

AAVE



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CONTENT PAGE

CONTENT PAGE	2
EXECUTIVE SUMMARY	3
Price Target	3
Introduction to Defi	3
Mechanisms of Aave (DEPOSIT, BORROWING, REDEEM, Repay)	4
Depositing	4
Redeem	4
Borrowing	5
Repay	6
AAVE and aToken	7
Flash Loans	8
Flash Loans V2	9
Market Competitors and Advantages	10
	
Risks	11
Technological Risk	11
Compliance Risk	11
Technical Analysis	12
Comparison between BTCUSD and AAVEUSDT	12
A closer look at BTCUSD daily chart	13
AAVE Daily Chart (Trend and Price Action)	14
EMA (Exponential Moving Average) On Daily Chart	16
MACD And RSI On Daily Chart	17
Sentimental Analysis	18
Overview	18
Social Media Analytics	18
Appendix	20
	2



EXECUTIVE SUMMARY

Aave (pronounced “ah-veh”) or formerly known as “ETHlend” originated as a peer-to-peer lending platform. Founder Stani Kulechov rebranded the name in 2020 from EthLend to Aave with various updates to enter the **Defi space** as a serious competitor as well as allow Aave to be more attractive for institutional and retail investors alike.

Aave is a non-custodial liquidity market protocol which allows users to borrow or lend funds from a liquidity pool. Being non-custodial implies that the platform does not have any control on the user's funds. Depositors provide liquidity to the market in which they can be incentivized by earning a passive income through interest rates. Aave provides two types of interest rates: **stable** as well as **variable** interest rates. The stable interest rate depicts the mean interest rate charged in the market for a given asset and is available on Aave’s platform for borrowers and lenders. On the other hand, variable interest rates are determined by an algorithm that tracks how the amount of funds borrowed from user pools. With the basic concept of supply and demand, the greater the amount borrowed, or higher demand of a given asset and consequently, the higher the variable interest rate would be. This protocol is completely open source allowing anyone to interact directly with various smart contracts on the Ethereum **Network**.

To interact with the Aave protocol, an individual would simply deposit a given asset as well as the amount. Subsequently, the user would receive passive income depending on the demand of the deposited asset (Stable or Variable interest rates as mentioned earlier). Furthermore, deposited assets allow individuals to borrow using the “deposited assets” as collateral. The cost of interest rate incurred in borrowing a preferred asset could then be offset by the interest rate the protocol provides for when user’s deposit assets in the market.

PRICE TARGET

We forecast that AAVE/USD will top out between about \$700 and \$750 in 2022, as the decentralized finance industry grows in popularity. In the following two years, we expect the pair to reach a high of \$1,500. The estimate is based on historical price fluctuations and increasing crypto use, including use cases for decentralized protocols like Aave. In the near term, we expect the price to follow the trend channel and drop to 150 which presents a good long opportunity.

INTRODUCTION TO DEFI

Decentralized finance or more commonly known as “Defi” refers to financial services or products powered by decentralized blockchain technology. Unlike the traditional finance world where banks or traditional financial institutions are present to facilitate transactions, a decentralized system uses automated features like smart contracts and public ledgers making it possible for users to interact with one another **directly**, may it be buyers, sellers or in the case of Aave platform; **lenders** and **borrowers**. In traditional finance, accessibility is constrained to individuals who have access to financial services, which carries disadvantages that come with

the rules governed by the services or the government. An example would be the 2008 crisis where banks failed to see the risks in the market which caused the collapse of major funds and banks. It is apparent that when money is centralized, a variety of risks comes with it. On the other hand, Defi negates all these factors where an intermediary is not necessarily required, implying that it is open to a wider pool across the globe.

The absence of intermediaries where users are not constrained to various regulations makes Cryptocurrencies and Defi very powerful and attractive but also imposes a lot of risks.

This Ecosystem where little to no regulations are present, can be very vulnerable to hacks, scams and lack of redress when something goes wrong. On the contrary, this system continues to evolve and strengthen its security through encryption and cryptography.

Defi is possible with **Smart Contracts**. Smart contracts consist of a complete programming language which allows parties to interact with each other without an intermediary. Blockchain utilizes these smart contracts making them ideal platforms for financial applications.

