

BITS Pilani, Hyderabad Campus

Submitted in the fulfillment of project as part of the
course ECON F354 - Derivatives and Risk Management

Financial Analysis of Bajaj Finance and Syngene

Under the supervision of

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ACKNOWLEDGEMENTS

We would want to convey our deep appreciation to Dr. Nagaraju Thota for providing us with the chance to work on this assignment, apply the knowledge we have learned in class to actual data, and gain practical experience.

- We've used the Vlookup function in excel to perfectly match the dates with t-bills
- Some t-bills were not available for given dates so they are taken by taking either geometric mean or by the weighted average of the nearby 2-3 days t-bills price and volume on those days respectively
- This project has taught us to leadership skills and how to deal with you teammates efficiently
- Time management was a key learning from this project.
- This assignment has given us the valuable experience we need to prepare Financial Analyses on Equity Futures Instruments and Investment Reports in the future.

ABSTRACT

The primary goal of this project is to compare the returns of given futures instruments of BAJAJFINSV and SYNGENE for their respective Near month, Next month, and Far month contracts with their underlying assets in order to see the trend in the Indian Futures Market as opposed to the Equity Market. The analysis period is from November 1, 2021 to October 31, 2022, and the frequency of analysis is daily, weekly, and monthly. The goal of this analysis is to determine which investing strategy will work best for the investor and produce higher returns after adjusting for Treasury Bill returns. The Sharpe Ratio calculation for each of these three frequencies will also assist us in determining the investment method that will provide the best returns for the same amount of risk. All analysis was carried out using Microsoft Excel extensively.

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SECTION 1



Bajaj
Finance
Limited

BAJAJFINSV

1] UNDERLYING ASSET INTRODUCTION

A. Nature of the business

The company's product offering includes Consumer Durable Loans, Lifestyle Finance, Digital Product Finance, Personal Loans, Loan Property, Small Business Loans, Wallet, Co-branded Credit Cards, Two-wheeler, and Three-wheeler Loans, Commercial lending/ SME Loans, Loan against Securities. The nature of business is financing.

B. Ownership of Business

Starting as a humble two-wheeler finance company, Bajaj Auto Finance Limited was incorporated on 25th March 1987. In the same year, on 20th October, it became a deemed public company u/s 43A (1) of the Companies Act 1956. The parent company, Bajaj Finserv Limited, holds 57.28% of the total shares and has a controlling stake in the subsidiary. Other major investors include Maharashtra Scooters Limited, Government of Singapore, Smallcap World Fund INC, and AXIS Long Term Equity Fund.

C. Business Commencement Circumstances

Originally incorporated as Bajaj Auto Finance Limited on March 25, 1987, as a non-banking financial company, primarily focused on providing two and three-wheeler finance.

D. Industry of the Business

Bajaj Finance Limited is a deposit-taking Non-Banking Financial Company registered with the RBI. The company has a diversified lending portfolio across retail, SMEs and commercial customers with a significant presence in urban and rural India.

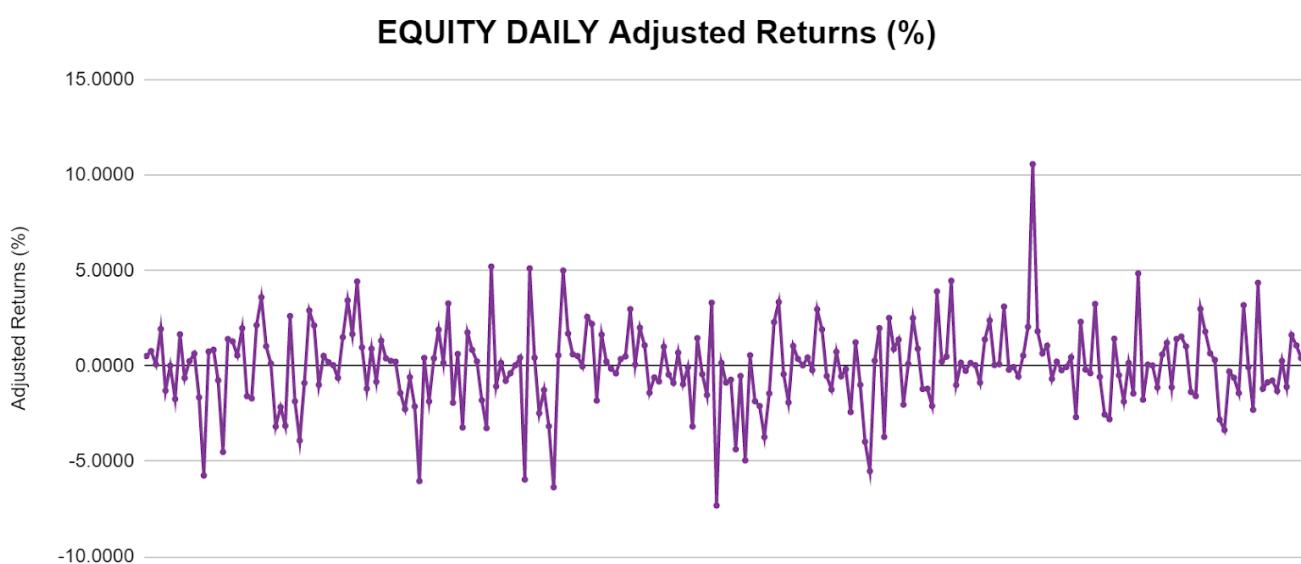
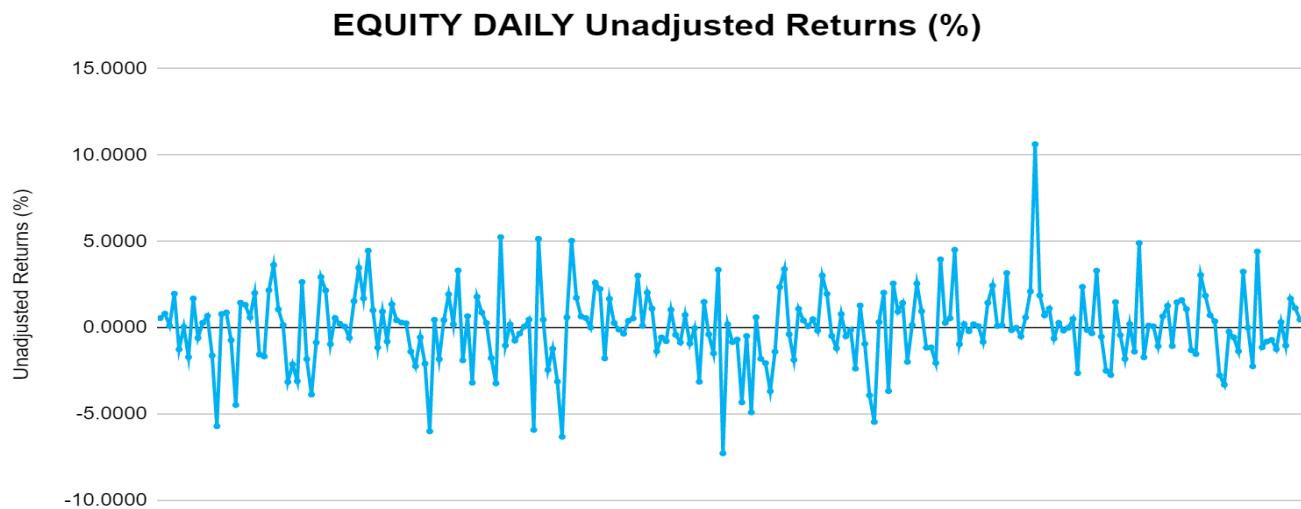
E. Greatness of the Company

One of the most significant reasons for such robust growth is the company's first-mover advantage in the arena of consumer lending. Its interest-free Equated Monthly Installments (EMI) have worked wonders in the Indian Market which is also known as its Small Ticket Model. For many quarters, the company has reported roughly 50% growth. Irrespective of the fact that most of the loans extended by it are unsecured loans, it has high asset quality metrics, which makes it a pretty good choice among investors. While banks target corporates since they are margin friendly, they are still unable to beat Bajaj Finance for its ability to price risk. The ability to make sound decisions in the financial world is what makes Bajaj Finance stand out.

2] UNADJUSTED AND ADJUSTED RETURNS FOR EQUITY ASSET

Equity Daily Returns:

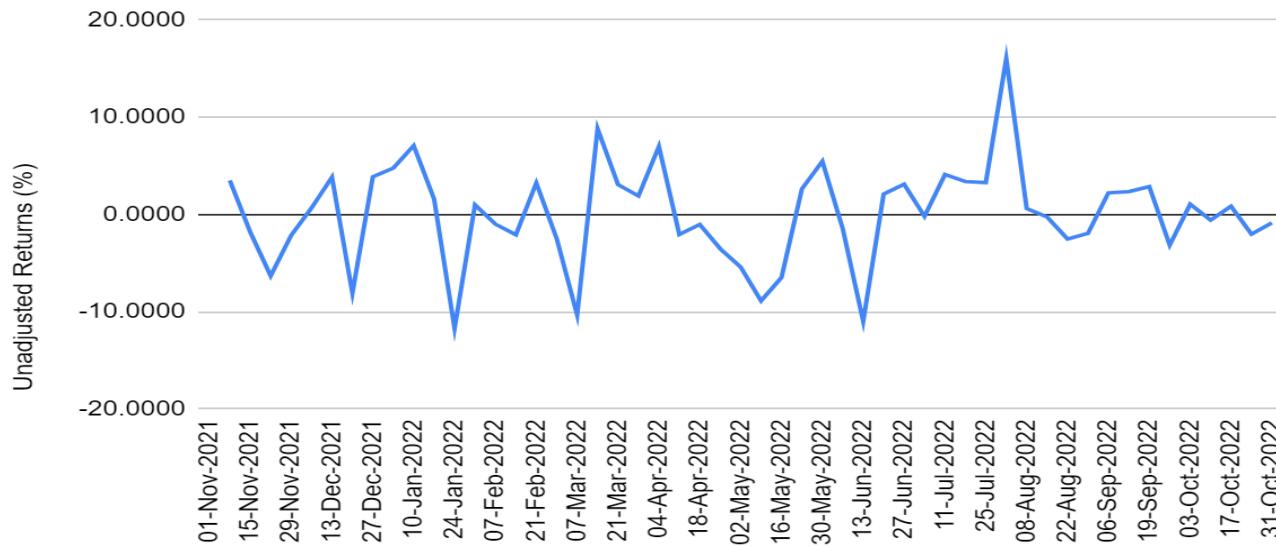
EQUITY DAILY RISK	ADJUSTED RETURNS (%)	UNADJUSTED RETURNS (%)
MEAN	-0.0005	0.0247
MAXIMUM	10.0323	10.6350
MINIMUM	-7.0792	-7.2709
STANDARD DEVIATION	2.2243	2.1791



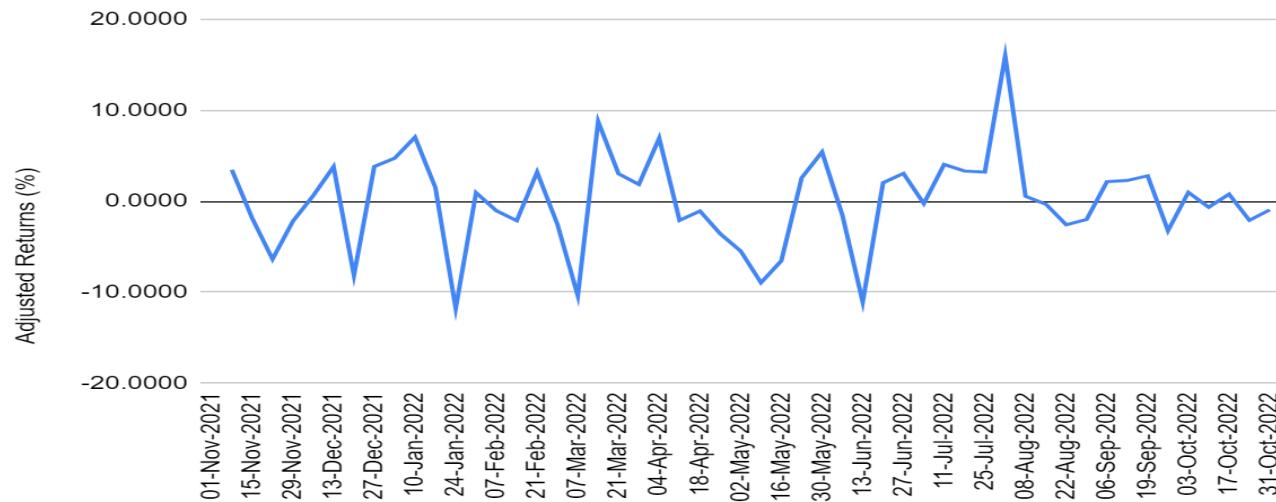
Equity Weekly Returns:

EQUITY DAILY RISK	UNADJUSTED RETURNS (%)	ADJUSTED RETURNS (%)
MEAN	0.0251	-0.0220
MAXIMUM	16.0228	15.9670
MINIMUM	-11.7267	-11.7643
STANDARD DEVIATION	5.1660	5.1653

Equity Weekly Unadjusted Returns (%)

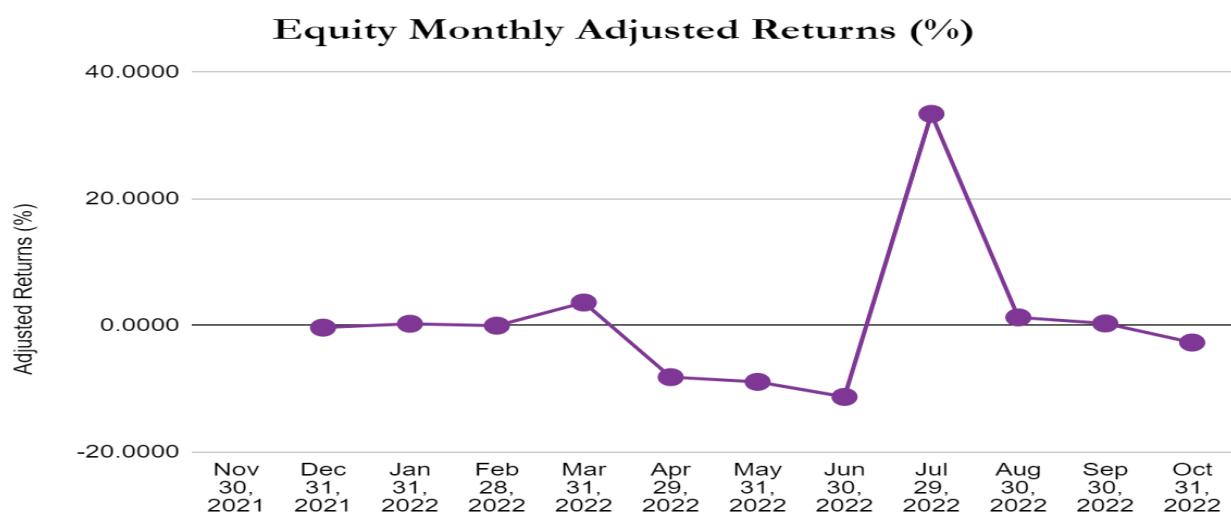
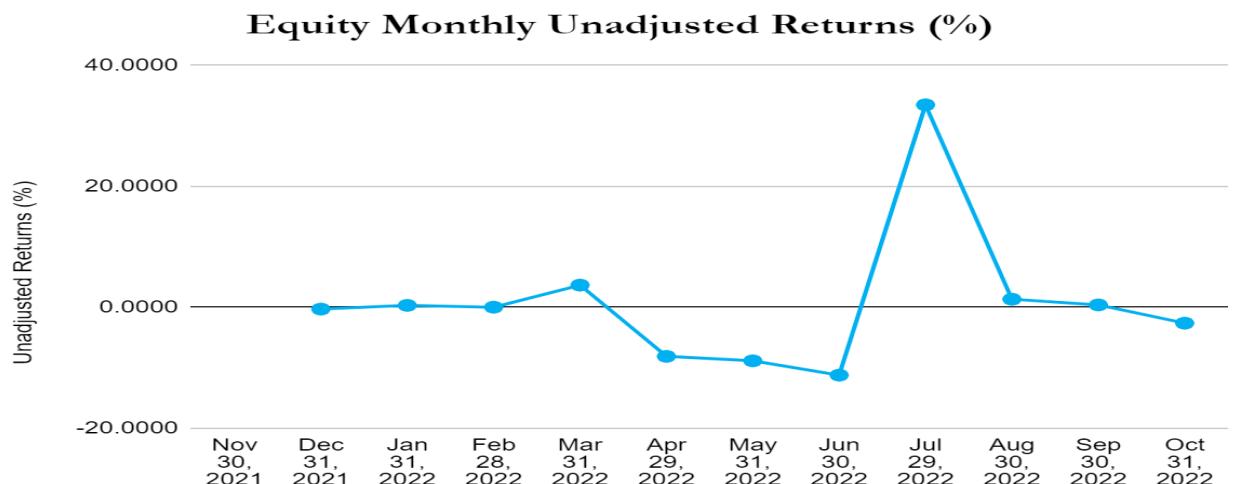


Equity Weekly Adjusted Returns (%)



Equity Monthly Returns:

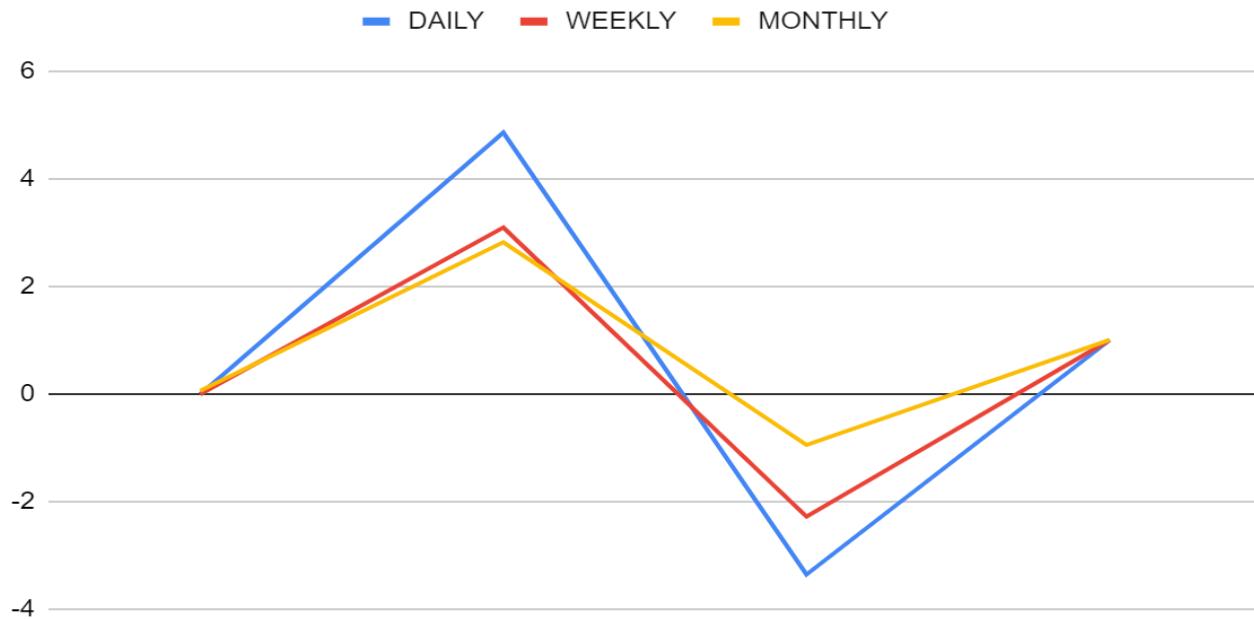
EQUITY DAILY RISK	UNADJUSTED RETURNS (%)	ADJUSTED RETURNS (%)
MEAN	0.7486	0.7006
MAXIMUM	33.4895	33.4335
MINIMUM	-11.2074	-11.2588
STANDARD DEVIATION	11.8628	11.8610



3] SHARPE RATIO FOR EQUITY ASSETS

METRIC	DAILY	WEEKLY	MONTHLY
MEAN	-0.0096	-0.0043	0.0591
MAXIMUM	4.8560	3.0912	2.8188
MINIMUM	-3.3558	-2.2776	-0.9492
STANDARD DEVIATION	1.0000	1.0000	1.0000

DAILY, WEEKLY and MONTHLY



The Sharpe ratio is maximum for the monthly time frame, indicating that the monthly spot market investments are the safest compared to the daily and weekly time frequencies.

4]Spot price Analysis

It is fairly evident from the table given below that the average adjusted spot market returns are negative on the daily time frame but positive on the weekly and monthly time frames. .

For the unadjusted returns the trend followed is Monthly>Weekly>Daily.

Section 2: Equity Futures Instrument (BAJAJFINSV)

5] Introduction to Equity Futures Instrument

The NSE commenced its derivative trading in futures instruments with the launch of index futures on June 12, 2000, with Nifty 50 as the most popular benchmark index. On November 9, 2001, futures instruments on individual securities were introduced. Futures and Options on individual securities are available on 175 securities stipulated by SEBI. Equity futures of Bajaj Finance commenced trading on June 1, 2015, with about ₹4398.10 share price.

