Lebo Whitepaper
V1.0

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Abstract

This document describes the definitions and theory behind the Lebo Finance explaining the different aspects of the implementation.

What is Lebo?

The Lebo is the leading decentralized auction platform in the crypto market. We offer the services designed to meet the essential needs of the decentralized financial market (DeFi).

Core products

* **Auction Dex:** NFT, Bonds, Token. *And we'll expand the system's resources in the future.*

* **Decentralized Bonds:** Token Bonds, NFT Bonds.

* **P2P Credit.**

➢ Auction DEX

In financial markets, traders have the power to decide what price they are willing to buy or sell an asset and they do so at the moment they create their order. Clearly, if the price they set is too far apart from the current market price, their order won't be filled.
In a situation where multiple buyers are competing for an asset and start putting their bids, one after the other, we would have what is sometimes referred to as a bidding war. When a bidding war occurs, buyers replace their bids higher and higher in order to cover the bids of other competing buyers and this would probably cause the market prices for that asset to increase rapidly.

The Auction DEX is a decentralized online auction-based exchange for NFT, Bonds, and Token by using Dutch Auction. In this manner, certainly investors can purchase Bonds, NFT, or Token at the best price.

Auction DEX has 2 types of auctions

Auction in Monopoly: Issuer creates auctions for sale of exclusive products or products with Super Sale price that are verified by Lebo. The Issuer will be the person who issues tickets and set the ticket prices for the auction. Investors must buy the tickets to participate in the auction.

Public Auction: All investors can participate and there is no limit of participants.

Auction DEX uses the Dutch auction method. Buyer must make a bid for products in a public auction in which the initial sale price is the highest and is then lowered down to the price at which the total volume of sales which is also called auction, will be sold at decreasingly lower prices.

Reverse auction is a type of auction in which the sale price of a product is lowered down until it is willing to be paid by the seller. In this method, Investors will place a bid for the

highest amount, accounted for the lowest interest rate that they can accept regarding to their subscribed price level. The system will identify the winning investor according to the principle of priority in which Investors bid at high price (low interest rate) until all products are sold out. The winning investor will buy the bonds at their bid. It is meant that there will be a plenty of winning bids.

Assume that the treasury seeks to collect $9 million in two-year bonds with 5% coupon discount. In this scenario the bids are offered as below

$ 1 million at 4.79%

$2.5 million at 4.85%

$ 2 million at 4.96%

$1.5 million at 5%

$ 3 million at 5.07%

$1 million at 5.1%

$5 million at 5.5%

The bids with the lowest interest rate will be accepted first as the Issuer can get more benefits when paying the low interest rate to their bonds investors. In this case, the treasury will accept the bids with the lowest interest at 5.07% as they are looking to raise up $9 million.

In this situation, only $2/3 million of the bid will be accepted. The bids are accepted at the higher 5.07% and are rejected at the lower 5.07 %. In fact, this auction ends at 5.07% and all successful bidders get the interest rate at 5.07 %.

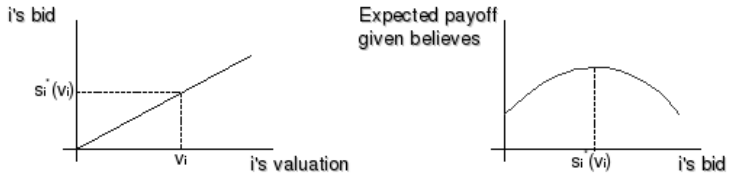
Dutch Auction method reaches its goal of making a negotiate market for the bonds at the appropriate price by allowing Auction DEX solving Nash equilibrium in auctions. The equilibrium strongly depends on the presumption of bidders on other resolution rules. Bidder's strategy regardless of what he/she believes in the bid of their rivals. To better understand this difference, it is important to define the concept of Bayesian Nash equilibrium.

