

STOCK MARKET VOLATILITY AND ITS IMPACT ON INVESTMENT DECISIONS IN INDIA

Ch.E. Rahul Pande¹ and Dr. Neeraj Kumar Fuloria²

¹ Indian Institute of Management Rohtak, Management City, NH-10 Southern Bypass, Sunaria, Rohtak, Haryana 124010, India. All India Management Association-Centre of Management Education(AIMA-CME), 14, Institutional Area, Lodhi Road, New Delhi -110003, India; Institute of Chartered accountants of India, Post Box No. 7100, Indraprastha Marg, New Delhi 110002, India; School of Management Studies, Indira Gandhi National Open University University, Maidan Garhi, New Delhi - 110068, India.

²Faculty of Pharmacy, AIMST University, Bedong 08100, Kedah, Malaysia*

ABSTRACT

Stock market volatility is one of those things everyone talks about but few truly understand, especially in a fast-moving market like India. In this paper, we will take a deep dive into what really makes the Indian market tick and how these price swings end up shaping the way people invest. By looking at a huge range of research over the last few decades, we found that India's market volatility isn't just random it's a complex cocktail of local economic health, global shifts, political drama, and the general mood of investors. One of our standout findings is "volatility clustering," which basically means that when the market gets wild, it tends to stay wild for a while. We also noticed a big difference in how people react to these jumps. Since 2020, millions of new retail investors have joined the fray, but they often struggle with emotional biases like "herding" or the fear of losing out, which can lead to some painful financial mistakes. On the other hand, big institutional players usually take a more calculated and systematic approach. But it's not all bad news: for long-term investors who use disciplined strategies, volatility creates some great buying opportunities. We wrap things up with practical advice for everyone from first-time investors to policymakers, and we suggest that the next big step for research lies in using machine learning and social media sentiment to predict where the market is headed next.

Keywords: Behavioural Finance, GARCH Models, India VIX, Investment Decisions, NSE/BSE, Retail Investors, Stock Market Volatility, Volatility Clustering

1. INTRODUCTION

Over the last 30 years, the Indian stock market has completely changed. It's gone from a small, loosely regulated system to one of the most exciting markets in the world, with the BSE and NSE now worth over \$4.5 trillion.[1] Since the big reforms in 1991, technology and new rules have made trading easier for everyone.[2] In this new

world, "volatility" is basically how much prices swing up and down and is the main thing that everyone from first-time investors to government experts keeps a close eye on.[3]

Volatility isn't just a math problem; it's like the market's mood. It shows us when people are feeling confident or nervous. We've seen this during big moments like the 2008 financial crisis and the COVID-19 crash in 2020. During that pandemic scare, the "fear gauge" (India VIX) surged above 80. These moments really test how people react when their money is on the line.[4]

This matters more than ever because India now has over 130 million retail investors. While it's great that so many people are investing, many fall into common traps, when things get wild, people often panic and sell at the worst possible time, or they get "FOMO" and buy when prices are at their peak. These emotional choices don't just hurt individual bank accounts; they actually make the market even more unstable. [5]

In this paper, we're going to look at what the experts say about these market swings and how they affect our choices. We argue that if you're disciplined, volatility isn't something to be afraid of it's actually an opportunity. We'll walk you through how volatility is measured, what's unique about the Indian market, what drives these price jumps, and how different types of investors can handle the ride better. [6]

2. CONCEPTUAL FRAMEWORK OF VOLATILITY

In simple terms, volatility measures how much the price of an investment swings up and down. Think of it as the "bumpiness" of the ride. Finance experts formally calculate this as the standard deviation of returns which is basically, a math-heavy way of measuring how far prices stray away from their average.[7] If R_t is the return at a specific time, the formula for historical volatility looks like this:

$$\sigma = \sqrt{\frac{\sum_{t=1}^n (R_t - \bar{R})^2}{(n-1)}}$$

The formula just averages out the gaps between actual returns and the mean return. This is called "historical" or "realised" volatility because it looks in the rearview mirror. It tells us how wild the market was in the past, but it doesn't always tell us what to expect tomorrow. [8]