A) Lot size and contract specifications

Bajaj Finance is currently trading in the futures and options market of the NSE with a lot size of 125 and a total of 7877 futures contracts

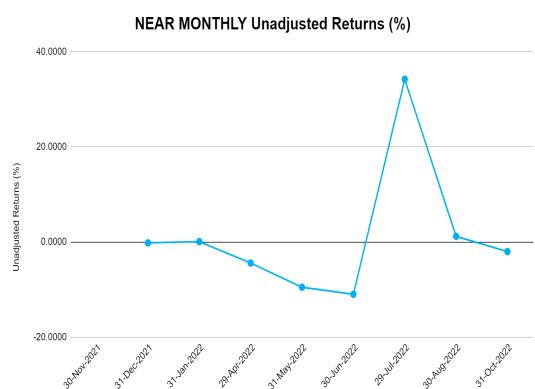
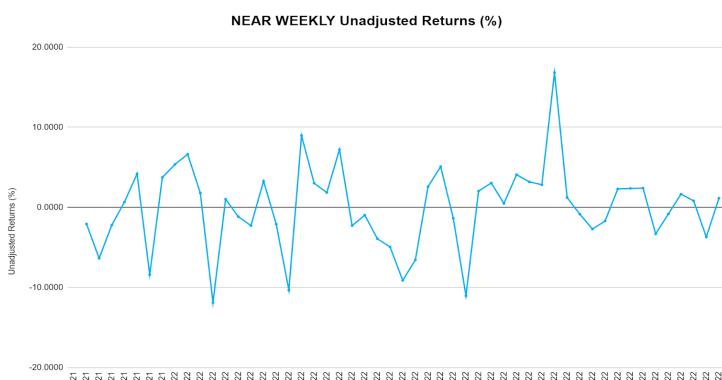
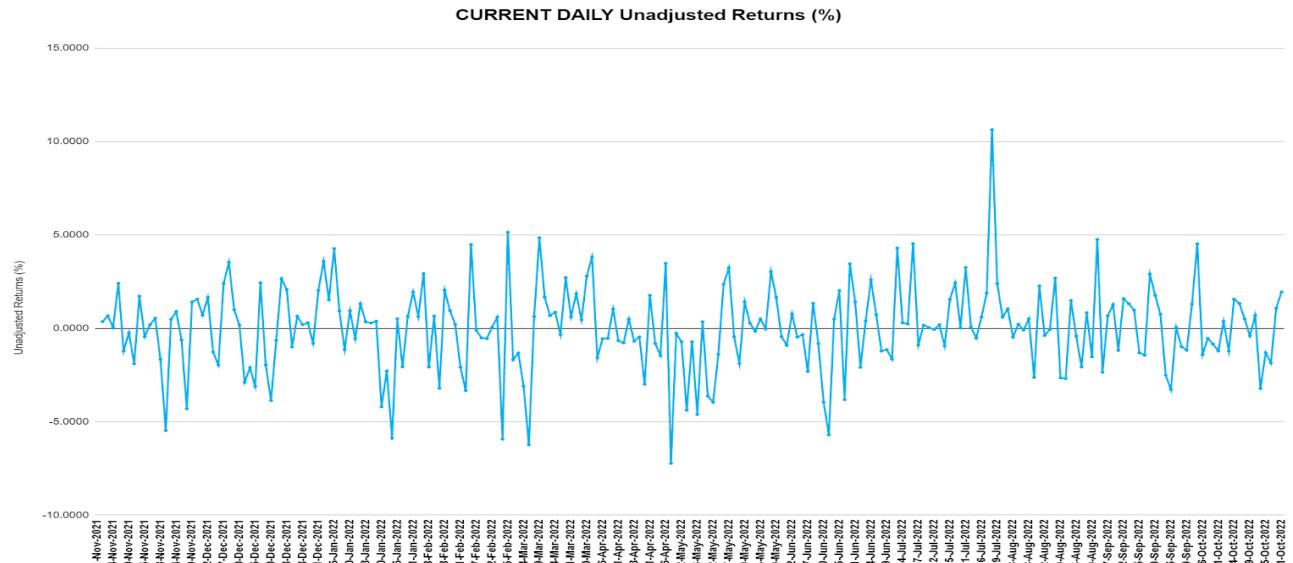
B) Overall greatness of the Equity Futures instrument:

During our study period (1st Nov 2021 to 31st October 2022) the share price decreased and further this month share prices of Bajaj Finance is decreasing. At this time there are fewer chances of getting high returns if an investor opts to invest in Bajaj Finance

6. Risk Unadjusted Returns for Futures Instruments

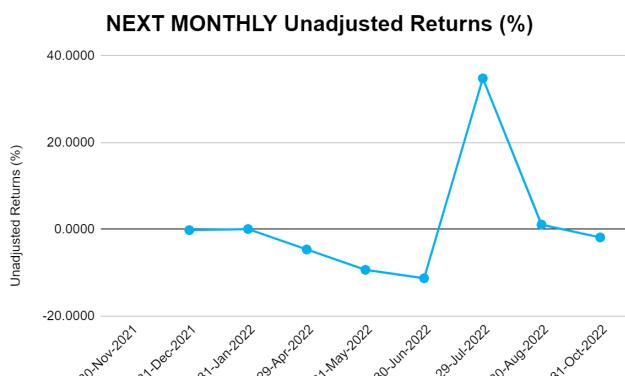
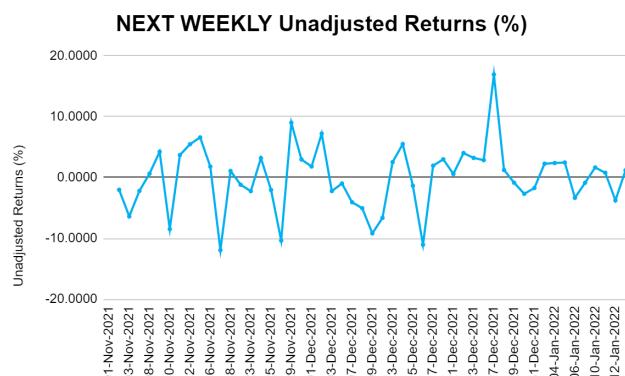
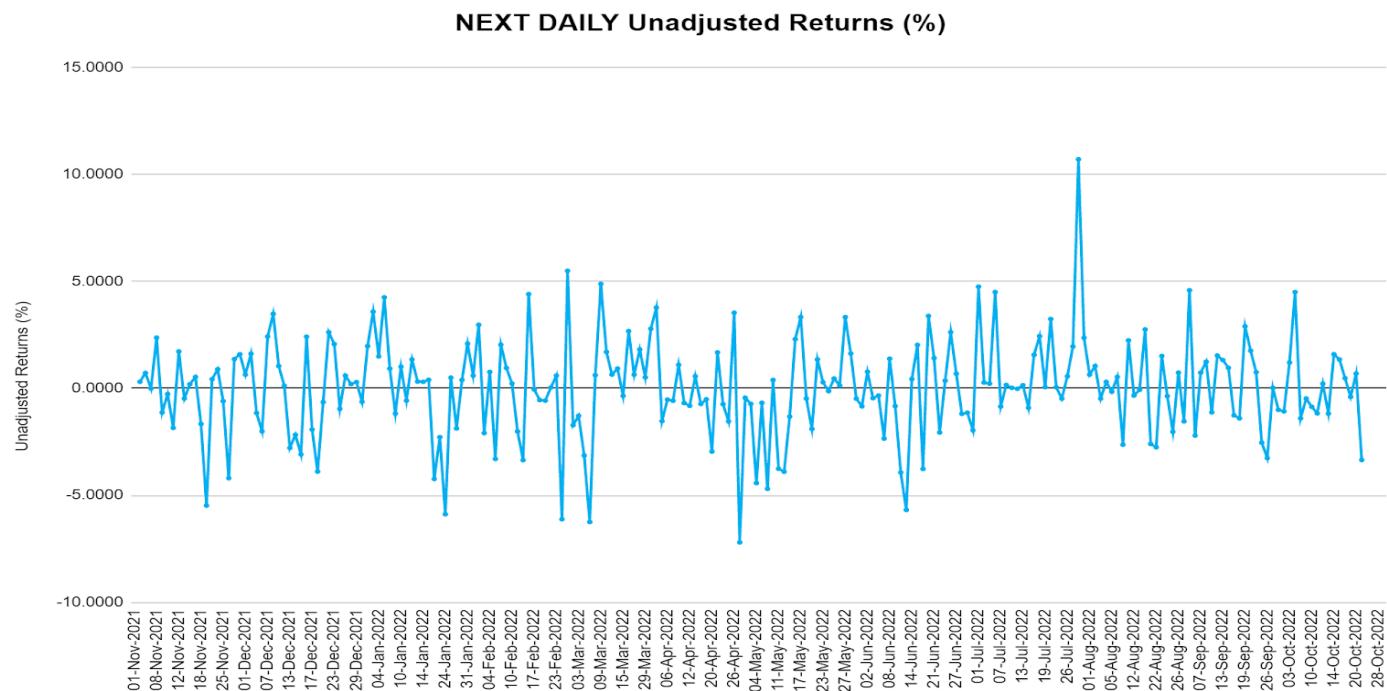
a) Near Month

METRIC	DAILY	WEEKLY	MONTHLY
MEAN	0.0098	-0.0051	1.0362
MAXIMUM	10.6350	16.8317	34.1746
MINIMUM	-7.2244	-11.8926	-10.9864
STANDARD DEVIATION	2.2823	5.2223	14.1199



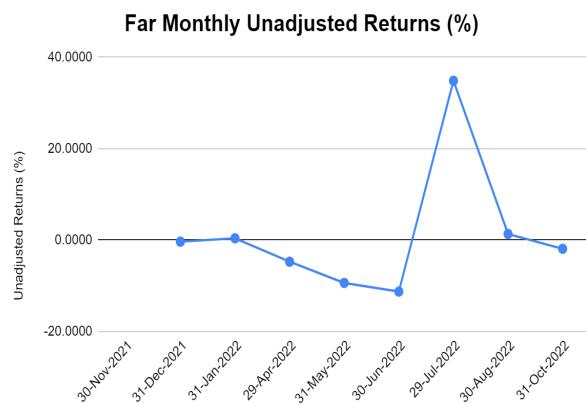
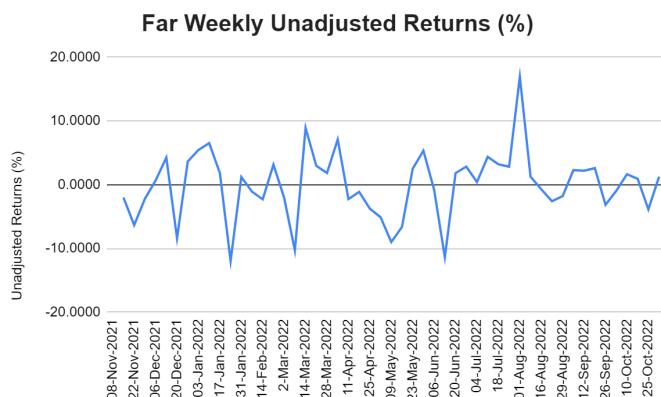
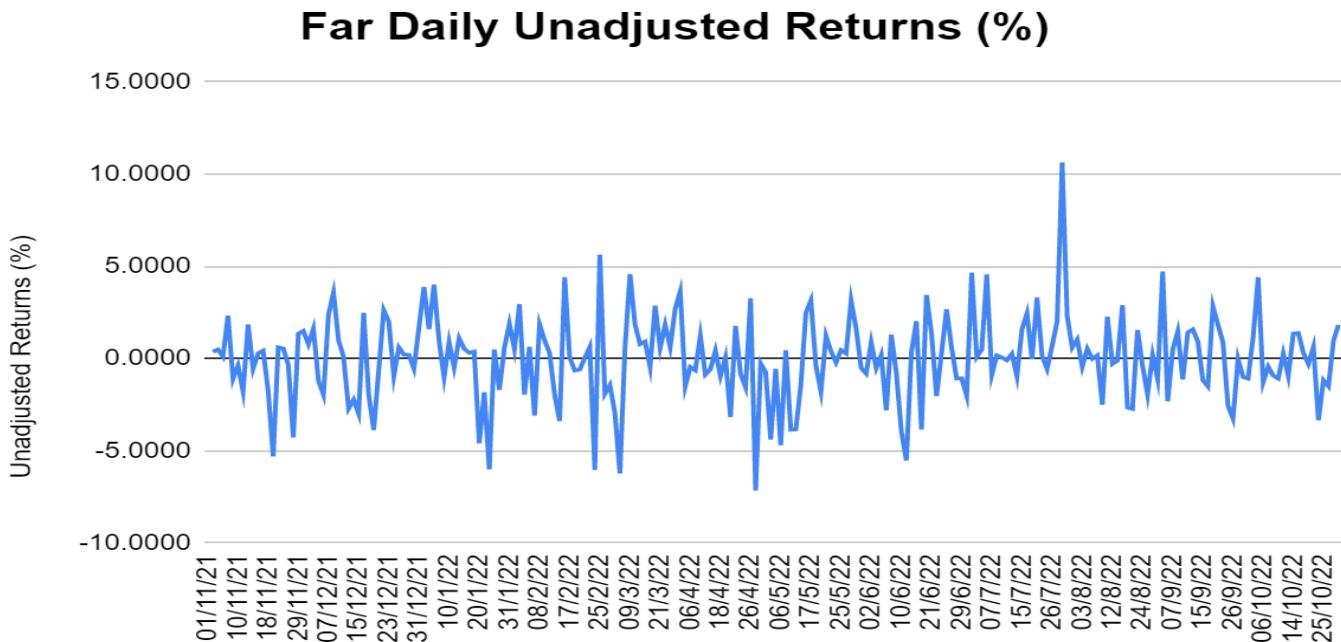
B] NEXT MONTH

METRIC	DAILY	WEEKLY	MONTHLY
MEAN	0.0099	-0.0019	1.0617
MAXIMUM	10.7078	16.9400	34.8157
MINIMUM	-7.2009	-11.9292	-11.3114
STANDARD DEVIATION	2.2899	5.2509	14.3697



C) FAR MONTH

METRIC	DAILY	WEEKLY	MONTHLY
MEAN	0.0096	-0.0005	1.2958
MAXIMUM	10.6365	16.9444	34.8595
MINIMUM	-7.1622	-11.9914	-11.3156
STANDARD DEVIATION	2.2795	5.2441	15.5380



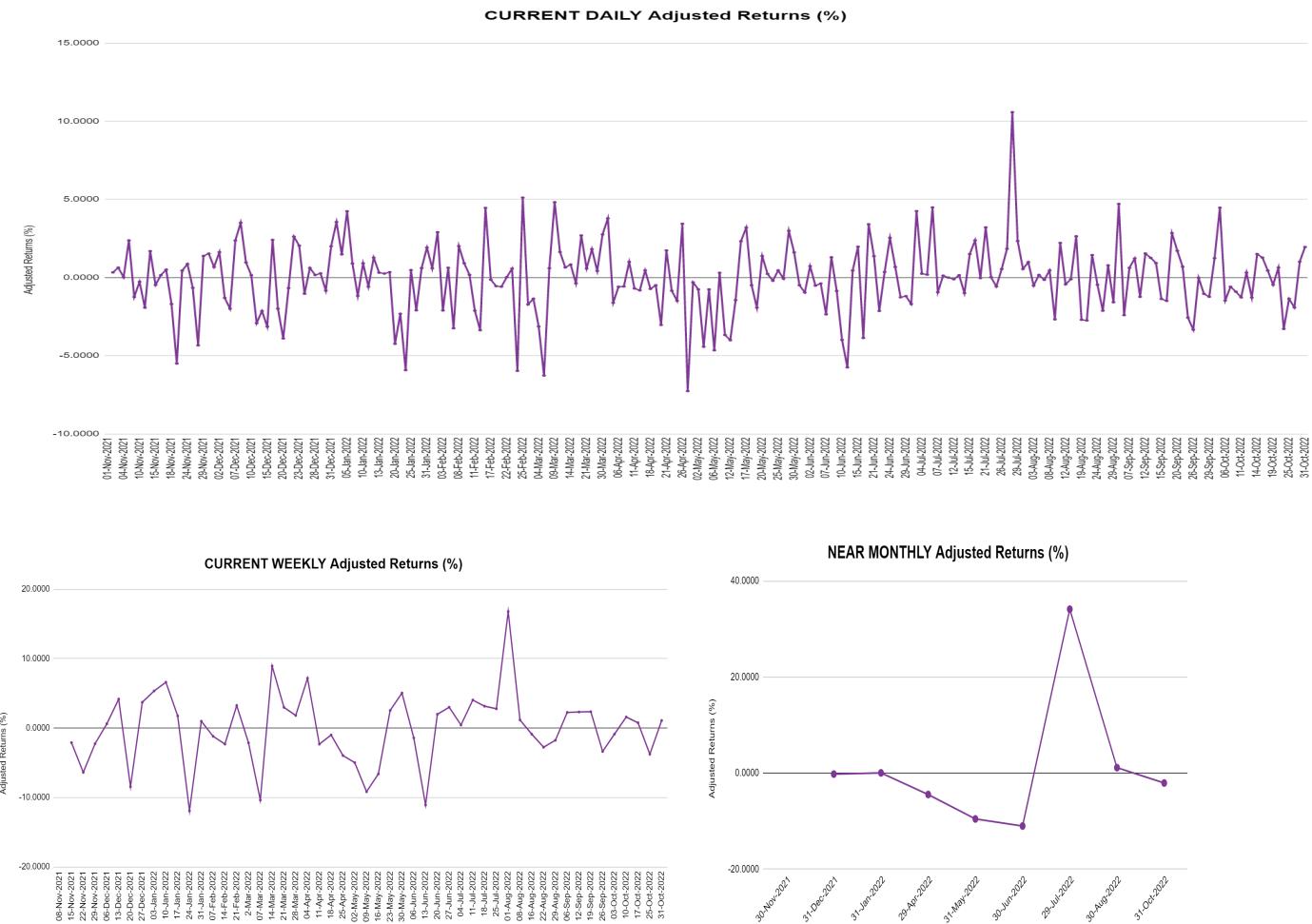
ANALYSIS

- It is evident from the above data that underlying equity yields almost similar but slightly better returns than the equity futures in case of daily frequency. Whereas in the case of weekly and monthly, the FAR month future contract is the best profit-making instrument followed by the NEAR month contract and the order for weekly contracts is FAR>WEEK>MONTH.
- If the investors wish to trade on a daily basis, then, there is not much difference in return percentage, the unadjusted return percentages being 0.0098%, 0.0099%, and 0.0096% for near, next, and far weekly respectively.
- The overall best return scenario is observed when investment is made on a monthly basis which shows an average risk unadjusted return of 1.29%

7] Risk-adjusted Returns for Futures Instruments

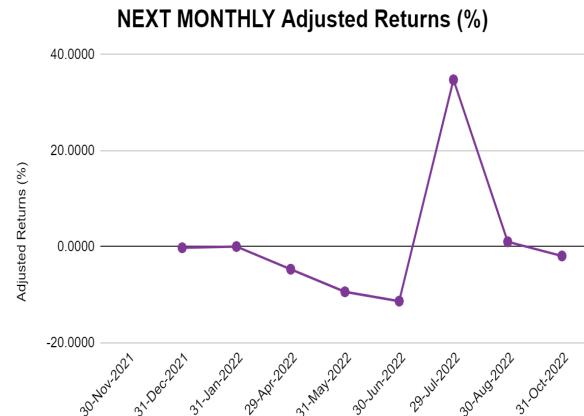
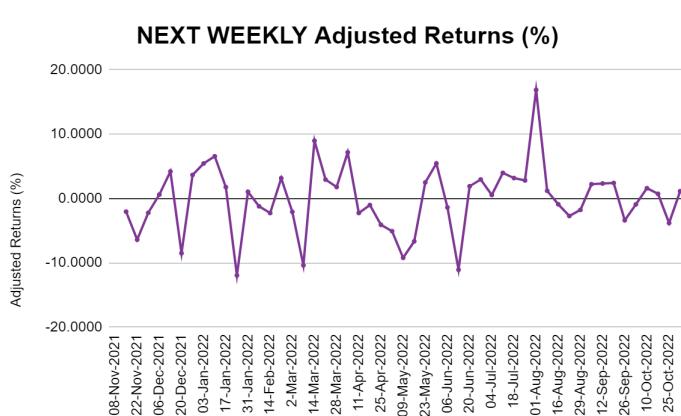
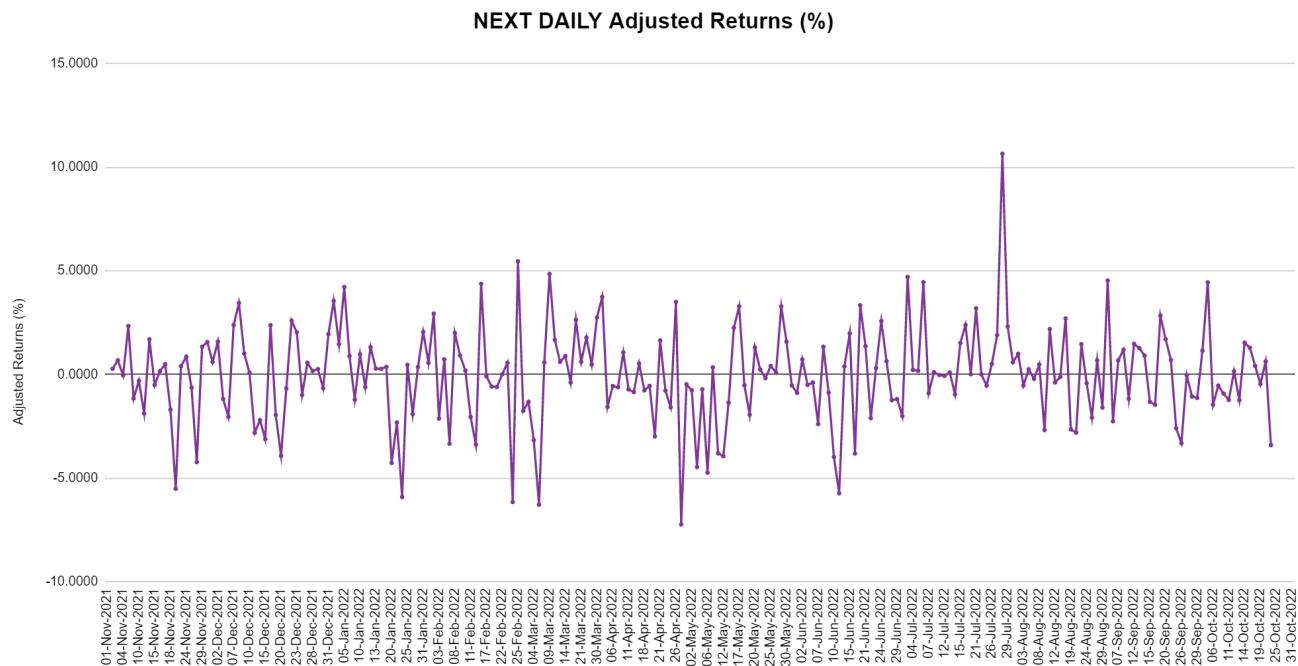
A] NEAR MONTH

METRIC	DAILY	WEEKLY	MONTHLY
MEAN	-0.0359	-0.0519	0.9873
MAXIMUM	10.5790	16.7759	34.1186
MINIMUM	-7.2647	-11.9302	-11.0378
STANDARD DEVIATION	2.2821	5.2215	14.1175



