Edumania-An International Multidisciplinary Journal

2024, Vol. 02, Issue 04, 194-220
ISSN: 2960-0006 DOI: https: https://doi.org/10.59231/edumania/9083

A Study on The Dominance of Digital Transaction Over M3 Money Supply Transactions.

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Abstract

The financial landscape is evolving increasingly with digital transactions dominating traditional M3 money supply transactions. Given the growth of digital payments, fintech innovations and cryptocurrencies, there is an urgent need to understand the degree to which these electronic transactions have now surpassed or altered conventional M3 money supply operations. In this study, we seek to fill that gap with our understanding and direction forwards. By investigating the effect on financial stability, economic growth and the overall resilience of monetary systems, this research opens up new avenues for analysis in an ongoing dialogue about how digital transformation has been affecting financial transactions and its wider implications for the money landscape.

Keywords: Dominance, digital, money supply, monetary system, cryptocurrencies

Introduction

In recent years, digital transactions have undergone a remarkable transformation, reshaping the way individuals and businesses conduct financial activities. The proliferation of digital payment methods, including mobile banking, online transfers, and digital wallets, has revolutionized the traditional landscape of monetary transactions. The advent of digital technology has catalyzed a paradigm shift in the way transactions are executed and processed. Gone are the days of reliance solely on physical currency or cumbersome paper-based transactions. Instead, individuals and businesses now have access to a diverse array of digital payment solutions that offer unparalleled convenience and efficiency. One of the primary drivers behind the surge in digital transactions is the ubiquity of smartphones and internet connectivity. With the proliferation of mobile devices, consumers have the ability to initiate transactions anytime, anywhere, with just a few taps on their

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screens. Mobile banking applications, in particular, have become indispensable tools for managing finances, allowing users to check balances, transfer funds, pay bills, and even deposit checks remotely.

Furthermore, online transfers have revolutionized the way money is moved between accounts, whether it be between individuals, businesses, or financial institutions. The speed and ease with which funds can be transferred electronically have significantly reduced transaction times and eliminated the need for physical visits to banks or other financial intermediaries. Digital wallets have emerged as another popular means of conducting transactions, offering a secure and convenient way to store payment information and make purchases online or in-store. By digitizing credit cards, debit cards, and so on.

The rapid growth of digital transactions has been further accelerated by the COVID-19 pandemic, which prompted a shift towards contactless payment methods and online shopping due to health and safety concerns. As consumers increasingly seek to minimize physical contact and reduce the risk of virus transmission, digital transactions have become the preferred choice for conducting everyday financial activities. In light of these developments, it is evident that digital transactions have become an integral part of modern economies, offering numerous benefits in terms of convenience, efficiency, and accessibility.

Overview Of M3 Money Supply

M3 money supply represents the broadest measure of money circulating within an economy, encompassing not only physical currency but also various forms of highly liquid financial assets. These assets typically include demand deposits, which are funds held in checking accounts that can be readily accessed for transactions, as well as certain types of savings deposits that can be easily converted into cash or used to make payments. The inclusion of demand deposits and savings deposits in M3 reflects the fluid nature of money within the financial system, capturing not only the currency in circulation but also the funds held in accounts that are readily available for spending. This broader definition of money supply is essential for policymakers and economists to assess the overall level of liquidity in the economy and to formulate appropriate monetary policies.

As a key indicator of monetary health, M3 money supply plays a crucial role in shaping economic analysis and decision-making. Changes in M3 can provide insights into shifts in consumer

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spending patterns, credit availability, and overall economic activity. For instance, an increase in M3 may indicate rising consumer confidence and higher levels of economic activity, while a decrease in M3 could signal tightening credit conditions and potential economic slowdown. Moreover, M3 money supply serves as a vital tool for central banks in conducting monetary policy. By monitoring changes in M3 over time, central banks can assess the need for adjusting interest rates, managing liquidity in the banking system, and influencing overall economic conditions. For example, during periods of economic expansion, central banks may seek to moderate the growth of M3 to prevent inflationary pressures, whereas during times of economic contraction, they may aim to stimulate M3 growth to support economic recovery.

Dominance Of Digital Transactions Over M3 Money Supply

Transactions

In recent years, the global economy has witnessed a profound shift towards digitalization, particularly in the realm of financial transactions. The rise of digital payment methods such as mobile banking, online transfers, and digital wallets has revolutionized the way individuals and businesses conduct monetary transactions. This trend has raised important questions regarding its impact on traditional monetary metrics, particularly the M3 money supply. M3 money supply represents a comprehensive measure of the money circulating within an economy, including physical currency, demand deposits, and certain types of savings deposits. Historically, M3 has served as a key indicator of monetary health and liquidity, guiding policymakers in their decision-making processes. However, as digital transactions continue to gain prominence, there is growing evidence to suggest that they are increasingly dominating traditional M3 money supply transactions. The convenience, efficiency, and widespread adoption of digital payment methods have led to a decline in the reliance on physical currency and traditional banking services.

This shift towards digital transactions has significant implications for monetary policy, financial stability, and economic dynamics. Central banks and policymakers must adapt to the changing landscape of financial transactions, ensuring that monetary policies remain effective in the digital age. Understanding the dominance of digital transactions over M3 money supply transactions is essential for policymakers, economists, and financial institutions alike. By conducting a comprehensive analysis of digital transaction data and M3 money supply indicators, researchers

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can gain insights into the evolving nature of financial transactions and their implications for the broader economy.