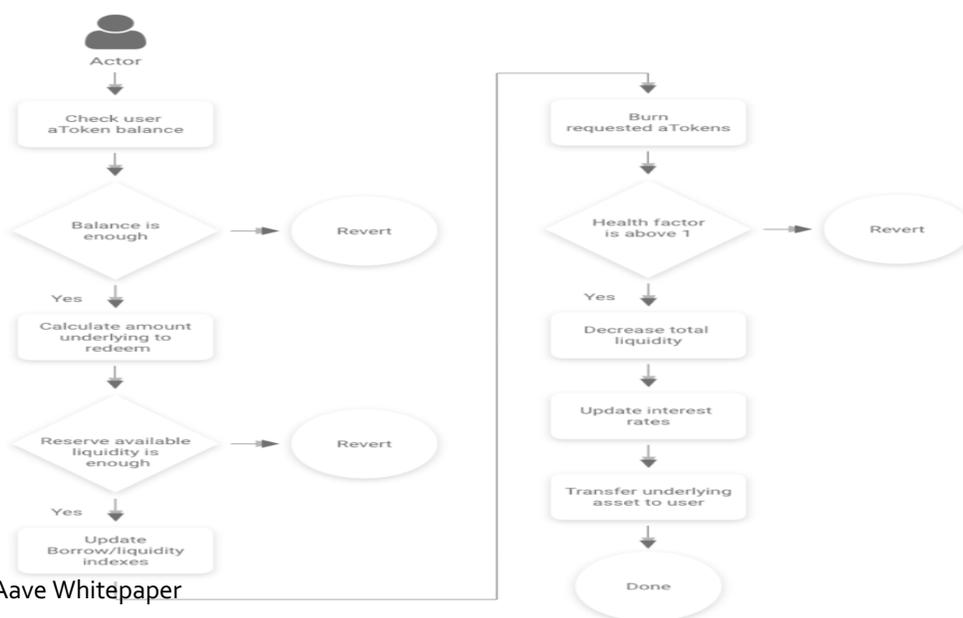
MECHANISMS OF AAVE (DEPOSIT, BORROWING, REDEEM, REPAY)

DEPOSITING

This action is simple where the user would deposit preferred assets into the platform. Upon depositing, the borrow/liquidity indexes would be updated and the total liquidity for the deposited asset would increase. The interest rate would then be updated then the equivalent aTokens would be minted and transferred to the reserve.

REDEEM

This action allows users to exchange aTokens for an underlying asset. The action can be seen in the framework below:

