

A STUDY ON NFTs -OVERVIEW, RISKS AND OPPORTUNITIES

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Abstract: *The study examines the risk and return characteristics of the top three NFT collections (as of January 2022), namely-Bored Ape Yatch Club, Cryptopunks and Mutant ape Yatch Club. The investigation is motivated by the recent surge in the NFT activity on the part of creators, investors, and traders. This study helps investors and creators in understanding the risks associated with NFTs and to spot opportunities depending upon their risk-taking ability. The tools and techniques used for analysis were moving average, standard deviation, regression, Var. Analysis was done by using the last trading price of everyday for all the chosen NFTs for a specified period of time. The study suggests that investors should have high risk-taking capacity given the opportunity of high returns, and creators should analyse the market well to gain maximum returns. But given it's volatility and lack of a proper price determining model, long term investment decisions become sceptical. To be on a safer side, analysing the bitcoin market situation can help in forecasting the NFT market upto an extend.*

Keywords: Risk, Return, Volatility, NFT

INTRODUCTION

People are familiarising with fintech and becoming aware of the digital assets and opportunities underlying. Recently more and more countries are legalising cryptocurrencies.

With the rise in the cryptocurrencies more and more attention has been drawn towards money-making through digital assets. NFT is one such digital asset. NFT stands for non-fungible token. They offer a powerful new means to represent digital property. In theory, anything which can be represented digitally can now be issued as an NFT to be bought and sold. Recent examples include digital art, [tweets](#), and even soundbites. This is creating new opportunities for not only investors but also artists, sports associations, and video-game developers .

It's generally built using the same kind of programming as cryptocurrency, like [Bitcoin](#) or [Ethereum](#), but that's where the similarity ends.

Physical money and cryptocurrencies are “fungible,” meaning they can be traded or exchanged for one another. They're also equal in value—one dollar is always worth another dollar; one Bitcoin is always equal to another Bitcoin.

NFTs are different. Each has a digital signature that makes it impossible for NFTs to be exchanged for or equal to one another (hence, non-fungible). One NBA Top Shot clip, for example, is not equal to a Bored-Ape simply because they're both NFTs.

With a high volatility and a not so specified pricing model NFT investments are by-and-large high-risk investments. The present study is a shot to assess the potential investment opportunities with the associated risks. The returns on selected NFTs has been examined for a period that witnessed a surge in it's trade.

LITERATURE REVIEW

Mapping the NFT revolution: market trends, trade networks, and visual features [Matthieu Nadini](#), [Laura Alessandretti](#) , [Flavio DiGiacinto](#), [Mauro Martino](#) , [Luca Maria Aiello](#) & [Andrea Baronchelli](#) have analyzed the main properties of the market, built and studied the traders and NFTs networks and found that most traders are specialised, showed that NFT collections tend to be visually homogeneous, and explored the predictability of NFT prices revealing that, while past history is as expected the best predictor, also NFT specific properties, such as the visual features of the associated digital object, help increase predictability.

Non-Fungible Tokens: Blockchains, Scarcity, and Value by Usman W. Chohan, has elaborated on how some NFTs have attained unimaginable selling prices for a non-fungible virtual asset. It expressed the value of NFTs as the willingness of people to pay for it. . It also showed how the scarcity of an object could fetch a good value as the buyers pay extraordinary premiums to hold on to them for their uniqueness. It further discusses the question on 1) actual rarity -as multiple NFTs can be made over an asset 2) actual ownership - as an NFT does not necessarily offer “ownership” in a meaningful sense, as the object can be distributed, reproduced, and viewed without exclusivity.

It concluded that there is a risk that NFTs might fade from wider public interest in the longer run as it is predominantly dependant on notions of the NFT holders, but currently the volume of interest in NFTs is certainly high and may even grow if a wider audience remains interested.

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Their study examines the risk and return characteristics of the NFT-based startups listed on the cryptocurrency exchange. Their findings include that NFTs earn large first-day returns of 130% on average is an order of magnitude higher than returns on IPOs - startup firms going public on a traditional stock exchange. The first-day NFT volume is also abnormally high, pointing to a large value of assets changing hands on the first day of listing. By way of comparison, the returns to NFTs are substantially higher than both long-term returns to IPO and returns from VC investments.

