

RESEARCH REPORT

Basis



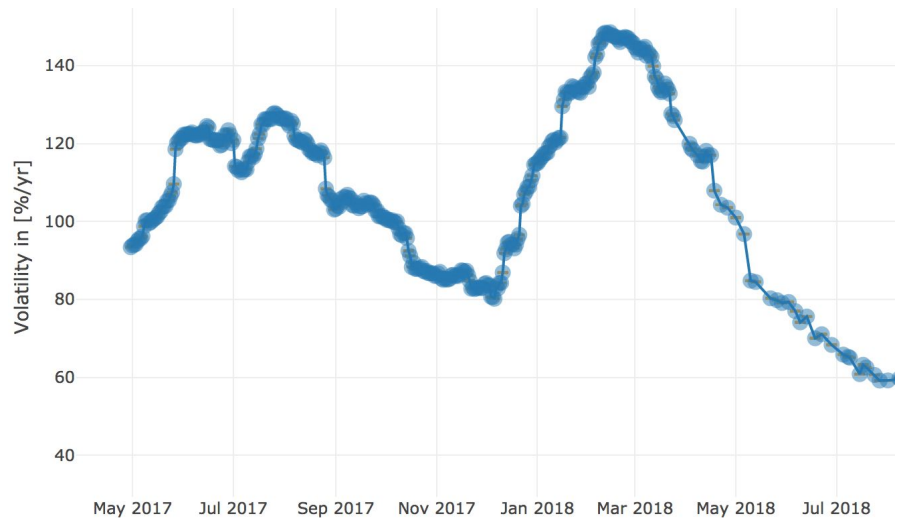
INTELLIGENT
TRADING



Basis - Proposed Solution to Volatility

Type: Stable coin
Date: 20-Aug-2018

The chart on the right demonstrates the volatility of cryptocurrencies. It shows a declining trend, but with values as high as 60% it remains an issue for many users. The chart is based on the [Cryptocurrency Volatility Index](#), developed by Sifr Data and composed of six currencies, BTC, ETH, XRP, LTC, DASH, and XMR, all weighted by market capitalization. The index measures the dispersion of returns on cryptocurrencies. Basis is one of the projects attempting to solve this issue. In the report below, we aim to assess the probability of their success.



Summary

The price of cryptocurrency is not determined by any central bank, it is created on the market where the demand meets the supply. Due to the novelty of cryptocurrencies and the speculative nature of the crypto market, this price is very volatile, fluctuating due to market behavior and reaction or community sentiment. Some proponents proclaim stability to be the holy grail of crypto, solving the issue of volatility and paving the way for mass adoption. Critics on the other side argue that the concept of a centrally-controlled stablecoin is fundamentally opposed to the nature of cryptocurrencies. The Basis project aims to offer an alternative to volatile cryptocurrencies, while remaining decentralized. Is this goal reachable?

Strengths & Opportunities

- Non-collateralized stable coins are decentralized and possess a potential for further scalability
- The fact that the stable coin is not backed by any crypto-collateral makes it independent from other cryptocurrencies
- The project was able to attract the attention of reputable investors at an early stage
- Stable coins could provide an alternative to failed fiat currencies which suffer from hyperinflation

Weaknesses & Threats

- There is no functional product yet and the proposed solution is highly experimental
- The mistakes in the whitepaper may signal potential flaws in the economics of the system and undermine the position of the project
- The peg is built on a trust in future growth and the main threat to it is the crisis of trust
- Competition working to develop solutions to potential issues in the project poses a threat to realizing success



Analysis of Basis

Project Analysis

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Project Analysis

Description

In our last [report](#), we have analyzed the sector of stable coins, dividing it into two main groups, one-token and two-token based methods. The two-token method was further divided into collateralized and uncollateralized projects. Basis is utilizing a two-token based approach to maintain a currency peg. It is not collateralized by fiat or any other cryptocurrency.

