

Premature Slippage

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AGENDA

- ▶ Introduction – Katie
 - ▶ Problems with traditional investment firms
- ▶ The Robinhood-Citadel Dilemma/ What is Slippage and how does it occur – Colin
- ▶ Payment for Order Flow – Michael
- ▶ Our proposal & Token minting – Philippe
- ▶ Conclusion – Howard


TYPICAL FEE STRUCTURE OF A TRADITIONAL BROKERAGE FIRM

Assets Under Management	Program Fee
First \$250,000 (\$0 - \$250,000)	1.35%
Next \$250,000 (250K to \$500K)	1.30%
Next \$500,000 (\$500K to \$1Million)	1.25%
Next \$1,500,000 (\$1Mil to \$2.5Million)	1.00%
Next \$2,500,000 (\$2.5Mil to \$5 Million)	0.80%
Next \$5,000,000 (\$5 Mil to \$10 Million)	0.60%
Over \$10,000,000	0.50%

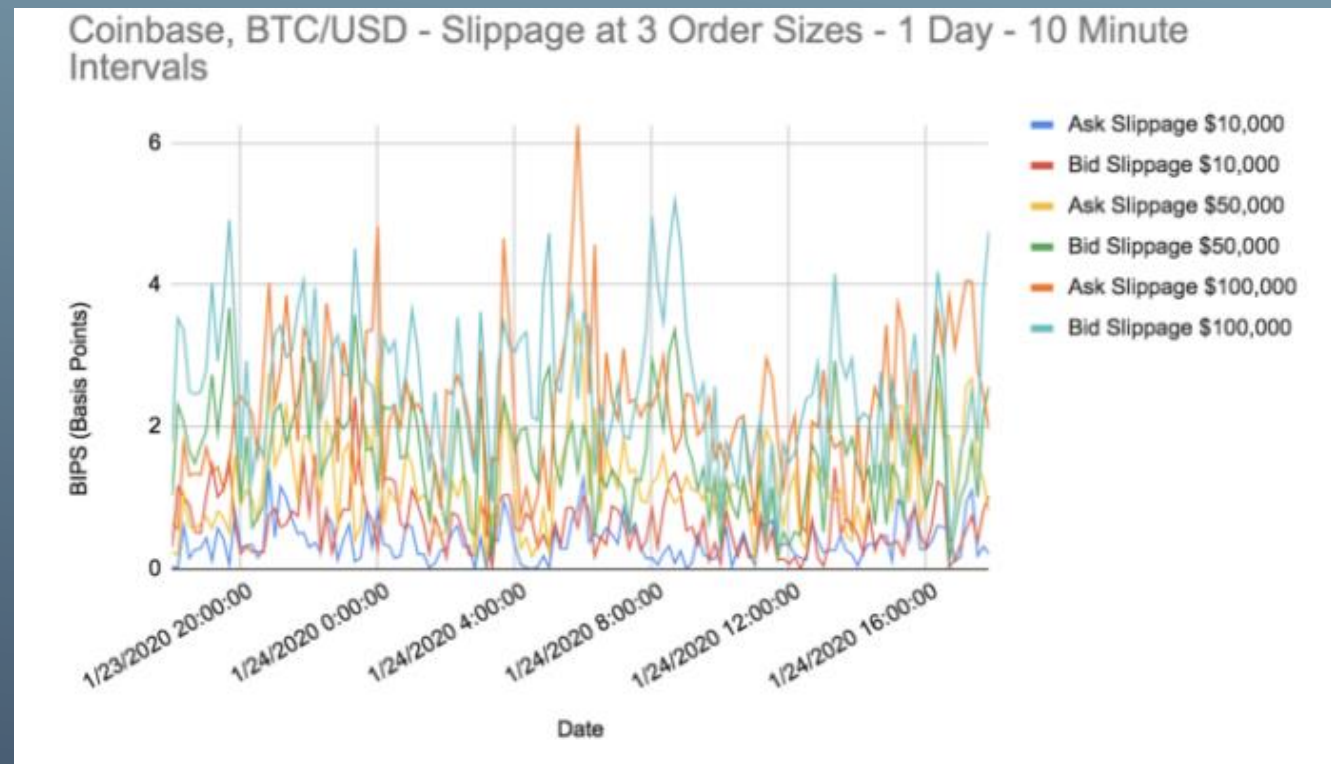
Additional Fees	Portfolio Fee
First \$250,000 (\$0 - \$250,000)	0.09%
Next \$250,000 (250K to \$500K)	0.09%
Next \$500,000 (\$500K to \$1Million)	0.08%
Next \$1,500,000 (\$1Mil to \$2.5Million)	0.07%
Next \$2,500,000 (\$2.5Mil to \$5 Million)	0.06%
Next \$5,000,000 (\$5 Mil to \$10 Million)	0.05%
Over \$10,000,000	0.05%



