IJISEM
INTERNATIONAL JOURNAL OF INNOVATIONS IN SCIENCE ENGINEERING AND MANAGEMENT

A Study of the Interconnection between the Growth of Financial System and Information Technology and the Challenges Ahead

OPEN ACCESS

Volume: 3

Issue: Special

Month: May

Year: 2024

ISSN: 2583-7117

Published: 07.05.2024

Citation:

Bidyanand Choudhary1. "A Study of the Interconnection between the Growth of Financial System and Information Technology and the Challenges Ahead" International Journal of Innovations In Science Engineering And Management, vol. 3, Issue: Special, 2024, pp. 82–89.

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Abstract

The integration of information technology, the liberalization process, and the subsequent opening of the Indian economy ushered in significant transformations, both quantitative and qualitative, within the financial system. This era witnessed heightened competition and improved investment conditions, leading to a remarkable surge in transaction volumes across various sectors. Particularly noteworthy was the emergence of Demat accounts, which substantially bolstered the participation of retail investors in India, thereby contributing to enhanced financial inclusivity. Moreover, this development played a pivotal role in augmenting the financial literacy levels among the populace, albeit within certain limitations.

The paper proposes that the advent of information technology brought a revolutionary change in the financial market in India. It also claims that both in the primary and secondary segments it hugely increased the market participation which increased the volume of capital formation and its mobilization The paper adopts a historical and exploratory research methodology to establish its claims and uses vast sources of data from credible institutions both within and outside India.

Keyword. Financial Market , Demat Accounts, Information Technology

1. INTRODUCTION

Before liberalization, the Indian financial sector operated under stringent regulations, limited foreign investor access, a narrow spectrum of financial instruments, and a dearth of advanced technology. The stock market functioned inefficiently with manual processes and a predominantly open outcry system, resulting in prolonged deal execution times.

However, with the advent of liberalization, international investors gained entry into the Indian market, prompting significant financial reforms to modernize the sector. The integration of Information Technology (IT) in financial operations witnessed substantial growth.

Pre-1996, the stock market predominantly operated as a physical exchange, reliant on face-to-face transactions. Online trading platforms were non-existent, and internet accessibility was limited, impeding real-time market data dissemination and trading efficiency.

The advent of the internet and online trading platforms post-1996 transformed the stock market landscape, enhancing accessibility for the general public and amplifying trade volume and liquidity. Consequently, numerous companies experienced substantial increases in market capitalization, reflecting the combined value of all outstanding shares of stock.

Introduction of Demat Accounts and the Growth of the Number of Demat Account Holders since 1996

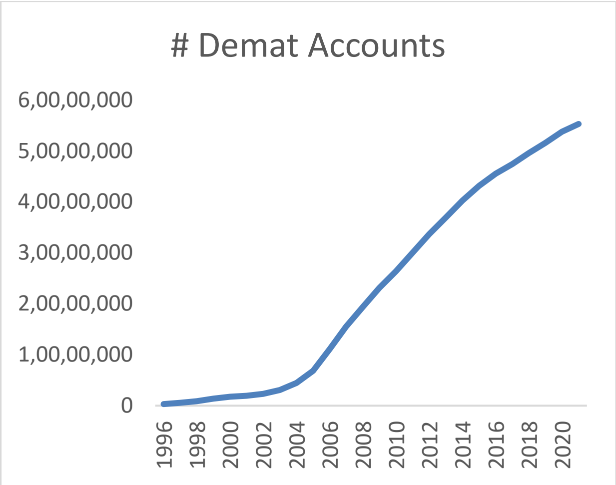


Figure 1

Source: Central Depository Services Limited (CDSL)[1]

The introduction of demat accounts in India has had a considerable influence on both primary and secondary markets. Demat accounts enable investors to keep and transfer assets electronically, removing the need for physical certificates. Here are some insights on how the use of demat accounts has affected Indian markets:

Effects of Introduction of Demat Accounts on the Financial Market

Primary market: The introduction of demat accounts has made the process of IPO (Initial Public Offering) allotment and share transfers more efficient and speedier. Previously, investors had to wait for real certificates to arrive, which caused delays and the possibility of fraud. Allotment and transfer of shares can be completed in a matter of days with demat accounts. This has resulted in increased investor involvement in IPOs and more openness in the market.

