Research Article

An Extensive Analysis Of The Arbitrage Efficiency And Risk Return Dynamics Of Investment Strategies In The Indian Equity Derivative Market

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ARTICLE INFO	ABSTRACT
	One of the most important roles that derivatives market plays in the economic development of a country is it. The purpose of this study is to evaluate the impact that financial derivatives (futures and options) have on the volatility of the underlying market. At the present time, financial derivatives are seeing a surge in popularity and are being utilised in the world of finance on an extremely regular basis. The term "derivatives revolution" has been coined to describe this phenomenon because it has expanded at such an unprecedented magnitude across the globe. Emergence and expansion of the derivatives market are comparatively more prevalent in India than in other countries. This is a derivative. By taking into consideration the accompanying derivative from the Indian stock market, the purpose of this essay is to investigate futures and options. The purpose of this paper is to elucidate the most effective strategies that investors can employ in order to increase their earnings at derivative markets. **Keywords:** Risk Return Dynamics, Indian Equity Derivative Market, Investment Strategies, Arbitrage Efficiency.

1.Introduction

One of the instruments that has the most different applications is the derivative. It is from the term "derive" that the word "derivative" originates. It can be inferred that it does not possess any independent value. A contract whose value is derived from the value of another asset, which is referred to as the underlying asset, is referred to as a derivative. The underlying asset could be a share, an index of the stock market, an interest rate, a commodity, or a value of a currency. The identification tag for a derivative contract is referred to as the underlying information. The value of the derivative is subject to fluctuate whenever there is a change in the price of the underlying asset. The notion of derivatives is completely meaningless if they do not have an underlying asset. As an illustration, the value of a gold futures contract is derived from the value of the underlying asset, which is gold. For the purpose of this illustration, the spot or cash market price of the underlying asset, which is gold, is the primary factor that determines the pricing in the derivatives market.

Figure 1: Investment Strategies

The primary objective of these instruments is to offer commitments to pricing for future dates, with the additional goal of providing protection against unfavorable fluctuations in future prices. This is done with the intention of minimizing the extent of financial risks.

1.1. Understanding Arbitrage Efficiency
Arbitrage is a trading method that takes advantage of price differences between multiple markets for the same or commodities that are comparable to one another.


Figure 2: Arbitrage

Those who engage in arbitrage are able to get earnings without taking any risks by simultaneously buying low in one market and selling high in another market. The effectiveness of arbitrage, on the other hand, is a significant factor in determining the degree to which this approach is successful and the influence it has on the behaviour of the market.

✓ **Market Efficiency and Arbitrage:**
- According to the notion of market efficiency, prices in a market should precisely reflect all of the information that is currently accessible. There would be no opportunities for arbitrage in a market that is totally efficient since prices would immediately adjust to erase any mispricing that may have occurred.
- Markets in the actual world, on the other hand, display a certain degree of inefficiency. This inefficiency may be the result of a number of different circumstances, including:
  o Limited information availability for all participants
  o Transaction costs associated with buying and selling
  o Time delays in information dissemination
- As a result of these inefficiencies, price disparities are created, which arbitrageurs might take advantage of.
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1.2. Risk-return dynamics
The link between the amount of risk that is taken and the potential return or reward that is associated with it is referred to as risk-return dynamics. An investor may anticipate receiving a certain amount of return or reward. This notion is not only basic to investment theory, but it also plays a significant role in the formation of investment decisions and strategies for portfolio management.
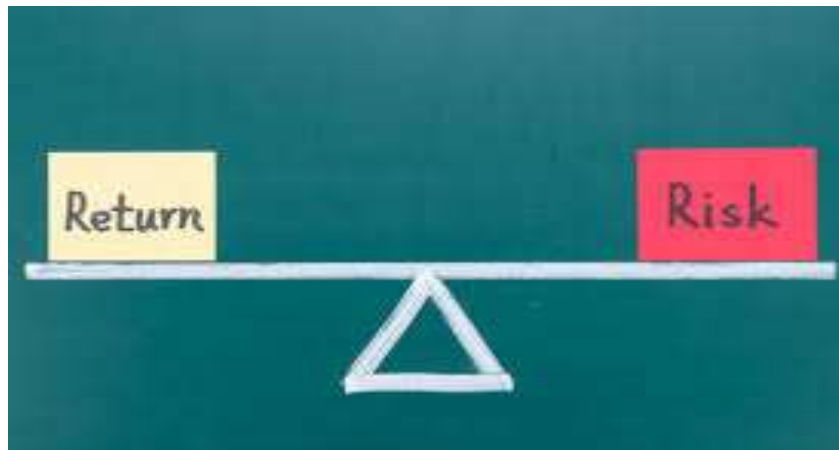
Figure 3: Risk-return Relation

The risk-return tradeoff shows that higher levels of risk are often linked with the possibility for larger returns, whilst lower levels of risk are typically associated with lower potential returns. This is the broad impression that may be drawn from the tradeoff. When making decisions regarding investments, investors need to take into consideration the level of risk they are ready to take in comparison to the level of return they are hoping to achieve.

