Pop stars, Financial Speculation and Content issues:  
An empirical analysis based on the correlation between NFT market performance and social media attention

Ying Lai  
Beijing Normal University, Beijing, China

Abstract. Starting from the data of NFT concept stocks of Shanghai A-shares, this study uses the methods of data mining and correlation analysis to discuss the mismatch between the network cultural vision of NFT development and the actual market orientation. The study found that there was no significant correlation between the stock market value of NFTs and the amount of social media attention. However, positive information about pop stars has a very significant correlation with the stock market value of NFTs. Therefore, the amount of attention on social media itself cannot directly cause changes in the actual NFT market performance. On the contrary, the NFT market changes caused by the celebrity effect of pop stars are very significant. From a technical logic point of view, NFT does provide emotional value, promotes the formation of the Internet community, and becomes a portrayal of the dependence between individuals and the Internet community, and will also become the pursuit of heterogeneity and creativity under consumerism. salient features of post-Internet culture. However, from the perspective of market performance, public opinions do not affect the involvement of finance and capital. The behavior of speculative finance by taking advantage of the celebrity effect of pop stars continues. The creation of online content is just a financial by-product engulfed by the traffic effect of pop stars. Once the content is insufficient to support financial speculation, speculators are very likely to leave the NFT market with the money of collectors and investors. Therefore, perhaps the market transaction of NFT itself is not the focus in the future, the real focus is the formation of community relations oriented by content and culture; it represents the pursuit of heterogeneity in the Internet age, especially social media After pushing art into the era of "high-end" reproduction, NFT represents the pursuit of creativity and the desire for social experience.

Keywords: NFT; social media; celebrity effect; financial speculation.

1. NFT: the Unique Technology for Characterizing Digital Collections

NFT (non-fungible token) is a data unit called a blockchain digital ledger, and each token can represent a unique digital data. Since they are not interchangeable, non-fungible tokens can represent digital files such as paintings, sounds, videos, in-game items, or other forms of creative work. While the documents (works) themselves are infinitely replicable, the tokens representing them are tracked on their underlying blockchain and provide buyers with proof of ownership[1]. Cryptocurrencies such as Ethereum, Bitcoin, etc. have their own token standards to define the use of NFTs. As a data unit stored on the blockchain (digital ledger), N on-fungible token can represent unique digital items such as artworks. It is a cryptographic token, but unlike cryptocurrencies such as Bitcoin, it is not interchangeable. A non-fungible token is created by uploading a file, such as an artwork, to the non-fungible token auction market. This creates a copy of the file recorded on the digital ledger as a non-fungible token, which can be purchased and resold with cryptocurrency[2]. While an artist can sell non-fungible tokens representing a work, the artist can still retain the copyright of the work and create more non-fungible tokens of the same work. Buyers of non-fungible tokens do not receive exclusive access to works, nor do buyers receive exclusive access to original digital files. The development of NFT digital collections is to build an online digital trading mall, which digitizes offline artworks and sells them online[3]. Users can both appreciate and buy their favorite artworks. The artwork he bought is not completely virtual. He combines the real information with the real object, which is the digitization of the copyright. Therefore, the digital collection purchased has a certain copyright, and different platforms will have it. different rules. The development of NFT digital collections is a digital
asset with copyright protection based on block technology, which can verify the copyright and ownership of digital collections, avoid piracy and digital copyright infringement of digital collections, and realize the protection of creators' intellectual property rights[4]. By recording the future digital flow through the blockchain, while retaining the copyright to the creator, the right to sell the digital collection can be clarified, and the traceability of the royalties can be realized.

Since its birth, NFT/digital collections have set off a popular trend all over the world. No matter pop stars, celebrities, investment institutions or internet companies, more and more participants are beginning to enter the NFT field. This digital work, which is based on blockchain technology and has the advantages of uniqueness, ownership, transferability and authenticity, has reconstructed people's understanding of art collection to a great extent. In 2012, the first NFT-like General Pass ColorCoin was born. Colorcoin shows the potential of real assets and lays the foundation for the development of NFT. In June 2017, just as the ecology of Ethereum was booming, Larva Labs developed a pixel avatar generator, which generated about 10,000 various pixel avatars. With the expectation of "punk" spirit, this avatar series was named CryptoPunks, which means "encrypted punk". This is the first NFT project in the real sense of the world. In October, 2017, Dapper Labs team, inspired by CryptoPunks, launched CryptoKitties and proposed ERC-721 protocol, which made NFT indivisible and interchangeable. In 2018, NonFungible.com launched the NFT market tracking platform; In the same period, Opensea, SuperRare, Known Origin, MakersPlace, etc., all established platforms for publishing digital art. In 2021, NFT jumped to become the global annual search hot word, and NFT art became the talk of the public in their spare time. Cryptographic artists unheard of in the traditional art circle, such as Beeple, Pak, etc., shot a sky-high price more expensive than Picasso overnight[5].

