

A FINANCIAL ANALYSIS REPORT ON PVR LIMITED

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BY

Aakash Sunkara

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Under the supervision of

Dr. Thota Nagaraju and Dr. Shreya Biswas

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**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI
HYDERABAD CAMPUS**

Contents

Section 1	4
1. Underlying equity asset introduction	4
i) Nature of the business.....	4
ii) Nature of Ownership	4
iii) History of the company	4
iv) Which industry it belongs? Importance in the industry	4
v) Overall greatness of the company	5
2. Risk unadjusted data	5
3. Risk adjusted data	5
4. Economic interpretation.....	7
Section 2	8
5. Equity Futures introduction	8
vi) When it is started	8
vii) Lot size and contract specifications	8
viii) Overall greatness of equity futures investment	9
6. Risk unadjusted data	10
ix) Current month	10
x) Next month.....	10
xi) Far month	11
7. Risk adjusted data	11
xii) Current month	11
xiii) Next month.....	12

xiv) Far month	12
8. Economic interpretation.....	13
Section 3	14
9. Comparison of risk unadjusted and risk adjusted	14
Section 4	16
10. Contango or backwardation	16
11. Frequency	17
Section 5: Options.....	17
Section 6	18
12. Conclusion.....	18
Section 7	19
13. References	19

Section 1

1. Underlying equity asset introduction

i) Nature of the business

PVR Cinemas is a one of the largest firms operating in entertainment sector in India. PVR stands for Priya Village Roadshow. This company currently has the largest multiplex chains in India.

ii) Nature of Ownership

PVR is a privately owned firm. As of April 20 2020, foreign institutions hold 38.35% of the shares followed by banks mutual funds with a stake of 20%. Promoters hold 18.54% whereas financial institutions have 14.68% of stocks. General public holds only 4.51% and government doesn't have any shares.

iii) History of the company

Origin of this company can be traced back to the year 1978 where it was born as Priya cinema by Ajay Bijili. Later, it was expanded by the collaboration of Village Roadshow Limited and Priya Exhibitors Private Limited in 1995 with a 40:60 ratio. The company commenced its operations in June 1997.

iv) Which industry it belongs? Importance in the industry

Considering the market share of firm in the entertainment industry, PVR can be easily called as the game changer. In 2012, Cine Hospitality Private Limited, a subsidiary of PVR purchased CineMAX, which made PVR the largest cinema chain in India. In 2016, PVR acquired DT cinemas and cinemas business of DLF. In 2018, it has acquired SPI cinemas. Since then it has been acquiring many firms in the industry and continuing to grow both in terms of market capital and profit.

v) Overall greatness of the company

PVR has reached a milestone of 100 screens early in 2008 and now it currently owns over 800 screens. PVR is the first firm to launch an IMAX screen in India. PVR also launched North India's largest called PVR superplex in 2015. It has 15 screens under a single roof. In 2019, it has launched PVR LUXE which it believes would be the game changer in luxury cinema.

2. Risk unadjusted data

<i>Metric/Frequency</i>	<i>Daily</i>	<i>Weekly</i>	<i>Monthly</i>
<i>Mean (%)</i>	0.1404	0.6726	2.6782
<i>Max (%)</i>	7.6356	13.6071	24.1406
<i>Min (%)</i>	-13.0976	-11.4466	-19.3725
<i>Standard deviation</i>	2.1149	4.5867	12.4198

3. Risk adjusted data

<i>Metric/Frequency</i>	<i>Daily</i>	<i>Weekly</i>	<i>Monthly</i>
<i>Mean (%)</i>	0.1223	0.5458	2.1287
<i>Max (%)</i>	7.6167	13.4735	23.5647
<i>Min (%)</i>	-13.1155	-11.5735	-19.9297
<i>Standard deviation</i>	2.1149	4.5868	12.4137