Non-Fungible Token (NFT): Overview, Evaluation, Opportunities and Challenges by Qin Wang, Shiping Chen, Qi Wang, May 2021 has elaborated on the meaning of NFTs and how each of it has a customized value based on its rarity, age, liquidity etc. It included the core components required to construct NFTs-Block Chain, Smart Contract, Address and Transaction and Data Encoding. Opportunities arising with the advent of NFTs are briefed. It provides prosperous markets for the creators, developers etc giving them the opportunity to earn royalty each time their product/creation is sold.

It concluded Non-Fungible Tokens (NFT) as an emerging technology prevailing in the blockchain market which may re-shape the market of digital/virtual assets stepping forward.

OBJECTIVES OF THE STUDY

- To help understand the risks while trading in an NFT market.
- To shed a light on opportunities that come along with the rise in NFTs.
- To analyze risks associated with investment in the NFT market.

RESEARCH METHODOLOGY

Design of the proposed project work considering its objectives, scope and coverage will be descriptive in nature. The study is predicated on the secondary data which is collected from nft price floor website i.e. the floor price of each NFT. The time frame is taken from 1st January 2022 – 14th January 2022 as the month of January 2022 witnessed a record-breaking sales of over 2.4 million NFTs. All the values are expressed in the units of Ethereum as it is the most widely used cryptocurrency for the trading of NFTs. The sample frame is of the top three NFT collections, as they could provide better avenues to ascertain returns.

The sample size is :

- 1) Bored Ape Yatch Club
- 2) Cryptopunks
- 3) Mutant Ape Yatch Club

This study help the investors in decision making in the premise of high risk and guide creators to take the best of the opportunities lying ahead.

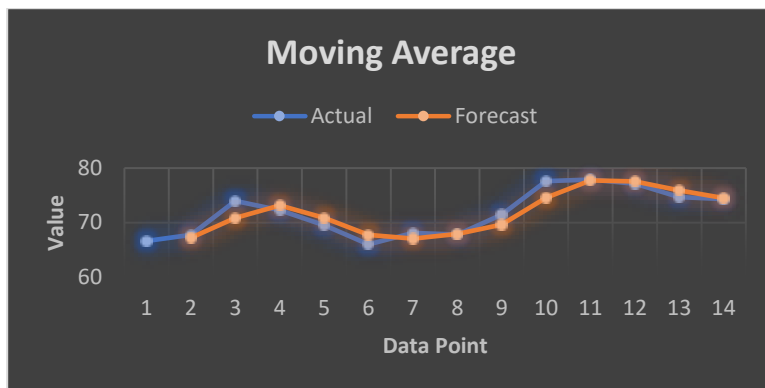
DATA ANALYSIS

Table 1: Comparative Moving Average

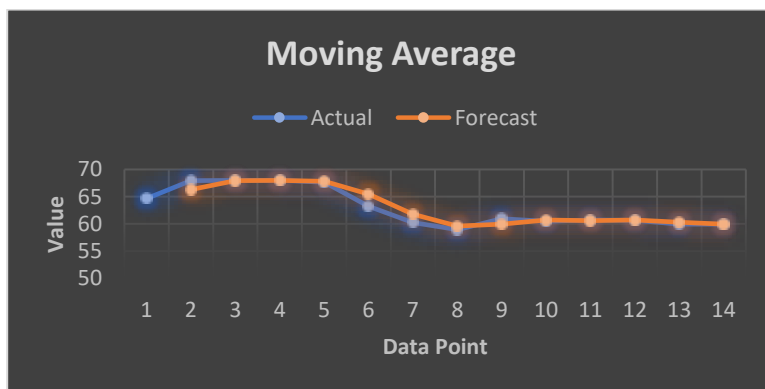
Date	Moving Average		
	<i>Bored Ape Yatch Club</i>	<i>Cryptopunks</i>	<i>Mutant Ape Yatch Club</i>
01-01-2022	67.19	66.295	12.524
02-01-2022	70.876	67.97	14.1355
03-01-2022	73.1305	67.9875	15.4935
04-01-2022	70.881	67.8175	