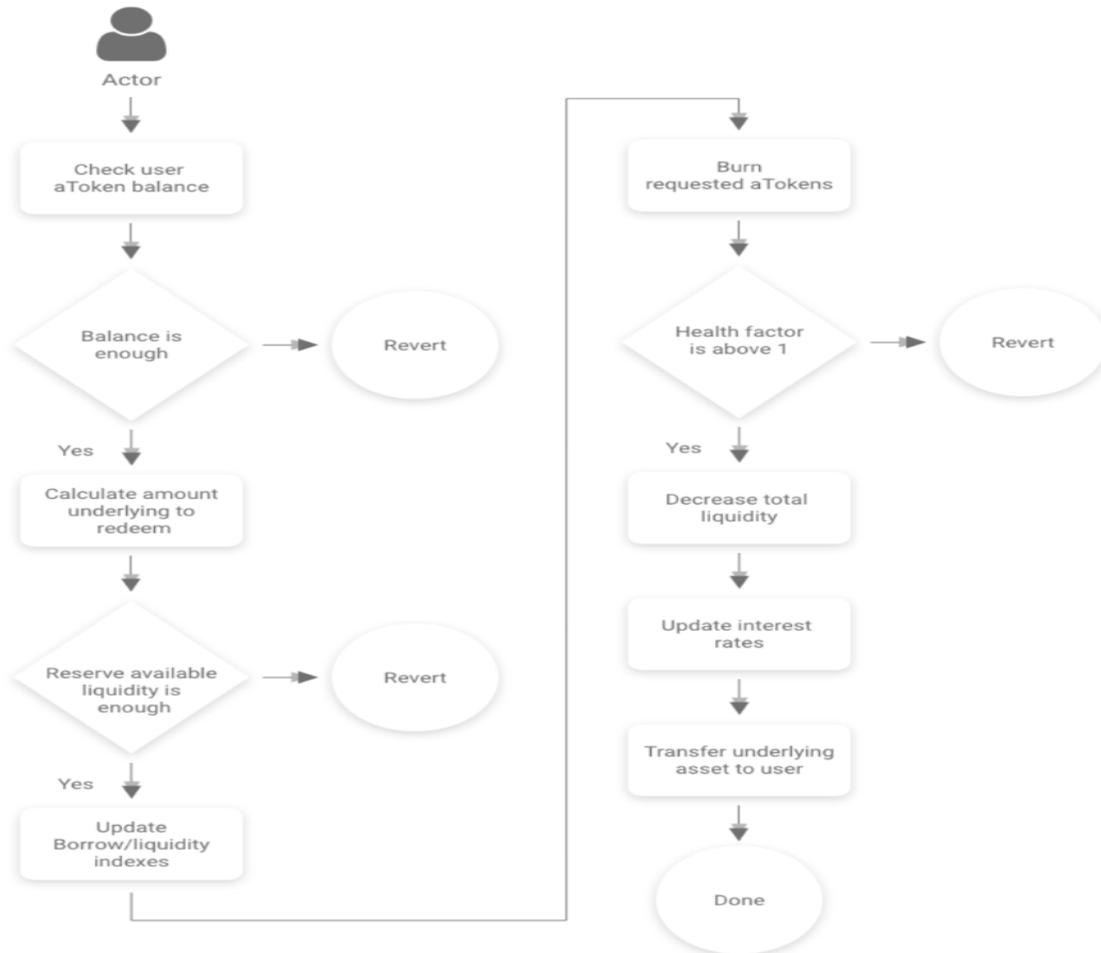


Source: Github_Aave Whitepaper

BORROWING

This function allows users to borrow or loan an asset in exchange for a collateral.

This is a core function of the Aave protocol in which users could borrow assets in exchange of a collateral that will be locked. Allowing investors to have trading opportunities with the vast assets Aave provides. As can be seen:



Source: Github_Aave Whitepaper

REPAY

This function allows borrowers to pay their loan amount together with interest rates that were incurred. An image of the framework can be seen below:



Source : Github_Aave Whitepaper



AAVE AND AToken

Aave possesses two tokens, the **aToken** and “**AAVE**”.

Upon the borrower or lender’s listing of respective crypto assets with Aave, they receive an equivalent **aToken** corresponding to the amount they provided. This Aave’s native token acts as a 1:1 peg for the given asset. For instance, an individual who deposited Ethereum in the pool would receive aETH, similarly, depositing Bitcoin would give you aBTC respectively. These tokens allow users to earn interest on the funds lent or borrowed, as well as be put in collateral in the cases of undertaking loans. These can be seen from the image:

Assets ▾	Market size ▾	Total borrowed ▾	Deposit APY ▾	Variable Borrow APY ▾	Stable Borrow APY ▾		
Ethereum	\$ 5.01B	\$ 117.44M	0.01 % 0.24 % APR	0.29 %	3.42 %	Deposit	Borrow
USD Coin	\$ 3.6B	\$ 2.98B	2.91 % 0.43 % APR	3.74 % 1.07 % APR	11.45 %	Deposit	Borrow
DAI	\$ 1.75B	\$ 1.36B	2.82 % 0.40 % APR	3.97 % 1.04 % APR	12.69 %	Deposit	Borrow
WBTC Coin	\$ 1.34B	\$ 31.5M	0.01 % 0.23 % APR	0.29 %	3.42 %	Deposit	Borrow
USDT Coin	\$ 1B	\$ 814.87M	2.77 % 0.45 % APR	3.68 % 1.13 % APR	12.53 %	Deposit	Borrow
ChainLink	\$ 329.09M	\$ 4.02M	0.00 % 0.84 % APR	0.19 %	3.33 %	Deposit	Borrow
Aave	\$ 279.84M	–	–	–	–	Deposit	Borrow
Maker	\$ 140.08M	\$ 395.5K	0.00 % 0.53 % APR	0.04 %	3.11 %	Deposit	Borrow
TrueUSD	\$ 105.78M	\$ 66.26M	1.88 % 0.27 % APR	3.18 % 0.89 % APR	12.26 %	Deposit	Borrow

Source: Aave.com

Interest rates are available for viewing on Aave's website. There is also no minimum or maximum amount of assets an individual can deposit. However, it is paramount that the user considers the **transaction cost** of each deposit as it may be larger than the expected earnings on the asset deposited.