Bayesian Nash equilibrium

We introduce this concept in the context of an auction for easier. Obviously need the generalization of a game form when it has incomplete information. Suppose that there are N bidders in an auction with the valuations $V_1, \dots, V_N$. The beliefs of the bidder i in the

valuation of other bidders are independent of v_i and this concept is applicable for all other bidders. Let V_{-i} is denote a set of the valuation combination of all bidders except for the bidder ***i.*** Bayesian Nash equilibrium is a set of strategies ($S^*_1, \dots, S^*_N$), specifying the actions of the bidders who can make their own valuation and such that for each bidder ***i*** , the strategy $S^*_i(v_{-i})$ is considered optimal, assuming the rivals play the strategies ($S^*_1, \dots, S^*_N$). In other words, $S^*_i(v_{-i})$ solves the problem of maximization.

$$\max_{b_i:\text{bid of i}} \sum_{v_{-i} \in V_{-i}} (\text{payoff if } b_i \text{ is offered and rivals play } s^*(v_{-i}))Pr(\text{rivals valuations are } v_{-i}).$$



In closing, in the Bayesian Nash equilibrium of an auction, each bidder offers their own affordable bid based on their prediction of resolution rules followed by other rivals which means they predict the right bid price in equilibrium.

It is easier to understand the outcome of a **Dutch auction** by research into the first-price sealed-bid auction.

First-price sealed-bid auction

Auction participants never see their rivals' bids and only can submit a sealed bid.

Assume that there are only two bidders in a first-price sealed-bid auction, ***i=1,2.*** The valuations of the two bidders, v_1, v_2 are independent and distributed uniformly on **[0,1]** interval. We claim that in this case, $v_i/2$ is a *Bayesian Nash equilibrium* for each player i (see figure below), fix a bidder ***i*** (see picture below). For example, for bidder 1, we must check whether $v_1/2$ maximize utility $(v_1-b_1)Pr(b_1 > v_2/2)$, compared to other bids that have the bidding strategies ***b1***. This final expression is the expected payoff for bidder 1 if bidder 2 has the similar bid rules. Based on the definition of uniform distribution, this amount is equal to

$(v_1-b_1)2b_1$, **for** $b_1 \leq 1$, **and** (v_1-b_1) **for** $b_1>1$

Some auction's possible outcomes

Therefore, in this case, the person who submits the highest bid is the winner and he pays the bid $v_{(2)} / 2$

➢ Bonds

Classification of financial markets based on capital mobilization method

- Bond market - debt market (bond market)

- Token market - capital market (token market)

	Bondholder	**Token Holder**
Interest	Fixed	Subject to price fluctuation of token
Corporate management	Out	In
Holding timing	Limited	Unlimited

Traditional bonds bring the stability to the economy as it provides a long-term investment agreement with predictable returns. Creditors (lenders) receive interest by making loans to debtors (borrowers) to use the loan for a variety of reasons. Both sides are mutually beneficial.

Nowadays, however, traditional credits are no longer attractive.

Decentralized bond system

Lebo provides an ecosystem where you can issue your bonds, turning your digital assets

into collateral.

Users can specify the bonds to a yield higher than the annual inflation rate in most countries. Moreover, they will get an attractive income for fewer years than traditional bonds.

In addition, traditional bonds are not available to everyone. They are mainly issued by governments, state agencies and corporations. Lebo has no requirements for investors to participate in. Bonds that Users issue in Auction DEX (the decentralized exchange auction using Dutch Auction method) are bid and paid for the bid by investors.

Auction DEX is a sealed asset, and its price goes down until someone buys it.

Lebo uses token ERC-3475 as the framework of bonds to systematize fully decentralized zero-coupon bond structure. It is the token that can generate multi-callable bonds due to its complex data structure that brings the flexibility and a larger storage capacity. Token ERC-3475 also works to save on Gas Fees.

Benefits of token ERC-3475

● They can collateralize Token or NFT

● A bond standard promotes interoperability between decentralized bond markets

● Bonds can be segmented so that bondholders can sell the portion of their bonds in the secondary market

Additional benefits of decentralized bond

Market 24/7

The US bond market works on trading hours from 8 am to 5 pm on weekdays. You cannot trade bonds on weekends and holidays when the market is closed. Lebo Bond can be exchanged anytime like cryptocurrency.

