A Note on Fixed Price Auctions

Austin Adams
Whetstone Research
austin@whetstone.cc

August 25, 2025

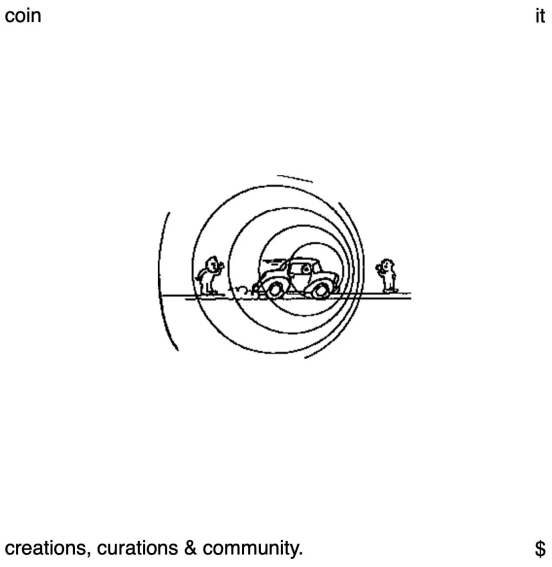

Figure 1: creations, curations & community. by foda

1 Introduction

Every team, artist, or developer that has created a token has had to deal with the fundamental question of how much is this asset worth and how to get it into the hands of their community or users.

For all tokens, teams are functionally just forced to guess, resulting in a complex problem with a monetarily expensive fail-case. Setting the price of an initial pricing auction too high could result in a lack of purchase interest, or even worse, your community turning against you. Setting the price too low results in teams and your community missing out on a significant amount of potential earnings with the difference going to bots.

As decentralized financial protocols have matured over time and Layer-2 networks have enabled cheaper and more abundant blockspace, we can now design more sophisticated mechanisms. I get asked this question a lot, so I decided to write my piece on why we should move beyond these primitive solutions and onto something better.

2 Summary

TLDR; fixed price auctions are not optimal for price discovery, because they are guaranteed to be wrong and thus leak incredible value (even more than regular bonding curves).

3 Value Capture

One notion that we use internally at Whetstone is liquidity-bootstrapping auctions are attempting to find the 'value' of a token as cheaply as possible. *value* stands for some randomly assigned number that ideally represents the underlying economic value. If you divide up this *value* over all the available tokens (with some caveats), then that is the fair market value 'price', which is similar to *pi* in Financial Economics. There are many caveats and extensions here which are very interesting, and form the basis of most of my thinking at this point.

As previously stated, liquidity-bootstrapping auctions attempt to find the fair market *price* which is (ideally) the result of the auction. The starting price for an initial pricing auction can be in one of two states - either the starting price is above this theoretical *price* or it is below. We will discuss these two states separately.

First, we start with the state where your auction is initialized above the correct *price*. In this state, the token will never trade. A buyer may be willing to purchase these tokens if they have some higher expected price or are price insensitive, but in general, a perfectly rational one (one who has perfect information on the *value*) will never because the offer price is too high. When discussing a model like this, it's important to first accept the assumptions (rational = perfect information) and then see what happens as you challenge them (like when users have a spectrum of beliefs).

Because of the autocorrelation in state prices, the inability to price at all is actively detrimental because the information that someone else thinks the price is good will cause other participants to update their beliefs on the price of the asset. Essentially, someone buying makes you more likely to believe there is value in the system, potentially enough that you now believe the asset is purchasable (your estimated price is higher than the current price). Fundamentally, these markets are reflexive due to the value generated by the market from pricing information.

In either case, the overpriced asset means this market has effectively failed, even though a valid liquid market could be created by moving the starting price down to where a rational buyer exists.

The other side of the coin is the auction underpricing the starting price. Buyers are now able to instantly arbitrage the market by purchasing large portions of the coin's supply early on, which is generally referred to as "sniping". This results in lost value or upside to the token project. This loss could be larger than the value of the ecosystem in general and result in viable economic systems failing, which is an additional fail-case and one that has a larger welfare impact than previous example.

As anti-sniping measures become more sophisticated, sniping in and of itself has become economic. Users are becoming increasingly more price sensitive and thus are less likely to buy coins they perceive to be "too expensive". This means that blind sniping (based on little information) is no longer as effective. Snipers in turn have turned to tokens where they believe there will be sustained flow at points of price discovery (fill at any price) to effectively sandwich users.

When users are price sensitive, they benefit from the incorporation of information into the market from snipers, and thus are less likely to not buy. If they are able to buy, the filled price is likely not good and if the token goes up, it will get dumped nonetheless.

4 Conclusion

Fixed price auctions are a relic of simple mechanisms and an expensive cost of incorporating information into an auction. Historically, running an auction was extremely difficult because the cost to bid was so high. Read about the complexities with bidding involved in the 2016 US Spectrum Auction, which is likely the greatest auction feat by size and complexity in human history. Milgrom and Wilson, who won a Nobel Prize in Economics for the auction and their previous works, discuss the culmination of their work into their idea behind the auction in this blog.

Even onchain, fixed price auctions improve neither of these fail-cases. If the price is too high, the fixed price auction does not trade or users are trading assets that are mispriced and overinflated. If the price is below, snipers come in and distort the price at the peril of the potential community. They just happen at a faster pace than traditional auctions because they happen within an AMM.

Doppler sits on top of the AMM and facilitates the initial price discovery to move towards the correct price. It lowers the cost of bidding down by making the auctioneer automated and predictable – but not fixed, as it takes in real-time information. Users are able to post bids that have guaranteed execution due to the design of the chain (with caveats). By lowering the cost of bidding, we open up the markets to more users who are able to price a more expansive set of assets.

A purpose built system for initial price discovery before the auction results in higher liquidity, improved capability for issuers to make money, and better outcomes for possible long-term ecosystem participants. As more assets move onchain, this kind of tool is essential the next generation of capital markets.