2. Literature Review

Agarwal and Naik (2004) conducted research into the dangers that are linked with mutual funds and the implications that these dangers have for portfolio choices. The findings of their research, which were published in the Audit of Monetary Studies, provided valuable insights into the dynamics of investments in mutual funds. Particularly, the study highlighted the significance of risk as it relates to portfolio creation.

Ameer and Rashid (2011) the use of derivatives and the impact they have on the cost of value capital was the subject of a survey that was led by the individual. Through their research, which was published in the Diary of Derivatives, they were able to shed light on the role that derivatives play in monetary markets as well as their impact on the cost of value capital. This research also had significant implications for business practitioners and investors.

Bandivadekar and Ghosh (2003) investigated the connection between derivatives and the unpredictability of the Indian stock market. Their paper, which was published in RBI Occasional Papers, provided a complete analysis of what derivatives swapping meant for market unpredictability. As a result, it offered vital insights for policymakers and market participants.

Chung, Rosenberg, and Tomeo (2004) a convergent and divergent strategy technique was utilised in order to evaluate hedge fund allocations of funds. A sophisticated knowledge of hedge fund allocation techniques was provided by their research, which was published in the Journal of Alternative Investment. This research made a contribution to the existing body of literature focused on fund of funds management.

Fung and Hsieh (2001) investigated the dangers associated with hedge fund strategies, with a particular emphasis on the theory and data derived from trend followed. The findings of their research, which were published in the Review of Financial Studies, offered empirical evidence on the risk dynamics of hedge fund strategies, particularly those that apply trend-following tactics. These findings supplied investors and fund managers with valuable information.

3. Research Methodology

The research technique for the extensive analysis of exchange effectiveness and risk-return dynamics of investment strategies in the Indian value subsidiary market involves a complex methodology. Firstly, a comprehensive writing survey will be led to investigate existing studies, theories, and exact proof connected with exchange effectiveness, risk-return dynamics, and investment strategies in value derivatives.
This survey will give a hypothetical establishment and distinguish gaps in the ebb and flow research landscape. Subsequently, quantitative analysis will be performed using historical information from the Indian value subsidiary market to assess the exchange opportunities, risk exposures, and return profiles of various investment strategies. Statistical techniques such as regression analysis, connection analysis, and instability demonstrating will be utilized to dissect the information and determine significant insights.

Furthermore, subjective methods such as interviews with market participants, including traders, analysts, and regulators, might be used to acquire insights into market dynamics, exchanging practices, and administrative frameworks. The blend of quantitative and subjective approaches will offer a holistic understanding of exchange productivity and risk-return dynamics in the Indian value subordinate market, giving important insights to investors, policymakers, and market practitioners.

4. Data Analysis and Interpretation

Table 1: Futures contracts on TCS stock

DATE	OPEN	HIGH	LOW	CLOSE	SETTLE PRICE	CONTRACTS	TURNOVER(IN LACS)	OI
29-Mar-2019	2025.95	2036.95	2001.05	2014.60	2014.60	11093	55944.77	13977000
28-Mar-2019	1990.85	2030.00	1987.15	2017.00	2017.00	26998	135356.58	14054250
27-Mar-2019	2005.00	2011.90	1979.05	1984.05	1984.05	15025	75019.01	10033250
26-Mar-2019	1995.00	2010.00	1970.00	1997.40	1997.40	17164	85071.66	7617500
25-Mar-2019	2016.00	2022.85	1991.65	1999.30	1999.30	14586	72968.48	4882000
22-Mar-2019	2014.50	2027.80	2001.00	2019.60	2019.60	6117	30823.74	2108750
20-Mar-2019	2051.50	2062.90	2016.00	2030.25	2030.25	20195	11220.25	939000
19-Mar-2019	2035.70	2051.30	2013.00	2044.60	2044.60	1204	6117.22	607000
18-Mar-2019	2076.00	2079.00	2030.05	2041.60	2041.60	682	3496.37	452500
15-Mar-2019	2016.65	2087.70	2016.65	2058.70	2058.70	1551	7998.66	396750
14-Mar-2019	2017.80	2020.00	1997.00	2007.40	2007.40	604	3027.43	209000
13-Mar-2019	2027.50	2034.95	1998.75	2014.60	2014.60	332	1675.01	100250
12-Mar-2019	2026.20	2039.40	2017.80	2029.55	2029.55	143	725.92	86250
11-Mar-2019	2037.65	2046.30	2020.75	2029.70	2029.70	159	806.92	82000
08-Mar-2019	2034.50	2048.70	2026.80	2041.70	2041.70	254	1293.71	80000
07-Mar-2019	2020.00	2041.05	2020.00	2032.85	2032.85	169	856.97	66250
06-Mar-2019	2003.75	2035.00	2001.70	2020.85	2020.85	136	687.56	57000
05-Mar-2019	2007.00	2008.15	1993.50	2002.55	2002.55	93	465.53	57750

