# The Q1 2020 DeFi Report

by Alethio Analytics

A data analysis of the Ethereum DeFi ecosystem and prominent DeFi protocols in Q1, 2020.

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# Outline




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# Executive Summary

Two events defined decentralized finance in Q1 2020: the zenith of ETH & USD locked in DeFi and March 12 “Black Thursday.”

## ETH & USD Locked in DeFi

*The Event:* In Q1, the Ethereum DeFi community celebrated two milestones. First, on February 6, the total USD value of ETH & ERC-20 tokens locked in DeFi smart contracts surpassed $1 billion. The second milestone occurred on January 30, when the most ETH ever was locked in DeFi smart contracts: 3,178,695 million ETH.

*The Importance:* Even though ETH locked and USD value locked both declined notably after their heights until the end of the quarter, those metrics were only set back to their late-2019 levels, suggesting that overall the DeFi ecosystem has passed a threshold of resiliency and will be back on its upward trend shortly.their most active days in history.

## Black Thursday & COVID-19

*The Event:* On Thursday, March 12, crypto markets dropped nearly 40% - a market crash that coincided with a global and precipitous stock market decline. On March 12 and March 13, activity across Ethereum spiked, with many decentralized exchanges experiencing their most active days in history.

*The Importance:* Much of blockchain rhetoric positions the technology as a safe haven from the presumed mismanagement of traditional finance by major banks, corporations, and governments. Crypto, in its ideal form to many in the space, would not be correlated with the stock market, and would rather provide people with a more secure set of assets in which to store and invest wealth. Black Thursday revealed rather severely that, at least for the time being, those in the crypto space must acknowledge and begin to address a correlation with traditional markets.

All data in this Q1 2020 DeFi Report was collected and analyzed by Alethio Analytics. Learn more at **aleth.io**.

# Decentralized Finance in 2020

Decentralized finance (DeFi) has long been the golden child of the Ethereum ecosystem. The term 'decentralized finance' did not gain significant traction until 2018, but the concept within the Ethereum ecosystem has been around since the earliest days. In the last year, many of the teams and projects that are realizing the promise of blockchain technology through financial empowerment have fallen under the category of DeFi. The latter half of 2019 in particular could be considered an accelerated boom period for DeFi, with breakout ecosystem players like MakerDAO, Uniswap, and Compound Finance solidly staking out their claim on the DeFi playing field.

# COVID-19 and DeFi: Overview

For nearly every industry on earth, the end of Q1 2020 has been defined by the acceleration of COVID-19 around the world and its impact on global industries. Much of the data in this DeFi report has been qualified as happening before or after the market turmoil that accelerated on March 12, called "Black Thursday." It would be easy to brush off the implications the market fluctuation had on Ethereum's DeFi ecosystem by acknowledging COVID as an unprecedented and spectacular event instead of a realistic reflection of how our world normally operates. Blockchain technology, however, was born out of an 'unprecedented' economic crisis, the 2008 financial crisis, and it promises to protect people from the uncertainty and volatility that such events have historically caused - and are currently causing.

The larger, and potentially more discomforting, discussion the blockchain community must have now is addressing the reality that the crypto market crashed when the stock market crashed. Much of the rhetoric around blockchain technology - especially financial applications - has relied on the idea of discorrelation. Crypto was designed to be a protection against the unpredictability and distrust of traditional markets that emerged out of the 2008 crisis. The crypto community often refers to Venezuela and Argentina as examples of how poorly governments can manage money, and how wise people would be to trust their wealth to decentralized systems. That logic is certainly not wrong, but the recent crash has demonstrated irrefutably that the two markets are correlated, and that instability in the traditional realm is extremely capable - even likely - to impact the crypto market.

The simple truth may be that blockchain technology - and the even smaller subset of Ethereum decentralized finance - is not large enough to protect itself from a severe economic downturn. That is not to say that decentralized applications are not resilient in the face of market turmoil (take, for example, the fact that Robinhood shut down because of an influx of activity, but no Ethereum DEX suffered the same downtime). It just may mean that one of the ultimate visions of blockchain technology - protection against systems that have mismanaged our money and data for their own personal gains, and who largely escape the most severe consequences of their actions - may be a bit further down the road that we realized before COVID-19.

A data analysis of the impact of COVID-19 on DeFi can be found towards the end of this report, in the section **"COVID-19: Data Analysis."**

"Crypto was designed to be a protection against the unpredictability and distrust of traditional markets that emerged out of the 2008 crisis. "

# Q1 DeFi Data Overview

Decentralized finance is run by smart contracts that automate new, blockchain-based financial instruments. A popular way to look at the success of DeFi is measuring the amount of "locked" funds in DeFi. "Locked" funds refers to the funds that consumers have trusted to send to the smart contracts that make up the DeFi ecosystem. A very simple and modern analogy might be looking at the cash people keep under their mattress compared to the cash they trust to banks and brokerage accounts. If people move more of their cash from their mattress to their bank, they trust their bank to safeguard or compound their wealth more than they fear their bank losing it. An increasing amount of funds locked in DeFi over time represents growing confidence among consumers to place their money in the hands of these smart contracts in order to interact with these financial tools.

There are two ways to measure funds locked in DeFi: *ETH locked and USD locked.*

1. ETH locked measures the amount of ETH and WETH (ETH represented as an ERC-20 token) that has been sent to these smart contracts.
2. USD locked measures the USD value of the funds locked in DeFi smart contracts. USD locked is directly correlated with the market price of ETH. Even if the ETH locked in DeFi amount stays the same, the USD locked value would increase or decrease as the USD price of ETH changes.

## ETH Locked In DeFi

Since early 2019, the amount of ETH locked in DeFi has been overall increasing, with the large majority attributed to Maker and Compound. The dominance of Maker with respect to ETH locked (which was nearly 100% of ETH locked until mid-2019, but still makes up the vast majority to this day) is due to Maker's position as an early and pivotal player in the newest period of DeFi that began in 2018.

Maker was the enabler for a new wave of financial protocols that all depend on a decentralized stablecoin: SAI (called "DAI" when it was released). When Maker released SAI, it was essentially the only DeFi player using the unique capabilities of the stablecoin, so the influx of ETH locked in DeFi-related smart contracts was overwhelmingly concentrated in the smart contract that locked ETH in exchange for SAI. Starting in mid-2019, a new wave of DeFi protocols began to be released, many of which used the SAI stablecoin. Maker continued to account for the majority of ETH locked, but newer protocols began chipping away at its total market dominance by introducing new ways to leverage SAI (and now, multi-collateral DAI).

This quarter, On January 30, the Ethereum community witnessed the greatest amount of ETH locked in DeFi protocols: 3,178,695 million ETH (see addendum A). 81% of ETH locked (2.5m ETH) was attributed to Maker (MCD + SCD), and 12% (376k) was attributed to Compound.

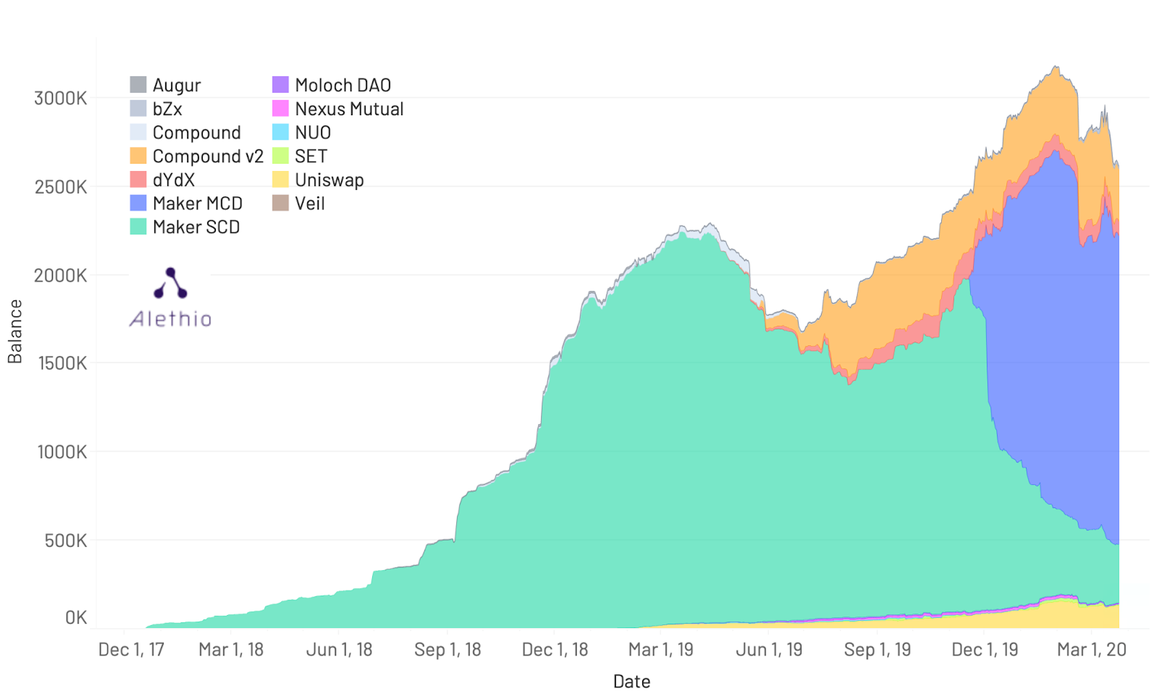


*Figure 1: ETH locked in DeFi - 2018 - 2020.*
*The amount of ETH locked in DeFi has been following an net-upward trend since mid-2019.*

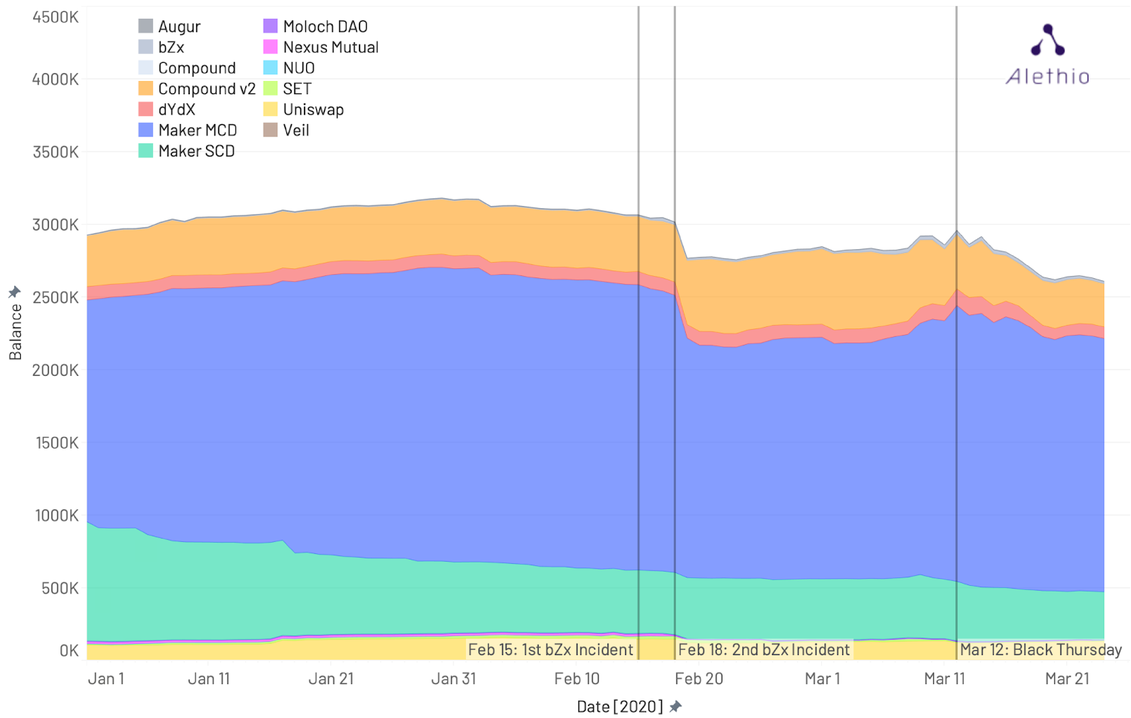


*Figure 2: ETH locked in DeFi - Q1 2020.*
*On January 30, the greatest amount of ETH (~3.1m) was locked in DeFi since the launch of Ethereum.*

Two events in Q1 impacted the amount of ETH locked in DeFi: the bZx incidents and Black Thursday (figure 2). In terms of an immediate shock to ETH locked, the February 18 bZx event had a greater impact than Black Thursday. From the incident on February 18 to February 19, the total amount of ETH locked in DeFi dropped by ~175k, a roughly 5.8% decline in the total ETH locked.

