Universiteit van Amsterdam

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Investigating the Factors Influencing NFT Market

Presenter : Smruti Inamdar
Supervisor : Dr, (Z)Zhiming Zhao

Introduction

- The advent of Non-Fungible Tokens (NFTs) has revolutionized the digital art world .
- Blockchain serves as the underlying technology for NFTs, providing a decentralized and secure environment for transactions.
- Since the introduction of the ERC-721 standard in 2017 and the early success of projects like CryptoKitties, the NFT market has seen significant growth and diversification.
- The NFT market experienced a meteoric rise in popularity and revenue in 2021, capturing mainstream attention.
- Despite its rapid growth, the NFT market has shown signs of volatility, with a significant decline in the year 2022 attributed to market manipulation techniques like wash trading.

Motivation

- There have been significant strides and economic opportunities created—evidenced by mainstream adoption and multi-million dollar transactions
- There exists a concerning level of market volatility and risk factors, such as wash trading, that have led to market declines.
- Understanding these complex dynamics is vital information needed by investors, market participants, governments, and researchers to navigate the ever-changing landscape of digital assets.
- This motivates the necessity of a comprehensive literature review that aims to dissect the factors contributing to the potential volatility in the NFT market, offering crucial insights into the opportunities, risks, and future trajectories of this disruptive technology.

Research Questions

RQ: "What are the key factors driving the volatility in NFT market?"

- RQ 1: What are the use cases for NFTs, specifically in Science?
- RQ 2: What impact do social media platforms like Twitter and Discord have on the NFT market?
- RQ 3: How is social media exploited to promote fraudulent activity in the NFT marketplace?
- RQ 4: What are the current data-driven methods to identify the correlation between NFT and Crypto markets?
- RQ 5: What role do technological limitations or scalability issues of the underlying blockchain (e.g., Ethereum) play in the potential valuations of NFTs?
- RQ 6: What are the open challenges in this field?

RQ1: What are the use cases for NFTs, specifically in Science?

The papers reviewed in this section are :

1. **Non-fungible tokens (nft): a safe and effective way to prevent plagiarism in scientific publishing**
2. **Patents and intellectual property assets as non-fungible tokens; key technologies and challenges**

Paper Discussion

1. **Key findings from [1]:** Patents can be minted as NFTs to create a traceable intellectual property portfolio, which simplifies ownership changes and democratizes licensing while incorporating automated royalty collection. This approach aims to ease the workload of patent examiners and enhance collaborations.
2. **Key findings from [2] :** NFTs can serve as a unique digital identifier for scientific publications, combating plagiarism by providing an immutable, blockchain-based record of a work's existence, ownership, and originality.

Conclusion: Utilizing NFTs in scientific publishing offers a transformative approach to safeguarding intellectual property, thereby enhancing the integrity and originality of scholarly works.

RQ2: What impact do social media platforms like Twitter and Discord have on the NFT market?

The papers reviewed in this section are :

1. **Social media, news media and the stock market**
2. **Tweet based reach aware temporal attention network for NFT valuation**
3. **Tweetboost: Influence of social media on nft valuation**
4. **Understanding public opinions on social media for financial sentiment analysis using ai-based techniques**

RQ2: What impact do social media platforms like Twitter and Discord have on the NFT market?

1. **Key findings from [1] :** BAYC got popular and the asset values increased substantially. Celebrities and high-profile individuals also bought into the trend further popularizing the club.
2. **Key findings from [2]** : Price variations of assets is driven by the intensity and polarity of public sentiment, which is further influenced by important individuals.
3. **Key findings from [3] :** After analysing visual features of the NFT in addition to Twitter account features, it was concluded that promotion and context surrounding NFT influences asset value more than the content itself.
4. **Key findings from [4] :** Using emotion analysis, it was concluded that emotion conveyed by highly influential twitter users have the capacity to influence the public.

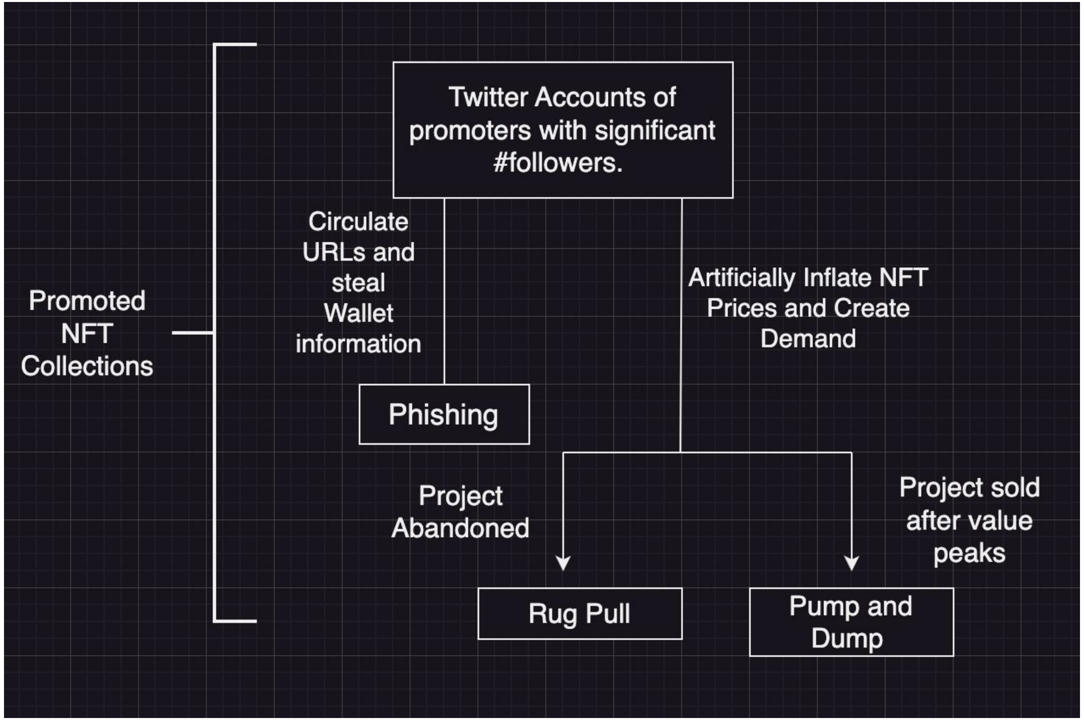
Conclusion: Utilizing NFTs in scientific publishing offers a transformative approach to safeguarding intellectual property, thereby enhancing the integrity and originality of scholarly works.

