Ricochet Exchange: Scaling and Simplifying Dollar-Cost Averaging with Superfluid

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Abstract

Ricochet Exchange allows users to trade ERC20 tokens using streaming, continuous payments. Centralized platforms make it easy to set up Dollar-cost Averaging (DCA) but they do not offer the advantages of decentralized finance including privacy, security, and fees. Performing DCA in decentralized financial markets incurs high network fees, is time consuming, and will not scale as the number of individuals doing DCA increases. Ricochet Exchange addresses this issue by offering individuals a decentralized exchange that can be used to setup DCA with a single transaction. The advantages of using Ricochet include saving on network transaction fees, saving time by not performing manual DCA transactions, and get an extra layer of privacy through the obscurity of streaming payments with Superfluid.

1 Introduction

There are no dollar-cost average (DCA) solutions available outside of those available on centralized platforms like Coinbase. These platforms make it easy to set up DCA but they do not offer the advantages of decentralized finance including privacy, security, and fees.

Dollar-cost averaging is a challenge because of the number of transactions required to support it. The fees for on-chain transactions mean that doing a periodic DCA may not make economic sense. Additionally, the blockchain networks will get backed up if there are millions of individuals trying to do periodic DCA. Block space is a limited resource and the cost required to get some for DCA transactions prevents individuals from doing it.

1.1 Challenges facing DCA on-chain

- Network fees per transaction make DCA economically infeasible for small amounts
- Transactions required for periodic DCA increases linearly with the number of users
- Time consuming for individuals to perform on decentralized exchanges

2 DCA on Ricochet Exchange

Ricochet Exchange lets individuals set up DCA with just a few, one-time transactions. Ricochet's keeper (or any individual) triggers distributions periodically to all the individuals that have set up DCA on Ricochet Exchange. These two features address the challenges mentioned above. First, there will only be a few transactions to set up DCA which saves the individual money. The individual will not pay the fees for each swap transaction because it's taken care of by a keeper. Second, the number of transactions no longer scales proportionally to the number of individuals doing DCA. The keeper performs one

transaction to pay all individuals using Superfluids contracts. Third, the keep automates the process, saving the individuals from manually executing transactions.

2.1 Advantages of DCA on Ricochet Exchange

- Pay fewing network transactions fees to do DCA
- Makes fewer transactions on-chain, reducing network bandwidth
- Saves time on executing transactions for DCA because its handled by a keeper
- The price you get is closer to the moving average price because of the periodic swaps
- Added layer of privacy through obscurity, funds are not moved as ERC20 transfers

3 Ricochet Exchange Architecture

Ricochet Exchange is a stream exchange that supports setting a rate to swap tokens. The rates are specified in units per month, 1000 USDC/month for example. Streamers interested in dollar-cost averaging can use Ricochet Exchange to do a continuous swap a certain amount at the market price. Figure 1 shows how this process works and what the flow of tokens looks like for streamers.

Ricochet Exchange is able to achieve frequent swaps and distributions for its streamers using Superfluid's Instant Distribution Agreement[1] and ERC777[2]. Figure 2 shows the reduction in the number of transactions required to support savers doing dollar-cost averaging over time.

Ricochet Exchange is available on the Polygon network and uses SushiSwap[3] to swap tokens. The exchange rate for the swap is retrieved using the Tellor Oracle[4]. Ricochet's public distribution method is called every five minutes using Apache Airflow[5].