The drop in ETH locked following back-to-back compromises of bZx's protocol suggests that a notable subset of DeFi users are still wary about the security of DeFi protocols. The emergence of flash loans followed by the public exploitation of the crypto-economic incentives meant to keep them secure reduced confidence in DeFi as a whole for some market participants - evidenced by the drop in locked DeFi across protocols instead of just bZx.

Black Thursday was the global market crash that affected the value of nearly every asset class in existence. Crypto was not exempt - both ETH and BTC prices dropped by over 40% in less than 24 hours. Though crypto markets and traditional markets are not always correlated, it seems a rational conclusion to state that the dramatic fall in crypto was caused by the same forces that caused the stock market crash: COVID-19 fears and oil prices.

Following Black Thursday, the immediate decline in ETH locked in DeFi was less than after bZx - a 2.69% decrease in total ETH locked from March 12 to 13, compared to a 5.8% decrease from February 18 to 19. The gradual effect of Black Thursday, however, was more severe. Within a week following March 12, total ETH locked decreased by 12.2% - whereas in the week following February 18, ETH locked decreased by 7.8%.

The declines of ETH locked in DeFi in February and March were an unprecedented anomaly in a previously-overall upward trend. Even during the two most intense ecosystem events of the last year, however, at most 5.8% of the total ETH locked in DeFi was removed from the ecosystem in a 24 hour period. At the end of Q1, the amount of locked ETH is now at the levels it was just one quarter ago, in November 2019. One possible conclusion is that at some point in the past two quarters, the DeFi ecosystem as a whole may have crossed an important threshold of 'no return.' Though individual protocols have been challenged (as will be discussed) and some consumers lost confidence, the ecosystem as a whole has remained resilient even in the face of severe stress.

## USD Locked in DeFi

DeFi gained headlines again this quarter when, on February 6, $1 billion USD was locked in Ethereum open finance protocols. The $1bn metric was measured by adding up the USD value of ETH and ERC-20 tokens. On that day, ~64% of the USD value was from ETH or WETH, and the remaining ~36% in USD value was in ERC-20 tokens.

One potential issue with measuring the USD value of ETH + ERC-20 is the possibility of double-counting. Should a user lock ETH in Maker, then take the generated DAI and lock it in Compound, measuring USD locked in ETH + ERC-20 would count both the locked ETH and DAI, whereas the true amount of locked funds is just the original ETH.

The USD value of only WETH and ETH on February 6 was closer to $650m. However, it increased to just under $850m on February 15 (at which time, the USD value of ETH + ERC-20 was ~$1.1b). Whether measuring ERC-20 tokens or not, February saw unprecedented highs of USD locked with ETH prices just under $300 USD.

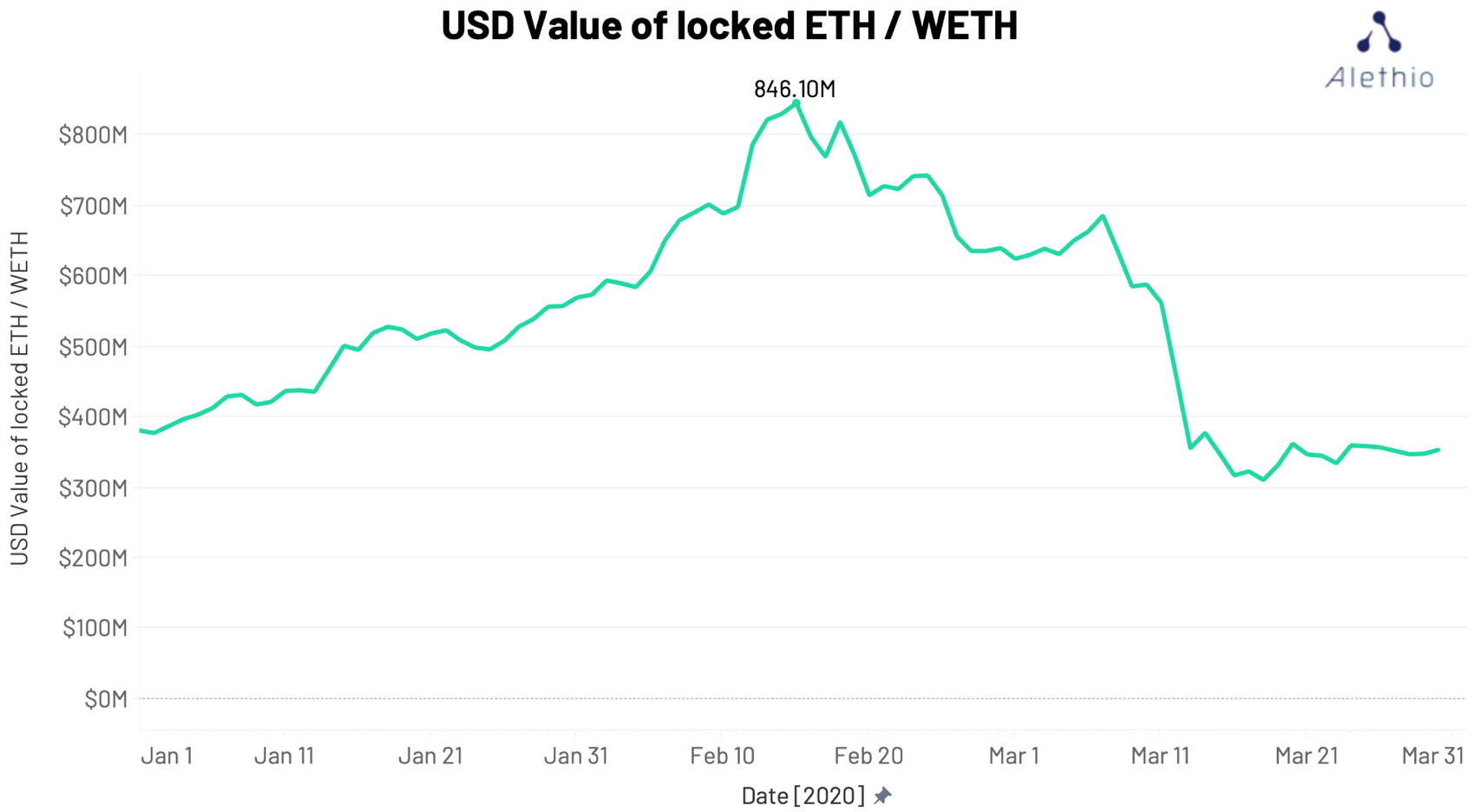


*Figure 3: On February 15, USD locked in DeFi reached an all-time high of ~$850m when measuring only ETH & WETH*

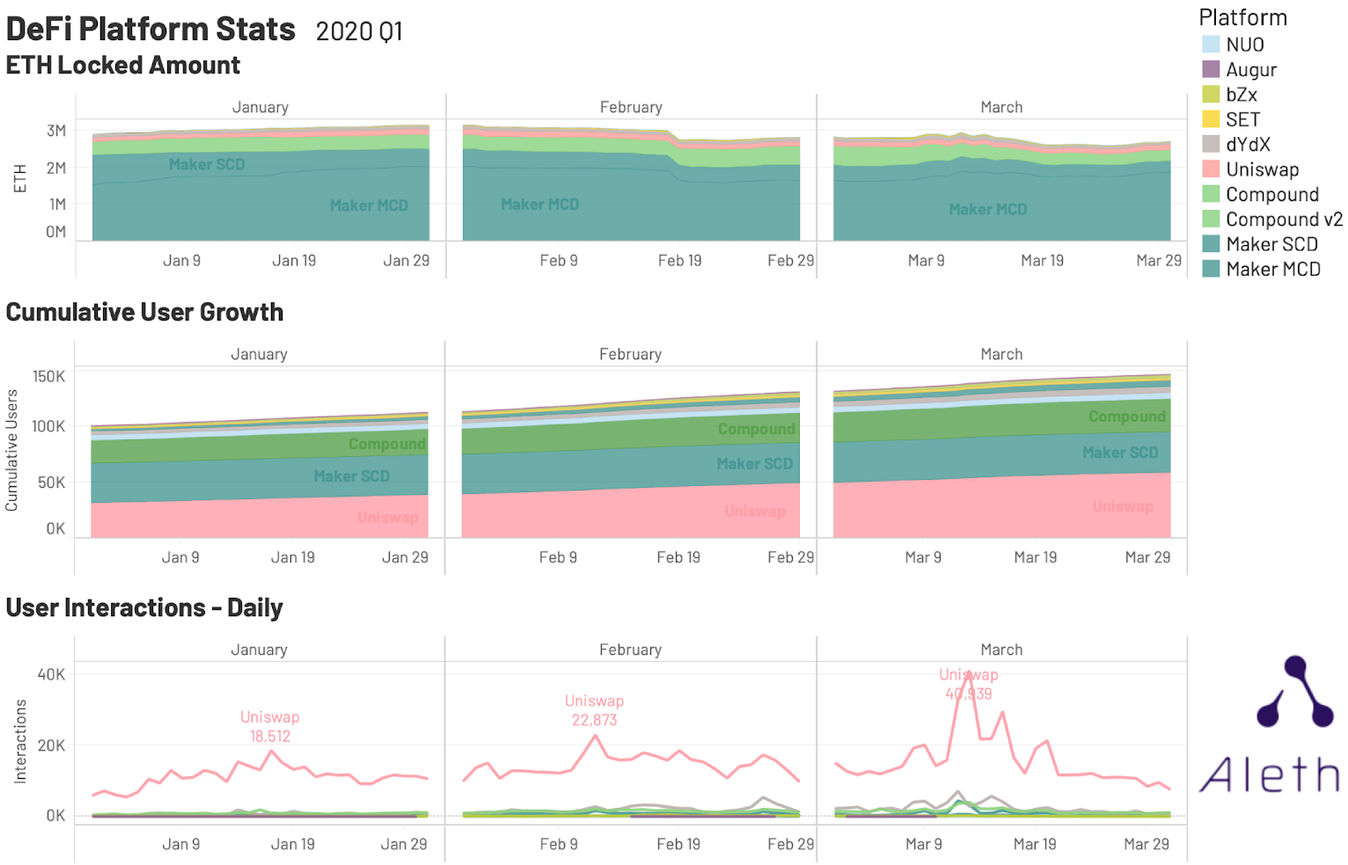


*Figure 4: ETH locked, user growth, and user interactions on DeFi protocols v2 in Q1 2020 [addendum C].*

## Protocol Evolution

The evolution of DeFi protocols can be appropriately measured along three data points: amount of ETH locked, number of unique addresses (used as an approximation for unique users), and number of interactions (i.e. activity). With these three numbers, we see how different DeFi protocols grew or stagnated over time in Q1. As shown in figure 4, ETH locked declined slightly from late January to the end of March, undoubtedly catalyzed by market-wide liquidations of ETH into stablecoins and USD. User interactions increased steadily throughout the quarter even before the market frenzy in March, by roughly ~20k every two weeks until a considerable spike in mid-March.