Sharpe ratio

0.05782

0.11898

0.17148

Table 1 Numbers marked in red indicate the optimal values of the quantities

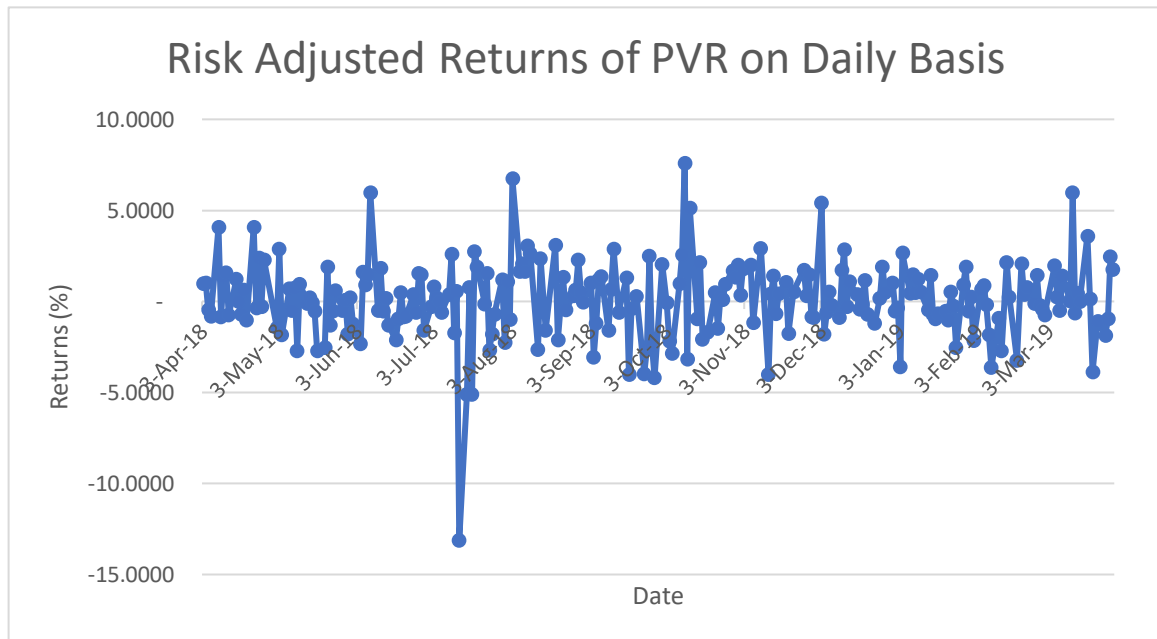


Figure 1 This figure indicates risk adjusted returns of PVR on Daily basis

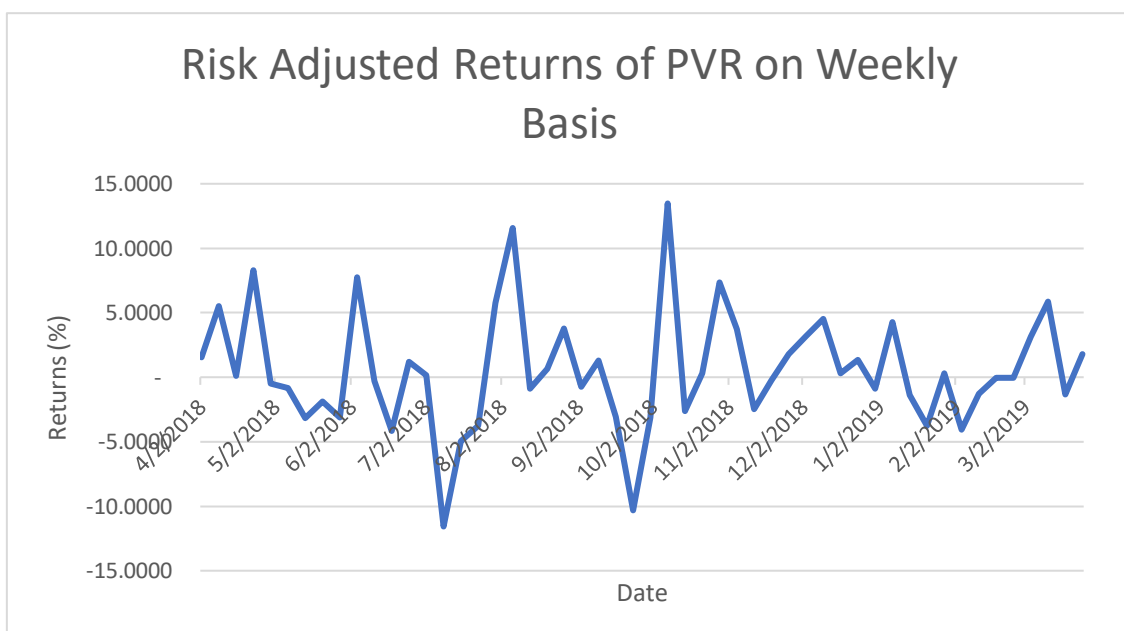


Figure 2 This figure indicates risk adjusted returns of PVR on Weekly basis

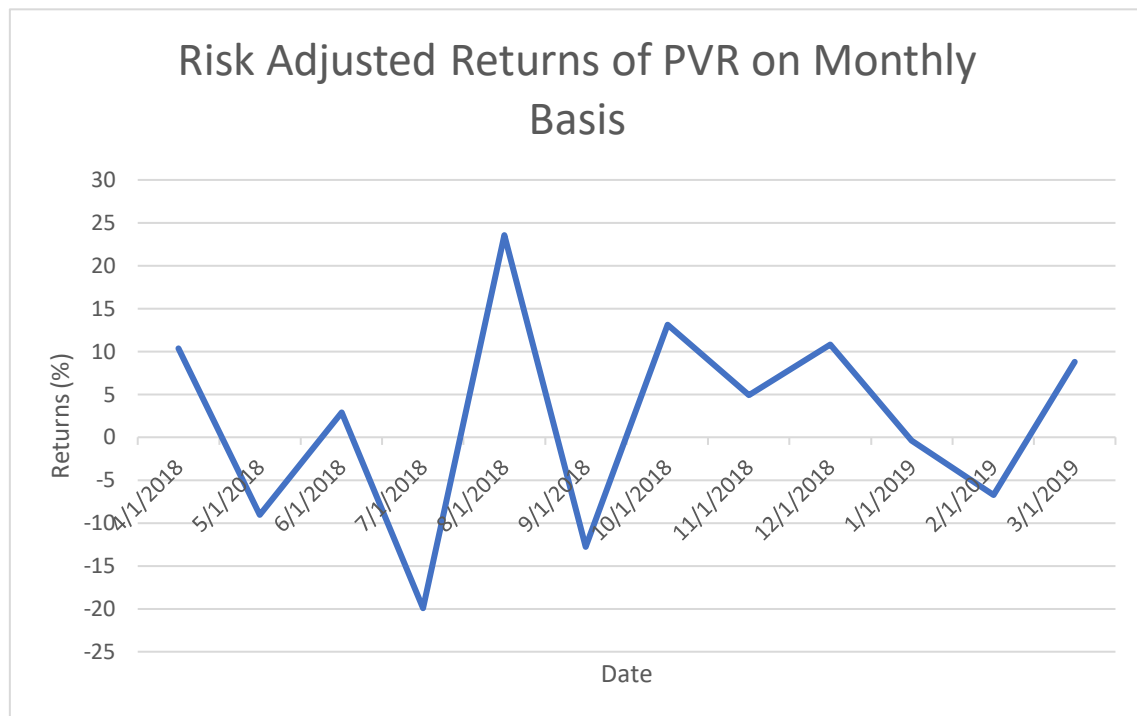


Figure 3 This figure indicates risk adjusted returns of PVR on Monthly basis

4. Economic interpretation

From the above given tables, the better measure to choose whether to invest or not is risk adjusted returns. This is because it gives us the net return we would earn when compared to risk-free government bonds (T-bills). As it is evident from the above tables that all the daily, weekly and monthly risk adjusted mean returns are positive, it can be concluded that the equity instrument definitely performed better than a risk-free sovereign bond. Hence, a hedger or risk averse investor can consider investing in the equity of PVR. Sharpe ratio is defined as the difference between return earned by equity and risk-free sovereign bond divided by the excess return of the stock. As the Sharpe ratio for monthly is highest, the return obtained on unit excess risk is highest for monthly equity. Hence this would be best strategy among equity for hedgers. For speculators who look for highest returns regardless of the risk, considering the option which gives highest return would be beneficial, which is also monthly equity option in this case.