Review Of Literature and Company Profile

Brijesh Sivathanu's study (2018), the investigation into digital payment systems' usage during demonetization in India, utilizing UTAUT 2 and IR theory, reveals that behavioral intention and innovation resistance significantly influence digital payment system usage, with the stickiness to cash payments moderating this relationship. This study offers crucial insights for economists, policymakers, and digital payment service providers, shedding light on consumer behavior during demonetization and the pivotal role of cash stickiness in digital payment adoption.

Parishkrit Agrawal (2020) delves into the rise of fintech startups in India's digital payment landscape post-demonetization, attributing the sector's growth to government reforms, favorable policies, and technological advancements, resulting in a 12.7% Compound Annual Growth Rate in digital payments and positioning India as the global leader in fintech adoption. The continuous expansion of digital transactions presents promising prospects for fintech startups, driven by supportive government measures and technological innovation.

Salauddin S Sajjan (2020) focuses on the impact of digital payments on India's financial ecosystem, highlighting their role in facilitating electronic fund transfers and contributing to the country's transition towards a paperless and cashless economy.

Mahesh and Ganesh Bhat (2021) evaluate the growth and potential of the Unified Payment Interface (UPI) in India's digital payment ecosystem, revealing its remarkable expansion in retail payments driven by increased customer preference for contactless transactions. The research underscores UPI's pivotal role in advancing India's digital economy agenda and emphasizes its strengths and growth prospects in the evolving e-payment landscape.

Kavita Jain et al. (2021) analyzed users' intention to adopt digital payment systems in India post-demonetization and during the COVID-19 pandemic, finding that performance expectancy and facilitating conditions directly influence intention to use digital payment systems, with perceived ease of use mediating through attitude towards digital payment systems during the pandemic, offering insights for developing economies to formulate digital ecosystems resilient even after the pandemic, emphasizing the importance of understanding consumer behavior and cash stickiness in digital payment adoption.

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Swati Kulkarni, Dr. Ranjith P.V., and Aparna J Varma (2022) examined consumer perceptions towards online and digital payments safety in India, revealing that digital transactions are increasingly accepted in India, with usage rising annually, despite challenges faced by consumers during adoption, necessitating understanding of consumer perceptions towards cashless transactions by marketers and policymakers to enhance adoption and address challenges in India's digital payment landscape. Nilesh Anute et al. conducted an in-depth study of applications dealing with Unified Payment Interface (UPI) in India, noting the popularity of UPI due to its ease of use, security, and real-time alerts, experiencing robust growth year-on year, providing insights into major UPI apps and industry dynamics.

Yogesh Kumar and Dr. Amalanathan.P (2022) examined the growth of digital payment apps in India, particularly post-2020, highlighting the COVID-19 pandemic's role in accelerating the shift towards digital payments in India, driven by government initiatives and the idea of "Digital India," underscoring the significance of digital payments for financial inclusion and the importance of technological adoption in achieving financial equality.

Gauresh Nishad (2022) investigated India's transition from a predominantly cash-based economy to a digital payment system, revealing significant growth in the digital payments industry due to technology innovation and emphasis on digitalization, with consumers embracing digital payments for convenience and speed, underscoring the importance of infrastructure development and security measures in advancing the digital economy.

Tapas Kumar Sutradhar, Santadas Ghosh (2023) analyzed the distribution and usage of digital payment cards in India using data from the NSS 77th Round Survey, highlighting state and district-level variations. They found that while 85% of Indian adults have bank accounts, less than half possess debit or credit cards, with 82% of card-holders utilizing them for transactions within 365 days prior to the survey. Factors such as literacy rate, access to banking, road density, and prevalence of Self-Help Groups and Co-operative Credit Societies significantly influence digital integration and usage of payment cards. The study concludes by underscoring the importance of payment card possession for digital integration and providing policy suggestions for enhancing cashless transactions in India, offering a comprehensive analysis at the pan-India level.

Dharmendra Kumar, Subhash Subhash (2023) investigated the benefits of digitizing the payment system in India post-demonetization, emphasizing government initiatives like Digital

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India and the introduction of digital wallets, UPI, and BHIM apps. They found that the demonetization drive and government initiatives have led to an exponential increase in digital payment usage, contributing to transaction transparency and strengthening the economy. The study concludes by underscoring the significance of payment system digitization for facilitating a smooth transition to digital payments in India, emphasizing the adaptability and benefits of financial technology in enhancing cashless transactions.

Nandini Sujit Phatak (2023) analyzed the impact of digital payment adoption on small businesses in Pune City, Maharashtra, India, exploring how digital payment methods reshape operational dynamics and economic performance. The study found that digital payment adoption has become pivotal for small businesses, transforming operational dynamics and enhancing economic performance in Pune City. The research concludes by highlighting the importance of digital payment methods for small businesses and underscoring the need for further research to understand their broader implications for commerce and economic growth.

Mamta Rani (2023) reviewed the development of digital payment services in India, analyzing the impact of demonetization and the COVID-19 pandemic on digital payment systems, and discussing various modes of digital payments, including the Unified Payment Interface (UPI) network. The study found that digital payments have increased convenience and transparency but raised concerns about security and reliability, benefiting individuals with low and middle incomes and potentially boosting the Indian economy. The research concludes by emphasizing the transformative impact of digital payment systems in India and highlighting the need for robust security measures to address emerging challenges in financial transactions.