Based on the information presented in table 1, it can be deduced that the FUTURE (BUY) percentage has been growing, which has resulted in an increase in the profit. The FUTURE (SELL) grows, which ultimately result in a lower profit.

Table 2: Evaluation of the Option Market the Equity Table for TCS Stock

Symbol	Series	Date	Prev Close	Open Price	High Price	Low Price	Last Price	Close Price	VWAP	Total Traded Quantity	Turnover ₹
TCS	EQ	05-Mar-2019	1,995.40	2,005.00	2,007.00	1,976.60	1,985.05	1,988.10	1,987.11	24,49,622	4,86,76,70,461.50
TCS	EQ	06-Mar-2019	1,988.10	1,989.30	2,015.00	1,985.05	2,005.00	1,999.60	2,001.30	26,35,047	5,27,35,30,564.35
TCS	EQ	07-Mar-2019	1,999.60	2,005.00	2,024.05	2,000.20	2,015.00	2,013.30	2,014.40	25,39,884	5,11,63,30,320.40
TCS	EQ	08-Mar-2019	2,013.30	2,025.00	2,033.00	2,010.05	2,022.75	2,022.70	2,023.03	20,31,071	4,10,89,21,516.40
TCS	EQ	11-Mar-2019	2,022.70	2,028.90	2,033.00	2,003.65	2,016.15	2,014.80	2,017.10	31,11,689	6,27,65,93,842.10
TCS	EQ	12-Mar-2019	2,014.80	2,014.05	2,024.80	2,003.00	2,009.10	2,012.45	2,015.60	26,58,550	5,35,85,83,632.50
TCS	EQ	13-Mar-2019	2,012.45	2,013.00	2,015.90	1,978.60	1,995.00	2,000.50	2,001.12	18,33,163	3,66,83,74,639.65
TCS	EQ	14-Mar-2019	2,000.50	2,004.95	2,007.80	1,981.00	1,990.40	1,987.40	1,991.28	19,05,495	3,79,43,68,663.95
TCS	EQ	15-Mar-2019	1,987.40	1,998.90	2,068.95	1,991.00	2,036.00	2,039.95	2,040.01	51,84,318	10,57,60,85,296.25
TCS	EQ	18-Mar-2019	2,039.95	2,043.00	2,064.60	2,011.00	2,023.85	2,022.80	2,033.02	23,49,915	4,77,74,35,477.20
TCS	EQ	19-Mar-2019	2,022.80	2,030.00	2,030.00	1,995.10	2,028.50	2,022.80	2,010.71	23,73,993	4,77,34,16,985.45
TCS	EQ	20-Mar-2019	2,022.80	2,028.00	2,044.80	2,000.00	2,000.25	2,015.05	2,025.82	30,91,165	6,26,21,36,193.40
TCS	BL	22-Mar-2019	1,925.65	2,015.05	2,015.05	2,015.05	2,015.05	2,015.05	2,015.05	2,64,913	53,38,12,940.65
TCS	EQ	22-Mar-2019	2,015.05	2,015.00	2,016.00	1,983.30	2,010.00	2,005.65	1,998.96	31,48,149	6,29,30,31,836.95
TCS	EQ	25-Mar-2019	2,005.65	2,007.80	2,007.80	1,977.20	1,980.80	1,984.25	1,987.88	24,29,205	4,82,89,60,486.25
TCS	EQ	26-Mar-2019	1,984.25	1,984.00	1,994.95	1,958.05	1,977.40	1,982.65	1,971.46	23,16,539	4,56,69,62,637.55
TCS	EQ	27-Mar-2019	1,982.65	1,994.00	1,998.00	1,961.00	1,964.85	1,967.90	1,979.12	22,66,166	4,48,50,03,551.40
TCS	EQ	28-Mar-2019	1,967.90	1,980.00	2,014.60	1,972.80	2,004.45	2,000.30	1,993.96	40,54,489	8,08,45,06,923.20
TCS	EQ	29-Mar-2019	2,000.30	2,019.00	2,024.90	1,983.55	2,000.00	2,001.65	2,001.70	29,48,955	5,90,29,26,700.50

4.1. Margin of Safety (MOS)

✓ The margin of safety is equal to the opening share value minus the basic earnings per share, which is equal to 2005.00 minus 2013.5, which is -8. This situation has a negative margin of safety. Consequently, investors get more losses and shorts. In order to increase their earnings, investors can purchase a put option. One investor recommended that one steer clear of investing in call options.