THE MYTH OF ROBINHOOD TAKING FROM THE RICH AND GIVING TO THE POOR

- ▶ Robinhood's model relies on revenue from selling investment choices of its users
 - ▶ They charge investment firms fees to view real-time investment choices of their users
 - ▶ Robinhood relationship with the Citadel Securities
 - ▶ Half their orders are re-routed to Citadel
 - ▶ Robinhood limited trading to certain stocks (pressure from Citadel?)
 - ▶ The restriction applied to stock Citadel had a short position
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WHAT IS SLIPPAGE AND HOW DOES IT OCCUR?



PAYMENT FOR ORDER FLOW (PFOF)

- ▶ To offset for the loss of traditional brokerage commissions, the emergence of 'Payment for Order Flow' has become a significant revenue stream
- ▶ PFOF is paid by market makers, who quote both a bid and an ask for virtually any marketable security
- ▶ With the surge in volatility, coupled with the emergent trends in retail investing, market makers have been able to reap significant rewards from the 'adverse selection' forced upon the generally unknowing individual investor.
- ▶ Citadel Securities is the counterparty on 40% of retail investor transactions. Its nearest competitor, Virtu Financial, has a 1/3 market share.
- ▶ Virtu, for example, experienced a 267% increase in earnings from market making QoQ Q1 2020/2021 (\$657 million)



1 – Per Joe Mecane, the head of execution services at Citadel Securities

2 – Per Piper Sandler



OUR SOLUTION

A BROKERAGE THAT UTILIZES NON-FUNGIBLE TOKENS AND THE ETHEREUM NETWORK TO ENCRYPT ORDER FLOW UNTIL EXECUTION

Using the ERC-721 Non-Fungible Token Standard, each individual order would be minted to contain all the salient information unique to the order (Account ID, Security ID, Buy/Sell, Timestamp). This Token would be decrypted only at the moment of execution. This ensures no market participant is capable of transaction with prior knowledge of any order on our platform. In this way, our platform would allow retail investors to trade with the anonymity previously only available to institutions via 'dark pools'

We would have a tiered subscription-based model, with monthly fees escalating for accounts with higher volumes of order. As such, we believe we can ensure that customers enjoy the autonomy and economic efficiency of other electronic trading platforms, while also avoiding the slippage that arises as a direct but undisclosed consequence of PFOF-based models.

SOLIDITY PROCESS

DEPLOY & RUN TRANSACTIONS

ENVIRONMENT

Injected Web3

Custom (5777) network

ACCOUNT

0x4ba...b6864 (53.5404069)

GAS LIMIT

3000000

VALUE

0 wei

CONTRACT

newNFT - browser/QuickNode.sol

Deploy

Publish to IPFS

OR

At Address

Load contract from Address

Transactions recorded 1

Deployed Contracts

NEWNFT AT 0XB80...B960D (BLOCKCH)

Home QuickNode.sol

```
1 |
2 // SPDX-License-Identifier: MIT
3 pragma solidity 0.8.0;
4
5 import "https://github.com/0xcert/ethereum-erc721/src/contracts/tokens/nf-token-metadata.sol";
6 import "https://github.com/0xcert/ethereum-erc721/src/contracts/ownership/ownable.sol";
7
8 contract newNFT is NFTokenMetadata, Ownable {
9
10     constructor() {
11         nftName = "TESLA";
12         nftSymbol = "TSLA";
13     }
14 }
```

listen on network

Search with transaction hash or address

creation of newNFT pending...

