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Assessing the Impact of Technological Advancements on Stock Market Volatility in India

RIDDHI NASKAR[1]

ABSTRACT

In the light of ongoing economic and financial sector reform initiated by the Indian government since 1991, India's capital market has undergone liberalisation for more than two decades. The increased free flow of capital in and on markets that fostered integration is driven by the emergence of information technology, considerable deregulation and harmonization. Market integration results in volatility being transmitted between different markets and within the market as a whole. Increased volatility in equity returns is a common concern that has arisen with these developments. The level of uncertainty or risk related to the size of a security price change is measured as volatility. Volatility is a measure of variability in dispersion with respect to the central tendency. When volatility is high, it means that the security's value can be shared between many values. That is to say, prices of securities could change dramatically in both directions within the short term. The present paper examines the impact of derivatives trading on the stock market volatility. In case of rapid growth or sharp drop in stock markets over a short time period, the market is deemed to be 'volatile.' The volatility in stock markets worldwide has been a concern not only for India's policymakers, but also to investors around the world. Investors are interested in knowing how much volatility or risk they're exposed to, as stocks that are more volatile tend to be riskier. Derivatives are amongst the most preferred tools available for market participants to manage their risks in today's securities trading.

Keywords*: Stock market volatility, financial growth, volatile, volatility transmission, India.*

I. INTRODUCTION

The instability or dangers related with the estimate of a security's alter in esteem are alluded to as instability. The instability degree is a variety in the scattering of the central propensity. In 1994, Glen characterized instability as the recurrence and estimate of cost developments. With the appearance of globalization, world monetary markets and economies are progressively coordinates due to free stream capital and worldwide exchange. Globalization has driven to

[1] Author is a student at Amity Law School Kolkata, Amity University Kolkata, West Bengal, India.

expanded developments in worldwide stock costs as well. The powerlessness to advertise stuns will be invigorated by this joint development. Hence, stuns starting in a single showcase do not as it were affect its possess markets but are too transmitted to other value markets. Thus, any data on the financial essentials of a given nation is transmitted to other markets and in this way influences other stock markets. Financial specialists are required to incorporate data approximately cost developments and instability of the same resource as well as related resources recorded in diverse nations some time recently contributing. This is a touchy point for portfolio financial specialists, given the expanded integration of worldwide markets which leads to more far-reaching cohabitation between markets in this way constraining much of the picks up coming about from expansion over borders. Numerous financial specialists would, in any case, consider contributing in both India and China over created or other creating markets due to the quick development of their economies. Nevertheless, a major issue for speculators is whether the two markets are associated to one another so that speculations in either India or China can bring enhancement benefits. There are a few reasons to analyze the cross-border instability spillovers. In expansion to different residential components, instability of major outside exchanging accomplices over the nations is one of the vital determinants of stock return instability in a household market. The instability for the significant period has been calculated as an ordinary deviation of the measurable information on returns in records. To encourage comparison, charts have been utilized to assess the advancement of instability. For each person year of the thing about, different charts have been made appearing why there was a rise in instability. The degree of hazard and potential misfortunes is expanded by more unstable stocks. Another way to degree instability in the stock showcase is a most extreme drawdown, utilized by theoretical financial specialists, resource supervisors and development speculators as an endeavor to restrain their misfortunes. A common pointer utilized for measuring expected S&P 500 instability is the CBOE Instability List (VIX). It is conceivable for financial specialists to support against the effect of instability on their portfolio, or to take advantage of instability and benefit from cost vacillations. Beta measures instability in connection to the stock advertise, which can be valuable for evaluating whether stocks speak to a higher chance than other resource classes and deciding their enhancement benefits. The instability of the stock advertisement in expansion to changes in resource costs, speaks to a chance figure for stocks and records. The higher the instability, it is more unsafe to contribute. Be that as it may, instability is not inactive. Depending on a number of variables, such as speculator craving for hazard, changed account and clashing stories concerning person firms or segments, vulnerability almost the worldwide economy or geopolitical circumstance, they alter over time.

Let's think about the price volatility as a confrontation of fear and greed. There can be volatility in the price movements caused by extreme fear and greed. And, we may not be able to protect our portfolio against the risk of losses if greed prevails and prices rise. But might like a portfolio protection strategy in place when the fear is at its strongest, and we'll be paying for it. Volatility can be harsh and expensive, so look out for it.