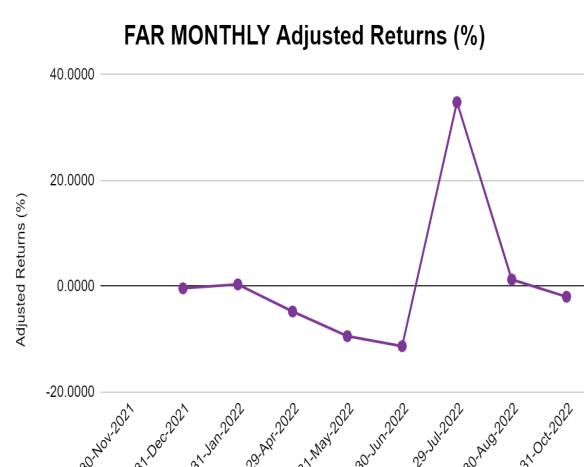
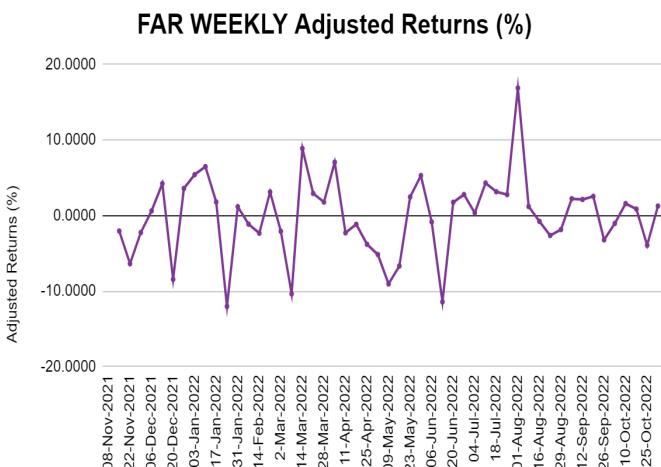
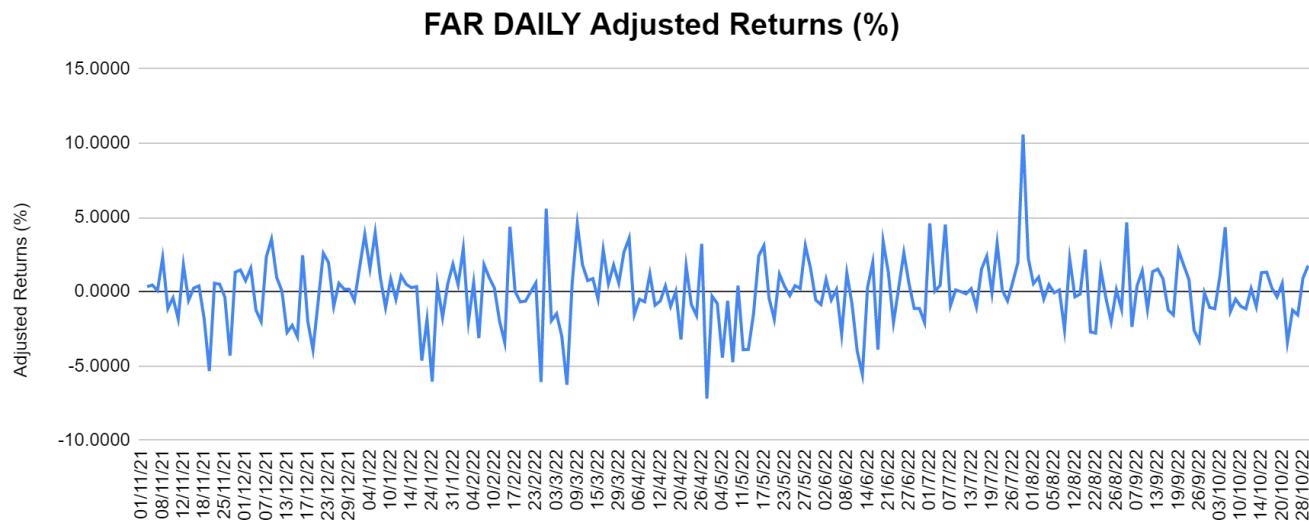
B] NEXT MONTH

METRIC	DAILY	WEEKLY	MONTHLY
MEAN	-0.0360	-0.0487	1.0128
MAXIMUM	10.6518	16.8842	34.7597
MINIMUM	-7.2409	-11.9668	-11.3628
STANDARD DEVIATION	2.2894	5.2501	14.3673



C] FAR MONTH

METRIC	DAILY	WEEKLY	MONTHLY
MEAN	-0.0363	-0.0467	1.2451
MAXIMUM	10.5805	16.8889	34.8035
MINIMUM	-7.2022	-12.0300	-11.3670
STANDARD DEVIATION	2.2790	5.2436	15.5356



ANALYSIS

- It is evident from the above data that underlying equity yields almost similar but slightly better returns than the equity futures in case of daily frequency. Whereas in the case of weekly and monthly, the FAR month future contract is the best profit-making instrument followed by the NEAR month contract and the order for weekly contracts is FAR>NEXT>NEAR.
- If the investors wish to trade on a daily basis, then, there is not much difference in return percentage, the adjusted return percentages being negative for all far,next and near.
- The overall best return scenario is observed when investment is made on a monthly basis in FAR contract which shows an average risk unadjusted return of 1.25%

8] ECONOMIC INTERPRETATION

Risk-Adjusted Return: This is a measure of how much risk is involved in producing some return, generally indicated by a number/rating. Sharpe Ratio has been used to indicate the Risk-Adjusted Return.

$$\text{Sharpe Ratio} = (r_x - r_f) / \text{stdev}(x)$$

- r_p = risk-unadjusted return
- r_f = risk-free return/rate
- r_x = risk-adjusted return

Sharpe ratio can be defined as the excess portfolio return over the risk-free rate relative to its standard deviation. The risk-adjusted returns are always lesser than the risk unadjusted returns for a profitable venture. The risk-adjusted return is a more economically practical indicator, as the risk unadjusted returns may give a misleading picture. To be profitable, risk-adjusted returns (instead of risk unadjusted

returns), should be greater than risk-free returns; since if that is not the case, an investor can make greater profits by investing in the risk-free assets.

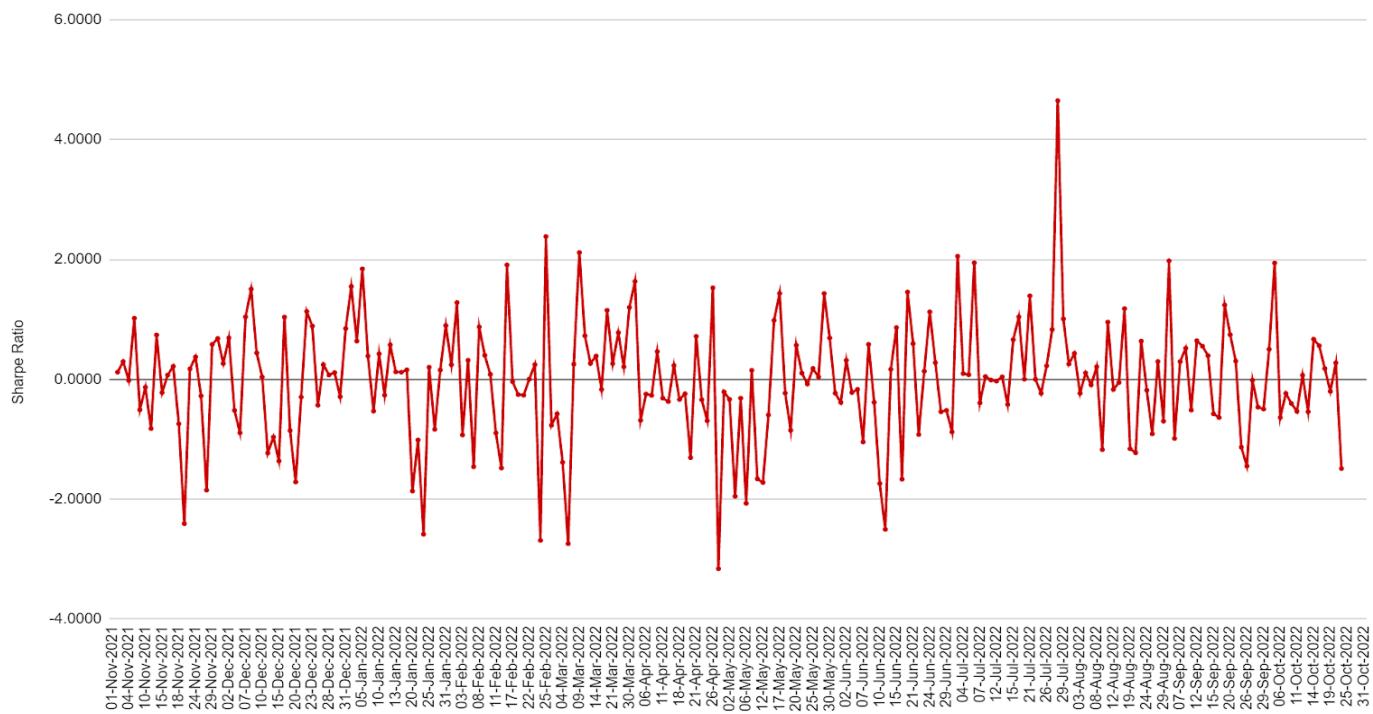
9] SHARPE RATIO

A] NEAR MONTH

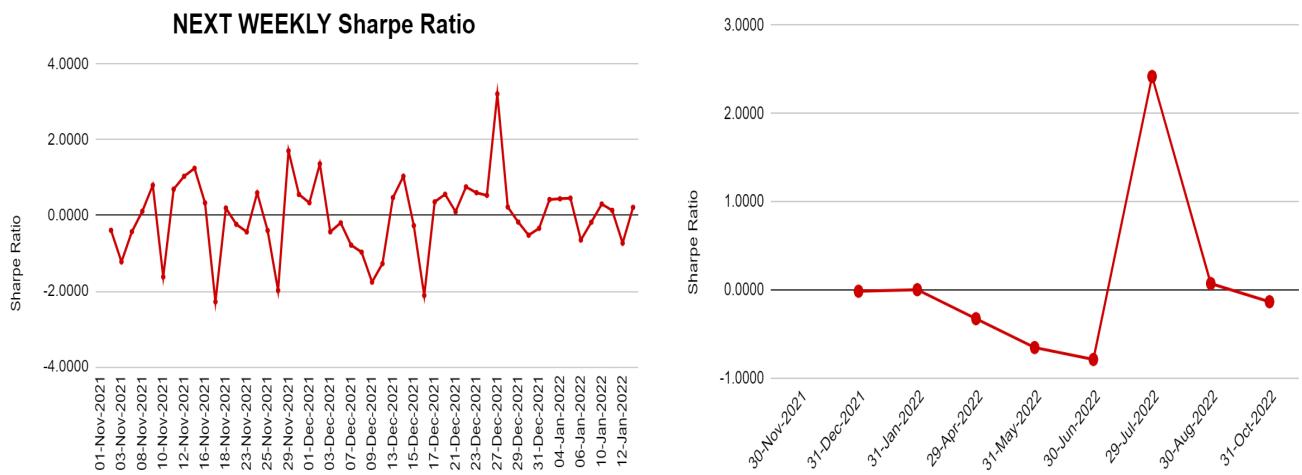


B] NEXT MONTH

NEXT DAILY Sharpe Ratio

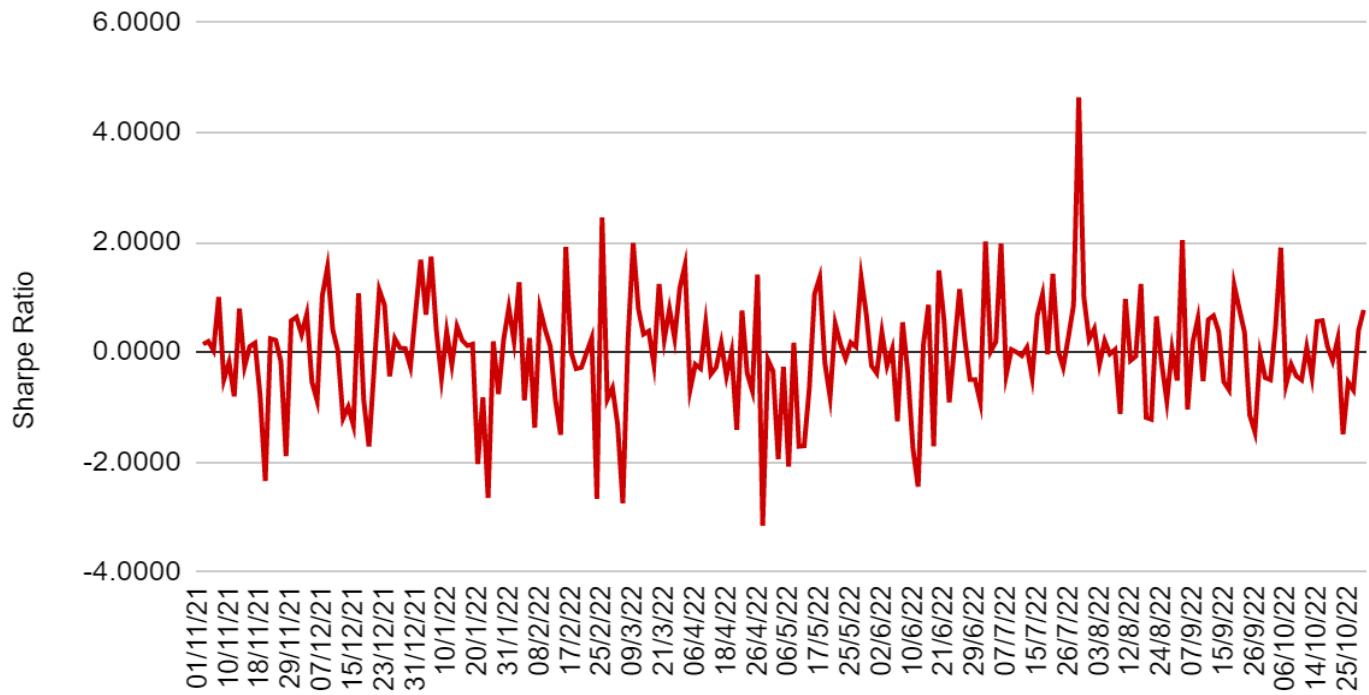


NEXT MONTHLY Sharpe Ratio

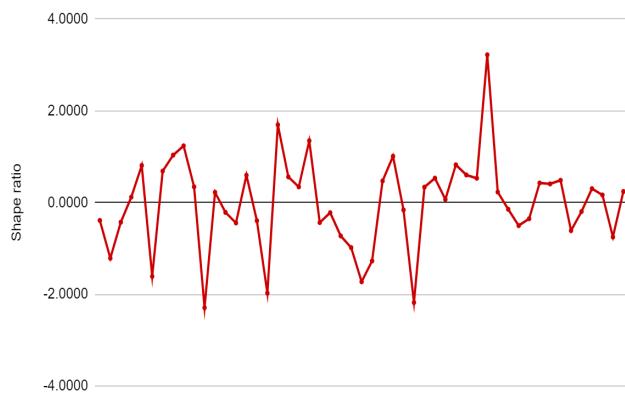


C] FAR MONTH

FAR DAILY Sharpe Ratio



FAR WEEKLY Shape ratio

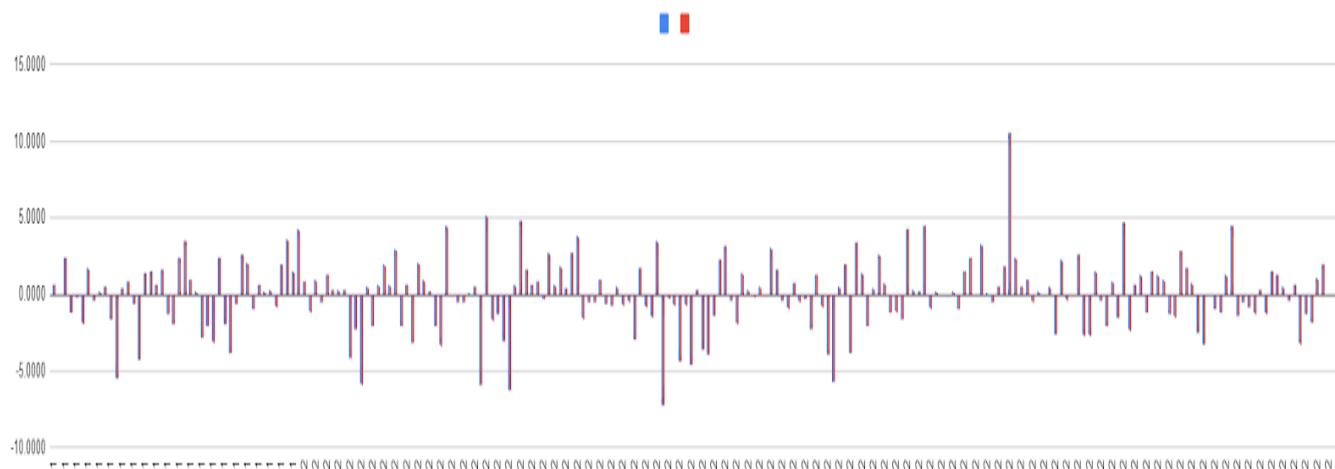


FAR MONTHLY SHARPE RATIO

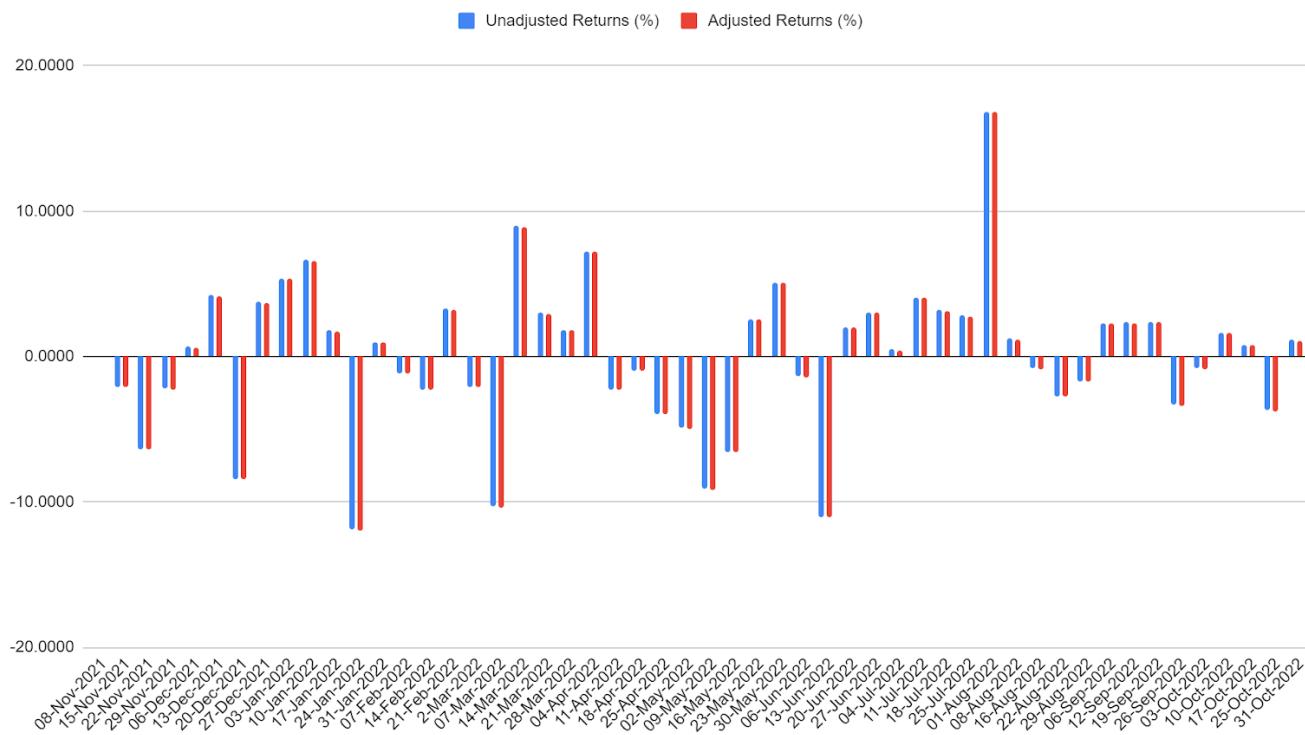


9] Adjusted v/s Unadjusted returns

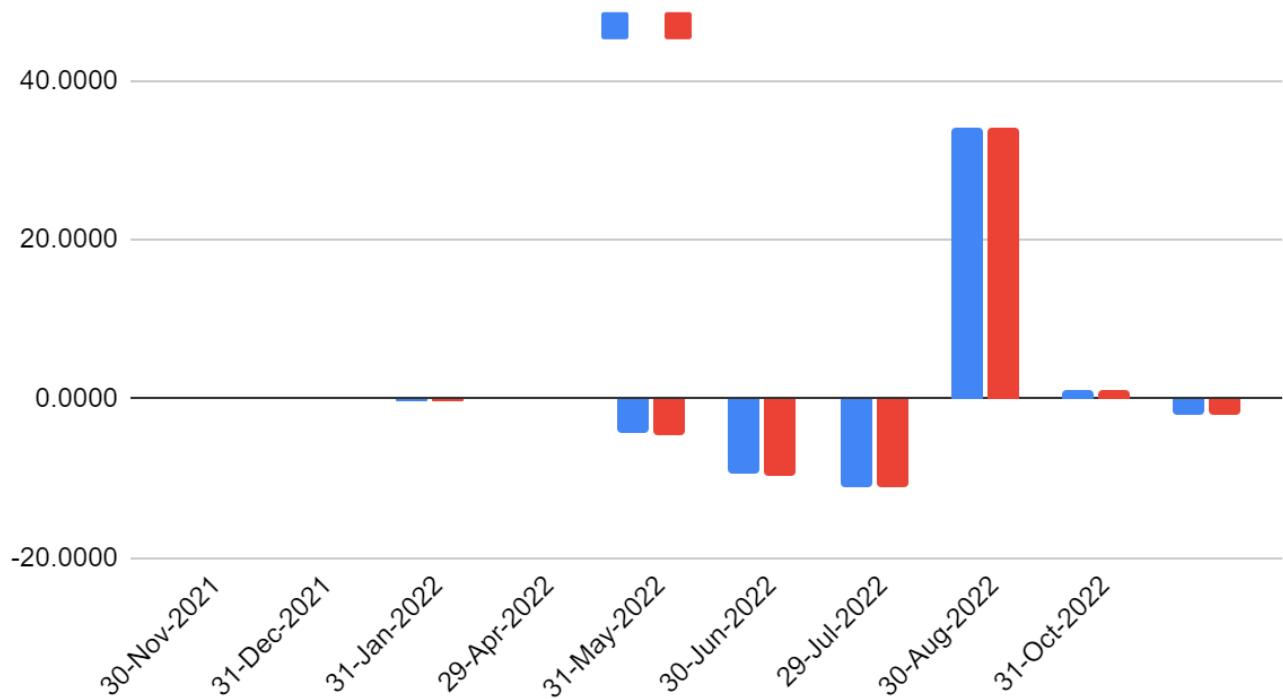
A] NEAR MONTH



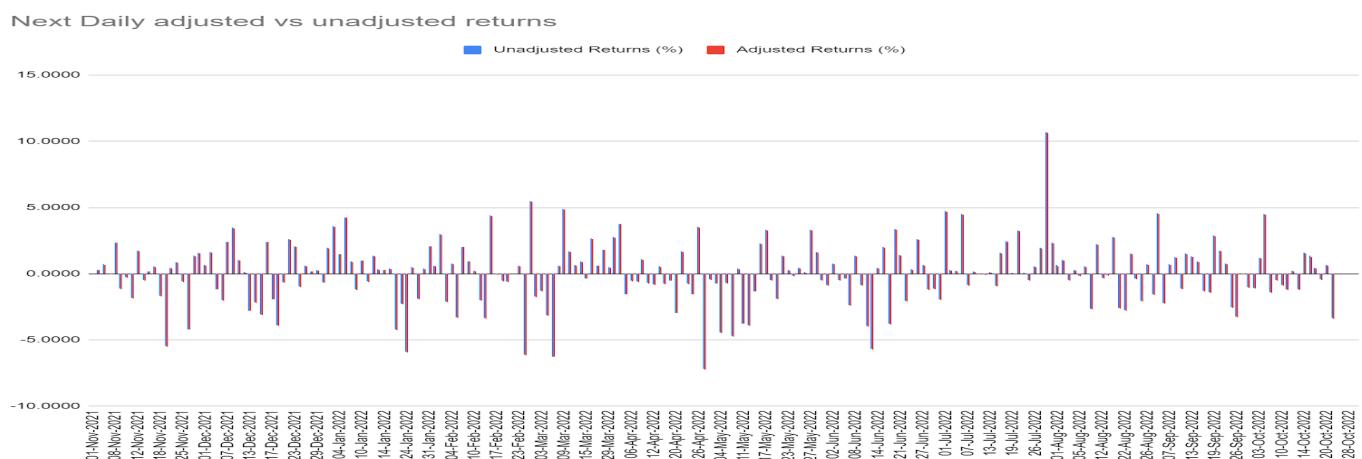
Near weekly



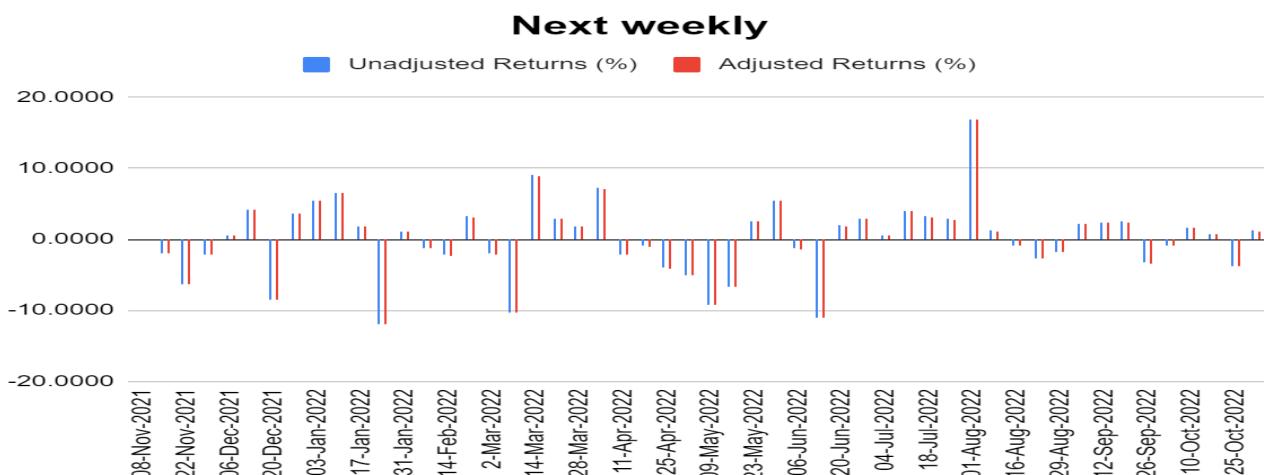
Near monthly adjusted vs unadjusted returns



