

GROWING TRENDS IN EQUITY DERIVATIVE MARKETS IN INDIA – SPECIAL REFERENCE TO FUTURES AND OPTIONS IN NSE

^{1*}Ganesh B and ²V Velmurugan

^{1*}Research Scholar, Department of Business Administration, Annamalai
University, Chidambaram

²Associate Professor, Department of Business Administration (DDE),
Annamalai University, Chidambaram..

Corresponding author's mail: ganeshb1401@gmail.com

Keywords	Abstract
Trends, Growth, Equity Derivative, National stock exchange, linear regression.	The equity derivative market has grown at a greater rate than average in recent years, driven by developments including more investor engagement, more liberalization, and more improved technology. In light of this expansion, the following trends that are reshaping this sector of the financial industry can be identified. In the span of only five years, India's participation in the equity derivatives market has skyrocketed, going from almost nonexistent to a world leader. This expansion was made possible, in large part, by the 2019 transition from monthly to weekly contract expiration. In light of the above, the purpose of this research is to evaluate the increase in the trading volume and turnover of equity derivatives over the past decade. The research is based on secondary data supplied by NSE regarding the yearly turnover of equity derivatives during a 10-year period. This study analyzed trends in the equities derivatives market using data collected from the NSE website and a linear regression model. Researchers typically consider a ten-year term to be enough for identifying significant market adjustments, therefore that is how long we based our data gathering on. Researchers learned crucial things about the patterns of evolution of equity derivatives, which helped both analysts and investors make better decisions. In order to understand market dynamics and predict future trends in the stock derivatives market, the research findings will provide crucial information. Investor interest in Equity derivatives financial instruments has led to a positive market expansion in the last 10 years. The future market opportunities can be predicted through analysis of past decade trends and patterns which will identify major market growth drivers. Stakeholders can create logical decisions for the equity derivatives market through this data-intensive method which helps them adapt their investment approaches to market evolution.

INTRODUCTION

The Equity derivative market has expanded relatively faster in the last few years due to such factors as change in the regulatory of the market, increase in liberalization and advanced technologies, and enhancement in participation of the investors. To this effect, the following trends that are revolutionising this financial segment can be unveiled as the explanations to this growth (Seenivasan & Choudhury, 2024)..

From almost non-existent to a global leader in the equity derivatives market, India's involvement has increased dramatically in just five years. Due in large part to the change from monthly to weekly contract expiration in 2019, this growth was able to take place (Kirsten Hyde, 2024).

With nearly 36.8 billion stock index options traded in the second quarter of 2024, according to FIA data, the National Stock Exchange of India and BSE India, the two main derivatives exchanges in India, dominated the market. Trading volume in this period was roughly double that of Q2 2023, and it accounted for more than two-thirds of all futures and options traded on foreign exchanges. (IBEF, 2024)

Reports from Bloomberg indicate that the \$6 trillion notional turnover in futures and options trading has recently slowed. This rise has multiplied by six since 2022 started. As can be seen from the chart below, the bulk of the turnover was produced by trading on NSE. There has been tremendous expansion in the trading of stock index options on the NSE. (NSE , 2024)

The primary factors responsible for such increased interest includes the liberalization of equity derivatives by SEBI (Alfaro, et al., 2024). The market has continued to expand through new trading platforms and lifting of position limitations, which has provided the entrée to other players in the market. The following features have contributed to enhanced float and innovation of improved modes of trading, for both, individuals and businessmen (Agrawal et al., 2023).

The growth of equity derivatives market in India has also been contributed by various technological innovations. Probably the most important reason for the use of electronic trading has been the decrease in transaction charges besides enhancing the transparency when it comes to derivatives trading. A high-frequency trading and algorithm biz has also established itself and this is due to the availability of better data analytics and data processing system. These have made it quite easier for the traders to execute different strategies and thus; played a key role to the growth and development of the market.

