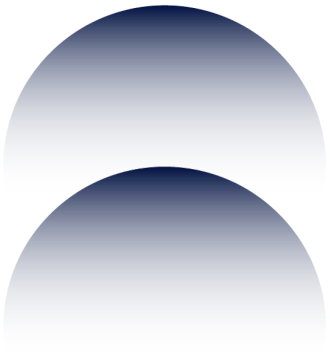


AUGMINT

www.AUGMINT.org

Stable Cryptocurrencies as a Medium of Exchange

White Paper v1.0

October 2017 [1]

[1] Initial version date.

Author: Augmint team and community

1. Problem Statement

Bitcoin was expected to evolve into the new global currency but its acceptance (as well as that of other cryptocurrencies) is stalling[2], while existing payment services are converting Bitcoin to fiat at the moment of purchase. These applications effectively only use cryptocurrencies as a technical channel for fiat payments. The permissionless and decentralised advantages of cryptocurrencies are lost when they are converted to fiat.

Why is the mass adoption of crypto payments stalling? Among multiple challenges, the biggest barrier to widespread use of cryptocurrencies in everyday transactions is their high price volatility[3]. Which merchant or service provider would take the risk of setting a price and earning revenues in BTC when their costs are in USD? Who would agree to pay rent in BTC when their salary is paid in USD? Who would get a mortgage denominated in BTC when their salary is in USD?

The majority of the existing digital tokens, cryptocurrencies (CC), and all the most important ones are rather shares for investment or speculative instruments than currencies. The more people are using them the higher their price will be. Because of their typical structure (a predefined maximum supply of tokens[4]) they cannot directly function as money entirely.

Some argue that high price volatility will diminish with the global adoption of Bitcoin, but its inflexible supply ultimately undermines this premise. Even if one were to assume that Bitcoin's price will grow into perpetuity, the limited supply will always make the price volatile and will encourage holding and speculation over using it for payments.

The cryptocurrency ecosystem is in a desperate need for a stable digital currency with the benefits of digital tokens[5] in the form of a unit which can be used in the various blockchain use cases for payments, planning, in smart contracts[6] and holding value in a relatively stable digital form.

[2] https://www.bloomberg.com/news/articles/2017-07-12/bitcoin-acceptance-among-retailers-is-low-and-getting-lower
[3] http://www.bbc.co.uk/news/technology-42264622
[4] https://en.wikipedia.org/wiki/Economics_of_bitcoin
[5] https://blog.ethereum.org/2014/11/11/search-stable-cryptocurrency
[6] https://en.wikipedia.org/wiki/Smart_contract

2. AUGMINT Proposition

2.1. AUGMINT Stable Tokens

While many are unaware[7], all modern currencies in circulation are a kind of credit money[8]. The most important aspect of credit money is that it is created and destroyed continuously in the economic cycle by the mutual actions of economic actors.

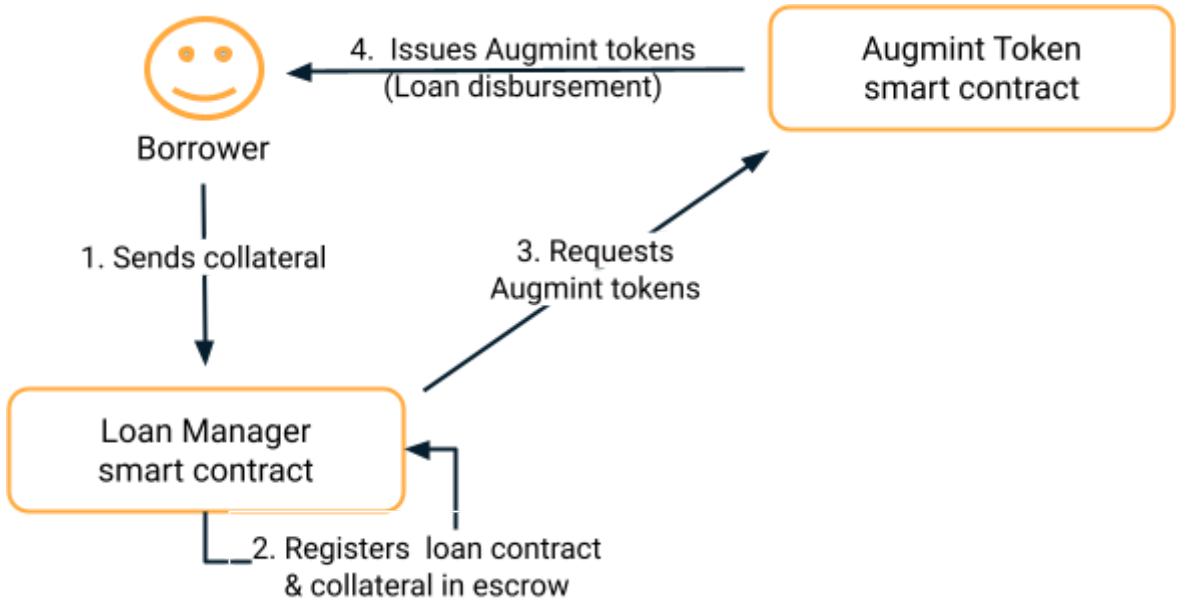
We will construct digital tokens along similar logic, each targeted to a fiat currency. AUGMINT will automatically adjust the supply in circulation of each AUGMINT token in a similar way to fiat money.

AUGMINT tokens are only issued when a new, collateral backed loan is issued. AUGMINT tokens are automatically destroyed (burnt) on loan repayment. In case of loan default the collateral goes to AUGMINT stability reserves, managed by smart contracts.

This all happens in an automated, cryptographically secure and decentralised manner.

We intend to construct a 'digital pair' to every important fiat, starting with the EUR. The digital parallel for the EUR is AUGMINT Crypto Euro (A-EUR), with a 1:1 exchange rate target maintained by the AUGMINT mechanism of smart contracts.

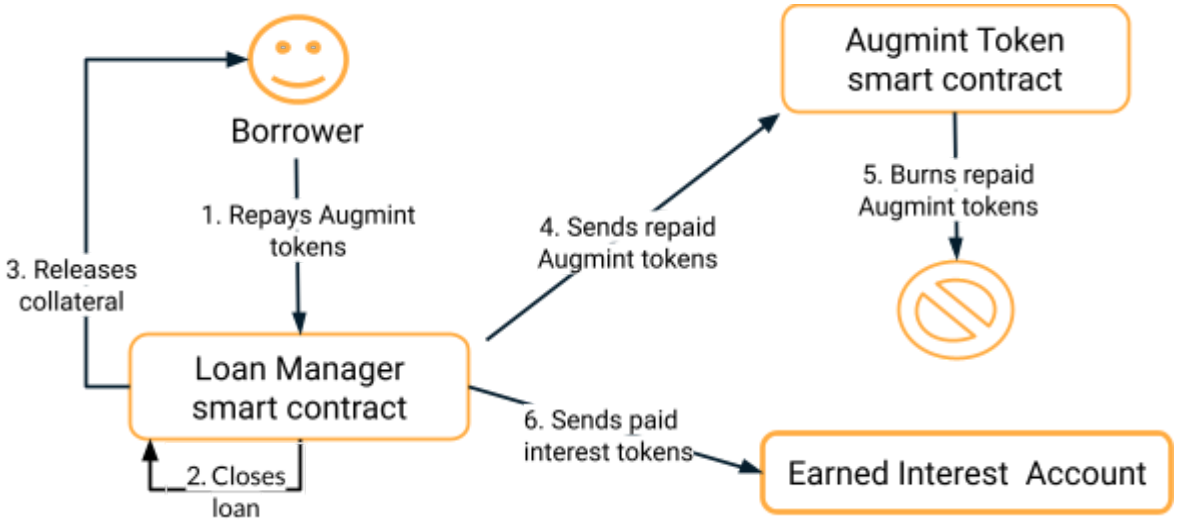
2.1.1. Loan Origination



[7] http://positivemoney.org/2017/10/mp-poll

[8] https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2014/money-creation-in-the-modern-economy.pdf

2.1.2. Loan Repayment



2.1.3. How is Stability Achieved?

Multiple mechanisms ensure that the actual AUGMINT token price remains at par with the targeted currency.

Market mechanics

The primary foundation of stability is the continuous supply of AUGMINT tokens via loan origination and a corresponding demand for AUGMINT tokens to repay loans at maturity. As markets are always segmented therefore it should be ensured that the additional demand for tokens is squared at the very place of the demand. That means that the token supply should not be centralized (unlike seigniorage concepts) but decentralized globally. In the AUGMINT system the loan origination occurs where the money is needed.

Further specific features of the AUGMINT system will work towards maintaining stability by smoothing demand & supply peaks and troughs. (Details in Chapter 3.4.)

Diversified collateral

The AUGMINT system will accept a broad base of assets as collateral. This diversification will be key in ensuring stability. New forms of collateral will be continuously added according to the AUGMINT roadmap, including real world tokenized assets[9] and tokenized company IOYs to maintain low price correlation among collateral types.