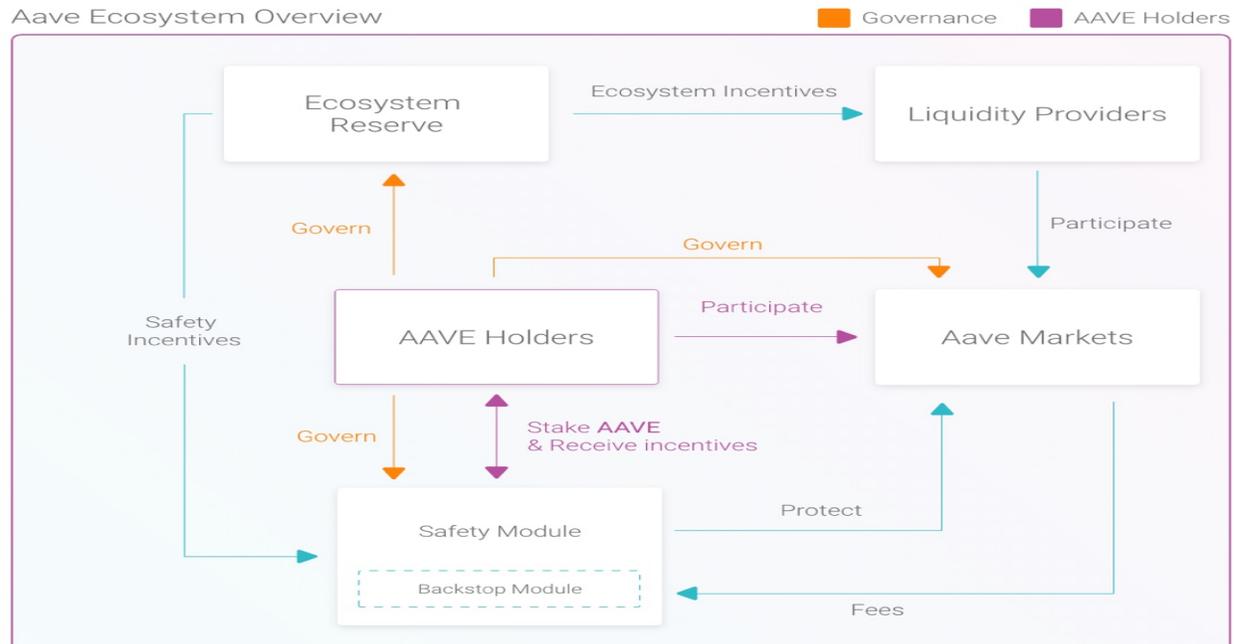
Users are also able to unselect the asset deposited so that it will not be used as collateral in the event of loans.

On the other hand, “**AAVE**” is Aave’s governance token. Governance tokens are cryptocurrencies that present voting power on a blockchain project. Decentralized remains through this system as power and rights are distributed to users.

This allows developers to interact with users and increase the effectiveness and communication on the steps in which the project could be developed. **Aave Governance** consists of the proposition and decision-making process for the different risk parameter changes, improvements and incentives that constitute the policies, and upgrades to governance itself.



There are also a few other advantages in which users can capitalize in holding AAVE tokens. For instance, there are zero fees in which the borrower incurs when they take out loans denominated in the respective token. Discounted fees are also applicable using AAVE as collateral. An overview can be seen below:



Source: Aave.com



FLASH LOANS

One comparative advantage of the Aave protocol over its competitors is the integration of Flash Loans. Flash loans are loans that Aave allows to be instantly issued and settled without putting up collaterals if the liquidity is returned to the protocol within one block function.

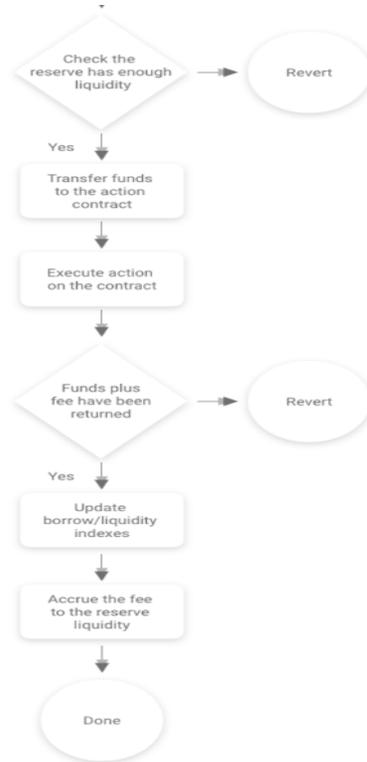
Flash Loans are complex and an individual needs to have great knowledge of Ethereum, smart contracts and programming.