Section 2

5. Equity Futures introduction

vi) When it is started

Futures in India are dependent on National Stock Exchange of India Limited (NSE). NSE started trading on derivatives from the year 2000. PVR Limited was listed in the stock market in the year 1995. Futures on individual securities were started on November 9, 2001.

vii) Lot size and contract specifications

<i>Symbol</i>	PVR
<i>Instrument</i>	FUTSTK
<i>Lot Size</i>	400 shares
<i>Trading cycle</i>	3 months – Current, Next & Far
<i>Trading hours</i>	As in equity derivative segment
<i>Expiry date</i>	Last Thursday of expiry month
<i>Daily settlement price</i>	Last half hour's weighted average price
<i>Final settlement price</i>	Closing price of underlying equity on the last trading day of the contract

viii) Overall greatness of equity futures investment

Current details of futures instrument (Expiry on April 30, 2020)

Open Price	1,151.35
High Price	1,151.90
Low Price	1,082.00
Prev. Close	1,168.55
Spot Price	1,136.00
Open Int PCR	1.10
Prev OI PCR	1.19
Bid Price	1,086.45
Bid Qty	400
Rollover %	15.11%
Average Price	1,110.86
No. of Contracts Traded	2,165
Turnover (Rs. in lakhs)	9,620.05
Market Lot	400
Open Interest	1,281,200
Open Int. Chg	28,000
Open Int. Chg %	2.23
Offer Price	1,087.80
Offer Qty	400
Rollover Cost	-88.00

(Source: www.moneycontrol.com)

It can be seen that the current PCR is above 1, meaning the customer sentiment is bearish. This is caused due to the national wide lockdown due to the novel Corona virus pandemic. This lockdown caused all the PVR and other multiplexes to be closed. Hence business was halted and customers developed a bearish sentiment. But compared to the previous month PCR ratio, this month's value has decreased, indicating that although most people are having bearish sentiment, the number of people having pessimistic opinion are decreasing. This indicates the growth potential of cash inflows or investments from investors and hence company.

6. Risk unadjusted data

ix) Current month

<i>Metric/Frequency</i>	<i>Daily</i>	<i>Weekly</i>	<i>Monthly</i>
<i>Mean (%)</i>	0.1356	0.6412	1.8595
<i>Max (%)</i>	7.5050	13.6774	22.9645
<i>Min (%)</i>	-12.9657	-11.7818	-18.6343
<i>Standard deviation</i>	2.0833	4.6822	11.9846

x) Next month

<i>Metric/Frequency</i>	<i>Daily</i>	<i>Weekly</i>	<i>Monthly</i>
<i>Mean (%)</i>	0.1355	0.6372	1.8526
<i>Max (%)</i>	7.1654	13.5593	22.9322
<i>Min (%)</i>	-13.3884	-11.9425	-18.8560
<i>Standard deviation</i>	2.0971	4.6911	12.0345

xi) Far month

<i>Metric/Frequency</i>	<i>Daily</i>	<i>Weekly</i>	<i>Monthly</i>
<i>Mean (%)</i>	0.1368	0.6433	1.8957
<i>Max (%)</i>	7.3552	13.1337	23.1166
<i>Min (%)</i>	-13.2614	-11.8183	-18.8603
<i>Standard deviation</i>	2.0920	4.6421	12.1055