Loan parameters

If an AUGMINT token price deviates from parity, loan parameters will be adjusted to make it more or less compelling to get loans collateralized against a certain digital asset. This can go to the extent of completely suspend lending. This impacts the AUGMINT token's demand/supply and determines the market price of AUGMINT tokens .

Lockin Premium

The AUGMINT system allows users to lockin their A-EURs for a defined period of time in exchange for a lockin premium. Adjusting this premium serves as an incentive for locking in tokens, which in turn impacts demand / supply conditions and price.

[9] http://www.nasdaq.com/article/how-tokenization-is-putting-real-world-assets-on-blockchains-cm767952

Market intervention

The AUGMINT system's internal exchange will provide liquidity to exchange AUGMINT tokens around par from its reserves. As a last resort, when instant price correction is required, AUGMINT can intervene (buy/sell) from its reserves accumulated from interests, fees and defaulted loans.

2.2. Open Governance

AUGMINT aspires to be the world's digital payment token. We consider this to be viable only with a system where no single group is able to take control and new stakeholders can join the decision making quorum simultaneously. We propose a structure that ensures open and democratic governance in the long run.

The project will be maintained by an open community of financial and technology experts, financed by the stakeholders.The fundamental rules are set out in the AUGMINT Manifesto[10].

Basic rules, the reserves, and the loans are maintained and enforced by smart contracts: cryptographically immutable algorithms running on the blockchain.

We aim to handle as many decisions as possible with smart contracts but it's obviously not feasible to anticipate all scenarios with automated algorithms alone.

We differentiate two main types of changes, each tackled differently:

New system releases

One of the most significant challenges is to make the AUGMINT system flexible and gradually upgradable, while at the same time, keeping it trustless and decentralised. We must ensure that nobody (not even the founders or the developers) could "hijack" and take control of the system by deploying components without consensus. At the same time it's technically impossible to forecast and prepare for all types of software and architectural changes to be handled and enforced by smart contracts.

We propose a solution where each system upgrade is executed via a migration/conversion to the new system. With every new version the users will have an option to migrate their AUGMINT tokens to the new system. (Details in Chapter 5).

System Parameters

Certain system parameters (e.g. stability parameters, emergency switches etc.) may require frequent adjustments. Setting these parameters via new releases or direct ballots is not feasible because of the frequency and the potential urgency of the changes.

These changes will be executed by a quorum of an elected board (AUGMINT Stability Board: ASB). ASB is elected by the stakeholders.

Stakeholders

The stakeholders are the AUGMINT Treasury Coin (ATC) and Governance Deposit Coin (GDC) holders.

ATC tokens initially have a limited supply and distributed among early contributors, developers and investors. As soon as the project reached certain milestones users may deposit their A-EURs against GDC tokens (1 A-EUR =1 GDC). The token holder may vote and

[10] Draft manifesto: http://bit.ly/AUGMINT-manifesto

entitled to certain earnings of the system. These are continuously created and burned by the A-EUR holders. (Details in 4.)

2.2.1. Value Proposition

AUGMINT tokens will serve as a new medium of value transfer combining the advantages of cryptocurrencies such as:

trustless operations
openness
immutability
security
distributed ledgers
working smart contracts
pseudonymity
permissionless access
decentralization

with the (long acknowledged) advantages of fiat currencies such as:

comprehensibility
purchasing power stability (in terms of the currency, here the EUR)[11]
ubiquity
ease of use
fulfilling money functions of
- medium of exchange
- unit of account
- store of value

Based on these features, the AUGMINT tokens' value proposition is to offer:

1. Simple and censorship resistant stable store of value and medium of exchange for economic actors who are using cryptocoins
2. Easily accessible liquidity for digital asset holders who don't want to sell their assets.
3. A stable unit of account for cryptocoin projects in need of a stable cryptocurrency.

2.3. Use Case Examples

The examples presented are successively more complex and described in more details accordingly.

2.3.1. A-EUR User Example

Alice owns 10 ETH. On a given day 1 ETH is trading at EUR300. She lives in the US and wants to send EUR3,000 to Bob in Asia. Bob wants exactly EUR3,000 as he believes that the ETH price will fall and he doesn't want to take the risk of holding ETH.

1. Alice converts her 10 ETH to 3,000 A-EUR on one of the exchanges[12] or using AUGMINT's web or wallet app

[11] The AUGMINT system cannot provide guarantees on the value proposition of the currency (here: the EUR) against other fiat currencies or asset classes (obviously). AUGMINT targets the stability of the A-EUR price in term of the EUR, independently of what one EUR is worth.
[12] For simplicity, we abstract from details such as exchange fees, price spread and crypto transaction fees, and also bank fees, when sending EUR as an alternative.

2. Alice sends 3,000 A-EUR to Bob's A-EUR wallet[13]
3. Bob can keep his A-EUR in his wallet for as long as he wants, and when he needs to make a payment he can either
    a. send A-EUR to Carol, or to a merchant or service accepting the A-EUR; or
    b. convert A-EUR to EUR at a ~1:1 rate at anytime and use the EUR directly

2.3.2. Crypto Project Example

Project Alpha is a service built on blockchain. Alpha provides smart contract infrastructure to manage agreements between parties. For example, Alice hires Bob to write a blog post. The agreement is that Alice will pay Bob EUR 500 if Bob's blog post gets 1,000 unique views in 3 months. Bob is paying his bills in EUR, so he does not want an ETH payment in 3 months time given the price volatility of ETH.

Bob and Alice have never worked together and a legal contract and escrow would be too costly relative to the EUR 500 payment in question. They decide to use Project Alpha instead, and base their finances entirely on the A-EUR and AUGMINT.

1. Alice places A-EUR 500 into a deposit on Project Alpha's service.
2. Project Alpha service tracks the number of views on Bob's blog post and releases A-EUR 500 to Bob when it reaches 1,000 unique views
3. Bob gets A-EUR 500 which he can either use directly, or convert to EUR 500 then use wherever cash is the most viable payment option.

2.3.3. Borrower Example

Alice owns 10 ETH. On a given day, 1 ETH is trading at EUR 300. Alice needs to buy a laptop for EUR 1,500 to do freelancing work, and as we see, Alice can also afford it. However, Alice kept her savings in ETH because she believes that the ETH price will go up in the next year or so, and therefore she wants to hold ETH instead of converting it to EUR when she needs money. In order not to prematurely liquidate any of its ETH holdings while still financing her expense, Alice decides to get an A-EUR loans for a period of 6 months:

1. She puts 10 ETH in collateral and receives A-EUR 1,500 from the AUGMINT smart contract (the loan-to-collateral ratio being 50% in this example).
   The loan amount what she will need to repay in 6 months is A-EUR 1,575 (the nominal value of the loan plus the annual 10% interest paid for 6 months).
2. She uses the A-EUR 1,500 to buy the laptop either by
    a. paying with A-EUR if the merchant accepts A-EUR directly; or
    b. paying with fiat EUR by converting her A-EUR1,500 to EUR 1,500[14] on one of the exchanges
3. Alice uses her laptop to earn money (in EUR or A-EUR). In the six months that pass she saves part of her income which, if earned in EUR, can be converted to repay the loan and its cost (the interest) totalling A-EUR1,575.

[13] we didn't count with the low AUGMINT transaction fee to keep the example simple
[14] exchange spread ignored for example too

4. Now let us see what is the outcome for Alice in the three scenarios where ETH/EUR price either goes up significantly, moves sideways or falls significantly. At the end of 6th months, when the loan is due, the ETH/EUR rate could either:

    a. go up to EUR 450.
    Alice still has 10 ETH in escrow which is now worth EUR4,500. She will repay the loan at A-EUR1,575 to get her 10 ETH back from escrow. She made a profit from not selling the ETH, as she initially hoped,and her financial gains from holding ETH versus selling it more than offsets the cost of the loan, which is the A-EUR 75 interest she paid. Apart of this cost, Alice can entirely realise her gains from holding ETH at maturity, or after as she please.
    From a more systemic perspective, the ETH asset, while kept on escrow from being directly transacted, still formed the basis for a tiny part of the functioning of the 'real economy': the AUGMINT system permitted the borrower (Alice) to spend on a computer and use it (price denominated in EUR), and to invest at the same time, through holding her chosen crypto-asset (ETH) serving as collateral towards AUGMINT. In short, whilst ETH is 'locked' away from being transacted directly, it still fuels Alice's economic activity through the A-EUR.

    b. stay around the same value, including slightly falling to e.g. EUR 250.
    Alice must pay back the loan at A-EUR 1,575 in order to retrieve her 10 ETH from escrow. As the ETH collateral is still worth more (EUR2,500) than what she has to pay to get it back (the loan and interest, EUR1,575), she will be interested in paying it back whenever she can (instead of walking away and 'abandoning' the depreciated collateral).
    Alice did not make any capital gains as the ETH price went sideways. She paid A-EUR 75 in interest, the cost of loan she needed to use her ETH asset savings to buy a laptop, without foregoing the option to benefit from a potential ETH price increase.