A borrower essentially requests funds from the protocol with a certain fee, in which he must return the borrowed funds within the same block or else the loan will be canceled. This mitigates risks with Aave and the borrower if the borrower is unable to pay the loan.

It is also important to note that it is possible to swap other cryptocurrency coins built on Ethereum in trading opportunities. This can be done automatically using Flash Loans to generate more profits. This arbitrage opportunity is possible as investors could take advantage of price differences in the market, where they could sell or buy an asset without putting up collateral.

FLASH LOANS V2

Significant changes have been made with Flash Loans. It is apparent that this feature is important and a great advantage in Defi, but it also holds some limitations. One of which is that it cannot be used within Aave. A layout of **Flash Loan V1** can be seen in the image below:



Source: Github_Aave Whitepaper

A snapshot will be taken before the execution of the contract to confirm the balance of the asset loaned, then at the end of the Flash Loan, a check will be done to verify that the loan and the fees that comes with it is paid for. In the event of an inaccurate amount, the loan will be reverted. This limits the use within Aave as deposits, repayments and other actions will expose the protocol with **reentrancy**.

In Flash Loan V2, a snapshot is technically not required as at the end of the Flash Loan, only the amount borrowed through Flash Loan and its premium fees will be pulled. In the event of an insufficient amount, then the Flash Loan will be reverted. This allows users to deposit or use other actions within the Aave system.

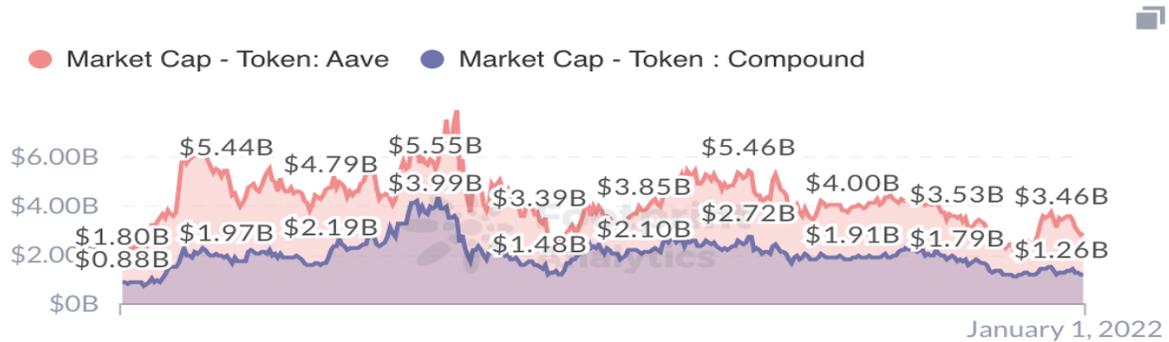
Flash Loans have been key to Aave's popularity as Aave's Flash Loan generated around 0.3% of its revenue with every transaction.

2 billion dollars' worth of assets has also been loaned out through Flash Loan in 2020.

MARKET COMPETITORS AND ADVANTAGES

There are other platforms or protocols that operate similarly to Aave. One of which is **Compound**.

Like Aave, Compound is a lending platform in which users can borrow or lend cryptocurrencies by putting up a collateral where it then can be contributed to a liquidity pool for other users to borrow. Compound’s governance token is known as “COMP” and just like Aave, it recently shifted to being decentralized in 2019-2020. Below are some comparisons of Aave and its competitors:



Source: FootPrint

As shown in the table below, the market cap of Aave is relatively larger compared to its competitor Compound.

