connections (m) | 941 | 1,300 |
| % prepaid | 95% | 79% |
| % mobile broadband | 11% | 47% |
| Population (m) | 1,300 | 1,400 |
| SIM penetration | 74% | 92% |
| Smartphone penetration | 30% | 95% |
| Internet users per 100 people | 18 | 49 |
| GDP/capita (USD) | 1,596 | 7,594 |
| Literacy | 74% (2011) | 95% (2010) |

*Source: GSMA, World Bank, Census of India. Thomson Reuters DataStream*

**How does India compare with China?**

Researcher takes a look at India's neighbour, China, which leads India in terms of credit penetration, GDP/capita, literacy levels, and internet/ mobile/ smartphone penetration – some of the key drivers of e-finance, is to look for clues as to how e-finance in India could develop.

Two key drivers are responsible for the growth of e-finance in both India and China, namely:

**1. Economic expansion, financial inclusion, rapid proliferation of the internet, smartphones, and the concomitant digitization of financial services by banks.**

Trends are broadly similar for both countries across these parameters. Consequently, some key e-finance products that have emerged and are common to both countries drivers are third-party payment companies (refers to payment service providers that are independent from merchants and banks), online financial products distribution platforms, and P2P lending platforms.

**Table No 11: Comparison of some key e-finance products**

| | | |
|---|---|---|
| **P2P platforms, Crowdfunding** | The P2P industry took hold in 2006 in China with the launch of CreditEase. CreditEase's CEO, Tang Ning, founded the company in Beijing with the intention of helping a group of st udents get unsecured loans. Offline, the business is known as individual-to-individual lending. Over the intervening years, the P2P industry has grown in size in China and evolved into person-to-business (P2B) and business -to business (B2B) models. | Presence of P2P platforms is not significant and as per researcher understanding, most of the P2P lending platforms are in the areas of reward, donation crowdfunding and not financial crowdfunding (with the aim of making financial gain) which is more relev ant to the financial sector, and there too, the size is not significant. SEBI had proposed new regulations in mid-2014 for crowdfunding with a key aim being to create an additional framework for start-ups and SMEs to raise early stage funding through internet platforms. The final guidelines have not been drawn up. |
| **E-finance insurance** | E-finance insurance is a relatively new e -finance business model, and the finance insurance license does not permit the company to set up any physical branches. Traditional insurers have been engaged in e -finance insurance activity for a while through their own websites and other third - party web-based platforms. | Researcher understands that the concept of an "internet only" insurer has not been introduced by regulators yet. Like in China, traditional insurers have been engaged in e -finance insurance activity for a while through their own websites and other third - party web-based platforms. |

**Table No 12: Comparison of key e-finance products**

P2P platforms, CrowdfundingThe P2P industry took hold in 2006 in China with the launch of CreditEase. CreditEase's CEO, Tang Ning, founded the company in Beijing with the intention of helping a group of students get unsecured loans. Offline, the business is known as individual-to-individual lending. Over the intervening years, the P2P industry has grown in size in China and evolved into person-to-business (P2B) and business-to business (B2B) models.Presence of P2P platforms is not significant and as per researcher understanding, most of the P2P lending platforms are in the areas of reward, donation crowdfunding and not financial crowdfunding (with the aim of making financial gain) which is more relevant to the financial sector, and there too, the size is not significant. SEBI had proposed new regulations in mid-2014 for crowdfunding with a key aim being to create an additional framework for start-ups and SMEs to raise early stage funding through internet platforms. The final guidelines have not been drawn up.E-finance insuranceE-finance insurance is a relatively new e-finance business model, and the finance insurance license does not permit the company to set up any physical branches. Traditional insurers have been engaged in e-finance insurance activity for a while through their own websites and other third-party web-based platforms.Researcher understands that the concept of an "internet only" insurer has not been introduced by regulators yet. Like in China, traditional insurers have been engaged in e-finance insurance activity for a while through their own websites and other third-party web-based platforms.Source: Company data, Central banks

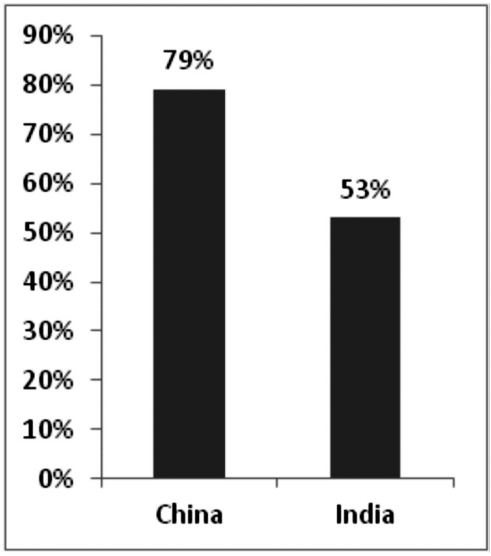
**2. Support provided by policymakers to achieve broader policy objectives and it is in these objectives where the two countries differ.**

In China's case, a defining phase for e-finance was the issuance of e-finance banks, e-finance

Insurance and third-party licences from 2011. In China policymakers intend to bring innovation to the banking system, to help solve the current credit mismatch in small- and micro-sized enterprises, as well as for individuals, and increase the level of competition for more traditional banks.

In India, the overarching policy objective is to promote financial inclusion and improve the transmission of government subsidies through this channel. Therefore, in the case of China, the focus on spurring innovation has resulted in the introduction of purely internet focused models of e-finance banks and e-finance insurance companies, which are not permitted to operate any physical branches. These are therefore the logical extreme opposite of a pure bricks and mortar traditional bank.