That's where "implied volatility" comes in. Instead of looking backward, it looks forward by checking the prices of options. In India, we track this through the India VIX (Volatility Index), often called the "fear gauge." Calculated by the NSE, it predicts how much the Nifty 50 might fluctuate over the next 30 days. When the VIX is high, investors are nervous; when it's low, the market feels more relaxed.[9]

Then there's Beta (β), which tells you how much a specific stock moves compared to the rest of the market. If a stock has a Beta higher than 1, it's like a sports car it speeds up faster when the market is rising but crashes harder when it falls.[10] A Beta lower than 1 is more like a steady SUV. For a whole collection of stocks, the portfolio Beta is just the average of those individual "speeds":

$$\beta_p = \sum_{i=1}^n w_i \beta_i$$

Finally, it's important to distinguish between risks you can avoid and those you can't. "Unsystematic risk" is specific to one company (like a bad CEO), and you can avoid it by diversifying.[11] "Systematic risk" is market-wide (like a global recession) and affects everyone. Economists also noticed that volatility likes to "cluster" meaning if the market is wild today, it likely will be tomorrow too. This is what technical models like ARCH and

GARCH try to predict: the pattern that big changes usually follow big changes, and quiet times usually follow quiet times. [12]

3. INDIAN STOCK MARKET: STRUCTURAL CONTEXT

Established in 1875, the Bombay Stock Exchange is Asia's oldest bourse and leads globally with over 5,000 listed companies. The National Stock Exchange, launched in 1992 following the Harshad Mehta scandal, pioneered electronic trading and now dominates by volume, handling roughly 90% of equity derivatives. Its Nifty 50 index remains India's primary market benchmark.

India's Capital Markets were modernized by NEP-1991 and Post-1991 reforms, establishing SEBI as an independent regulator. Opening the economy to Foreign Portfolio Investors in 1992 facilitated cross-border capital flows while introducing a mechanism for external volatility transmission.

The role of Domestic Institutional Investors (DIIs) chiefly mutual funds, insurance companies, and pension funds has grown considerably since 2015, and dramatically so after 2020.[13] The post-pandemic retail investor boom, catalysed by zero-commission discount brokerage platforms such as Zerodha, Groww, and Upstox, brought millions of first-time investors into the market. Today, monthly SIP inflows exceed INR 30,000 crore (As per Association of Mutual Funds in India), helping domestic buying balance out foreign selling and keeping the market more stable during downturns.[14][15]

The large derivatives segment also drives volatility, as high leverage in futures and options leads to big price swings around expiry. To manage this, SEBI frequently steps in with tighter margins and position limits to curb excessive speculation.[16]

4. LITERATURE REVIEW

Experts have studied stock market swings (volatility) for years, pulling insights from economics, psychology, and real-world data. This section dives into the lessons learned, especially those that matter for the Indian market.

The traditional idea that markets are perfectly rational is called the Efficient Market Hypothesis (EMH) (Fama, 1970)[17]. According to it, stock prices instantly reflect all available information, making it impossible for anyone to consistently profit by predicting market swings. However research has revealed contrary results, particularly in growing economies like India.[18] For instance, Shiller (1981) famously pointed out the 'excess volatility puzzle': stock prices jump around far more than changes in corporate profits can explain. This suggests that feelings, rumors, and mass investor movements, not just cold, hard facts are often behind big price shifts.[19][20]

On the technical side, specialized models like ARCH and GARCH are the most common tools for studying volatility. These models prove that market swings don't happen randomly; instead, periods of high volatility tend to be followed by more high volatility. This is known as "volatility clustering." [21] In India, a study by Tanty and Patjoshi (2016) used the GARCH model on the BSE Sensex and NSE Nifty 50 and confirmed this clustering. Interestingly, they found that stocks on the BSE were more likely to stay volatile for longer periods than those on the NSE, which might be due to differences in how smoothly prices are set and how easily shares can be traded on each exchange.[22]

