

Black Swan Effect of Demonetisation on Digital Mode of Payment in India

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Abstract: The purpose of this research paper is to present the black swan event of the recent demonetization on a sunrise sector – digital payment industry. This sector has seen unprecedented growth in the last 10 years, but this black swan event has catapulted it into a major player that can be either a catalyst or a catastrophe for the growing emerging Indian economy. This paper, through an ethnographic case study method of digital payment industry, showed how this rare unpredictable black swan event can trigger not only the growth of the sector, but build in quality systems and processes for the consumer. The paper concluded by creating benchmarks for sustainable growth of digital modes of payment.

Keywords: black swan effect, demonetization, digital modes, economic growth, systems and processes

1. INTRODUCTION

The French coined the term Demonetize in 1850 -1855, and many countries have used the demonetization policy with restriction and discomfort as it disrupts both the economy and population. India has demonetized thrice since its Independence – 12 January 1946, 16 January 1978, and most recent 8 November 2016 [1]. The earlier demonetization efforts were not as pervasive. The advent of technology, globalization, and sheer number of transactions makes the recent demonetization effort though a herculean challenge, a catalyst for encouraging innovation in the economy, corporate sector, and particularly for the digital payment industry.

To put the economic transactions in perspective, on 28 October 2016, total banknotes in circulation in India were ₹ 17.77 lakh crore (US\$260 billion). As per the annual RBI report (March 31, 2016), total bank notes in circulation valued to ₹ 16.42 lakh crore (US\$240 billion) of which nearly 86% (around ₹ 14.18 lakh crore (US\$210 billion)) were ₹ 500 and ₹ 1000 banknotes. In terms of volume, 24% (around 22.03 billion) of the total 90,266 million banknotes were in circulation [2] [3].

The Government of India announced that 40% increase in all the banknotes in the market, 76% increase in ₹ 500 rupee notes, and 109% increase in ₹ 1,000 notes between the period 2011 and 2016 were directly attributed to counterfeit operations. Hence the 8 November 2016 sudden and overnight demonetization of ₹ 500 and ₹ 1000 banknotes to combat black money, curb fake currency, corruption, and financing of terrorism. New redesigned ₹ 500 banknotes and new denomination of ₹ 2000 banknote were brought into circulation from 10 November 2016. New redesigned series will be introduced in denominations of ₹ 100 and ₹ 50 in the coming months [4].

The aftermath of demonetisation policy was felt in gold prices, stock markets, banking sector, and practically all sectors of the economy. There was also desired effect on terrorist groups, cleaning of black money, income tax raids, and huge sums of cancelled currency deposited in banks [5] [6].

Ashworth highlighted the consequences of demonetisation on various economic variables and entities – parallel economy, money supply, demand and prices of goods and services, economic entities and sectors, GDP, banking sector, online transactions and alternative modes of payment to cash transactions, inflation, and equity and other commodities markets [7].

1.1. Black Swan Effect

A black swan is an event or occurrence that deviates beyond what is normally expected of a situation and is extremely difficult to predict. Taleb popularized this term through his book. Black swan events are typically random and unexpected, with compelling implications for markets and investment. He propounded that the ‘non-compatibility’ of these rare events results in people developing a psychological bias and ‘collective blindness’ to them.

The three attributes of a Black Swan event [8]:

1. As an outlier, it lies outside realm of regular expectations, as nothing in past can point to its possibility (rarity)
2. It carries extreme impact

3. Human nature makes concoct explanations for its occurrence after the fact, making it explainable and predictable (retrospective predictability).

Black swan events cannot be modelled or predicted, and this creates psychological and practical problems. Bloch suggests that this theory is a metaphor with far-reaching effect, and is often inappropriately rationalized after the fact with the benefit of hindsight [9]. Gigerenzer put forth that complex models are difficult to explain or predict black swan events, and argued that though more than 50% of decisions are made intuitively, but these decisions are not considered as they are difficult to justify [10].

2. PURPOSE OF STUDY

The purpose of this study is to show how an event like demonetization can surge and create plethora of alternative modes of payment to cash transactions like digital transactions systems, e-wallets and apps, e-banking, plastic money (Debit and Credit cards). With this rare and unexpected black swan event, it can be shown that invention can flourish causing disruptive innovation [11], eventually leading to strengthening of these alternative payments systems, and infrastructure structure required therein [12].