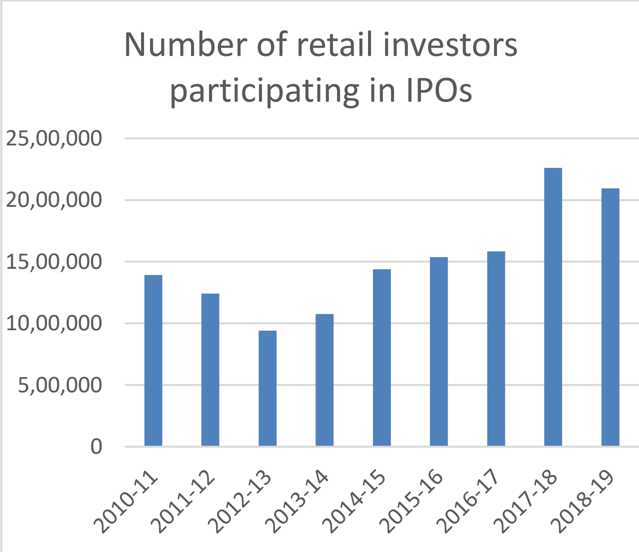


Figure 2

Source: "Indian IPO Market Review" reports published by PRIME Database[2]

Secondary market: Demat accounts have also made trading in the secondary market faster and more convenient. With demat accounts, investors can buy and sell shares electronically, eliminating the need for physical share certificates and reducing settlement time. This has led to increased liquidity in the market and improved price discovery. It has also made it easier for retail investors to participate in the stock market as they no longer have to worry about the safety and storage of physical share certificates.

Decreased fraudulent activity: Demat accounts have also decreased the possibilities for fraudulent stock market actions. The absence of physical certificates has reduced the possibility of forgery, theft, and counterfeiting. The introduction of digital signatures and other security measures has boosted transaction safety and security even more.

The use of demat accounts has had a positive impact on both primary and secondary markets in India. It has improved the effectiveness, convenience, and security of the share trading process. Additionally, it has boosted the process's transparency and decreased the chance of fraud.

The number of investors in India's primary market has been significantly impacted by the use of information

[1]https://www.cdslindia.com/cdslweb/about-us/depository-statistics.aspx (22/04/2023)

[2]"Indian IPO Market Review" reports published by PRIME Database

technology. The primary market investment procedure has become more accessible, practical, and transparent thanks to information technology, which has increased the number of investors. The number of investors in the primary market has been impacted by IT in the following ways:

1. **Online IPO applications:** The introduction of online IPO applications has made the process of investing in an IPO more convenient for retail investors. Earlier, investors had to physically fill out forms and submit them to the registrar, which was a time-consuming process. With online IPO applications, investors can apply for an IPO from the comfort of their homes, using their computers or mobile devices. This has made it easier for retail investors to participate in the primary market.

2. **Real-time information dissemination:** Investors can now get real-time information about companies coming public thanks to the usage of information technology. Through online portals and mobile applications, investors can obtain details about the company's finances, management, business model, and other pertinent information. As a result, it has become simpler for investors to decide whether to invest in an IPO.

3. **Electronic payment systems:** With the advent of electronic payment systems, investors may now pay for IPO applications more easily. Investors no longer need to use physical checks or demand draughts to make payments thanks to electronic payment systems, which allow them to do so using their bank accounts or mobile wallets. This has sped up and improved the process of investing in an IPO.

4. **Increased transparency:** The use of information technology has increased transparency in the primary market. Investors can access information about the IPO process, allotment, and listing through online portals and mobile applications. This has reduced the potential for fraudulent activities and increased investor confidence in the primary market.

In conclusion, the use of information technology has had a positive impact on the number of investors in the primary market in India. It has made the process of investing in an IPO more accessible, convenient, and transparent, leading to an increase in the number of investors.

Impact of Information Technology on the Number of Investors in Primary Market

According to data from the Securities and Exchange Board of India (SEBI), the number of demat accounts in India increased from around 1.7 million in March 2001 to over 55 million in March 2021. This represents a significant increase in the number of investors holding securities in an electronic form. [3]

The increase in the number of demat accounts has also led to a corresponding increase in the number of investors participating in the primary market. According to a report by the National Stock Exchange (NSE), the number of retail investors participating in IPOs in India increased from around 2.3 million in 2017-18 to over 3 million in 2019-20, representing a growth of over 30%. [4]

Furthermore, the average size of an IPO application by a retail investor has also increased, indicating increased participation and confidence in the primary market. According to the same NSE report, the average size of an IPO application by a retail investor increased from around INR 67,000 in 2017-18 to INR 1.06 lakh in 2019-20, representing a growth of over 58%. [5]

Overall, the introduction of demat accounts in India has had a significant impact on the number of investors participating in the primary market. The convenience, safety, and transparency of holding securities in an electronic form have led to increased participation and confidence in the primary market.