A key feature that intensified in the last two years is the diversification of product offerings in the segment of equity derivatives. Besides futures and options, more attention has been paid to structured products, Exchange Trading Funds (ETFs) containing derivatives elements and index derivatives. These hedging tools help investors to protect themselves against various risks, bet on the market trends, as well as increase the yield on their capital. This is because the complexity of such products is determined by factors such as the need of investors and the capacity of the market for coming up with more complex products that will suit their clients.

This led to increasing market trading frequency and an enhanced presence of retail investors can also be regarded as another emerging trend (Chikwira & Mohammed, 2023). The rise in technological advancement in trading platforms means that the general public is willing to delve into equity derivatives. Internet-based companies have offered direct entry to the derivative economy for independent investors together with literature and guidance on how one can evade certain risks in the particular business. This has in turn created access by a large number of people to engage in more trades as well as has boosted the market (Lu et al., 2023).

However, the advances have been pulled by a number of factors such as the global economic environment for the expansion of equity derivatives in India as well as the domestic environment in the Indian market (Jhunjhunwala & Suresh, 2024). This has been caused by factors such as inflation expectations and realization of interest rate as well as that of currency. This has made derivatives a necessity for risk management due to political instabilities on the international front as well as the onset and spread of the Covid global pandemic, among other factors. (Panda, 2023).

In overall, equity derivatives business in India is witnessing growth due to reforms in the regulatory structure, new developments in technology, and product innovation and improving accessibility of the market to the small traders (Shamsher, 2021). Further on, one can expect the growth of new market initiatives and deeper connection with world financial markets that will strengthen its strategic position in the global financial landscape. This ongoing progression can be also regarded as the evidence of the progressive financial market of India as well potential to create Remarkable positive impact on the country's economy and financial stability (Varma et al., 2021).

With this background the current study aims to assess the growth of equity derivatives in the last 10 years in terms of turnover and volume traded.

REVIEW OF LITERATURE

The review of literature on equity derivative market in India is as follows-

Samarakoon et al. (2024) The authors of this paper examine the correlation between GDP growth in the Asia-Pacific area from 2001 to 2022 and data collected from the region's derivatives markets. Using the autoregressive distributed lag model, researchers discover a bidirectional relationship between derivative markets and GDP growth. The high correlation between growth and derivatives and stock markets provides more evidence of the role of financial markets in driving economic advancement. They advocate policies that prioritize long-term economic development and regulate financial markets, particularly stock and derivative markets, to increase market transparency, stimulate economic growth, and eliminate information asymmetry.

Sarker (2024) there has been a relatively recent emergence and expansion of derivatives markets in India. Since its inception in June 2000, the derivatives market has witnessed tremendous growth in both the volume and number of contracts traded. The rise in market turnover from 2000–2001 to 2014–2015 was 55606453.39 Cr., from 2365 Cr. With only fourteen years under its belt, India's derivatives market has already surpassed the country's cash market in terms of both volume and contract count. Although the worldwide derivatives industry is included in the current research, the Indian derivatives market is the primary emphasis.

Chakraborty and Roy (2023). Among the most prominent and actively traded companies on the National Stock Exchange (NSE), futures contracts account for the bulk of the free float market capitalization. Trading in India's equity stock futures has grown at an astounding rate for more than a decade, mostly due to the National Stock Exchange's (NSE) dominance in the market.

Suresh (2022). This research aims to lay the framework for a future study that compares the bombay stock exchange (BSE) and the national stock exchange (NSE) in India in terms of cash market and market volatility as it relates to derivatives. Our focus in this study was on stock futures that trade on exchanges. Comparing the two exchanges based on the volume of contracts traded for Stock Index Options and Futures and Stock Futures reveals that NSE is competitive with global exchanges, and research also suggests that derivatives perform significantly better on NSE than BSE. .

Parizad et al. (2022). In order to analyze the dynamics of day trading for Nifty Index futures and options contracts, a thorough examination into the amount of traded volume and its effect on underlying volatility is underway. Day trading levels in the Nifty Index futures contract are high, suggesting considerable speculation, whereas non-day contracts have modest trading volumes. Options contract volume volatility estimates are substantial but weaker than futures contract estimates.