    c. goes down to EUR 100.
    Alice's 10 ETH in escrow now worth only EUR 1,000. At such low price of the collateral, Alice's immediate financial interest would be not to repay the loan, even if she was able to. In short, repaying the loan[15] would cost her more (A-EUR 1,575) than the market value of the collateral she could get back (EUR or A-EUR 1000), on the basis of the market price available at the exchanges. In this case she defaults on her loan and the 10 ETH collateral goes into AUGMINT's system reserves.
    There is no doubt that this one is Alice's least preferred outcome: once her future investment period unfolded ('happened') in a very significant price fall, *ex post*, she would have been of course better off by selling ETH to buy the computer and holding only the rest (5 ETH).[16] However, Alice is still benefited by using AUGMINT on multiple levels: First, she exhausted the option of remaining long in all 10 ETH of her savings (instead of selling 5 ETH to buy the laptop initially, which would have been her next-best option given that she had positive expectations on the ETH price that time). Second, no doubt Alice was unlucky in holding ETH while its price fell from EUR 300 to 100, but she could

[15] Note that there are two types of loans in the system: margin call and non-margin call. We assumed a non margin call loan for the example.
[16] Given that Alice expected the ETH price to go up, she would hardly ever have considered selling all of her 10 ETH entirely, but only the necessary amount, if AUGMINT is not at her disposal. Furthermore, Alice would not miss buying a computer, either.

still get EUR1,500 out of her 10ETH by not repaying the loan (and walking away with EUR 500 more than the actual value of the collateral, EUR 1000). This is because by taking the loan, Alice also truncated her downside price risk which is inherent in holding ETH, according to the loan-to-collateral-ratio of the loan. In short, by taking the loan Alice also partially price-hedged her full ETH position (of 10 units).

2.4. Market Context

Beyond multiple attempts[17] to create a stable cryptocurrency (Tether[18] being the most successful) there are some projects which are aiming to decentralize money creation and even starting to apply credit money attributes in their schemes (MakerDAO[19], VariabL[20], BaseCoin[21]). In our project we take **further steps toward decentralization** and base the AUGMINT tokens entirely on the principles of credit money.

2.5. Legal Issues

AUGMINT system or AUGMINT DAO - Decentralized Autonomous Organization has two types of token. (i) **Utility tokens** are the tokens targeted to fiat a currency (A-EUR, A-USD, etc.). (ii) **Governance tokens** serve as a tool to influence the behavior of the DAO. Governance tokens (ATC, GDC) are tokens hold by the stakeholders of the system.

AUGMINT utility tokens (e.g. A-EUR, A-USD) are issued by smart contracts in an automated way. Anybody who possess a tokenized asset (ETH, later BTC or else) may create AUGMINT tokens, supposed that the sufficient collateral is deposited. As opposed to Bitcoin, AUGMINT tokens are not bought for speculative purposes but are used as a means of exchange.

ATCs are a kind of investment vehicle, their public sale will fall under securities regulations. Initially only venture capital investors and professionals will be eligible to buy them. Their purpose is to provide resources to establish and maintain the system in exchange for future earnings.

GDC tokens will not be offered publicly for sale. AUGMINT token holders will have the option to create (and destroy) them at any time. Holding GDC tokens enables the holder to vote and share in the earnings of the AUGMINT system. From legal point of view they are similar to proof of stake decision making blockchain mechanisms. Users put their tokens into an escrow for getting voting rights and for getting some potential rewards from the system.

AUGMINT system/DAO intends to fully comply with the KYC, AML regulations. That means that the system will have features to enable its users (e.g. account holders, third party exchange, etc.) to comply with the local regulations .

[17] https://www.alt-m.org/2017/04/06/dollar-denominated-cryptocurrencies-flops-tethered-success
[18] https://tether.to
[19] https://makerdao.com
[20] https://variabl.io
[21] http://www.getbasecoin.com

3. AUGMINT Model

3.1. How Does AUGMINT Function?

The AUGMINT project aims to create stable utility tokens which will be able to function similar to money, i.e. fulfilling the functions[22] of a:

1. Medium of Exchange
2. Unit of Account
3. Store of Value

To fulfill the **Medium of Exchange** function, AUGMINT transactions should be:

- sufficiently simple to understand and handle by an ordinary vendor or customer; and
- sufficiently cheap (both on micro and macro level) to become a micropayment medium, which means low transaction costs to users and an economically organized blockchain operation.

The **Unit of Account** function requires a fairly stable exchange rate relative to established fiat currencies, otherwise there won't be any rational and honest borrower, who would be willing to take on AUGMINT debt. No economic calculation could be built on a volatile money even if it had no inflationary or deflationary bias.

The **Store of Value** function necessitates that AUGMINT be free of any built in or systematic inflationary or deflationary bias. It is important to note that the store of value function does not include the investment notion, i.e. it requires value stability. Investments are made in the expectation of profit or appreciation. By keeping one's assets and liabilities in money form one expects value stability. Bias in any direction undermines the money nature of the "credit token" instrument .

AUGMINT is a "credit token". AUGMINT tokens can only be created exclusively through loans. There are several types of AUGMINT loans.

3.2. AUGMINT Loans and Lockin

3.2.1. Fixed Versus Floating Collateral (Margin) Loans

AUGMINT Loans will be fixed collateral or floating collateral Loans. Fixed collateral loans have no margin call, they are not defaulted because of the value fall of the collateral.

Fixed collateral loans default only if they are overdue. Then the Loan Manager contract liquidates the loan contract in the following steps:

- a default fee will be applied (accounted for)
- the Loan Manager computes a collateral value using an Oracle (ETH/EUR)

[22] Modern fiat currencies are accepted (trusted) because states accept them as a Means of deferred payment (as a legal tender) i.e. one can pay taxes with them. So far there are no states accepting decentralized cryptocurrencies and this is not expected to change any time soon, so this one function of money cannot be fulfilled by the AUGMINT system. This may not be bad news. The lack of government control allows the birth of a modern decentralized money above states.

- depending on whether the contract would be in-the-money (ITM) or out-of-the-money (OTM) different actions will be taken:
    - ITM: the collateral equivalent of the total liabilities plus the default fee of the contract will be transferred to the Market Intervention Reserve (MIR, see later), the remaining part will be transferred to the owner of the loan contract.
    - OTM: the total amount of the collateral will be transferred to the MIR

In default cases there is no automatic A-EUR burning /repealing. The A-EUR/EUR market intervention contract will decide whether to buy A-EURs on the free market. As long as the A-EUR/EUR rate does not deviate downwards from par no intervention happening (no automatic A-EUR buying from the collateral taken from the defaulted loan).

In the case of **floating collateral** loans, should the collateral ratio fall under a certain threshold - set individually for each collateral type - the loan manager automatically liquidates the loan by transferring the collateral asset to the MIR. Users are free to increase the amount of the collateral at any time throughout the duration of the loan if they want to avoid forced liquidation. The liquidated loans' collaterals transferred to the MIR.

3.2.2. Forms of Collateral

3.2.2.1. Cryptocurrencies

The asset-like nature of existing CCs makes them suitable loan collateral. They can be put in escrow as a digital security for credit, they have a market value (albeit a highly volatile one).

The ultimate aim will be to encompass all available digital assets instead of competing with them. Initially we plan to accept a CC as collateral only if it has a significant market and high liquidity, such as BTC and ETH.

3.2.2.2. Tokenized Assets

The process of "tokenization" is expected to extend to "real world assets": predictions indicate[23] that 10% of global GDP will be stored on blockchain by 2025. Therefore we contemplate that in 5 years time there will be at least 15-20 different tokenized assets, at least 5-10 concrete and recognized application in each type, for example 10-15 token fixed to the value of gold.

From the credit perspective, tokenized property/real estates, commodity (gold), shares and investment funds appear to be the most promising, once used on a more general basis. Until then, AUGMINT will rely on CCs and other negotiable blockchain assets.

3.2.2.3. Tokenized Corporate IOUs

Loan against credible and tangible promise, credit to borrowers with AA or AAA credit standing. This type of loan is essentially a fully digitized version of a corporate IOUs. Companies with good credit standing may apply to be listed on the AUGMINT Company Whitelist. Listed companies can then access the smart contract which issues Promissory Tokens (tokenized promissory notes). These will be standard ERC-20 tokens. These tokens will be accepted as loan collaterals in the AUGMINT system. The credit risk management will done by the AUGMINT stakeholders. They will regularly voting on the collateral ratios of the Company Promissory Tokens. The result of the vote will be a system parameter. This concept will be detailed in a separate white paper.