Impact of the Introduction of Demat Accounts on Investors in the Secondary Market

The secondary market refers to the buying and selling of securities that have already been issued by companies and are traded on stock exchanges. In India, the secondary market is a vital part of the capital market, and it plays a crucial role in the allocation of capital, price discovery, and wealth creation. Information technology (IT) has revolutionized the secondary market in India, and its impact has been significant in many ways.

One of the key ways in which IT has impacted the secondary market is by enabling online trading. The

[3]https://www.sebi.gov.in/sebiweb/home/HomeAction.do?doListing=yes&sid=3&ssid=29&sm= (22/04/2023)
[4]https://www.nseindia.com/research-content/research-reports (22/04/2023)
[5]https://www.nseindia.com/research-content/research-reports (22/04/2023)

introduction of online trading platforms has made it easier for investors to trade in the stock market. Investors can now place orders, track their investments, and access real-time market data from the comfort of their homes or offices. Online trading has also reduced transaction costs, as it eliminates the need for intermediaries such as brokers and sub-brokers.

Moreover, IT has also made it easier for investors to access information about companies and their financial performance. With the advent of the internet and digital media, investors can now access a wealth of information about companies, including their financial reports, news articles, and analyst reports. This information can help investors make informed investment decisions and reduce the information asymmetry that existed earlier.

'IT' has also made it easier for companies to comply with regulatory requirements related to the disclosure of information. With the implementation of electronic reporting systems, companies can now file their financial reports and other regulatory filings online, making it easier for investors to access this information. This has led to greater transparency in the secondary market and improved investor confidence.

In addition, IT has also enabled the introduction of innovative investment products such as exchange-traded funds (ETFs) and mutual fund units that can be traded on stock exchanges. These products have become increasingly popular among investors, as they offer a convenient and cost-effective way of investing in the stock market.

Overall, IT has played a significant role in the development of the secondary market in India. It has enabled online trading, improved access to information, and increased transparency, leading to greater investor participation and confidence. As IT continues to evolve, we can expect to see further innovations in the secondary market that will benefit investors and companies alike.

The Indian stock market has seen significant growth in recent years, and the introduction of information technology (IT) has played a vital role in this growth. However, it is essential to note that the growth of the stock market is impacted by various factors, and IT is just one of them. Here are some data points on investment in the secondary market in India since the introduction of IT:

1. Trading volume: According to data from the National Stock Exchange of India (NSE), the daily average turnover in the cash segment of the NSE has grown from around Rs. 10,000 crore in 2001 to over Rs. 80,000 crore in 2022. This represents a significant increase in trading volume, and IT has played a critical role in enabling this growth. [6]

2. Retail investor participation: Retail investor participation in the stock market has also increased significantly in recent years. According to data from the Securities and Exchange Board of India (SEBI), the number of demat accounts in India has grown from around 30 lakhs in 2002 to over 5 crore in 2021. This represents a five-fold increase in the number of retail investors in the stock market.[7]

3. Market capitalization: The market capitalization of the Indian stock market has also grown significantly in recent years. According to data from the Bombay Stock Exchange (BSE), the total market capitalization of BSE-listed companies has grown from around Rs. 3,00,000 crores in 1990 to over Rs. 2,40,00,000 crores in 2022. This represents a staggering 800% increase in market capitalization. [8]

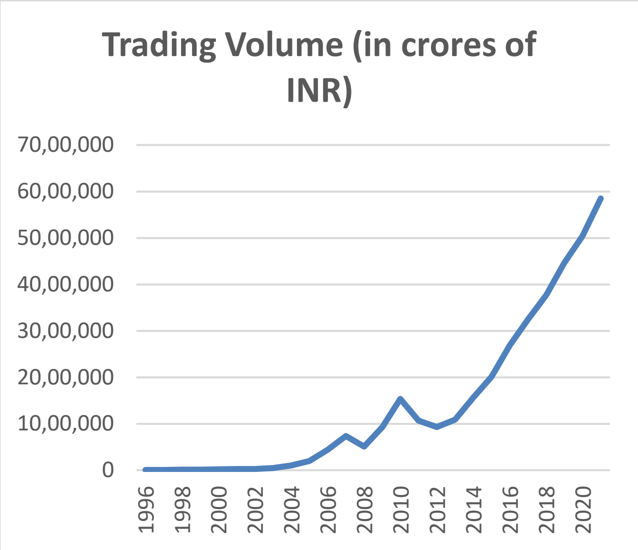
4. Introduction of new products: The introduction of IT has enabled the introduction of new investment products such as exchange-traded funds (ETFs) and real estate investment trusts (REITs) in India. According to data from the Association of Mutual Funds in India (AMFI), the assets under management (AUM) of ETFs in India has grown from around Rs. 1,000 crore in 2008 to over Rs. 2,50,000 crore in 2022. This represents a 250-fold increase in AUM.[9]