Aggarwal, Inclan, and Leal (1999) examined sudden changes in volatility in emerging markets including India, identifying specific events, currency crises, political upheavals, and global conflicts as the structural breaking points in the volatility regime. Their study reveals local political and economic events, rather than global

factors, were the prominent drivers of volatility shifts in most emerging markets, a finding partially at odds with more recent evidence on global spillover transmission in the post-2008 era[23]. This temporal distinction is important: the increasing financial integration of India into global capital markets since the mid-2000s has progressively elevated the sensitivity of domestic volatility to external shocks[24].

The behavioral finance tradition offers a complementary and, in many respects, more powerful explanatory framework for observed investor behaviour during volatile episodes[25]. Kahneman and Tversky's (1979) Prospect Theory established that investors are loss-averse they feel the pain of losses approximately 2.25 times more acutely than the pleasure of equivalent gains[26]. This asymmetry generates predictable behavioural pathologies during high-volatility markets: investors hold losing positions too long (the disposition effect) and liquidate winning positions prematurely, behaviours empirically documented by Shefrin and Statman (1985).[27] In the Indian retail investor context, Rawal (2018) found that online trading facilitation has amplified these biases, as the ease of execution reduces the 'friction cost' of reactive decision-making. A sample of 300 retail investors in Faridabad surveyed for the study exhibited a positive correlation between trading frequency and self-reported anxiety during high-volatility periods.[28]

Herding behaviour the tendency of investors to mimic the portfolio decisions of peers or the broader market, overriding private information is a particularly virulent phenomenon in Indian retail markets.[29] Economou, Kostakis, and Philippas (2011) documented herding in developed European markets but found it to be more pronounced and persistent in emerging market contexts[30]. Specifically, herding intensifies during episodes of market stress, precisely when independent information processing would be most valuable. Sehgal and Tripathi (2009) found evidence of herding among FIIs in Indian markets during the 2008 global financial crisis, amplifying the scale and speed of the downturn beyond what fundamentals could justify. The implication is that volatility, in part, reflects a social phenomenon or a contagion of sentiment rather than a purely informational revision[31].

The connection between macroeconomic variables and stock market volatility has been extensively explored. High inflation erodes corporate profitability expectations and compresses equity valuations through higher discount rates, generating elevated market uncertainty[32]. Interest rate changes by the Reserve Bank of India (RBI) produce near-immediate repricing in equity markets, with rate hike cycles historically associated with elevated VIX levels and reduced institutional risk appetite[33].

Predicting Volatility: The Hybrid Approach

Forget finding a magic bullet for predicting stock swings (volatility). Experts agree that the best forecasts don't rely on just one thing, but mix big-picture economic health, investor moods (sentiment), and chart patterns. Even knowing a stock's true value isn't enough; you need smart timing to make it work in a volatile market[34].

The FPI Influence: A Fast-Exit Problem

Money pouring in and out of India from foreign investors (FPIs) is a huge driver of market volatility. When they invest, prices go up fast, but when they get scared by global events (like the US Federal Reserve raising interest rates), they pull their money out even faster. This "slow-in, rush-out" pattern means the Indian market often sees sudden, painful drops rather than steady growth.[35]

COVID-19: The Stress Test

The COVID-19 pandemic showed just how extreme volatility can get; the Nifty 50 plunged 38% and the fear index (India VIX) hit a record high. Interestingly, this period saw two types of retail investors: those who panic-sold at the bottom, and a large group who using new online platforms started buying aggressively. This

second group was rewarded by the rapid recovery, proving that a mature financial market is key to handling major shocks[37].

The Economy-Wide Cost of Instability

There's a big-picture cost to all this instability: a volatile stock market can actually slow down India's overall economic growth. When the market is too risky, people stop investing, which hurts capital formation. This is why official bodies need to step in with tools like "circuit breakers," limits on trading, and better education to keep the market stable and healthy[38].