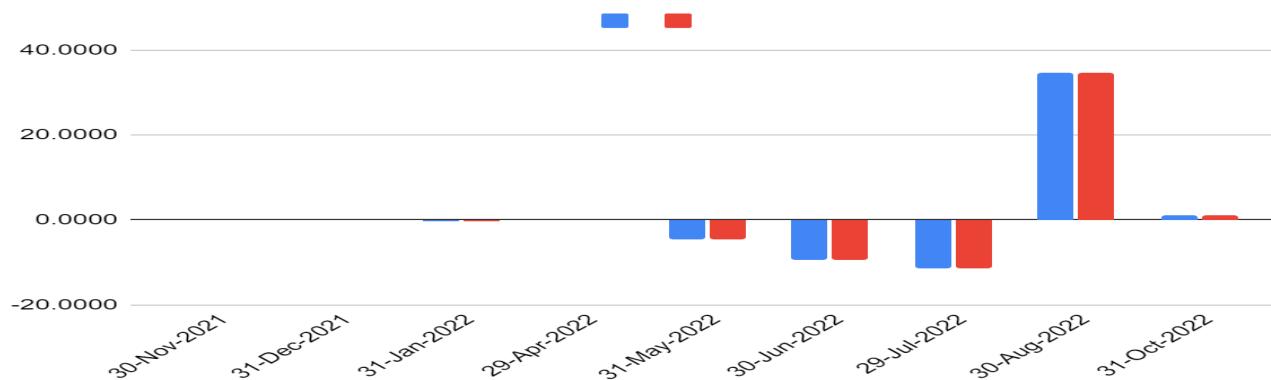
B] NEXT MONTH



Next weekly

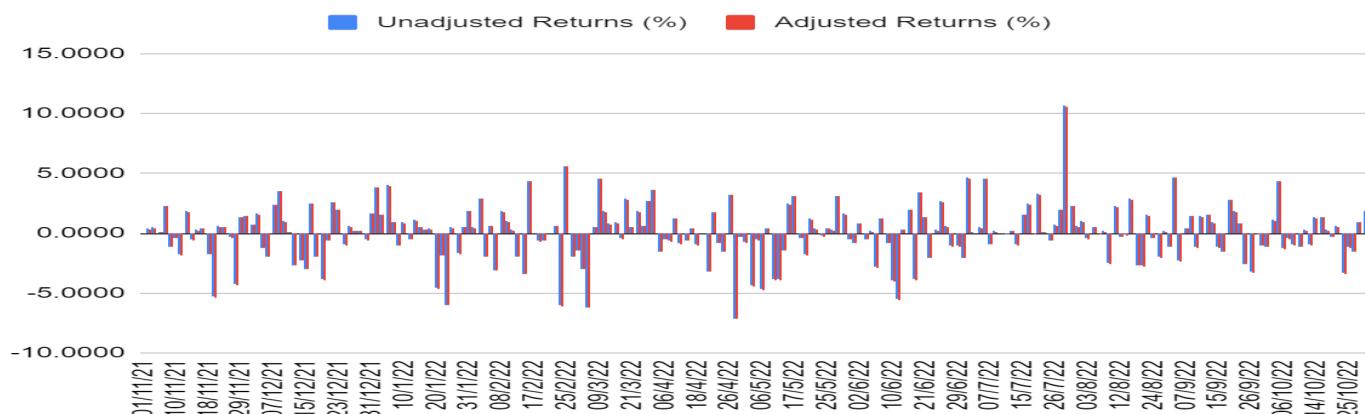


Next monthly adjusted vs unadjusted returns

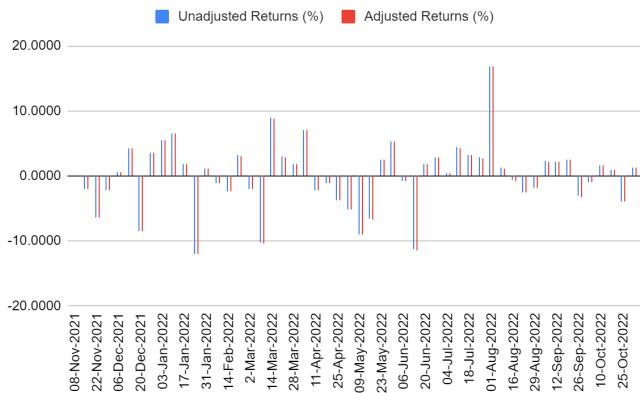


C] FAR MONTH

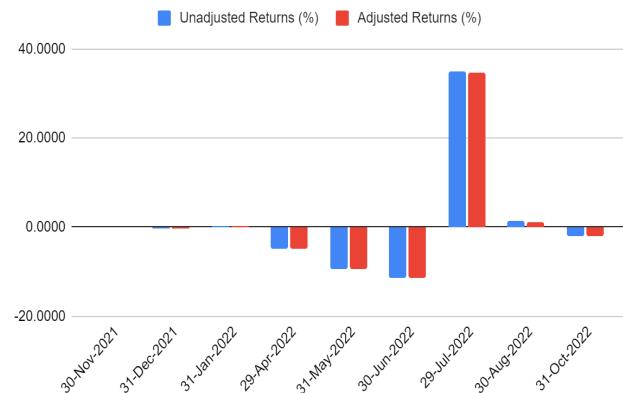
Far Daily adjusted vs unadjusted returns



Far Weekly adjusted vs unadjusted returns



Far Monthly adjusted vs unadjusted returns



It is visible from the following table that the average returns for the monthly futures contracts are maximum in the case of the MONTHLY time frame when compared to the daily and weekly time frames.

- The Sharpe ratio also clearly indicates that investing in the near month futures contracts are relatively safer on the daily time frame. The returns of Unadjusted vs Adjusted are almost the same with Unadjusted being slightly greater than adjusted due to the deduction of T-bills.

OBSERVATIONS

- Unadjusted daily returns are in the order Far>Next>Near.
- Unadjusted weekly returns on average are better for the near month futures contract than the return on the underlying asset; meanwhile, the return on next month futures contracts is similar to near month's value far month value being very low ..
- Unadjusted monthly returns on average are almost identical for the futures contracts ; however, the returns on the next month futures contracts are marginally higher than the other two.The far month monthly returns are being lowest among all.
- Adjusted daily returns on the far month's contract are better than adjusted returns on shares and the near and the next months' futures contracts
- The volatility of far month futures daily returns is lower than the volatility of adjusted equity returns. Hence investing in far months' futures contracts is the best option for risk-taking and risk-avoiding investors
- The volatility of monthly returns is least in monthly returns of adjusted near and next month futures contracts. Hence, risk-averse investors can invest in the next- month futures contract, earning pretty good returns with low risk.

Actions:

Sharpe ratio being positive implies that the equity futures instrument is providing better returns given the level of risk than the risk-free security.

The Sharpe ratio trends shows that we can book maximum profit in:

- a) Near month contract: Investing on monthly basis
- b) Next month contract: Investing on monthly basis
- c) Far month contract: Investing on monthly basis

Risk averse investors can also invest in futures contract of BAJAJ as the Sharpe ratio comes out to be positive. They can allocate appropriate funds considering the model of one risky and one risk free asset, where the risky part could be the futures contract

Liquidity Position

To find the liquid trade options, we analyze the liquidity positions of the underlying asset and futures.

The average daily open interest and quantity of futures contracts are compared in the table below:

Type	Open Interest	No. of Contracts
Near Month	4026902.788	1430102
Next Month	7547777.78	431600
Far Month	18944.44	9105

As we move from near to far month, we can observe that liquidity drops, with the Near Month being the most liquid futures contract.

Section 4: Contango & Backwardation

Trends & Frequency Analysis

4.1 Contango & Backwardation

Contango is a trend when the futures price of a stock is greater than its spot price prevailing in the market.

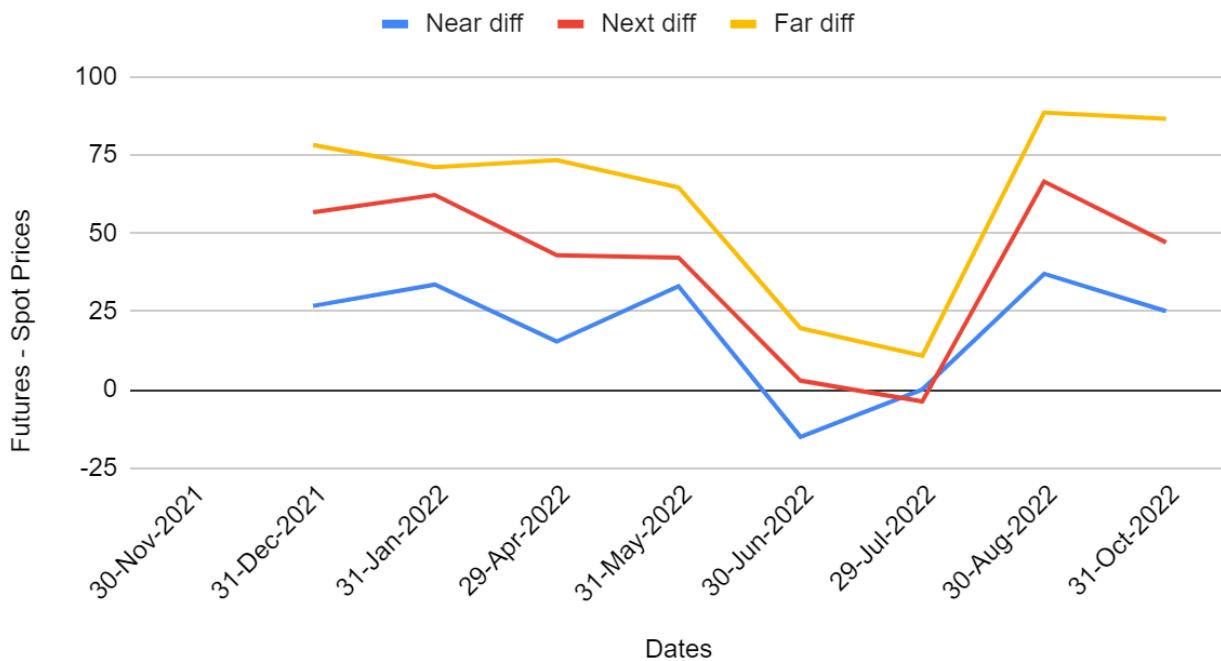
When the market/commodity exhibits a contango behavior, investors pay more for the stock/commodity in the future. Futures prices being higher than the spot prices may be speculative of prices being higher in the future; thus, a speculator may lock in a profit by buying more future contracts.

Backwardation refers to the situation when the futures price of the stock is less than its spot price prevailing in the market.

Backwardation can occur due to a higher demand for an asset currently than the contracts maturing in the future through the futures market. It is a signal for the investors that the current price is too high, and they can short the asset and buy the futures contract to realize the profit.

Date	equity	near	near diff	next	next diff	far	far diff
30-Nov-2021	6997.25	7024	26.75	7053.9	56.65	7075.4	78.15
31-Dec-2021	6977.3	7010.85	33.55	7039.5	62.2	7048.4	71.1
31-Jan-2022	7000.25	7015.6	15.35	7043.15	42.9	7073.6	73.35
29-Apr-2022	6671.8	6704.8	33	6714	42.2	6736.4	64.6
31-May-2022	6082.15	6067.05	-15.1	6085	2.85	6101.75	19.6
30-Jun-2022	5400.5	5400.5	0	5396.7	-3.8	5411.3	10.8
29-Jul-2022	7209.1	7246.1	37	7275.6	66.5	7297.65	88.55
30-Aug-2022	7306.25	7331.3	25.05	7353.3	47.05	7392.8	86.55
31-Oct-2022	7144.1	7183.7	39.6	7214.7	70.6	7248.9	104.8

CONTANGO & BACKWARDATION



All the futures are mostly in **contango** all the time (benifitting the long call holder) , with far futures having the highest contango , next month being next in order followed by the near month.

Though later in the months of June/July near and next months face backwardation ..

4.1 Significance of Frequency

Various Economic Theories assume that past movements of a stock price in the market cannot be used to predict its future movement. It considers the study of the price and volume of the traded instruments and the frequency of returns, i.e.. Technical Analysis, which is undependable.

Nevertheless, it is important for investors to time their entry or exit from the market realize maximum profits. The frequency of the duration is used to calculate the **standard deviation** during that period, hence using the Sharpe ratio.

From the data of the underlying asset and equity futures, the following observations were made:

- Returns for the underlying asset and the futures instrument was highest for monthly frequency but the returns came at the cost of added risk.
- Sharpe ratio was highest for monthly frequency in the Near and Next month contracts.

Based on the observations of returns for the different frequencies, the risk averse investors could decide whether to enter the futures market for monthly frequency given their level of risk aversion for their target expected return. If the index of risk aversion of the investor is high, they can allocate a significant portion of their investment to risk free asset and only a minor portion to Far month future contracts and trade on monthly basis.

SECTION 3



SYNGENE INTERNATIONAL

A] Nature of the business

Syngene is an integrated research, development, and manufacturing organization providing scientific services from early discovery to commercial supply. Their services cater to a wide range of industrial sectors, including pharmaceutical, biotechnology, nutrition, animal health, consumer goods, and specialty chemical companies. They offer clients customized, end-to-end solutions to fulfill their R&D and manufacturing requirements. Nature of business is manufacturing and supply.

B] Ownership of Business

The Company was incorporated as Syngene International Limited on November 18, 1993 at Bengaluru, Karnataka as a private limited company under the Companies Act, 1956. Pursuant to a special resolution of the shareholders dated March 26, 2007, the Company was converted into a public limited company and the name of the Company was changed to Syngene International Limited. The largest shareholder is Biocon Limited with 65% of shares outstanding. This implies that they have majority interest control of the future of the company. abrdn plc is the second largest shareholder owning 2.0% of common stock, and ICICI Prudential Asset Management Company Limited holds about 1.4% of the company stock. Public companies own 65% of Syngene International. The general public-- including retail investors -- own 20% stake in the company.

C] Business Commencement Circumstances

Syngene International was started by Biocon in 1993 to provide research services for pharma companies. Syngene International Ltd. The Company was incorporated as Syngene International Private Limited on November 18, 1993 at Bengaluru, Karnataka as a private limited company under the Companies Act, 1956. Syngene's vision was to be a world-class partner delivering innovative scientific solutions. Syngene aims to contribute to the evolution of scientific research using their skills, technology and experience to find solutions to the world's most complex challenges.

.

D] Industry of the Business

It belongs to scientific research and manufacturing industry and aim to build strategic, long-term relationships with our clients and partners by offering a range of integrated research and development services, from the initial research programme planning to candidate selection, pre-clinical and clinical development, and manufacturing.

E] Greatness of the Company

Syngene International is India's leading CRO (Contract Research Organisation) As a thumb rule, a stock whose P/E ratio is above 15 is considered expensive. A stock whose P/B is above 1.5 is also considered expensive. But this thumb rule has now become obsolete. The stock analysis worksheet also compared the companies P/E and P/B with its

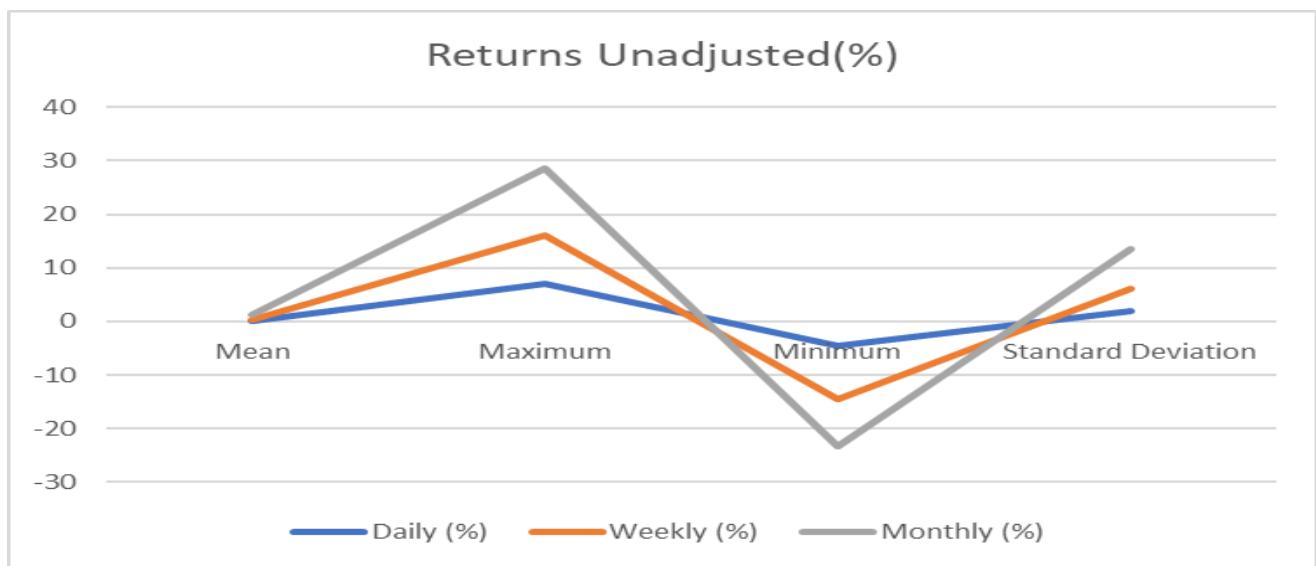
Sensex's overall P/E & P/B ratio to get an idea about its price valuation. The result was like this: Compared to Industry P/E ratio, Syngene price looks at par. But compared to Sensex P/E ratio, it looks overpriced. Compared to Sensex P/B ratio, Syngene looks very overpriced. Hence it is essential to use other, more relevant, comparator. The stock analysis worksheet compared Syngene's P/E with its industries (Miscellaneous) P/E ratio to get an idea about its price valuation.

Underlying Assets Equity

Risk Unadjusted Returns Data for Underlying Equity Asset

Returns (Frequency)	Daily (%)	Weekly (%)	Monthly (%)
Mean	0.0683	0.337	0.7719
Maximum	6.9503	9.0868	12.6115
Minimum	-4.4716	-10.1203	-8.6849
Standard Deviation	1.9882	4.095	7.4561

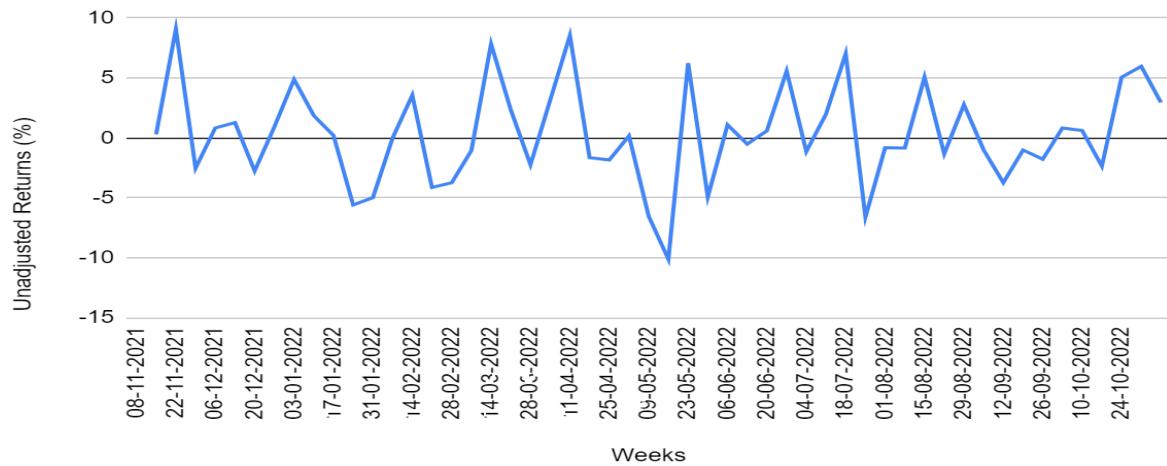
Table 1: Risk Unadjusted Returns Data



Graph 1

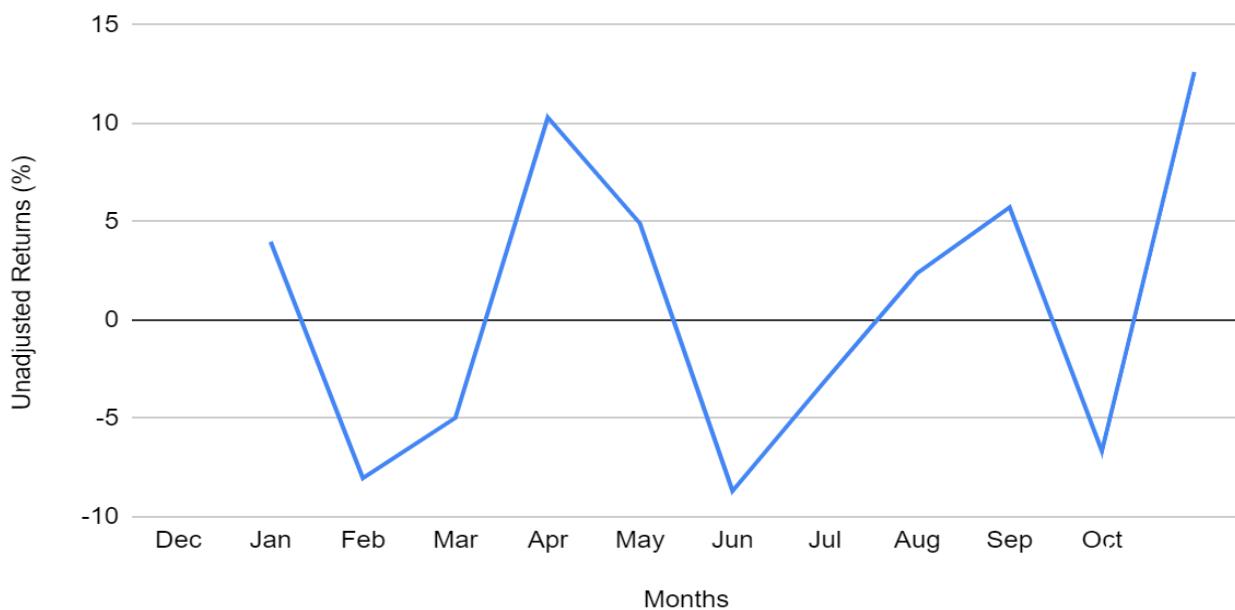
Graph 1: Risk Unadjusted Daily Returns Data Vs Time