Low Risk of default

Smart contracts backed by digital assets carry a risk of default lower than traditional lending P2P. If Bond is not redeemed on the date of maturity, the debtor's digital assets will be liquidated.

Impossibility of Liquidity Risk

When investors buy a Bond, they can sell either a small portion or the whole volume of it in the secondary market. This is the segmented sale, and it neglects the liquidity issues that are well-known in the traditional bond market.

Impossibility of Credit Risk

If you have default on a traditional bond market, your credit score could suffer the negative impact. Lebo Bond has no credit consequences for default.

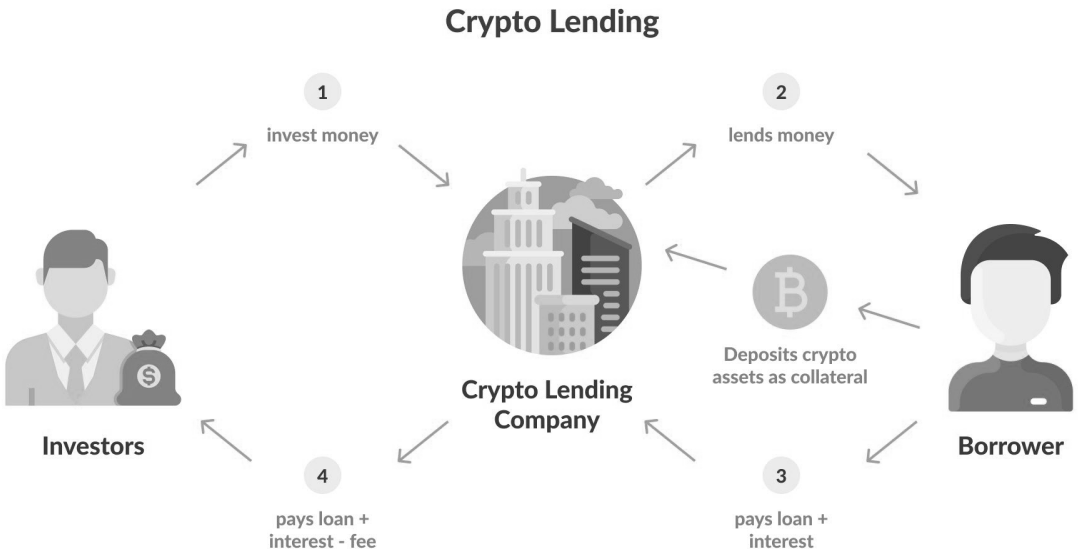
Decentralized Bond will innovate the aspects of finance like other DeFi products

Bond is one area that Decentralized Finance (DeFi) has missed. It is proven to create the lucrative opportunities from traditional financial features so far.

Decentralized bond is designed to stabilize the volatile cryptocurrency ecosystem. Soon, we will see how it affects the finance market in general.

➢ P2P Credit

To simplify it, P2P Credit is a form that allows borrowers and lenders connect directly, through a public digital technology platform to borrow money without intermediation of a commercial bank or traditional financial institution.



P2P Credit in crypto, however, has some distinctive features. Property Loans and Collateral are both crypto. Collateral plays the security role that the borrower will repay the loan. If the borrower does not pay the debt, the lender can sell his cryptocurrency to avoid losses.

Benefits

Accessibility: Cryptocurrency loans do not presuppose the participation of intermediaries

and give borrowers an access to capital resources much more flexible.

- **Simple process and high flexibility:** To obtain the loan, borrowers do not need to access banks, prepare dozens of documents, and wait for their approval. The important thing that a person must do if they want to borrow cryptocurrency is to create an electronic wallet. All of this can take just a few minutes.
- **Transparency and immutability:** These are ones of the main features of blockchain. All transactions are conducted in the network, unable to change and can be verified. Thus, any movement of funds can be tracked.
- **Lower barrier:** To borrow money on the DeFi platform, you do not need to have good credit score or disclose credit history to prove your creditworthiness.

