

# Impact of UPI Payments on Plastic Money

Praveen Singh  
Galgotias University

## INTRODUCTION

In today's world, everything is becoming digitalized, and one of the best examples is how numerous countries around the world are advancing toward becoming cashless economies. A cashless economy does not use the currency for any of its transactions and instead conducts all of them digitally. Various countries across the world do more than half of their transactions using cashless technologies.

People are particularly concerned about technology. The Indian government has taken many steps to actively promote digital payments in the country. The government's "Digital India" initiative aspires to build a "digitally empowered" economy that is "Faceless, Paperless, and Cashless." Digital payments come in a variety of forms and mechanisms. The usage of debit/credit cards, online banking, mobile wallets, digital payment applications, Unified Payments Interface (UPI) service, and Unstructured Supplementary Service are just a few examples. Digital payment options are comparatively easy to use, more convenient, and allow customers to make purchases from anywhere and at any time. These are a suitable alternative to standard payment methods and have faster transaction times.

Debit and credit cards have brought benefits to people who have struggled to withdraw cash from banks and ATMs since demonetization. Although plastic money has been available for decades, India's acceptance rate remains low.

In March 2016, India has 24.51 million credit cards and 661.8 million debit cards, according to RBI figures. However, only 72.22 million and 112.87 million transactions were completed in March 2015 and March 2016, respectively. Without a doubt, these figures would have risen as a result of demonetization. However, for people who remain dubious about plastic money and are uninterested in using checks or demand draughts, there are a few additional choices used from their telephones.

When UPI was initially introduced, it was a huge success. It was developed by the National Payments Corporation of India (NPCI) in 2016 and launched by 21 member banks with the help of then-RBI governor Raghuram G. Rajan. The National Payments Corporation of India (NPCI) is an umbrella organization that operates retail payments and settlement systems in India. It is an initiative of the Reserve Bank of India (RBI) and the Indian Banks' Association (IBA) under the provisions of the Payment and Settlement Systems Act, 2007, to create a strong Payment and Settlement Infrastructure in India. Considering the utility nature of the objects of NPCI, it has been incorporated as a "Not for Profit Company under the provisions of Section 25 of Companies Act 1956 (now Section 8 of Companies Act 2013), with provided the infrastructure to the entire banking system in India for physical as well as electronic payment and settlement systems.

Everyone who uses digital methods of money transmission is part of UPI's target demographic. Examine the emergence of UPI transactions in India and how they've become a key component of the country's expanding cashless environment. According to statistics, over 3 billion transactions were performed on UPI systems in 2018, with 620 million transactions exceeding the Rs 1 lakh crore milestone alone in December 2018. According to a January 2021 estimate, the number of UPI transactions, which are considered pioneering in the digital payment system and a key factor in a paperless economy, reached roughly 1.09 trillion rupees.

According to the industry, the value of online financial transactions in India climbed 10.5 percent between December 2019 and December 2020. According to a joint analysis by market research company World Pay, digital wallets will account for 39.7% of India's e-commerce payments in 2020, making them the country's biggest online payment method. UPI-based digital transactions grew 110 percent in volume and 109 percent in value between June 2020 and June 2021, according to EY statistics. If present trends continue over the next several years, UPI's contribution to the nation's total digital payments sector will expand dramatically. If UPI payments continue to rise at their current rate, the country's total objective of 30 billion transactions might be met shortly.

In the past year, UPI has grown at an exponential rate, capturing a substantial portion of the market from firms such as PhonePe, Paytm, and Google Pay. In FY20, 125.1 billion rupees were exchanged in transactions totaling 2,131 trillion rupees, a 13.2 percent rise in volume and a 14.3% increase in value over FY19. UPI transactions

exceeded Rs2.3 billion after the year 2021, with a value of Rs5 lakh crore, the biggest ever. According to the Reserve Bank of India (RBI), the value of UPI transactions increased from INR 2,162 billion to INR 3,290 billion from January to September 2020.