Sandra (2021). The market's turnover jumped from 24 billion to 2376 trillion rupees between 2000-01 and 2018-19. From 2010–2011 to 2018–2019, this study intends to demonstrate the growth and expansion of derivatives in India. Furthermore, it delves into the scope, idea, kinds, and evolution of financial derivatives in India, as well as the present condition of the Indian derivatives market in contrast to the worldwide derivatives market.

Upputuri et al., (2021). The word "risk" is intrinsic to the majority of commodities and financial markets. Commodity prices, whether agricultural or not, are subject to the ever-changing forces of supply and demand. International trade and business have multiplied by multiples due to the liberalization and globalization that have been occurring for the last 20 years. Over the years, India's luck has been completely in the stock derivatives market. In an effort to better comprehend the derivative market and to compare and contrast the NSE and BSE throughout the years, this study employed percentage analysis, trend, and CAGR.

Naik (2020). This study use a gravity model to analyze the factors that have influenced India's trade flows from 1998 to 2019, with a particular focus on the country's primary trading partners. Participating partners include the following countries: China PRP, the United Arab Emirates, the United States, Saudi Arabia, Switzerland, Singapore, Germany, Hong Kong, Indonesia, Iraq, Japan, Kuwait, Belgium, Iran, South Africa, and Qatar. This research uses panel data analysis to examine the various factors influencing bilateral trade. The study contributes to the existing literature on international trade by shedding light on the factors influencing trade flows between India and its vital trading partners.

Vo et al., (2020). Crucial to any economy is its derivatives market. Despite a number of empirical studies examining the relationship between finance and growth, scholars have mostly ignored the topic's bearing on GDP expansion and other macroeconomic factors. Policymakers in developing economies need to consider these new findings when considering ways to progress their derivatives markets.

Aiswarya & Janani, (2020). Every investment comes with its own set of pros and cons. There is a constant order of severity for the risks associated with stock and equity-linked investments. Similar to other stock markets throughout the world, the Indian stock market has grown substantially in recent years. As a result of more participation from local and foreign investors, Indian stock prices are becoming more volatile.

The present literature review also reveal works which have shown a rapid increase in derivatives markets and their contribution to GDP in the Asia-Pacific countries including India. The result based on the autoregressive distributed lag model depicts that the derivatives markets have reverse causality with the growth of the GDP implying the importance of financial markets on the growth of the economy. The derivatives market in India started its operation from December 2000 and within a short period of time it became larger than the cash market in terms of turnover and contracts. Further, the India's National Stock Exchange (NSE), which is also being increasingly traded in overseas, continues to exert its strong trading muscle in the equity stock futures. The focus of the studies is on the emerging activities of day trading, fluctuations and the role of risk with regards to international trade and trade policies. This shows that improving market openness and regulating financial markets help the growth of the economy and solves for information gap.

RESEARCH METHODS

The study relies on secondary data which NSE provided about equity derivative annual turnover spanning 10 years. The analysis used linear regression modeling to study equity derivatives market trends through data obtained from NSE website. A ten-year timeframe served as the data collection

period because researchers generally see this period as sufficient to identify major market modifications. The study generates essential understanding about equity derivatives evolution patterns which provides decision-making power to investors alongside analysts. The research findings will offer essential knowledge which enables market dynamism understanding and future equity derivatives market trend forecasting.

RESULTS AND DISCUSSION

Equity derivatives – Number of Contracts

Table 1 - Equity derivatives – Number of Contracts- 10 Years data

Year	No. of contracts
2024-2025	100347816624
2023-2024	95200944717
2022-2023	41765769582
2021-2022	18660140821
2020-2021	8534860876
2019-2020	5125321877
2018-2019	3167183212
2017-2018	1913878548
2016-2017	1399746129
2015-2016	346759672

Chart 1 – Equity derivatives – Number of Contracts- 10 Year data



Equity derivatives market has remained on the rise in the past decade, this can be identified from the rising in the number of contracts in every year. It also revealed a trending growth phase starting from the year 2015-2016 and an upswing from the next subsequent years.

