GROWING TRENDS IN OPTIONS MARKETS IN INDIA – SPECIAL REFERENCE TO EQUITY DERIVATIVES LISTED IN NSE

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ABSTRACT

High growth has been observed in options trading in the country especially on National Stock Exchange India in the recent past. This can be attributed to the factors such as increased investors interest, advances in regulation, and development of new financial instruments. The following are the reasons the NSE has strived to improve its trading facilities and offering educational products to retail and institutional traders. This has helped to bring about a growing volume of total options trading on NSE as more and more users are concerned with this risky but highly rewarding segment of the financial markets. More so, the internet and increasing availability of online trading platforms, the brokerage firm services that offer options trading have added to this incline. Also, for more traders the recent improvements of NSE in the matter of the market liquidity and transparency have made the options a preferred area for trading. Several regulatory bodies like SEBI have also brought measures that aim at providing legal and fair investment among the participants so as to protect the traders and investors. The existence of modern means of risk management and the possibility of having qualitative tools and abundant analytical materials have become a great contribution that has helped traders to make more effective decisions. Currently, the practice of options trading is relatively new in India; therefore, greater interaction is anticipated with equities, bonds, and futures to build more complexity and broader numbers of participants. Therefore, increased options trading in the NSE can be viewed as a sign of enhancement of the market to the level of development since the market is gradually becoming more complex and sophisticated. The present study aims to assess the growth in the Index and stock options in terms of Number of Contracts and turnover. The results of regression analysis show that there is a significant growth in the options market in the last 10 years. It, therefore, becomes the task of the regulatory bodies to ensure that the markets grow while at the same time ensuring that investors especially the novices are protected. Best practice entails financial literacy and good risk managing acumen.

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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).

According to Admasu and Sharma, (2024) Equity options as instruments have been resonating with the financial market of India in the last few decades. Options are often employed as a financial instrument which gives the buyer the opportunity but not the responsibility to engage in the buying or selling of an original asset at a particular price prior to or on a particular date (Sanghvi et al., 2024). This capacity helps in managing risks, which gives the chance to get an additional income relying on fluctuation of prices in the market, as well as providing the increase in profit from stocks through making successful trades. The Indian security market have witnessed an explosive growth mainly in the beginning of this century when SEBI opened the gate for the trading of options of Indian stock exchanges for the first time. The beginning of stock option trading in India is credited with the National Stock Exchange that introduced the same in 2001 and was a great starting point for further and continued growth both in terms of the available market and activities (Agarwalla et al., 2021).

The option market in India has also displayed constant growth over the last few years due to developing investor awareness, technological improvement, and

participation of the retail/institutional investors. According to Cirappa and Tejashwini, (2022) the fact that the trading of derivatives has shifted online has means that more people can get involved in the trading of options. Also, fluctuations in equity markets triggered by the global conditions and domestic policies have made the investors interested in options as a risk management product. The National stock exchange has also broadened the type of option products available such as index option and different sectors options for facilitating various trading strategies. This evolution is a growing maturity of the Indian financial markets where by options have been adopted as an important part of the derivatives market (Shivaprasad et al.,2022)

With this background the current study aims to assess the growth of Options in the last 10 years in terms of turnover and volume traded. The second section of the paper presents the review of literature followed by the research methods. The fourth section presents the analysis and interpretation of data and discusses the results. The conclusion is preceded by the scope for further analysis.

REVIEW OF LITERATURE

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

Mishra et al., (2025) The results of the multivariate GARCH analysis show that there is a strong relationship between Nifty returns and the India VIX, which helps to explain the existence and size of spillover effects. Traders, investors, policymakers, and financial analysts can get useful insights from these studies, which improve their knowledge of the relationship between implied volatility and nifty return. In addition to adding to what is already known in financial econometrics, the study lays the groundwork for better risk management tactics in the face of market volatility.