Art is perhaps one of the most mysterious intangible cultural products in the world. With the emergence of NFT, the mysterious black box of art trade was opened, the collection process of NFT was open, and the creators, collectors, transaction records and prices were clearly and permanently recorded on the blockchain; Secondly, NFT can be structured and distributed by smart contracts, and its distribution mechanism and capital flow are all open, transparent and traceable. This way has broken the game rules of the past when art only belonged to a few elites. As long as the works have supporters, NFT works launched and sold by smart contracts can provide proof for the workload of participants.

On June 3, 2022, the Blockchain Copyright Application Center of the Comprehensive Key Laboratory of Science, Technology and Standards of China State Press and Publication Administration and Hangzhou National Digital Trading Center jointly released the "Blockchain Digital Publishing Trading Platform Matrix" and regarded the digital collection as a new form of digital publications. With regard to the cultural value attribute of NFT, some scholars believe that the invention of NFT makes any idea or even emotion have a possibility of being quantified, which means that trading and circulation are measured. In the traditional art market, those creators of performance art and conceptual art, especially those individual freelancers who work silently for art groups, can get an open and transparent way to measure the value of their invisible labor and ideas, and even actual economic feedback with the development of NFT technology.

2. Celebrity Effect: An Empirical Investigation of the Relationship between NFT Market Performance and Social Media in China

As a highly social product, is NFT's market performance affected by social media? At present, in the existing research, scholars have answered this question in two ways. On the one hand, the presentation of NFT price targets as a product of Web3.0 is all displayed on the social media of Web2.0. In 2021, the social media attention of the NFT industry will increase rapidly[6]. At present, NFT project parties still need to build value on social media, that is, most project parties have to publish content on Twitter, Weibo and other platforms to explain to people what they have done and what to do. Therefore, the current method for NFT projects to acquire users through social media is still prevalent in online platforms: on social media, people's attention and information sources for
NFTs mainly come from KOL cooperation, that is, cooperation with some video bloggers and online celebrities to advertise recommend. On the other hand, the effect of NFT investment led by pop stars is also very obvious in the Chinese market. For example, in January 2022, after the NFT news about Jay Chou's trendy brand PHANTACI and NFT platform Ezek's founding of the Phanta Bear series came out, it was immediately sought after and supported by social media. Although the company he founded later issued a statement claiming that Jay Chou himself did not participate in any planning and operation of Phanta Bear, he just received a Phanta Bear NFT from PHANTACI, but Phanta Bear was sold out within 40 minutes, with a total price of more than After that, the price of Phanta Bear continued to rise, increasing dozens of times in a very short period of time. This phenomenon occurs because they have been active in social media for a long time, and they are full of a lot of fashion elements and trend-setting characteristics[7]. The current NFT market needs more than a lot of attention. Therefore, projects supported by pop stars can get more attention, so as to achieve better market performance.

So, what factors have a more significant impact on the performance of China's NFT market? Is it the social media's attention to NFT topics that can significantly affect the NFT market, or can projects driven by pop stars lead the NFT market better? With such a question, this study designed an empirical survey aimed at analyzing these three variables.