# DeFi User Interactions & Behavior

Over the course of Q1 2020, there were just over 80,000 unique addresses that interacted with an Ethereum DeFi protocol (see addendum B). During the quarter, daily active users across DeFi protocols remained fairly consistent, with notable spikes in activity around "Black Thursday" in March. At their peak on March 13, DeFi protocols saw 9,267 active users in a 24 hour period (11.5% of the total 80k unique users this quarter). Uniswap alone accounted for 40% of those users on March 13 (3,724) (figure 5).

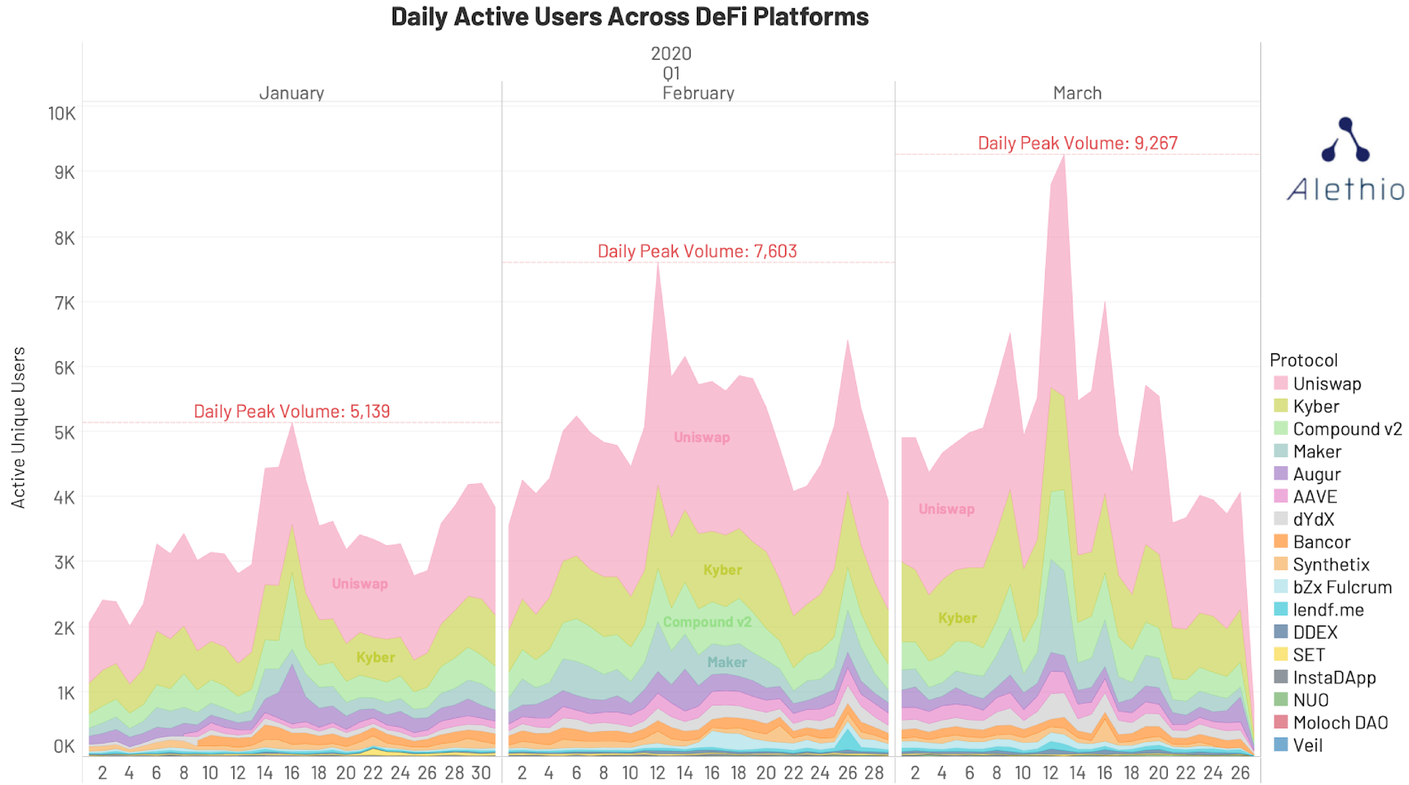


*Figure 5: Daily active DeFi users - Q1 2020.*

Total and daily active users is an important metric to judge the progressive growth of DeFi. Much of the promised value of decentralized finance, however, is the unique ability of DeFi to build networks of users between interoperable dapps. Existing financial applications often require third parties to facilitate the interaction between financial tools. This “seamlessness” is engineered, and though it appears simple to the end-user, it is often supported by high costs and liabilities. These are eventually passed down to the user as fees, long lead times (1-3 days and a 2% fee to deposit or send money, for example), and lack of sovereignty.

Building financial dapps off a shared technological protocol like Ethereum allows users to interact with a variety of financial tools without relying on these third parties. The result is a financial ecosystem that is considerably cheaper and more equitable to interact with. As more people interact with more protocols, this creates strong and compounding network effects that strengthen the ecosystem as a whole.

The value proposition of strong DeFi user networks is appealing - but just measuring overall user numbers does not show us the activity of the users. The transparency of the Ethereum blockchain, however, allows us to answer the question: are DeFi users actually taking advantage of the interoperability of Ethereum-based DeFi protocols?

Alethio’s DeFi user interaction illustrations show DeFi protocols (labeled with their logos in the graphs below) and users (addresses) alongside each other. Each dot represents a user, and users are connected to the DeFi protocol(s) with which they have interacted within a certain time period. Users who interact with just one protocol are collected next to the protocol (demonstrated by the ‘cloud’ of dots next to each logo). The size of the clouds demonstrates which protocols had large numbers of dedicated users. More interesting, however, are the users who interact with more than one DeFi project, which are represented by the yellow dots (users that interacted with 2 protocols) and the red dots (3+ protocols).

Figure 6 is the most comprehensive look at DeFi user behavior in Q1 2020. It shows all users who interacted with a DeFi protocol at least once in the first three months of this year. The graphs show a tremendous user base of Augur, Kyber, Uniswap, and Compound. The relationship between Maker SCD and MCD is expected, as migrations continued this quarter. The overlap between Kyber and Uniswap (10,955 users) reveals a strong relationship that individual users have with both protocols. As we will see, the overlap between Kyber and Uniswap grew stronger month-over-month throughout the quarter. Among users that interacted with 3+ protocols (in red), the relationship appears strongest between Kyber, AAVE, and Uniswap.

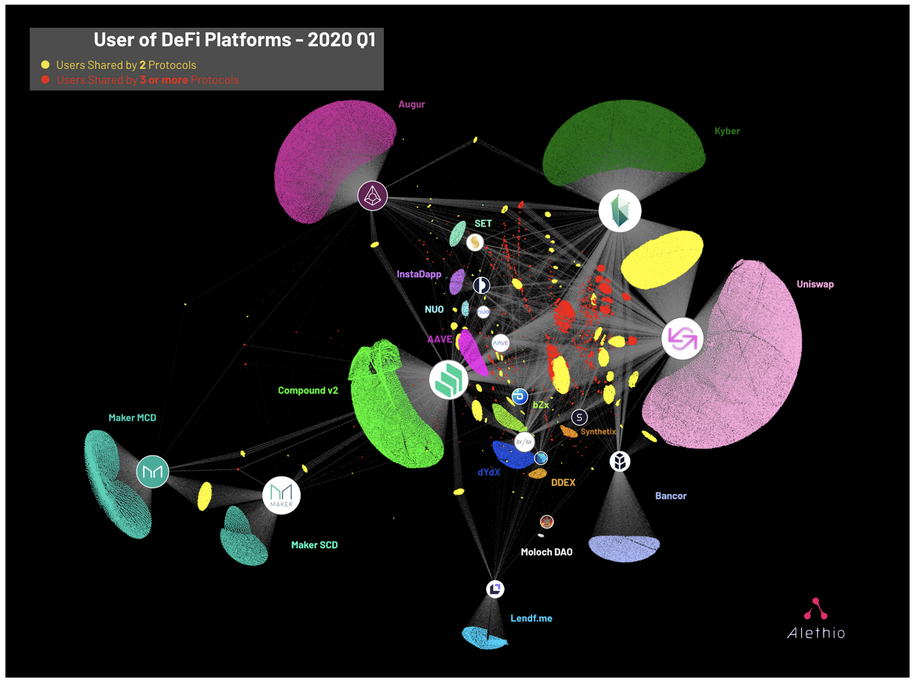


*Figure 6: Users’ interactions with DeFi protocols in Q1 2020.*
*Depiction of all addresses (dots) that transacted at least once with a DeFi protocol in Q1 2020.*

"Super users" are individuals who are using the existing DeFi ecosystem to a more consistent and robust degree. Figure 7 shows the DeFi user interaction graph for Q1 among super users - those who have made at least 100 transactions on DeFi protocols in the quarter. The graph shows 1585 super users and highlights interesting activity among DeFi's most prolific users. Uniswap commands the most activity among Ethereum's DeFi super users - with over 1000 individuals making 100 or more transactions with Uniswap in the course of three months. As shown in figure 7, the relationship between Uniswap and Kyber among super users remains strong. Whereas in figure 6, the size of Kyber's usage base was 64% that of Uniswap's (23,454 compared to 26,284), Kyber's usage base was 26% that of Uniswap's among super users (276 compared to 1048).

The story figure 7 tells is fairly clear: Uniswap is at the center of DeFi for super users on the Ethereum network. Considering that conclusion when looking at figure 6 of 1+ interactions, we can see that even for less-frequent users, Uniswap emerges as the most commonly-shared platform in Ethereum's DeFi ecosystem.