(A) Objective of the study

Research work has been carried out in determining the relationship of developed and developing markets. However, the identification of volatility leakage between emerging markets has not been given much attention. This paper therefore seeks to analyse the volatility trend across several months in both emerging economies during their study period, with a view to determining whether there is an influence or relationship among India's and China's stock markets. The objectives of the study are:

1. To identify the reasons for volatility in Indian stock market.
2. To determine the trend in volatility in BSE Sensex vis a vis SSE Composite.
3. To determine the causal relation between BSE Sensex and SSE Composite.

II. VOLATILITY IN THE STOCK MARKET

The volatility shall be defined as the rate at which the price of a security rises or falls in respect of one set of returns. This report shows the risk of changing security prices and is measured by a standard deviation over time for annualised returns. In simpler terms, it's a measure of how quickly the value of a security or a market index change. In general, volatility will be measured by either standard deviation or variance. Either way, prices or returns tend to be more volatile when values are higher. This indicates that prices have been spread across a broad spectrum because of the high standard deviation value. On the other hand, a small standard deviation shows that prices are tightly bound in one direction or another. The increasing historical volatility implies that there will be a greater degree of fluctuations in the price of accounted securities, more than usual. In addition, the decreasing statistical volatility indicates that prices will exhibit and have a small deviation from the mean or average.

(A) What are volatile stocks?

The volatility of the stock market indicates whether or not it is moving from its initial value compared to the overall market. Volatiles are stocks that tend to fluctuate on a regular basis. For every kind of trader, they're different. For example, the change in a stock's peak and bottom prices over one day could be due to excessive volatility for traders on an intraday basis. For some, the difference between the volumes traded on a single day or for a period of time can be significant. Compared to historical data, this can be a significant difference between any factor price, volume and so on in some traders.

(B) How to track volatility?

The volatility of the stock market is measured in a variety of ways. Beta, implicit volatility and Cboe Volatility Index IX are all common approaches. The beta and vix values are shown on the majority of Financial Web sites.

a. **Beta** – A beta esteem of a stock demonstrates how much an asset's cost is likely to veer off from the advertise file, taking into account its developments over time. The stock advertisement file S&P 500 Record SPX is broadly utilized by speculators, but one can too utilize a fitting set of files. So, if the stock had a beta of 2.0, this implies it was twice as unstable as the record in its history. The edge values for the Beta are as follows:

    - If beta is between 0 and 1.0, the stock is considered to be less unstable than the market.
    - If beta is more noteworthy than 1.0, the stock is considered to be more unstable than the market.
    - If beta is 1.0, the stock would be as hazardous as the showcase.

b. **Implied volatility** – There are two sorts of volatility—historical instability (or realized instability) and inferred instability.

    - **Historical instability** – Chronicled instability, which measures how much cost goes astray from the cruel over the final year, is surveyed by looking at past developments of costs. It's a great way of knowing if stocks have had much up or down development from time to time, or whether it has been generally stable.
    - **Implied instability** – This appears, based on the costs of recorded alternative contracts, how much stock or record cost changes are anticipated for the future. The inferred instability is frequently communicated as a rate. This rate is gathered to lead to an expanded instability in the stock. And the inferred instability is not steady, it proceeds to alter. Let's expect it's a gauge.

Low historical volatility and high implied volatility can sometimes be found in stocks. Traders on the Options Exchange are expecting it to make a significant move in the future for one reason or another. It could be for reasons relating to the company or it might relate to overall market volatility, which is a further way of keeping an eye on volatility.

c. Cboe Volatility Index (VIX)

The VIX's frequently mentioned on finance media channels. It constitutes an important indicator of market volatility because it monitors the implied volatility in SPX options over a 30 days period. It means that investors are more confident about the stock market when the VIX is low. If the VIX's up, there's a sense of anxiety among investors. Fear gauge is often described as the VIX because fear drives a higher level of market volatility. One can track the Nifty High Beta 50 index in addition to filtering out stocks with high volatility using these filters. It compares the most volatile stocks in the NSE to the benchmark index. Beta measures stability of security, which is the idea behind this indicator. It should not take wild swings and could absorb any wild momentum in the benchmark index.

d. Derivatives Market in India

The stock exchange of India provides investors with a number of different types of derivative instruments, and it may be used for many reasons. It allows a trader to insulate himself from some foreseeable risks by making positions in derivatives markets, which would offset possible losses on the primary or spot market. Most derivatives users in India classify themselves as hedgers and the Indian law generally requires that derivatives be used only for hedging purposes.[2] Speculation is a further reason for trading derivatives, i.e. the taking of positions in anticipation of price movements. Practically, it may not be easy to determine whether a transaction was for the purpose of hedging or speculation and market forces require both hedgers and speculators to participate.

e. Most Volatile Stocks in NSE (2023)

The volatility on the equity market is defined as a change in stocks from their original value, or vice versa, relative to the total market. Volatile stocks mean a stock that's constantly changing. They're not all for the same kind of trader.