Shilpa et al., (2025) The purpose of this research was to examine the effect of bullish strategy-based BANKNIFTY derivatives transactions on spot market volatility in the Indian capital market. Only forward and prospective contracts involving equity are under the purview. When an options trader anticipates an increase in the underlying stock price, they use a bullish options strategy. In order to choose the best trading strategy, investors need to consider the maximum possible stock price increase and the time frame during which the rally will take place. Stock prices rarely increase dramatically. Options traders that are somewhat bullish often use bull spreads to spread out their bets and set a price goal for when the bulls run. Although these tactics have a maximum earnings cap, they are typically more cost-effective to implement. The primary objective of this study is to use the Bullish Strategy on the strike prices of Bank Nifty to determine the relative risks and returns of various investment options. Bank Nifty makes a little profit in the middle of the month thanks to the optimistic strategy, but it loses money again at the end. Thus, it can be concluded that the bullish strategy to gain or maximise profit in investing bank nifty in the Indian stock market is positively impacted by the valuation of risk and return.

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 Objective

- To assess the growth in the Index options – Number of Contracts
- To examine the growth in the Index options – Turnover
- To analyse growth in the Stock options – Number of Contracts
- To measure growth in the Stock options – Turnover

RESEARCH METHODS

The study relies on secondary data which NSE provided about Options derivative annual turnover spanning 10 years. The analysis used linear regression modelling 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

Index options – Number of Contracts

Figure 1 - Index options – Number of Contracts- 10 Year data

Figure 1 shows the increase of the number of index options contracts from the period 2015-2016 to period 2024-2025

Initial Phase (2015-2017): The period from 2015-2016 to 2016-2017 shows a substantial jump from 258.6 million contracts to 1.07 billion contracts. This increase also implies that the usage of index options is on an upward trend and this is making some stock markets volatile and this is due to interest from investors who want to hedge their risks, this is attributed to the advancement of the financial markets.

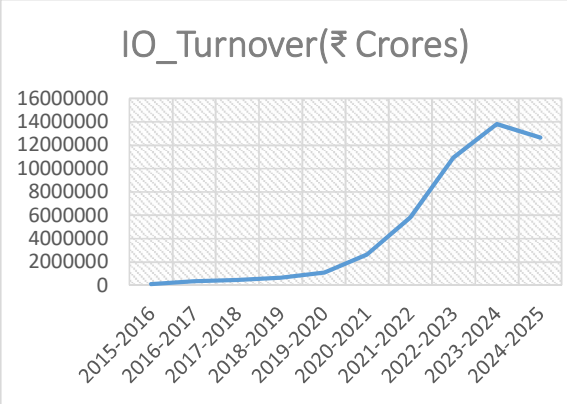
Acceleration (2017-2020): Over a period of two academic years, from 2017- 2018 to 2019- 2020, such contracts have raised from 1.51 billion to 4.57 billon. This period experienced an optimistic growth which is suggestive of high demand for index options from the investor community as they are admired for futures for gambling and hedging. This advancement might have been caused by factors such as, economic recovery, advancement in technology in trading platforms or even certain changes in regulations.

Momentum and Volatility (2020-2021): The year 2020-2021 further amplified to 7.82 billion to almost double of the previous year. This may be probable as a result of the market flucuation triggered by the unprecedented outbreak of the COVID-19. The investors possibly used the index options to manage risk by selling it in order to stand against the unfavorable movements or by buying it in order to gear on the fast market movements.

Peak Growth (2021-2025): The increase in the number of contracts is continuing from the year 2021-2022 onwards, and it is going up to 93.65 billion in 2023-2024 and slightly declining to 98.17 billion in 2024-2025. Such a level of steady and consistent growth indicates a well-established and strong index options market that is well embraced by various categories of investors. One reason for the increase could include the increased market participation, the expanded and diversified market investment products, and the adoption of options as part of a diversified investment strategy.

Index options - Turnover (₹ Crores)

Figure 2- Index options – Turnover- 10 Year data



This statistical description in figure 2 shows the trend of turnover in index options in India in the stock market of the specified years from 2015-2016 to 2024-2025.