**Chart No 3:% of population with an account at a financial institution (age 15+ - 2014)**




*Source: World Bank*

For India, the introduction of payment banks and small banks (the RBI has recently issued 11 payment bank licenses and 10 small bank licenses and these entities are yet to start operations) focuses on increasing innovation and competition to promote financial inclusion, which is India's overarching policy objective. Essentially, it requires new participants to devise innovative business models in a way that benefits financial inclusion objectives. Key government initiatives such as Aadhaar, e-KYC, direct benefit transfer mechanism for subsidy distribution, priority sector lending norms, and Pradhan Mantri Jan Dhan Yojna (PMJDY) could, together, create an ecosystem for technologically driven, payment, and small finance banks to operate in.

Overall, given the generally cautious stance of Indian regulators and the different policy objectives vs. China at this stage, researcher believes that Indian regulators may prefer to gauge the progress of the new entrants, especially payment banks, before contemplating purely internet driven banking and insurance models, like those in China.

**Private Banks are the winners**

With increasing competition and innovation, those banks that have already created robust web/mobile-based platforms for customers offering simple facilities like account management, new product purchasing (credit/deposits), provide various transactional capabilities (bill payments, tax payment, and e-commerce) on a scalable platform that is reliable, safe, user friendly, and strive to constantly innovate/introduce newer technologies, are the ones that are likely to succeed in the new payments world.

By and large, most of India's private banks have these attributes, as do some Public Sector Undertaking (PSU) banks. However, most PSU banks do not enjoy the same culture of innovation, have the ability to respond quickly to events, or adopt new technologies as easily as many of their private sector peers do. Some evidence of this is presented below, where the total value of electronic transactions settled at private banks is higher than their PSU peers. Even if we look at the number of card transactions or the number of POS machines with private banks, they are surprisingly higher than even the larger PSU banks (excluding SBI of course). As a consequence, as technological innovations gather pace, it is the private banks that are likely to gain market share in the e-finance market.

Within the private bank space, most offer a similar e-product suite and are therefore unlikely, broadly speaking, to see market share changes amongst themselves, rather, they are more likely to gain market share at the expense of PSU banks.

**Table No 13: Private vs. PSU Banks: Electronic transaction intensity (March 2015)**

| Bank | NEFT (Rs bn) | Total # of POS | # of transactions at POS (mn) | Branches | Loan market share |
|---|---|---|---|---|---|
| Axis Bank | 878 | 248,786 | 10 | 2,589 | 4% |
| HDFC Bank | 1,849 | 244,991 | 30 | 4,014 | 5% |
| ICICI Bank | 1,009 | 221,663 | 21 | 4,050 | 6% |

| | | | | | |
|---|---|---|---|---|---|
| Indusind | 154 | 469 | 1 | 801 | 1% |
| Kotak Mahindra | 283 | na | 2 | 684 | 1% |
| Yes | 218 | 8,502 | 0 | 630 | 1% |
| **PVT Banks** | **4,390** | **724,411** | **64** | **12,768** | **18%** |
| Bank of Baroda | 326 | 13,651 | 2 | 5,294 | 6% |
| Bank of India | 257 | 4,568 | 3 | 4,892 | 6% |
| Canara Bank | 293 | 3,319 | 2 | 5,682 | 5% |
| Punjab National Bank | 419 | 12,067 | 3 | 6,560 | 6% |
| State Bank of India | 2,314 | 200,878 | 24 | 16,524 | 19% |
| Union Bank of India | 273 | 16,931 | 1 | 4,081 | 4% |
| **PSU Banks** | **3,882** | **251,414** | **35** | **43,033** | **45%** |

## Conclusions/Recommendations

### A payments-led e-finance revolution in India

**India vs. China:**

China's e-finance model is defined by internet-only business models for payments, banking, credit, insurance, and wealth management. India has chosen a different route given lower internet/bank account penetration rates, lower income/ savings levels, and a preference for cash as a method of payment. As such, the government and the RBI are focusing on innovative payment systems to ensure financial inclusion by making it easier, quicker, and cheaper to settle payments via mobile phones, with the aim of encouraging a greater variety of savings options.

**Low penetration:**

With only half of Indian households holding a bank account, and a preference for physical savings vs. financial (mainly bank deposits) it is difficult for the government to encourage diversity within financial assets like insurance and equities. Moreover, low income levels and negative savings prevent banks from accumulating even minimal balances in these accounts. For India, the starting point of inclusion rests with changing peoples' cash usage habits.

**Mobile-based payments is key:**

A large number of mobile phone users (900mn) combined with the 190m newly opened bank accounts (80% of Indian households), and the 900mn Aadhaar biometric identity cards issued (72% of the population) could drive the move to electronic payments and away from cash transactions, which according to EuroMonitor Passport data, currently dominates retail transaction volumes with an estimated market share of 87%. This implies a potential market size of USD15tn – about 6x the size of the current official retail transaction pie of USD2.7tn.

**Key beneficiaries:**

Banks gain from a broader payments market via cash substitution. Researcher believes that their relationship with the new payment banks is likely to be more collaborative than competitive. The government would gain both financially and socially from more efficient subsidy disbursal, and consumers in rural and urban areas would benefit as they find it makes payments more convenient.

## References

Raghuram G. Rajan , RBI Statistics reports, March 2015

Raghuram G. Rajan, RBI Annual report, 2015

ICICI Prudential –Life Insurance, Leadership in Life Insurance presentation, Mumbai, April 2015, slide no 6

Annual Data Report, Euro Monitor passport database, FY07-FY15

IMF International Financial Statistics, 2013 and 2014

Websites

GSMA

World Bank data Base of countries

Census of India

National Payments Corporation of India (NPCI)

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