Date	Moving Average		
	<i>Bored Ape Yatch Club</i>	<i>Cryptopunks</i>	<i>Mutant Ape Yatch Club</i>
05-01-2022	67.75	65.4525	15.355
06-01-2022	67.059	61.7565	14.6825
07-01-2022	67.9465	59.604	14.388
08-01-2022	69.623	59.95	14.0435
09-01-2022	74.535	60.725	13.6655
10-01-2022	77.7455	60.6105	13.8935
11-01-2022	77.532	60.7055	14.73
12-01-2022	75.931	59.95	15.044
13-01-2022	74.5175		14.7665
14-01-2022			14.782

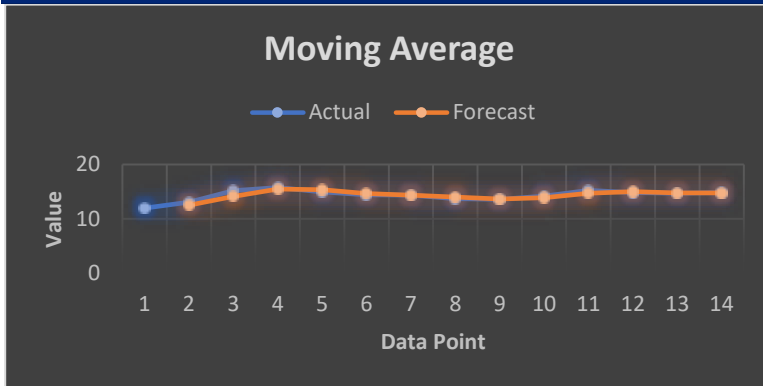
Graph 1. Bored Ape Yatch Club



Graph 2. Cryptopunks



Graph 3. Mutant Ape Yatch Club

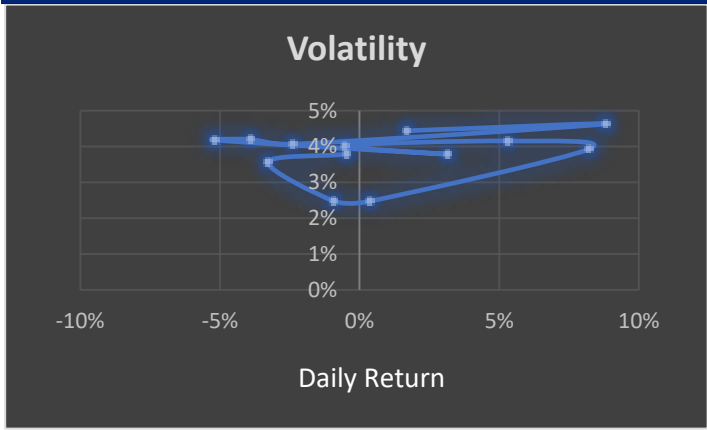


The above graphs show the moving average of the sample NFTs. It can be observed that the actual moving average is almost similar to that of the forecast in all the three cases.

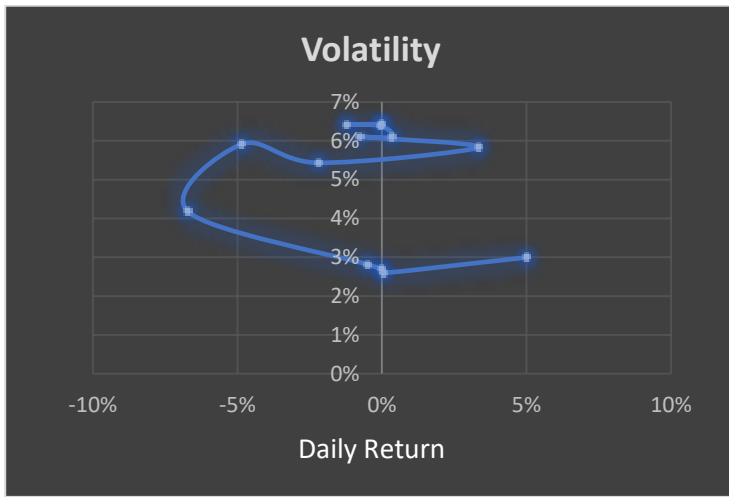
Table 2: Comparative returns and standard deviation of sample NFT