Initial Growth Phase (2015-2016 to 2020-2021):2015-2016 The turnover was ₹106,752.98 crore, and it infers the beginning of the turn over dataset. 2016-2017 to 2019-2020: In this year, while the turnover of the company has gradually increased from ₹35,002.15 crores to ₹1,079,578.48 crores. This is equivalent to a compound annual growth rate (CAGR) of about 76.6% for the four years. 2020-2021- There was a break-through and the turnover was marked ₹2,629,426.05 crores. This can be attributed to some of the factors such as rising market risk, higher level that investors seek to use options for hedging and for speculation particularly during the existence of COVID 19, and policy changes that support options trading.

Rapid Expansion Phase (2021-2022 to 2023-2024):

2021-2022: Turnover reached ₹5,842,329.82 crores which was further improved as comparing with the last year. This increase can be attributed to the rebounding of markets after the pandemic and the high involvement of the retail investor.

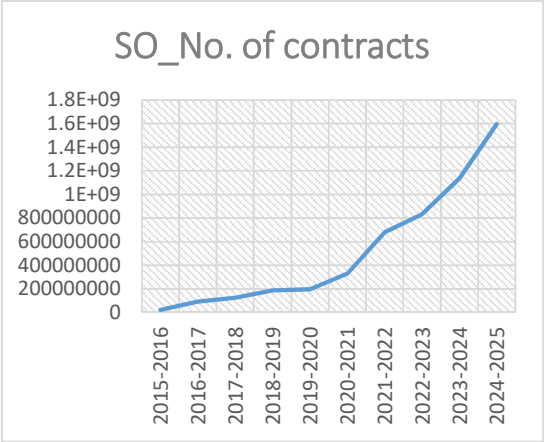
2022-203: It further rose to ₹10,955,555.56 crores that showed the same trend of high growth. This period may have benefited from higher level of digitalization, better trading facilities and availably of derivative products.

2023-2024: The turnover touched a record high at ₹13,819,563.61 crores for index options trading continuing at a high level during this period. It can be attributed to higher levels of market sophistication and probable development of strategies by exchanges and regulators to offer derivatives.

Stabilization Phase (2024-2025): The turnover was decreased to ₹12,658,613.74 crores in comparison to that of last year. This figure although still quite high could indicate that the market growth rate has stabilised after tremendous growth or it may as well be due to macro environment influences, change in regulation or reduction in the investors' enthusiasm.

Stock options – Number of Contracts

Figure 3 - Stock options – Number of Contracts- 10 Year data



The figure 3 indicates the increase in stock option trades that occurred over such years from the fiscal-year ending in 2015-2016 to the fiscal-year ending in 2024-2025.

Overall growth: There is an increase in the number of stock option contracts that increase regularly with no sign of a halt in the increasing trend. So there was

21,308,958 in the year 2015-2016, and will grow up to 1,595,187,511 in the years 2024-2025. This is an indication of an increase of the stock options market in this period.

Growth rate:The growth is steadily increasing and its rate also seems to be increasing in a similar manner. For instance, on average, this number had increased by approximately 7.4 between the 2015-2016 and the 2016-2017 financial year from 21.3 million to 92.2 million contracts. Also, from 2019-2020 to 2020-2021, the number of contracts was augmented to 2.3 times and was equal to 330.4 million, which states an accelerating trend.

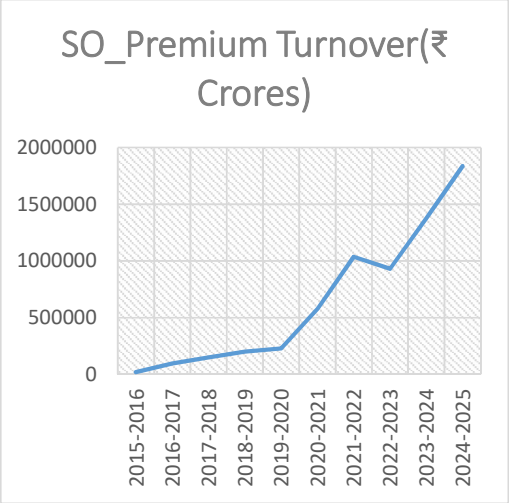
Major Annual Rise: The biggest annual rate was recorded in the last coupleof years of this dataset. Fiscal year on year, the number of contracts has seemed to have increased by about 105.5% from 330.4 million in the fiscal year 2020-2021 to 677.5 in the fiscal year 2021-2022. Consequently, it went up to 834.9 million of contacts in the period of 2021-2022/2022 -2023 with an increase of about 23%.