The main purpose of this qualitative study is to study and position the concept of black swan event like demonetisation on the Indian digital mode of payment sector. Consequently, the research objectives are listed as follows.

3. OBJECTIVES

- Understand the importance of black swan event on one particular sector, i.e. digital payment.
- Critically analyse factors that encourage digital mode of payment sector in India.
- Highlight the challenges of digital payment sector due to demonetisation.

There is a lack of critical analysis of black swan event on sectoral performance. Hence these objectives have a major significance. The media and newspapers are awash with success stories and milestones in this sector. This may be considered as a one-off success, and hence become a cause of concern as these stories may not highlight core competencies of this sector. Furthermore, black swan event can become a juggernaut for growth and sustainability of the sector. This research focuses on the digital payment sector as it is considered as a sunrise sector, where there is a need for sustainable successful business models.

4. RESEARCH METHODOLOGY

This qualitative research used ethnographic case study approach of analysing digital payment sector. Content analysis of media articles and newspaper reports underscored concepts or attributes that come to the fore due to black swan event on the digital payment sector. These articles were scrutinized in detail to highlight these concepts.

5. FINDINGS AND DISCUSSION

5.1. Digital Modes of Payment

The recent historic demonetization move – called a massive revolution or storm of change – was bold, ruthless, and necessary. To deal with shortage of smaller denomination currency notes, cashless or digital transactions were recommended as a panacea. Ultimately, though reach of and adaptability by the consumers will be issues that may have to be addressed, the moot question was ‘why go cashless?’

The benefits of cashless transactions are manifold. Cashless transaction can reduce wallet and mobile thefts. Digital wallets allow for cashless transactions in even mundane places like movie theatres, utility bill payment, etc. These digital wallets can be loaded with money through plastic cards (debit or credit cards) or by internet banking. Cashless transactions can reduce cost of printing money for government treasury, and logistics costs incurred through maintenance of ATMs and transport costs for taking money to the ATMs. Counterfeit currency, black money or unaccounted money, and corruption can be reduced substantially. Instant payment through cashless transactions negates totally the waiting time to receive the money.

With many digital transactions options available, an Indian on an average performs a minimum of 45 transactions to 60 transactions in a month. The following cashless or digital transactions are available in India:

5.2. NEFT / RTGS / IMPS

These conventional cashless transactions, favoured by majority of consumers, are electronic money transfer services offered exclusively by banks. Immediate Payment Service (IMPS) used for transferring money instantly from one bank to another can be accessed through ATMs, mobile banking and internet banking 24X7

for 365 days including holidays. National Electronic Funds Transfer (NEFT) and Real-Time Gross Settlement Systems (RTGS) services are used to transfer money to bank accounts of other banks. These services are not available 24X7 like IMPS. Both mobile banking and internet banking can be used to avail these money transfer methods.

5.3. E-Wallets

E-Wallets has digital cash, and allow adding money using Debit Card, Credit Card or Net Banking. The vendors have to accept this mode of payment. There are several E-Wallets companies in the markets that have tied up with vendors across India. Table 1 gives different E-Wallets introduced by several sectors, and used for offline shops, transport like taxi services, deliveries of goods, e-commerce, and bookings of various services.

TABLE 1: E-WALLETS IN THE INDIAN MARKET

Wallets that work Independently	Wallets Introduced by Banks	Wallets Introduced by Telecom Companies
Paytm	State Bank Buddy	Idea Money
PayU Money	LIME (Axis bank)	Reliance Jio Wallet
Mobikwik	Chillr (HDFC)	M-Pesa (Vodafone)
Freecharge	ICICI Pockets	Airtel Money

Ref: Economic Times, and other newspaper sources

5.4. United Payment Interface (UPI)

This service fuses all payment services in a unified platform, allowing transfer or receipt of money electronically using a smartphone. The UPI app is installed on mobile phones and used for making transfers up to Rs. 1 Lakh.

5.5. Plastic Cards (Debit Cards and Credit Cards)

These have been around for a fairly long time, and is widely accepted by merchants. The RBI website (July 2016) gives interesting statistics about plastic money:

- 25.9 million Credit Cards issued by July end.
- 697.2 million Debit Cards issued by July end.
- 1.44 million POS machines installed at different locations all over India. Of these, 1.16 million are of SBI, Corporation Bank, Axis Bank, ICICI Bank and HDFC Bank.
- 881 million debit card transactions completed using POS terminals and ATMs in July alone. Of these, 85% took place at ATMs for cash withdrawal.

