



Unleashing NFT Liquidity with DeFi Current State of NFTFi Translation

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Abstract. Non-fungible tokens (NFTs) and decentralized finance (DeFi) have emerged as emerging technologies in the blockchain and crypto space, particularly influencing the art sector and driving the transformation of finance and art into the digital realm. However, the NFT market, after a short-lived boom, faces challenges such as high investment barriers, low capital efficiency, and difficulties in value discovery. To address NFT liquidity issues, leveraging DeFi technology to financialize NFTs (NFTFi) becomes an effective approach. This paper delves into four tracks of NFTFi, including NFT lending, derivatives, fractionalization, and leasing, and analyzes the design principles of the successful NFTFi protocol Blend. Through an analysis of NFT market and NFTFi platform data, the study reveals that NFTFi experienced a turning point in May 2023, especially with the notable success achieved through the Blend protocol. In summary, the openness of DeFi provides new avenues for addressing liquidity issues in the NFT space, enabling digital assets to better realize their value in the market.

Keywords: Non-fungible tokens (NFT), Decentralized finance (DeFi), NFT liquidity, NFT financialization (NFTFi), Blend protocol.

1 Introduction

Today, the digital era has arrived, and the digital economy has become an integral part of the digital society. Across a variety of fields, economists examine how digital technologies change economic activity[1]. Non-fungible tokens (NFTs) and decentralized finance (DeFi) have garnered widespread attention as emerging technologies in the blockchain and crypto space. Vukašin Despotović and colleagues summarized the potential applications of NFTs as digital assets in fields such as art, gaming, and real estate, emphasizing their importance in driving the development of the digital economy [2].Patrick Schueffel discussed the impact of DeFi on the financial services industry and outlined five key trends that DeFi is expected to bring in the future, foreseeing the expansion of the use of non-fungible tokens as collateral in DeFi [3].Their presence is not only altering the existing financial landscape but also exerting

a profound impact on the art sector, driving the transformation of finance and art into the digital realm.

This research aims to delve into the current state and potential opportunities of unlocking NFT liquidity through DeFi. We will focus on the following core questions: How does DeFi technology innovatively address the challenges of NFT liquidity? What is the current development status of NFTFi platforms, and what are some successful case studies?

2 Technological Foundations of NFT Financialization

NFTs are commonly used to represent digital artworks, virtual assets, or in-game items. Due to the uniqueness and non-replaceability of each token, ownership and uniqueness of digital assets can be accurately traced and proven. Andrei-Dragos Popescu emphasizes the uniqueness and non-replaceability of NFTs as digital assets and how they drive the transformation of the digital art market[4]. The concept of Non-Fungible Tokens is empowering artists and content creators, giving them the most needed tools to have control over their artworks in a digital era[4].

Decentralized finance (DeFi) is a financial services model based on blockchain that does not rely on traditional financial institutions such as brokers, exchanges, or banks to provide financial tools. Instead, it utilizes smart contracts on the blockchain (such as Ethereum) to offer open, permissionless, and transparent financial services beyond traditional financial institutions. Kaihua Qin has provided the first classification system to objectively differentiate between CeFi and DeFi systems, their services, and ultimate outcomes, revealing that DeFi has deeply integrated CeFi assets[5]. An open lending protocol provides a market for loanable funds, where the role that an intermediary would play in traditional finance has been replaced by a set of smart contracts[6]. DeFi is transforming the traditional financial landscape, providing users with a more open, transparent, and trustless financial experience.

3 NFT Liquidity Challenges

Opensea is a representative of early traditional NFT trading platforms. According to transaction volume data on Dune Analytics, the NFT market experienced explosive growth from August 2021, reaching its peak in transaction volume in January 2022. However, due to the overall economic instability, the NFT market sharply declined starting from May 2022. In the bear market, NFT liquidity issues became particularly significant, putting numerous NFT investors in a challenging situation. These challenges mainly include:

3.1 High Investment Barriers

Prominent NFTs in the current market, such as Cryptopunks, Bayc, and Azuki, have exceedingly high floor prices. For instance, Bayc, as a flagship NFT, has a floor price

as high as 25 ETH (approximately \$60,000). This high starting price becomes a barrier for entry into these projects, limiting the participation of a large number of investors.

3.2 Low Capital Efficiency

The NFT market has a longer asset liquidation cycle, requiring substantial time to convert held NFTs into liquid funds. Secondly, compared to traditional financial institutions, the NFT market lacks flexible credit conditions. Holders find it challenging to access flexible lending tools or other financial products, limiting their ability to efficiently deploy capital in the market.