(C) How to recognize exceedingly unstable stocks?

The hazard return proportion is one of the most imperative components that will be taken into account in looking for a solid instability stock. Beta can too be utilized for the following of

[2] Asani Sarkar, INDIAN DERIVATIVES MARKETS, https://www.newyorkfed.org/medialibrary/media/research/economists/sarkar/derivatives_in_india.pdf

stock cost vacillations. The Beta indicator's reason is to degree the soundness of security. In the benchmark record, it shouldn't have any wild changes and be able to compensate for them. The premise of the Beta is 1.

- A Beta of 1 demonstrates that the stock appears the same instability as the market.
- A Beta > 1 implies the stock is more unstable than the broader market.
- A Beta < 1 shows that the stock is less unstable than the by and large market.

Advantages of investing in highly volatile stocks

- Even when the benchmark index rises slightly, high volatility provides opportunities for investors to make more profits.
- Most of the high volatile stocks are generally mid-cap and small-cap. Some of these could be available at a lower cost.

Disadvantages of investing in highly volatile stocks

- If the fluctuation is high, there will be an opportunity to make greater profits. If the benchmark index does not go down by too much, a stock's price decline might be more than it should have been.
- If the management of an enterprise is not well managed or if its objectives have not been met during a rise in the share price, high volatility stocks may be significantly reduced.

Therefore, for investments in highly volatile stocks it is very important to carry out proper research. There are few most volatile stocks in NSE which are as follows:

1. **Adani Enterprises Ltd.**

Adani Enterprises Limited is an infrastructure undertaking that operates in the area of energy trading, coal exploitation, oil and gas exploration ports, multimodal transport logistics, power production and transmission and distribution with a market capitalisation of INR 82178.78 billion.

- The stock is 7.22x as volatile as Nifty.
- Over the last 5 yrs., the market share increased from 37.97% to 73.17%.
- The stock has a profitability score of 7.1 out of 10, which is considered good. The stock has a moderate number of red flags.

2. **Brightcom Group Ltd.**

The Brightcom Group is a service provider which provides digital marketing services and development of IT software and services, having a market capitalisation of 3 774.64 billion Indian rupees.

- The stock is 6.90x as volatile as Nifty.
- Over the last 5 yrs., the market share of the company increased from 66.96% to 71.42%.
- As per the Tickertape Scorecard, the stock is undervalued and shows good signs of profitability and efficiency. The stock is also underpriced but has a moderate number of red flags.

3. Rail Vikas Nigam Ltd.

- Rail Vikas Nigam Ltd is a special purpose finance company established for the purpose of the development, mobilisation of financial resources and implementation of projects related to the strengthening of the Golden Quadrilateral and port connectivity, with a market capitalisation of INR 34,632.18 million.
- The stock is 6.14x as volatile as Nifty.
- Over the last 5 yrs., the market share of the stock increased from 7.59% to 12.26%.
- As per the Tickertape Scorecard, the stock is overvalued and lags in financial growth compared to its peers.

III. CONCLUSION

This research reveals that there have been multiple reasons for the volatility of Indian stock markets, both at home and abroad. In the market which is mostly affected by global events, volatility rose to an all-time high in 2008. BSE Sensex, on the other hand, has a higher degree of volatility compared to SSE Composite. The volatility of the large foreign trading partners has been one of the most significant factors affecting stock returns on the domestic market, in addition to national factors. There are a number of domestic and international factors that lead to volatility in India. The main drivers are political reasons, macroeconomic policy, government regulation, privatization and globalization, a net impact of FIIs on the country's economy as well as outside its borders, psychic factors etc. With greater integration, the shocks that occur in one market can be swiftly passed on to other markets. If we look at the volatility factor, it might be useful to measure which stocks are more risky. Therefore, let’s analyse risk factors and our appetite for risks prior to investing. Before we proceed, it's a good idea to have the advice of an accountant beforehand.

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