The growth in the contracts from the 2022-2023 and the 2023-2024 fiscal periods was even more significant with an upswing of about 36.3% reaching 1, 137.6 million.

The projected future state: Therefore, continuing with the previous year's trajectory, the projection for the current financial year (2024-2025) is expected to be 1.6 billion contracts. This shows that there has been about an average growth of around 40.7 % for the period of 2023/2024 to 2024/2025.

Stock options - Turnover (₹ Crores)

Figure 4 - Stock options– Turnover- 10 Year data



The rising trend of growth rate of the value traded of the stock options for the years of 2015-2016 to the years 2024-2025 is shown in table 4.8 and chart 4.8.

Trend of Overall Growth of Stock Option: In this case, there has been an increase in the value of the stock options traded in the previous years. It augmented from Rs. 18,361.96 crores of the financial year 2015-2016 to an estimated Rs. 1,834,840.39 crores in the financial year 2024-2025. This shows an increase in activity in options and interest towards stock options trading business.

Initial Steady Growth (2015-2017): Comparing the value traded between the year 2015-2016 to 2016-2017, there is the realization that the value has risen by about 419 % . This type of analysis is applicable because this period can be noted as the beginning of interest in stock options trading due to markets liberalization, growing awareness among investors, and new products 'appearance.

Acceleration (2017-2021) of the cases: In this period, which is from 2017 to 2018 to 2020 to 2021, the increase was higher. The volume of value traded increased from ₹148,217.5 crore in 2017- 2018 to ₹579,351.62 crore in the year 2020- 2021.

It can be explained by higher activity of institutional investors, improvements of regulatory environment and technological developments that pulled up the level of trading operations.

Peak Growth (2021-2022): The last financial year that is 2021-2022 can be termed as the peak year with total of ₹ 1,038,830.27 crores was traded. This could be attributed to fluctuations in the market during the COVD-19 pandemic which makes investors to always engage in futures trading especially options in a bid to hedge on their positions or to gamble on the market.

Fluctuations and Recovery (2022-2024): In 2022, there was a reduction to 932,700.58 crore INR which can be attributed to the fluctuations and recovery year 2023 announced to give a stable market after the pandemic affect. Nonetheless, the value has registered a stirring uplift in the financial year 2023-2024 and scaled up to ₹1,378,030.78 crores, this implies that people have started investing in options trading again.

Future Projections (2024-2025): The future value of India's ease of doing business in the next year i.e., 2024-2025 has been predicted at ₹1,834,840.39 crores. This could be attributed to market growth, floating participation by the small retail investor, and innovations in trading technology and securities.

Hypothesis -1

H1- There is a significant growth in the Index options – Number of Contracts

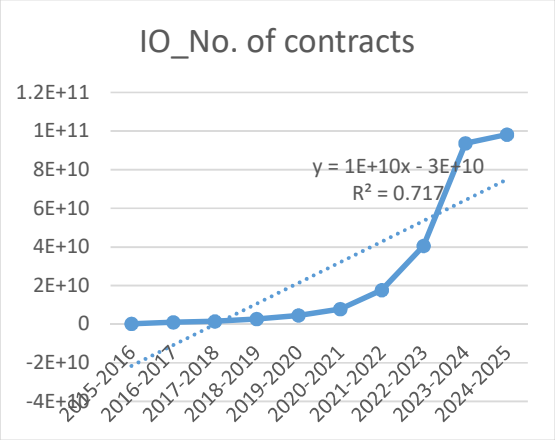


Figure 5 - Regression results - growth in the Index options – Number of Contracts

Based on the statistical model summary, we can get some light for the number of contracts as the independent variable which is VAR00006 IO_No. of contracts and the years as the dependent variable, VAR00001 Years.

Durbin-Watson Statistic:

Durbin-Watson test is equal to 0.490, hence it is small. Usually, the value close to being equal to 2 means that the residual series has no auto correlation. If the result is much less than 2, the degree of positive autocorrelation is indicated, and this implies that the residuals are not independent. It can be interpreted as meaning that the errors they are making in their predictions are constant in time, which is a weakness of the model.