UPI is a payment system that allows you to transmit and receive money around the clock without disclosing any information about your bank accounts, such as account numbers and IFSC codes, and instead uses a virtual ID for all transactions. While as many as 29 banks have agreed to provide UPI service to their clients, 21 banks, including SBI, have joined the UPI as payment service providers, according to NPCI.

In many respects, UPI is distinct. Apart from a range of cashless payment alternatives, such as paying insurance premiums, contributions, collections, disbursements, and merchant payments, it provides a single-click two-factor authentication solution for subsequent transactions.

All of this will be accessible via a single UPI-enabled bank app that is safe since it adheres to the Reserve Bank of India's two-factor authentication scheme.

The interface will use an email-like virtual address to identify a bank client; for example, if a State Bank of India customer's virtual id is ABC, the virtual address will be ABC@sbi. The phone number might also be used to identify him or her. If the phone number is 1234567890, the virtual address is 1234567890@sbi.

According to NPCI officials, the RBI has temporarily permitted the banking sector to utilize UPI, and mobile wallets such as Paytm may be permitted to modify their systems at a later date. If the individual or person is not a registered UPI user, NPCI will convert push payment transactions to Immediate Money Payment Service, or IMPS. The UPI app supports all IMPS functions.

The Unified Payments Interface (UPI) is a blessing in a pandemic when social separation is the most crucial norm. The quick real-time payment system has proven to be the finest financial invention in India since independence, and it has begun the process of completely replacing the cash economy. It has contributed significantly to the country being one of the world's fastest expanding digital economies.

According to the most recent stats published by the National Payments Corporation of India (NPCI), which runs UPI, the number of transactions and their value increased threefold during the previous fiscal year (2020-21). The overall volume had risen to 2,732 million transactions totaling 5,04,886 crores as of March 2021. The overall volume at the start of the fiscal year, in April 2020, was 999.6 million, with a total value of transactions of 1,51,141 crores the number of banks using UPI has jumped to 216 from 153 in April 2020. When the platform first launched in April 2016, it had only 21 banks on board.

The two dominant participants in the UPI ecosystem have remained Walmart-owned PhonePe and Google Pay. PhonePe has topped the table, accounting for 43.9 percent of overall UPI transaction volume, accounting for 1,199.51 million transactions of Rs. 412 crores. On the other hand, Google Pay captured a 35% market share in March, with 957.01 million transactions. 2,01,185 crores. Paytm Payments Bank, the third-largest participant, reported 401.16 million transactions of ₹43,221 crores.

The government's decision to eliminate the merchant discount rate (MDR) in December 2019 and reduce the transaction charge to zero instantly benefited UPI. Banks and payment service providers were instructed not to charge fees for UPI transactions. However, in July 2020, a committee appointed by the Reserve Bank of India (RBI) stated that the action had harmed the survival of payment gateway businesses and hampered innovation initiatives, resulting in job losses and a halt in the construction of the country's digital payments infrastructure. While the sector awaits a favorable reaction, neither the central bank nor the finance ministry decided on the mission to reintroduce MDR.

The NPCI's Bharat Interface for Money (BHIM), an Indian mobile payments software based on UPI, has also experienced an increase in transactions. The app recorded 14 million transactions (with a value of 4,504 crores) in April 2020, but 24.4 million (7,653 crores) in March 2021. Cred, another app, has recorded a fivefold increase in transactions from 0.94 million (672 crores) to 4.96 million (5,390 crores) in March 2021.

## Review of Literature

Bank performance has been extensively studied, with previous study looking into numerous factors that influence bank success. We see in banking literature that bank benefit is measured by return on average assets (Bapat 2013)

Rivard and Thomas (1997) – ROAA is preferred since it is unaffected by high value multipliers and targets a larger chunk of a company's ability to earn returns on its resource allocation. The bank's approach decisions, as well as wild parts of the economy and unofficial laws, all influence ROAA. We recently noticed that ROAA has maintained its status as a proportion of benefit (Apergis 2014; Menicucci et al 2016) According to the conclusions of a study on the impact of ownership on ROAA and other proficiency barriers, privatisation isn't enough for countries to drastically transform (Bonin et al 2005)

Tan and Floors (2012) – They investigated the causes of low productivity using a two-stage summary technique. According to Chronopoulos and colleagues (2015), guideline modifications influenced both the level and the industriousness of bank productivity in the United States between 1984 and 2010. Cost administration was revealed as a variable impacting bank productivity while evaluating bank benefit using ROAA and value productivity using ROE (Islatince 2015). Experts have evaluated the impact of both internal and external variables on bank benefit.

