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An Analytical Study of the Derivatives Market: Evidence from Futures and Options

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ABSTRACT: The present study seeks to identify the disparity between the opportunities offered by the derivatives market and the extent to which investors are informed, prepared, and willing to utilise these opportunities. In the contemporary investment environment, where savings and investment decisions play a crucial role in financial planning, derivatives have emerged as both an investment avenue and an effective mechanism for risk management. Despite their significance, derivatives remain underutilised, largely due to limited awareness and cautious investor behaviour. This research concentrates on two key derivative instruments—futures and options—with specific emphasis on their risk–return characteristics, investor motivations, and the actual returns realised by investors. The study evaluates the extent to which investors are able to capitalise on the potential of the derivatives market and examines the factors contributing to the observed gap between market potential and investor participation. The findings of the study clearly demonstrate a substantial gap between the capabilities and benefits offered by the derivatives market and investors’ understanding, perceptions, and actual utilisation of these instruments. The study highlights the need for enhanced investor education and awareness initiatives to bridge this gap and promote informed participation in the derivatives market.

KEYWORDS: Derivatives, Risk management Futures & options, Investors risk & return profile

I. INTRODUCTION

Risk is an inherent element of both commodity and capital markets. Over the past two decades, rapid globalization and economic liberalization have significantly expanded international trade and business activities. As a consequence, financial markets have witnessed substantial fluctuations in interest rates, exchange rates, and equity prices. These movements have heightened the level of financial risk faced by corporations, even those with strong operational performance.

Rising financial uncertainty exposes otherwise profitable organisations to potential losses arising from adverse market movements. In this context, derivatives have emerged as effective instruments for managing and mitigating financial risk. By enabling market participants to hedge against price volatility, derivatives facilitate the efficient transfer and redistribution of risk among investors.

Derivatives are financial contracts whose value is derived from an underlying asset, which may be financial—such as equities, bonds, interest rates, or currencies—or non-financial, such as commodities. These instruments do not possess intrinsic value of their own; instead, their worth is entirely dependent on changes in the value of the underlying asset. Owing to their ability to manage uncertainty and volatility, derivatives have become an integral component of modern financial markets.

II. LITERATURE REVIEW

Nagaraju (2014) focused on investors’ perceptions of the derivatives market and its various instruments. The study concluded that investment decisions in derivatives require careful evaluation of associated risks, and investors must undertake thorough analysis before committing funds to specific financial instruments. The research underscores the significance of risk assessment in shaping informed investment behaviour in derivative markets.

Kumar and Varma (2015) analysed the growth and performance of the Indian derivatives market with special reference to futures and options. Their study found that derivative instruments have significantly improved price discovery and market liquidity. However, the authors observed that participation is largely concentrated among institutional investors,

while retail investor involvement remains limited due to inadequate awareness and perceived complexity of derivative products.

Gunti (2016) examined the role of derivatives as effective instruments for managing financial risk and highlighted their importance in facilitating risk transfer among market participants. The study emphasised that derivatives enable the redistribution of risk from investors seeking to minimise exposure to those willing to assume higher risk, thereby improving overall market efficiency. The findings also indicate that India's experience with the introduction of equity derivatives has been largely positive, contributing to the growth and maturity of the financial markets.

Sharma and Gupta (2017) examined the awareness level of retail investors regarding derivative trading. The study revealed that although investors recognise derivatives as effective risk-hedging tools, a lack of technical knowledge and fear of potential losses discourage active participation. The authors suggested structured investor education programmes to enhance understanding and confidence in derivative markets.

Rao (2018) studied the role of derivatives in managing portfolio risk and concluded that futures and options can effectively reduce portfolio volatility when used appropriately. The research highlighted that investors with higher financial literacy are more successful in utilising derivatives for hedging rather than speculative purposes.

Patel and Mehta (2019) focused on behavioural factors influencing investment decisions in derivative markets. Their findings indicated that risk perception, income level, and prior market experience significantly affect investors' willingness to trade in derivatives. The study also reported that conservative investors tend to avoid derivative instruments despite their potential benefits.