Significance Value (p-value):

The significance value for regression model is 0.002 lesser than alpha level of 0.05. This goes to imply that there is a statistical significant between the number of contracts and the number of years. That is, these results indicate that there is a significant association between the number of contracts and the years and random chance can not explain them.

R and R Square Values:

In other words, the statistic of R equals 0.847, which means that there is a rather high positive correlation between the

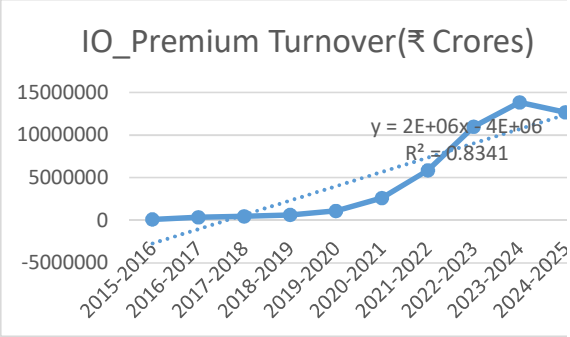
number of contracts and the years. The R Square value is calculated 0.717 which is indicating that the about 71.7% variation in year are accountable by the number of contracts. It is lower than the one above which is 0.708 and it takes into consideration the number of predictors in the model to give an enhanced estimation of fitness of the model when generalized.

In conclusion it is found that based on the model proposed, a considerable and positive association exists between the number of contracts and the years accounting for the probable variation of the dependent variable to certain extent. However, the Durbin-Watson statistic is low hence implying that there is autocorrelation problem that needs to be dealt with so as to get better forecasts.

H1- There is a significant growth in the Index options – Number of Contracts is accepted

H2 - There is a significant growth in the Index options – Turnover

Figure 6 - Regression results - growth in the Index options – Turnover



The model summary as well as the ANOVA table show detailed information concerning the regression analysis of the independent variable of IO_Premium Turnover in ₹ Crores to the dependent variable of Years.

The Durbin-Watson statistic is used to check the auto correlation of errors in the residuals of a regression analysis. They have observed that when Durbin's h value is approximately equal to 2, it proves there is no autocorrelation and when it is close to 0, there is positive autocorrelation while negative autocorrelation is demonstrated by values close to 4. Thus, the value of 0.625 indicates a high positive autocorrelation and that means residuals are dependent on each other. This may be a problem because it is one of the major assumptions of regression analysis while carrying coefficient estimation and may eventually lead to erroneous coefficient estimates.

Among the elements, the significance values (p-values) are essential for making the judgement on the importance of relationships that lies in the data. The significance level of 0.05 or less generally used in evaluation of p-values. Here, the F-test value for the overall regression model is .000 and the t-test value of the IO_Premium Turnover is .000. This means that two of the hypotheses of this study hold that is, the model and the predictor variable is statistically significant thereby indicating that there is strong evidence that there is a relationship between IO_Premium Turnover and Years.

That means that the amount of variability that is shared between the dependent variable and the independent variable or the set of independent variables represented by R Square is the extent to which the independent variable(s) can account for the variation in the dependent variable. It therefore indicates that, for 83.4%, of the changes in Years, there is a direct relationship which is attributed by IO_Premium Turnover. The adjusted R square has a slightly lower value of 0.813. Besides, it adjusts the value computed above based on the number of predictors that are included in the model. The values of R Square and Adjusted R Square are

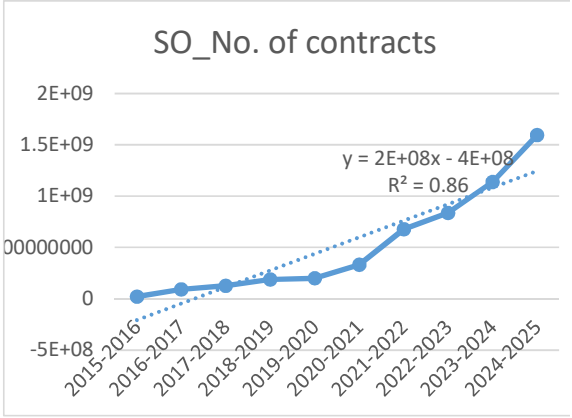
quite similar, implying that there is not over –fitting of the model.