According to Duca and McLaughlin (1990), differences in bank productivity are connected to fluctuations in credit risk. The benefit proficiency rank is compared to the application of ROE. ROE is a factor in allocating value to different resource classes (Berger et al 2005)

Previously, resource quality, bank capital, ownership, monetary construction, size, non-performing advances (NPL), credit store proportion, proprietorship, size, financial aspects, and growing were all studied as possible causes of bank execution. Because their primary banking business was struggling, banks desired expansion. According to the analysis, charge-based compensation varied by bank type in Germany, with commitment to expense-based pay reaching 133 percent for cooperatives, 154 percent for investment funds banks, and 36

percent for business banks. The benefits of memory enhancement for various sorts of income, data lopsidedness reduction, and settling pay (Shim 2013) Broadening's impact on bank execution has been studied (DeYoung and Roland 2001; Stiroh 2004; Stiroh and Adrienne 2006; Mercieca et al 2007) Busch and Kick (2015) revealed that charge business has a considerable impact on risk changed profits from value and overall resources for German all-inclusive banks. Edirisuriya et al. (2015) found strong evidence that enhancement is beneficial to Australian bank displays. DeYoung and Tara (2004) discovered that very small banks are less interested in non-premium pay, whereas large institutions are more interested. In any event, development is hampered by the recognition that growing US bank engagement in contemporary industry leads to excessive risk taking. According to a study of Chinese banks from 1996 to 2006, improvement was associated with reduced benefits (Berger et al 2010)

Possession was reliant on thorough investigation. When the government intervenes in the financial sector, scientists and strategists are quick to analyse the impact of improvement in possession on bank execution. Jensen and Meckling (1976) argued for dispersed possession as a means of increasing efficiency. Burkart et al., 1997; Kyle and Jean-Luc, 1991) relate possession to abundance observation (Pinteris 2002; Altunbas et al 2001) The link between possession and bank execution has been re-energized recently (Ochi and Saidi 2012) The impact of size is also explored while looking at the effect of proprietorship on bank execution. Analysts have voiced a significant desire to focus on appropriation by bank size (Goddard et al 2014; Hughes et al 2001) Feng and Serlitis (2010), as well as Wheelock and Wilson (2010), have demonstrated the existence of economies of scale in US banks (2000). Bank size, specialist production, and scale efficacy are all linked, according to Drake and Hall (2003). Hungarian banks prefer massive banks because they are more effective, according to Hasan and Marton (2003). According to the data, smaller banks were more active in non-premium producing operations, which can be linked to improved specialisation and accessibility of various administrations. 2013 (Karray and Chichti) The Syrian bank study's real findings demonstrated a positive relationship between bank size and production. The review was based on the ward Eurasian Bus Rev 123 variable as a return on normal resources (ROAA) Goddard et al., Kosmidou and Pasiouras (2005), and Flamini et al (2009) Studies by Naceur and Goaid (2008) and Sufian and Habibullah revealed mixed results (2009). When looking at the association between bank size and execution, there were rarely any distinct results. Gunjan (2007) was unable to show a clear link between bank efficacy and bank size in the Indian setting. According to Barra et al's (2016) analysis, friendly banks' specialised output in Italy lags behind that of other banks during global monetary conditions. A

comparison of the degrees of progress between larger and smaller universities was also attempted. According to a board of Pakistani banks, larger banks are better than smaller banks. Increased effort as well as the size of credit portfolios contributed to this. Afanasieff et al. affirm the importance of the GDP growth rate in 2012 (Afzal and Mirza) (2002) In contrast, Naceur (2003) finds no effect of financial development on bank output. According to Demirguc-Kunt and Huizinga, financial resources with a larger component size are less beneficial (1999). According to Neely and Wheelock, state-level financial activity has an impact on bank income (1997). The consequences of the late global monetary emergency have been thoroughly examined. Most financial regions around the world were negatively affected by the current global monetary emergency, which lasted from 2007 to 2009. (Mirzaei 2013)