Research Gap:

Despite the growing prevalence of digital transactions and their transformative impact on the financial landscape, there is a notable gap in existing research that comprehensively examines the dominance of digital transactions over M3 money supply transactions. While studies have explored the adoption and implications of digital transactions, there remains a limited understanding of the extent to which these transactions have surpassed or influenced the traditional M3 money supply transactions. M3 encompasses a broader measure of the money supply, including both physical and digital forms of money, such as currency, demand deposits, and various time deposits. Understanding the dynamics and implications of the shift towards digital transactions dominating

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M3 money supply transactions is crucial for policymakers, financial institutions, and researchers to effectively navigate the evolving financial ecosystem.

This research aims to bridge this gap by providing an in-depth analysis of the dominance of digital transactions over traditional M3 money supply transactions, shedding light on the implications for monetary policy, financial stability, and the overall economic landscape.

Need Of the Study:

The need for this study arises from the transformative changes occurring in the financial landscape due to the rising dominance of digital transactions and the concurrent evolution of traditional M3 money supply transactions. With the increasing prevalence of digital payment methods, cryptocurrencies, and the broader fintech revolution, there is a critical gap in understanding the extent to which these digital transactions have surpassed or reshaped the conventional M3 money supply transactions. Such insight is imperative for policymakers, central banks, financial institutions, and researchers to make informed decisions, design effective regulatory frameworks, and implement monetary policies that align with the evolving nature of the financial ecosystem. As the shift towards digital transactions accelerates, there is a pressing need to comprehensively examine the implications of this dominance over M3 money supply transactions, ensuring a nuanced understanding of its impact on financial stability, economic growth, and the overall resilience of monetary systems. This study aims to address this gap, contributing valuable insights to the ongoing discourse surrounding the digital transformation of financial transactions and its implications on the broader monetary landscape.

Objective Of the Study

1. To know the trend of Digital Transaction and Money supply transaction in India.
2. To know the relationship between the Digital Transaction with Money supply transaction.
3. To know the impact of Digital transaction on Money Supply transaction in India.

Hypothesis Of the Study

Null hypothesis: There is no relationship exist between the Digital transaction with Money Supply Transaction.

Null hypothesis: There is no impact of digital transaction on Money Supply transaction.

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Scope Of the Study

The scope of the present study is centered around an in-depth examination of the dominance of digital transactions over M3 money supply transactions, with a particular focus on various channels of digital financial transactions. The study encompasses an extensive analysis of digital transactions, incorporating key components such as ATM transactions, NEFT (National Electronic Funds Transfer), RTGS (Real Time Gross Settlement), Credit and Debit card transactions, and Mobile banking transactions. By considering this comprehensive range of digital financial activities, the research aims to provide a holistic understanding of the prevailing trends and shifts in the financial landscape. The temporal scope of the study spans from the fiscal year 2010-11 to 2023-24, capturing a substantial timeframe that allows for the identification of long-term patterns and the assessment of how the dominance of digital transactions has evolved over the years. Through this temporal and transactional inclusivity, the study seeks to contribute valuable insights into the changing dynamics of financial transactions, offering policymakers, financial institutions, and researchers a robust foundation for informed decision-making in the context of the evolving digital economy.

Research Methodology

Research Design: This study adopts a descriptive research design to comprehensively analyze the dominance of digital transactions over M3 money supply transactions. Descriptive statistics will be employed to summarize and present the key features of the data collected from secondary sources.

Period of Study: The research spans from the fiscal year 2010-11 to 2023-24. This extended time frame allows for a thorough examination of trends, patterns, and shifts in digital transactions in relation to M3 money supply transactions over the years.

Source of Data: The primary source of data for this study is secondary data obtained from the Reserve Bank of India (RBI). The RBI is a reliable and authoritative source, ensuring the accuracy and integrity of the financial data required for this research.

Variables:

- Independent Variables: a. ATM Transactions b. NEFT (National Electronic Funds Transfer) c. RTGS (Real Time Gross Settlement) d. Credit and Debit Card Transactions

E. Mobile Banking Transactions

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- Dependent Variable: Money supply transactions (M3)

The data will be collected from the RBI's databases, reports, and publications related to digital transactions and money supply. The selected time frame and variables will guide the extraction of relevant data to ensure the accuracy and relevance of the findings.

1. External economic, geopolitical, or global events may impact digital transactions and M3 money supply, introducing variables beyond the study's control.
2. The study covers the period from 2010-11 to 2023-24; however, longer-term trends or short-term fluctuations may not be fully captured within this timeframe.
3. The study considers key digital transaction variables, the exclusion of other emerging financial technologies or factors may limit the comprehensiveness of the analysis.

Company Profile

Starc Research Solutions is a leading business market research and consulting firm based in Hyderabad, India. Since its establishment in 2018, the company has been dedicated to providing comprehensive and reliable research solutions to assist businesses in making informed decisions and achieving sustainable growth. With a team of experienced analysts and consultants, Starc Research Solutions has established itself as a trusted partner for organizations across various industries.

Services:

Market Research: Starc Research Solutions specializes in conducting in-depth market research to help businesses understand market dynamics, identify growth opportunities, and gain a competitive edge. The company employs advanced research methodologies, data analytics, and industry expertise to deliver accurate and actionable insights.

Industry Analysis: By conducting comprehensive industry analyses, Starc Research Solutions assists clients in understanding industry trends, market potential, key players, and regulatory frameworks. This enables businesses to develop effective strategies, capitalize on emerging opportunities, and mitigate risks.

Competitive Intelligence: Starc Research Solutions provides valuable competitive intelligence by analyzing the market positioning, strategies, strengths, and weaknesses of competitors. This enables clients to devise effective marketing, sales, and product development strategies to gain a competitive advantage.