[6] https://www1.nseindia.com/products/content/equities/equities/archieve_eq.htm

[7] https://www.sebi.gov.in/sebiweb/home/HomeAction.do?doListing=yes&sid=3&siv=2&submod=Demat%20Accounts

[8] https://www.bseindia.com/markets/equity/EQReports/MCapHighLow.asp

[9] https://www.amfiindia.com/research-information/amfi-data



Source: National Stock Exchange of India (NSE) website[10]

It is essential to note that the growth of the stock market in India is impacted by various factors such as economic growth, government policies, and global trends, and IT is just one of these factors. Nonetheless, it is evident that IT has played a crucial role in enabling the growth of the secondary market in India.

Demat Accounts and the Growth of Mutual Funds Investments

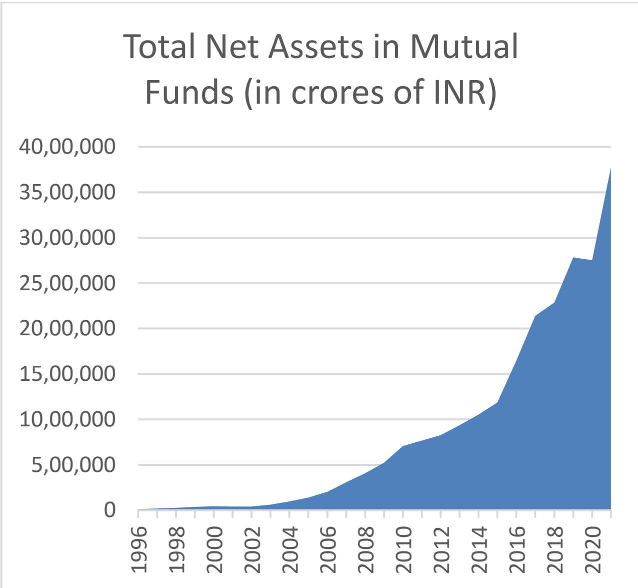
A demat account is a type of account that allows investors to hold their securities in an electronic format. It is used for trading stocks, bonds, mutual funds, and other financial instruments. Mutual funds are a type of investment vehicle that pools money from multiple investors and invests it in various securities such as stocks, bonds, and other assets.

The Demat account is an important aspect of investing in mutual funds because it provides a convenient way for investors to hold their mutual fund units in an electronic format. With a demat account, investors can easily buy and sell mutual fund units, and track their investments online. The Demat account also provides a secure way to hold the units, as it eliminates the risk of physical certificates being lost or stolen.

The volume of mutual fund investments is directly related to the availability and usage of demat accounts. With the increasing popularity of mutual funds as an investment option, more and more investors are opening demat accounts to hold their mutual fund units. This has led to a significant increase in the volume of mutual fund investments in recent years.

Moreover, many mutual funds also offer the option of investing directly through the demat account. This provides investors with a more convenient way of investing in mutual funds, as they can easily purchase and sell units from their demat account, without the need to go through a broker or visit a mutual fund office.

In summary, demat accounts play a crucial role in the volume of mutual fund investments, as they provide a convenient and secure way for investors to hold their mutual fund units, and make it easier to invest in mutual funds. As more and more investors open demat accounts, we can expect to see continued growth in the volume of mutual fund investments.



Source: Association of Mutual Funds in India (AMFI)[11]

Increased Volume of Foreign Institutional Investment

The use of information technology (IT) has had a significant impact on foreign institutional investment (FII) in India in several ways. Here are a few effects of IT on FII in India:

[10]https://www.nseindia.com/products-services/equity-market-trading-statistics-archive

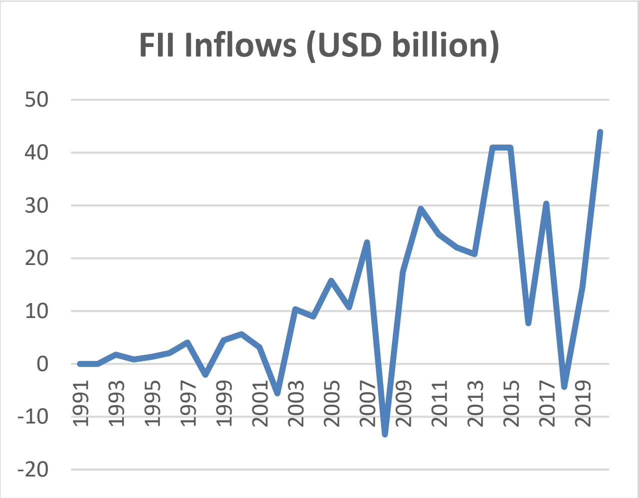
[11]https://www.amfiindia.com/research-information/amfi-data