As a result, scientific research on the relationship between spending and risk is in debate. From one standpoint, there is agreement on the negative relationship between interest and charge business collaboration. In any event, there has been a lot of discussion over the causality of opportunities. Stronger competition in the traditional retail business leads to reduced revenue margins, according to Valverde and Fernández (2007), Lepetit, Nys, Rous, and Tarazi (2008a; 2008b), and Albertazzi and Gambacorta (2009). According to Lepetit et al (2008a), banks use credit as a misery chief to increase non-premium pay through clever marketing. For example, Van Ewijk and Arnold (2013) defy conventional logic. Overall, they disagree that shifting action plans from revenue to expenditure compensation allows banks to benefit from the latter's higher agility, despite increased competition and reduced margins in key modern financial industry sectors. Analysts should be cognizant of endogeneity difficulties when displaying non-interest pay. Campa and Kedia (2002), DeYoung and Rice (2004), and Laeven and Levine (2005) all use an instrumental variable technique to deal with infer stable assessors and account for endogeneity

## **Methodology for research**

Nationalized Banks (25), Government Banks (1), Private Sector Banks (20), Foreign Banks (43), Cooperative Banks (95150), and Regional Rural Banks (68) make up the Indian banking sector. Nationalized banks and a single government bank have been grouped together as Public Sector Banks. In terms of loans and advances, public sector banks have a market share of 73.7%, while private banks have a market share of 18.6%. Foreign banks account for 5.2% of the market, while Regional Rural Banks and Cooperative Banks account for 2.5%.



Nationalized banks and public sector banks operate in the same regulatory and economic context, accounting for 92.3% of the banking business in 2012 (Foreign banks' share). Foreign banks and cooperative banks were not included in our analysis due to their smaller market share, large numbers, and distinct operating environments. Data was gathered from the Centre for Monitoring Indian Economy (CMIE) data base from March 1999 to March 2015, as well as economic variables from the World Bank's World Development Indicators database. Strata 12 was used to examine it.

## Sample Size

Our final data set contains 490 observations for 39 banks with an average data period of 12 .56 years after removing the outer layers of data

## Variables

The dependent variable of ROA2 is compared to three categories of independent variables: bank specific, industry specific, and economy specific variables. Table 1 shows the variables in detail as well as the foundation for their calculation.

The influence of a dominant position held by one or a few companies in the industry is considered by HHI. If the score is +1800, the monopolistic position of one or more players in the industry is explained. As shown in Table 2, we found HHI to be insignificant for all of the years. Because the HHI index was less than 1800 throughout the study period, it was not considered an independent variable. Furthermore, we eliminated the cash reserve ratio, statutory liquidity ratio, and inflation from our study due to their substantial colinearity with the other independent variables.

## Statistical Tool Adopted

It's worth noting that static panel models don't allow us to examine the potential for dynamism in business profitability. This enables us to assess dynamic panel estimators. Furthermore, these models have more control over endogeneity, allowing us to assess the level of modification of genuine factors that affect Indian bank



performance.

## Negative Hypothesis

- HO1=There is no significant relationship between current year ROA and its 1<sup>st</sup> year lag
- HO2=There is no significant relationship between current year ROA and its 2<sup>nd</sup> year lag
- HO3=There is significant relationship between current year ROA and its 3<sup>rd</sup> year lag
- HO4=There is no significant relationship between size of a bank and ROA
- HO5=There is no significant relationship between solvency of a bank ROA
- HO6=There is no significant relationship between loan to deposit ratio of a Bank and ROA
- HO7=There is no significant relationship between non-interest expenses of a bank and ROA
- HO8=There is no significant relationship between employee productivity of a bank and ROA
- HO9=There is no significant relationship between CAR of a bank and ROA
- HO10=There is no significant relationship between GDP growth of India and ROA