[23] http://www3.weforum.org/docs/WEF_GAC15_Technological_Tipping_Points_report_2015.pdf#page=24

3.2.3. Lockin

Occasionally the AUGMINT system allows users to lockin up their A-EURs for a defined period of time in exchange for a **lockin premium.** Adjusting this premium serves as an incentive for locking in tokens, which in turn impacts demand / supply conditions and A-EUR/EUR exchange price. The locking in A-EURs remain on the account of the user, no one else can use it. During the lockin period the user can't transfer, sell, or use the lockin amount. Although from a stability (macro) point of view the locking in is similar to a bank deposit, it is inherently different from it. The locked in tokens' ownership does not change, nobody can use these tokens therefore the user cannot lose them. The time lock automatically release the tokens without a third party involvement. The lockin is only a temporary liquidity sacrifice.

3.3. Reserves

The AUGMINT system has 3 basic reserves. These reserves are accounts on the blockchains in question (A-EUR, ETH, BTC). The principal function of the reserves is to provide resources to market intervention when the A-EUR exchange rate deviates from being at par.

In the range of 0,995 < A-EUR/EUR < 1,005, no action is taken. This range is defined by Governance decision, and will hence be changed from time to time.

The actual intervention algorithm will be continuously improved. It will initially be based on extensive simulation results and human expertise, but in the long run it should be a deep learning algorithm which would minimize subjective human decisions.

The reserves have a secondary function of providing high level information about the state of the A-EUR ecosystem. As the reserves are assets they also need to be managed by open governance mechanisms akin to an open ended investment fund composed of liquid assets. In periods when no intervention is needed and when the fund reaches a certain size, the funds' assets are to be diversified to reduce its exposure to a specific management strategy. The A-EUR reserves management results are measured in EUR (the target is to reach the maximum EUR value) at a predefined liquidity level.

The summary of the reserves turnover is as follows:

(EIP) Earned Interest Pool A-EUR Account	
INCOME	EXPENDITURE
1. Interests earned	2. Time lock premium
(after paid back loans)	
	3. A-EURs transferred to MIR
	4. A-EURs transferred to
	Earnings Distribution Contract

1. Interest earned transferred to EIP from loan contract
2. Premium paid to users for time locked in
3. A-EURs transferred to MIR
4. A-EURs transferred to Earnings Distribution Contract

(MIR) Market Intervention Reserve A-EUR Account	
INCOME	EXPENDITURE
5. A-EURs issued by Stability Board for selling against ETH	8. A-EURs sold to market
6. A-EURs bought from the market	
	9. To be burned A-EURs
7. A-EURs from Fee Pool	
3. A-EURs from EIP	

(MIR) Market Intervention Reserve FX Account	
INCOME	EXPENDITURE
13. Defaulted loans FX collaterals	6. Buying A-EURs from market
8. Sold A-EURs proceeds	
14. Default fee from loan liquidation	

5. A-EURs created by the Stability Board (primary token creation)
6. Buying A-EURs from market
7. A-EURs transferred to MIR from Fee Pool
8. A-EURs sold to market from MIR
9. To be burned A-EURs from MIR
10. To be burned A-EURs from IPP
11. Fees from TX to Fee Pool
12. A-EURs transferred to Earnings Distribution Contract from FEP
13. Defaulted loan collaterals FX from loan contract
14. Default FX fee from loan liquidation

The MIR will not provide automatic market making of A-EURs. As long as the market price of A-EUR is close to the targeted EUR 1:1 ratio, MIR will not sell or buy A-EURs on exchanges.

(FEP) Fee Pool A-EUR Account	
INCOME	EXPENDITURE
11. Fees from TX	12. A-EUR transferred to
	Earnings Distribution Contract
11. Other A-EUR fees	7. A-EURs transferred to MIR

For the details of the earnings distribution method see Chapter 4.3. AUGMINT Earnings distribution

3.4. Stability of the AUGMINT Utility Tokens

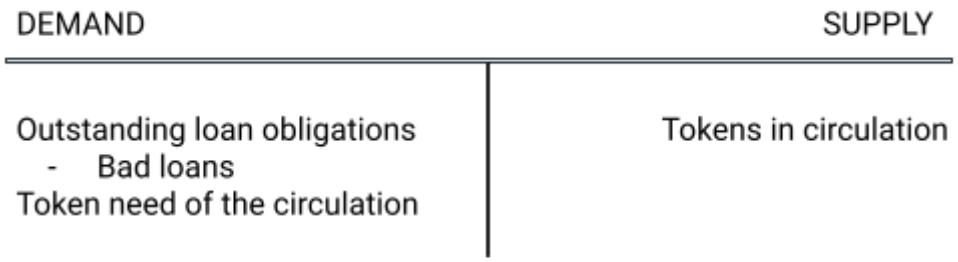
All modern stable fiat currencies are a credit money. AUGMINT aim is to be a" credit token". We intend to construct a digital pair to every important fiat, thus at first the EUR. We call the digital pair of the euro A-EUR (AUGMINT EUR). The AUGMINT mechanics are to target the EUR/A-EUR market exchange rate to be 1:1 all the time.

3.4.1. Market Mechanics

The primary foundation of the stability is a market mechanism, the continuous supply of AUGMINT tokens via loan originations and a corresponding demand for AUGMINT tokens to pay back loans on maturity. The loan origination (borrowing) is directly connected to the economic cycle thus the quantity of tokens in circulation will inherently be in harmony token demand.

The more diversified the origination of loans in time, maturity, size and collateral asset types, the more likely A-EUR to become a stable currency relative to the EUR. The price stability is first of all subject to the aggregate sum of the supply and demand in a time period. The basic equation of the token demand and supply is this:

Figure 3. AUGMINT Tokens Demand and Supply



Because interest tokens are not created in parallel with loan disbursement, the loan obligations by default are always higher than the tokens in circulation. On the other side defaulted and distressed loans reduce demand for A-EUR tokens. The actual balance may be changing day by day.

The system (and everybody who has any concern) has pretty complete information about the main factors of the drives of the price movements. As the system rules are straightforward and transparent enough (to keep the A-EURs price at par) the actors anticipations may also help to keep the price level stable.

In case of A-EUR demand and supply disequilibrium, i.e. when the quantity of A-EUR supply is constantly higher than the demand on the various exchanges, the system has the bias to reduce the otherwise continuous origination of A-EURs. If somebody needs A-EUR token to comply her liabilities (payback a loan, or to pay her bills etc.) it is cheaper to buy A-EURs on the exchanges than to create them.

3.4.2. AUGMINT Stability Parameters

When market self-correction does not enough to maintain a sound equilibrium, for example the exchange rate of A-EUR/EUR constantly deviates from par, the system may start to amend the AUGMINT stability parameters.

The System stability control parameters are the following:

- Loan interest (may vary with loan duration)
- Lockin premium (premium depend on lockin time span)
- Available loan maturity selection
- Loan types selection (fixed collateral or margin call)
- Collateral ratio
- Collateral types selection

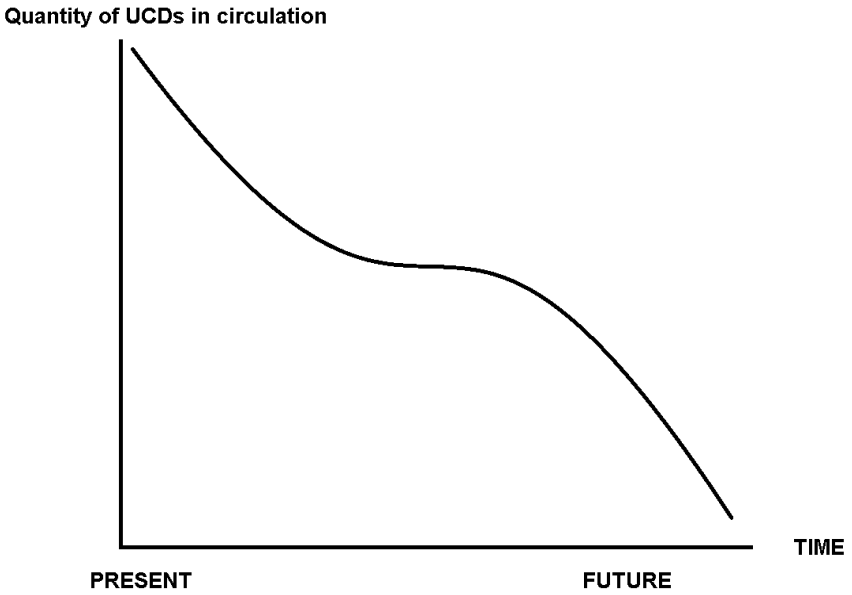
Among these **primary tools** are the

- interest on loans, to surge or slow or even stop origination/loan creation (it can be anything even negative),
- lockup premium (from 0 up to the EIP reserve's capacity).

These parameters can be modified gradually thus allow to fine tuning the system. All the other tools may be considered as a secondary as they have other functions (mainly to influence the AUGMINT ecosystem size). The stability intervention with these are more drastic and could have side effects. For example increasing the collateral ratio drastically to slow or stop origination/loan creation, might not reflect the given collateral actual value or volatility profile.

