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A Brief Primer on (Non)Fungibility

Before we can start talking about NFTs, it's necessary first to understand, what are fungible and nonfungible assets?

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Unless you've been living under a rock, you're likely aware that the world, financial or otherwise, is abuzz about nonfungible tokens (NFTs). You're also likely aware (and perhaps ashamed to admit) that most people have no clue what the word *fungible* means, nor how NFTs actually work.

So, before we can start talking about NFTs, it's necessary first to understand, what are fungible and nonfungible assets?

Fungible means goods or assets that are not unique and can be exchanged/substituted for another identical asset of an equivalent value. Fungibility is not exactly the same as a barter. A barter is when goods and commodities can be exchanged for other products that can be incomparable in value. For example, a farmer may barter (exchange) units of rice for required quantities of apples from another farmer. But in fungibility, the farmer will have to interchange with the same product, that is rice, of the same quality and the same value. Fungibility is also not always equal to liquidity either. Liquidity is the ability to exchange an asset, such as a gold ring, directly for an agreed-upon amount of money. Fungibility, on the other hand, indicates an ability to exchange an asset for an equivalent or similar asset.

In the above case, what we call an asset can have both the qualities of fungibility and liquidity. Let’s take an example, if you loaned a $100 bill to a friend, now the friend can return the $100 in denominations of one $100 bill or two $50 or five $20 bills. The value you receive is the same; the form or type of asset is also identical.

Now, let us look at another concept called “arbitrage.” Arbitrage is a strategy used to benefit from the price difference of the same commodity trading on different platforms or exchanges. This difference in pricing may occur due to inefficient pricing or based on demand and supply figures. For example, if the XYZ company May 2022 futures contract is trading at $500 per unit on exchange 1, whereas it is trading at $550 per unit on exchange 2. Upon identifying this opportunity, the arbitrageur can buy the futures contract from exchange 1 and sell it as per the futures contract on exchange 2, thereby making a profit of $50 per unit. This would be an example of a fungible investment. In our day-to-day life we come cross many such fungibility examples.

Now that we understand fungibility, it gets easier to understand nonfungible assets. These assets are unique and one of a kind and require complex valuations based on their unique attributes and scarcity and cannot be exchanged for another item. For example, diamonds are nonfungible assets due to their uniqueness in size, color, shape and quality. Hence it is not possible to substitute exact same unit for same price. Another example is baseball cards, each card is assigned a unique value based on its attributes such as edition number, design, player and rarity. Each card will be valued differently and therefore cannot be exchanged directly with another baseball player card.

After understanding the basic difference between fungible and nonfungible assets, let's briefly talk about the reason most people have even heard of fungibility in the first place: NFTs.

NFTs are basically digital tokens or assets that can be used to represent ownership and value of unique items. NFTs are not cryptocurrencies, but they are related and are often used in conjunction with each other. NFTs are frequently bought and sold with cryptocurrencies. No two NFTs are exactly alike. The concept is based on blockchain technology. If you need to understand what blockchain technology is, then perhaps some technology journals may provide detailed information. But here is a simple explanation by Coinbase:

"Cryptocurrencies like Bitcoin and Ethereum are powered by a technology called the blockchain. At its most basic, a blockchain is a list of transactions that anyone can view and verify. The Bitcoin blockchain, for example, contains a record of every time someone sent or received bitcoin. The list of transactions contained in the blockchain is fundamental for most cryptocurrencies because it enables secure payments to be made between people who don't know each other without having to go through a third-party verifier like a bank."

In other terms, a blockchain is a digital ledger that stores any kind of data such as NFT ownerships, cryptocurrencies, etc. The stored data is public or decentralized but encrypted to ensure privacy of the user is not compromised and data cannot be alerted.

NFTs most commonly crop up in areas like artwork, music composition, gaming and family heirlooms.

Artworks such as paintings are valuable and are one of a kind. But digital files can be created easily and duplicated multiple times. NFTs can avoid those issues, nonfungible tokens assist to protect the artist's artwork by creating tokens or digital certificates of ownership that can be bought and sold. These tokens are unique and not divisible. An artist can even claim royalties for the future proceeds after his/her original artwork is sold. This process allows a profit percentage to be paid to the artwork's creator every time the NFT is sold or changes ownership. NFTs can have only one owner at a time. Say if you purchase an NFT of an artwork and the ownership of the unique token is transferred to your account. The token proves that the copy of the digital file is original, and your private key is the proof of your ownership. The artist's public key serves as a certificate of authenticity for that artwork, and he can be paid royalties each time the owner changes. This entire system benefits the creator, and it also provides authentic value to the buyer.

We are living in an ever-evolving innovative, technology-driven digital world. NFTs are providing a solution for digitalizing ownership and property and allowing proper storage of the precious and rare artifacts. However, NFTs are discretionary assets and are based on demand rather than fundamentals. The future of this entire market will depend on people's interest and understanding of the underlying blockchain technology.

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