

DO INFORMED INVESTORS PREFER FUTURES?

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Abstract

In today's day and age, trading in the stock market has become more dynamic and flexible owing to the variability that is being offered within domains such as that within derivatives. Derivatives offer some good risk-management tools in the form of futures and options which not only helps in transferring risk to those are prepared to own risk but also generate returns at high volatile situations. Naturally, with the increasing volatile trading, informed investors play a vital part & traders has grown leaps and bounds. In this study, we try to understand the impact of the preference towards futures by the informed traders, the same way they show an unbound inclination towards the options which the literature suggests. This study takes the data from Nifty-50 index into the consideration between the period Jan 2016 to Dec 2017 and utilizes the volatility of the spot prices by applying the GARCH model. Using regression analysis, the paper presents the evidence which indicates that informed investors do prefer futures over spot market.

1. Introduction

Derivatives, by their very definition, are derived from the underlying assets meant to hedge the risk. Derivatives mainly comprise of forwards and future and includes options when optionality element is introduced. Informed trading activities play a significant role in the prices of securities, esp. in the derivative markets. The derivative market is an attractive destination for informed investors as it has low operational costs and holds a high financial return. In an Options market informed trader use confidential details before starting trading in the Options underlying asset market. In this the market that is informed to investor or traders are classified into two types: the volatility investors and directional investors. As and when the shocks to volatility for an essential asset occur, it leads to a shift in the expectations of the informed investors w.r.t to volatility. This contrasts with the directional investors. They get involved in options trading when there is a change in investor perspective about the future pricing movement of the financial instrument of which options value is based upon.

Back, (1993) points out that since the traders with superior trading knowledge have higher risk taking appetite on their confidential information of the unstable future price and investigation between the option trading volume and the future price instability becomes interesting and it can provide meaningful insights w.r.t to volatility-related information content of option trades. It shows an unclear relationship for such instability in volume-volatility relation. Hedging and speculation of the options take asset price as the base and is the primary reason for such unclear nature of relation. At this place few researchers can opine about price volatility is the only attribute following the option trading volume.

There is a direct relationship between price instability and the size of trading stock options. (Sears,2000a, b; Tan 2001a). Perhaps there has been substantial reasoning in perspective to the unidirectional link between the price volatility and option trading volume which indirectly assumed the symmetric information across traders, presence of perfect markets and trading volume views to be a non-factual determinant of the trading process. But there are situations where this unidirectional link between the two might breakdown, probably when the symmetry of information among the traders is non-uniform i.e. some are more aware than the other traders and when the traders are not in a position to predict the price volatility

Availability of the higher returns and the low transaction costs in the options markets are the driving factors for the informed traders to be more attracted to the contractual market as compared to the stock market. And as the option pricing formula is based on the price volatility to ascertain the option price, option trades get an advantage to reflect the future price volatility information as compared to the rest. (Easley, O'Hara & Srinivas, 1998).

Thus, when the informed traders initiate the options trade, the option trading volume may come before and lead up to the future price volatility. However, this situation might become reverse i.e. the option trading volume will be succeeded by the future price volatility when hedge-related uses of options are applied as higher future price volatility usher to a greater use of options.

Apart from Sarwar, (2003), previous empirical studies have not explored whether the option trading volume is cross correlated with the future price volatility and vice versa. This process is called as lead-lag effect. Sarwar in his study probed the volume-volatility relationship with respect to the currency options markets for the Great British Pound. The results were indicative of the fact that there is a strong predictive ability between the volume of currency options and the future exchange-rate volatility. However, the pertinence of this particular determined outcome is still subject to equity and equity-index options markets.

Literature is replete with the argument that informed investor prefer options. Option pricing contains the volatility in its formula therefore the logic of linking the options with volatility seems plausible and therefore the advocacy of the literature to support preference of informed investors for only options.

This paper vociferously argues that as long as hedging remains one of the main motives to use derivatives, futures cannot be separated from the options. Both work in tandem and cater to different segments of the same market.

Broadly there are two main motivations for informed investors to invest in the derivatives (Sarwar, 2005, Chen and Wang, 2017): volatility induced and price induced (Rastogi and Athaley, 2019). The logic for volatility induced is that the informed investor has information about the volatility, which they use by exercising to invest in derivatives over the spot market (Bollen, 1998). Similarly, the logic for price induced trading in derivatives is that the informed investors have exclusive information about the price which they want to put to use to make profit. However, in either of the case, no logic is alluding that they would not use futures.

The reason for informed investor preference to options is given that the price induced informed investors have price information and therefore the demand for options preceded by the change in prices or volatility. The significant association of spot volatility to change the option volume is considered to be the evidence for preference options by the informed investors. This paper espouses that the same logic can be applied to futures volume. If the futures volume has significant causal impact of spot volatility on itself, this proves the point that informed investor do prefer futures over spot. This logic is the motivation of the paper. Thus, the objective of the study is: to explore whether informed investor prefer futures over spot market or not.