3.3 Difficulty in Value Discovery

The uniqueness of NFTs makes the discovery of their value relatively challenging. By definition, each NFT is unique, and buyers often need specialized knowledge, investing a significant amount of time to evaluate a project. Most current NFT projects have not yet developed meaningful practical applications, resulting in many NFTs lacking utility value. Purchases are often driven by the anticipation of future price appreciation rather than intrinsic utility.

4 NFT Financialization

4.1 Basic Principles of NFTFi

The core objective of NFTFi is to address the liquidity challenges in the NFT market by leveraging DeFi technology. Through smart contracts and decentralized protocols, it aims to provide NFT holders with broader and more efficient liquidity. This section introduces four distinct NFTFi tracks, with a focus on analyzing the most prominent NFT lending models in the current market and conducting an analysis of the successful NFT lending protocol Blend. The following are basic explanations of the four NFTFi tracks, illustrating how DeFi can be utilized to financialize NFTs and unlock their liquidity, emphasizing key concepts such as smart contracts and decentralized trading.

4.2 Four Tracks of NFTFi

Contracts and agreements involved in DeFi services are governed by smart contracts. A smart contract is a self-executing contract where the terms and conditions are defined and enforced through automation and enacted autonomously and efficiently on the blockchain[7]. Research indicates that using NFTs as collateral for loans, facilitated by smart contracts for decentralized trading, allows users to flexibly obtain cryptocurrency loans without selling their NFTs.

NFT derivatives include options, futures, swap contracts, etc. The underlying asset for these derivatives is NFT, and their value depends on the performance of a specific underlying NFT asset. NFT derivatives provide NFT holders and traders with more

flexible trading methods and risk-hedging tools, thereby efficiently increasing capital efficiency.

The concept of fractionalization aims to address the relatively high unit value and indivisibility of NFTs, enabling more investors to participate in the NFT market on a smaller scale. The process of NFT fractionalization involves placing NFTs in a vault, then minting ERC-20 tokens representing ownership shares of the original NFT. The transparency, traceability, and immutability features of smart contracts enable each fraction to exist independently on the blockchain.

NFT leasing allows a user to gain temporary usage rights for an NFT, with specific terms defined by smart contracts, including lease duration, payment methods, and the scope of NFT usage. With the support of DeFi protocols, NFT leasing provides better liquidity for NFTs. Users can acquire flexible usage rights without purchasing full ownership of the NFT, representing an emerging form of digital asset trading.

5 Opensea and NFT Lending Platform Data Analysis

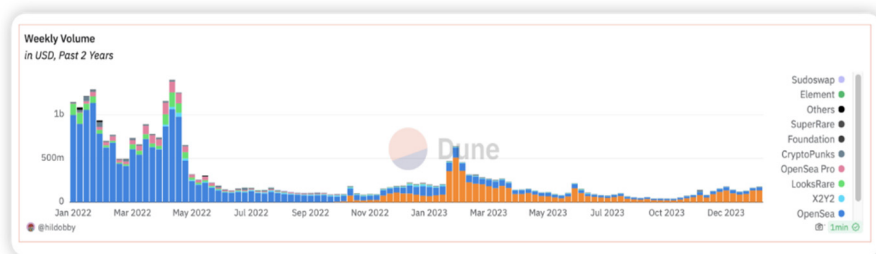


Fig. 1. Ethereum NFT Market Overview Weekly Volume in USD, Past 2 Years (Source: <https://dune.com/queries/2704953/4502617>)

As show in figure 1. Based on the most recent data available we found that after a brief period of fervor, the trading volume in the NFT market experienced a precipitous decline over the course of several weeks. Despite a short-term resurgence in the NFT market thereafter for certain reasons, it has remained in a prolonged state of stagnation, characterized by extreme liquidity shortages.

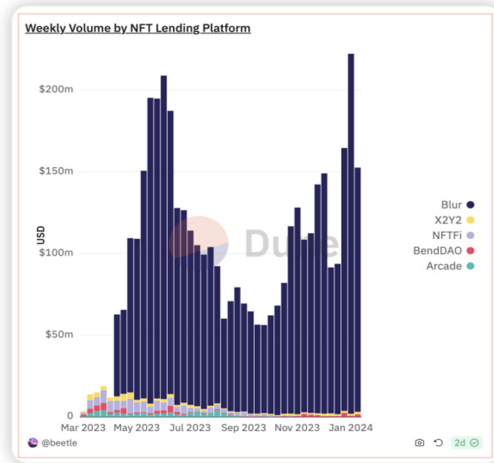


Fig. 2. Weekly Volume by NFT Lending Platform in USD (Source: <https://dune.com/queries/2508618/4128616>)

As shown in figure 2, in May 2023, a turning point in NFT market liquidity occurred, credited to the introduction of the Blur lending (Blend) protocol. Examining the weekly trading volume histogram in the NFT lending market reveals that Blur lending dominates the majority of the NFT lending market share, with consistent weekly market transaction activity. We can ascertain that leveraging DeFi can effectively unlock the liquidity of NFTs. Simultaneously, we observe that in the NFT lending market, the trading volume of Blur lending far exceeds the second-ranking NFTFi, commanding the majority of the market share.