According to Nonfungible.com, the world’s total NFT transactions jumped to $250 million in 2021. In August 2021 alone, the transaction volume of NFTs exceeded $220 million. However, due to the huge transaction volume of the NFT market and the uneven openness and transparency of platform data, the total transaction volume may not necessarily reflect the transaction conditions of the NFT market in a timely and accurate manner. For ordinary investors who are interested in NFTs and lack experience, the lack of NFT-related cryptographic knowledge makes it often difficult for them to trade directly on NFT platforms with high technical barriers to entry. However, for most people, even investing in crypto and NFTs (strictly speaking digital assets) is a relatively difficult concept to get into, while investing in stocks is not, as they can buy NFTs outright if they are bullish on the prospects Regular shares of companies participating in the NFT market. In such a case, the market conditions of NFT-related stock markets can reflect the market's information and transaction enthusiasm for NFTs to a certain extent. NFT shares are shares of companies that participate in the NFT market in some way. This is a popular way to indirectly gain exposure to the NFT market. There are still relatively few stocks in NFT companies, but more and more companies are expanding into the space. The best NFT shares may come from companies offering their own collections of NFTs, or the technology needed to power the NFT ecosystem.

In order to verify the correlation between social media and the NFT market, this research uses python for data mining, and selects the Shanghai Stock Exchange A-share related NFT concept stocks from September 2021 to June 2022 on the "Oriental Fortune" website Stocks are used as data analysis objects to evaluate the performance of China's NFT market during this period. The Candlestick Chart of the performance of NFT concept stocks in Shanghai A-shares during this time period is shown in Figure 1.
In this study, all NFT concept stocks of Shanghai A shares are selected as the observation objects, and the daily average closing price of NFT concept stocks of Shanghai A shares from September 9, 2021 to June 9, 2022 is used. As a reference value for NFT market performance. At the same time, this study also captures the information volume, forwarding volume and comment volume of NFT-related topics on Weibo, WeChat and other social media platforms every day from the Baidu index platform as a comprehensive index of NFT social media attention. In addition, this study also selected the information related to pop stars and NFTs on social media during this period, and used natural language processing to determine the textual emotion of this information, screened out the information of positive emotions, and put the relevant information into the text. The number is recorded daily as the number of messages with pop stars driving effect. After data mining and text analysis, the statistical results of the sequential changes of these three variables over time are shown in Figure 2:
It can be seen from the figure that the relationship between the amount of social media attention and the number of topics driven by pop stars is very high, but the trend between the amount of social media attention and the average closing price of the stock cannot be seen from the chart. Very strong connection. Therefore, this study conducted data analysis on the correlation between these three variables. The analysis results are shown in Figure 3:

![Figure 3. Correlation analysis of social media attention, information of NFT driven by popstar, and the performance of stock market](chart)

The analysis results show that there is no significant correlation between the stock market value of NFTs and the amount of social media attention. However, positive information about pop stars has a very significant correlation with the stock market value of NFTs. Therefore, the amount of attention on social media itself cannot directly cause changes in the actual NFT market performance. On the contrary, the NFT market changes caused by the celebrity effect of pop stars are very significant. It is obviously a very common marketing strategy to use the "halo" effect of pop stars in the Chinese market to create momentum for the value of NFTs.

The celebrity effect of NFT is mainly reflected in its subsidiary value, whether it is its own artistic value or the "halo" generated by some celebrities, it will endow NFT with unique value. In fact, this kind of attached value is not only manifested in NFTs, but still exists widely even in the traditional market, such as certain pop stars endorsed products, peripherals, etc., all of which are focused on the value mapped by these "halos". For fans, the logic of buying pop stars platform or publishing NFT works is also very well understood: on the one hand, it can be regarded as a speculative behavior with a star-chasing color; on the other hand, for some fans, it is possible to have the same style of pop stars. The series of NFTs seems to be a status symbol, which will become a kind of bragging capital. In addition to that, it will give them a sense of identity, making them feel like they are in the same circle as pop stars. Driven by this logic, NFT series released by pop stars often have a certain first-mover advantage over other NFTs. This advantage is usually manifested in price, liquidity and transaction volume.