5. WHAT REALLY DRIVES STOCK MARKET UPS AND DOWNS IN INDIA?

Ever wonder why the Indian stock market swings so wildly? It usually boils down to a mix of what's happening at home like our own economy and politics and big global shifts. These factors don't just work in isolation; they're constantly bumping into each other, making it a real challenge to pin a single market move on just one cause[38].

Inflation is often the biggest culprit. When prices at the store start climbing outside the RBI's comfort zone, investors get nervous. They expect interest rates to go up, which makes it more expensive for companies to do business and shrinks their future profits[39]. It's not just theory, either data shows that every time inflation numbers surprise the market, the Nifty 50 tends to jump or dive by about 1% that same day. Other things like GDP growth and a weakening rupee also add to the anxiety, making everyone wonder where the economy is headed.[40]

Politics and new rules are another major rollercoaster. In India, general elections create a predictable pattern: a lot of "wait and see" nervousness before the vote, followed by a massive reaction once the results are in. We saw this in 2014 when the market soared on a big victory, and again in 2024 when a narrower win caused a sharp, temporary dip. On top of that, every time SEBI tweaks trading rules or the Union Budget changes taxes, you can bet certain sectors and the whole index will see some sparks fly.[41]

We also can't ignore what's happening globally. Since India is so connected to the rest of the world, a single meeting of the US Federal Reserve can send ripples across our markets. If they signal higher rates in the US, global investors often pull money out of Indian stocks to play it safe. The COVID-19 crash in 2020 was the ultimate example of this "global contagion." Oil prices are another big deal; since we import so much of it, every time crude gets more expensive, it hits our national wallet and makes investors pull back[42].

Then there's the stuff you might not notice at first, like tensions between the US and Iran. Because we rely so much on oil from the Persian Gulf, any hint of trouble there like the 2020 drone strike on General Soleimani sends oil prices up and the Nifty down almost immediately[43]. Even the 2018 sanctions on Iran forced us to find more expensive oil elsewhere, hitting corporate earnings. These geopolitical "shocks" often catch traditional models off guard, but savvy portfolio managers know that when tensions rise in the Middle East, it's time to move into safer bets or look at domestic oil producers who might actually benefit from the higher prices[44].

Finally, the RBI's own interest rate decisions play a huge role. When they raise rates like they did throughout 2022 and 2023 to fight inflation it makes loans pricier for everyone. This usually puts a dampener on sectors like banking and real estate[45]. Even if the main market index looks steady, these "rate-sensitive" areas often feel the heat, proving that volatility can hide in plain sight even when things look okay on the surface[46].

6. HOW MARKET VOLATILITY SHAPES OUR INVESTMENT CHOICES

The way market swings affect how we invest isn't the same for everyone. It really depends on things like how much risk you can stomach, how your portfolio is built, and whether you're looking at the next few months or the next few decades.[47]

For everyday retail investors, big market jumps often trigger emotions rather than careful planning. For example, when the India VIX hit a record high in March 2020, people panicked and pulled over INR 1.2 lakh crore out of mutual funds in just one month. This is a classic case of "loss aversion," where the fear of losing money today blinds us to the potential for long-term gains[48]. Systematic Investment Plans (SIPs) have become a great tool to fight these knee-jerk reactions. By automating investments, SIPs force us to keep buying even when the market is down, which lowers our average cost over time. With India's monthly SIP contributions crossing INR 20,000 crore in 2024, it's clear that more people are using this "mechanical advantage" to turn volatility in their favor. History shows that investors who kept their SIPs running through the 2008 crash or the 2020 pandemic earned much better returns than those who hit the pause button[49].