Ideally, to control the P2P Credit we divide it into several liquidity pools, called **Node Master**. Each Node Master accepts only 1 type of Collateral. A Node Master manages many Nodes (small servers) of the Issuer, called **Node P2P**. Each Node P2P must comply with the Node Master's configuration, including:

- ❖ Collactoral, LTV (Loan to value), APRH (Annual Percentage Rate Height) & APRL (Annual Percentage Rate Low).

An **Issuer** has the right to create upto 4 Nodes on a Node Master, and a Node must be configured, including:

- ❖ Collateral, asset borrow, maturity date, APR, LTV, number of contract renewals.

Issuer has the right to deposit more Loan Assets, withdraw loaned Assets that are unborrowed, adjust the interest rate, LTV ratio, maturity date, number of contract renewals that do not affect the previous loan contracts.

When drafting a loan contract, the actual receivable amount of borrower is equal to the Loan Amount subtracted the interest as follows:

$$Q = LoanAmount - \left(LoanAmount \times \frac{APY}{\frac{100}{360}} \times LoanDays\right)$$

Calculate LTV?

$$LTV = \frac{LoanAmount}{CollateralAmount} \times 100\%$$

$$LoanAmount = Principal + Interests$$

Example: 1 BTC is equivalent to 19.227,40 USD on 2022/10/13 17:48 UTC, thus
0.092 BTC equals to 1768,92 BUSD

$$LTV(\%) = \frac{900\ BUSD}{0.092\ BTC} \times 100\% \rightarrow \frac{900\ BUSD}{1768{,}92\ BUSD} * 100\% => 50.87\%$$

Liquidated?

Your collateral will go to liquidation if

Situation 1: LTV ratio is over 80%.

Situation 2: on maturity date.

When the situation 1 occurs, Issuer has the full right to liquidate the collateral of borrower.

How to prevent liquidation?

You can always adjust the LTV ratio to avoid liquidation of collateral. Adding the deposit of more collateral, a lower LTV ratio is considered less risky.

You can extend your loan contract, if it is specified in the previsions, paying extra interest.

For the convenience of borrowers who want to borrow a large amount of loan, we create a system, called *Quick Loans.*

Quick Loans

It is a loan system that automatically evaluates the borrower's input as classified as type of Loan Property, type of Collateral Property, number of borrowed assets, number of mortgaged assets. The system will seek for the Nodes P2P with the lowest APR ratio and the highest LTV ratio to identify the number of actual receivable borrowed assets, the number

of mortgaged assets and APR. The maximum loan period will be determined as the shortest period in the list of Borrowing Nodes. The exchange rate and interest are amendment in each Node. Borrower can repay the loan for one-by-one Node or the whole Nodes.

➢ LEBO token economics

What is LEBO?

LEBO is the Native Token ERC20 of Lebo Finance used to support the ecosystem.

Features of LEBO token

Voting for governance

Each LEBO token represents one vote for the governance in the decision-making process of Lebo Finance platform. The more tokens you hold in wallets, Pools or Farm, the stronger your voting power and the more effective your impact on proposals are.