## REFERENCES

Albulescu, C T Banks profitability and soundness indicators: A macro level investigation in emerging countries , Procedia Economics and Finance, vol 23, no 5, pp 203-209

Alicia, G H , Santabarbara, D , Gavila, S , Santabarbara, D (2009), What Explains Chinese Banks' Low Profitability Journal of Banking and Finance, vol 33, no 11, pp 2080-2092

T Bandyopadhyay How PSU Banks Lose Out to Private Peers (2015) Livemint <http://www.livemint.com/Home-Page/3QphWYQ2nN9cF11f8rJ5yN/How-PSU-banks-Lose-to-Private-Peers.html>

S Banerjee and M R Velamuri Conundrum of profitability vs soundness of banks by ownership type: Evidence from Indian banking sector (2015) 26(3), 12-24 in Review of Financial Economics

B Capraru and U Ilhnatov Banks profitability in selected central and east European countries (2014) 16(9), 587-591 in Procedia Economics and Finance

S Choudhury The RBI Is Looking at Bank Powers to Tackle Stressed Assets (2015) Reuters <http://www.reuters.com/article/india-rbi-banks-sdr/idINKBN0TU0N820151211>

Urak, M, Kleme, P, and Sandra, P Profitability determinants of the macedonian banking sector in a changing environment (2012) 406-416 in Procedia- Social and Behavioral Sciences 44(14)

Dietrich, D, and Wackenried, G The determinants of commercial bank profitability in low-, middle-, and high-income countries (2014) The Quarterly Review of Economics and Finance, vol 54, no 3, pp 337-354

Shares of foreign banks are close to a 10-year low The Times of India, 2012 <http://www.timesofindia.indiatimes.com/show/14448959.cms/city/mumbai/Foreign-banks-share-close-to-10-year-low/>

Park, K H, and Weber, W L Profitability Korean banks: Test of market structure versus efficient structure, (2006) 58(3), 223-239, Journal of Economics and Business

F Pasiouras and K Kosmidou (2007), Factors influencing the profitability of domestic and foreign commercial banks in the European Union 21(2), 222-237 in Research in International Business and Finance

RBI, Government Step to Assist Banks in Ending NPA Woes Raghuram Rajan The Economic Times (Economic Times, 2015) Available at: <http://www.economictimes.indiatimes.com/news/686885351/rbi-governor-raghuram-rajn-npas-march-2017>

The Reserve Bank of India Quarterly Statistics on Deposits and Credit of Scheduled Commercial Banks (2016)  
Available at <http://www.dbie.com/OpenDocument/opendoc/openDocument.jsp> at rbi.org.in

Sharma, V K, and Kumar, A Assessment of the performance of commercial banks in India, 2013 7(12), 47-54, Indian Journal of Finance Shehzad, C T, Haan, J D, and Scholtens, B The relationship between size, growth, and profitability of commercial banks (2013) Applied

45(13), 1751-1765 in Economics

Shukla, S Performance of the Indian banking industry: A comparison of public and private sector banks (2016), 10(1), 41-55, Indian Journal of Finance

M Burkart, D Gromb, and F Panunzi (1997) The firm's worth, large stockholders, and monitoring

693–728 in the Quarterly Journal of Economics

M B Gordy and R A Avery, 1997 A Markov model of loan seasoning is generated using aggregated performance data Working Paper of the Federal Reserve Board of Governors

T H Hannan and A N Berger, 1998 The efficiency cost of market dominance in the banking business is assessed against the 'quiet life' and related hypotheses 454–465, Review of Economics and Statistics, vol 80.

Persistence in performance, 679–698 in Journal of Finance, S J Brown and W N Goetzmann, 1995.

Performance studies with survivorship bias, 553–580 in Review of Financial Studies, S J Brown, W N Goetzmann, R G Ibbotson, and S A Ross, 1992.

J Cubbin and P Geroski, 1987, On mutual fund performance persistence, 57–82 in Journal of Finance M M Carhart, 1997 Long-term profit convergence: intra-firm and inter-firm