Overview

Basis (formerly known as [Base Coin](#)) is a project founded in 2017 by the company [Intangible Labs](#), located in Austin, Texas US. The Basis team completed pre-sale in [April 2018](#), but the public sale has not yet been announced and the product remains to be delivered.

The concepts are described in the company [whitepaper](#), which outlines several use cases. The primary idea is to develop a coin providing some form of stability, which can be used as a currency, not serve as a speculative asset. This can be, according to the team, utilized in three main scenarios:

1. Stable coins can be used as a store of value to combat fluctuations in national fiat currencies of developing countries
2. The crowdfunding market faces difficulties when accepting funds in crypto for campaigns held for longer periods of time. A stable coin could combat price fluctuation
3. Cryptocurrency exchanges often struggle due to pricing gyrations. Trading and monetizing to fiat is subject to regulations and can be very costly. This is where the stable coin could provide a promising alternative.

When can we expect this? In terms of a roadmap, the team did not reveal many specifics. The co-founder and CEO Nader Al-Naji [commented](#) on the timelines: "I wouldn't think in terms of time, I think it's better to think in terms of milestones [...] It's hard to say exactly how much time this will take." According to another [source](#), Al-Naji timed the release in the time frame between six months and two years after the whitepaper release (Jun 20, 2017). Even though the date of the product delivery is unclear, investors seem to believe in it.

Fiscal and Monetary Policies

The funding round was first announced in [October 2017](#). In April this year, Intangible Labs presented a [filing](#) to the US SEC (Securities and Exchange Commission). According to this document, the company raised \$125 million from two hundred and twenty-five (225) investors. The funds were raised through a Simple Agreement for Future Token (SAFT).

13. Offering and Sales Amounts

Total Offering Amount \$125,000,000 USD or Indefinite
 Total Amount Sold \$125,000,000 USD
 Total Remaining to be Sold \$0 USD or Indefinite

Clarification of Response (if Necessary):

14. Investors

Select if securities in the offering have been or may be sold to persons who do not qualify as accredited investors, and enter the number of such non-accredited investors who already have invested in the offering. _____

Regardless of whether securities in the offering have been or may be sold to persons who do not qualify as accredited investors, enter the total number of investors who already have invested in the offering:

Source: United States Securities and Exchange Commission, [Notice of Exempt Offering of Securities](#)

Project Analysis

Fiscal and Monetary Policies - continued

The [SAFT](#) framework is a form of an investment contract and it originated in [2017](#) as an answer to the uncertainty of the crypto-funding ecosystem. There were uncertainties about the classification of ICOs and disputes over whether cryptocurrencies should be considered a security or not. That is why the initiative for more transparent and standardised early-stage funding originated. SAFT is based on the Simple Agreement for Future Equity ([SAFE](#)), which allows investors to convert their invested stake into equity at a later date.

Through SAFT, tokens are sold with the belief that they will become a utility or a commodity in the future. This enables the parties to create a contract as a security sold to accredited investors. In the case of [Basis](#), those investors are quite large names, such as Digital Currency Group, Pantera Capital, Bain Capital Ventures and Andreessen Horowitz.

Later in April, the company announced in an official [blog post](#) the total sum raised in the private placement. They raised \$8 million above the \$125 million filling, totaling \$133 million in funding.

Team

The founders of the company are former Princeton classmates, all three graduating from computer science. We have already cited [Nader Al-Najj](#), the CEO, and co-founder. In July 2018, he made the [Fortune list](#) of The Ledger 40 under 40 and he gave an [interview](#) in which he mentioned his bullish approach to bitcoin. He himself mined 22 Bitcoins in his dorm room at Princeton University and he still holds them. Two other founders, [Lawrence Diao](#) and [Josh Chen](#) have experiences in software engineering, Diao worked as a software engineer at Google and Chen was involved in Merantix as a machine intelligence engineer. However, all three founders are very young and do not yet appear to have experience in entrepreneurship and starting a new company.