7. Risk adjusted data**xii) Current month**

<i>Metric/Frequency</i>	<i>Daily</i>	<i>Weekly</i>	<i>Monthly</i>
<i>Mean (%)</i>	0.1175	0.5142	1.3057
<i>Max (%)</i>	7.4860	13.5449	22.3886
<i>Min (%)</i>	-12.9836	-11.9075	-19.1915
<i>Standard deviation</i>	2.0833	4.6822	11.9770
<i>Sharpe ratio</i>	0.0564	0.1098	0.1090

xiii) Next month

<i>Metric/Frequency</i>	<i>Daily</i>	<i>Weekly</i>	<i>Monthly</i>
<i>Mean (%)</i>	0.1174	0.5103	1.2988
<i>Max (%)</i>	7.1468	13.4268	22.3562
<i>Min (%)</i>	-13.4063	-12.0682	-19.4131
<i>Standard deviation</i>	2.0970	4.6911	12.0270
<i>Sharpe ratio</i>	0.0559	0.1087	0.1079

xiv) Far month

<i>Metric/Frequency</i>	<i>Daily</i>	<i>Weekly</i>	<i>Monthly</i>
<i>Mean (%)</i>	0.1187	0.5163	1.3419
<i>Max (%)</i>	7.3363	13.0012	22.5406
<i>Min (%)</i>	-13.2793	-11.9440	-19.4175
<i>Standard deviation</i>	2.0919	4.6421	12.0983
<i>Sharpe ratio</i>	0.0567	0.1112	0.1109

8. Economic interpretation

	Returns (%)		
	Daily	Weekly	Monthly
Current	0.1175	0.5142	1.3057
Next	0.1174	0.5103	1.2988
Far	0.1187	0.5163	1.3419

Figure 4 Risk adjusted returns of all months at all time periods. Highlighted is the optimal return

	Sharpe ratio		
	Daily	Weekly	Monthly
Current	0.0564	0.1098	0.1090
Next	0.0559	0.1087	0.1079
Far	0.0567	0.1112	0.1109

Figure 5 Sharpe ratios of all months of all time periods. Highlighted is the optimal Sharpe ratio

As it was already constructed, risk adjusted returns are better means to compare between instruments. In the case of equity backed futures, all the daily, weekly and monthly mean returns of current, near and far months are positive. This indicates that any future instrument of PVR has performed better than a risk-free government bond in any particular period. Hence, it can be safely stated that PVR futures is an adept option to invest. Looking at the returns obtained within the tables, it can be unambiguously said that the monthly returns are the highest. In the figures given above, numbers painted in red are most optimal for PVR futures. In terms of mean returns obtained, far month has performed the best. Therefore, a speculator should invest in monthly far month futures of PVR as this yields the highest returns amongst all. Coming to the scenario of hedger, a hedger invests in the instrument having highest Sharpe ratio. Observing all the Sharpe ratios, we

can deduce that the value is highest for weekly far month. Hence a hedger or risk averse investor must invest in weekly far month futures instrument of PVR.