Krishna (2019) explored investor behaviour and risk-taking ability across various investment avenues. The study highlighted that differences in risk perception and financial awareness lead to varied investment choices among investors. The findings reinforce the importance of investor education in promoting rational investment decisions, particularly in complex financial instruments such as derivatives.

Singh and Kaur (2020) investigated the relationship between investor awareness and derivative market participation. The results demonstrated a positive association between knowledge levels and trading frequency in futures and options. The authors emphasised that improved transparency and simplified trading mechanisms could encourage wider investor participation.

Iyer (2021) analysed the impact of derivative usage on investment performance among retail investors. The study found that investors who adopted derivatives primarily for hedging achieved more stable returns compared to those who engaged in speculative trading. The research underlined the importance of aligning derivative strategies with individual risk profiles.

III. RESEARCH GAP

Existing literature extensively discusses the structure, growth, and risk management role of derivative instruments, particularly futures and options. Several studies have examined investor perception, market volatility, and the effectiveness of derivatives in hedging financial risk. While these studies provide valuable insights into the theoretical and functional aspects of the derivatives market, limited attention has been given to the discrepancy between the potential benefits of derivative instruments and the extent of their actual utilisation by investors.

Most prior research focuses either on market performance or on general investor awareness without empirically linking investor knowledge, risk appetite, and investment behaviour to the unrealised potential of the derivatives market. Moreover, there is a lack of sector-specific studies that analyse how derivatives are understood and used across different industries. Empirical evidence examining the interaction between investor risk capacity, frequency of derivative investments, and income levels remains sparse.

Therefore, a clear research gap exists in understanding how far investors are able and willing to exploit the opportunities offered by the derivatives market, despite its capability to serve as both an investment avenue and a risk management tool. The present study attempts to bridge this gap by combining sector-wise analysis with primary data and statistical testing to assess investor awareness, behaviour, and actual market participation.

Research Objectives

1. To examine the functioning and operational mechanisms of futures and options within the financial services sector.
2. To assess the gap between the potential benefits offered by the derivatives market and the level of investor awareness and willingness to utilise these instruments.
3. To analyse the profit and loss positions of participants in futures contracts, including buyers and sellers, as well as option writers and option holders.
4. To identify the key factors influencing investors’ preference for derivative instruments as an investment avenue.

Research Methodology

The present study adopts a descriptive research design, as it aims to analyse investor awareness, perceptions, and investment behaviour with respect to derivative instruments, particularly futures and options.

Both primary and secondary data are used for the purpose of the study. Secondary data are collected from existing literature, including research articles, journals, books, and published reports, to develop a theoretical framework and support empirical findings. A review of fourteen relevant studies forms the basis of the secondary data analysis.

Primary data are collected through a survey method using a structured questionnaire administered to investors. The questionnaire is designed to capture information related to investor awareness, risk appetite, investment preferences, frequency of derivative trading, and returns earned.

The sample size for the study consists of 50 respondents. The respondents are selected using a combination of convenience sampling and stratified random sampling, ensuring representation across different income groups and investment experience levels.

For data analysis, appropriate statistical tools are employed. Descriptive statistics are used to summarise the data, while factorial ANOVA is applied to examine the interaction between investment frequency and risk-bearing capacity. The chi-square test is used to analyse the relationship between income levels and investment patterns of investors. In addition, t-tests are utilised where necessary to compare mean differences among selected variables.

The analysis of both primary and secondary data enables a comprehensive evaluation of the gap between the potential of the derivatives market and actual investor participation.

Hypotheses Formulation (Based on Secondary Data)

Financial Services Sector

- **H₀ (Null Hypothesis):** There is no significant difference between the actual market price on the day of maturity and the forward price of derivative contracts.
- **H₁ (Alternative Hypothesis):** There is a significant difference between the actual market price on the day of maturity and the forward price of derivative contracts.

Information Technology Sector

- **H₀ (Null Hypothesis):** There is no significant difference between the actual market price on the day of maturity and the forward price of derivative contracts.
- **H₁ (Alternative Hypothesis):** There is a significant difference between the actual market price on the day of maturity and the forward price of derivative contracts.