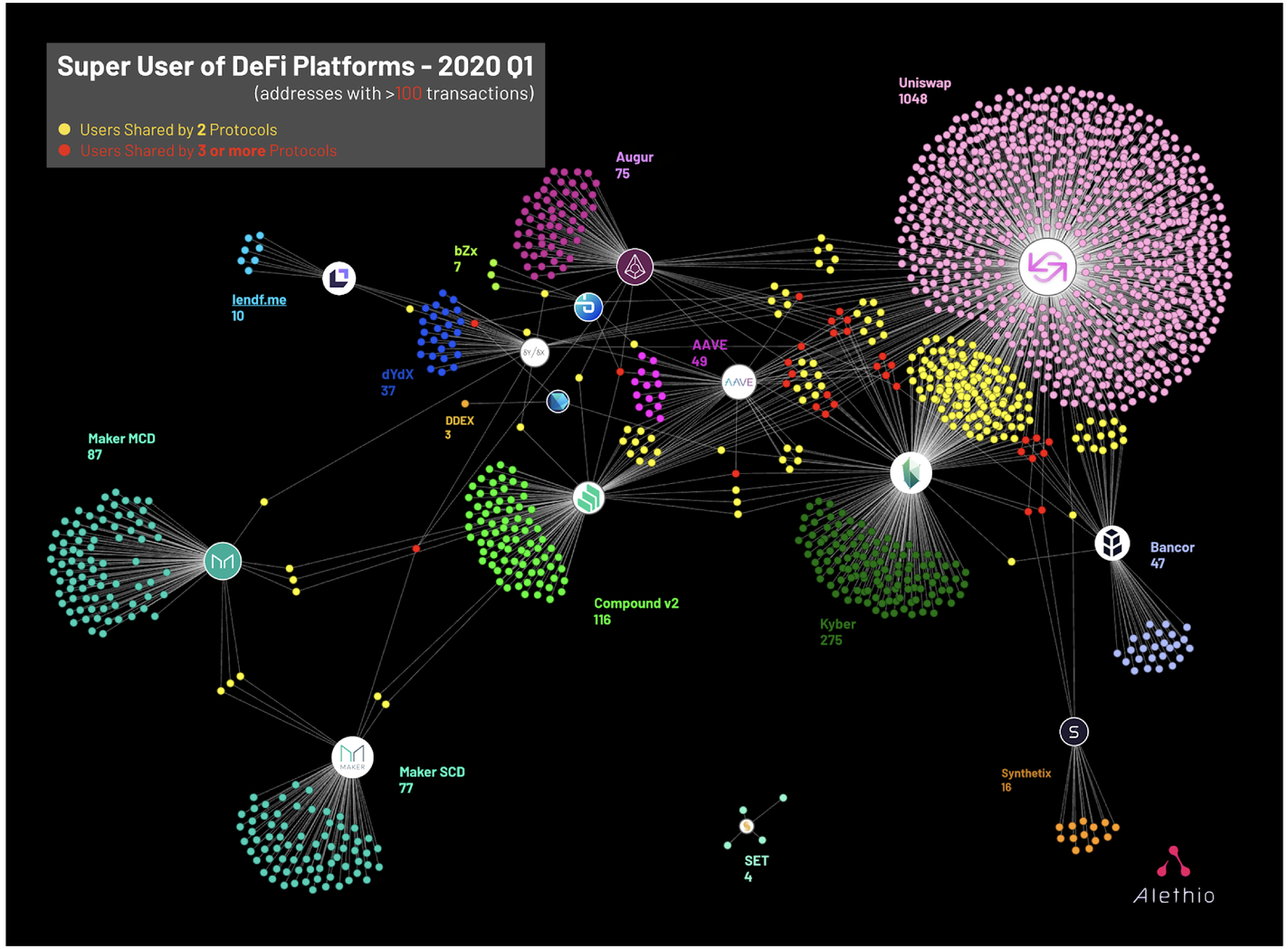


*Figure 7: "Super Users" with 100 or more interactions on DeFi protocols in Q1 2020.*

Analyzing DeFi networks over time provides insights into user behavior in response to ecosystem events. Figure 8 shows the DeFi user interactions for January, February, and March (*left to right*). In each image, the density of the cloud around Uniswap increases, highlighting the DEX's growing user base. Moreover, the large yellow cloud connecting Kyber to Uniswap increases in density as well as the quarter progresses, culminating in an increased overlap in March, likely in response to Black Thursday. Lastly, whereas in January and February user behavior appeared more spread out across protocols, March's user interactions appear noticeably skewed towards DEXes, depicting the surge in purely trading activity that occurred on mainnet in response to market conditions.

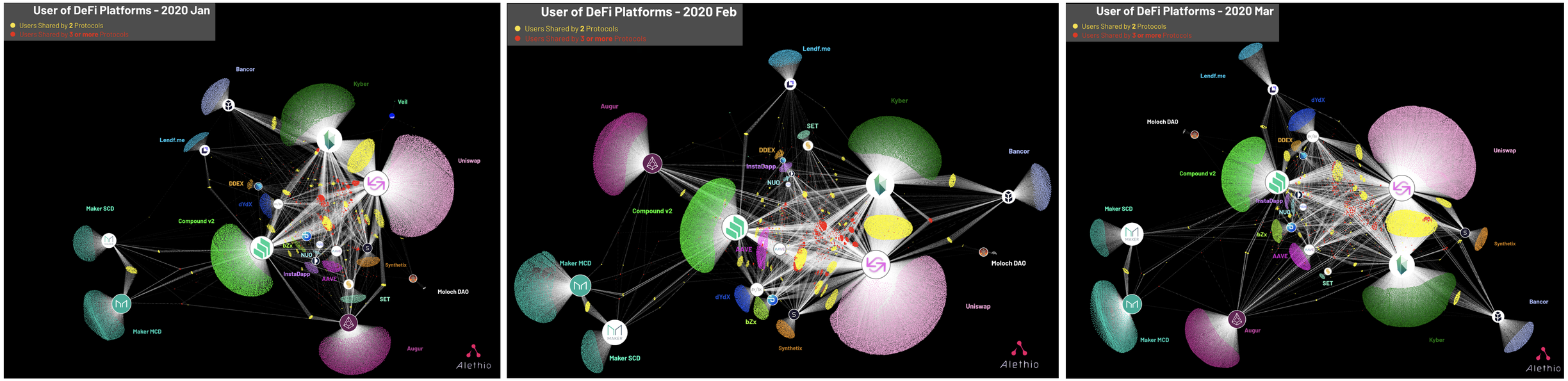


*Figure 8: From left to right - January, February, March. Users who interacted with a DeFi protocol 1+ times.*

# The bZx Events

On February 18, bZx was subjected to a manipulation of their crypto-economic model that allowed malicious actors to get away with nearly $650k in ETH. The February 18th event - which was the second time in a week that funds had been exploited from the platform - triggered a significant amount of unease in the DeFi ecosystem, particularly around the security implications of novel DeFi mechanisms like flash loans.

On the heels of ecosystem celebration for the $1bn USD milemarker, the bZx event exposed a few fundamental challenges DeFi would still need to address. First, protocols like bZx that support novel paradigms (such as flash loans) need to undergo far more severe stress tests and security audits before being released than previously considered. Second, "decentralized" is not a binary condition, and "decentralized" finance can be a misnomer - as demonstrated by the bZx team's ability to turn off a part of their platform after the first protocol compromise on February 15. Lastly, the tight interaction of the different DeFi protocols in the ecosystem means that DeFi as a whole can be rocked by the malfunction of just one important protocol.

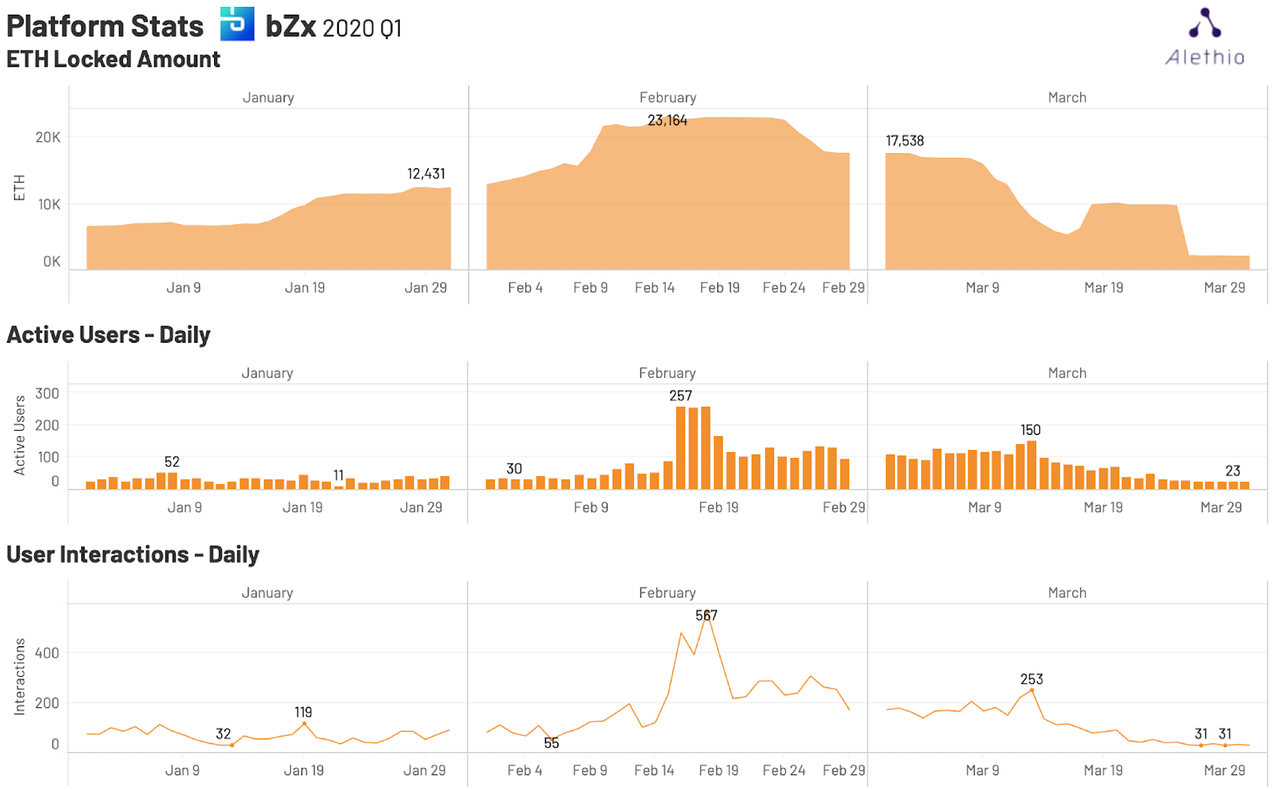


*Figure 9: ETH locked in iETH token pool + bZx Vault, daily active users, and daily user interactions on bZx - Q1 2020.*