The main concern is always the devaluation of the utility tokens in question. Theoretically all A-EURs in circulation should be paid back at maturity to a loan contract with a severe consequence. Although unique A-EURs have no duration (each A-EUR may exist forever) as a whole they have an average duration. The quantity of A-EURs in circulation (if no additional origination is happening) monotonically decreasing and looks like this:

Figure 1. The quantity of A-EURs in circulation as a function of time



The shape and steepness of this curve are formed by thousands of independent borrowers but can be nicely influenced by the system stability parameters. This should be a subtle intervention, not enough to decrease the A-EURs supply the system may start to make the origination more expensive radically increasing the **loan interest** and /or **collateral ratio.** This action may result in an extreme situation of a complete stop of A-EUR origination, which means that the amount of A-EURs in circulation will follows the above curve.

The **secondary tools** may also can serve as stability control in extraordinary circumstances as in case of the collateral ratio mentioned earlier. Nevertheless they can only influence the new token creation volume, therefore only indirectly and with latency can reduce or increase the token supply.

The **available loan maturity** selection primary function is to influence the average duration of the tokens in circulation. For example in an initial phase one might not want to allow too long average token duration for the system compare to a matured system where the experiences and reserves would be considerably higher (see later).

Loan types selection can be also a drastic tool as it alters the system risk profile drastically. Primarily the allowed loan type should depend on the volatility and liquidity of the given asset. But even in the case of a relatively stable and liquid asset one might consider only a margin type loan to reduce the system overall risk exposure.

The **collateral ratio's** primary function is to influence the probability of loan defaults. Using it as a stability control tool is not always practical. For example, it is not prudent to lower this just for nudging the origination, as it may increase the default risk exposure of the system.

The **collateral types selection's** (what kind of assets are accepted as loan collateral) primary function is to define the diversification of the system collateral portfolio. The AUGMINT system should accept a broad base of assets as collateral. This diversification will be key in ensuring system stability. New forms of collateral will be continuously added according to the AUGMINT roadmap, including real world tokenized assets[24] to maintain low correlation among volatility of collateral types. To reach the appropriate level of collateral asset diversification takes some time. Till then the system is forced to be on the safe side, meaning a relatively high collateral ratio 250-300% level and/or using almost exclusively margin loans.

Selecting fewer collateral asset can influence also the origination of the the loans, the token supply. It may be the case that it will be necessary to narrowing the collateral asset type base. However this step can have a trade-off, because it decreases the overall diversification of the system.

3.4.3. Market Intervention

Market intervention means that the MIR buys or sells A-EURs. Selling A-EURs ("quantitative easing") means the the system extending the token supply. In the AUGMINT system this can happen only if the A-EUR token price is above par since the AUGMINT system has no specific economic purpose to serve. Buying A-EURs means a direct and immediate action to reduce the number of tokens in circulation.

The average duration of A-EUR tokens is a good indicator of the potential of MIR intervention. The shorter this ratio the lesser amount of system reserve is needed to reduce the volatility of the A-EUR/EUR exchange rate. The system Reserve Ratio (resources available for market

[24] http://www.nasdaq.com/article/how-tokenization-is-putting-real-world-assets-on-blockchains-cm767952

intervention compared to the tokens in circulation) is the other simple indicator to evaluate the price stability position of the system. A simple figure may be drawn to reveal the connection among average duration (D), amount of A-EURs in circulation (Q) and market intervention reserve amount (R) :

Figure 2. Reserve indifference curves

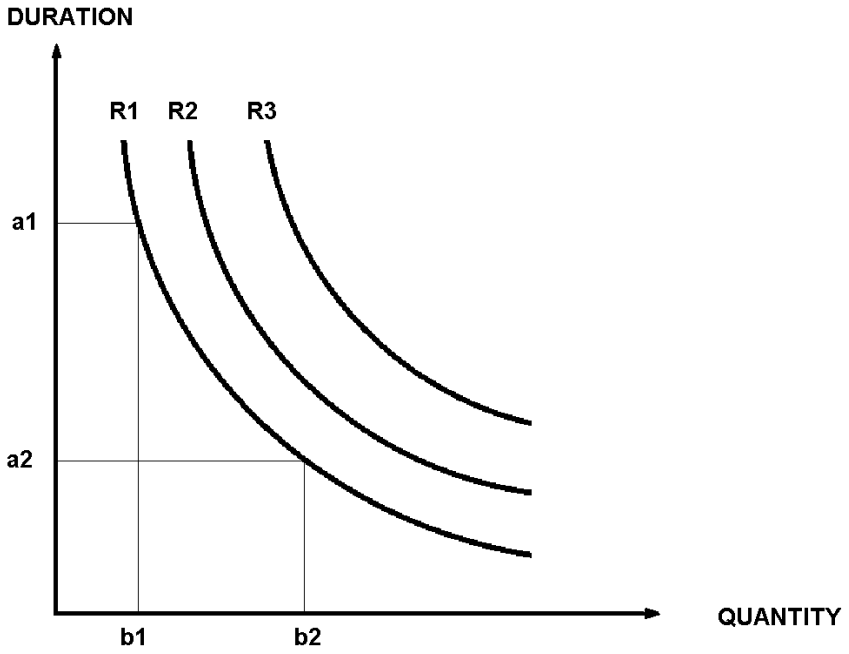


Figure 2 demonstrates that a given amount of market intervention reserve (R1,R2,R3,... etc) can serve an endless combination of duration and quantity of A-EUR token amounts. E.g. point (a1, b1) and (a2, b2) require the same amount of reserve (R1) to maintain a the stability of the A-EUR price.

The reserve indifference curve connects points on a graph representing that different average durations and quantities of A-EURs in circulation points between which a “stability ability” is indifferent. One might also consider each point on the indifference curve as being equivalent to the same level of stability for the system itself.

Detailed simulation analysis will be continuously conducted to draw the actual indifference curves, which will likely change all the time .

The Market Intervention is planned to be executed by an intelligent algorithm. It will listen to the maturity tables, distressed loans actual and forward stock, and will take actions all the time to reduce the so called *hot token stock*. (Hot tokens = Users tokens in circulation - Open loan obligation in a given time point- token needs of the circulation). These actions will be done preemptively taking into consideration the MIR FX assets price movements. In the long run the initially simple rule of thumb actions (to be discussed in the technical papers) should be substituted with those of a more sophisticated AI.

3.5. Risks & Mitigations

3.5.1. Concrete Emergency Scenarios

3.5.1.1. A Specific Asset Market Fall

Depending on volatility level an automated system may increase the loan Coverage Ratio of the asset in question or even stop entirely the origination of new loans collateralized with that asset.

As the asset price is falling, the (fixed type loans) borrowers may opt not to repay because in EUR terms it does not make sense. (Borrower option!). As the originations are quite diversified in maturity, deposit rate and amount, the direct effect on the A-EUR demand may be mild and gradual. But the truth is that certain growing amount of A-EUR's demand is gone. At the mature phase of the A-EUR utility token it may be handled by the parameters incorporated in the system. If the asset price decrease is lasting, discouraging or even inhibiting new originations would be enough to subsume the non-repealed A-EURs.

3.5.1.2. Multiple Collateral Markets Parallel Collapse

It can happen, especially in the early stages that the diversification is low (i.e. only a handful CCs are eligible to be collateralized) and there is systematic fall in all asset market. It may be the case that most of the loans will be "out-of-the-money", i.e. the borrowers will opt to leave the loans to be defaulted.

In this case, the collateral types in question can be immediately removed from the eligible list or if prospects are not that dark the given collateral ratio might be increased, and only margin loans are allowed for the ailing assets. The resilience of the system is a function of the amount of hot tokens compare to the primary stability resources. Initially the system will maintain a high level of margin loans in its loan portfolio to be able to withstand the collateral markets parallel collapse. Additionally the system will try to diversify its FX portfolio, namely including EUR denominated assets and even fiat money in its portfolio.

To neutralise the growing amount of hot tokens instantly, the system has two instruments:

- activate the lockin premium possibility,
- starting market intervention (buying A-EURs)

3.5.1.3. Parallel Fall of A-EUR and Collateral Market

It may be the case that, because of certain systematic reasons, all collateral types used by the loan contracts will parallely and heavily lose their value. Even if the A-EUR ecosystem would then function normally the contagion cannot be avoided and users may want to liquidate all digital assets (including A-EURs) into fiat currency. In this case trying to blindly maintain the A-EUR/EUR exchange rate might backfire. E.g. more loans would default than otherwise therefore the A-EURs repealing would decrease. The appropriate course of action therefore is subject to the composition of reserves. The higher the ratio of the real world assets in reserves, the easier it would be to support the targeted A-EUR exchange rate.