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Market Entry and Expansion Strategies: The company supports organizations in formulating successful market entry and expansion strategies. By assessing market viability, conducting feasibility studies, and identifying target segments, Starc Research Solutions helps clients make informed decisions while entering new markets or expanding their existing operations.

Customized Consulting: Starc Research Solutions offers tailor-made consulting services to address specific client requirements. Whether it's evaluating potential partnerships, conducting due diligence, or providing strategic advice, the company delivers personalized solutions to meet diverse business needs.

Approach:

Starc Research Solutions follows a systematic and rigorous approach to deliver high-quality research and consulting services. The company's approach includes:

Thorough Data Collection: The team at Starc Research Solutions gathers data from reliable sources, utilizing primary and secondary research techniques, ensuring accuracy and relevance.

Robust Analysis: The collected data is subjected to advanced analytical tools and techniques to derive meaningful insights. The company employs statistical models, forecasting methods, and data visualization techniques to provide clear and actionable recommendations.

Industry Expertise: The team comprises skilled market research analysts and industry experts who possess extensive knowledge and experience in their respective domains. Their expertise enables them to understand complex market dynamics and deliver valuable insights.

Client-Centric Approach: Starc Research Solutions places great emphasis on understanding client objectives, expectations, and unique challenges. The company strives to provide customized solutions that align with clients' business goals and contribute to their success.

Achievements:

Since its inception, Starc Research Solutions has successfully served clients from diverse industries, including technology, healthcare, finance, and consumer goods, among others.

The company has received accolades for its research reports and strategic recommendations, earning a reputation for delivering high-quality and actionable insights. Starc Research Solutions has built long-term relationships with many clients, who rely on the company's expertise to guide their business strategies and achieve growth.

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Data Analysis and Interpretation

Objective 1: To know the trend of Digital Transaction and Money supply transaction in India.

Table 1: Year on year Neft Transaction and Money supply

year	Neft	M3
2009	597937.8	26489653
2010	1212986	28945689
2011	2870579	32648965
2012	3886182	35648961
2013	4672405	42568741
2014	1594493	46987452
2015	2974077	51284698
2016	3793956	58642364
2017	5361006	62548965
2018	11790896	68452143
2019	32893583	70254689
2020	18473111	85469745
2021	19648523	90145875
2022	21363541	98123546
2023	24563981	102364785

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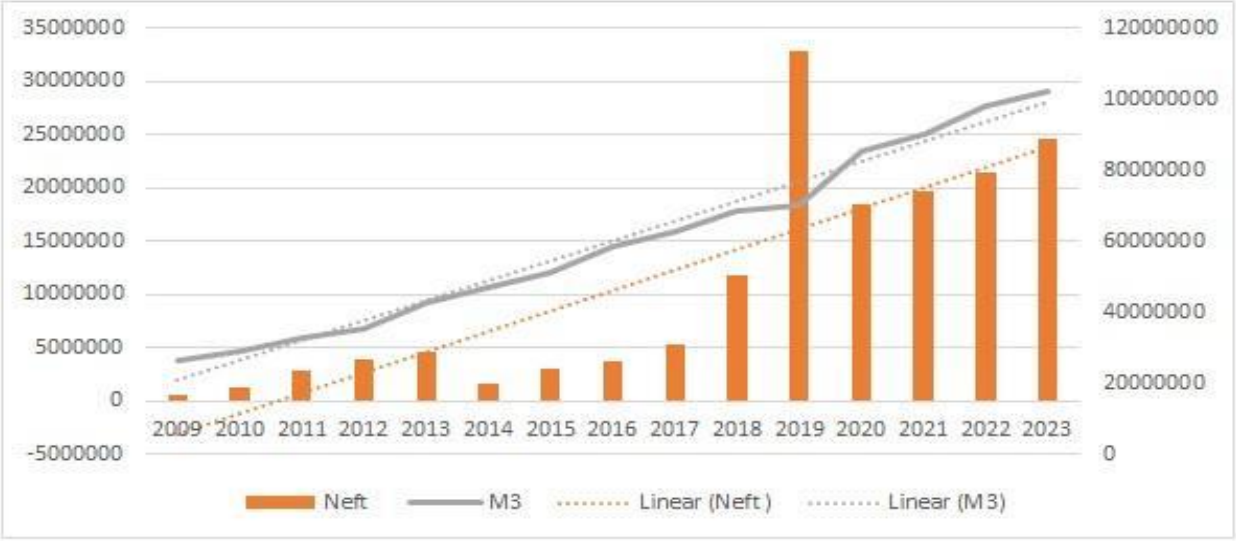

The table presents the year-on-year data for NEFT transactions and M3 money supply from 2009 to 2023. Over this period, both NEFT transactions and M3 money supply have demonstrated consistent growth trends. Beginning in 2009 with NEFT transactions at 597,937.8 and M3 at 26,489,653, the figures have steadily increased each year. The growth in

NEFT transactions has been particularly pronounced, with a significant surge observed from 2017 onwards, reaching a peak of 24,563,981 transactions in 2023. Similarly, M3 money supply has seen steady expansion, reflected the overall economic growth and increased financial transactions within the economy. Notably, the growth rate appears to have accelerated in recent years, with both NEFT transactions and M3 money supply experiencing substantial increases from 2019 onwards. This suggests a heightened reliance on digital transactions and a growing liquidity within the economy, potentially driven by factors such as technological advancements, government policies promoting digital payments, and changes in consumer behavior towards cashless transactions.