DEFI PULSE	Name	Chain	Category	Locked (USD) ▼	1 Day %
🏆 1.	Maker	Ethereum	Lending	\$16.15B	-1.47%
🥈 2.	Aave	Multichain	Lending	\$10.65B	-2.78%
🥉 3.	InstaDApp	Ethereum	Lending	\$10.36B	-1.03%
4.	Compound	Ethereum	Lending	\$8.16B	-1.72%

Source: DefiPulse

Amongst other lending protocols, Aave also holds second value locked (TVL) with roughly 10.65billion. This attracts investors as the value locked is a good indicator of the volume seen across platforms



Interest Rates:

Best Defi Interest Rates

	Compound	Fulcrum	Cream	CAKE	AAVE	DDEX	NOTIONAL
BTC (Wrapped)	0.31%	.29%	.03%	6%	0.01%	0%	3.45%
Ethereum	0.08%	0.03%	1.28%	6%	.01%	.01%	2.79%
USDC	2.94%	7.62%	.53%	7%	3.02%	0.06%	9.84%
DAI	2.90%	5.81%	0.13%	-	2.80%	0.20%	9.61%
USDT	2.77%	9.04%	0.58%	7%	2.57%	1.09%	-

Aave also has relatively decent interest rates across different cryptocurrency the platform provides.

Other than the Flash Loan feature, which is a comparative advantage that Aave holds against competitors, Aave is also on a multichain which means that other than being on the Ethereum network, it is also launched on Avalanche and Polygon.

With the spike and high gas fees on Ethereum network, Aave continues to counter this problem by exploring other blockchain.

The Ethereum 2.0 upgrade also known as “serenity” will also help on the high gas fees on the Ethereum network which will aid and make Aave more attractive to investors. These upgrades are designed to improve the scalability, versatility, sustainability on the network.

RISKS

TECHNOLOGICAL RISK

Aave is a Decentralized Finance platform, Defi, powered by the Ethereum blockchain. The increase in adoption of DeFi in recent years caused this blockchain technology to be more prone to attacks, bugs and network congestion due to the high traffic network it must support. This could in turn cause transactions to fail and liquidation issues. Furthermore, even if the DeFi platform is stable, hackers can target vulnerabilities of the platform as well and disrupt how the platform works. However, the Ethereum blockchain will be undergoing an upgrade that is estimated to be released in early 2022 which is more secure, stable and sustainable. This would help to curb some of these technological risks.

COMPLIANCE RISK

There are no clearly established compliances and legal regulations established as Aave is still a relatively new DeFi platform. As this platform, like most other DeFi platforms, lacks intermediaries, the anonymity of transactions and its vast reach presents possible compliance risks for people who participate in the platform services. Additionally, there could be confusion and ambiguity in the legal and compliance obligations which could negatively impact the borrowers and lenders of the platform. This is because there is no proper and legal form of protection for the users.

TECHNICAL ANALYSIS

All technical analysis is done on TradingView.com

COMPARISON BETWEEN BTCUSD AND AAVEUSD



The price of BTC is positively correlated to AAVE. As we can observe in the two charts above, when BTC took a deep dive from its all-time high of \$68,000 levels to \$41,000 levels, AAVE followed suit.



0.77 Correlation Coefficient

Bitcoin ●
Aave ●

Source: [Macroaxis.com](https://www.macroaxis.com)

The 3-month correlation coefficient between BTC and AAVE is 0.77 which indicates a strong positive correlation among the two assets. Since both assets have a strong positive correlation, let's take a closer look at where BTCUSD is heading.

A CLOSER LOOK AT BTCUSD DAILY CHART



There is a relatively strong uptrend starting from August. We can see that currently BTC is at a critical level as it is unclear if it will follow or break the trend.

The RSI of 40.48 indicates that BTC is currently at its support level. RSI tends to fluctuate between 40 and 60 in a bull market (uptrend) with the 40-50 zones acting as support. There is ambiguity if BTCUSD will remain bullish or turn bearish. Should it follow the trend in the coming weeks, it could be a good long opportunity for AAVE.

AAVE DAILY CHART (TREND AND PRICE ACTION)



Legend:

White Line: Trendline

Green Line: Support/Resistance

AAVEUSDT is currently in a downtrend channel starting from late August ranging from a high of \$450 to a low of \$167. If the AAVE follows the trend channel, we can anticipate a dip down to the \$150 levels which could be a good long opportunity.

Critical levels to watch are the support level at \$167



AAVE DAILY CHART (TREND AND PRICE ACTION)



Legend:

White Line: Trendline

Orange Highlighted Area: Long Upper Wick Candle

Green Rectangle: Bearish Pattern



There is a long upper wick green candle which indicates rejection of higher prices. The next 4 candles show strong bearish momentum. This is in line with the trend channel indicating a possible move down to the lower end of the trend channel which presents a good long opportunity.