Date	Bored Ape Yatch Club		Cryptopunks		Mutant Ape Yatch Club	
	Returns	Standard Deviation	Returns	Standard Deviation	Returns	Standard Deviation
01-01-2022						
02-01-2022	2%	4%	5%	3%	8%	6%
03-01-2022	9%	5%	0%	3%	15%	6%
04-01-2022	-2%	4%	0%	3%	4%	4%
05-01-2022	-4%	4%	0%	3%	-5%	4%
06-01-2022	-5%	4%	-7%	4%	-4%	4%
07-01-2022	3%	4%	-5%	6%	-1%	4%
08-01-2022	-1%	4%	-2%	5%	-4%	4%
09-01-2022	5%	4%	3%	6%	-1%	4%
10-01-2022	8%	4%	-1%	6%	4%	4%
11-01-2022	0%	2%	0%	6%	7%	4%
12-01-2022	-1%	2%	0%	6%	-3%	4%
13-01-2022	-3%	4%	-1%	6%	-1%	3%
14-01-2022	0%	4%	0%	6%	1%	

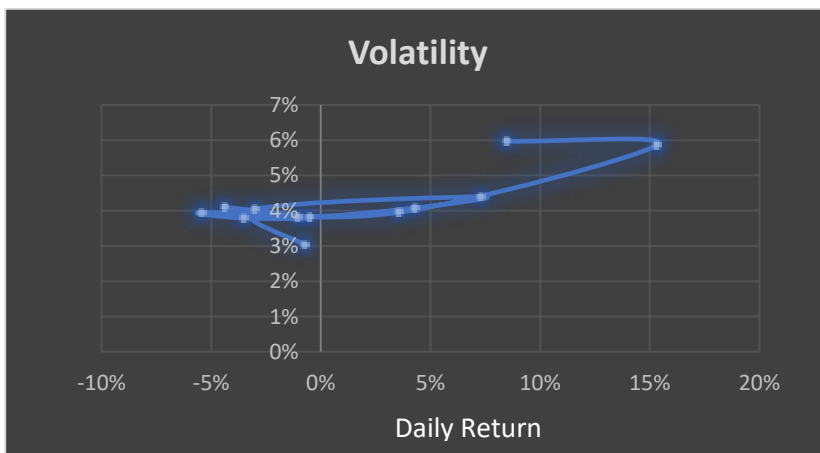
Graph 4. Bored Ape Yatch Club



Graph 5. Cryptopunks



Graph 6. Mutant Ape Yatch Club



This shows that NFTs have a high volatility rate on a daily basis. The sample NFTs showed a volatility ranging from 5%-8%.

Table 3: Comparative returns on sample NFT and Bitcoin

Date	NFT Returns (Y)			Bitcoin Returns(X)
	Bored Ape Yatch Club	Cryptopunks	Mutant Ape Yatch Club	
01-01-2022				
02-01-2022	2%	5%	8%	-2%
03-01-2022	9%	0%	15%	0%
04-01-2022	-2%	0%	4%	-2%
05-01-2022	-4%	0%	-5%	1%
06-01-2022	-5%	-7%	-4%	3%
07-01-2022	3%	-5%	-1%	3%
08-01-2022	-1%	-2%	-4%	4%
09-01-2022	5%	3%	-1%	-2%
10-01-2022	8%	-1%	4%	2%
11-01-2022	0%	0%	7%	-3%
12-01-2022	-1%	0%	-3%	-1%
13-01-2022	-3%	-1%	-1%	1%
14-01-2022	0%	0%	1%	-1

Regression statistics are used to form the correlation between bitcoin and sample NFTs. Where returns on NFT is used as the Y variable whereas returns on Bitcoin is used as X variable.

Table 4: Correlation with Bitcoin

NFTs	X Variable 1 Coefficient(beta)
Bored Ape Yatch Club	-0.13351
Cryptopunks	-1.04111
Mutant Ape Yatch Club	-1.25492

The output showed a negative correlation(beta) between NFT and bitcoin. Which means if the returns on bitcoin shows a positive change of 1, the return of the given NFT would show a negative change of above values. It's value would decrease because we have got a negative beta.

This can be understood as bitcoin is a cryptocurrency which can be used to buy or sell an NFT hence, if the price of bitcoin is falling investors would that bitcoin to purchase NFTs, which would increase its demand and in-turn its price would also increase.

Historical simulation has been used to measure the Value at Risk (VAR) as after 14th January, 2022.