From the regression model analysis it is evident that IO_Premium Turnover is significantly related with the variable Years since the value of both R Square and p-value are relatively high. Looking at the result of Durbin Watson statistic, it is very low which indicates some form of autocorrelation in the residuals which would be a major disadvantage in the applied model. Therefore it may be advisable to look at it further or use methods to rectify an autocorrelation if this model is to be used for forecasting.

H2 - There is a significant growth in the Index options – Turnover is accepted

H3- There is a significant growth in the Stock options – Number of Contracts

Figure 7 - Regression results - growth in the stock options – Number of Contracts



The given summary describes the result of simple regression analysis, where the dependent variable is 'Years' and independent variable is 'SO_No. of contracts'. It is inspired by understanding these basic components where few of them include Durbin-Watson statistic, significance value, and R-Square change value.

The Durbin-Watson statistic was used in this assessment to establish the level of autocorrelation in the residual values of a conducted regression analysis. The value ranges from 0 to 4 where the value near to 2 indicate that there is no autocorrelation present in the series. A value of 0.492 is much less than 2, which means it has a high positive auto-correlation value. This means that the error terms are related in time, and this can be evident in the regression coefficients, thus it is a violation of the assumption.

The p-value or eta-squared tells about the exact relation of observed relations in the data up to the statistical significance measure. A p-value of 0.000 (less than 0.05) in the case of regression model and the independent variable indicates that the probability of the correlation between "SO_No. of contracts" and "Years" is statistically significant. This means that the number of contracts variable causes the years variable in a positive fashion, and such a relationship cannot be a mere coincidence.

The value of R-squared means that per cent of the variance in the dependent variable "Years" is accounted for by the independent variable "SO_No. of contracts". The number of contracts has a strong explanatory power as it explains 86% of the variability in 'Years.' As the results show, the value of R-squared is 0.860. An R-squared of 0.843 offers more information when it comes to a comparison of the models with different numbers of predictors through the adjustment by the number of the predictors involved in the computation of the R-squared value.

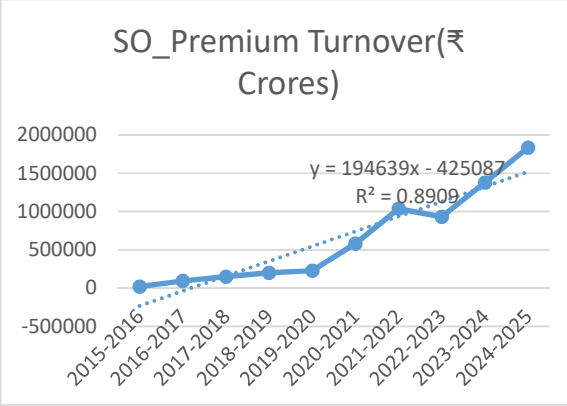
In other words, using regression analysis, it is possible to establish that there is a direct, strong, and statistically significant relationship between the number of contracts and years, as well as good explanatory value could be attributed to the model due to a high R-squared value. One

weakness, however, is the disposition of the Durbin-Watson statistic close to one indicating that there is positive first-order autocorrelation in the residuals which should be looked into in future research.

H3- There is a significant growth in the Stock options – Number of Contracts is accepted

H4- There is a significant growth in the Stock options – Turnover

Figure 8 - Regression results - growth in the stock options – Turnover



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In other words, using regression analysis, it is possible to establish that there is a direct, strong, and statistically significant relationship between the number of contracts and years, as well as good explanatory value could be attributed to the model due to a high R-squared value. One weakness, however, is the disposition of the Durbin-Watson statistic close to one indicating that there is positive first-order autocorrelation in the residuals which should be looked into in future research.

H4- There is a significant growth in the Stock options – Turnover is accepted

CONCLUSION

The expansion of Options 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 loses 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 venture 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 options 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 options 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 Options derivativemarkets hence enabling improved decision making to the investors and policy makers.

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