These cashless transactions options are evident of the changing dynamic scenario of the digital payment sector in India. Figure 1 shows the digital payment systems used by people as on December 29, 2016 as per RBI data.

Digital Payment System	Volume (in m)	Value (₹ cr)
UPI	0.1	40
Mobile Banking	2.2	4790
Plastic cards	8.8	1490
RTGS	0.4	468150
NEFT	6.5	65310
IMPS	1.8	1580
USSD	0.09	0.72

Source: RBI

Figure 1: RBI data cited in Economic Times article

5.6. Effect of Demonetisation on Digital Mode of Payment

Major articles from Economic Times over the two-month period of December 2016 and January 2017 were content analysed for trends and challenges in the digital payment sector.

The following trends are evident from the data on Mobile Wallets collated from Economic Times articles (website links given in References):

- The traditional cashless option – debit and credit cards have limited reach, and are an urban-use phenomenon. Around 800 million people carry plastic cards (mostly debit cards, and less than 10% are credit cards), using them to withdraw cash from ATMs. Although demonetisation saw POS machine sales increase 200 times, accelerating use of cards; credit cards use increased by 25%, and debit card increased by more than 50%.
- Of all the digital modes of payment, Mobile Wallets or E-Wallets have surpassed the expectations of the market.
- Latest study of ASSOCHAM – RNCOS has estimated that mobile wallet market is likely to touch Rs. 30,000 crores in 2022 from Rs. 154 crores in 2016, with a corresponding manifold jump in market value of m-wallet transactions from Rs. 20,600 crores now to Rs. 55 lakh crores in 2022.
- Mobile wallet transactions were stagnant at around 50 million in year 2015 – 16. In July 2016, there was a surge of 59.45 million transactions worth a total value of Rs 2,760 crore in July 2016 (RBI data).
- E-Wallet company MobiKwik took 7 years from 2009 to get 35 million users, but added 5 million users in two weeks after demonetisation date of November 8, 2016.
- MobiKwik increased its marketing budget from Rs. 3 crore to Rs. 30 crore for November and December 2016; and since November 8, MobiKwik added 1.5 lakh merchants, had 7000% jump in peer to peer and bank transfers, 100x increase in overall traffic, and 200% jump in app downloads, 18x surge in overall transactions, 2000% spike in money added to the wallet, and 5 times rise in transaction value of offline payments.
- MobiKwik has a tie-up with National Association of Street Vendors to train over 30 lakh vendors across 25 states, with 10,000 offline staff to activate merchants across India.
- MobiKwik Lite – an app with less than 1 MB size, downloaded on smartphones with low net speed, available in English, Hindi, and Gujarati, and soon in 10 regional languages.
- Since 9 November 2016, Paytm has registered a 700% increase in overall traffic, 1000% growth in the value of money added to Paytm accounts, 200% increase in average transaction value, and 300% increase in number of mobile app downloads.
- Paytm, backed by Chinese ecommerce major Alibaba, claimed that its app crossed the 50 million install landmark on Google Play Store in the second week of January 2017, registered 700% increase in overall traffic and 1,000% growth in the amount of money added to Paytm accounts. Paytm has declared its intention to record \$5 billion GMV in 2017 compared to \$3 billion of last year.
- One 97 Communications, the parent company of digital payments provider Paytm, is merging its wallet service with the eponymous payments bank once it gets regulatory approval and license.
- Micromax m-wallet Udio had 15 million cashless transactions in 2016, and will launch phones with built-in wallet by April 2017 to peg payments and services as its growth strategies. With 30 million smartphone users who access apps, Micromax expects 50% of these users to use the built-in wallet.
- Citrus Pay, owned by PayU, partnered with HPCL to drive cashless payments for LPG gas cylinders.
- Oxigen – India's first mobile wallet with over 30 million wallet users and a retail reach of 150 million merchants, offers payment solution including Aadhaar Enabled Payment, Rupay and other cards, UPI, recharges/bill payments under Bharat Bill Payment System.
- Payworld has a presence in 630 cities, and 80,000 villages across 23 states, tapping merchants in tier II, III towns, cities and rural areas.
- There has been substantial increase in Wallet on Delivery mode of payments with Freecharge crossing 1 lakh deliveries of Snapdeal being paid through Freecharge wallet instead of COD. Interestingly, Freecharge started this feature after recent demonetisation drive, and this has become popular mode of payment. Returning change through 'Change on Wallet' and crediting of refund to wallet instantly are additional benefits offered by Freecharge.
- FreeCharge, launched an e-wallet protection plan for its consumers and merchants in partnership with Reliance General Insurance Company free of cost to all FreeCharge users. This strategy proactively addresses consumers' concern of usage and security of e-wallets, safeguarding their money in the event of theft/loss of phone.