Institutional players, like foreign funds and local insurance companies, react more systematically, but they aren't perfect. Foreign Portfolio Investors (FPIs) often follow the trend selling when things get shaky and buying back when things calm down which can actually make volatility worse.[50] On the other hand, domestic institutional investors (DIIs) have started acting as a buffer, buying up what foreign investors sell. This shift has helped prevent recent market dips from becoming full-blown collapses, especially as the local mutual fund industry has exploded from INR 5 lakh crore in 2015 to over INR 60 lakh crore today.[51]

When things get really bumpy, we see a predictable "flight to safety." Money often moves out of stocks and into gold, government bonds, or fixed deposits. In India, gold is a favorite hedge; when the stock market gets volatile, gold prices usually go up. In fact, they've moved together about 62% of the time over the last 15 years.[52] The bond market is a bit trickier sometimes, if everyone is worried about interest rates, both stocks and bonds can fall at the same time, making it harder to find a safe haven.[53]

Finally, it's worth remembering that volatility can be an opportunity. For those with a long-term view, buying when others are fearful has proven to be a winning strategy. When the India VIX has gone above 30 in the past, the following year usually saw returns of around 28% much higher than the usual average. This "volatility premium" rewards those who can handle a little short-term discomfort, though it often requires a level of financial discipline that many retail investors are still learning.[54]

7. UNDERSTANDING THE MARKET: A CLOSER LOOK AT INDIA VIX AND NIFTY PERFORMANCE

To give you a better sense of how the market has behaved, this table breaks down the relationship between India VIX levels and the Nifty 50 from 2015 to 2024. We've highlighted the major events that shaped these years, drawing from NSE historical data and various market reports.

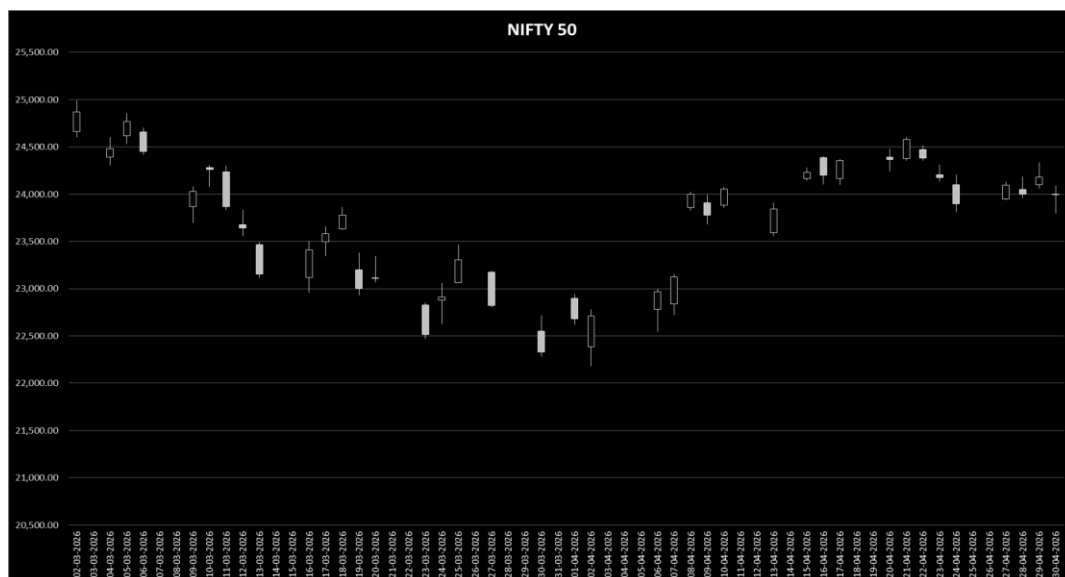
Table 1: India VIX and Nifty 50 Performance — Annual Overview
(FY 2015–16 to FY 2023–24)

Year	Avg. India VIX	Nifty 50 Range	Key Event / Observation
2015–16	17.64	6,825 – 8,841	Rupee depreciation & China slowdown
2016–17	15.35	7,516 – 9,218	Demonetisation shock