1. Increased Transparency: IT has enabled greater transparency in financial transactions and has made it easier for foreign investors to access information about Indian companies, their financial performance, and investment opportunities. This increased transparency has made it easier for foreign investors to make informed investment decisions in India.[12]

2. Improved Efficiency: The use of IT has improved the efficiency of the Indian stock market by enabling faster and more efficient trading and settlement systems. This has made it easier for foreign investors to invest in Indian stocks, bonds, and other securities.[13]

3. Better Risk Management: IT has also enabled better risk management practices for foreign investors in India by providing real-time access to market data and enabling faster analysis of risk factors. This has made it easier for foreign investors to assess and manage their exposure to risks in the Indian market.[14]

4. Increased Investment: The use of IT has made it easier for foreign investors to invest in India and has contributed to a significant increase in FII inflows in the country. According to data from the Securities and Exchange Board of India (SEBI), FII inflows into India have increased from $1.75 billion in 1993 to $43.9 billion in 2020.[15]



Source: Securities and Exchange Board of India (SEBI), "Foreign Portfolio Investors (FPIs) - Data Archives[16]

Overall, the use of IT has had a positive impact on FII in India by increasing transparency, improving efficiency, enabling better risk management practices, and contributing to a significant increase in foreign investment inflows into the country.

Problems of Frauds and Malpractices vis-à-vis Information Technology in India

With the advancement of technology, the mobilization of capital increased manyfold since liberalization. But the same advancement also enhanced the possibilities and number of banking and financial malpractices. The RBI has conducted vast research on this problem and it presents quite disturbing facts.

1. According to the Reserve Bank of India's (RBI) annual report, there were a total of 2,059 cases of cyber fraud reported in India's banking sector in 2020, with a total loss of Rs 1.3 billion. [17]

2. The RBI has also stated that mobile banking frauds have increased significantly in recent years, with fraudsters using social engineering techniques, such as phishing, to trick customers into sharing their personal and financial information. [18]

3. A study by PwC found that over 80% of financial institutions in India have experienced a cyber attack, with phishing and social engineering being the most common types of attack. [19]

4. In recent years, there have been several high-profile cases of financial frauds related to information technology

[12]http://www.ijmra.us/project%20doc/2016/IJMIE_JAN2016/IJMIE_JAN2016_125.pdf.
[13]https://www.researchgate.net/publication/308515677_Impact_of_IT_on_Stock_Market_Evidence_from_India
[14]https://www.researchgate.net/publication/282395753_Foreign_Institutional_Investors_and_the_Indian_Stock_Market_Impact_of_IT.
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[19]https://www.pwc.in/assets/pdfs/publications/2020/pwcs-gecfs-2020-india-report.pdf.

in India, such as the Nirav Modi-PNB scam and the IL&FS fraud. [20]

5. The use of technologies such as artificial intelligence, machine learning, and blockchain is seen as a potential solution to prevent financial fraud, by enabling banks and financial institutions to detect and prevent fraudulent transactions in real-time. [21]

6. The government of India has taken several measures to address the problem of financial fraud related to information technology, including the establishment of the Cyber Swachhta Kendra, which is a botnet cleaning and malware analysis center, and the Cyber Coordination Centre, which is responsible for coordinating cyber security efforts across various government agencies. [22]

7. The Securities and Exchange Board of India (SEBI) has also issued guidelines to improve cyber security in the securities market, which include requirements for regular vulnerability assessment and penetration testing, and the implementation of multi-factor authentication for trading accounts. [23]

Conclusion

It is found that the introduction of information technology played a critical role in the expansion of the financial market in India, on the one hand, it laid a platform for small investors to participate in the capital market, which was, until then, confined to a small number of investors. The information technology channelized a major chunk of savings of middle-income people to the financial markets, both primary and secondary, which was earlier confined to commercial banks. It also helped connect Indian financial markets to the global market and helped speed up the inflow of foreign institutional investments in India. The volume and quality of investments. On the other hand, it exposed financial markets to cyber insecurity as well. The number of malpractices also increased and showed the lack of groundwork of Indian regulators before opening up the system to the exposure of technology. There is yet a long way to go, but the journey seems to be quite exciting.

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