Several company heads of this sector have also voiced concerns and disadvantages to mobile or digital wallets:

- Mobile wallets are not interoperable.
- Digital wallets can be used only by smartphone users. 27% of the more than 1 billion Indian mobile phone users have smartphones, compared to 70% of Chinese, and rest use feature phones. Affordability and data transmission mechanism has hindered the faster adoption of smartphones.
- Money transferred to wallet does not earn interest.

- M-wallets are happening for bill payments and recharges, while there is a big push towards online payments for shopping and travel which is still in its nascent stage.
- Wallet users at present are not allowed to access UPI. By the end of 2017, consumers may switch from digital wallets to UPI. (Economic Times December 2016 articles).

These company heads also noted the following hurdles to be surpassed to facilitate efficient transactions in e-wallets:

- Lack of good network connectivity
- Restrictive cap on e-wallet transactions.
- Lack of trust and need to build relationships with vendors.

5.7. Future of Digital Payment Sector

- Unified Payments Interface (UPI), introduced by the Reserve Bank via the National Payments Corporation of India in 2016, will enable frictionless transfer of money, and will be a tough competitor to mobile wallets. Money will be transferred directly from an account to complete a payment, unlike wallets, where it has to be transferred to a wallet company to be used.
- BHIM app, launched by GoI in last week of January 2017, will transfer money directly between accounts and will be linked to the Aadhaar number to authenticate users through stored biometric records.
- Today's digital wallets will be taken over by direct payment systems like UPI and BHIM.

6. CONCLUSION

This study showed how a black swan event like the recent demonetisation has far-reaching repercussions and implications for an emerging sunrise sector like the Digital Payment.

The Indian Digital Payment sector has shown agility and dynamism in their innovativeness and adaptability to survive and thrive in this black swan event. Moreover, the Indian Digital payment sector adopted novel approaches on multiple parameters like business processes, product and or service development, reaching hitherto untouched markets, creating market niches, technological excellence, and creating world-class services in this payment arena. The proactive approach of Government of India to instigate this demonetisation and create enabling environment through positive policies will jump-start this sector exponentially and boost their competitiveness.

Taleb's attributes of Black Swan event are evident in this demonetisation effect on digital payment sector – demonetisation created realm that was beyond expectations, has extreme impact, and though retrospective predictability can provide explanations in hindsight; these innovation parameters evident in this fall-out cannot be modelled or predicted. Rather this metaphor of black swan event with its far-reaching effect may prove to be an intuitive affair. Decisions made by Digital Payment companies in terms of strategies and processes and products need to stand the test of time for its survival and sustainability.

The study has several limitations – being an exploratory study, and few parameters chosen for evaluation, limited time and accessibility of data. The study offers following conclusions: future of Digital Payment sector is superlative for all the stakeholders of this sector. Substantial scope for further research is highlighted in areas of conceptual clarity, statistical inferences, studying policies for this sector. Highlighting role of major firms that might create oligopoly markets and lead to Red Ocean Strategy should be further explored. Enabling and influencing factors can be further isolated to study the overall impact of demonetisation over a period of time.

With India ready to take its place in world order as an economic superpower, Digital Payment sector will bring in new business models with disruptive technologies. And black swan event of demonetisation can unexpectedly become a catalyst for the growth and sustainability of this sector.