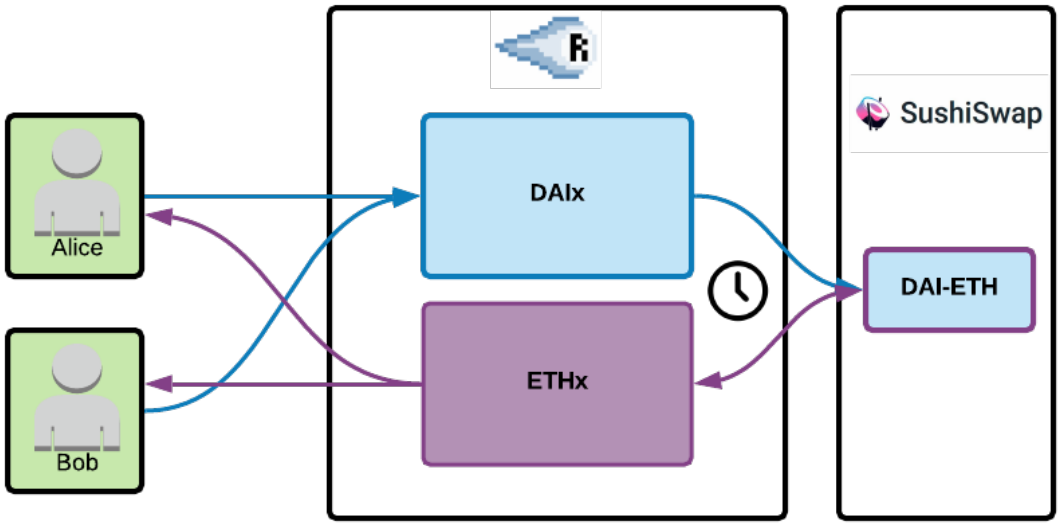

Figure 1: Alice and Bob open a stream in units of USDC/month. Ricochet's keeper triggers a public distribute() method and pays both Alice and Bob with one transaction

Table 1: Ricochet requires each user to open a stream (one transaction) then all streamers are distributed their funds using one transaction, the impact is shown here numerically and in Figure 2 visually

Method	Num. Savers	DCA Frequency	DCA Duration (days)	Transaction Count
Traditional	10	Daily	200	2000
Ricochet	10	Daily	200	210

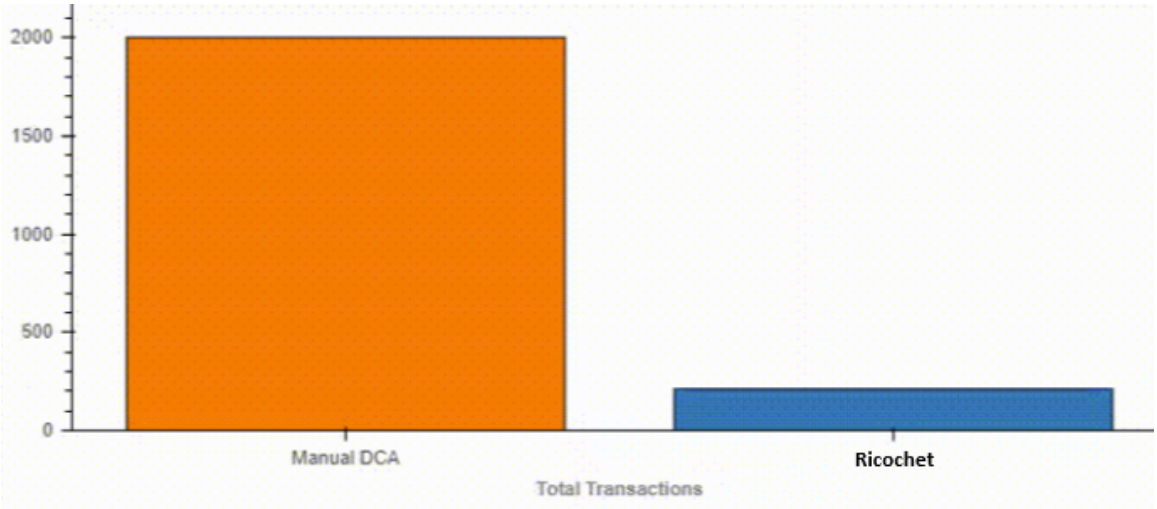

Figure 2: Alice and Bob open a stream in units of USDC/month. Ricochet's keeper triggers a public distribute() method and pays **both** Alice and Bob with one transaction

4 Future Work

Ricochet Exchange will work towards a any-to-any streaming exchange. Ricochet started with single pair and direction contracts in version 1. Version 2 of Ricochet Exchange will support contracts for single pairings, but both directions. Version 3 will support routing between exchanges to support any-to-any streaming exchanges.

In parallel, Ricochet Exchange will release a valueless governance token. 10,000,000 RIC tokens were minted as part of the version 1 deployment. 10% of those tokens will be given to the core team members, another 10% will be distributed as part of a version 1 liquidity mining program. The other 80% of tokens will be placed into the Ricochet DAO treasury to be distributed based on the will of the RIC token holders. Additionally, version 2 of Ricochet Exchange will use the fees from the protocol to directly buy back and burn the token from the secondary markets.

References

[1] Superfluid. Instant Distribution Agreements, https://docs.superfluid.finance/superfluid/protocol-tutorials/perform-an-instant-distribution, accessed 2021-07-10

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[3] SushiSwap, https://sushi.co/, accessed 2021-07-10

[4] Tellor, https://tellor.io, accessed 2021-07-10

[5] Apache Airflow, https://airflow.apache.org, accessed 2021-07-10