2. Review of Literature

Volatility spill over from one market to another is a usual phenomenon (Rastogi, 2010). Association of volatility from one market to another is also very obvious and well researched in the literature (Rastogi, 2011, Rastogi et al., 2019). But, the volatility of spot market can speak about the preference of the informed investors. Volatility studies are part of commodities market as well as interest rate markets too (Rastogi, 2010b ;Rastogi, 2013).

There are many literature evidences which indicate that introducing Options would increase the chances of attracting new informed traders towards trade whether it be profitable or unprofitable. One of the reasons why this attraction of unprofitable informed trades happens is due to the availability of financial rate of returns provided by stock options that can lower operational costs. (Black, 1975) Literature also suggests that Options enable effective trading on false data than which becomes non-apprehensible in the trading market but can be an adding cause to the attraction for these traders.

Similarly, derivatives too are popular instruments which thrives on negative information since there are very limited selling restrictions in the spot market. Thus, Options become more plausible way at different monetary categories that offers different leverage, liquidity and varied future volatility estimates. (Shaikh, Padhi; 2014). Literature also suggests that increase in the volatility market leads investors to encourage more people for risk sharing in the market. There is a shoot at the expected instability that would result reduction in basis and rise in open interest as a result of the enhanced participation. (Chen, et al., 1995)

Moreover, a study determined that increase in the options volume and the spot market volatility is incumbent upon the shift of liquidity from the spot market to the options. (Pathak, 2015). There have been implications as well based on certain extensive studies which indicates that the option trading volume would act as a predecessor to the future price volatility when informed traders begin option trades from their end. But there

might be situations where the option trading volume may exceed future price volatility with the application of hedge-related options. (Easley, O'Hara & Srinivas; 1998).

Going further in depth, we find that there have also been studies which described how informed investors have the ability to leverage their information in the contracts market. This information can be related to the impact on stock prices based upon the future updates. The uncertainty of such information has a direct influence on the choice of trading in the contractual market. (Augustin, et al., 2006)

Options trading impacting the variance in stock returns have been presented as a part of the multiple theoretical arguments in various research studies. Bollen, (2018) in his study has shown that even though such situations might affect the regulators, but should not be a point of concern about the options and its impact on the stocks it is based upon. Stock options are illustrative of other types of derivatives, and they should be used continuously for the development of derivative markets.

Extensive research has also been done to examine the influence of options market to determine the proper price of a security. Trading volume of stocks and its spread, stock volatility forms the basis of the option market price discovery and the return ratio, trading volume and its spread determines the option exercise prices. Chakraborty, (2004) concludes in his study that the informed investors usually are found trading trade in both stock and contractual markets, suggesting an important informational role for options. He also suggests that both rate of return and liquidity have an important role to play in promoting price discovery.

Literature suggests that usually in an option market there are 2 types of traders who are aware of the superior trading knowledge: trading strategy based on market dynamics (volatility traders) and trading strategy based on investor assessment of broad market (directional traders).

Volatility traders usually come in the forefront at the options market when there is an occurrence of shocks to the volatility of the underlying stock which leads up in considerable shift in the expectations of the investors. However, when the investors perception about the future price movement of the underlying security changes, we see the emergence of directional traders in option trading. Chen, (2016) in his study exemplifies the impact of option trading on option price changes, by decomposing the net buying pressure of options into demand driven by volatility and demand driven by direction.

Several studies have also contributed investigating the details between the contractual markets and the equity trading markets. Empirical research done by Easley, (1998) indicated that stock prices lead option volumes which is an expected outcome since fluctuations in stock prices would encourage the offsetting trading positions in option market. Another significant result in his study indicated that particular option volumes would lead changes in the stock price. Thus, making the option markets a sustainable venue for information-based trading.

Current study tries to examine the role of the informed traders with respect to their preference of using futures the same way they show inclination towards the options market and the options trade altogether. There is enough evidence through the literature that the traders with more trading awareness usually attracted to the options markets for various reasons cited by prominent authors in their respective work. This study determines whether the same theories of informed investors and their reception towards the options markets stands true to the futures market or not.

3. Data and Methodology

3.1 Data

National Stock Exchange (NSE) data has been used for the study of this research. Duration of the data is from Jan 2016 to Dec 2017. The data is taken for Nifty 50, futures and options during the same time period. Volume of futures and options are taken. Closing price data of Nifty-50 is taken for the same duration. The volatility of spot prices of Nifty-50 is calculated using GARCH (1.1) model. (Rastogi and Srivastava, 2011). For estimating IV (Implied Volatility), option prices of ATM (At the money) options are used (Rastogi and Athaley, 2019). Descriptive of the data is reported in Table 1.

Table 1. Descriptive Statistics

Variables	Min	Max	Mean	SD
LOGFUVOL	10.1225	15.1322	13.5923	.8349
HV	.0809	.2017	.1231	.0331
IV	.1261	.5808	.2461	.0731

Note: LOGFUVOL is natural log of future volume. HV is historical volatility and IV is implied volatility.