The experienced part of the team is the General Counsel, [Susan Sid](#) with over twenty years of financial services practice and CTO [Brian Freyburger](#), also with over twenty years of industry experience. While the rest of the team are technical staff and product staff, there is a clear shortage of marketing, sales or PR team members. That is probably why there is not a strong presence of the project on social networks and the team is currently lacking in regards to community engagement. Their main communication streams are the [Medium blog](#) and the [Twitter](#) account, but neither of these are showing consistent activity.

Technology

The idea of a privately issued, non-collateralized and price-stable currency was mentioned in the 70s in arguments about decentralization of money made by [F. A. Hayek](#). The implementation of the theoretical concepts was outlined in 2014 in a paper by Robert Sams called [A Note on Cryptocurrency Stabilisation: Seigniorage Shares](#). In this paper, the idea of an elastic supply was introduced.

$$Q_i = Q_{i-1} \times \frac{P_i}{P_{i-1}}$$

$$\Delta_i = Q_i - Q_{i-1}$$

The formulas on the left describe the principle of elastic supply. Q is the coin supply, P is the coin price and i is a predefined interval of time in which the price change is observed. This interval is actually the *rebase period* defined as a certain number of blocks on the blockchain.

Those two lines basically say that when the market price changes, the supply should change at the same ratio in a given number of blocks. In the simplified case when price equals demand divided by supply, there is a certain level of supply for which the price equals the target price of the peg.

Project Analysis

Incentivised Elastic Supply

Basis algorithm was inspired by the idea of elastic coin supply as a solution to maintain the peg. The project introduces a system of Basis being the stable coin, pegged to the US dollar on one-to-one terms. This parity is maintained by two other coins, Base bonds, and Base shares. When the price decreases and the system needs to decrease the supply of stable coins, it issues "bonds". Those are actually put options*, offered at some discount in an open auction to incentivise buyers to buy them with their stable coins and thus contracting their supply.

The buyers purchase those options with the belief that in the future they will be able to sell them when the price increases again. This creates the buy wall**. Any time the price is under the intended peg of \$1, the speculators buy stable coins for the price just below \$1 with the purpose to buy bonds issued by the system.

In the reverse case, when the system needs to increase supply and lower the price, it issues new stable coins. These are paid out first to the bondholders and when they are all paid out, the shareholders are rewarded with the rest. The Basis shares represent a claim on future stable coins their supply is fixed at the genesis of the blockchain.

As per the company slogan: "A stable cryptocurrency with an algorithmic central bank", the goal is to model a smart contract as a central bank. Bain Capital Ventures [advocates](#) the Basis solution as the first protocol to automate the core function of the central bank. In the post, a managing director at Bain Capital Ventures comments on central banks (especially in small sovereigns in Africa and Asia) as being "less competent, less independent, more political or corrupt". It is important to note that Bain Capital Ventures led the round of investment in Basis.

Base Bonds

The idea of a system substituting the central bank is mentioned in the Basis [whitepaper](#) as well, comparing the Base Bond to the Treasury bonds issued by the FED. The paper asserts that "Just like how the Basis system issues Base Bonds that go into the Bond Queue, the Fed issues Treasury bonds that add to the national debt." This is a misunderstanding of the US monetary system, in which the Treasury bonds are issued by the [Treasury Department](#) of the US government and are the obligations of solely the government. They are a money-substitute but do not directly affect the price of money, as suggested in the Basis whitepaper.

To describe the system in more detail, we need to understand what is meant by the term "Bond Queue". As described, the bonds serve as put options for future stable coins, which are issued in the case that the price goes up. The incentive for investors to buy bonds is the faith in future growth of the coin, rewarding the bondholders with new stable coins.

The system is set in a way that the bondholders are paid in first-in-first-out (FIFO) order, forming the Bond Queue in which the bondholders are waiting to be paid with the new stable coins. This creates a questionable pricing model in which the bonds lose fungibility, as the earlier purchased bonds have a greater value than the ones that are purchased later. And the higher the demand for the bond is, the longer the queue and the less appealing it is to buy new bonds. This could offset the demand for bonds and disable the mechanism.