3.5.1.4. Black Swan Event (BSE)

These events are, by nature, highly unpredictable. Therefore it is better to focus on the general capabilities of the system in case of unforeseen catastrophic incidents. It is a

practice of commodity and stock exchanges to suspend the trading of one or more assets, and sometimes even the exchange as a whole is shut down. A currency system complete shutdown may be a really extraordinary step, nevertheless the AUGMINT system should be prepared to this kind of intervention. It is more likely, however, that certain transactions should be restricted or halted temporarily until an agreed solution can be reached by the stakeholders. That requires that:

- the system should be capable to be partially or wholly suspended,
- it should have an emergency plan to execute this (i.e. who has the right to do that)
- it should have a quick decision making protocol to reach fast consensus amongst stakeholders

Outline of steps:

a) temporarily suspending certain kind of transactions (for max . 24 hours)
b) solution proposal to stakeholders
c) Voting (urgent type voting)

Solution: subject to the type of BSE

4. System Financing, Governance and Business model

4.1. System Financing

4.1.1. AUGMINT Treasury Coins (ATC) Issuance and Sale

100 M ATC will be issued to Treasury contract - a multi sign contract controlled by initial stakeholders. Treasury distributes vested ATCs to creators, devs, early contributors, strategic partners and sales ATCs to investors in four phases: (Details in Chapter 6.)

1. At the end of the Pilots period 5-15%
2. After successful public introduction 10-15%
3. Project expanding period 35-40%
4. After successful proprietary blockchain starts 35-40%

ATCs distributed to contributors will be vested for a fixed time period. Later period distributions will be decided by stakeholder voting. ATC sales might happen in various private and public forms in all periods. In the initial phase the seed finance will be executed via " SAFT pretokens".

4.1.2. A-EUR Initial Liquidity

AUGMINT system may start with the issue of A-EUR tokens by the Stability Board if necessary. This may provide the initial liquidity, A-EURs for the circulation. The whole issued amount will be deposited into the Market Intervention Reserve. This process is analogous when a fiat central bank sells fiat money against FX.

The Market Intervention Reserve sales these A-EURs exclusively on the FX market. MIR sales A-EURs only if the price of A-EURs are above par, ie. above 1 EUR/token. Proceeds of the sold A-EURs never left MIR and can be used exclusively to buy (back) A-EURs.

Initially when there is no market yet MIR sell A-EURs automatically up to the amount of the borrowed loan interests. Later as A-EUR exchange market are active this automatic market making stops and MIR will intervene only if A-EURs price deviates from being at par.

4.2. Governance

4.2.1. Manifesto

All participants in the project are obliged to comply with the the AUGMINT Manifesto[25].

4.2.2. AUGMINT Stakeholder Tokens (ATC, GDC)

AUGMINT stakeholders are the users who own ATC or GDC tokens. These tokens practically represent all "shareholders rights". In the long run ATCs will account for 50%, and GDCs for the other 50% of all rights.

[25] Draft manifesto: http://bit.ly/AUGMINT-manifesto

Initially only ATCs (AUGMINT Treasury Coin) will be issued. In phase 3, the Project expanding period, the system starts to allow the Governance Deposit Contract (GDC) tokens issuance. Users may deposit their A-EURs against GDC tokens (1 A-EUR =1 GDC). The token holder may vote and be entitled to certain earnings of the system. These GDC tokens are continuously created and burned by the token holders as the GDC token is redeemable after a minimum lockin period. The GDC issuance, voting power and the dividend rights will be increased gradually.

The GDC token makes it possible that anybody anytime become a stakeholder of the AUGMINT system. This opportunity is indispensable to keep the system decentralized also from the “ownership” point of view .

4.3. Business Model

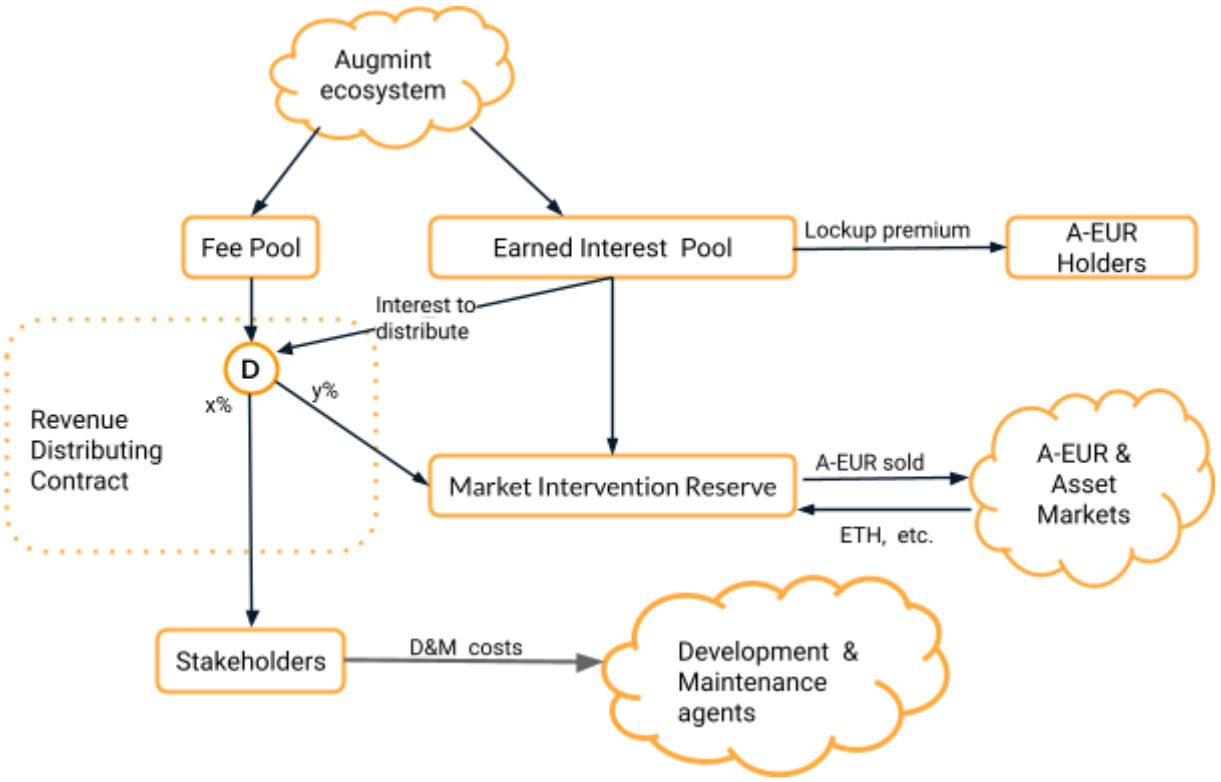
The sustainability of the AUGMINT system requires a stable revenue flow to cover the maintenance of the blockchain and system development cost. Revenues are necessary to reward stakeholders of the system too.

The AUGMINT system’s primary income arises from:

- transaction fees
- other system fees (e.g. default fees)
- Interest margin

The primary use of these earnings is to support the MIR, the stability of the A-EUR token. If the reserves reach a secure level (this practically decided by the market, meaning the A-EUR volatility is not higher than the EUR’s) the system will allow the other uses ie. paying dividend to stakeholders.