6 Blend Protocol Analysis

Blur lending (Blend) is a peer-to-peer perpetual lending protocol that supports arbitrary collateral, including NFTs, developed by Blur and Web3 investment firm Paradigm. Blend has no oracle dependencies and no expiries, allowing borrowing positions to remain open indefinitely until liquidated, with market-determined interest rates.[8].

6.1 Oracle Independence

In the Blend protocol, liquidation positions and loan rates are not dependent on oracle mechanisms but are determined by the lending parties, providing a more objective measure of the NFT's value. Liquidation occurs through a Dutch auction in case of default, reducing reliance on centralized entities, enhancing transparency, and decentralization. Oracle mechanisms can also become potential targets for attacks, impacting the protocol's security. Additionally, using oracles increases operational costs, which are then passed on to the lending parties, restraining market liquidity to some extent.

6.2 Indefinite Duration

The Blend protocol automatically extends the term of borrowing positions based on dynamic market supply and demand. As long as the lending party is willing to continue providing funds, and the borrower's collateral is sufficient, the borrowing position can be kept open. The protocol handles position renewals automatically, requiring on-chain transactions only when there are changes in interest rates or when one party wishes to exit the position. This reduces on-chain transaction frequency, and the gas fees saved from manual renewals are converted into lending profits.

6.3 Liquidation Flexibility

Blend protocol provides a relatively flexible and fair liquidation mechanism, avoiding giving excessive power to borrowers (as in put options) while ensuring relative protection for lending parties. In the Blend protocol, NFT liquidation is triggered by the lending party, allowing them to initiate refinancing auctions, enabling participants in the market to provide liquidation quotes for the debt. If no one is willing to take over the debt at any interest rate, liquidation occurs.

6.4 Peer-to-Peer

Blend adopts a peer-to-peer lending model, simpler than the pool lending model. The peer-to-peer model does not involve centralized fund management, reducing the risk of centralization. In this model, each transaction is independently matched, with borrowers and lenders directly agreeing on terms that suit both parties' needs, increasing the flexibility and transparency of the protocol.

7 Conclusion

In conclusion, the open, transparent, and efficient financial system of DeFi provides abundant opportunities for NFTs, enabling them to better participate in the market, create value, and release liquidity through innovative approaches. The combination of NFT digital art collecting and investment concepts with the principles of open finance in DeFi has propelled the development of the blockchain and cryptocurrency ecosystem, offering a reliable solution to the NFT liquidity crisis. We believe that with the richness and utility of DeFi protocols, the true value of NFT assets will be more effectively revealed, attracting more investors to engage in the NFT market.

Reference

1. Goldfarb, A., & Tucker, C. (2019). Digital economics. *Journal of economic literature*, 57(1), 3-43.

2. Despotovic, V., Bjelica, D., & Barač, D. (2022, June). Analysis of potential NFT applications. In *E-business technologies conference proceedings* (Vol. 2, No. 1, pp. 103-107).
3. Schueffel, P. (2021). DeFi: Decentralized Finance-An Introduction and Overview. *Journal of Innovation Management*, 9(3), I-XI.
4. Popescu, A. D. (2021, May). Non-fungible tokens (nft)–innovation beyond the craze. In *5th International Conference on Innovation in Business, Economics and Marketing Research* (Vol. 32).
5. Qin, K., Zhou, L., Afonin, Y., Lazzaretti, L., & Gervais, A. (2021). CeFi vs. DeFi--Comparing Centralized to Decentralized Finance. *arXiv preprint arXiv:2106.08157*.
6. Gudgeon, L., Werner, S., Perez, D., & Knottenbelt, W. J. (2020, October). Defi protocols for loanable funds: Interest rates, liquidity and market efficiency. In *Proceedings of the 2nd ACM Conference on Advances in Financial Technologies* (pp. 92-112).
7. Popescu, A. D. (2020). Transitions and concepts within decentralized finance (Defi) Space. *Research Terminals in the social sciences*.
8. Paradigm. (2023, May 01). Blend: Perpetual Lending With NFT Collateral. Retrieved from <https://www.paradigm.xyz/2023/05/blend>

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