Basis team [argues](#) that the FIFO paying order will increase the incentive for bondholders to buy the bonds quickly after they are offered in auction. They also introduce a measurement to assure that the queue is the right length. They set the expiration date of bonds to five years. This should cut the queue in case of the peg being broken, as when enough bonds expire it increases the bond price and restores the peg.

* An option contract giving the owner the right, but not the obligation, to sell a specified amount of an underlying security at a specified price within a specified time frame. [Investopedia](#)

** More on this in the [Stable Coin report](#)

Project Analysis

Technology

Base Bonds - continued

The Basis arguments would imply that if the peg breaks, it would not be a crucial issue in the case that there are enough Basis bonds to expire and restore it. What is questionable is the time scope, as having a peg broken can mean serious damage to a system built on trust in future success.

Oracles

In order to maintain the peg, Basis needs to obtain updated information about the exchange rate between the stable coin and USD. Oracles are the providers of the market information. Basis project is utilizing the Schelling point scheme as introduced by [Vitalik](#), based on the concept of [Schelling points](#).

This scheme was proposed as a solution in the original paper [A Note on Cryptocurrency Stabilisation: Seigniorage Shares](#). The scheme works on a principle in which the price inputs are provided by users staking the tokens, and the inputs are weighted by the stake of the tokens. The informants with value inputs near to the median are rewarded with coins. Outliers are smoothed out by using the weighted median and users are incentivised to provide correct answers.

The decentralised Schelling oracle described in the Basis whitepaper is checking the price every five minutes. The median is set between the 25th and 75th percentiles, rewarding those who provide a value in this scope. The Basis whitepaper also outlines an option to penalize those who provide a value outside of these percentiles. This should further incentivize honest answers.

Scenarios

The sector of stable coins is relatively novel and the Basis approach is still at an experimental stage. The opinions on the potential of the project differ and in order to stay unbiased, we would like to offer both points of views, analysing the arguments for and against the future success of the project. We will start by unfolding the scenario in which the project can fail.

The Project Will Fail

The main weak point according to the Basis opponents is the incentives system of an uncollateralized asset. The investors should be buying bonds in order to decrease the stable coin supply and increase the price. The reason why they should do this is that they believe that in the future the new wave of demand will bring them a reward in the form of newly issued stable coins.

There are several points of controversy. First of all, in order to maintain the peg, the investors should buy bonds when the price crashes. They should demonstrate the trust in the instance the trust is corrupted by falling prices. Quoting [Vitalik Buterin](#) "if the Basecoin price goes down, then the mechanism pushing the price back up is to get people to buy basebonds, but basebonds basically just lock you into holding basecoin, and it's not clear why people would want to do that".

The fact that the system is in a sense collateralized by shares in future growth makes the peg potentially vulnerable. A crisis of confidence in the system is enough to break the peg. The "Bond Queue" increases the jeopardy, making the bonds more attractive for buyers only until the time-discounted profit outweighs the risk of expiration before the payout date. As it grows longer, the payout date moves further into the future. The later bonds are also at more risk to expire before they are paid and their value declines.

Project Analysis

The Project Will Fail - continued

The solution proposed by Basis, hence the five-year expiry date, received criticism as well. Nevil Freeman from a competing project Reserve [argues](#) that when bonds expire in the scope of years, it will take too long to restore the peg. This could lead to a rapid loss in confidence from users and result in user-migration to competitor-products.

Freeman extends the criticism of the project, mentioning two more issues, off-chain stabilisation at an early stage and flaws in Basis' stability analysis. As for the stability analysis, the team [promised](#) to make it public but have not released it yet, so it is difficult to assess the validity of their counter-argumentation. The off-chain stabilisation would truly be a controversial step, exposing the project to potential scrutiny similar to Tether (USDT).

What is questionable in the reasoning is the source. Freeman refers to a twitter [post by Preston Byrne](#), a strong opponent of stable coins and vocal critic of the Basis project.* Byrne himself [identifies](#) the source of the information about the off-chain stability funds as "documents I have seen that purport to be from the Basis Protocol promoters (but which I have not had independently confirmed)". Due to the fact that there is no mention of the stability fund and the way it should be utilized in the Basis whitepaper, nor in their official blog posts, this criticism cannot be fully recognized as well.