In 2015-2016, the market traded 346,759,672 contracts. This figure can be considered as quite reasonable, and it would be the initial platform which the market would follow in the subsequent years.

2016 and 2017 also reported more contracts; reaching 1 399 746 129 showing that the market was becoming developed and that the interest of investors for the equities and equity derivatives securities was evident. The trends were maintained in the fiscal year 2017-2018, the total contracts crossed 1,913,878,548. It was during these early years that many factors occurred that were responsible for the escalation as there was an improvement in the level of sophistication of the investors, technological improvements as well as the creation of new varieties of the financial instruments which draw more individuals into the markets.

By 2018-2019, the equity derivative market was even greater and was equivalent to 3,167,183,212 contracts. It was during this period that integration of the global market was underway and high frequency and algorithmic trading was facilitating trading. The market's growth trend was carried forward into the fiscal year 2019-2020 ... where it registered 5,125,321,877 contracts. This period was also characterized by heightened fluctuations for the global economic conditions that may generally cause higher trading activities since people look for risk hedges.

Over the years, the number has continued to increase throughout the period 2020 up to 2021 with the new emerging records of 8,534,860,876 new contracts in overall markets treatment. Some political and economic factors include: The global pandemic disrupted the economic stability and lead to unpredictability which in turn increase the trading volumes by using equity derivatives for both hedging and speculation. It was also evident that the use of such derivatives would remain high throughout this year and to the year 2021/2022 where 18,660,140,821 contracts were traded.

Growth to the new levels was noted in 2022-2023, the market volume has hit 41 765 769 582 contacts. That is why the causes of this explosive growth are more and more various, including the retail participation, IB related regulation and appearance of a number of new products, which can suit various trading approaches. This document reflects the marketplace in the year 2023-2024 and still experienced substantial growth reaching 95, 200, 944, 717 the evidence of people's constant interest and trust in the equity derivatives.

Last but not the least, the value of contracts traded in the equity derivative market touched 100,347,816,624 in the last period of 2024-2025, which proves the fact that this market is now entirely globalized and has emerged as a very significant component of the overall financial structure of the world. This growth trajectory on its own makes it apparent that equity derivatives play a critical role in management of risks as well offer gearing opportunities, and depth to the market. This clearly means that this market is changing and growing and the financial market is indeed changing in terms of innovation, globalization and the investors.

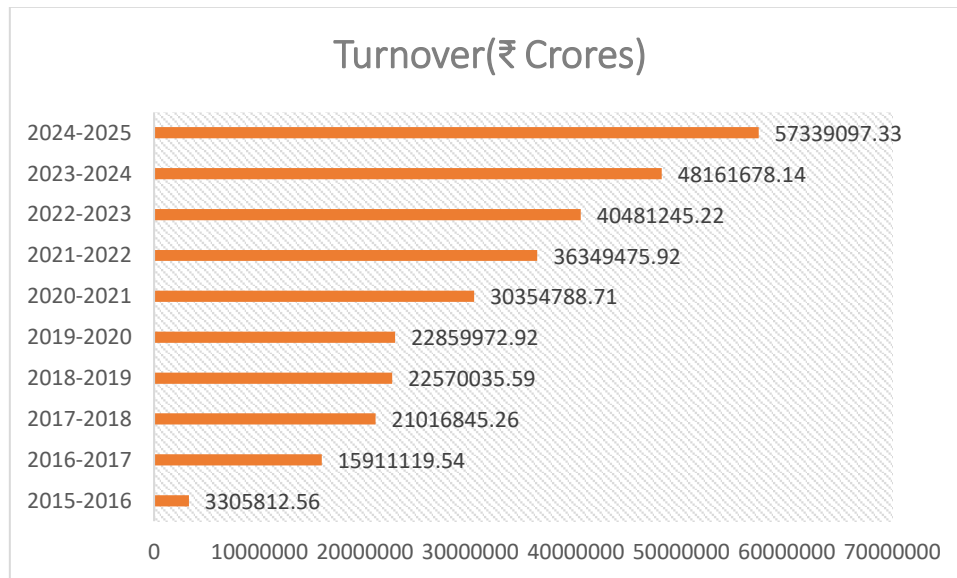
Equity derivatives- Turnover (₹ Crores)