✓ [block:39 txIndex:0] from: 0x4ba...b6864 to: newNFT.(constructor) value: 0 wei data: 0x608...00033 logs: 0 hash: 0xa3a...051c4

status	true Transaction mined and execution succeed
transaction hash	0xa3ac5422e636d3802c54d2d2a8205c9250260a67eeaf5afe341c97720a2051c4
from	0x4ba1474392826f8e396f5bd1809ABA61b3366864
to	newNFT.(constructor)
gas	2704138 gas
transaction cost	2704138 gas
hash	0xa3ac5422e636d3802c54d2d2a8205c9250260a67eeaf5afe341c97720a2051c4
input	0x608...00033
decoded input	()
decoded output	-
logs	[]
value	0 wei

COIN MINTING AND DEPLOYMENT

✓ [block:28 txIndex:0] from: 0x4ba...b6864 to: newNFT.(constructor) value: 0 wei data: 0x608...00033 logs: 0 hash: 0x935...b27a9

status	true Transaction mined and execution succeed
transaction hash	0x9355b2ed19a58fa2a64c64db148f91c870c903b4960c19f7eb7da1f05b27a9 ⓘ
from	0x4ba1474392826f86396f5bd1809AbA61b33b6864 ⓘ
to	newNFT.(constructor) ⓘ
gas	2704138 gas ⓘ
transaction cost	2704138 gas ⓘ
hash	0x9355b2ed19a58fa2a64c64db148f91c870c903b4960c19f7eb7da1f05b27a9 ⓘ
input	0x608...00033 ⓘ
decoded input	{ } ⓘ
decoded output	- ⓘ
logs	[] ⓘ ⓘ
value	0 wei ⓘ

CONCLUSION

- ▶ In 6 months, four eBrokers made \$1.107 Billion on user order flow.
- ▶ From Q1 '20 to Q2'20, Robinhood's platform experienced a 138.7% increase in total trading volume
- ▶ The Robinhood/Citadel incident highlights an ongoing issue with exploiting user data through the use "free" online platforms.
- ▶ Our blockchain based exchange could offer protection for these user and future retail investors by charging a subscription to utilize the platform. This could help keep trading costs low, utilize the reduction in trade slippage, and allow trader data to be secure. Allocating gas costs would still need to be worked out.
- ▶ This platform would essentially work as a blockchain based dark pool.

Quarterly PFOF Received By Security Type Across eBrokers

	1Q20			2Q20		
	PFOF	Rate	Volume (1)	PFOF	Rate	Volume (1)
AMTD						
Equity	\$72,782,936	0.0015	49,212,002,671	\$144,219,349	0.0015	98,364,165,054
Option	\$129,597,189	0.0053	24,255,637,772	\$179,991,996	0.0058	30,795,846,666
Total	\$202,380,125	0.0028	73,467,640,443	\$324,211,345	0.0025	129,160,011,719
DARTs			2,101,804			3,397,286
ETFC						
Equity	\$29,822,204	0.0016	18,562,366,184	\$50,210,044	0.0015	33,144,467,379
Option	\$49,829,545	0.0045	11,036,341,199	\$60,117,332	0.0046	13,122,443,101
Total	\$79,651,749	0.0027	29,598,707,383	\$110,327,376	0.0024	46,266,910,480
DARTs			657,183			1,009,956
SCHW						
Equity	\$25,447,153	0.0011	22,232,834,484	\$32,396,842	0.0011	28,482,112,023
Option	\$28,517,592	0.0036	8,024,553,916	\$33,745,172	0.0037	9,145,934,130
Total	\$53,964,745	0.0018	30,257,388,400	\$66,142,014	0.0018	37,628,046,153
DARTs			1,540,000			1,619,000
Robinhood						
Equity	\$31,116,950	0.0024	13,005,221,609	\$69,116,307	0.0017	41,347,550,375
Option	\$59,802,125	0.0048	12,394,283,097	\$111,148,089	0.0058	19,280,349,422
Total	\$90,919,076	0.0036	25,399,504,706	\$180,264,395	0.0030	60,627,899,797
DARTs			n/a			n/a