✓ The margin of safety is equal to the high price value-BEP, which is equal to 2068.95 minus 2013.5, which equals 55.4. This situation has a negative margin of safety. Therefore, gains and longs for investors are increased. In order to increase their earnings, investors can purchase a put option. When investors wanted to increase their earnings, they proposed selling their in-call options.

✓ Low share value minus the basic earnings per share (BEP) is a margin of safety of -55.4%. This situation has a negative margin of safety. Consequently, investors get more losses and shorts. A put option can be sold by investors in order to increase their profits. An investor recommended that one refrain from investing in call options.

Based on the calculation shown above, it can be noticed that the TCS stock is currently trading at BEP 2013.5. When the price of TCS stock is at its highest, the margin of safety accounts for 55.45, while when it is at its lowest, the margin of safety accounts for -55.45. Moreover, the margin of safety for TCS stock is -8.5 due to the open price of the stock.

Table 3: The strike price for the TCS Stock Call Option Table for March is 1700. Purchasers

DATE	OPEN	HIGH	LOW	CLOSE	SETTLE PRICE	CONTRACTS	TURNOVER(IN LACS)	OI
29-Mar-2019	312.40	313.00	312.40	313.00	313.00	3	15.09	2000
28-Mar-2019	306.00	306.00	306.00	306.00	306.00	1	5.02	1250
27-Mar-2019	0.00	0.00	0.00	301.00	278.30	0	0.00	1000
26-Mar-2019	0.00	0.00	0.00	301.00	293.35	0	0.00	1000
25-Mar-2019	304.00	304.00	301.00	301.00	301.00	4	20.03	1000
22-Mar-2019	0.00	0.00	0.00	350.15	318.25	0	0.00	0
20-Mar-2019	0.00	0.00	0.00	350.15	328.50	0	0.00	0
19-Mar-2019	0.00	0.00	0.00	350.15	336.75	0	0.00	0
18-Mar-2019	0.00	0.00	0.00	350.15	337.45	0	0.00	0
15-Mar-2019	0.00	0.00	0.00	350.15	355.85	0	0.00	0
14-Mar-2019	0.00	0.00	0.00	350.15	304.35	0	0.00	0
13-Mar-2019	0.00	0.00	0.00	350.15	317.90	0	0.00	0
12-Mar-2019	0.00	0.00	0.00	350.15	330.30	0	0.00	0
11-Mar-2019	0.00	0.00	0.00	350.15	333.55	0	0.00	0
08-Mar-2019	0.00	0.00	0.00	350.15	343.15	0	0.00	0
07-Mar-2019	0.00	0.00	0.00	350.15	335.30	0	0.00	0
06-Mar-2019	0.00	0.00	0.00	350.15	323.60	0	0.00	0
05-Mar-2019	0.00	0.00	0.00	350.15	314.40	0	0.00	0

According to the computation presented above, it can be deduced that the premium paid is positive, despite the fact that the amount of the spot price is negative. As a result, the seller makes gain.

A conclusion that can be drawn from the research is that derivatives will reduce the amount of risk that is there in the stock market. Using the mid-month contract, investors in futures contracts are able to compensate for losses that happened in the near-month contract. An investor can generate gains through the use of a call or put option, depending on the circumstances. In the long run, it has been discovered that options will provide investors with a greater potential for growth. Investors are able to make use of margin of safety and are aware of the best places to buy and sell stocks. Economic concerns, news from around the world, and news pertaining to the corporation all play a role in the market. Therefore, investors need to be aware of all of these concerns before they begin investing. Investors that are willing to take risks obtain higher rewards. When it comes to determining when they may purchase and sell stocks without risk, the margin of safety is a useful tool for investors. A fundamental understanding of derivatives is essential for investors to have before making any investments. When compared to futures, options typically offer higher returns with lower levels of risk.

5. Conclusion

Taking into consideration the findings of this study, it can be concluded that options offer higher returns than futures. Investors that are willing to take on a high level of risk will be rewarded with high profits from the stock market. In this context, derivatives are a type of instrument that is utilised to reduce risk and compensate for

losses that have happened in the stock market. In comparison to futures, the options will provide higher returns while posing a lower level of risk.

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