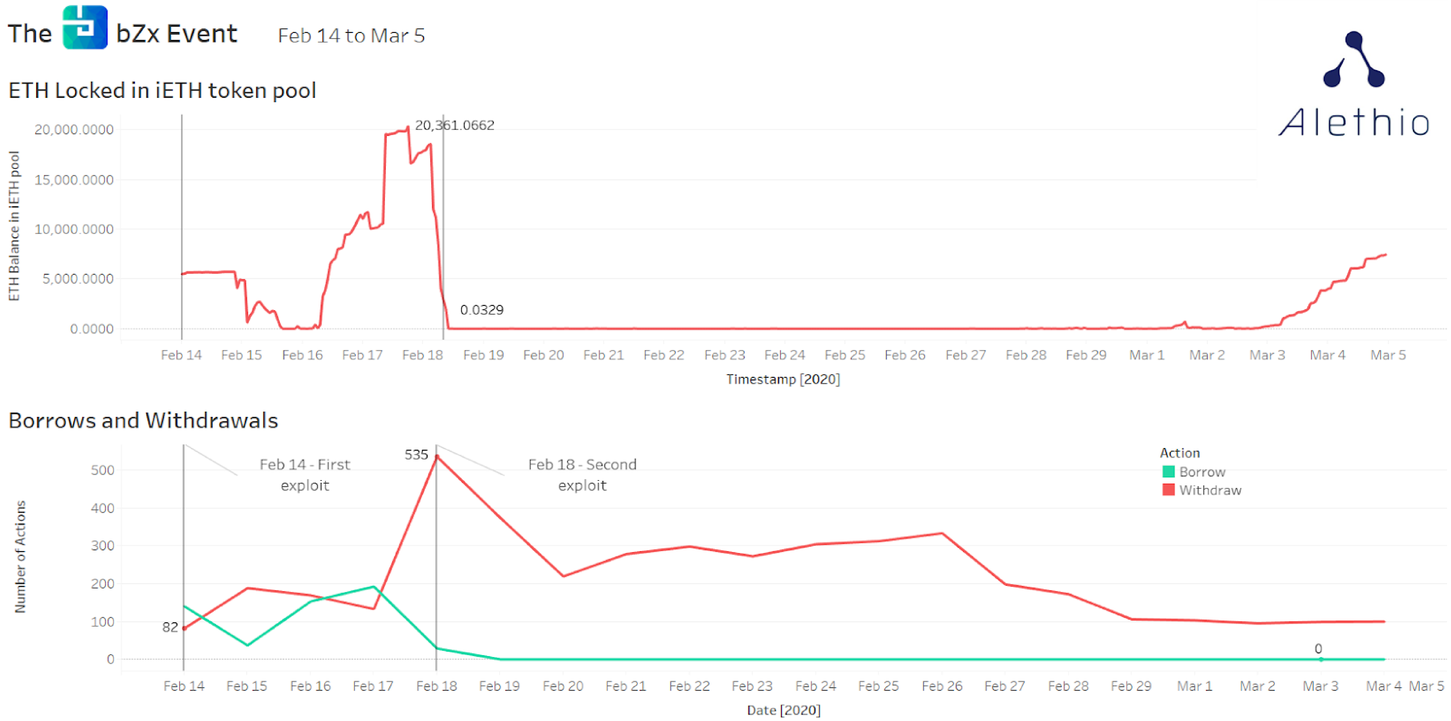


*Figure 10: ETH locked in bZx iETH token pool only, compared to the number of Borrow and Withdraw actions.*

The trend of bZx's users, interactions, and locked ETH in Q1 illustrates the impact of the two largest DeFi incidents this quarter (figure 9). User growth and interactions grew gradually in Q1, with turmoil beginning in mid-February during the two successive bZx events. ETH locked jumped suddenly on February 17, mainly due to a 7.5k ETH transaction sent from the address of the second bZx exploiter (figure 10). This action increased bZx's locked ETH to an all-time high of ~23k ETH on February 17. During the same time frame, user growth and interactions both spiked, and all three statistics fell as information of the incident came out.

In early March, all three statistics stagnated for a few weeks, but Black Thursday accelerated the decline of all three statistics. By the end of the quarter, all three protocol metrics had reached their quarterly minimums at 2,136 ETH locked, 31 daily user interactions, and 23 daily active users.

In the time frame following the first exploit shown in figure 10, we can see a couple of interesting events. A large spike in the number of withdrawals marks the moments after the second exploit - indicating people were expecting a lack of liquidity or a total shutdown of the protocol and scrambled to regain their ETH. Borrows dropped suddenly as well, staying at 0 for the next month, after the protocol admin team hit the pause button on February 18.

# MakerDAO MCD

On November 18, 2019, MakerDAO's Multi-Collateral DAI (MCD) update went live on the Ethereum mainnet. It marked the most anticipated milestone on one of the largest DeFi projects to date.

Before November 18, the MakerDAO platform allowed users to draw loans in the SAI stablecoin using just ETH as collateral (SAI stands for the token on the former single-collateral DAI [SCD] platform). The November update was designed to allow users to draw loans in the new DAI stablecoin using multiple forms of collateral, ETH included. During this update, SAI holders were able to redeem their stablecoins 1:1 for the new DAI. SAI still exists, but at some point the community will vote to shut down the single-collateral SAI legacy platform, ensuring the DeFi community continues with the multi-collateral system.

The collateral options in the new platform are not set in stone. They are "extendable" — meaning collateral types can be added (or removed) by virtue of the Maker governance process, which relies on community votes. Before Black Thursday, the collateral types offered in the MCD platform were ETH and BAT (Brave's digital advertising token). As a result of an executive vote held on March 17, MKR holders have accepted USDC as the third collateral type approved by Maker governance.

On December 17, more than 50% of the SAI in circulation was successfully migrated to DAI, less than a month after the announcement on November 18. The migration from SAI to DAI performed quite well until late February, when a stagnation and then a decline in the total supply of DAI occurred. The major drop in figure 11 is mainly due to the liquidation spree caused by ETH prices dropping.

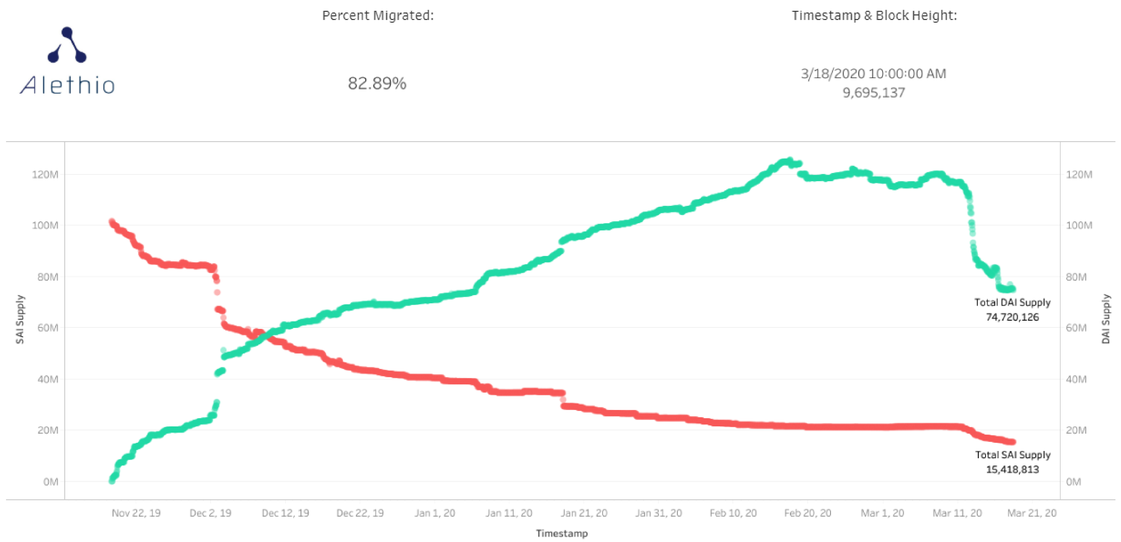


*Figure 11: The migration from SAI to DAI surpassed 50% in December and continued successfully until mid-March, when the total supply of DAI fell drastically.*

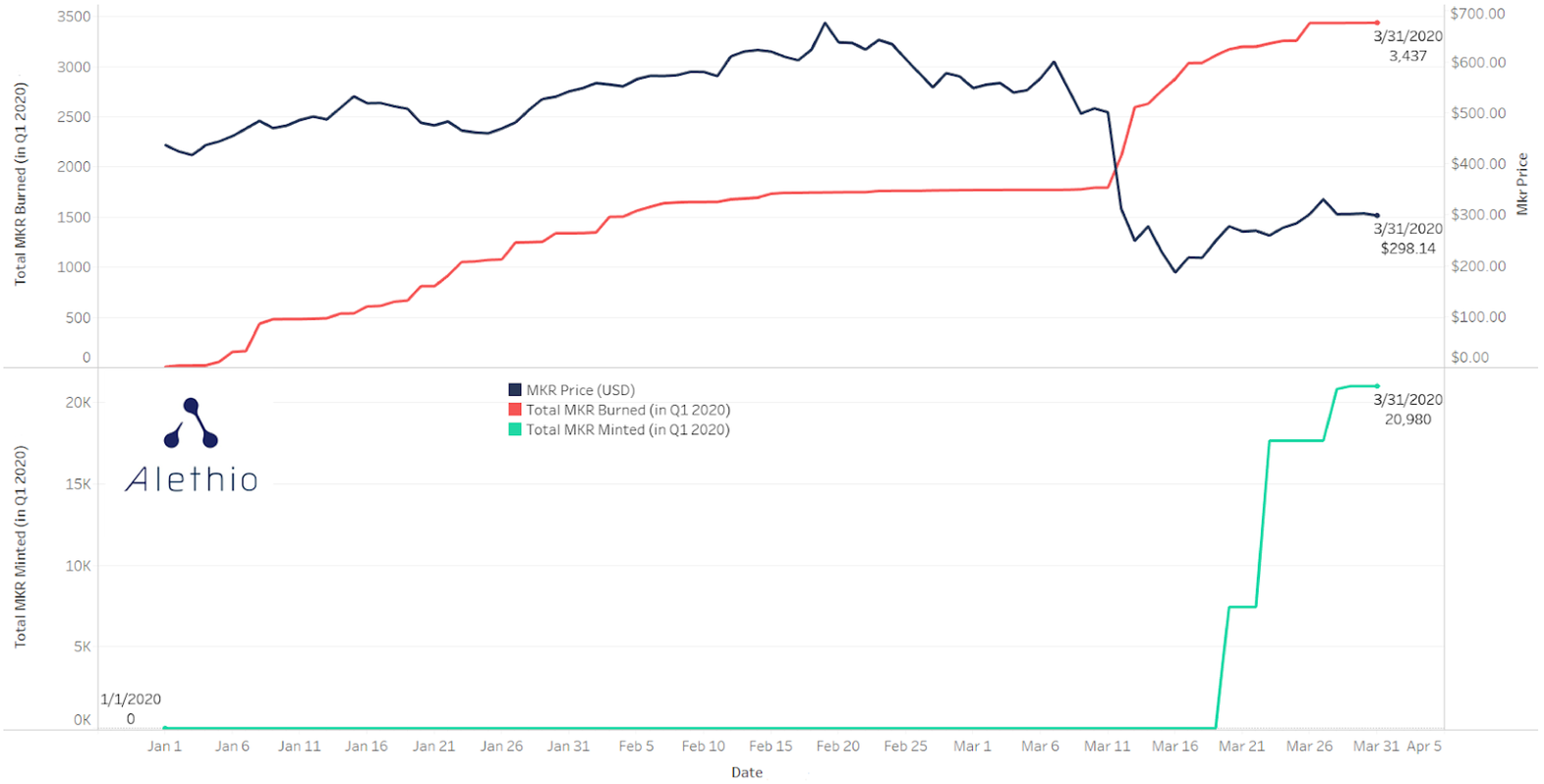


*Figure 12: MKR price (black) vs. MKR burn rate (red) & mint rate (green), Q1 2020.*

Figure 12 shows the MKR price in USD alongside the MKR burn rate. As ETH prices began falling on March 12, a sudden spike in liquidations led to a sharp increase in the previously-stable MKR burn rate. The increase in burned MKR was due to liquidated DAI being used to buy and then burn MKR. The market activity, however, was not enough to protect MKR prices from falling as well, from ~$500 on March 11 to ~$200 by March 16.