Table 2- Equity derivatives – Turnover- 10 Years data

Year	Turnover(₹ Crores)
2024-2025	57339097.33
2023-2024	48161678.14
2022-2023	40481245.22
2021-2022	36349475.92
2020-2021	30354788.71
2019-2020	22859972.92

2018-2019	22570035.59
2017-2018	21016845.26
2016-2017	15911119.54
2015-2016	3305812.56

Chart 2 – Equity derivatives – Turnover- 10 Year data



The market in the equity derivatives has expanded for many years for instance; For instance, the above table displays the turnover of the market for the period of 2015-2016 to 2024-2025. This period has recorded constant growth, which is a testimony to the trending feature of derivative products in the financial transformation.

For the time period of 2015-2016 to the time period of 2020-2021, there was an increase in the market. The turnover rose from ₹3,305.81 crores in 2015-2016 to ₹30,354.79 crores in 2020-2021. This can be attributed to various factors such as; higher liberalization of the market, more participants in institutional and retail classes, improved technology which has enhanced the trading facilities.

The most phenomenal stage of the fiscal scale was observed during the financial years 2020-2021 to 2022-2023. It has increased from ₹.30,354.79 crores to ₹.40,481.45 crores in a period of three years. This may have been occasioned by the increased market oscillations and uncertainty that is brought by the COVID-19 virus, where investors act in search of hedges and charm through the various equity derivatives. That is why it is plausible that the increase in the amounts traded was influenced by such factors as changes in regulation and rising awareness of the advantages of derivatives for the management of portfolios, among others.

The years 2022-2023 and 2023-2024 also showed an increase in the turnovers of ₹40,481.45 and ₹48,526.68 crores, respectively. This steady growth could be attributed to the ability of the market to stand the test of the use of the global economic downturns, and the increased complexity of the global financial markets, though in the country. The attempts of the financial sector to improve its activity and bring new types of derivative instruments also contributed to this process.

Thus, the turnover volume has increased more than two times and reached 57 339.97 crore rupees by the 2024-2025 financial year from 28 659.97 crore rupees in the 2019-2020 fiscal year. This rising trend

over the years affirms the market as viable and significant for the management of risks as well as pricing. The rally in Asia's growth trajectory also reflects investor gains in confidence when invested in equity derivative markets supported by more stable structures, enhanced market depths, and liquidity.

All in all, it has been seen that the equity derivative market in India has grown in prominence and has come a long way for development from being simple and weak financial market segment to being an important part of the system. This increase in turnover is an evidence of the aforementioned factors of enhanced understanding of derivative products as well as the fluidity of financial markets that are constantly experiencing changes in response to changing economic environment and investor requirements.

Hypothesis -1

H1- There is a significant growth in the overall equity derivatives– Number of Contracts

Regression results - growth in the equity derivatives– Number of Contracts



These insights have been generated from the results of the regression analysis that has been conducted of the data gathered relating to the number of contracts and the number of years observed. It is a positive correlation model as shown in the model summary whereby the R value is 0.849, which shows the strength of the linear relationship between contracts and the dependent variable, years. There is further corroborated by the R Square value of 0.721; it means that about 72.1% of the changes of years could be explained by the number of contracts. The obtained value of the adjusted R Square .687 also takes into account number of variables in the model to indicate the goodness of fit of this relationship.

Such findings are further well supported by the results presented in the ANOVA table where the F-value has a value of 20.715 and thus the P value is 0.002. This means they imply that in the context of the equity derivation market, the number of contracts is the significant determinant of the dependent variable, years. The sum of squares for the regression is 59.516 which is higher and more significant than the residual sum of squares of 22.984 pointing out the explanatory capability of the model.