The criticism that is based on the whitepaper is however very valid. Authors such as (already mentioned) [Preston Byrne](#) or [Ari Paul](#) are speaking against the flaws in the analogy with Treasury bonds and reproaching the team for demonstrating a lack of economic knowledge in the whitepaper.

Controversy is rooted also in the concept of the third coin, the Bond Shares. Unlike bonds, they do not have an expiry date and they are never burnt. They seem to lack a purpose other than rewarding the early investors.

The Project Will Succeed

The scenario we have just covered above is backed up with the opinions of some experienced members of the crypto world. However, some of their approaches may be biased, while some critics may even change their approaches to the project with time.

Take Ari Paul for example. A month after a [post](#) on his Twitter account, in which he agreed to Preston's criticism he [posted](#) another opinion. There he took back his previous negative comments, correcting it to "I think the basic premise is sound". He further adds that the basic premise is sound under the condition that the fundamental demand for Basis stable coin is growing.

This comprises the key elements to the project realizing success. The scheme capitalizes on the insight that a stable coin is itself a Schelling point. If a sufficient amount of users believes that the stable coin can succeed, that belief can create a virtuous cycle that ensures its survival.

The arguments made by Bain Capital Ventures are advocating for a system of non-collateralized stable coins over potentially corrupted national banks. The banks have incentives to inflate or deflate the currency, whereas the algorithmic central bank of Basis only global mandate should be the stability.

The interest of investors is one signal of the potential of the coin and another is the emergence of new projects inspired by the Basis algorithm. Currently, there are two new projects, [Carbon](#) and [Fragments](#), working on utilization of the "bond and shares" system as introduced in the Basis whitepaper.

* On his blog he argues against the idea and concepts of [stable coins](#), [Basis](#), [BitShares](#) [MakerDAO's Dai](#) and [Saga](#)

Market

Market Players

Even though the segment of stable coins is relatively novel, there are several players aiming to provide the crypto market with stability. In our previous [report](#), we have analyzed the market in detail, so here we will only summarize the main findings and players.

There are two main approaches, quite simple and mostly centralized one-token model, and a more complex two-token model. One-token model uses off-chain assets as a collateral and issues blockchain-based tokens that correspond to that asset. Tokens can be backed by USD ([Tether](#), [TrueUSD](#) from TrustToken, Circle [USDCoin](#)), by gold ([ZenGold](#), [Currensee](#), and [more](#)), or a basket of assets ([Globcoin](#) backed by fifteen currencies and gold, [AAA Reserve](#) backed by several currencies, government-backed bonds, and AAA-rated credit investments).

The one-token model suffers from several setbacks, such as centralization and the risk of governmental interventions. An off-chain asset-backed system incurs counterparty risk and limited scalability. Two-token models are solving those issues. An important distinction between those two models is that whereas the one-token model is not investable, the two-token model offers investment opportunity. The table below provides a comparison of both models.

One-token model	Two-token model
Centralized	Decentralized
Require trust in the issuer	Trustless
No investment opportunities	Opportunities for investment in a volatile coin
Limited scalability	Potential for scalability (not-collateralized)
If honest, secure against crashes	Vulnerable to crashes

Two-token models are more crypto-native. They aim for decentralization and utilize smart contracts to create a trustless environment. The two-token models can be further divided into crypto-collateralized, locking up another cryptocurrency (specifically and mostly those with a high liquidity) and uncollateralized. Below a follow-up comparison of both groups.

Two-token collateralized	Two-token not collateralized
Fast and cheap liquidation	Cannot be easily liquidated in case of crash
Stability depends on the value movement of underlying currency	Stability depends on trust in future growth
Inefficient use of the capital locked in the contract	No collateral required, no idle capital

Basis falls in the group of two-token not collateralized stable coins. This comes with some strengths and advantages over the other stable coins, but at the same time possesses some risks and weaknesses.