Figure 13 illustrates the expected correlation between liquidations and ETH price. Historically, the largest spikes in the total number of liquidations (red) coincide with dips in ETH price (green). However, the number of liquidations is not always proportional to the amount liquidated (orange). There have been a high number of liquidations in the past, but what made the March events unique was the average amount for which CDPs were liquidated.

The last week of March experienced record volumes of liquidated amounts. After the price crash on March 12, over $1.1m USD worth of collateral was liquidated on the SCD platform in the remaining two weeks of the quarter. The biggest 'loser' was the owner of CDP #135. At 07:27:49 AM UTC, on March 12, 2020, this user lost 1571.9 PETH to cover a debt of 250,000 SAI. The value of the collateral he lost stood at over $270k USD. (Check out the 1,571 PETH getting liquidated in this transaction).

Other notable hits taken by CDP owners following Black Thursday include CDP #153,658, who lost 1,022 PETH valued at over $110k USD, and CDP #147,127, who got 'bitten' for over $50k USD worth of PETH. The liquidation frenzy was not limited to the single collateral Maker platform either - MCD vault #849 got 100% liquidated. The losses stood at 1,713 ETH.

What added to the turmoil on the Maker platform was a combination of incorrect oracle price feeds and high network congestion. This allowed four addresses to bid $0 for over 62k ETH collateral (valued at around $7m USD).

Usually, Maker DAO liquidations operate so that if the value of locked ETH collateral falls below 150% of the value of the outstanding debt, Keepers can auction off the debt, to which a liquidation fee of 13% is added. The rest of the collateral is returned to the borrower. The borrower also keeps the DAI they drew using that collateral, so the loss should only amount to the 13% penalty, plus the stability fees paid, plus the exposure to the volatility of ETH prices that caused the liquidation in the first place. These $0 auctions, however, caused borrowers to lose a much larger percentage of their collateral, which was not returned as it should have been. The usual process meant to make liquidations for 100% was not supposed to be possible.

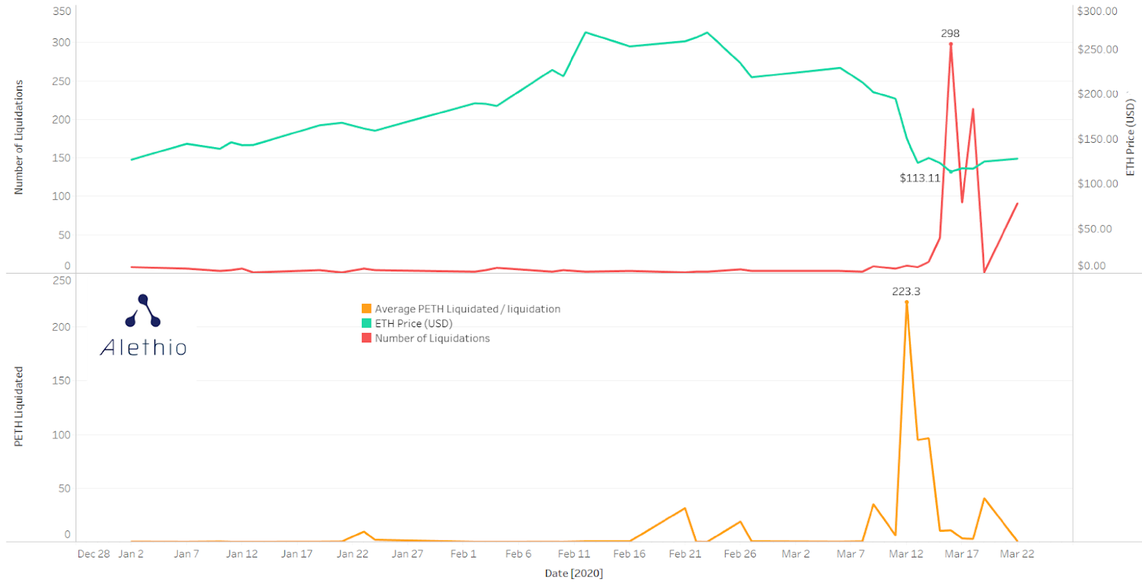


*Figure 13: Liquidations: average amount and number of occurrences vs. ETH Price, Oct. 2019 - March 2020.*

# Compound v2

Compound v2 was launched in May 2019 as the next iteration of the Compound DeFi platform. Since then, as demonstrated by ETH locked and user networks, Compound v2 has played a significant part in the DeFi ecosystem.

The mid-March market crash heavily impacted the ETH locked in Compound. Within a week after March 12, ETH locked had reduced by 43%% from a high of 526k in early March to 295k on March 17th. In addition to a hard hit to ETH locked, user count and interactions stagnated or fell. From the beginning of the quarter, the number of users and the number of interactions had returned roughly to their late January amounts.

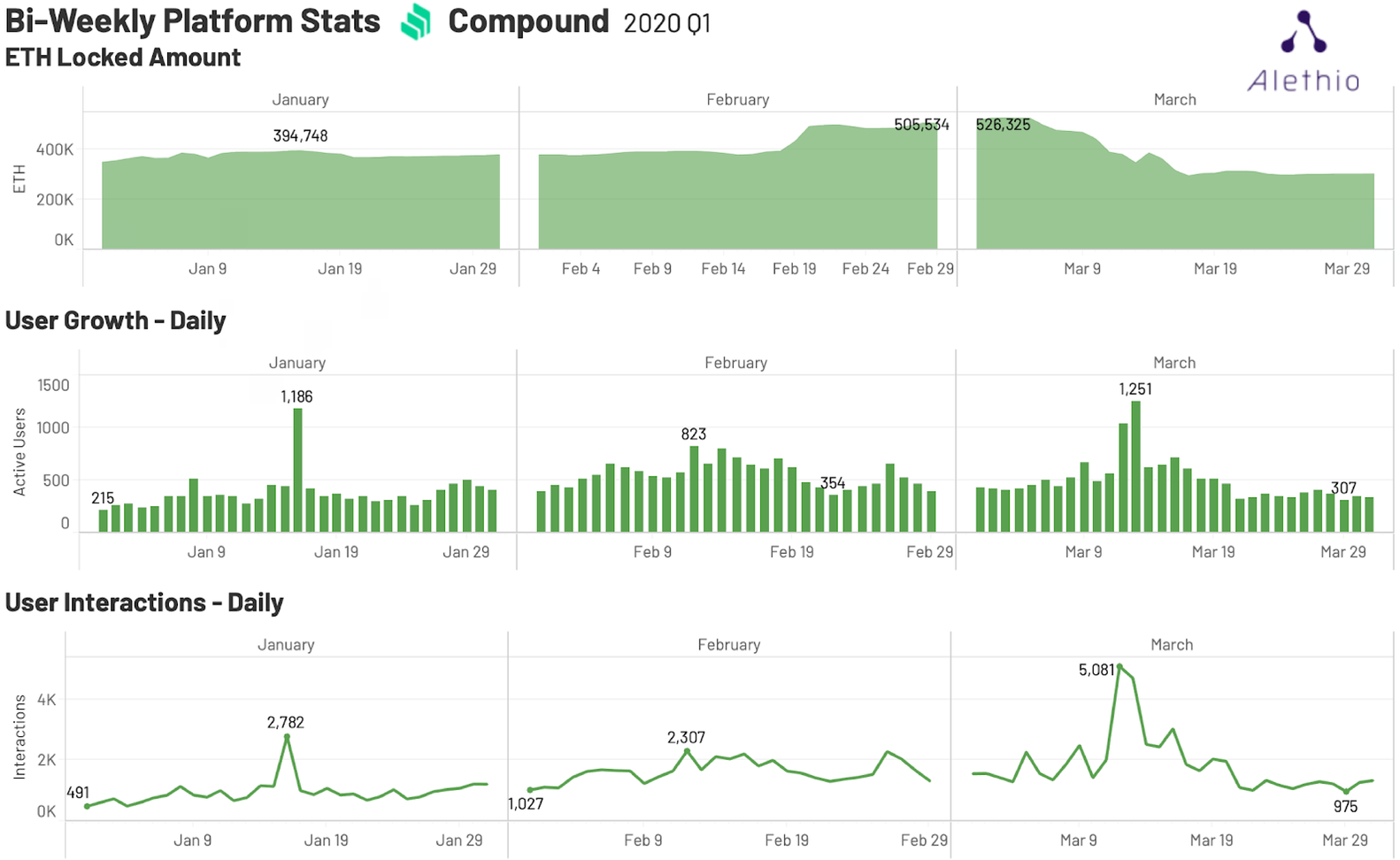


*Figure 14: ETH locked, user growth, and user interactions on Compound v2, Q1 2020.*

# Uniswap

Among decentralized exchanges, Uniswap emerged as market leader in late 2019 and solidified itself in the past quarter. In Q1 2020, a total of 2.7m ETH/WETH was traded on Uniswap. 13% of that total volume was traded on March 13th alone. The Black Thursday event in March - though ultimately a difficult day for the Ethereum ecosystem - was an important moment for DEXes. In 24 hours, Uniswap successfully transferred over 8x the amount of ETH compared to its February peak with no major errors, attacks, or crashes.

Particularly interesting are the increased trades in stablecoins during the March market frenzy (figure 15):

- On January 6 - the volume traded high of January - 27.1% of the day's trades were in DAI and USDC.
- On February 14 - the volume traded high of February - 17.0% of the day's trades were in DAI and USDC.
- On March 13, the day after Black Thursday, 80.8% of the day's trades were in DAI and USDC.

| Day | Max Vol. | DAI Vol. [ETH] | USDC Vol. [ETH] | Total DAI + USDC Vol. % |
|---|---|---|---|---|
| Jan. 6 | 23,888 ETH | 4,911 ETH **(20.5%** of total) | 1,587 ETH **(6.6%** of total) | **27.1%** of total |
| Feb. 14 | 42,577 ETH | 5,907 ETH **(13.9%** of total) | 1,319 ETH **(3.1%** of total) | **17.0%** of total (-10.1%) |
| Mar. 13 | 346,505 ETH | 185,273 ETH **(53.5%** of total) | 94,464 ETH **(27.3%** of total) | **80.8%** of total (+63.8%) |

*Figure 15: DAI and USDC volumes on Uniswap during each of the monthly trading highs in Q1, 2020 [ETH].*

The dominance of stablecoin trades on March 13th (figure 15 & 16) demonstrates the wide assumption that the majority of trading activity (at least on DEXes) was to protect people's crypto investments by converting into stable currencies as quickly as possible. And that is just with DAI & USDC as the major two stablecoins measured; including other stablecoins, the % of March 13's trades that were in stablecoins would be even higher.