Some scholars believe that this kind of NFT market performance simply brought about by celebrity effects also has hidden concerns. One of the most obvious problems is the casting method. The easy casting of NFT is reflected in the fact that everyone can participate, and it can be counterfeited by simply copying the picture and uploading it on the chain. For practical NFTs, this kind of counterfeit cannot withstand any verification, but it is easy to deceive many people like some ornamental NFTs. At the same time, this easy casting will also be an IP overdraft for pop stars. In the traditional business model, pop stars use their halo effect to carry out advertising endorsements, shoot film and television works, etc. No matter what the final result is, in the process, they have paid a lot of labor. The casting of NFT can be easily achieved with only a few lines of code, but on the contrary, it brings huge benefits under the influence of pop stars effect. This simple and rude way of making profits is undoubtedly a transitional overdraft for pop stars' IP, and even once it becomes large-scale, it will have a huge impact on the entire market economy.
3. NFT socialization: beautiful vision and cruel reality

In NFT transactions, "social" is a new way for creators and fans to connect. A social media influencer with a large audience might decide to turn their content into an NFT. Continuously monetize their existing work and reputation: any content can be sold exclusively or in multiple versions, and creators earn royalties every time someone resells their NFT. At the same time, social also allows creators to develop deeper connections with fans and reward them in unique ways: for example, when fans buy their NFTs, they can get e.g. a monthly call, a private community, or creators product discounts. People love to collect rare and valuable items, and NFTs allow fans to have their most iconic moments in exclusive or limited editions. Under the influence of social attributes, more and more digital creators can use this technology to freely trade works, and art museums/institutions can also issue such tokens as a way of audience management in the construction of digital art museums in the future[8]. At present, many artists who really benefit from the social attributes of NFTs are the so-called "digital native" art groups. They are artists and designers who use digital as a medium, and they need to produce a lot of creative programming when they work (creative coding), digitally designing products, digital modeling, etc., and has a solid fan base on social media. The original work results of these creators can only be attached to the game and film industries. The emergence of NFT just empowers their works to be subjective. For example, the user activity of Art Blocks and fxhash generation art platforms is obviously higher than that of other NFT platforms. Some scholars believe that this may be where art can make a difference. They believe that, on the one hand, the framework of smart contracts allows everyone to enter the encrypted community with an open and fair attitude, and maintain a two-way and free interaction mechanism between individuals and communities; on the other hand, NFT is also a kind of Programmable programs, the creator's code can generate images, but also encode behaviors and values. When transactions are endowed with certain values and meanings, it is possible to reconstruct people's organizational relationships in the process of transactions[9]. Other scholars believe that if NFT technology is regarded as a tool for the development of "participatory art", then "community" is a very potential and worthy part of it. In an ideal encrypted community practice, the identities of creators and participants are equal, grow together[10], and the workload is certified by the blockchain. This has a similar vision to the decentralization and collective autonomy of socially engaged art. Socially participatory art in this sense will often be initiated by artists, transforming the exhibition into a field of collective creation (rather than display), and the identity of the participants will change from the audience to the performer, becoming the composition of the work, and the artist will is the initiator of this temporary collective. It is foreseeable that participatory works developed by NFT no longer require agents/institutions, and even curators are redundant, collective public deliberation-voting, and then code to implement collective decision-making.

But the reality is that investors who hype NFT projects often only see the price community brought about by the community, but do not pay much attention to the construction significance of the emotional community. Since the outbreak of the NFT market, a large number of newly emerging NFT projects actually have no "content". These projects often rely on the rapid creation of images, the creation of scarcity game rules, community building, and tooling, so as to exchange and trade[11]. Projects of this type go viral, such as "BORED APE," a familiar series of images of boring mouth-mouthed monkeys. These ape avatars come from a website called Bored Ape Yacht Club, which was officially launched on April 30, 2021, providing 10,000 unique cartoon primate images for sale as NFTs. The price of each ape is about For $200, ETH is accepted. Within a day after the website went live, all 10,000 pictures of the Boring Ape were sold out[12]. On Twitter, crypto-industry celebrities have swapped their profiles for newly purchased apes, suggesting the project has been a commercial success, a phenomenon known as "Profile Pictures". In fact, after BARED APE, there are very few NFT projects that can succeed except cryptokitties and cryptopunks. A large number of new NFT projects rely on the marketing model of replicating the ape avatar club, which lacks content, productivity, and entertainment. Therefore, Community stickiness will also decline in a straight line[13]. Once the first players brought by airdrops and whitelisting system find that their collections
have become worthless electronic documents, users will be lost, and many projects cannot trigger the secondary market at all. People may fly away with the money of collectors and investors.