The coefficients table demonstrated that t-statistic for the number of contacts is 0.006592E and the t-statistic for beta is 0.849. Accordingly, via the t test, having an actual t-test value of 4.551 and a

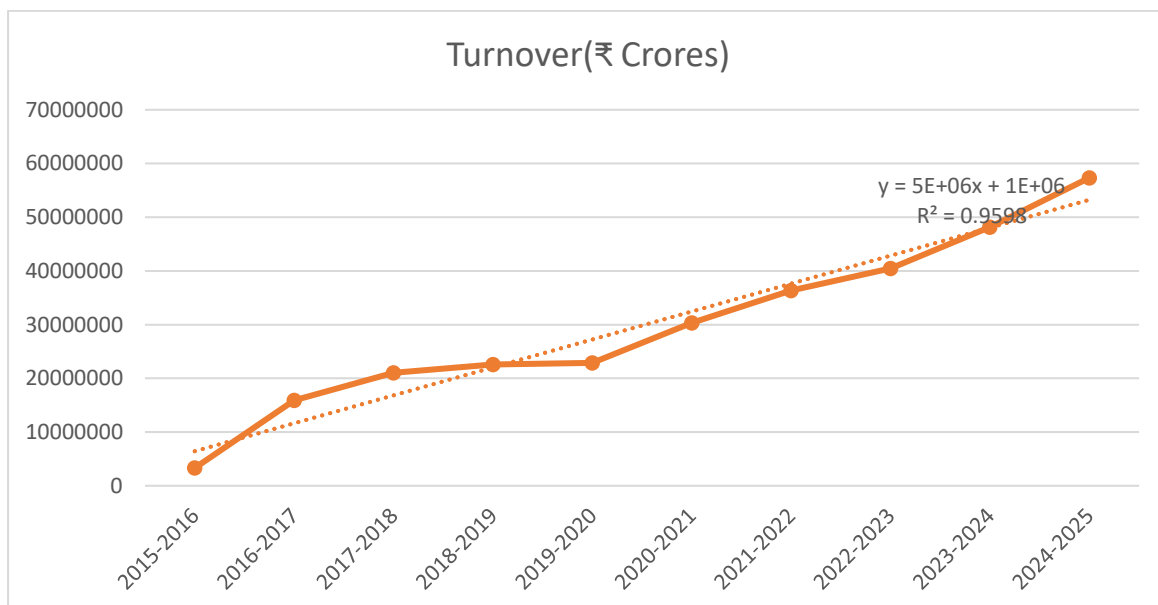
significance level of 0.002, this predictor can be considered statistically significant. It means that if the number of contracts is negligible then the year is approximately 2017 based on the constant term obtained from the regression model. This could be pointing to the fact that the analysis is done with data from around the year, so it gives a time frame of the development of equity derivatives markets.

In conclusion, the study reveals the distinct increase in the equity derivative market or contracts through the use of the regression results, which show a strong and positively correlated relationship between the number of contracts and the year noted here. This implies that as the number of contracts increases, it is paralleled by increases in the years, thereby pointing at the market growth over the years. There is confidence in modelling the number of contracts since it turned out to be significant and highly significant in explaining the growth of the equity derivative market.

H1- There is a significant growth in the overall equity derivatives– Number of Contracts is accepted

H2- There is a significant growth in the overall equity derivatives – Turnover

Chart 3 - Regression results - growth in the equity derivatives– Turnover



The details of the model summary helps in the understanding of the nature of the turnover in the equity derivative market and the years of growth or development in this market. The model yields a high R-squared of 0.960 or adjusted R-squared of 0.955, thus, there is relative massive variances in the dependent variable, “Years” which quite possibly stands for market development or growth period. This shows that there has been a great deal of turnover in the equity derivatives and the growth of the market over the years.

Analysing the results, the coefficient of “Turnover (₹ Crores)” is found to have the maximum and positive beta of 0.980; this means that with an increase in the turnover of equity derivative market, there would be an increase in the years of market growth. Coefficients of determination continued to provide a solid support for the positive significance of turnover in the growth of the equity derivative market. The F-statistic = 191.226 and the p = 0.000 indicate that the model is statistically significant and the correlation cannot be as a result of random occurrence.