Medium of exchange

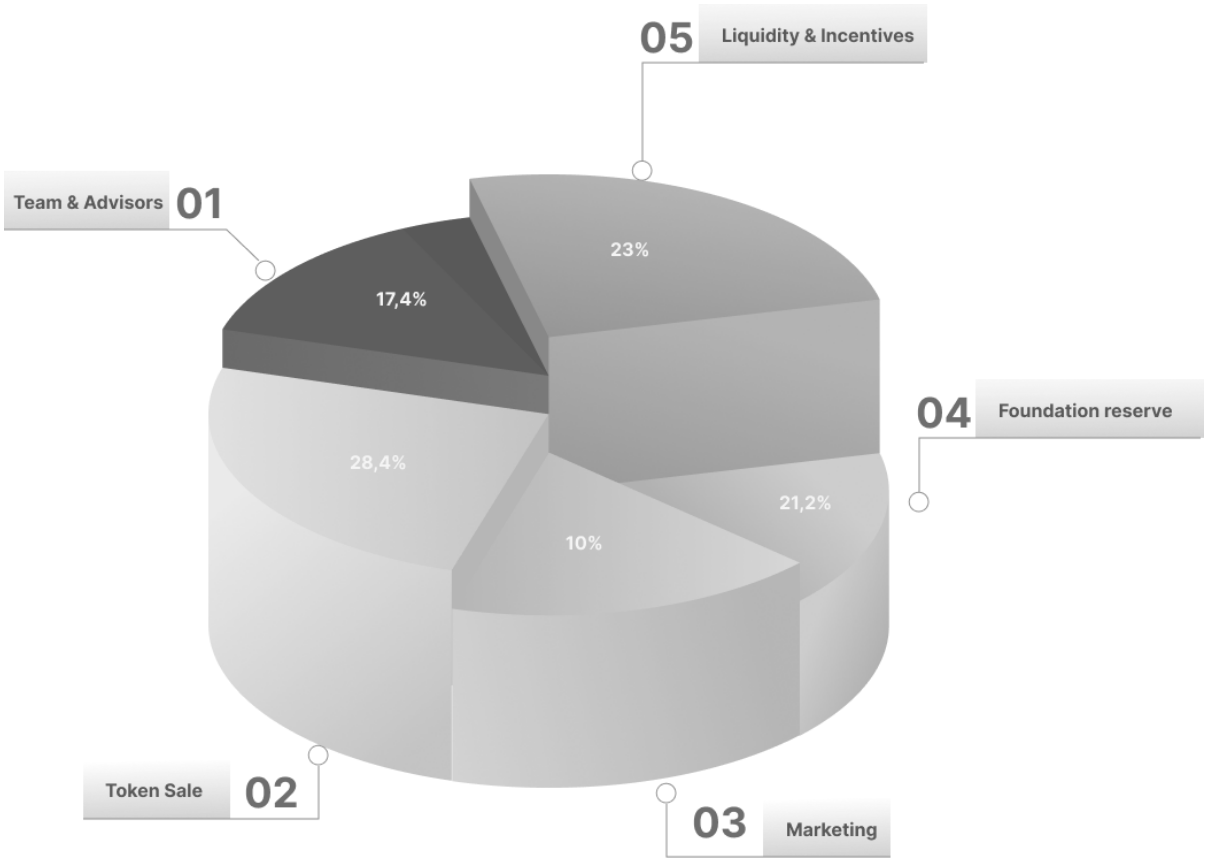
The LEBO token can be used as a currency for Pool creators, who can receive the payoff from their auction in LEBO token.

Creation auctions in Monopoly and participation

The creation of auctions in Monopoly is only available to LEBO token holders. Also, the participation in those auctions is accepted for only LEBO token holders.

Controlling the price of LEBO as well as the total circulating supply of Token is our priority. Lebo Finance will promote the highly effective programs with the appropriate expenditure and the initiatives that help facilitate and ensure the continued growth of Lebo platform and its community. LEBO Token is the perfect vehicle for the value of Lebo Finance ecosystem and the overall value of the platform will be shared equally with our loyal supporters.

➢ Tokenomics



1. **Team & Advisors:** 17.4% of the total circulating supply will go to the development team. This rate will be locked for 36 months and amortized 1.45% every 3 months.
2. **Token Sale:** 28.4% will be sold to the community through IDO, IEO, ICOs.
3. **Marketing:** 10% will be used for community development, Retroactive, Bounty and Events.
4. **Foundation reserve:** 21.2% is the reserve for product development or its features for the future.
5. **Liquidity & Incentives:** 23% is the token minted as a reward to users who provide liquidity.

➢ Governance

Partial governance for LEBO Token holders: LEBO token holders is empowered to

participate in decision-making process in Lebo Finance. This includes voting to issue Bonds and Token Sale, change Gas Fee, add or remove system features.

The more tokens you hold in wallets, Pools or Farm, the stronger your voting power and the more effective your impact on proposals are.

Voting power is proportional to the token balance of LEBO token holders. Proposals will be accepted only if most voting rights approve the proposal and if the approved rate is higher than the predefined percentage of the total token supply participated in the election.

The governance system of Lebo Finance is completely online, and it gives the rights to the LEBO holders to propose, vote and make decision on the project development stages.