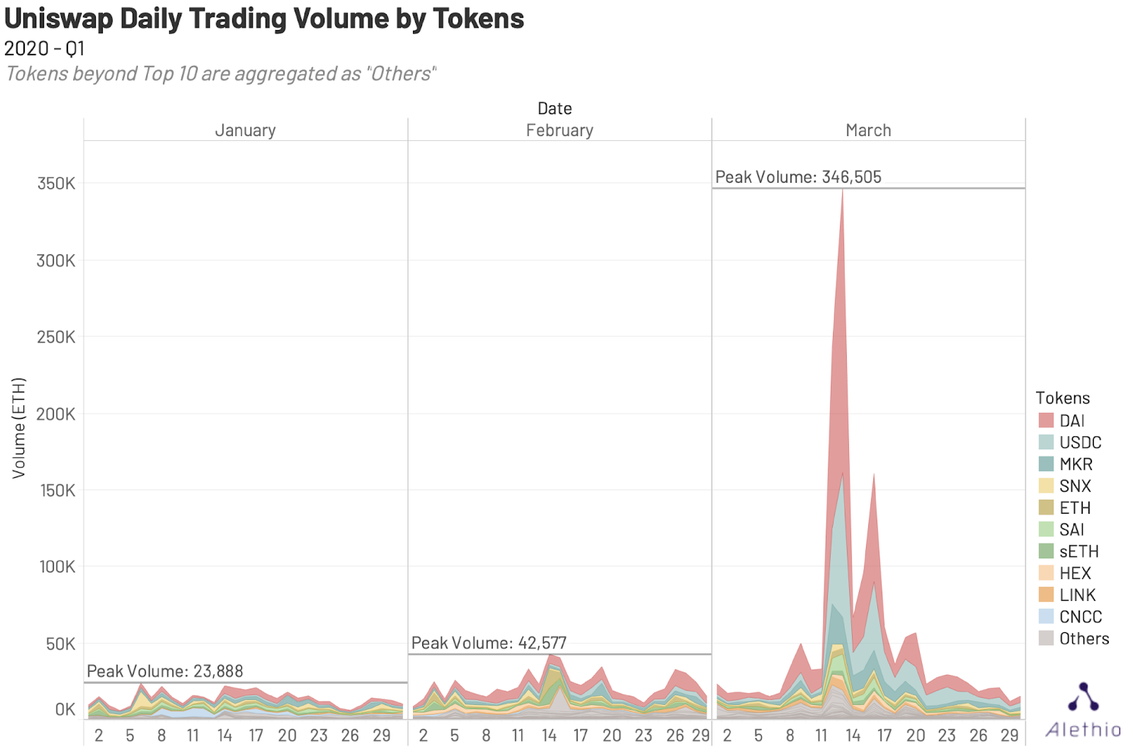


*Figure 16: Daily trading volume by tokens for Uniswap, Q1 2020.*

# COVID-19 & DeFi: Data Analysis

Looking at the market before and after COVID-19 sparked market turmoil gives a clearer picture of how Ethereum protocols and users responded to the events.

Asset utilization rates on lending platforms measure how much of assets in protocols' liquidity pools are being used for debt and supply volume. Figure 17 shows the utilization rates for Maker MCD, Compound, AAVE, and dYdX in Q1. Across the platforms, we see a corresponding trend during the black swan window (the shaded gray bar). Utilization rates decreased almost across the board during and after the event. USDC is an interesting asset to analyze. It's utilization rate decreased in dYdX and Compound, but was one of the few assets to have an increased utilization rate during this time period, and only on AAVE. During this same time period, we see USDC appear on the Maker MCD chart, where it was added as collateral to the protocol on March 16 and saw a spike in utilization rate immediately after.

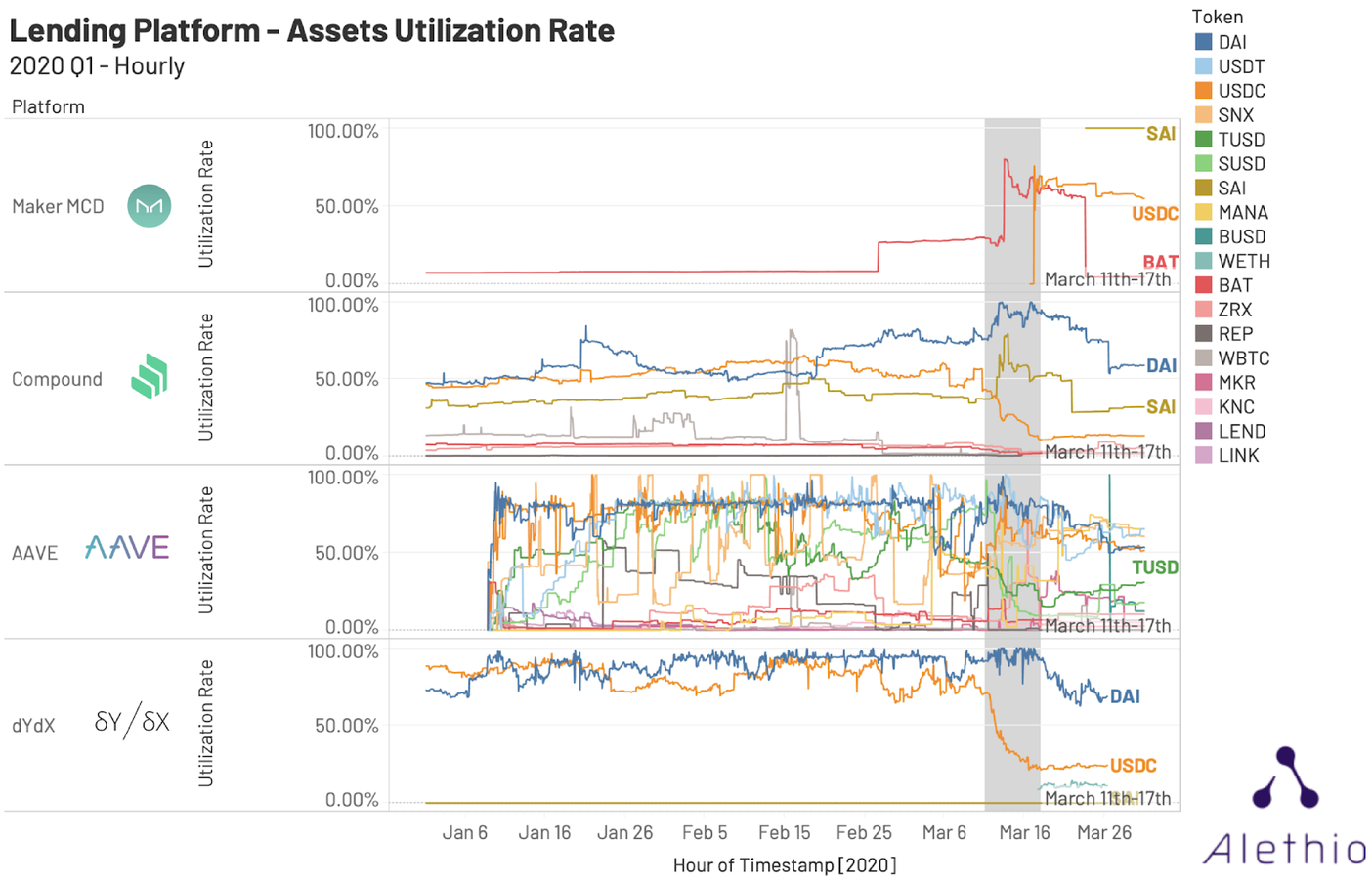


*Figure 17: Asset utilization rates on Ethereum DeFi lending platforms, Q1 2020.*

## USDC Volume Across Platforms

2020 - Q1

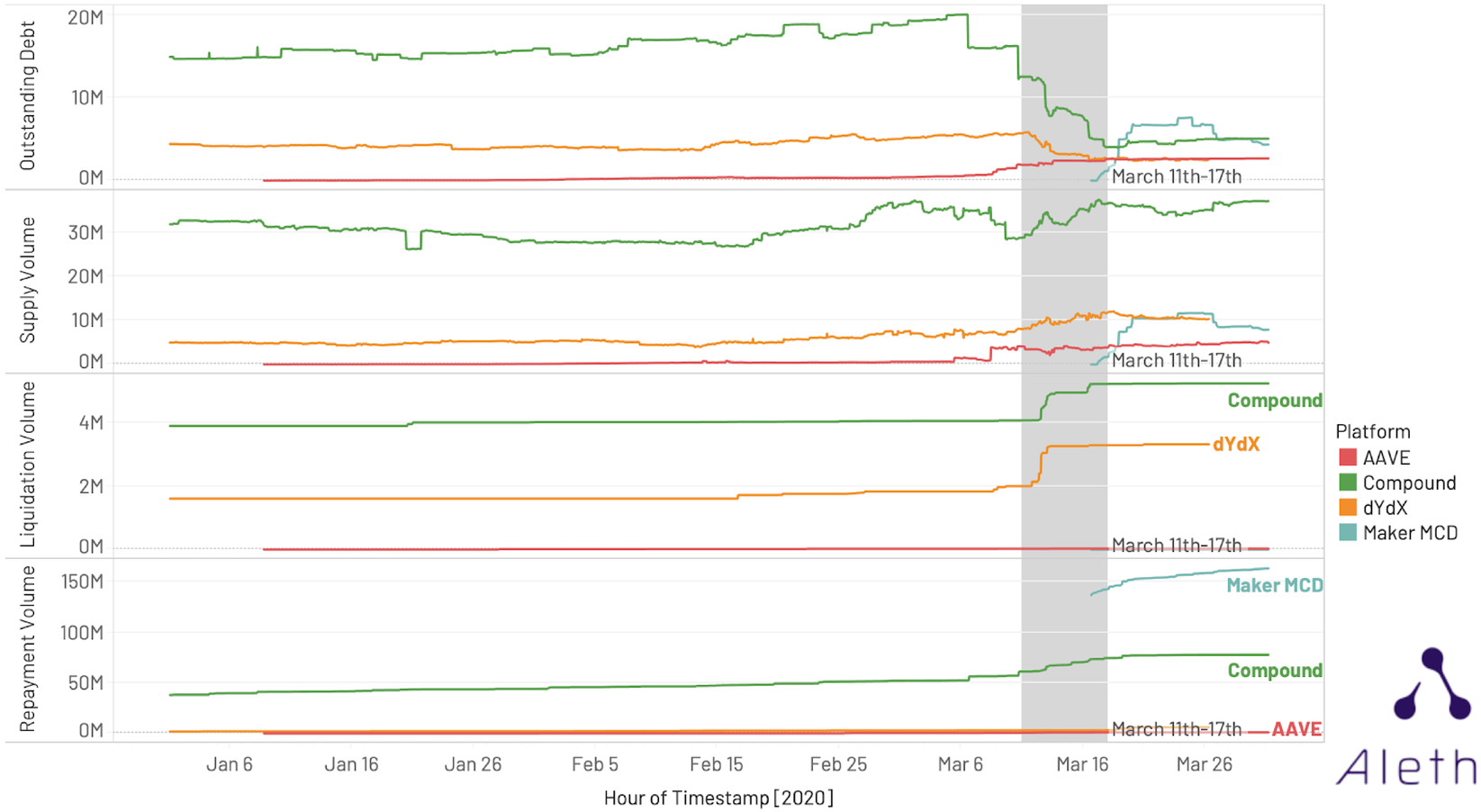


*Figure 18: USDC volumes across Ethereum DeFi lending platforms. Q1 2020.*

Figure 18 shows a closer look at USDC. As expected, outstanding debt decreased across most protocols - and especially Compound - as liquidation volumes raised dramatically on Compound & dYdX. Supply volume increased, possibly due to the influx of liquidated USDC into the market. Compound still leads the market in USDC supply volume, followed by dYdX, and supply volumes largely remained stable during and after the March market crash.