Unadjusted Returns (%)



Graph 2: Risk Unadjusted Weekly Returns Data Vs Time

Unadjusted Returns (%)



Graph 3: Risk Unadjusted Monthly Returns Data vs Time

Risk-Adjusted Returns Data for Underlying Equity Asset

Returns (Frequency)	Daily	Weekly	Monthly
Mean	0.0225	0.2904	0.724
Maximum	6.9148	9.0514	12.5471
Minimum	-4.5209	-10.1693	-8.734
Standard Deviation	1.9882	4.0947	7.4545

Table 2: Risk-Adjusted Returns Data

Economic Interpretation

Risk-Adjusted Return: This is a measure of how much risk is involved in producing some return, generally indicated by a number/rating. Sharpe Ratio has been used to indicate the Risk-Adjusted Return.

$$\text{Sharpe Ratio} = (r_x - r_f) / \text{stdev}(x)$$

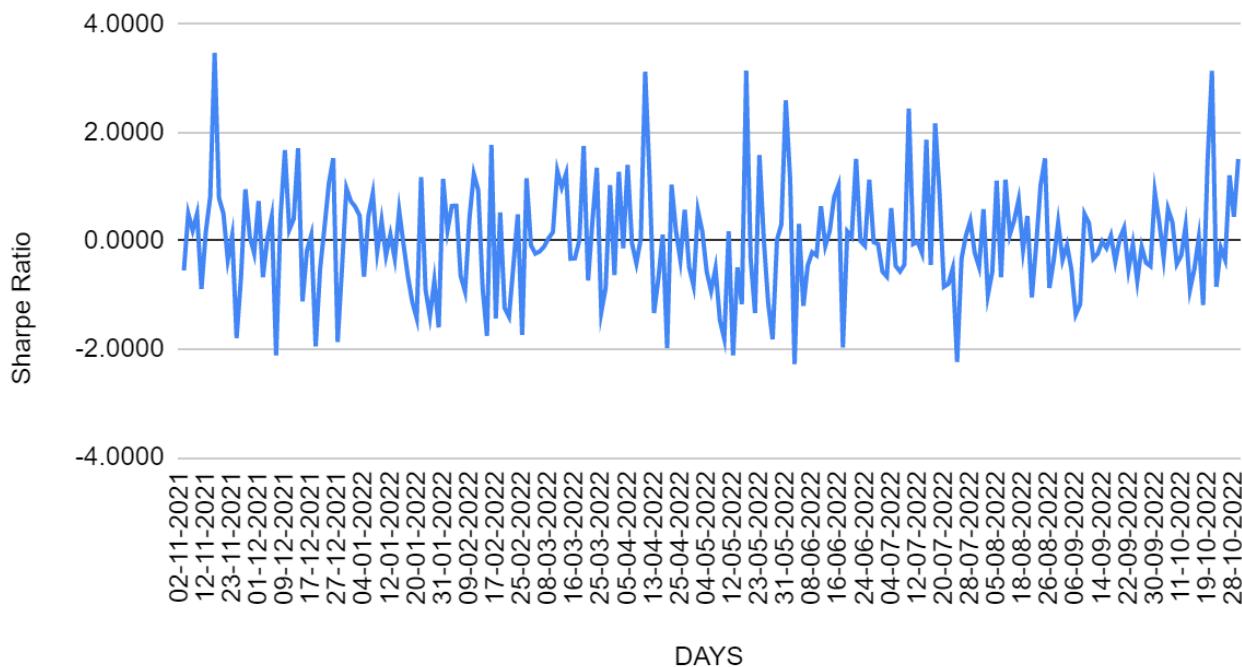
- r_p = risk-unadjusted return
- r_f = risk-free return/rate
- r_x = risk-adjusted return

Sharpe ratio can be defined as the excess portfolio return over the risk-free rate relative to its standard deviation. The risk-adjusted returns are always lesser than the risk unadjusted returns for a profitable venture. The risk-adjusted return is a more economically practical indicator, as the risk unadjusted returns may give a misleading picture. To be profitable, risk-adjusted returns (instead of risk unadjusted returns), should be greater than risk-free returns; since if that is not the case, an investor can make greater profits by investing in the risk-free assets.

Sharpe Ratio (Frequency)	Daily	Weekly	Monthly
Mean	0.0113	0.0709	0.0971
Maximum	3.478	2.2105	1.6832
Minimum	-2.2739	-2.4835	-1.1716
Standard Deviation	1	1	1

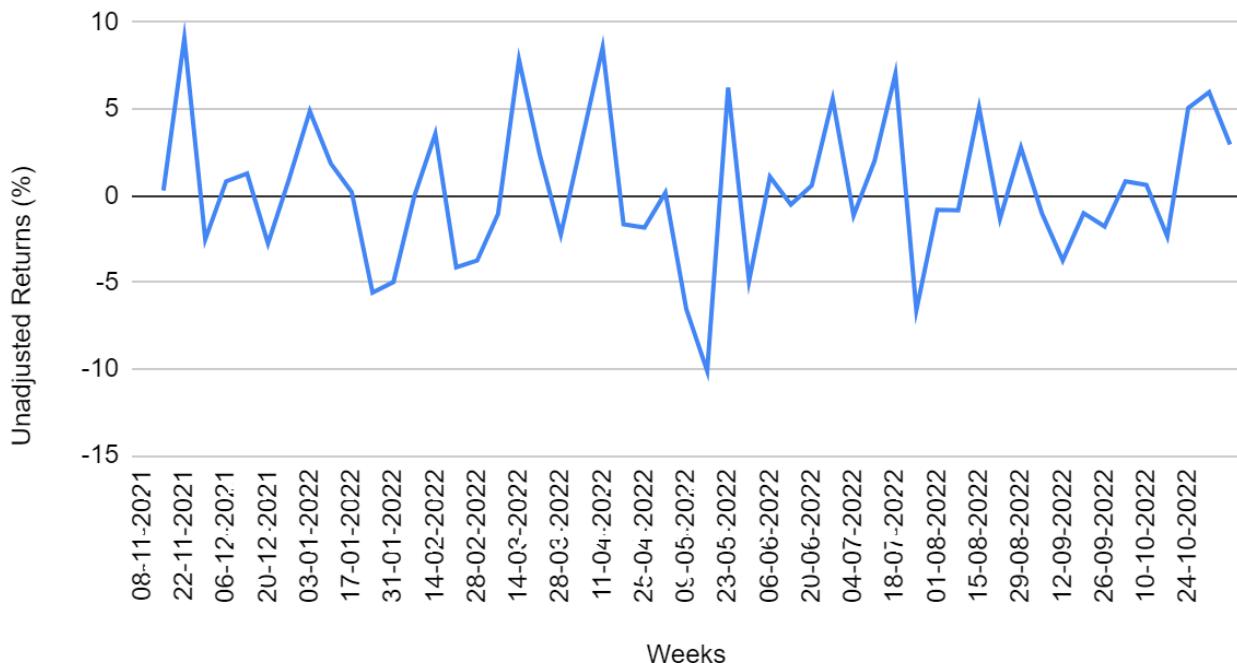
Table 3: Sharpe Ratio for Underlying Equity Asset

Sharpe Ratio vs TIME



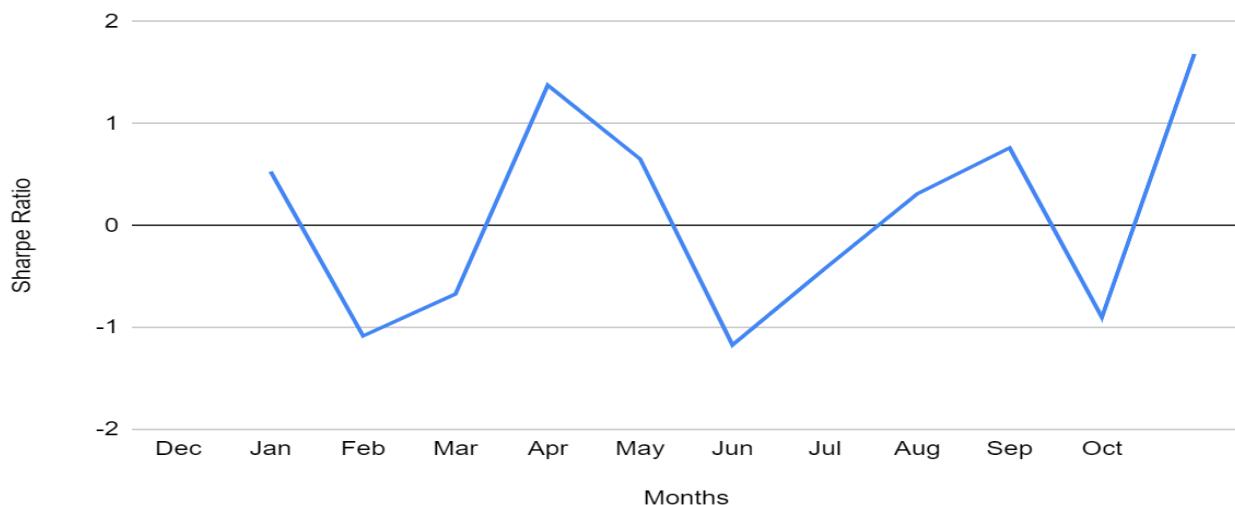
Graph 4: Sharpe Ratio (Daily)

Unadjusted Returns (%)



Graph 5: Sharpe Ratio (Weekly)

Sharpe Ratio



Graph 6: Sharpe Ratio (Monthly)

Observations

- The standard deviation, i.e. the volatility for the risk-adjusted and risk unadjusted data, are nearly similar.
- The mean returns for risk-adjusted and unadjusted data follow the trend: Monthly > Weekly > Daily.
- The standard deviation for risk-adjusted and unadjusted returns follows the trend: Monthly > Weekly > Daily.
- For risk-unadjusted returns, Sharpe Ratio follows the trend: Monthly > Weekly > Daily.
- Careful investment in SYNGENE stocks in the weekly and monthly frequencies is advised due to their larger positive Sharpe ratios.

A similar pattern is observed for risk-adjusted returns as well.

Equity Futures Instrument (SYNGENE)

2.1 Commencement of Equity Futures

Equity futures of Syngene commenced trading in Aug 11, 2015 with about 203,042 trades.

2.2 Lot Size and Contract Specifications

Syngene is currently trading in the futures and options market of the NSE with a lot size of 1000 and a total of 476 futures contracts.

2.3 Greatness of Equity Futures

During our study period (1st Nov 2021 to 31st October 2022) the share price increased but during this month share prices of syngene is decreasing. At this time there are fewer chances of getting high returns if an investor opts to invest in Syngene.

2.4 Sample Returns of Equity Futures Instrument

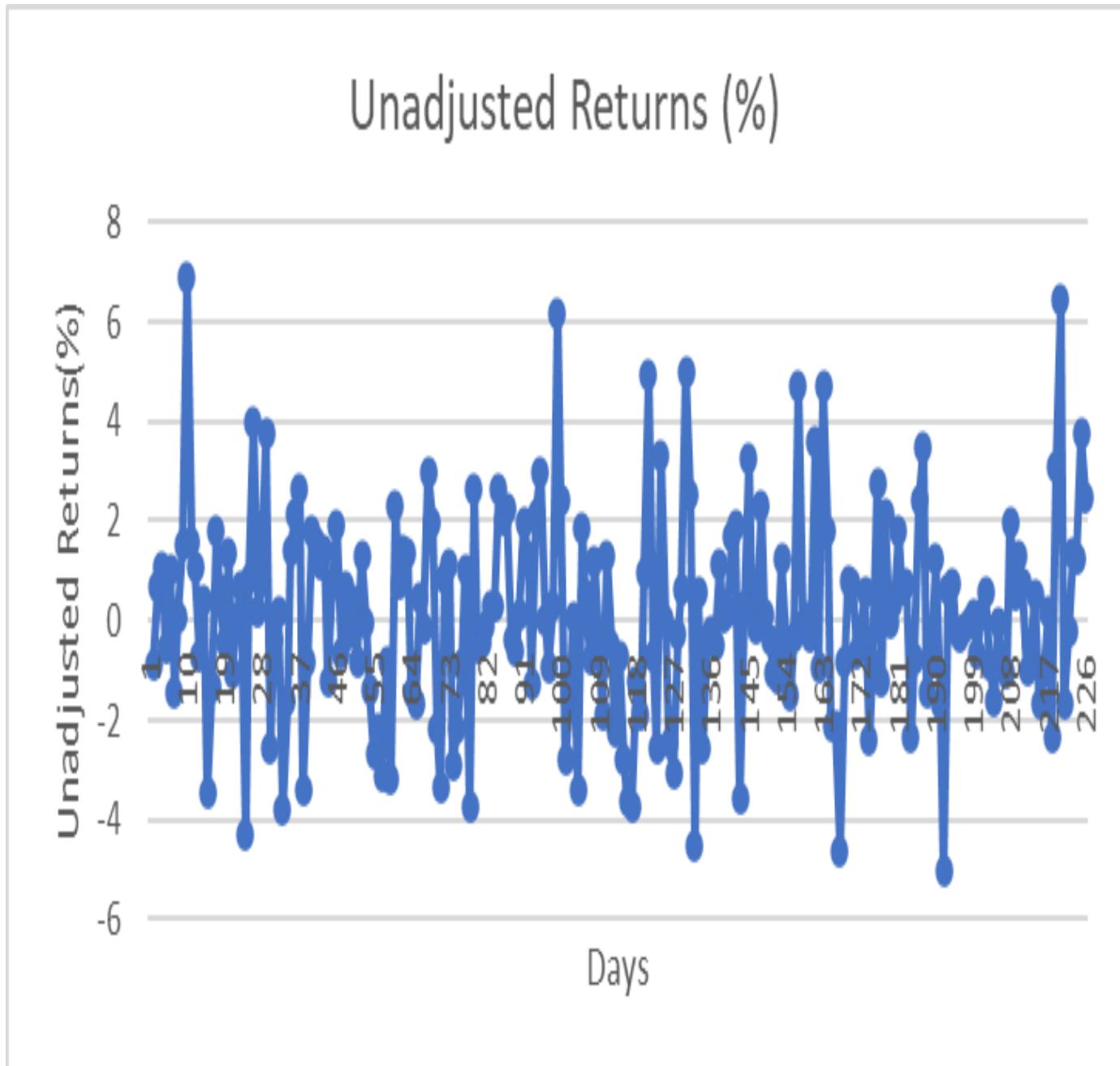
2.4.1 Unadjusted Risk Returns For Equity Futures Instrument

Near Month

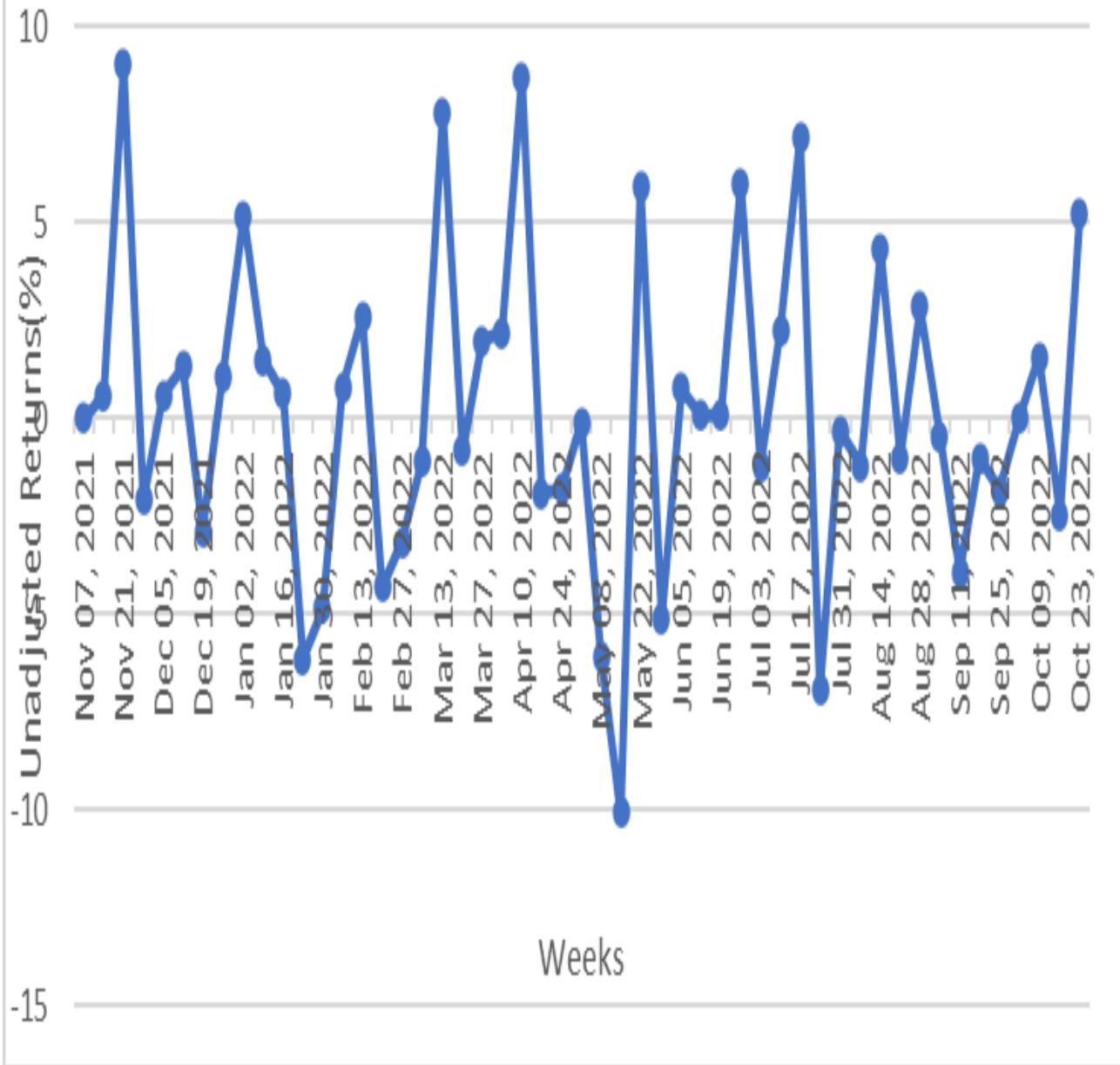
Returns (Frequency)	Daily	Weekly	Monthly
Mean	0.0849	0.3025	0.7731
Maximum	0.0849	9.0008	13.6862
Minimum	-5.0243	-10.0587	-8.6155
Standard Deviation	2.0208	4.1036	7.5364

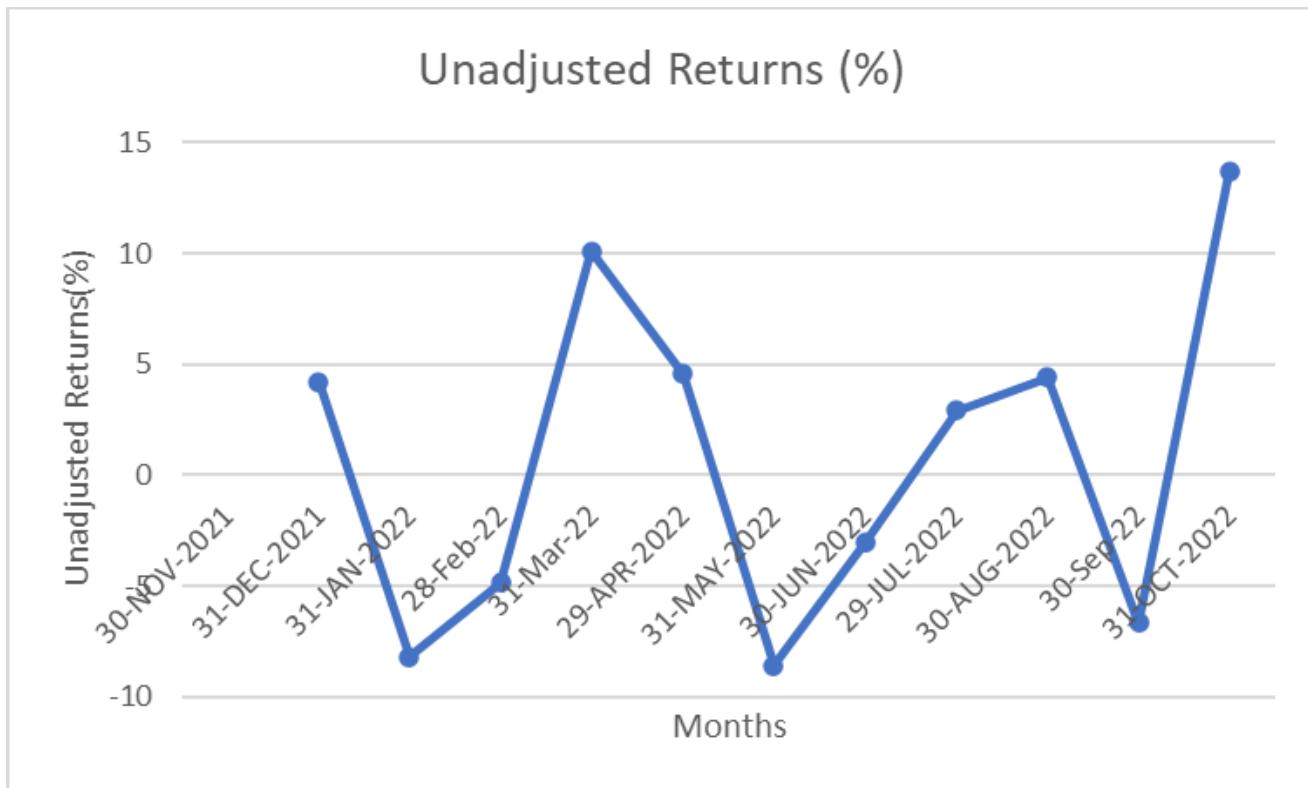
Table 4: Unadjusted Returns for Near month futures equity instrument

The below graphs show the near-month risk unadjusted returns for the futures equity instruments.