Table 2: Year on year RTGS Transaction and Money supply

Year	RTGS	M3
2009	262449	26489653
2010	602027.18	28945689
2011	909472.92	32648965

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2012	1010976.2	35648961
2013	721554.72	42568741
2014	142640.46	46987452
2015	220802.78	51284698
2016	238885.02	58642364
2017	277167.85	62548965
2018	536415.67	68452143
2019	1144710.9	70254689
2020	869339.82	85469745
2021	9453684.4	90145875
2022	11236545	98123546
2023	15364896	102364785

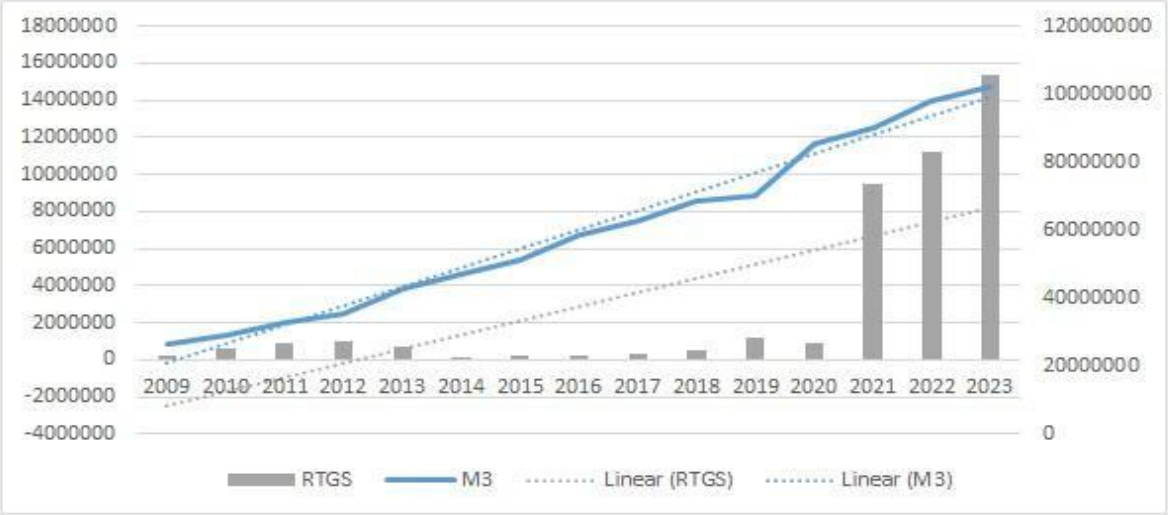

Table outlines the year-on-year data for RTGS transactions and M3 money supply from 2009 to 2023. Both RTGS transactions and M3 money supply demonstrate an upward trend over the specified period. Beginning with RTGS transactions at 262,449 and M3 at 26,489,653 in 2009, there is a consistent increase observed annually. Notably, there is a considerable spike in RTGS transactions in 2021, reaching 9,453,684, which may indicate a significant shift towards electronic

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fund transfers. This surge aligns with the broader trend of digitalization and the adoption of electronic payment methods. Moreover, M3 money supply shows steady growth throughout the years, reflecting the expansion of the overall monetary base within the economy. The year-on-year increases in both RTGS transactions and M3 money supply suggest a growing reliance on electronic transactions and an increase in liquidity within the economy. These trends could be attributed to various factors such as technological advancements, government initiatives to promote digital payments, and changing consumer preferences.

Table 3: Year on year Mobile Banking Transaction and Money supply

year	Mobile	M3
2009	2136541	26489653
2010	1389899	28945689
2011	2364856	32648965
2012	1751094	35648961
2013	2337886	42568741
2014	589314.4	46987452
2015	1124710	51284698
2016	2010049	58642364
2017	3529013	62548965
2018	14669391	68452143
2019	64336430	70254689
2020	1.23E+09	85469745
2021	1.43E+10	90145875
2022	1.69E+10	98123546

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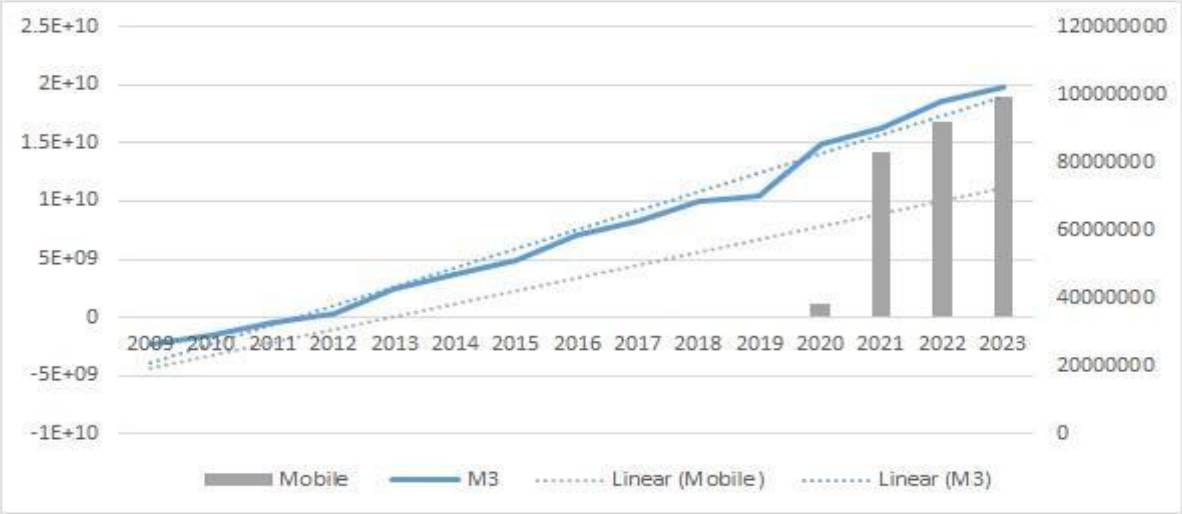
2023	1.9E+10	102364785