Table 5: NFT returns using Beta

Date	Bitcoin Returns	Index	NFT Returns		
			Bored Ape Yatch Club	Cryptopunks	Mutant Ape Yatch Club
01-01-2022					
02-01-2022	-0.02319176		0.003096	0.024145	0.029104
03-01-2022	-0.00080939		0.000108	0.000843	0.001016
04-01-2022	-0.02045061		0.00273	0.021291	0.025664
05-01-2022	0.013951806		-0.00186	-0.01453	-0.01751
06-01-2022	0.028917678		-0.00386	-0.03011	-0.03629
07-01-2022	0.029643356		-0.00396	-0.03086	-0.0372

08-01-2022	0.036971393	-0.00494	-0.03849	-0.0464
09-01-2022	-0.01718384	0.002294	0.01789	0.021564
10-01-2022	0.021618434	-0.00289	-0.02251	-0.02713
11-01-2022	-0.02690745	0.003592	0.028014	0.033767
12-01-2022	-0.01296244	0.001731	0.013495	0.016267
13-01-2022	0.006120907	-0.00082	-0.00637	-0.00768
14-01-2022	-0.00688866	0.00092	0.007172	0.008645

Here, NFT returns are calculated as follows: Beta * BTC Index Returns. Beta has been calculated through regression (ref. table no:4)

Further, the above data has been used to estimate the gain/loss distribution.

Table 6: Comparative Gain/Loss Distribution

Date	Gain/Loss Distribution		
	Bored Ape Yatch Club	Cryptopunks	Mutant Ape Yatch Club
01-01-2022	0.23019	1.447509	0.43222
02-01-2022	0.008034	0.050518	0.015084
03-01-2022	0.202983	1.276421	0.381134
04-01-2022	-0.13848	-0.8708	-0.26002
05-01-2022	-0.28702	-1.80489	-0.53893
06-01-2022	-0.29423	-1.85018	-0.55246
07-01-2022	-0.36696	-2.30756	-0.68903
08-01-2022	0.170558	1.072526	0.320252
09-01-2022	-0.21457	-1.34931	-0.4029
10-01-2022	0.26707	1.679423	0.501468
11-01-2022	0.128659	0.809048	0.241578
12-01-2022	-0.06075	-0.38204	-0.11407
13-01-2022	0.068373	0.429954	0.128383
14-01-2022			

Gain/loss distribution has been attained by multiplying the latest NFT price as of 14th January,2022 with the NFT returns (ref table 5).

Further, using the gain/loss distribution we get VAR.

NFT	VAR
Bored Ape Yatch Club	-0.32332
Cryptopunks	-2.03314
Mutant Ape Yatch Club	-0.60709

This shows that as on 15th January 2022,

for Bored Ape Yatch Club, the maximum their could be a loss of 0.32332 ETH

for Cryptopunks, the maximum their could be a loss of 2.03314 ETH

for Mutant Ape Yatch Club, the maximum their could be a loss of 0.60709 ETH

with a confidence of 95%.

CONCLUSION

It can be concluded that investing in NFTs is a largely personal decision. If you have the money to spare, it may be worth considering, especially if a piece holds meaning for you.

But keep in mind, an NFT's value is based entirely on what someone else is willing to pay for it. Therefore, demand will drive the price rather than fundamental, technical or economic indicators, which typically influence stock prices and at least generally form the basis for investor demand.

All this means, an NFT may resale for less than you paid for it. Or you may not be able to resell it at all if no one wants it.

However, if you're a creator, with the advent of NFT market only sky is the limit for you. Any creation which can be held in a digital form can be an NFT. Given the hype and current trends, you should definitely try your hands on it.

Bear in mind, NFTs may also be subject to tax as will the cryptocurrencies used to purchase the NFT are. The Indian Budget 2022 proposed imposing withholding tax on transfer of virtual digital assets — which should include NFTs and cryptocurrencies — effective July 1. A tax deduction at source is also proposed. It is yet to be seen how the taxation will work and that means you may want to check in with a tax professional when considering adding NFTs to your portfolio.

That said, approach NFTs just like you would any investment: Do your research, understand the risks—including that you might lose all of your investing rupees—and if you decide to take the plunge, proceed with a healthy dose of caution.

Further, hoping my findings could encourage future research for the challenging part of finding & predicting new and upcoming NFT that could yield impressive returns.

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