Section 3

9. Comparison of risk unadjusted and risk adjusted

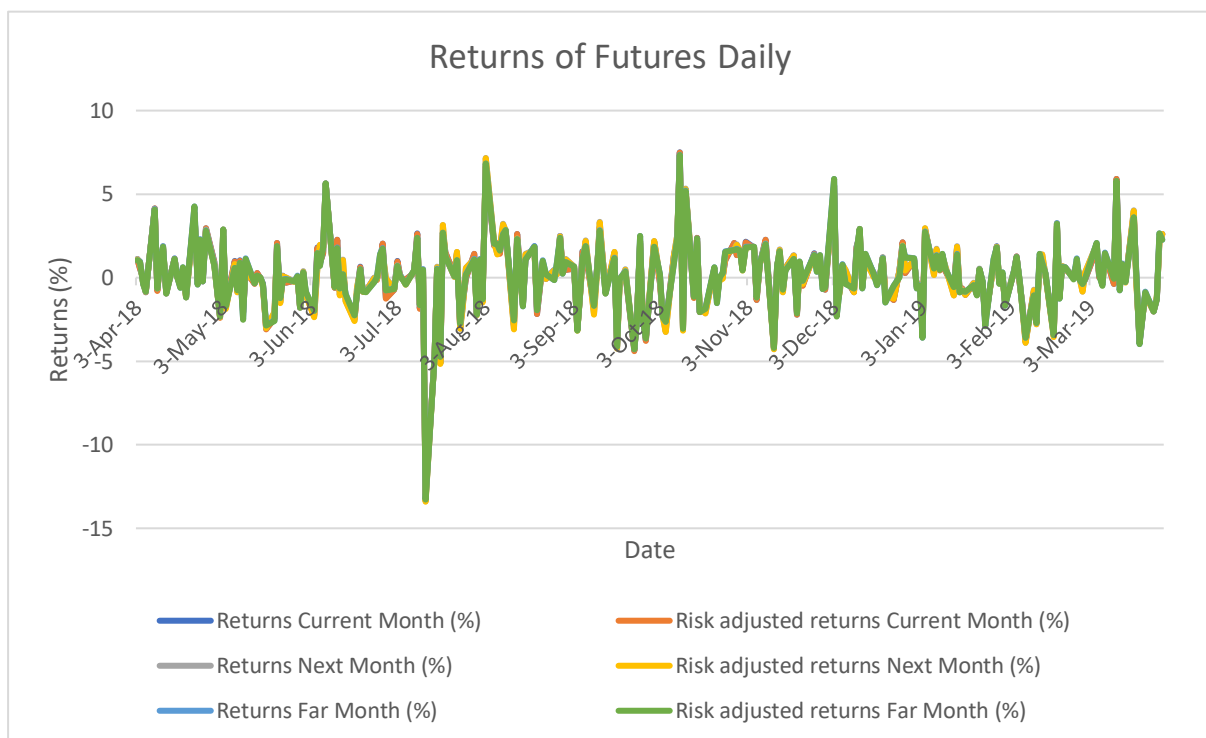


Figure 6 Daily returns on Futures in all the months (Current, Near, Far)

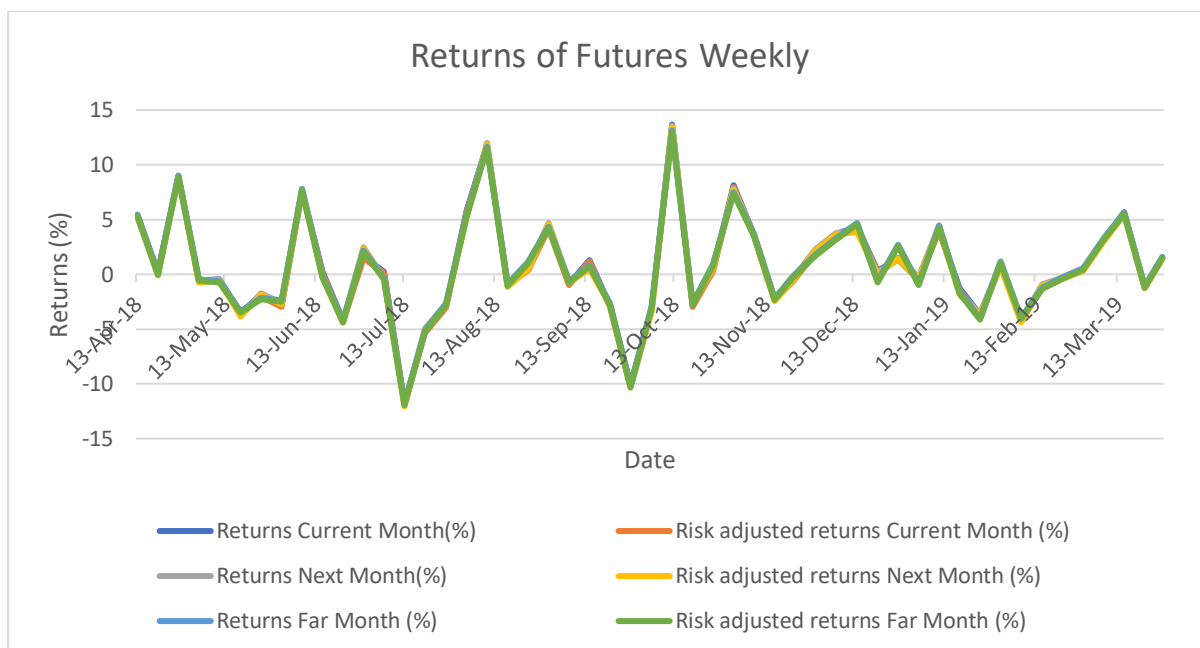


Figure 7 Weekly returns on Futures in all the months (Current, Near, Far)