The table illustrates the year-on-year data for mobile banking transactions and M3 money supply from 2009 to 2023. Both mobile banking transactions and M3 money supply depict a substantial upward trajectory throughout the examined period. Commencing with mobile banking transactions at 2,136,541 and M3 at 26,489,653 in 2009, a consistent growth pattern is evident annually. Noteworthy is the remarkable surge in mobile banking transactions, particularly from 2018 onwards, with a significant leap observed in 2021 and 2022, reaching 1.43E+10 and 1.69E+10 transactions respectively. This surge underscores a profound shift towards mobile-based financial services, likely driven by advancements in technology, increased smartphone penetration, and initiatives to promote digital banking. Additionally, M3 money supply demonstrates steady growth over the years, reflecting the expanding monetary base within the economy, which could be attributed to factors such as economic growth, government policies, and changes in monetary regulations. The year-on-year increases in both mobile banking transactions and M3 money supply indicate a burgeoning reliance on mobile based financial transactions and an expansion of liquidity within the economy. These trends signify a significant evolution in the financial landscape towards digitalization and mobile centric banking solutions, reshaping the way financial transactions are conducted and highlighting the importance of digital connectivity in modern financial systems.

Table 4: Year on year ATM Transaction and Money supply

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year	ATM	M3
2009	2546381	26489653
2010	2864785	28945689
2011	3541256	32648965
2012	3632145	35648961
2013	8295.806	42568741
2014	2650.597	46987452
2015	4069.875	51284698
2016	5226.972	58642364
2017	4685.347	62548965
2018	13222.67	68452143
2019	27451.83	70254689
2020	25641.25	85469745
2021	26425.56	90145875
2022	31536485	98123546
2023	38654125	102364785

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The table presents the year-on-year data for ATM transactions and M3 money supply from 2009 to 2023. Both ATM transactions and M3 money supply exhibit an overall upward trend over the analyzed period. Beginning with ATM transactions at 2,546,381 and M3 at 26,489,653 in 2009, there is a consistent increase observed annually. However, it is notable that from 2013 to 2017, there is a slight decline in ATM transactions, possibly indicating a shift towards alternative payment methods such as online banking and mobile payments. This decline is followed by a resurgence in ATM transactions from 2018 onwards, with a substantial spike observed in 2022 and 2023, reaching 31,536,485 and 38,654,125 transactions respectively. This resurgence may reflect increased economic activity and demand for cash amid broader economic trends. Furthermore, M3 money supply demonstrates steady growth throughout the years, reflecting the expansion of the overall monetary base within the economy. The year-on year increases in both ATM transactions and M3 money supply suggest a continued reliance on cash transactions alongside digital payment methods, highlighting the importance of maintaining a diverse and inclusive financial infrastructure.

Table 5: Year on year Credit Transaction and Money supply

year	Credit	M3
2009	2456845	26489653
2010	2648954	28945689
2011	2789456	32648965
2012	76496.67	35648961
2013	23330.94	42568741
2014	6322.683	46987452
2015	10884.9	51284698
2016	12425.19	58642364
2017	12942.4	62548965
2018	53311.74	68452143
2019	114735.2	70254689

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2020	868810.3	85469745
2021	9125475	90145875
2022	10365413	98123546
2023	14236542	102364785

The provided table presents the year-on-year data for credit transactions and M3 money supply from 2009 to 2023. Both credit transactions and M3 money supply exhibit a consistent upward trend over the specified period. Beginning with credit transactions at 2,456,845 and M3 at 26,489,653 in 2009, there is a notable increase observed annually. The growth in credit transactions appears steady until 2012, after which there is a substantial surge in 2013, possibly indicating a significant expansion in credit-based transactions within the economy. This surge continues throughout the subsequent years, with credit transactions reaching a peak of 14,236,542 in 2023. Similarly, M3 money supply demonstrates steady growth, reflecting the expansion of the overall monetary base. The year-on-year increases in both credit transactions and M3 money supply suggest a growing reliance on credit-based financial transactions and an increase in liquidity within the economy.

Table 6: Year on year Debit Transaction and Money supply

year	Debit	M3

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2009	2785469	26489653
2010	2564856	28945689
2011	2145846	32648965
2012	7295765	35648961
2013	1.37E+08	42568741
2014	37439547	46987452
2015	48211887	51284698
2016	56165234	58642364
2017	55781733	62548965
2018	1.46E+08	68452143
2019	3.24E+08	70254689
2020	9653382	85469745
2021	10245035	90145875
2022	15264583	98123546
2023	19635412	102364785

The provided table showcases the year-on-year data for debit transactions and M3 money supply from 2009 to 2023. Both debit transactions and M3 money supply exhibit a consistent upward

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trend throughout the specified period. Starting with debit transactions at 2,785,469 and M3 at 26,489,653 in 2009, there is a noticeable increase observed annually. However, the growth in debit transactions accelerates significantly from 2012 onwards, with a dramatic surge in 2013, possibly indicating a substantial shift towards debit-based transactions within the economy. This surge continues in subsequent years, with debit transactions reaching a peak of 196,354,12 in 2023. Similarly, M3 money supply demonstrates steady growth, reflecting the expansion of the overall monetary base. The year-on-year increases in both debit transactions and M3 money supply suggest an increasing reliance on debit-based financial transactions and an overall expansion in liquidity within the economy. These trends may be influenced by factors such as technological advancements, changes in consumer preferences, and efforts to promote cashless transactions.