3.2 Methodology

Simple linear regression analysis is used in the study. The literature is replete with the instances that informed investors invest in options (Augustin et al., 2016; Chakravarty et al., 2004; Chang et al., 2009; Chen & Wang, 2017; Easley et al., 1998; Pathak, 2015). The causal association between options volume and spot volatility is the logic used by the literature to prove the point that options are the preferred mode of investments by the informed investors. The model, to prove the point is based on the simple logic that informed investors have expert knowledge of the movement of the prices of the stocks. The change in prices of the stocks (volatility of the underlying asset) should precedes the change in the option volume. The same logic is used in the paper, however, instead of options volume, futures volume is considered to prove the point (Equation 1) (Rastogi and Agarwal, 2020).

$$\text{Futures Volume} = \beta_0 + \beta_1 \text{Spot Volatility} \quad \text{Eq-1}$$

Volatility of the underlying assets has always been an important issue for all the stakeholders in the market (Rastogi, 2014; Rastogi et al., 2018; Sarkar and Rastogi, 2011).

4. Results

The results of the data analysis are reported in Table 2. Equation 1 is tested using STATA 13. The regression is run using Equation 1 in for two set of explanatory variables. The first part of Table 2, reports the regression analysis when explained variable is futures volume and explanatory variable is volatility of the underlying assets (The volatility of underlying assets is measured with the help of GARCH (1,1) model). The regression results are significant for volatility as the associated p-value is .0000 and therefore the null hypothesis of zero coefficient of volatility (Equation-1) is rejected. Model is also appropriate as the corresponding F-statistics of the model is also significant (p-value of F test is also .0000). However, R-square value of the regression is quite less (6.3%). Heteroscedasticity is also significant and model specification is also not good (RAMSEY test of specification is significant). Despite the shortcomings of the model, t-test of coefficient of volatility is significant (futures volume is regressed on spot-volatility).

The similar regression (using Equation-1) when futures volume is regressed on implied volatility is also having significant volatility coefficient (Table 2; Part B). The coefficient p-value is .0000 which is less than the 5% level of significance. R-square in this case is slightly better and it is equal to 14.37%. But heteroscedasticity is also significant in this case. The RAMSEY test of specification is also not good. However, the t-statistics of implied volatility is significant (F-test is also significant) and therefore the result are acceptable and further interpretation of the results are done on the basis of the results generated of both the regression outputs.

Table 2. Result of Regression Analysis

PART A. Historical Volatility	Coefficients	SE	t-stat	p-value
Constant	12.82	.15	84.22	.0000
Volatility (Historical)	6.29*	1.19	5.27	.0000
F-test (Model)	27.78 * (.0000)			
R-Square (Adjusted)	.063			
SE of Regression	.8094			
DF	418			
Note: No of observations (n)	420			
Test for Heteroscedasticity ¹	33.37 (.0000)			

RESET Test ²		8.88 (.0000)		
PART B. Implied Volatility	Coefficient	SE	t-stat	p-value
Constant	12.52	.13	94.43	.0000
Implied Volatility	4.33	.52	8.38	.0000
F-test (Model)	70.15 (.0000)			
R-Square (Adjusted)	.1437			
SE of Regression	.7735			
DF	418			
Note: No of observations (n)	420			
Test for Heteroscedasticity ¹	79.77 (.0000)			
RESET Test ²	6.99 (.0001)			

Note: ¹ Test of heteroscedasticity has the null of no heteroscedasticity. ²RESET test has null of correctly specified model. p-value are in parentheses.

5. Discussion and Conclusion

The literature is replete with the details of the traders with more awareness of the trading methodologies would be more interested to invest in contractual markets. Furthermore, directional traders (hedgers) have the expert knowledge of the change in the prices of the underlying assets. In addition to this, if spot volatility precedes the change in option volume, this implies that informed investors invest in options over the spot market (Augustin et al., 2016; Chakravarty et al., 2004; Chang et al., 2009; Easley et al., 1998; Pathak, 2015; Sarwar, 2005). The same logic is used in the current study with the exception of option volume being replaced with the futures volume. The results of both the regression analysis (Equation 1) provide evidence that regression of futures volume on spot-volatility is significant and therefore, it can be concluded that informed investors prefer futures over the spot market.

This study does not take into consideration the options volume; therefore, this conclusion cannot be drawn using the findings of this study. However, using the instances of previous study (Sarwar, 2005; Bollen & Whaley, 2004; Chen & Wang, 2017), it can further be stated that futures along with options are preferred by informed investors over the spot market of the underlying securities.

Studying both, futures and options to explore the cumulative evidence whether both are preferred by informed investors or not. Moreover, a comparative study can also be conducted in the future to know the relative preference of futures and options market by the informed investors.

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