Strategic Analysis

Strengths

The two-token uncollateralized stable coins are outlining the most crypto-native solution, offering the highest level of decentralization without a need for a third party. Unlike other models, which are collateralized either by off-chain assets or a crypto-collateral, the supply of Base coins can be quickly adjusted to answer the demand. The flexibility possesses the potential for scalability, which is limited by the locked-up asset in other models.

The Basis system is also completely independent from all other currencies, as the stability does not rely on the volatility of other crypto assets as for example for MakerDAO Dai, which is collateralized by locking-up Ether. The interest of investors and the funding the team was able to raise so early in the project stage is another advantage of the project.

Weaknesses

The experimental nature of the as-of-yet untested solution is a great weakness. The fact that the team did not provide any product is another, making it difficult to assess the soundness of the system. The team [promised](#) to make their stability analysis public, but it has not yet been officially released.

The whitepaper demonstrates a lack of understanding on how monetary policy operates (the Federal Reserve doesn't target inflation by just manipulating the money supply, neither do they issue Treasury Bonds). This signals potential flaws in the economics of the system and also undermines the claim of the rigorous analysis and simulation backing up the non-fungible bonds expiration date.

Being independent of other cryptocurrencies also has its disadvantages. Non-collateralized stablecoins are more vulnerable to a sudden decline in demand for cryptocurrencies. There is no asset backing the stable coin, enabling fast liquidation in case of a crash. If it fails, there is no collateral into which the coin can be liquidated and the coin would almost certainly crash to zero.

Opportunities

The use cases outlined in the Basis whitepaper are clear examples of some of the opportunities for promising applications of stable coins. The focus on developing markets suffering from hyperinflation and corruption of their national fiat currencies can be an ample opportunity for success. Basis's whitepaper proposes their stable coin as an attractive alternative to dollarization, as obtaining something like Basis may be "easier and safer than obtaining paper bills, especially in remote regions".

Threats

The main threat to Basis stable coin is the crisis of trust. If the belief in future growth and new demand is corrupted, the peg would break. And even though the team proposed a solution by introducing the expiry date of bonds, the time needed for restoration may be too long. In the period of a broken peg, the users could migrate to another stable coin provider. The competitors represent another threat to the Basis project. There are some projects with alternative approaches that seem to be more secure than the experimental Basis solution. Their advantages are offset by other issues, however, as there are new projects emerging, aiming to solve the setbacks of their predecessors.

Conclusion

There are two ways Basis can go. The scenario for failure is currently more likely, considering the limited information and the early stage of the project. The project has flaws and uncertainties and many have expressed their reasonable skepticism. However, there is an immense potential for a stable coin embracing the advantages of cryptocurrencies. The Basis team initiative brings us one step closer to capturing this potential by sharing important insights and directing investors' attention to the sector. This helps to fuel development and provides inspiration to new projects. Time will show which of them, if any, will succeed.

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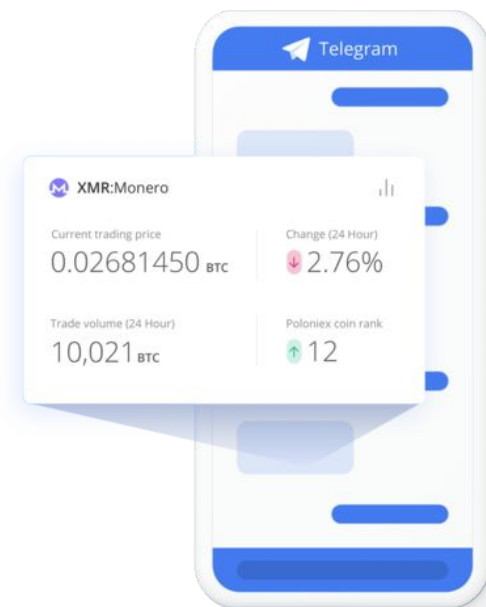
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