Unadjusted Returns (%)



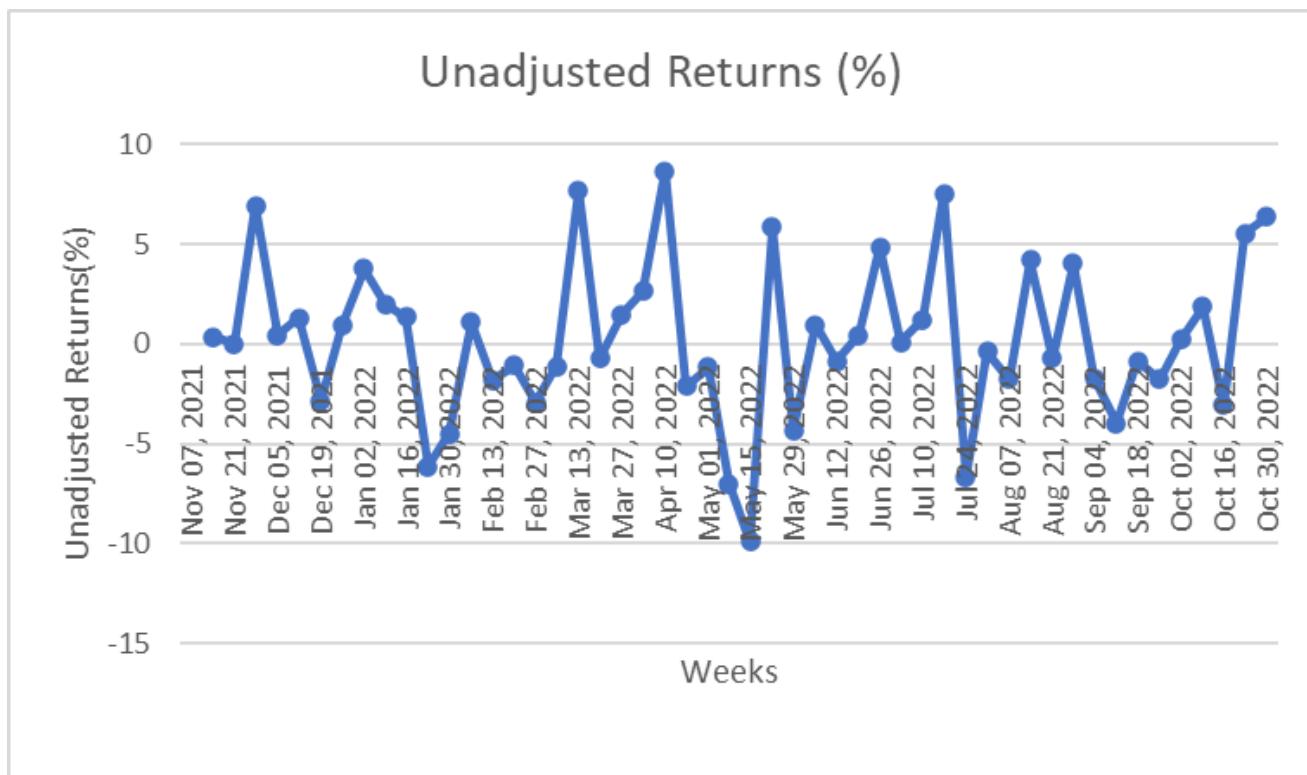
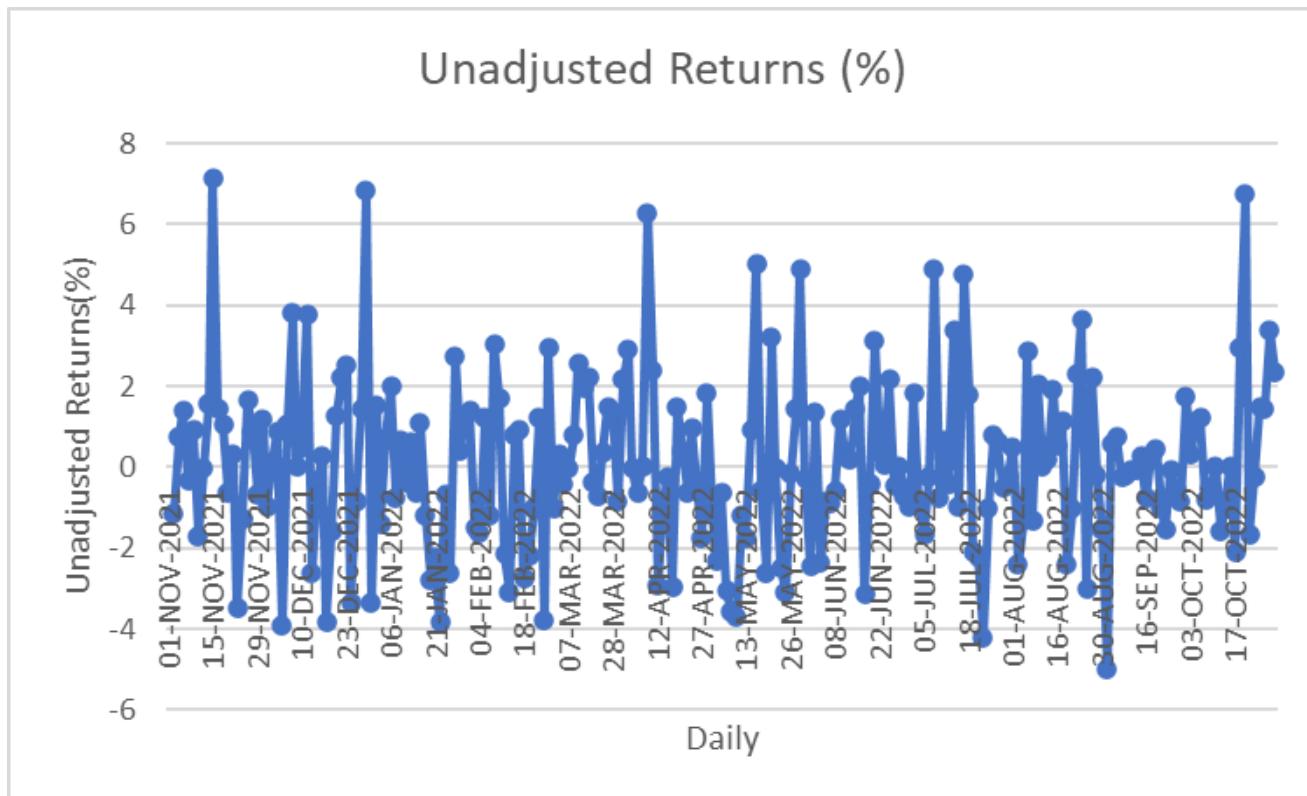


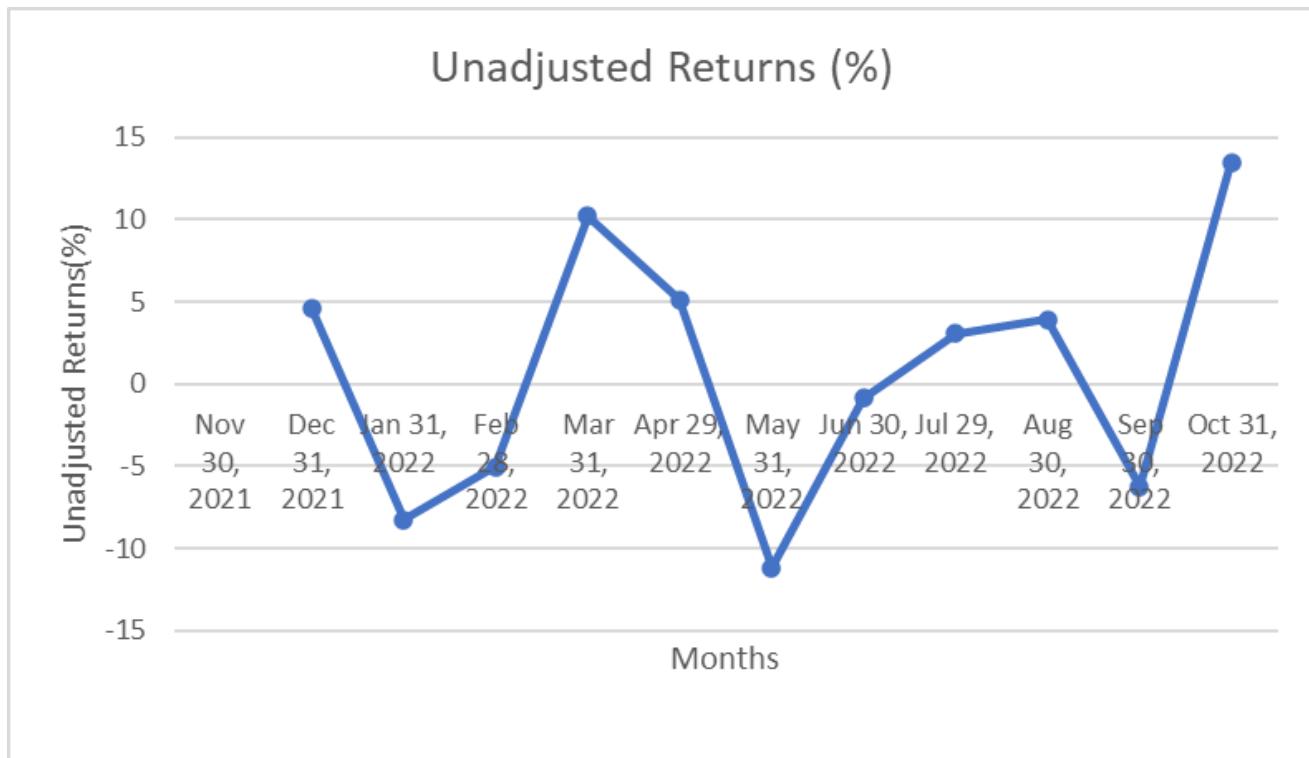
Next Month

Returns (Frequency)	Daily	Weekly	Monthly
Mean	0.2874	0.2979	0.8022
Maximum	7.1326	8.6671	13.4862
Minimum	-3.9304	-9.8817	-11.1718
Standard Deviation	2.2122	3.9657	7.8086

Table 5: Unadjusted Returns for Next month futures equity instrument

The below graphs show the next-month risk unadjusted returns for the futures equity instruments.



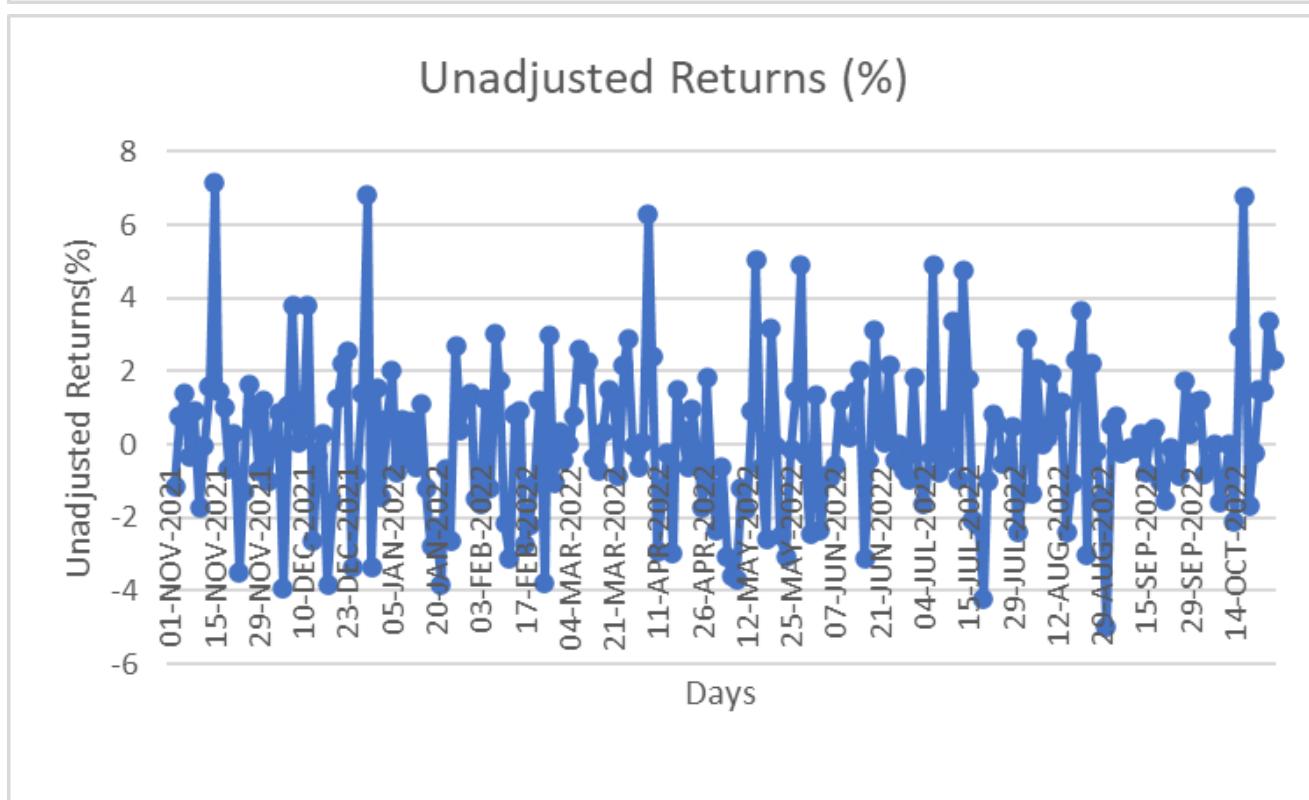
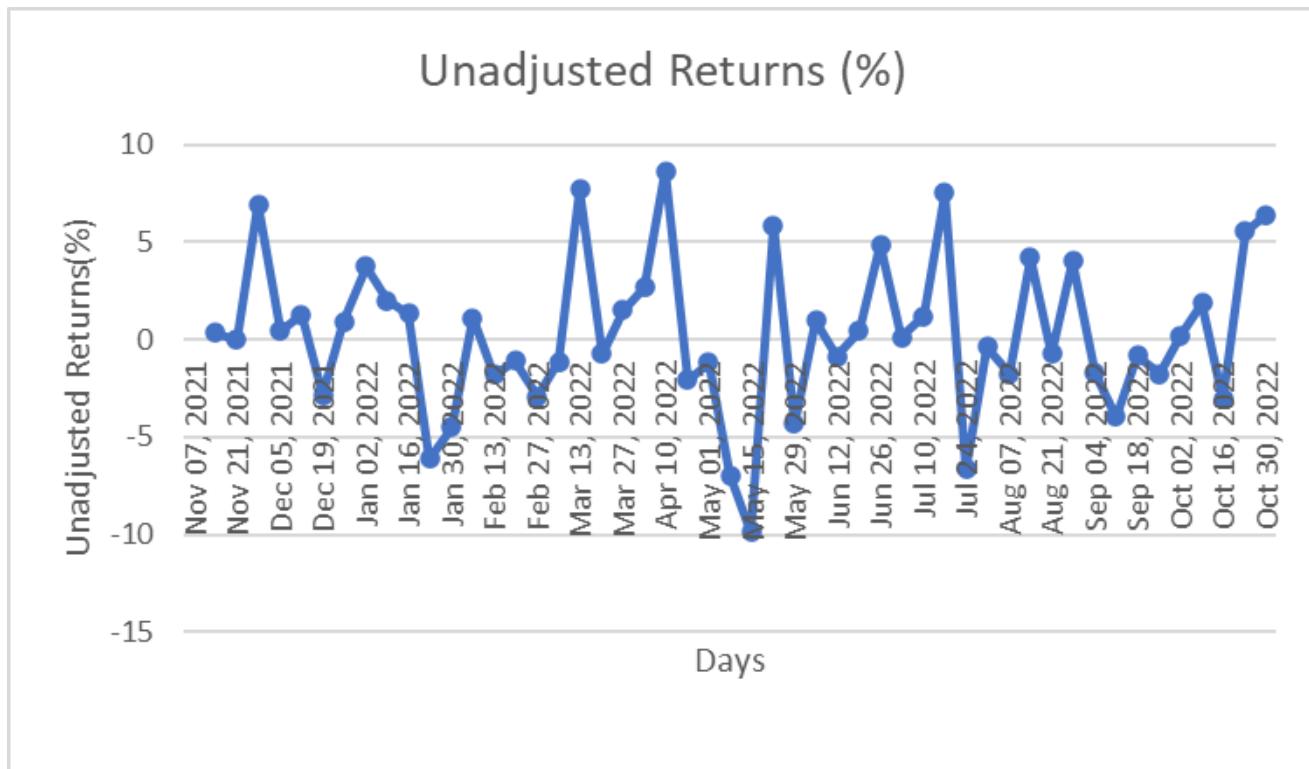


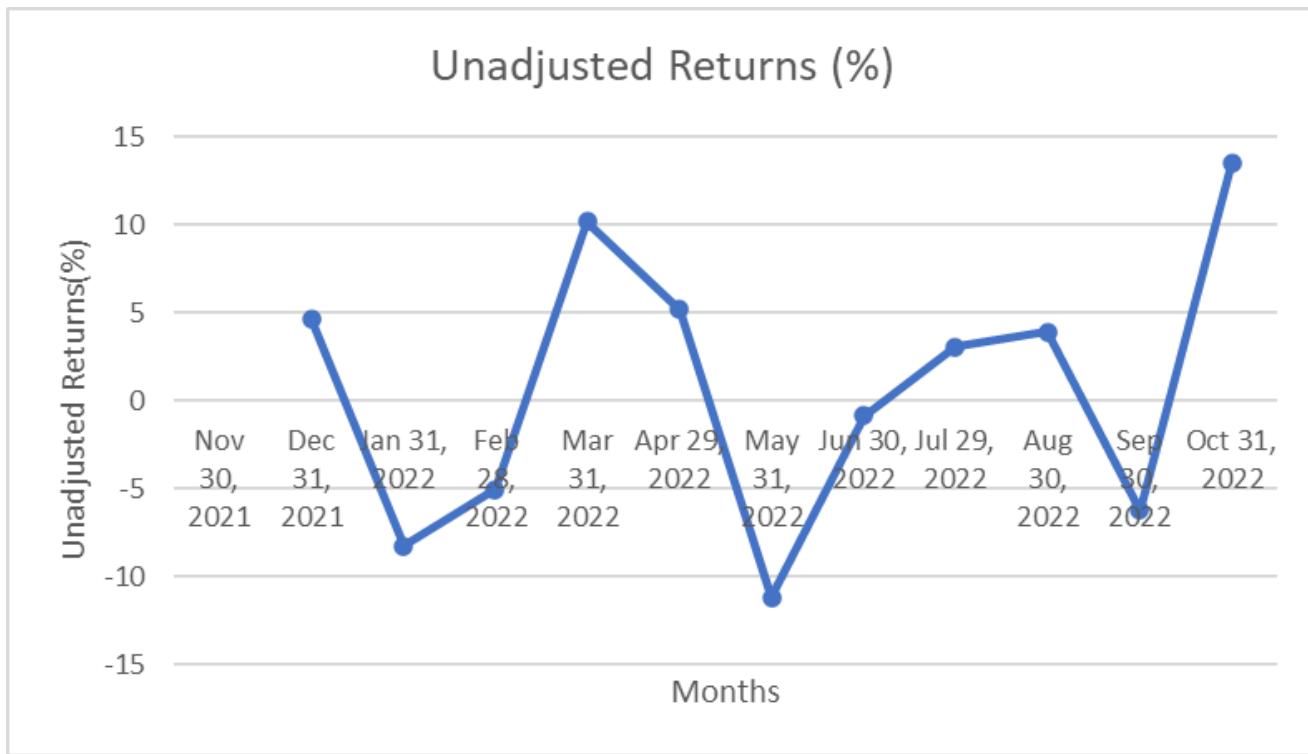
Far Month

Returns (Frequency)	Daily	Weekly	Monthly
Mean	0.3031	0.0067	0.7300
Maximum	6.9033	9.0316	10.9133
Minimum	-4.1997	-9.8559	-16.1865
Standard Deviation	1.8968	3.6762	8.2512

Table 6: Unadjusted Returns for Far month futures equity instrument

The below graphs show the far-month risk unadjusted returns for the futures equity instruments.





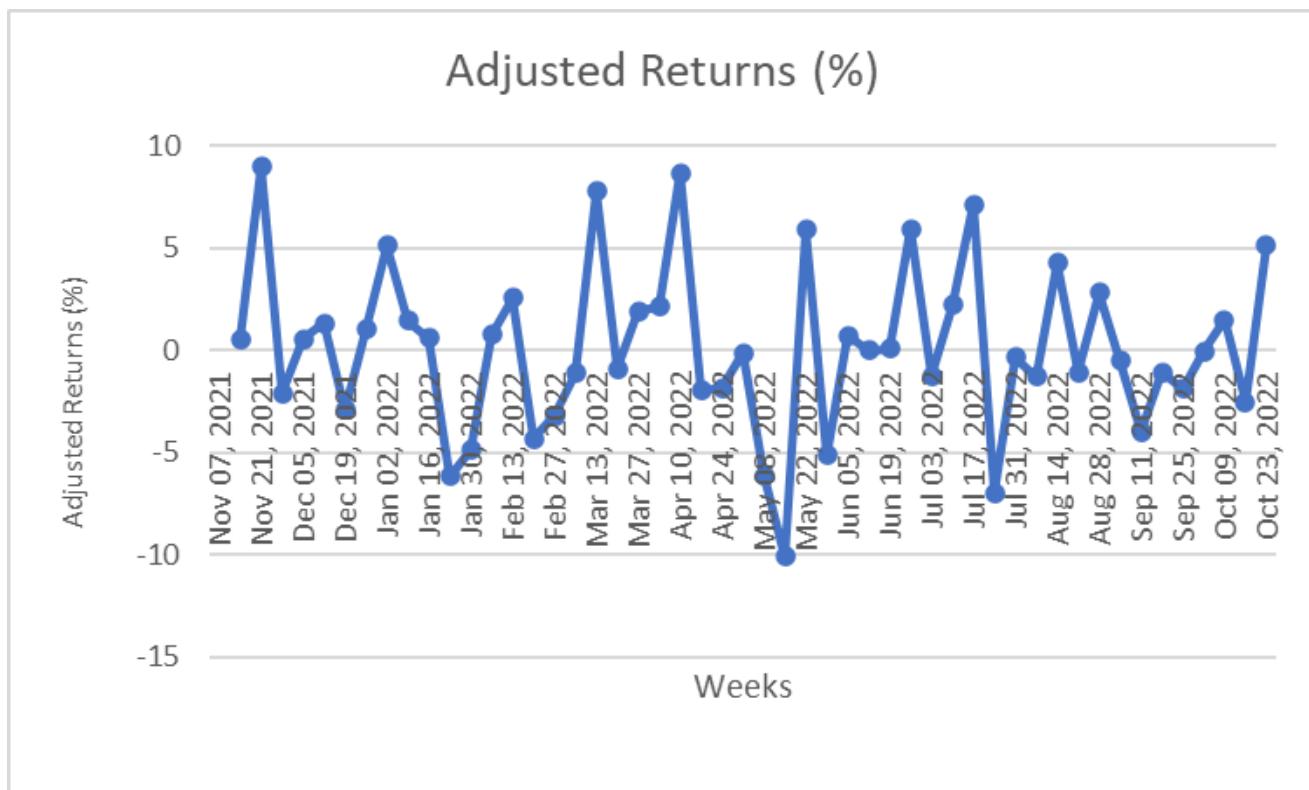
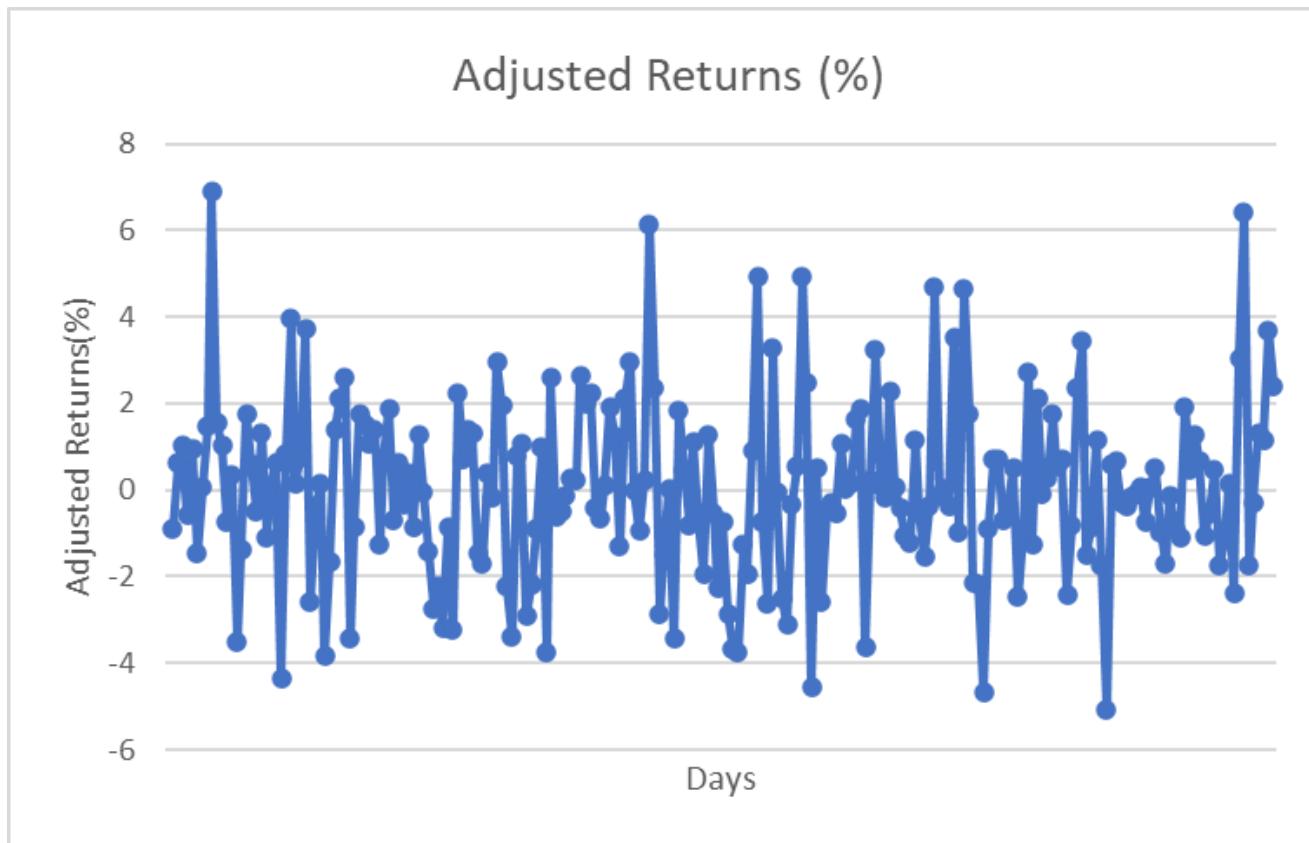
2.4.2 Risk-Adjusted Returns For Equity Futures Instrument