Figures 19 and 20 show 'Supply & Borrow APR' and 'Collateral Ratios' for the same four lending platforms during Q1 and the March market event. Maker MCD maintained equivalent supply and borrow APR (Annual Percentage Rate) all quarter until the days following March 12th, when the two APRs diverged for the first time. Across all four platforms, collateral ratios dropped dramatically beginning on March 11 before rallying to pre-crash levels in the weeks following.

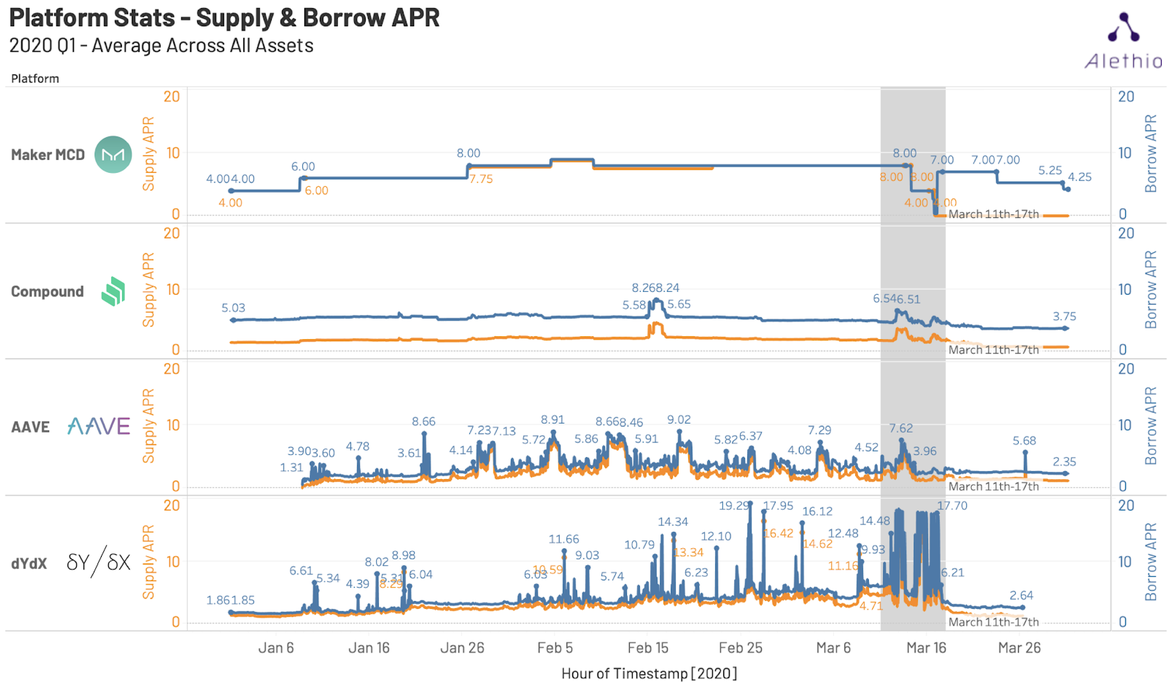


*Figure 19: Supply & Borrow APR on Ethereum DeFi lending platforms, Q1 2020.*

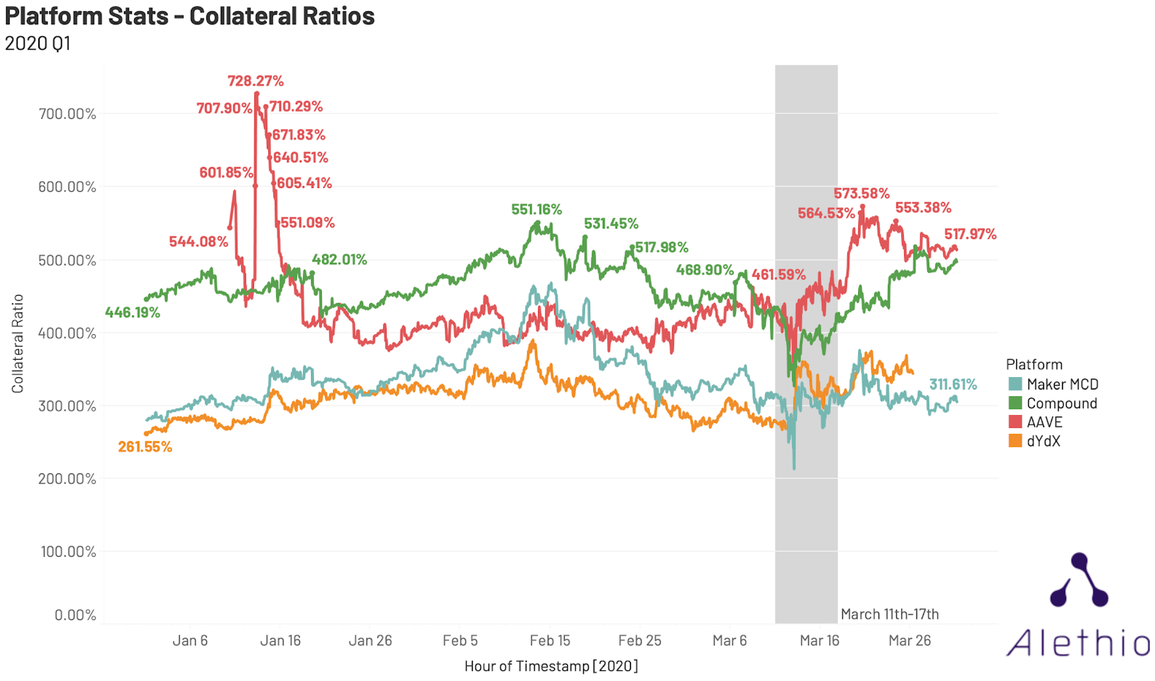


*Figure 20: Collateral ratios on Ethereum DeFi lending platforms, Q1 2020.*

# Looking Ahead: DeFi in 2020

## A Blip in the Radar: ETH Locked

The drop in ETH locked in the last two months of Q1 2020 is a notable departure from the upward trend that has lasted solidly for more than a year. Despite the decrease, the ecosystem is essentially only 'set back' one quarter, to the amount of ETH locked in late 2019. We anticipate the upward trend of this statistic to kick back into gear as people return to DeFi following the shocks of bZx and Black Thursday.

## Neither Gone nor Forgotten: Flash Loans

Generally, flash loans allow an individual to take out a loan, use that loan on another defi protocol, and then instantly return that loan back to the original protocol all within the same transaction. If the loan is not returned within that single transaction, then the entire transaction fails and the only penalty is that the user pays the gas fee. Flash loans enable access to large amounts of liquidity that would otherwise be unavailable to people, thus unlocking more equitable opportunities for wealth creation.

The bZx events may have hurt confidence in flash loans in the short term, but platform risk should not be confused with mechanism risk. The inability of bZx to ensure their platform was actively protected from potential attacks - by requesting code audits and keeping track of developments in the space such as flash loans - is not an issue with the underlying opportunity that flash loans offer or their innate security as a financial mechanism. Already, bZx has worked to improve the security of their platform; to protect against another oracle error, they are integrating with Chainlink's oracle solution. Despite February's events, flash loans are not going anywhere.

## Pay Attention to: DeFi Insurance

The first quarter of open finance has been a significant one for the Ethereum ecosystem. And, almost presciently, the bZx and Black Thursday events revealed the importance of a quietly growing component of decentralized finance that we predict will grow in importance in 2020: insurance. Two protocols in particular - Nexus and Opyn - demonstrate the complexity and variety of insurance options to DeFi consumers. Nexus is a more seasoned company, and is more specifically focused on smart contract breaches. Nexus does not, for example, cover crypto-economic incentives that are manipulated or do not work the way they were intended. This is demonstrated by Nexus' Tracker, which records that they denied all 15 resolved claims relating to MakerDAO that were submitted on or after March 12. Money was lost in MakerDAO following Black Thursday not because of a security flaw with the smart contract, but because unanticipated market forces allowed a few people to game the protocol's incentives. Opyn, an insurance platform that launched on February 12th, just days before the first bZx incident, extends protection beyond just technical risk to "financial risks (e.g. liquidity crises)."

A fear following the bZx and MakerDAO events was that project developers would be hesitant to support novel financial mechanisms on mainnet, thus slowing down ecosystem development. Nexus and Opyn, however, serve as a counterbalance and provide an avenue for users to protect themselves against future potential protocol compromises.

# DeFi Data Availability

If there is an overarching lesson from Q1 2020 for emerging and veteran blockchain technologists alike, it is the importance that data availability and transparency plays in the success of decentralized finance. Insight into the breadth of the DeFi market allowed the ecosystem to celebrate a momentous threshold of $1bn USD in February. In the wake of the bZx, Black Thursday, and MakerDAO events, data transparency also allowed DeFi participants, researchers, and developers to all independently review where these financial systems buckled. Instead of needing to trust in the results of a few centralized entities given access to a financial system's data, the DeFi community as a whole was able to identify the stress points of an open financial system, and come together to build a stronger foundation.

We at Alethio are a leading provider of data access and analysis for Ethereum mainnet activity, and for DeFi in particular. All of the information in this case study was gathered through our publicly-available tools. Our general and DeFi-specific APIs are a developer's tools to building the most robust analytics for ensuring the proper functioning of their dapps. Our Monitoring and Reporting features are used to access both real-time and historical data about on-chain protocols for researchers and investors alike.

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"The DeFi community as a whole was able to identify the stress points of an open financial system and come together to build a stronger foundation."

# Addendum

A. The DeFi protocols Alethio analyzed for ETH locked include: Augur, bZx, Compound, Compound v2, dYdX, Maker SCD, Maker MCD, Moloch DAO, NUO, SET, Uniswap, Veil, & Nexus Mutual. Data can be accessed through the Alethio Reporting Tool.

B. The DeFi protocols Alethio analyzed for unique address interactions include: Uniswap, Kyber, Compound v2, Maker, Augur, dYdX, AAVE, Bancor, bZx Fulcrum, Synthetix, lendf.me, DDEX, NUO, SET, InstaDApp, Moloch DAO, & Veil.

C. Cumulative user count is only 100% reliable when DeFi protocols are looked at individually. The cumulative number of users is double counting addresses that interacted with two protocols throughout the quarter. Refer to network graphs (figures 6 - 8) for a better idea of how addresses overlap with different protocols.

# Authors

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