4.4. AUGMINT Earnings Distribution

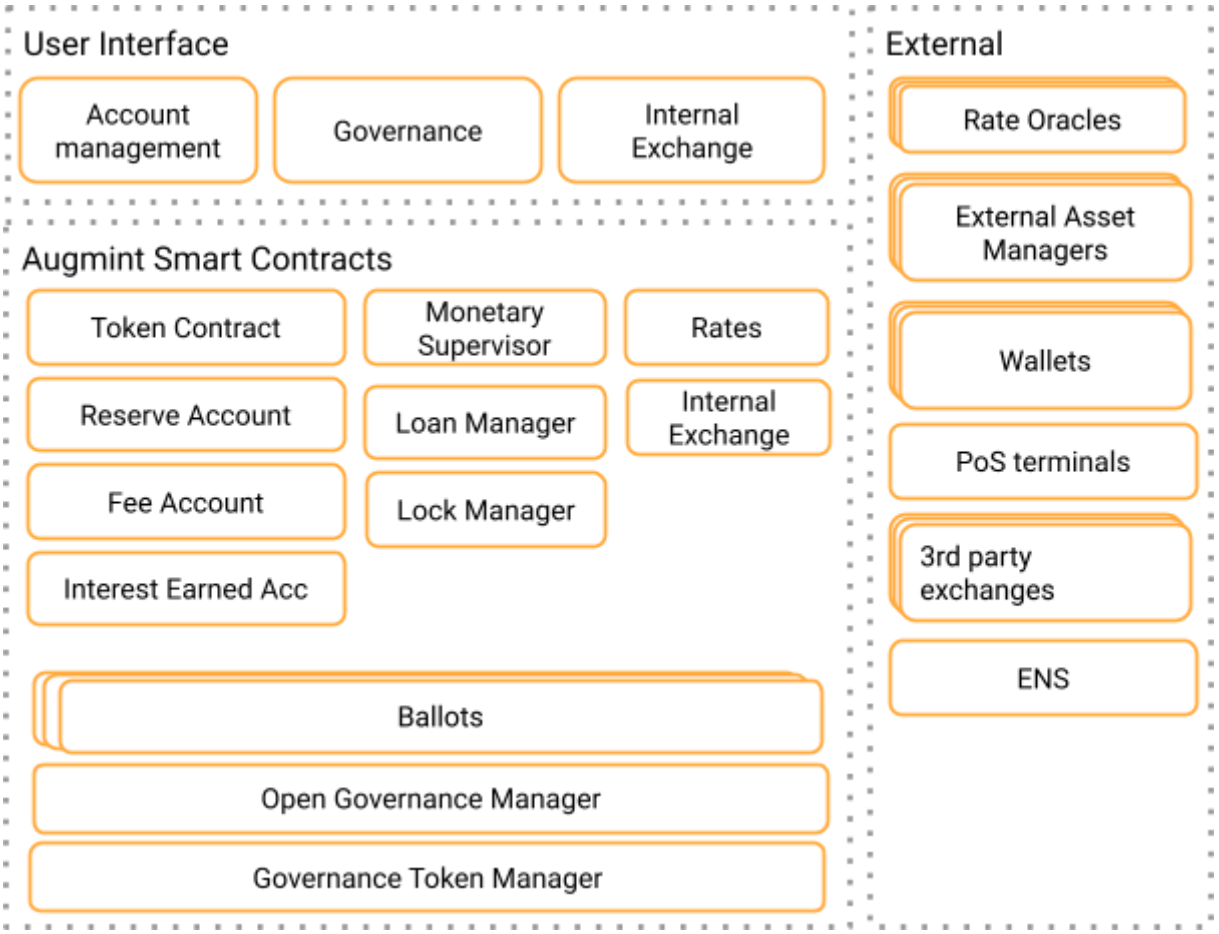


The Revenue Distributing Contract has two parameters (x, y) which can be changed by the AUGMINT Stability Board (ASB). Thus allowing funds transfer to stake (ATC) holders only when the MIR FX account value level reaches the value of “hot tokens” (subject to simulation model results). Default value for the parameters is x=10: y=90.

5. Technology

5.1. Main Components

Schematic diagram of AUGMINT ecosystem components:



Note: it's is a high level logical grouping of components, details will evolve.

5.2. Technical Challenges

5.2.1. Underlying Blockchain

We use Ethereum as the core blockchain for the initial version of the system. Ethereum is the most widely adopted and mature Turing complete blockchain at the time of writing, and the only one proven to able to handle significant amounts of transactions and value.

However it can't fulfill all long term AUGMINT requirements for privacy, scaling and performance at the moment. We expect that the ecosystem will gradually catch up on all of these areas as described in this chapter.

At the same time we do not fully rely on these expectations with our plans. We have fallback solutions, within the Ethereum ecosystem and even potentially moving to other blockchain if required.

5.2.2. Open Governance - System Parameters

The actual ballots are launched and managed by the Open Governance Manager contract. For each ballot voting tokens can be claimed by ATC/GDC holders. AUGMINT Stability Board (ASB) members are also elected via the Governance Token Manager contract using ballots.

The open governance contracts will enforce that changes in the system are only possible if the quorum of the ASB digitally signs it.

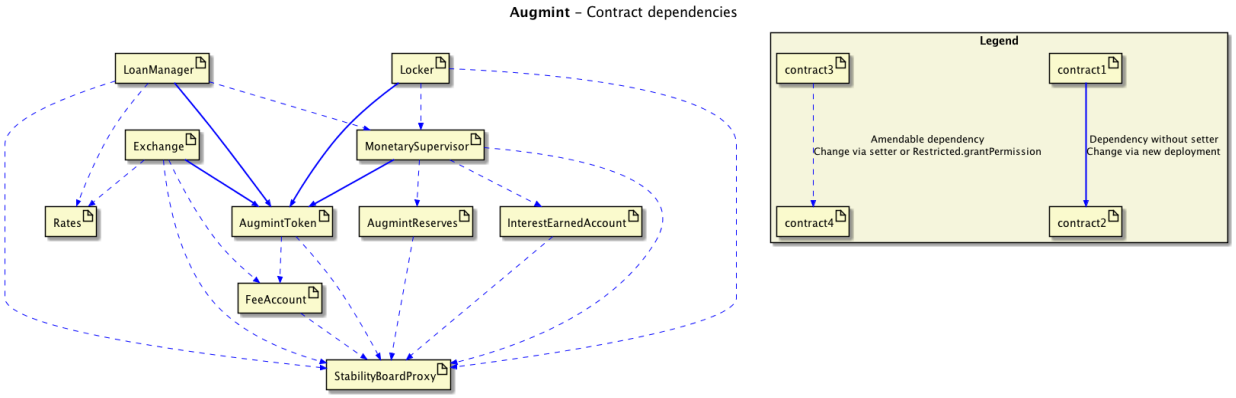
These changes include:

- System parameter changes
- Emergency switches

The execution of these changes are enforced by the Open Governance Manager via pre-defined mechanics, i.e. components will ensure that they accept changes only from the Open Governance Manager:

- components are prepared for parameter changes accepted only from the Open Governance Contracts
- key components are prepared to accept emergency “instructions” only from the Open Governance contract

5.2.3. Upgradeability



5.2.3.1. Code Upgrades & Migrations

The Token Contract will not be upgradable. In event that the token contract does requires a change, the system will offer a migration to a new Token Contract on an opt-in basis. This new token contract will accept the old tokens with a 1:1 ratio.

The loan and Lock manager and Exchange contracts will, similarly, also not be upgradeable. In case of new version of these contracts, the Token Contract will allow multiple (whitelisted) instances to operate simultaneously so that migration can happen gradually. As multiple versions of these contracts can operate at the same time, new versions can be tested, and the old ones can be switched off when there is no more outstanding obligations in them.

Rates contract is only used by the loan and Exchange contracts therefore new versions can be deployed with deploying new versions of those contracts, as described in previous section.

As the system evolves, and with each upgrade, we will learn about which components require frequent code changes. Therefore, in each new release we will have the option to make a certain part configurable, to reduce the number of contract upgrades.

5.2.3.2. Upgrade of External Components

Some dependencies and asset types require external components. The upgrade / change of these components can’t be directly managed by the Open Governance Manager the same way as internal components. For these components the Open Governance Manager will only define which external components are trusted.

5.2.3.3. Option to Migrate to Other Chain

In the unlikely event that the ecosystem needs to move to another blockchain, the governance contract can only manage to “shut down” operations on the current blockchain. In this exceptional case, a ballot concerning ceasing this operation should contain rules about the migration to the new blockchain.

5.2.4. Security

As the potential impact by an exploit can be huge, security must be a primary concern in system design, implementation and operation.

- **Complexity:** The complexity of the system increases the chance of vulnerabilities. On top of the mitigations below, the system must be designed with simplicity as a goal. This will be broken down into simpler micro-components and additional complexity will be introduced in a gradual way with continuous security measurements.
- **Operational security:** beyond the code security, operational protocols must be in place for the non-automated processes. Decisions about reserve use, emergency interventions will require approval by multiple accounts.
  Note: Reserve use will be restricted to a pre-defined set of internal transactions (i.e. contracts won’t allow any transfer outside the system). Despite that, these restrictions must be in place because a human error can have an impact the ecosystem. As the system evolves more and more of these manual interactions will be handled by algorithms to eliminate this vector.
- **Code analyzers:** Analyze solidity code to uncover the most basic exploits (over/underflows, reentrancy issues etc.). These are far from being able (and never will be able) to cover all potential vulnerabilities but it’s a good first line of automated discovery of potential issues.
- **Peer review:** Continuous peer review by community is a great way to discover issues
- **Auditing:** Formal external auditing of smart contract code gives additional layer of protection and a transparent reinforcement for the users.
- **Bounties:** prizes for discovering security holes will be set up regularly
- **Test operation:** Live tests will be run limited by volume / market / participants etc.
- **Emergency control / halt switch:** for black swan events the system will be able to halt operations for a limited amount of time in order to come up with resolution via Open governance.

5.2.5. Price Oracles

Up-to-date and reliable prices of assets against the cryptocurrency are crucial for operation. We propose a two phase solution to tackle this challenge:

1. **Using an External 3rd Party to Provide Price Feeds**

Initially we will use our trusted external component which will regularly feed price information from multiple sources to our Rates contract (i.e. volume weighted median of rates info from biggest exchanges, ignoring the outliers).

Our contracts will use this data to calculate the price used for each asset. The exchanges used are governed by Open Governance decisions.

In case of any anomaly or black swan events, each component can decide to block any transactions (i.e. new loans, exchange) which rely on rates.

The same time the last update time is stored in our Rates contract therefore the components will determine at what threshold will they suspend operation.

Using an external trusted component for price feeds - no matter how reliable is it - is a single point of failure so a decentralised price feed solution is required in the medium term.