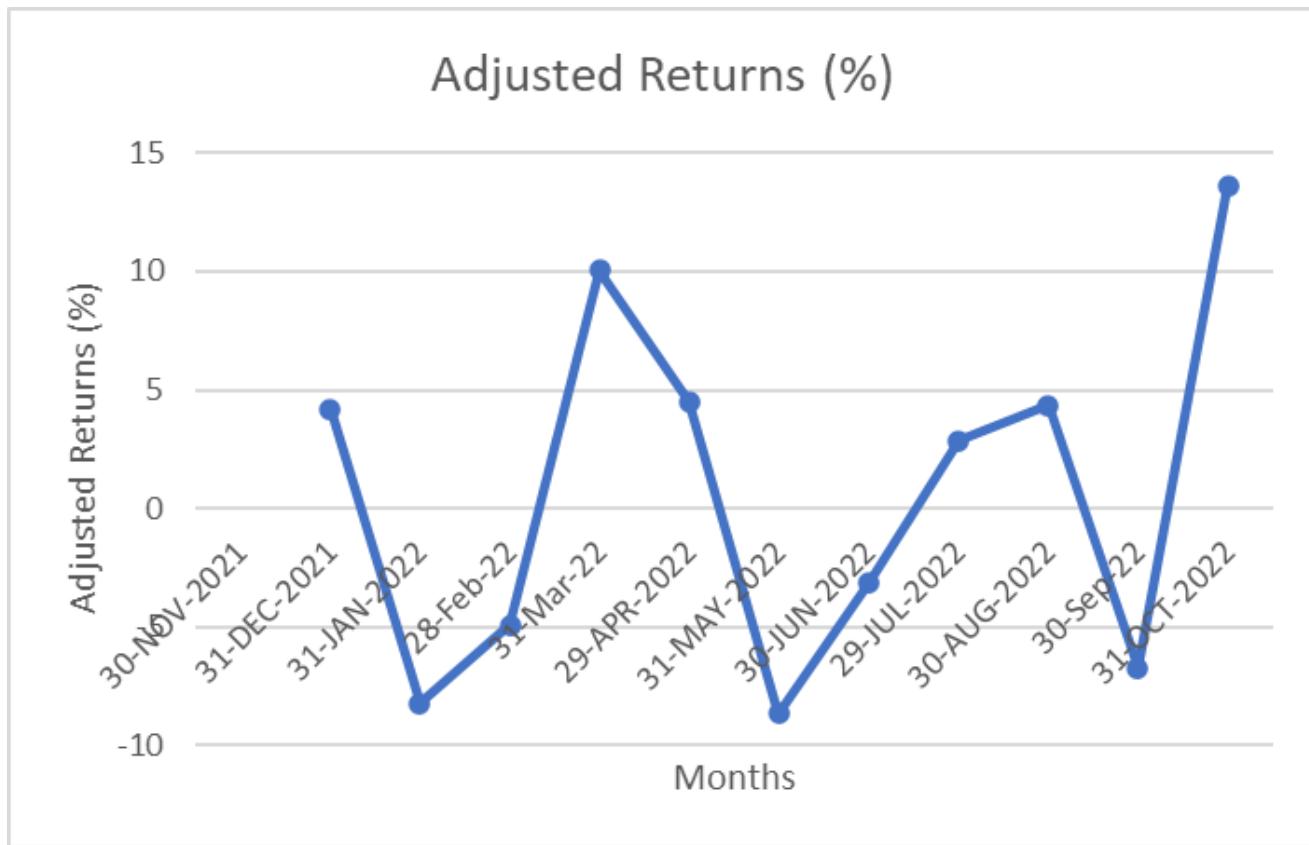
Near Month

Returns (Frequency)	Daily	Weekly	Monthly
Mean	0.0849	0.2556	0.7251
Maximum	0.0891	8.9654	13.6218
Minimum	-5.0243	-10.1079	-8.6646
Standard Deviation	2.0208	4.1037	7.5347

Table 6: Risk-Adjusted Returns for Near month futures equity instrument

The below graphs show the near-month risk-adjusted returns for the futures equity instruments.



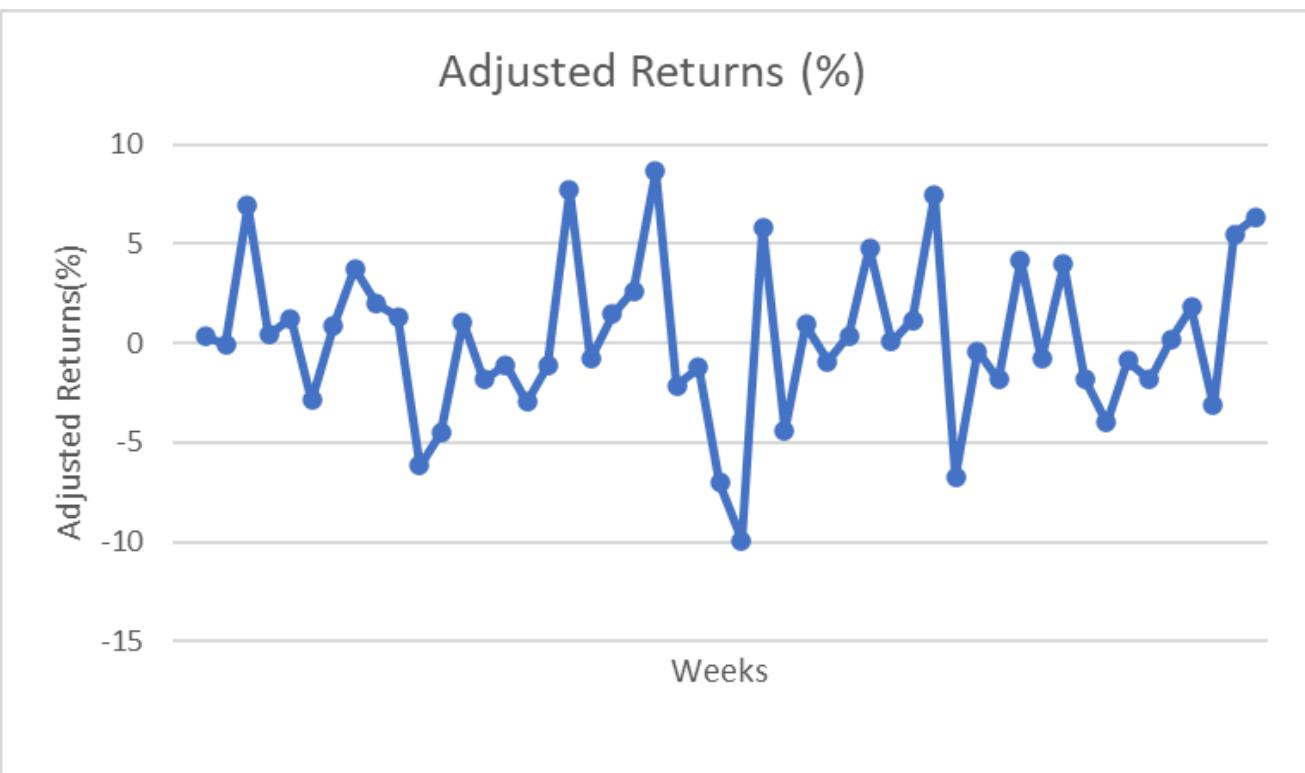
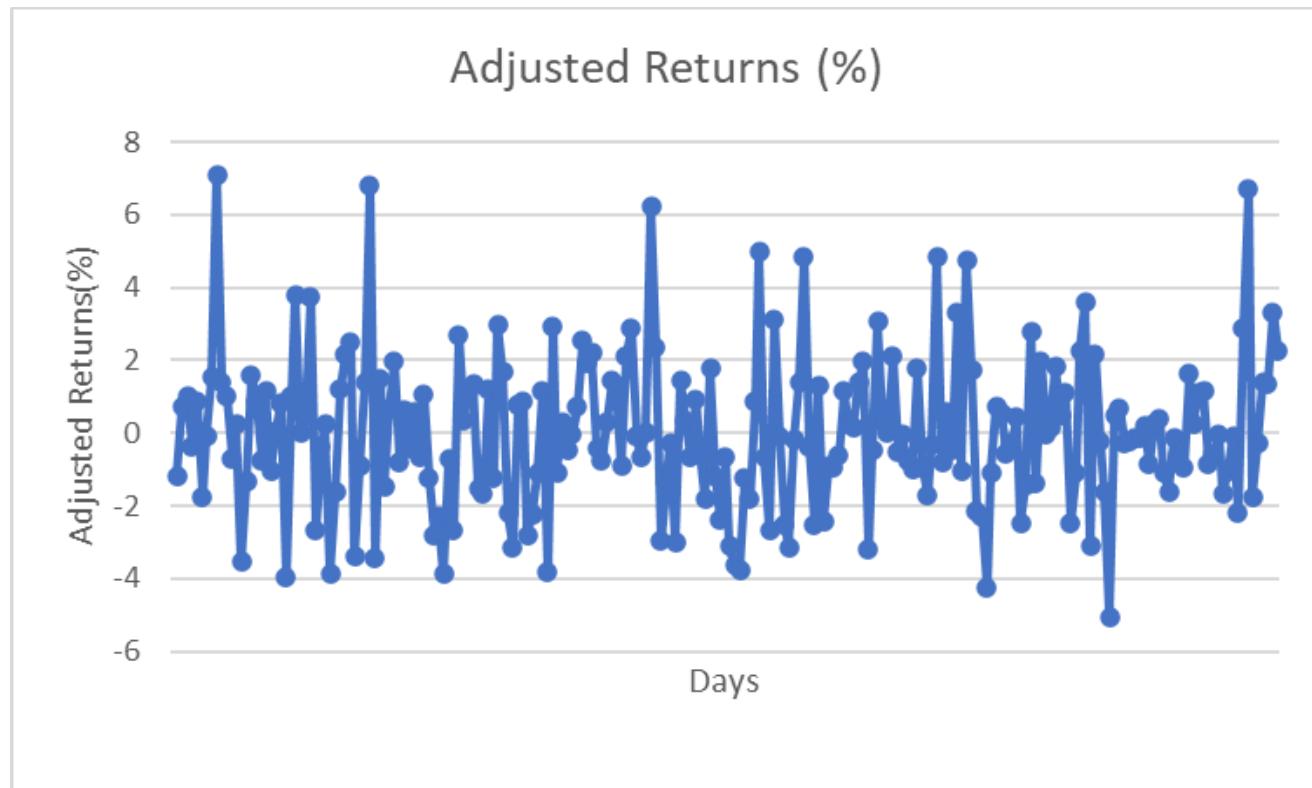


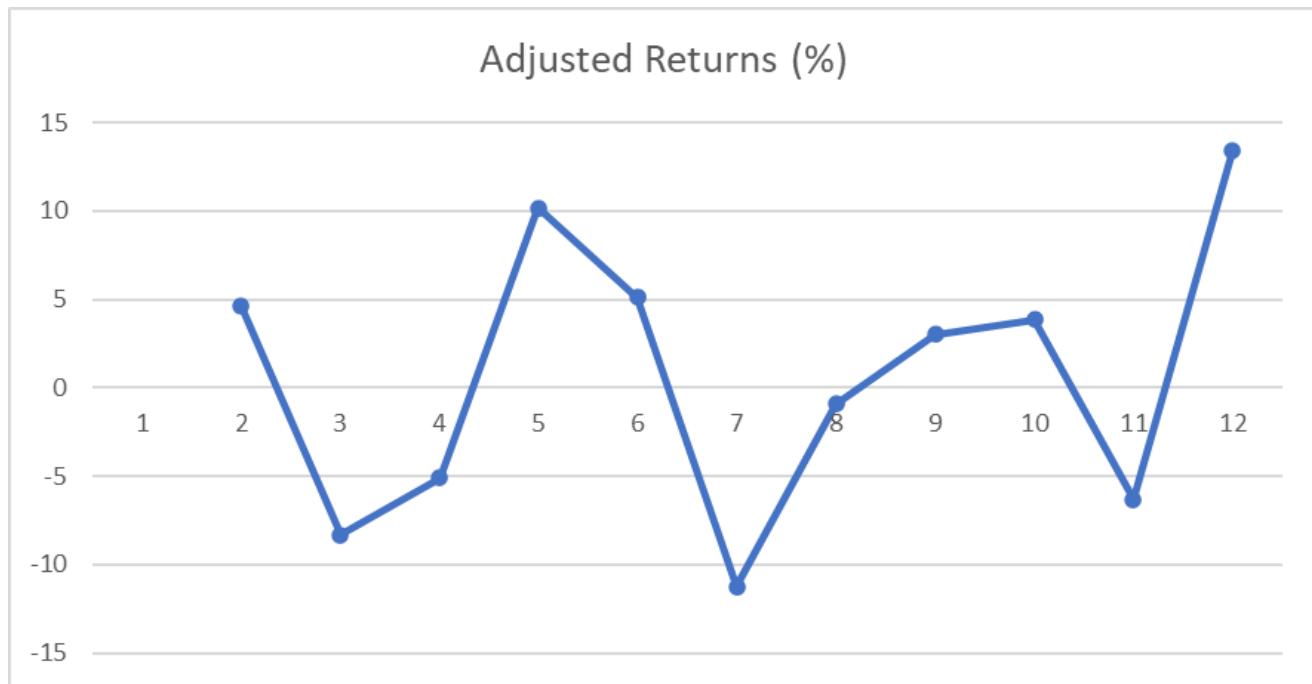
Next Month

Returns (Frequency)	Daily	Weekly	Monthly
Mean	0.2454	0.2515	0.7542
Maximum	7.0971	8.6272	13.4218
Minimum	-3.966	-9.9307	-11.2209
Standard Deviation	2.2095	3.9657	7.8069

Table 7: Risk-Adjusted Returns for Next month futures equity instrument

The below graphs show the next-month risk-adjusted returns for the futures equity instruments.



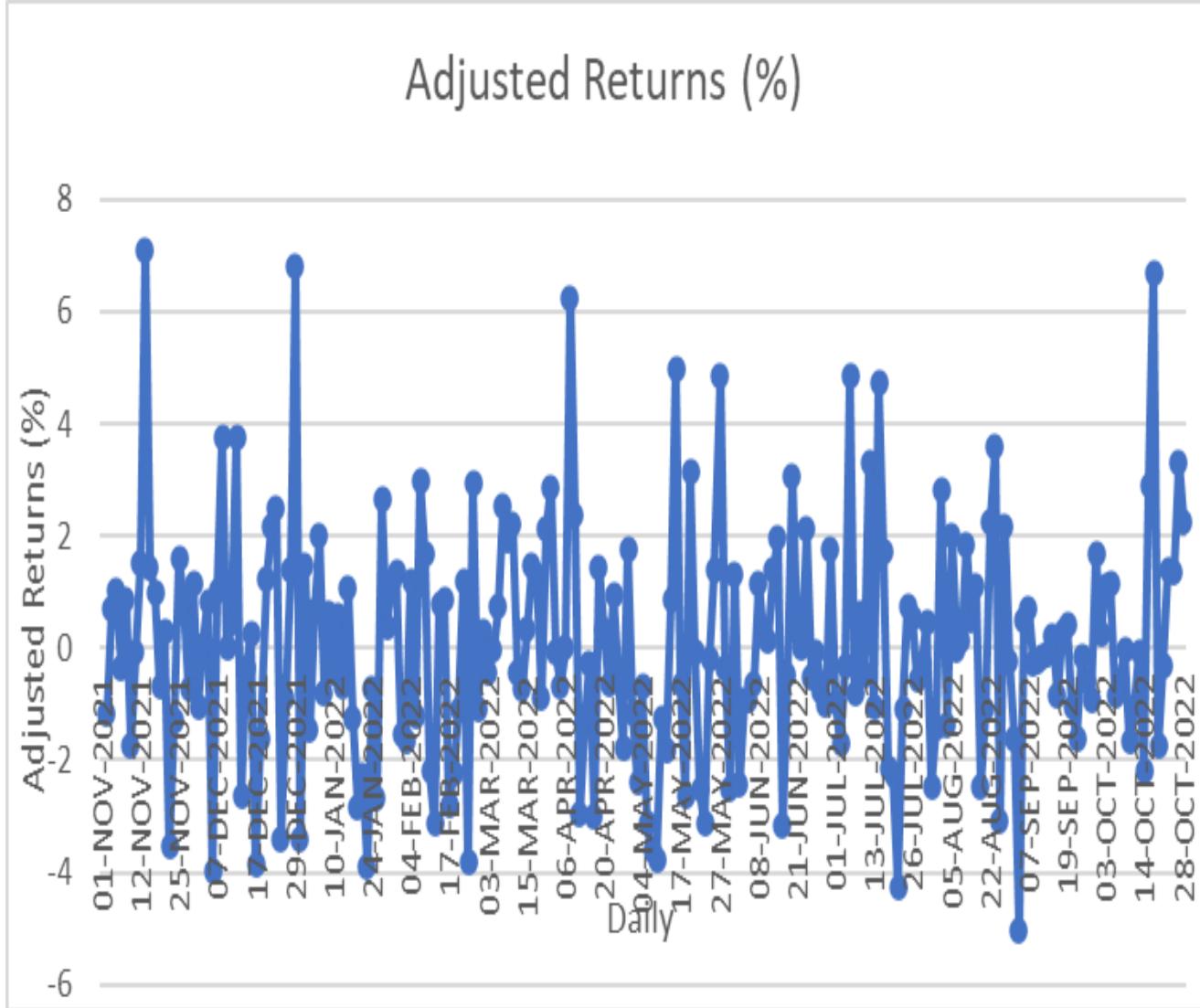


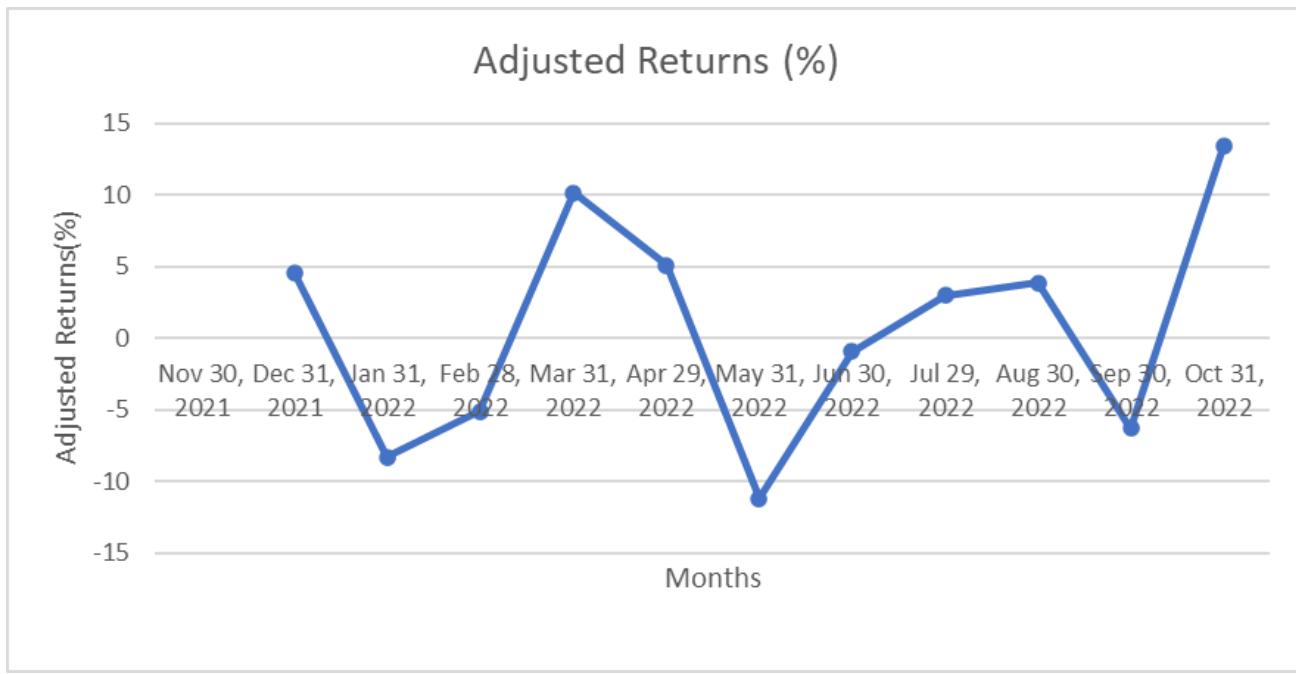
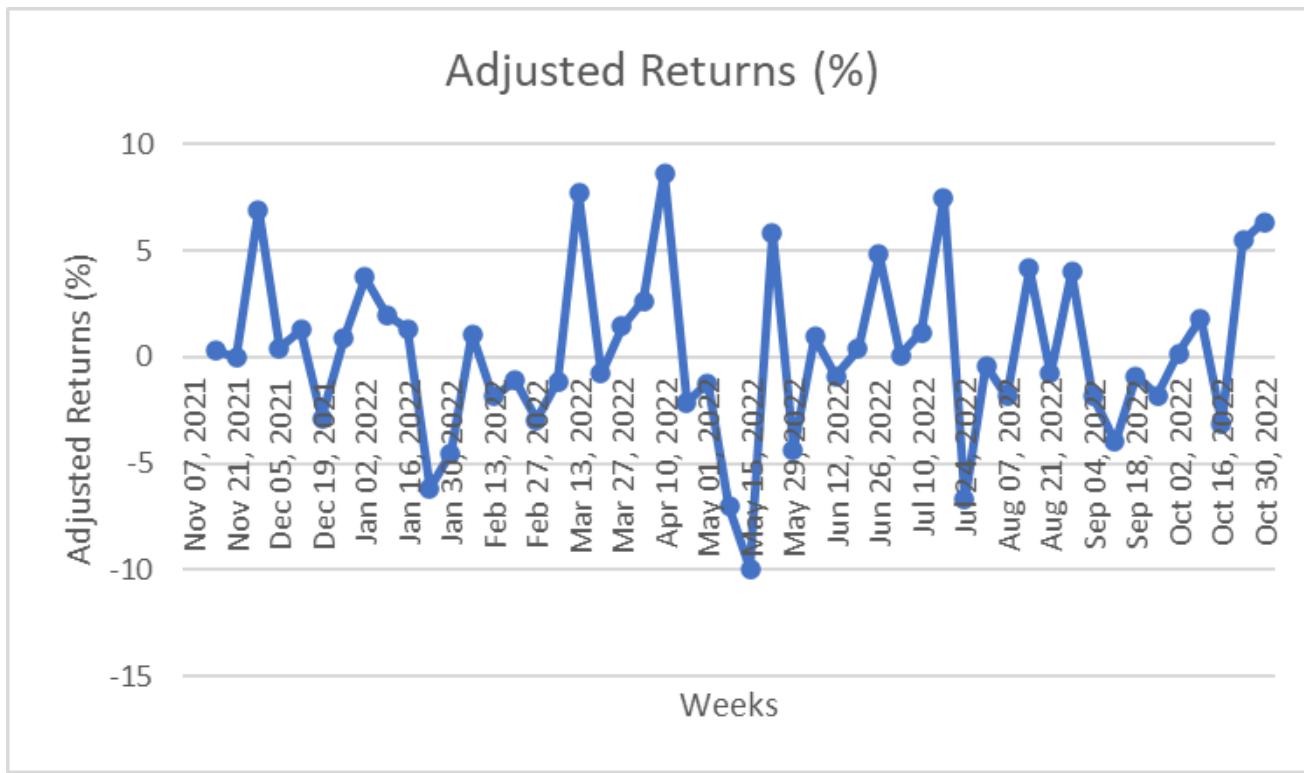
Far Month