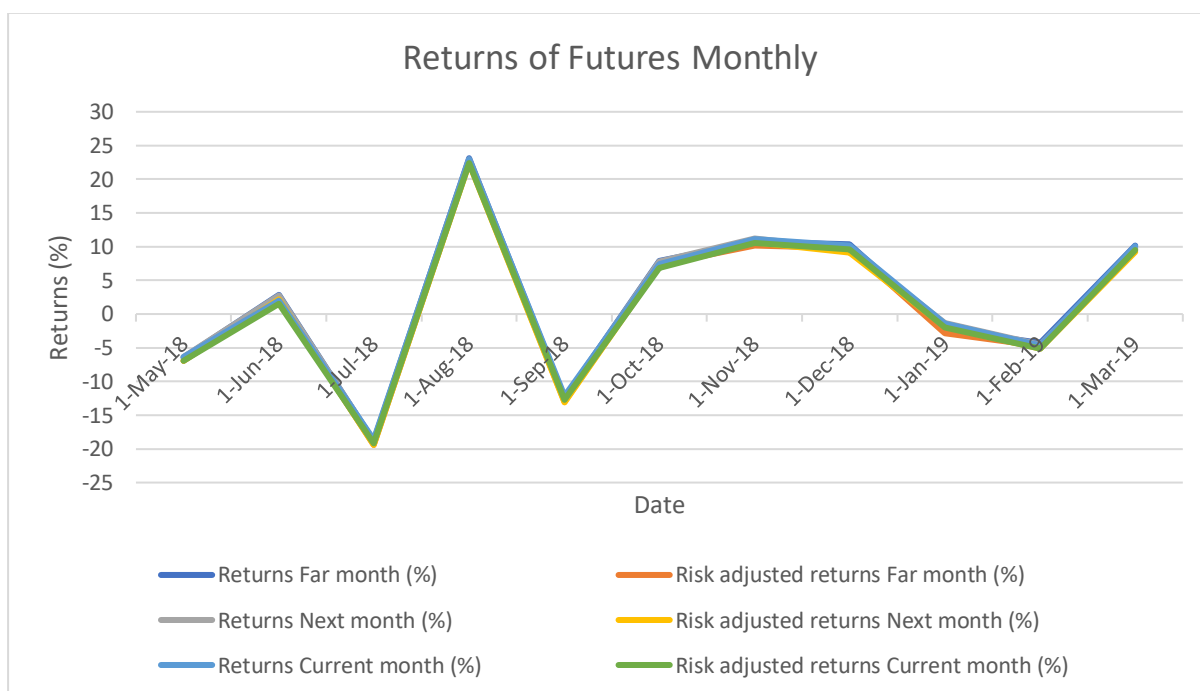


Figure 8 Monthly returns on Futures in all the months (Current, Near, Far)

As we have seen above, risk adjusted return is the return obtained in excess to that of risk-free government bond. Hence, comparatively the risk unadjusted returns will be higher. This can be seen from charts above. Regarding the liquidity of the futures, on an average, the open interest for current month remains the

highest and is in the order of $10^6 - 10^7$ shares. The range was decreased to $10^4 - 10^5$ for the next month during this one-year period. Far month has the least open interest which almost remains zero at all times and barely reaches 500 shares. Hence, the most liquid future is the current month's future followed by next month's future and the liquidity is practically zero for far month in futures segment of PVR.