4. Deep integration for the future: Prospects for social media to facilitate the return of NFT to the content and realm

The NFT capital investment based on the celebrity effect of pop stars has once again proved that in the face of the traffic brought by the influence of pop stars, most KOLs seem a little worthless. Therefore, its every move in the NFT field also affects the sensitive nerves of fans and NFT collectors. Pop stars are always accompanied by trends, and fans are always matched with words such as youth, openness, and courage to try, and these characteristics happen to be the characteristics that the best NFT audience should have. Therefore, from this point of view, the celebrity effect has an unparalleled innate advantage in the entire NFT market.

But some problems of pop stars NFT cannot be ignored. On the one hand, the activities of pop stars in the NFT market have a certain nature of unstable capital operation, and it is difficult to fully focus on them. These NFTs are generally operated and managed by the brokerage companies of pop stars, so the project often lacks perfect operation and maintenance after the release, which also leads to a serious loss of users of pop stars NFT.[14] On the other hand, pop stars NFTs usually lack a professional empowerment mechanism, which makes these NFTs seem useless except for collection and hype. Therefore, once the popularity of pop stars has passed, the price and popularity of its NFT will easily gradually fall to the bottom. When the bear market comes, the troubles caused by these shortcomings will be more obvious. Compared with other NFTs, pop stars NFT is often less guaranteed in terms of lasting stability. Therefore, the celebrity effect is not sustainable. At the same time, the capital market is also calling for the return of NFT to content creation itself.

In another dimension of the Internet, social media platforms are working hard to change the layout of NFTs. For example, Twitter, starting from Jack Dorsey, this company intends to incorporate the Crypto business into the main sector of the future business, so last year, it established a professional team for NFT to conduct business exploration. Twitter has also become the first social media to allow users to display their NFTs in the form of profile pictures and support multiple crypto wallets. After Facebook changed its name to Meta, its goal was to create the world's largest social media metaverse, and its actions were also very fast. Following Twitter, Meta announced that it will build its own NFT ecosystem, launching the ability to display NFT avatars on its flagship Facebook and Instagram accounts. In addition, Meta hopes to simplify the tediousness of buying and selling digital assets, using its payment infrastructure to build a trading market that includes NFTs. Instagram has launched the functions of NFT display, including the functions of connecting digital wallets, NFT works identification, and NFT holder certification. The layout of TikTok is earlier: TikTok cooperated with ImmutableX as early as last year to launch TikTok Top Moments, a series of NFTs targeting influential creators and their popular videos, making their wonderful moments as NFTs and releasing them. Sales revenue will flow to content producers and NFT artists. In addition, it cooperated with the music NFT platform Audius to develop a new function of TikTok Sounds, which enables Audius users to export the produced music NFT to TikTok.[15] Therefore, in the foreseeable future, NFT will gradually return to cultural value and content value. Holders of NFT on social media platforms can quickly reach consensus and form a community, and holding NFT makes them more identity-conscious and willing to safeguard the interests of the community. The community culture generated by gathering will become the powerful cultural competitiveness of social media, and NFT is the totem of communication. The community culture of social media can be spread in the form of "physical transactions", and social media will also form a positive cycle to grow. own user group. In terms of content, NFTs of high-quality creators and NFTs of high-quality communities will become new hot spots of traffic. Whoever seizes it first will have a first-mover advantage[16]. Therefore, many social media platforms have been cultivating the soil for content production, that is, building NFT creation platforms and NFT markets. For the community, we look forward to bundling interests through
cooperation, such as interacting with some high-quality communities through NFT, so as to expand the ecology of the community as much as possible, so as to strive to realize the possibility of future content development of high-quality NFT.

5. Discussion

Starting from empirical survey data, this study discusses the mismatch between the network cultural vision of NFT development and the actual market orientation. From a technical logic point of view, NFT does provide emotional value and becomes the formation of the Internet community, a portrayal of the interdependence between individuals and the Internet community, and will also become a post-Internet of the pursuit of heterogeneity and creativity under consumerism. Distinctive features of culture. However, from the perspective of market performance, public opinions do not affect the involvement of finance and capital. The behavior of speculative finance by taking advantage of the celebrity effect of pop stars continues. Therefore, perhaps in the future development, the market transaction of NFT itself is not the focus, and the focus is on the formation of community relations oriented by content and culture; it represents the pursuit of heterogeneity in the Internet age, especially social media. After pushing art into the era of "high-end" reproduction, NFT represents the pursuit of creativity and the desire for social experience.

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