Returns (Frequency)	Daily	Weekly	Monthly
Mean	0.2673	-0.0401	0.6820
Maximum	6.8678	8.9962	10.8489
Minimum	-4.2353	-9.9051	-16.2356
Standard Deviation	1.8967	3.6756	8.2502

Table 8: Risk-Adjusted Returns for Far month futures equity instrument

The below graphs show the far-month risk-adjusted returns for the futures equity instruments.





Observations

Comparing based on frequency, we observe the following :

- The mean risk-unadjusted returns follow the trend: Monthly > Weekly > Daily A similar trend is observed for mean risk-adjusted data as well.
- The standard deviation for both risk-unadjusted and risk-adjusted data follows the Daily < Weekly < Monthly trend. Thus, this indicates that the monthly frequency returns are more volatile than the daily and weekly frequency returns and hence, are the riskiest to invest in.
- The positive mean Sharpe ratio indicates that the return on the Futures instrument is expected to be positive, i.e. the firm may generate profits.

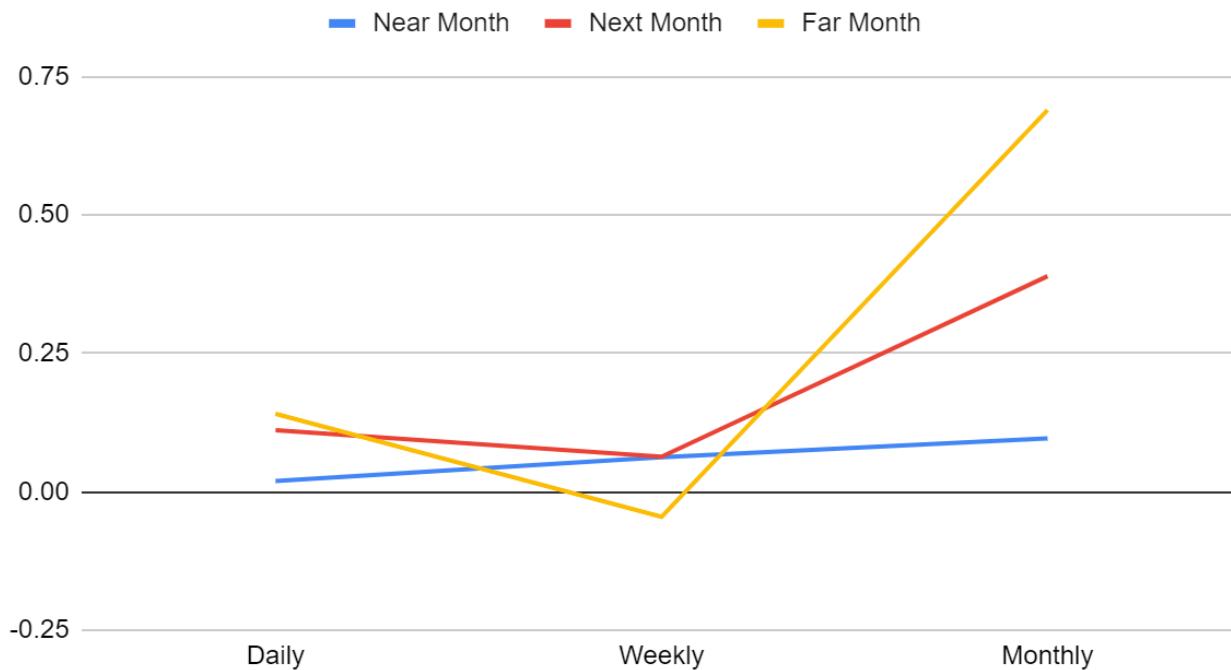
On comparing the expiry dates, the following are observed:

- The mean unadjusted returns trend as Near < Next < Far.
- The mean adjusted returns trend as Near < Next < Far.
- The standard deviation (risk) trends as: Next < Far < Near.

Sharpe Ratio:

Sharpe Ratios			
Frequency	Near Month	Next Month	Far Month
Daily	0.0193	0.111	0.1409
Weekly	0.0623	0.0634	-0.0454
Monthly	0.0962	0.3894	0.6897

Sharpe Ratios Trends



Actions

Based on the data and analysis, we can conclude that:

After considering their volatility, we can see that the Sharpe ratio of Next Month and Near Month futures are similar and a lower than far month futures. In the Next and Far Month, Monthly frequency is giving the highest returns, so it is advisable to invest in monthly frequency.

Comparison between Equity Futures Instrument and Underlying Asset (SYNGENE)

Unadjusted Returns:

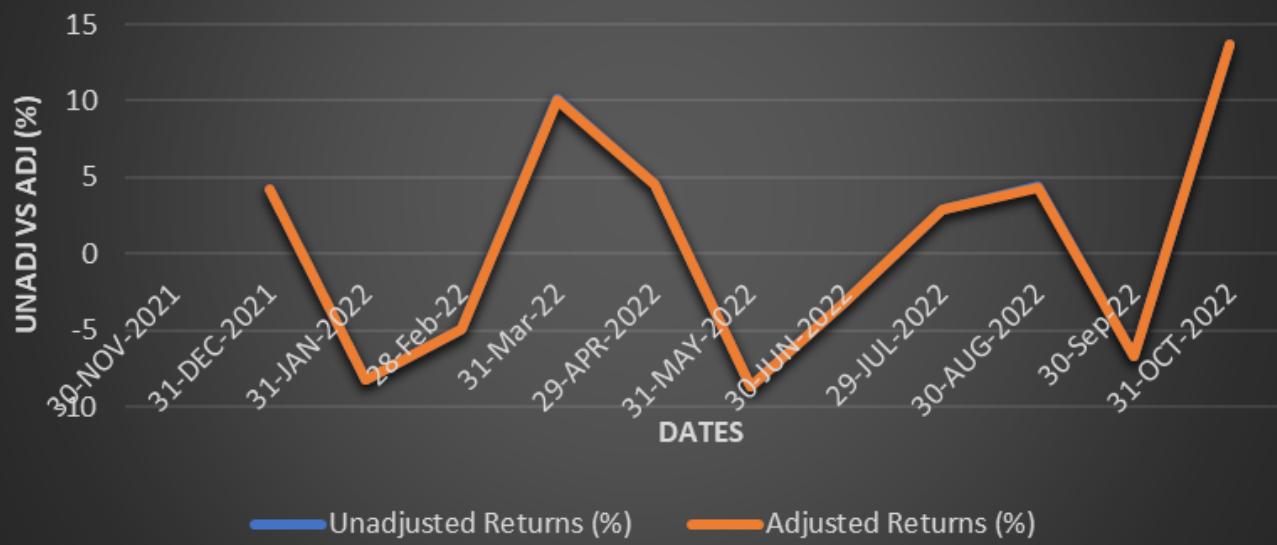
Frequency	Equity	Equity Futures		
		Near	Next	Far
Daily	0.0683	0.0849	0.2874	0.3031
Weekly	0.337	0.3025	0.2979	0.0067
Monthly	0.7719	0.7731	0.8022	0.73

Risk Adjusted Returns:

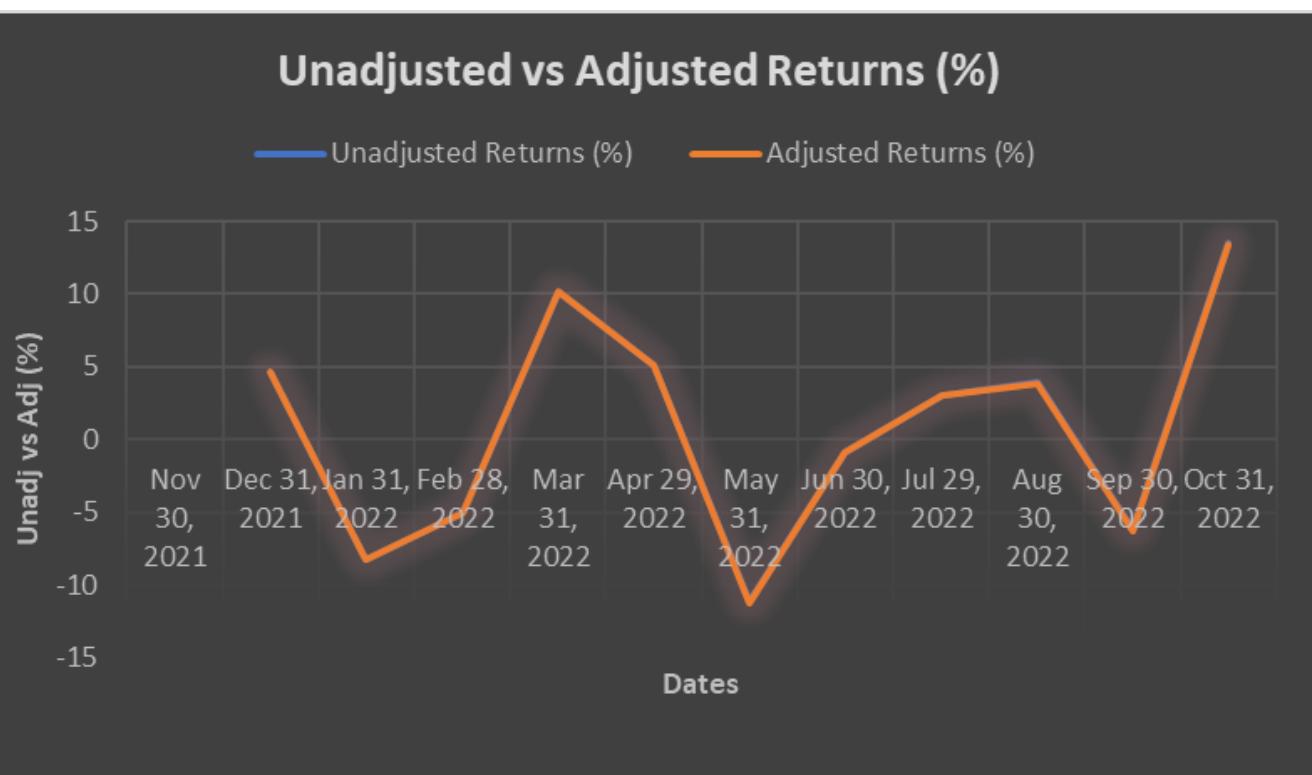
Frequency	Equity	Equity Futures		
		Near	Next	Far
Daily	0.0225	0.0193	0.2454	0.2673
Weekly	0.2904	0.2556	0.2515	-0.0401
Monthly	0.724	0.7251	0.7542	0.6821

NEAR MONTH

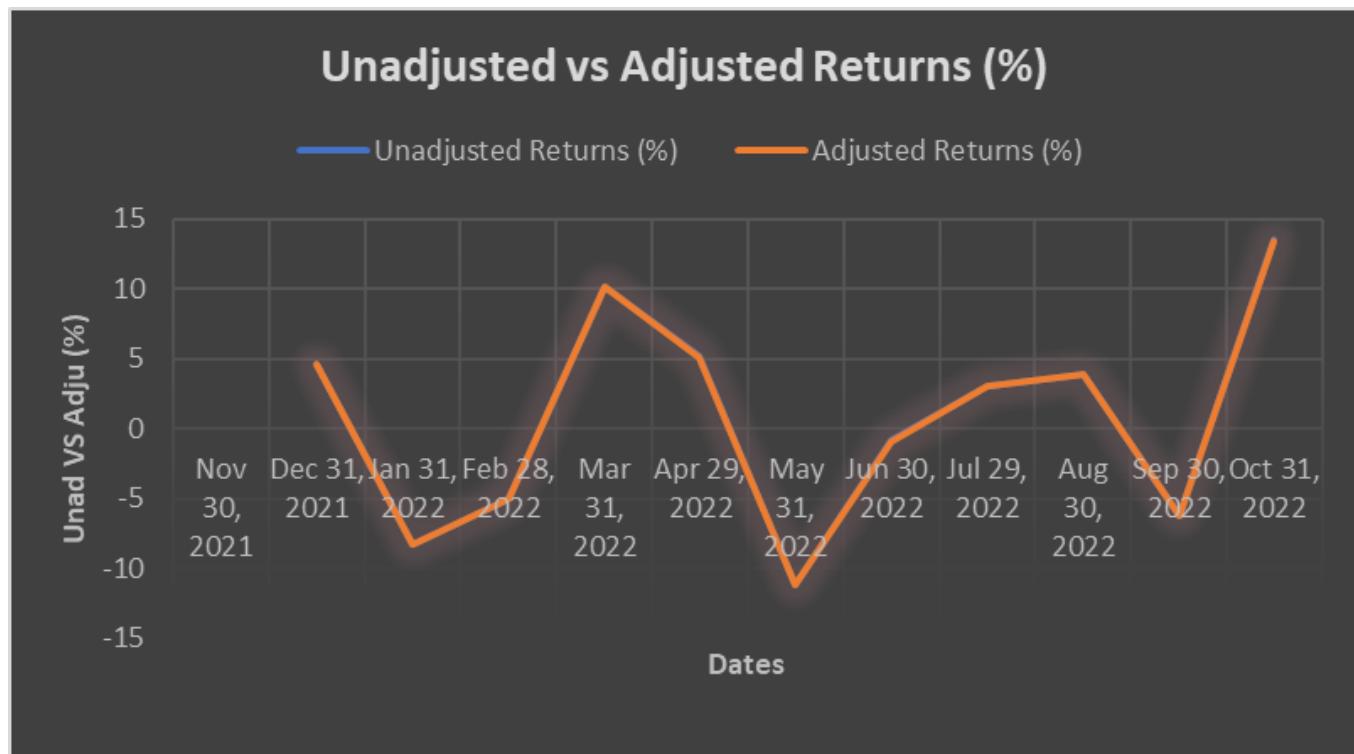
Unadjusted Returns v/s Adjusted Returns



NEXT MONTH



FAR MONTH



- Unadjusted daily returns are in the order Far>Next>Near.
- Unadjusted weekly returns on average are better for the near month futures contract than the return on the underlying asset; meanwhile, the return on next month futures contracts is similar to near month's value far month value being very low ..
- Unadjusted monthly returns on average are almost identical for the futures contracts ; however, the returns on the next month futures contracts are marginally higher than the other two.The far month monthly returns are being lowest among all.
- Adjusted daily returns on the far month's contract are better than adjusted returns on shares and the near and the next months' futures contracts
- The volatility of far month futures daily returns is lower than the volatility of adjusted equity returns. Hence investing in far months' futures contracts is the best option for risk-taking and risk-avoiding investors
- Adjusted monthly returns on the far month futures

-
- contract are lesser than adjusted returns on the share; meanwhile, next month futures contract yields slightly less return than the far month futures contract with near month returns being the lowest.
 - . The volatility of monthly returns is least in monthly returns of adjusted near and next month futures contracts. Hence, risk-averse investors can invest in the next- month futures contract, earning pretty good returns with low risk.

3.1 Liquidity Position

To find the liquid trade options, we analyze the liquidity positions of the underlying asset and futures.

The underlying asset is exceptionally liquid for the Near Month and Next month.

The average daily open interest and quantity of futures contracts are compared in the table below:

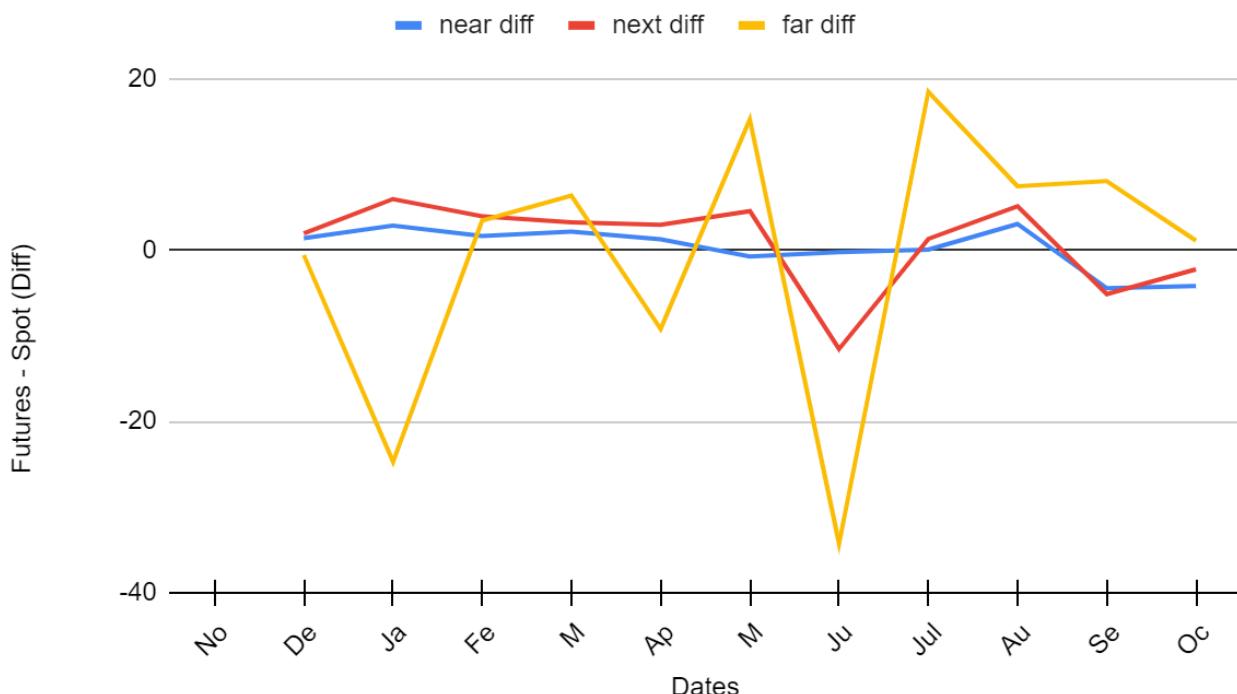
Type	Avg Open Interest	No. of Contracts
Near Month	1061312.5	205617
Next Month	333125	59777
Far Month	3304.16	586

As we move from near to far month, we can observe that liquidity drops, with the Near Month being the most liquid futures contract

Contango and Backwardation

Date	equity	near	near diff	next	next diff	far	far diff
Nov 30, 2021	596.15	597.55	1.4	598.1	1.95	595.55	-0.6
Dec 31, 2021	619.9	622.75	2.85	625.85	5.95	595.2	-24.7
Jan 31, 2022	570.1	571.75	1.65	574.05	3.95	573.55	3.45
Feb 28, 2022	541.75	543.9	2.15	545	3.25	548.1	6.35
Mar 31, 2022	597.6	598.85	1.25	600.55	2.95	588.4	-9.2

Contango & Backwardation



The Next Month futures and Near month futures are in contango for most of the time and far futures prices are in **backwardatio , for most of the times.**

Frequency Analysis

Theoretically, the frequency of trades has no bearing on stock returns. • In general, most people and investors don't give much importance to the frequency even the economists but recent research has shown on how the frequency helps in choosing or investing. 56 • The Frequency becomes a significant issue to consider while investing. It enables us to calculate the Sharpe ratio, one of the most important indices of asset efficiency. • If an investor picks assets with different frequency periods, the value of the Sharpe ratio calculated varies, resulting in varying returns. • As a result, a stock with positive mean returns, investing on a monthly basis is better because monthly returns are higher than daily and weekly returns. To invest in stocks with negative average returns, risk-free assets should be utilized

Conclusion

From the analysis done on SYNGENE for its underlying equity stock vs the equity futures instrument, we were able to establish that the next month futures contracts on a monthly frequency has the highest risk adjusted and unadjusted returns among all other contracts and frequency combinations.

The mean returns for all the frequencies came out to be positive for underlying assets and equity futures instruments, which is favorable condition for an investor. According to analysts' report, SYNGENE can grow further and has potential to give higher returns in the following years.

The trustworthiness of the security is very high which can be inferred as 20% of the shares is held by public.

Investors can invest in the security on all three contracts of the futures instrument or even the equity shares to get a high positive return on their investment. The amount of their investment shall be allocated according to their risk-taking capacity.

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