RQ3 : How is social media exploited to promote fraudulent activity in the NFT marketplace?

The papers reviewed in this section are :

1. Scams, frauds, and crimes in the Non Fungible token market
2. Demystifying nft promotion and phishing scams
3. A deep dive into nft rug pulls
4. An examination of the cryptocurrency pump-and-dump ecosystem

RQ3 : How is social media exploited to promote fraudulent activity in the NFT marketplace?



There are two major natures of scams :

- **Phishing :** URLs are circulated to users, which then clicked could steal users' wallet information.

- **Artificial inflation of NFT prices :** By hyping the NFTs, huge demand is created. "Rug pull" and "Pump and Dump" are scams where the NFTs purchased end up losing value.

Conclusion : They differ in terms of the procedures employed and the stakeholders involved.

RQ4: What are the current data-driven methods to identify the correlation between NFT and Crypto markets?

The papers reviewed in this section are :

1. Is Non-Fungible token pricing driven by cryptocurrencies?
2. The NFT hype: what draws attention to non-fungible tokens?
3. Non-fungible token (nft) markets on the ethereum blockchain: Temporal development, cointegration and interrelations

RQ4: What are the current data-driven methods to identify the correlation between NFT and Crypto markets?

1. **Vector Autoregression Method** : Previous Bitcoin gains have a positive impact on NFT searches in the coming weeks. Interest in NFTs is unaffected by Ether refunds.

2. **Wavelet Coherence Analysis :** Decentraland tokens have highest impact due to lagging Ether and Bitcoin returns.

3. **Vector Error Correction Model :** Bitcoin and Ether price shocks cause increase in NFT sales. Drop in Ether reduces number of NFT wallets. NFT has no impact on Crypto Pricing.

4. **Volatility Spillover Method :** There is Less spillover to and from NFT Markets. Spillover of impact is not prominent within NFT marketplaces

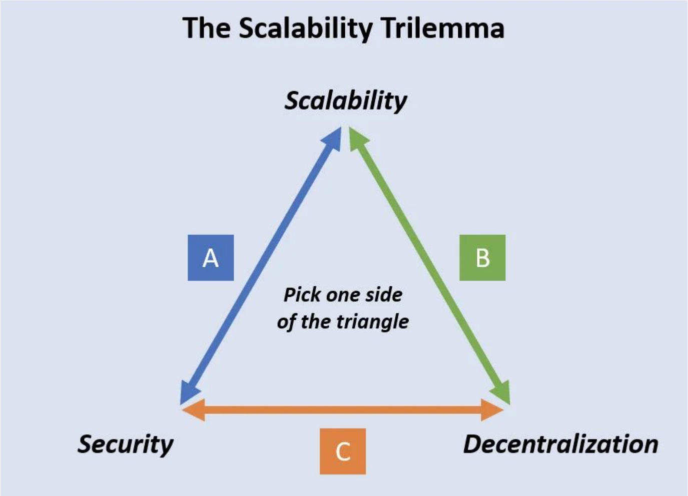
Conclusion : While there is frequently a correlation between cryptocurrency and NFT pricing, this relationship is not necessarily steady or predictable.

RQ5: What role do technological limitations or scalability issues of the underlying blockchain (e.g., Ethereum) play in the potential valuations of NFTs?

The papers reviewed in this section are :

1. **Scaling blockchains: A comprehensive survey**
2. **Under-optimized smart contracts devour your money**
3. **Effect of the gas price surges on user activity in the DAOs of the ethereum blockchain**

RQ5: What role do technological limitations or scalability issues of the underlying blockchain (e.g., Ethereum) play in the potential valuations of NFTs?



1. **Key Findings from [1] :** It very challenging for a blockchain to simultaneously achieve decentralization, security, and scalability together.
2. **Key Findings from [2] :** While gas fees don't have a direct impact on the price of NFTs, it has a significant effect on the NFT marketplace.
3. **Key Findings from [3] :** The high costs and low transaction times can limit the accessibility and inclusivity of the NFT space

Conclusion : Technological limitations and scalability issues of the underlying blockchain are not just ancillary concerns but are central to the potential usability of NFTs.This is being combated by solutions such as Layer 2 scaling, blockchain upgrades (like Ethereum 2.0), which uses Proof of stake

Summary

- Social media channels are often used to promote assets and generate hype in common scams like rug pulls, phishing, and pump-and-dump schemes, each differing in techniques and perpetrators involved.
- RQ4 : Bitcoin price shocks have a greater impact on NFT values than Ether prices do, and NFTs experience stronger price swings compared to cryptocurrencies due to unique factors like rarity, origination, utility, and cultural significance.

Thank You