REFERENCES

- [1]. Hartaj. (2016, Nov 14). *Know all about history of Indian currency demonetisation*. Retrieved Dec 4, 2016, from <https://www.ncaacademy.com/know-all-about-history-of-indian-currency-demonetisation/>
- [2]. Kavalireddi, G. (2016, nov 26). *What is the history of demonetization of Indian Currency?* Retrieved 4 Dec, 2016, from <https://www.quora.com/What-is-the-history-of-demonetization-of-Indian-Currency>
- [3]. Aleem, Z. (2016, Nov 29). *India pulled 86% of its cash out of circulation. It's not going well*. Retrieved Dec 4, 2016, from <http://www.vox.com/world/2016/11/29/13763070/india-modi-cash-demonetization-protests> .
- [4]. bankexamstoday.com. (2016, Nov 10). *Pros & Cons of Demonetization of Big Currency Notes*. Retrieved Dec 4, 2016, from <http://www.bankexamstoday.com/2016/11/pros-cons-of-demonetization->

- of-big.htmlShankaran, S. (2016, Nov 15). *Demonetization in 1946 and 1978: Stories from the past*. Retrieved Dec 4, 2016, from <http://blogs.timesofindia.indiatimes.com/cash-flow/demonetization-in-1946-and-1978-stories-from-the-past/>
- [5]. worldatlas.com. (2016). *India Makes History With Shock Currency Demonetization To Curb Corruption In The Country*. Retrieved Dec 4, 2016, from <http://www.worldatlas.com/articles/india-makes-history-with-shock-currency-demonetization-to-curb-corruption-in-the-country.html>
- [6]. reliancemutual.com. (2016, Nov). *Demonetization Drive: Biggest Economic Reform by the MODI Government*. Retrieved Dec 4, 2016, from <https://www.reliancemutual.com/LearnAndInvest/WhatsNew/Demonetization-Drive-Biggest-Economic-Reform-by-the-MODI-Government.pdf>
- [7]. Ashworth, D. (2016, Nov 22). *India's Financial Markets Fell Due to Demonetization*. Retrieved Dec 4, 2016, from <http://marketrealist.com/2016/11/impact-demonetization-indias-financial-markets/>
- [8]. Taleb, Nassim Nicholas (2008). *The Black Swan: the Impact of the Highly Improbable*. Penguin, 2008.
- [9]. Bloch, Brian (2015). *Black Swan Events and Investment*. Investopedia.com; December 16, 2015. Retrieved 22, January 2017.
- [10]. Gigerenzer, Gerd (2008). *Gut Feelings: The Intelligence of the Unconscious*. Penguin, 2008.
- [11]. Christensen, Clayton (1997). *Disruptive Innovation*. Harvard Business Review.
- [12]. Sabnavis, M. (2016, Nov 9). *Economic consequences of demonetization of 500 and 1000 Rupee Notes*. Retrieved Dec 4, 2016, from http://www.careratings.com/upload/NewsFiles/SplAnalysis/Effects_of_Demonetization_notes.pdf
- [13]. Economic Times Articles from period December 2016 – January 2017 (accessed in January 2017): <http://economictimes.indiatimes.com/industry/banking/finance/banking/here-is-why-the-flavour-of-the-season-mobile-wallets-will-die/articleshow/56341815.cms>
- [14]. <http://economictimes.indiatimes.com/magazines/brand-equity/mobile-wallets-the-next-big-thing/articleshow/55682983.cms>
- [15]. <http://economictimes.indiatimes.com/industry/banking/finance/banking/here-is-why-the-flavour-of-the-season-mobile-wallets-will-die/articleshow/56341815.cms>
- [16]. <http://economictimes.indiatimes.com/industry/banking/finance/banking/here-is-why-the-flavour-of-the-season-mobile-wallets-will-die/articleshow/56341815.cms>
- [17]. <http://economictimes.indiatimes.com/tech/hardware/micromax-bets-on-mobile-wallet-udio-as-key-differentiator/articleshow/51764124.cms>
- [18]. <http://economictimes.indiatimes.com/magazines/brand-equity/mobile-wallet-wars-taking-the-fight-to-paytm/articleshow/56311448.cms>
- [19]. <http://www.livemint.com/Companies/gWu18E6zIzsI0tfsANYsFL/Paytm-claims-record-number-of-transactions-after-govts-demo.html>
- [20]. <http://economictimes.indiatimes.com/industry/banking/finance/paytm-to-transfer-wallet-business-to-payments-bank/articleshow/55798230.cms>
- [21]. <http://economictimes.indiatimes.com/small-biz/money/freecharge-crosses-1-lakh-wallet-on-delivery-transactions/articleshow/55474233.cms>