Objective 2: To know the relationship between the Digital Transaction with Money supply transaction.

Null hypothesis: There is no relationship exist between the Digital transaction with Money Supply Transaction.

Table 7: Correlation between the Digital Transaction with Money supply transaction.

	DM3	DNEFT	DRTGS	DATM	DCredit	DDebit
DM3	1					
DNEFT	0.1286	1				
DRTGS	-0.0252	-0.0615	1			
DATM	0.0171	-0.0320	0.8718	1		
DCREDIT	0.1717	0.0486	-0.6890	-0.6944	1	-
DDEBIT	0.1741	0.9418	0.0702	0.0925	-0.1231	1

Table examines the relationship between digital transactions (DM3) and various types of money supply transactions, including NEFT (DNEFT), RTGS (DRTGS), ATM (DATM), credit transactions (DCredit), and debit transactions (DDebit). The correlation coefficient ranges from -1 to 1, where 1 indicates a perfect positive correlation, -1 indicates a perfect negative correlation, and 0 indicates no correlation. It observed that digital transactions (DM3) have a weak positive correlation with NEFT transactions (DNEFT) at 0.1286 and a weak negative correlation with

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RTGS transactions (DRTGS) at -0.0252. This suggests a slight tendency for digital transactions to increase alongside NEFT transactions and decrease alongside RTGS transactions, although the correlations are not particularly strong. Additionally, digital transactions show a moderate positive correlation with ATM transactions (DATM) at 0.0171. This indicates a moderate tendency for digital transactions and ATM transactions to increase or decrease together, although the correlation is not strong enough to imply a strong relationship. Furthermore, there is a weak positive correlation between digital transactions and credit transactions (DCredit) at 0.1717, suggesting a slight tendency for digital transactions to increase alongside credit transactions. Finally, there is a moderate positive correlation between digital transactions and debit transactions (DDebit) at 0.1741. This indicates a moderate tendency for digital transactions and debit transactions to increase or decrease together, although the correlation is not exceptionally strong. Overall, it indicates reject the null hypothesis and accept the alternative hypothesis.

Objective 3: To know the impact of Digital transaction on Money Supply transaction in India.

TABLE 8: Impact of digital transaction on money supply transaction

Dependent Variable: DM3				
Method: Least Squares				
Sample (adjusted): 2 15				
Included observations: 14 after adjustments				
Variable	Coefficient	Std. Error	t- Statistic	Prob.
DATM	-0.028093	0.230038	-6 .065328	0. 0295
DCREDIT	-0.175361	0.090552	-5.073356	0.0233
DDEBIT	-0.037447	0.032472	-6.153209	0.0221
DNEFT	0.320792	0.097374	8.644972	0.0370
DRTGS	-0.163432	0.002234	-6.059381	0.0541
MOBILE	-0.200422	0.000783	6.538752	0.0047

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R-squared	0.6 11388	Mean de pendent var		5419652.
Adjusted Rsquared	0.581005	S.D. dependent var		3350007.
S.E. of regression	67.67516	Akaike info criterion		34.59069
Sum squared resid	3.622614	Schwarz criterion		34.86458
Log likelihood	-236.1349	Hannan-Quinn criter.		34.56534
Durbin-Watson stat	1.971667			

The Table presents the results of an Ordinary Least Squares (OLS) regression analysis aimed at examining the impact of various digital transaction variables on money supply transactions (DM3). The coefficients indicate the strength and direction of the relationship between each independent variable (DATM, DCREDIT, DDEBIT, DNEFT, DRTGS, and MOBILE) and the dependent variable (DM3). A negative coefficient suggests an inverse relationship, while a positive coefficient indicates a direct relationship. The results indicate that debit transactions (DDEBIT) and mobile banking transactions (MOBILE) have significant negative impacts on money supply transactions, with coefficients of -0.037447 and -0.200422 respectively. Conversely, NEFT transactions (DNEFT) exhibit a significant positive impact on money supply transactions, with a coefficient of 0.320792. Other variables, such as ATM transactions (DATM), credit transactions (DCREDIT), and RTGS transactions (DRTGS), also demonstrate significant impacts on money supply transactions, albeit to a lesser extent. The R-squared value of 0.611388 indicates that the model explains approximately 61.1% of the variance in money supply transactions. Hence it concluded that reject the null hypothesis and accept the alternative hypothesis i.e., there is a significant impact of digital transaction on Money supply.