2017–18	12.90	9,075 – 11,171	Bull market; subdued volatility
2018–19	15.68	10,004 – 11,760	IL&FS crisis; FII outflows
2019–20	20.45	7,511 – 12,430	COVID-19; VIX surged above 80
2020–21	24.97	8,055 – 15,431	V-shaped recovery; retail surge
2021–22	18.76	14,151 – 18,604	Inflation; Russia-Ukraine war
2022–23	17.11	15,183 – 18,887	Rate hikes; FII selling
2023–24	12.59	17,312 – 22,526	Growth momentum; DII rally

Source: NSE India Historical Data; India VIX figures are annual averages.

Looking at the numbers, we see a clear pattern: when the India VIX goes up, the Nifty 50 usually dips, and vice-versa. The big exception was the recovery in 2020–21. The initial COVID-19 shock sent volatility through the roof, but the market stabilized remarkably fast. More recently, the fact that volatility has stayed relatively low despite global challenges suggests that the Indian market is becoming more resilient, thanks in large part to the steady growth of domestic investments and SIPs.



Nifty 50 Movements during March and April, 2026

The candlestick chart above visually demonstrates short-term volatility in the NIFTY 50 index during April and March, 2026. Larger candlestick bodies and elongated shadows indicate periods of heightened

uncertainty and stronger price fluctuations, whereas smaller candles represent relatively stable trading sessions. The clustering of volatile trading days supports the concept of volatility clustering explained through ARCH/GARCH models in existing financial literature. The chart also reflects how investor sentiment and macroeconomic developments influence short-term market movements in Indian equity markets.

8. DISCUSSION

When we look at the existing research, market trends, and actual data, some clear patterns emerge about how volatility works in the Indian market.

Standard GARCH models are usually good at tracking how volatility clusters together, but they really struggled during the COVID-19 pandemic. For instance, when the India VIX surged above 80 in March 2020, it exposed a major flaw: these models aren't designed to handle extreme "black swan" or "fat tail" events or sudden market shifts. To get a better picture, we really need to combine these old-school models with modern stress testing and machine learning[55].

Interestingly, Indian retail investors don't always follow standard risk-return logic. Instead of buying low, many tend to pull back from equity funds when the VIX is high and rush in when things are calm. This kind of behavior is often fueled by a fear of losing out and a tendency to follow the crowd.[56]

The gap in information is another big factor. While institutions have high-end analytics, many retail investors rely on social media. This gap leads to a lot of "noise" in the market, which can push volatility much higher than what the economic fundamentals would suggest.[57]

On a more positive note, the growth of Domestic Institutional Investors (DIIs) and steady SIP contributions have created a safety net that helps offset when foreign investors pull money out. Because of this shift, older models might actually be overestimating volatility now, which is something we need to keep in mind for future risk pricing.[58]

9. CONCLUSION

Our review shows that volatility in the Indian stock market isn't just one thing; it's a mix of local economic shifts, global money trends, and the way our institutions are changing. We've seen that market risk actually follows predictable patterns over time, rather than just being completely random.

If you're a retail investor, it's best to treat these ups and downs as a normal part of the game. Sticking to a plan, like an SIP, usually works better than trying to react to every bit of news. Those who panicked and pulled out in 2020 missed out on a huge recovery, which just goes to show how important it is to keep a cool head and not just follow the crowd.

For the people making the rules, growing the base of domestic investors through mutual funds and pensions is a great way to keep the market steady. Also, keeping an eye on social media misinformation and making sure everyone has clear information can help stop the kind of "noise" that causes unnecessary price swings.

Looking ahead, we should start using tools like machine learning and social media sentiment analysis to get a better handle on what's coming next. It would also be really helpful to look at how different states across India invest, so we can tailor financial education to where it's needed most.

To wrap it all up, market volatility in India is a complicated signal that needs smart interpretation and strong support from institutions. Helping everyday investors make better choices during these rocky periods is key to helping India's market continue to grow and mature.

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