Company	Actual Price	Future Price
Bajaj finserv	11,415.05	15,114.70
Lic housing finance	327.35	382.75
Power finance	106.1	116.7
t-Test: Paired Two Sample for Means		
Mean	Variable 1 3949.5	Variable 2 5204.716667
Variance	41813065	73673522.9
Observations	3	3
Pearson Correlation	0.9999987	

Hypothesized Mean	0	
Difference		
Df	2	
t Stat	-1.026943	
P(T<=t) one-tail	0.2062092	
t Critical one-tail	2.9199856	
P(T<=t) two-tail	0.4124184	
t Critical two-tail	4.3026527	

We accept the null hypothesis

Company	Actual price	Future price
Mindtree	243.2	270.8
Techm	41,678.00	48,931.45
Wipro	1,081.60	1,277.20
t-Test: Paired Two Sample for Means		
	Variable 1	Variable 2
Mean	14334.267	16826.483
Variance	560935543	773299874
Observations	3	3
Pearson Correlation	0.9999999	
Hypothesized Mean Difference	0	
Df	2	
t Stat	-1.0466614	
P(T<=t) one-tail	0.2025522	
t Critical one-tail	2.9199856	
P(T<=t) two-tail	0.4051043	
t Critical two-tail	4.3026527	

We accept the null hypothesis

IV. FINDINGS

1. The results of the factorial ANOVA indicate a significant interaction between the frequency of derivative investments and the risk-bearing capacity of investors, suggesting that higher risk tolerance is associated with more frequent participation in the derivatives market.
2. The chi-square analysis reveals a statistically significant association between investors' income levels and their investment patterns, indicating that income influences the choice and extent of participation in derivative instruments.
3. A substantial proportion of investors (43.8%) reported risk control as their primary objective for investing in derivatives, while 62.5% identified the potential for higher returns as the main attraction. However, the findings reveal limited awareness of derivative strategies that can effectively enhance returns.
4. Approximately 59% of the respondents indicated that the returns earned from derivative investments were moderate but not fully satisfactory, reflecting a mismatch between investor expectations and actual outcomes.
5. Nearly 28% of investors preferred derivative contracts with a one-month maturity period, suggesting that liquidity and short-term exposure are important considerations in their investment decisions.
6. Investors with higher risk tolerance and a greater inclination toward speculation tend to undertake multiple derivative positions, either using similar strategies repeatedly or experimenting with different approaches.
7. In option selling strategies (call or put), investors face limited profit potential and potentially unlimited losses, highlighting the high-risk nature of option writing.
8. In option buying strategies (call or put), investors experience limited losses while having the potential for unlimited gains, making these strategies more suitable for investors with controlled risk preferences.

9. Across all three sectors examined—Financial Services and Information Technology—the null hypothesis was accepted, indicating no significant difference between the forward price and the actual market price on the maturity date. 10. Overall, the study identifies a substantial gap between the potential benefits offered by the derivatives market and investors' awareness, perceptions, and actual utilisation of derivative instruments.

V. CONCLUSION

The study concludes that while investors generally possess a clear understanding of their individual risk–return profiles, the effective utilisation of derivative instruments remains limited. Although derivatives have the potential to generate higher returns and serve as efficient risk management tools, the expected outcomes are often not realised due to insufficient knowledge and lack of strategic expertise among investors.

The findings indicate that 43.8% of investors primarily engage in derivatives for risk mitigation, whereas 62.5% are attracted by the possibility of higher returns. However, a significant proportion of investors remain unaware of appropriate derivative strategies that could help them enhance returns while managing risk effectively. This lack of practical understanding is reflected in the fact that 59% of respondents reported earning moderate but unsatisfactory returns from their derivative investments.

The sector-wise analysis further reveals that there is no significant difference between forward prices and actual market prices at maturity across the Financial Services, Fashion and Retail, and Information Technology sectors. This suggests that derivative pricing in these sectors is largely efficient.

Overall, the study highlights a substantial gap between the potential offered by the derivatives market and investors' awareness, strategic application, and realised benefits. Bridging this gap requires focused investor education, improved access to practical knowledge, and greater emphasis on informed decision-making in derivative trading.

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