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Findings Conclusion and Recommendations

Findings of the study

- The study observed that, NEFT transactions have shown significant growth over the years, with a notable surge observed from 2017 onwards, culminating in a peak of 24,563,981 transactions in 2023. Similarly, M3 money supply has steadily expanded throughout the period, reflecting overall economic growth and increasing financial transactions.
- It observed that, Both RTGS transactions and M3 money supply demonstrate an upward trend over the specified period. Beginning with RTGS transactions at 262,449 and M3 at 26,489,653 in 2009, there is a consistent increase observed annually. A notable spike in RTGS transactions is observed in 2021, reaching 9,453,684, potentially indicating a significant shift towards electronic fund transfers. This surge aligns with the broader trend of digitalization and the adoption of electronic payment methods.
- It found that, both mobile banking transactions and M3 money supply exhibit a significant upward trajectory over the examined period. A remarkable surge in mobile banking transactions is notable from 2018 onwards, with substantial leaps recorded in 2021 and 2022, reaching 1.43E+10 and 1.69E+10 transactions respectively. This surge indicates a profound shift towards mobile-based financial services, possibly driven by technological advancements, increased smartphone penetration, and initiatives to promote digital banking.
- It observed that, in the Beginning ATM transactions at 2,546,381 and M3 at 26,489,653 in 2009, there is a consistent increase observed annually. However, from 2013 to 2017, there is a slight decline in ATM transactions, possibly indicating a shift towards alternative payment methods. This decline is followed by a resurgence in ATM transactions from 2018 onwards, with substantial spikes observed in 2022 and 2023.
- It observed that, both credit transactions and M3 money supply demonstrate a consistent upward trend over the specified period. The growth in credit transactions appears steady until 2012, followed by a substantial surge in 2013, indicating a significant expansion in credit-based transactions. The year-on-year increases in both credit transactions and M3 money supply suggest a growing reliance on credit-based financial transactions and an increase in liquidity within the economy.

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- It found that, debit transactions at 2,785,469 and M3 at 26,489,653 in 2009, there is a noticeable increase observed annually. However, the growth in debit transactions accelerates significantly from 2012 onwards, with a dramatic surge in 2013, possibly indicating a substantial shift towards debit-based transactions. These trends may be influenced by factors such as technological advancements, changes in consumer preferences, and efforts to promote cashless transactions.
- It found that, Money Supply exhibit a weak positive correlation with NEFT transactions (DNEFT) at 0.1286, indicating a slight tendency for digital transactions to increase alongside NEFT transactions. It also observed that, there is a weak negative correlation between Money supply and RTGS transactions (DRTGS) at -0.0252, suggesting a slight tendency for digital transactions to decrease alongside RTGS transactions.
- It reported that there is a moderate positive correlation is observed between Money supply and ATM transactions (DATM) at 0.0171, indicating a moderate tendency for these transactions to increase or decrease together. It found that, there is a weak positive correlation between Money supply and credit transactions (DCredit) at 0.1717, suggesting a slight tendency for digital transactions to increase alongside credit transactions.
- It observed that, there is a moderate positive correlation is found between Money supply and debit transactions (DDebit) at 0.1741, indicating a moderate tendency for these transactions to increase or decrease together.
- It found that, Debit transactions (DDEBIT) and mobile banking transactions (MOBILE) exhibit significant negative impacts on money supply transactions, with coefficients of -0.037447 and -0.200422 respectively, indicating an inverse relationship.
- It observed that, NEFT transactions (DNEFT) demonstrate a significant positive impact on money supply transactions, with a coefficient of 0.320792, indicating a direct relationship.
- It found that, other variables, including ATM transactions (DATM), credit transactions (DCREDIT), and RTGS transactions (DRTGS), also show significant impacts on money supply transactions, albeit to a lesser extent.

Conclusion of the study

The study evident that, across various aspects of digital transactions and their impact on money supply, several key conclusions can be drawn. Firstly, there is a notable surge in digital

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transactions, particularly in NEFT and mobile banking, indicating a significant shift towards electronic financial services. This trend is accompanied by a steady expansion in M3 money supply, reflecting overall economic growth and increased financial activity. Moreover, while RTGS transactions demonstrate a significant upward trend, ATM transactions exhibit fluctuations, possibly indicating evolving consumer preferences in payment methods. Additionally, both credit and debit transactions show consistent growth patterns, suggesting a rising reliance on credit-based financial transactions alongside technological advancements and changing consumer behavior. The correlation analysis reveals nuanced relationships between digital transactions and money supply, with significant impacts observed for NEFT transactions. Furthermore, the regression analysis underscores the significant negative impact of debit and mobile banking transactions on money supply, contrasting with the positive impact of NEFT transactions. Overall, these findings highlight the evolving landscape of digital transactions and their intricate relationship with money supply dynamics, underscoring the importance of understanding and adapting to the changing financial ecosystem driven by technological advancements and shifting consumer preferences.

Suggestion of the study

1. It found that, there is a significant growth observed in NEFT, RTGS, mobile banking, and other digital transactions, there is a need to continue promoting the adoption of digital payment methods. This can be achieved through awareness campaigns, incentives, and improved accessibility to digital banking services.
2. It suggests to access to digital payment services should be extended to all segments of society, including rural and underserved areas. Initiatives aimed at promoting financial literacy and providing affordable banking services can help increase participation in digital transactions and promote financial inclusion.
3. It suggests to continuous monitoring and regulation of digital transactions are necessary to ensure transparency, protect consumers' interests, and maintain the stability of the financial system. Regulators should adapt regulations to address emerging trends and technological advancements in digital banking.
4. It suggests to foster seamless integration between digital transaction platforms and traditional banking systems to encourage widespread adoption of digital payments. This can be

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ISSN: 2960-0006 DOI: https: https://doi.org/10.59231/edumania/9083

achieved by collaborating with banks and financial institutions to develop interoperable systems that enable users to seamlessly transfer funds between digital wallets, bank accounts, and other payment channels.

5. It stated that, despite the benefits of digital transactions, concerns about security and fraud remain significant barriers to adoption. It suggests that to implement stringent security measures, such as multi-factor authentication and encryption technologies, can help alleviate these concerns and build trust among users.

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Received on Aug 09, 2024
Accepted on Sep 20, 2024
Published on Oct 01, 2024