The coefficients table gives more information regarding the nature of the connection. The constant term of 2013.994 means that, even if the turnover equals to zero, the model should give the year value about 2013.994. As to turnover, the unstandardized coefficient makes it equal to 1.845E-07, which is the magnitude of the change of the dependent variable for every unit increase in turnover level; though very small in its numerical value is statistically significant (Sig. = 0.000, $t = 13.828$). This as highlights the significance of the following schedule with regards to the impact of turnover on the years of growth in the equity derivative market.

The support of the ANOVA table is in line with the model, where the sum of square due to regression is relatively large (79.187) compared to the residual sum of squares which is only 3.313 indicating that most of variance of the dependent variable is explained by the model. The Durbin-Watson statistic which is 1.218 indicates that there is little evidence of residual auto correlation within the model and confirms the appropriateness of the model and no evidence of first order auto correlation existed in the residuals.

Therefore, the study establishes a high and constantly increasing turnover and confidence level of the equity derivative market over the years. The result indicates that the turnover is very significant, therefore the model explains that turnover is an essential factor that fosters the growth in this market segment. The figure is rising even further, which is indicative of the fact that this market is relatively new and continues evolving along with its integral role for the financial industry. It could be attributed to more activities in the trading, investors' interest or speculation arising from hedging using derivatives.

H2 - There is a significant growth in the overall equity derivatives – Turnover is accepted

CONCLUSION

The expansion of equity derivative markets has various benefits that would contribute in improving the efficiency of the financial markets. For instance the options and futures serve to enable an investor hedge against any losses affiliated to their equity investment. This enables not only safeguard investors individual and institutional against fluctuation in the market, but also stability in the financial systems. Equity derivatives are also important in contributing to market liquidity by giving more efficient means of determining security prices as well as enabling market participants to express various views and expectation towards the market. Additionally, these instruments can enhance the level of participation of a venturer in a particular market because they provide leverage and also allow for speculative trading without large amounts of capital investments. Last of all, these markets may trigger the proper financial innovation and bring to the creation of various diverse financial instruments, which would improve the main economic growth and dynamics of the markets.

The increased markets in equity derivatives are advantageous for liquidity and risk management but has some disadvantage such as the rising participation of retail traders. One of the issues that can emerge is the increased risk exposure of substantial losses that may happen to the retail investors especially those with little experience and knowledge regarding the contracts such as options and futures. These instruments allow the use of high leverage and thus the trader can be subject to high loss-making opportunities where the total losses achieved surpass the initial deposit. In addition, there is high fluctuation and high risk prevalent in derivative markets may force losses that put immense pressure on the individual traders financial capacity to handle such loses. However, the influx of the retail participation also poses a problem since many of these people might trade blindly without any understanding of the risks involved. This can lead to issues on the wider market, with higher fluctuations

and the availability of systemic risks in the event of problems for large numbers of those retail investors. It, therefore, becomes the task of the regulatory bodies to ensure that the markets grows while at the same time of ensuring that investors especially the novices are protected best practice entails financial literacy and good risk managing acumen.

Scope for further research

Given that the present work employ the annual turnover of equity derivatives in the last decade, the following research questions emerges to advance future studies in this market. Further research can be conducted to include other robust factors such as market volatility indices, interest rate changes or macroeconomic factors in an endeavour to explain the impact of these factors on the turnover of the equity derivatives. In addition, extending this framework of analysis to consider only options or only futures or comparing the behaviour of institutions and retail would add significant depth to the understanding of the subgroups of market. Comparisons could also be made of cross market where such findings are out done in other big exchanges in order to determine whether or not that market has certain peculiarities or trends similar to that of equity derivatives markets. Moreover, using more complex statistical tools as econometric models or machine learning algorithms can provide a better forecasting accuracy as well as making possible to find non-linear trends in data. It would also be helpful to assess the effects of some regulatory changes or certain geopolitical factors on the markets, as it affects market operation significantly. The proposed development of the topics will thus enable the enhancement of extant knowledge on factors that underlie equity derivative markets hence enabling improved decision making to the investors and policy makers.

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