EMA (EXPONENTIAL MOVING AVERAGE) ON DAILY CHART



Legend:

Turquoise Line: 200 EMA

Orange Line: 50 EMA

As the 50 EMA crossed the 200 EMA on Nov 15 in a downwards direction, prices declined to the lower end of the trend channel. It followed the trend channel and rose back up until price started to reject the 200 EMA, indicating that it might dip once again back to the end of the trend channel.



MACD AND RSI ON DAILY CHART



The MACD histogram turned positive when the MACD line crossed the signal line. Currently, it appears to be losing steam as there is decreasing buying momentum which can be seen from the light green bars on the histogram.

In the month of December, the RSI tells us that the price almost reached an overbought level (70) before dipping back to 58. It indicates a strong resistance at the 260 level.

Both the MACD and RSI are in line with the price action and trend analysis which indicates that the price is going to drop in the near term and follow the trend channel.

SENTIMENTAL ANALYSIS

OVERVIEW

In the past year 2020, Aave has not been well established yet and has not gained much traction. However, in 2021, this crypto token has been rapidly gaining consumer trust and becoming extremely profitable for investors and traders. Its innovative technological solution has led more traders and investors to take notice of it. It has reached an all-time high of \$619 this year and the overall market sentiments for the future forecast of Aave seems optimistic. In the upcoming years, there are good prospects for the price to continue to be bullish generally due to Aave having several unique features as explained above thus it should be able to maintain a competitive advantage. The optimistic future prospect of Aave causes over market sentiments to be positive. However, a prominently observed trait of Aave is that it fluctuates erratically which is a point that is off-putting for some traders.

SOCIAL MEDIA ANALYTICS

There is a correlation seen from the number of social media mentions of Aave and its price. As the volume of social media mentions increase, its prices tend to increase or decrease depending on the nature of comments as well. To illustrate, on 10 February 2021, there was a spike in the number of social media mentions of Aave which caused the price to jump as well. As we can see from the chart below, the daily volume of social media mentions of Aave is seen to be neutral now as there are no spikes of the volume of social media mentions currently. Thus, no signals that the price will spike as of now.



Source: *bittsanalytics*

Another indicator that can be considered is the fear and greed index. This index quantifies the sentiments of over a million social media posts about cryptocurrencies. Using this index, we can tell if the general market sentiments are positive or negative. Positive sentiments usually suggest that there will be a rise in price and negative sentiment generally suggest a drop in price. On the 29 December 2021, the fear and greed index for cryptocurrency is at fear which suggests that currently it may not be a good time to purchase Aave as the current market sentiment for buying cryptocurrency is not very favorable. However, in the long run we believe that the signal would change due to the strong case that the fundamental analysis presents about the prospects of Aave and continue to monitor this index coupled with other indicators for a good entry period.

 Crypto Fear & Greed Index (on 2021-12-29, refreshed daily)



Source: *bittsanalytics*



APPENDIX

<https://www.cryptonews.com/forecast/aave-price-prediction/>

<https://www.bittsanalytics.com/Aave-historical-data-download-prices-csv/history-AAVE>

<https://www.ledgerinsights.com/aave-kyc-enabled-permissioned-defi-for-institutions/>

<https://www.jdsupra.com/legalnews/decentralized-finance-risks-regulation-9351911/>

https://github.com/aave/aave-protocol/blob/master/docs/Aave_Protocol_Whitepaper_v1_o.pdf

<https://coincentral.com/aave-vs-compound-defi/>

<https://hedera.com/learning/what-is-decentralized-finance?gclid=CjwKCAiAzrWOBhBjEiwAq85QZz7MDfCv6RS76lUNpNY5pgLu8evKW5181ngSk2VTFvtMv-2mVywnfxoCy7cQAvD>

https://dezy.sg/blog/what-is-defi-how-is-it-different-from-crypto-and-bitcoin?gclid=CjoKCAiA5OuNBhCRARIsACgaiqVkJURQfOjr6Dy5FwZPk3jDOVBGk8asdl8rezcdldGuVdXL_q1aroJoaAix_EALw_wcB



<https://aave.com/>

https://github.com/aave/aave-protocol/blob/master/docs/Aave_Protocol_Whitepaper_v1_o.pdf

<https://defipulse.com/>

<https://www.footprint.network/topic/DeFi/AaveVSCompound>