Section 4

10. Contango or backwardation

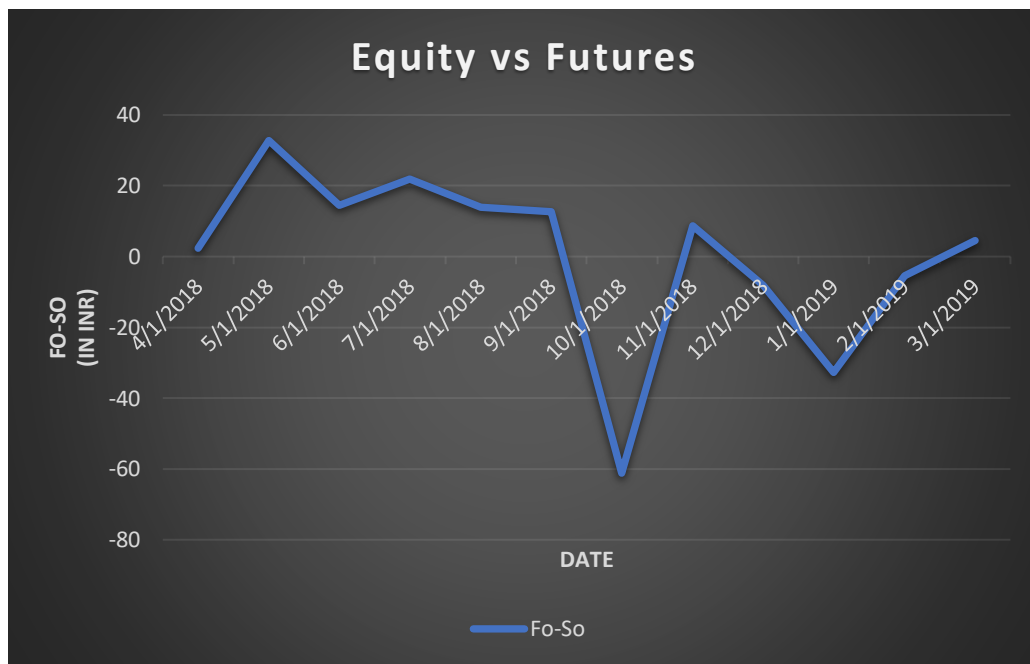


Figure 9 The above figure shows the net of equity price and futures price

As seen from the chart, the futures prices were higher from April 2018 to September 2018. Hence, the futures exhibited contango during that period. Later on, in October it was backwardation again. But after that the behaviour was backwardation till February 2019. In the last month of the analysis period i.e. March 2019 the contango behaviour surfaced.

11. Frequency

As per theory, assuming efficient market hypothesis, the prices of stocks and hence should not depend on frequency of trading. This can be attributed to Random Walk Behaviour of the stock prices. But in real life scenario, the market is not efficient and hence depends on the frequency as concluded in the above interpretations.

Section 5: Options

Duration	October 2018 – December 2018
Strike Price	1300 Rs
Standard Deviation	0.0204
Annualized volatility	0.3240
u	1.1759
d	0.8504



Figure 10 Plot showing calculated premium vs actual premium

The theoretical option premium is calculated using binomial tree method. It can be noted from the above figure that initially, the difference between the theoretical and actual price is high but as the time goes, they both converge and the difference almost goes to zero.

Section 6

12. Conclusion

In the overall discussion above, it can be concluded that any instrument of PVR yielded a return greater than a risk-free government bond. Among futures and equity, the highest return of equity was for monthly which was 2.1287% whereas for futures was 1.3419%. Clearly, equity yielded more than any other futures instrument. Hence, the optimal instrument for a speculator to invest is in monthly equity based on the historical analysis. Regarding the Sharpe ratio, the highest among equity instruments was 0.1715 whereas for futures is 0.1112. Hence, the best strategy for a risk-averse investor would be to invest in monthly equity.

Section 7

13. References

- [Wikipedia.com](https://www.wikipedia.com)
- PVR website
- [Moneycontrol.com](https://www.moneycontrol.com)
- NSE India (both old and new websites)
- [Economicstimes.com](https://www.economictimes.com)