2. Transition to Decentralised Price Oracles

There are multiple decentralised price Oracles that are currently in the making. E.g. Augur, Gnosis, Stox, RealityCheck, ChainLink etc. We might also potentially build our own oracle (e.g. based on Schelling model[26]) or use other service (CryptoCompare Oracle, Oracul etc.) or even a combination of some of these.

5.2.6. Cross-Blockchain Transactions

In order to accept tokens for collateral which are not on Ethereum blockchain (e.g. bitcoin[27]) we must be able to execute transactions cross-chain. As the most basic solution atomic swaps[28] will be implemented. Collateral will be locked in Hashed Timelock Contracts [29] on the other blockchain, accessible by the borrower after maturity or in case of default to move it to the multisig reserve wallet by the ASB board.

In parallel tokenized assets created on Ethereum by many of the initiatives (e.g. LAToken[30], ATLANT[31], Digix[32], Orebits[33] , Blackmoon Crypto[34], etc.) can be relatively easily used when they are ready for production.

For intermediate solution centralised 3rd parties can be used to transfer and/or prove transfer of non Ethereum based collaterals (in similar fashion as InterCrypto[35]).

In the long run one of the the many decentralised cross-chain / exchange initiatives will be used (e.g. COSMOS[36], COMIT[37] , Polkadot[38], Interledger[39], Prism[40], 0x[41], Kyber Network[42] , EtherDelta[43] etc.)

5.2.7. Scalability, Transaction Costs and Speed

Transaction Cost

AUGMINT initial implementation will be on Ethereum. Ethereum transaction cost for a simple token transfer with our proof-of-concept implementation is ca. 0.06 EUR[44]. The system will

[26] https://blog.ethereum.org/2014/03/28/schellingcoin-a-minimal-trust-universal-data-feed
[27] an option is to use tokenized BTC as, eg: https://ebitcoin.org/
[28] https://en.bitcoin.it/wiki/Atomic_cross-chain_trading
[29] https://en.bitcoin.it/wiki/Hashed_Timelock_Contracts
[30] https://latoken.com
[31] https://atlant.io
[32] https://digix.global
[33] http://orebits.io
[34] https://blackmooncrypto.com
[35] https://intercrypto.org
[36] https://cosmos.network
[37] http://www.comit.network
[38] https://polkadot.io
[39] https://interledger.org
[40] https://prism.exchange
[41] https://0xproject.com
[42] https://kyber.network
[43] https://etherdelta.com
[44] transaction cost calculated executing a A-EUR transfer transaction with a narrative text included in the transaction. Gas cost : 40,791 Gas price: 5 GWEI ETH/EUR: 297

launch with this solution and scale up with cheaper transactions as described at the scaling up section below.

A-EUR Transfer Gas Cost

By default the user need to have ETH for an A-EUR transfer to cover the transaction gas cost. We consider this as a too high friction for the general A-EUR users. Users should be able to spend A-EURs they received without jumping through the hoops of buying ETH.

EIP86[45] change in Ethereum will allow contracts to pay the gas costs and it's planned in the Constantinople Metropolis hard fork but its release date is uncertain.

As an interim solution we will allow trustless services to send in signed transfer transactions from users. This service will submit the transaction to the network, pay the transfer tx gas costs and it will be compensated by the token contract.

1. Client signs the hash of the tx with her ETH account's private key. Tx data: token address, from, to, nonce, max submission cost)
2. Client sends signed txhash + tx data to transaction submitter service
3. Service validates tx signature and checks if user has enough funds to avoid rejected tx and lost gas cost
4. Service forwards tx to A-EUR contract from its own ETH account, adding the submission reward it requests.
5. A-EUR contract validates signature, nonce and submission reward
6. A-EUR contract increments nonce and transfers A-EUR according to client instructions and sends reward to service
7. Service sends confirmation to client

Scaling Up

In case of AUGMINT tokens widely adopted for regular (micro) payments it must be able to handle large volumes of transactions with acceptable confirmation times (couple of seconds).

VISA claims[46] they handle ca. 2-4k transactions per second (tps) and have the capacity to handle up to 65k tps. Paypal claimed[47] that they processed 450 tps in 2015.

As of today, Bitcoin's theoretical capacity is 2-7tps[48] with an average confirmation time of 6-30 minutes and occasional peaks of up to multiple hours[49]. Ethereum's theoretical capacity is 15 tps with an average confirmation time around 30 seconds with occasional peaks up to multiple minutes[50].

It's clear that for the AUGMINT vision these technical limitations are a bottleneck in the long run. However there are plenty of initiatives, in various states, working on increasing blockchain transaction throughput, reducing confirmation times and costs. (e.g. Raiden[51] and Plasma[52] on Ethereum, Lightning Network[53], Rootstock[54] on Bitcoin, Stash[55] etc.). These

[45] https://github.com/ethereum/EIPs/pull/208
[46] https://usa.visa.com/dam/VCOM/download/corporate/media/visanet-technology/visa-net-fact-sheet.pdf
[47] http://uk.reuters.com/article/us-paypal-results/paypals-revenue-beats-street-view-on-higher-transactions-customers-idUKKCN0V52RN
[48] http://fc16.ifca.ai/bitcoin/papers/CDE+16.pdf
[49] https://blockchain.info/charts/avg-confirmation-time
[50] http://ethgasstation.info/
[51] https://raiden.network
[52] http://plasma.io
[53] https://lightning.network
[54] http://www.rsk.co
[55] http://stashcrypto.com

solutions range from improving the blockchain algorithms, introducing new blockchains, or implementing side chains / payment channels[56]. As of today we don't consider any of these solutions mature enough to launch with. Based on the efforts and the pace of advances in this area we expect that some of these solutions will be stable enough to build on by the time that AUGMINT volumes are hitting these limits.

5.2.8. Privacy

From a privacy point of view, existing CCs - with few exceptions - fall somewhere between real cash and a bank account in regards of privacy. Although CC accounts are anonymous or pseudonymous, by definition, privacy remains a concern because transaction data and history is public.

In the AUGMINT vision, it will be tackled in two stages:

1. **Tx Narrative Encryption**
   Considering the necessities of everyday use and accounting our solution allows the attachment of encrypted transaction info. Reference memos (narratives) on the transaction can be optionally encrypted so that only the recipient can read it.
2. **Tx Information Obfuscation**
   The visibility of the fact that a tx happened between parties and the tx amount is controlled entirely by the transacting parties' mutual approval. If a user is not willing to reveal any information about a transaction, zero-knowledge cryptography[57] will be applied. Should the counterparty not accept this, there will be no transaction, and vice versa. The Smart Account concept allows users to switch/enable their accounts to accept transaction information if counterparty user had sent that.

5.2.9. Hard Forks

Any fork of the underlying blockchain would result in a doubling of the available purchasing power of AUGMINT tokens in circulation.

Another aspect the liabilities of the borrowers. No borrower would accept the doubling of his or her repayment.

The ASB have the role and right to "sign" solely on one blockchain and stop the system on a forked chain.

It's not possible to stop a hard fork on blockchains with collateral. In this case the inter blockchain transactions should be modified to handle the collection on both blockchains.

[56] https://en.bitcoin.it/wiki/Payment_channels
[57] https://en.wikipedia.org/wiki/Zero-knowledge_proof

6. Roadmap

Considering the complexity of the AUGMINT ecosystem and some of the technically more challenging requirements the implementation will be carried out in an iterative manner. Therefore multiple pilots will be run in controlled environments. Functionality will be introduced gradually. Pilots will be limited by access and/or volumes (e.g. loan origination and/or lockable amounts capped).

Work in progress detailed roadmap[58]

[58] Draft roadmap:
https://docs.google.com/spreadsheets/d/1GKsrm8TdVcy3fJshqKAhDnO8PUDMQCiMGrLixvDCeTk/edit#gid=0

7. Disclaimer

The utility tokens issued by AUGMINT contracts are not legal tenders. Use them at your own risk. To be used to replace, substitute or imitate any existing fiat currency might be subject to regulatory regimes.

AUGMINT governance tokens are not to be issued to entities residing under regulatory regimes prohibiting ownership or usage. Use of AUGMINT contracts is at the owner's risk.

AUGMINT project or any party who is contributing to the project cannot be held responsible for any damages, costs, expenses, anticipated savings, losses, errors, taxes, third party transactions, fees or delays encountered when interacting with AUGMINT contracts.
AUGMINT Project is not responsible for any problems that may result from the use of your internet connection, our website, the Ethereum platform, any contributors website, or any problems arising from the Ethereum code. Dissatisfaction with any goods or services purchased from, or sold to, a third party must be resolved directly with that third party. The AUGMINT contracts are provided as is and without any representation of warranty, whether express, implied, or statutory. The limitations of liability of these contracts are agreed by the parties on the basis that the user is aware of the volatility of the foreign currency and Cryptocurrency markets.

AUGMINT Project reserves the right to amend, change, add, remove, or alter parts of the above text.

8. Flow of Funds