Silk: A Privacy-Preserving Algorithmic Burn Stablecoin

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Abstract. Current stablecoins such as UST have been designed based on protocol level architecture and incentives - relying on validators to maintain positions despite short term price volatility in return for governance or DEX rewards. While a protocol level design has certain advantages, having the supply of the stablecoin be tied to validators (as conduits for token expansion) limits the long term viability and effectiveness of the stablecoin for two reasons: decentralization of the stablecoin expansion is tied to the validator set, and the total supply and stability of both the stablecoin and the governance token is contingent upon risk and return placed squarely on the risk profiles of valiators.. Additionally, these systems have no uncorrelated underlying collateral or intrinsic value (on the protocol level) outside of the maintenance of the peg and continued demand for the underlying stablecoin. Finally, there is no stablecoin in DeFi with transactional privacy by default.

Silk is the solution to this problem - built on Secret Network as a native privacy-preserving algorithmic stablecoin using the SNIP-20 token standard. The Silk architecture is designed using a dual-burn minting process for both the governance token Shade and the stablecoin Silk. Total stablecoin supply is limited by initial Shade distribution as well as Total Value Burned (TVB) in the minting process of both Shade & Silk (which are convertible with each other). Native AMM support in combination with Shade and Silk convertibility resolves peg disparities.

Silk

Silk is the first ever privacy-preserving and smart contract interoperable stablecoin in blockchain history - launching on Shade Protocol. Built on Secret Network, and made possible via the SNIP-20 private and fungible token standard, Silk maintains transactional privacy for all token holders of Silk. Key to Silk is that it functions as a medium of exchange, is a store of value (pegged to basket of currencies and commodities via Band Protocol oracles integrated into Shade Protocol), is a unit of account (Silk peg starts at ~ $1.05) , and is a standard of deferred payment - all of which give Silk the four key fundamental properties of money.[1] To simplify explanations, graphics and explainers will use $1 as the peg to explain mechanics, but in reality the Silk peg is always slowly migrating above and below the initial starting point of $1.05 based on the value of the basket.

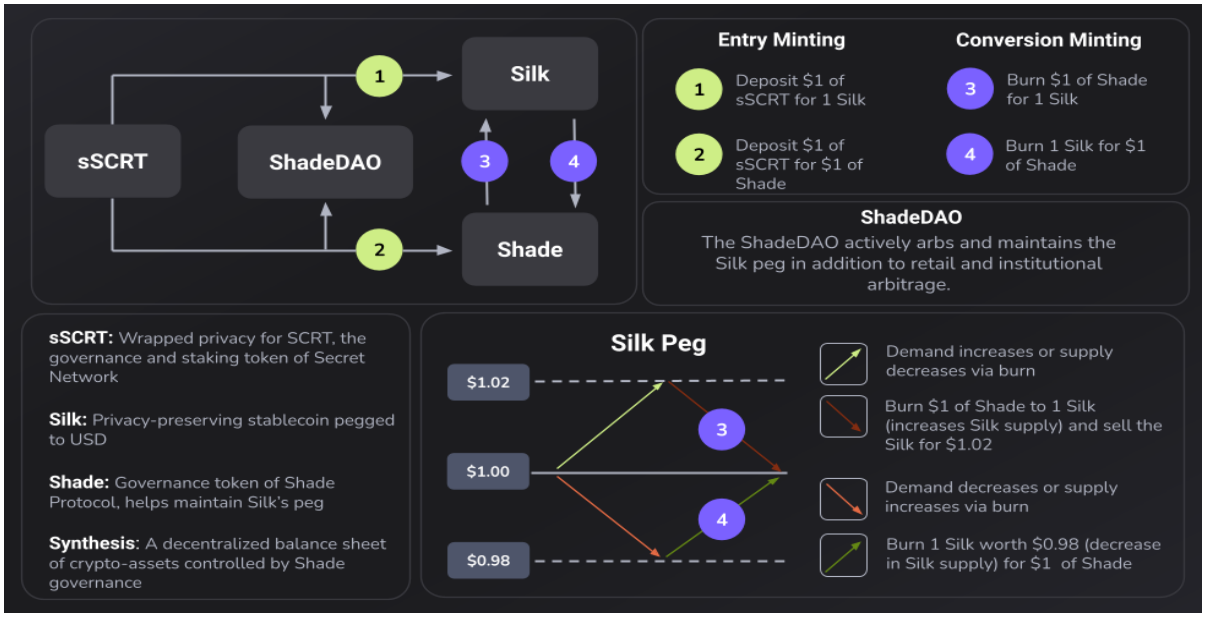
Silk is algorithmically stabilized by Shade - the governance token of both Silk and Shade Protocol. Silk replaces the payments value chain (credit card networks, banks, payment gateways) with a single application-layer protocol. Shade Protocol and Silk are credibly neutral, distributed, and have transactional privacy by default. Important for compliance and transparency is that Silk and Shade transactions can be decrypted with a viewing key unique to the address owner of the Silk; this empowers users to be transparent by choice. Additionally, users have the option to share data with trusted necessary entities that need an audit trail of transactions.

[1] Model inspired by https://makerdao.com/en/whitepaper/#what-properties-of-dai-function-similarly-to-money

Minting

An important assumption of Silk architecture is that Silk is worth $1 over an indefinite period of time, despite experiencing peg fluctuations. There are two minting options with Silk and Shade - DAO entry and conversion minting. The DAO entry of sSCRT for Silk or Shade is one directional. Burning Shade for Silk and vice versa is considered conversion minting. Note that the process of conversion in tandem to exchange arbitrage is what helps maintain Silk's peg during periods of supply and demand expansion and contraction.

- Deposit $1 worth of sSCRT into DAO -> mint 1 Silk. (DAO entry)
- Deposit $1 worth of sSCRT into DAO-> mint $1 worth of Shade. (DAO entry)
- Burn $1 worth of Shade -> mint 1 Silk (Conversion minting)
- Burn 1 Silk -> mint $1 worth of Shade (Conversion minting)



Expansion / Contraction

In an expansion example, the price of Silk is trading at $1.02. To resolve the peg disparity, there needs to be an increase in the total supply of Silk in order to reduce the price of Silk to its intended target of $1.00. This increase in supply is facilitated by the following process: a holder of Shade will burn $1.00 worth of Shade and mint 1.00 Silk (Shade conversion minting). This holder of Silk will then have the opportunity to trade Silk that the market values at $1.02 (while the holder minted at a $1.00 rate) to any asset available on an AMM. The sell pressure created by Shade conversion minting (expanding the total supply of silk) pushes the price of Silk to its intended target of $1.00.

$$\textit{Initial Shade Position Value } (\alpha) = \textit{Total Shade} * \textit{Shade Price}$$
$$\textit{Silk Arbitrage Position Value } (O) = (\alpha \,/\, \textit{Silk Conversion Minting Rate}) * \textit{Silk Open Market Price}$$
$$\textit{Shade Arbitrage Profit } (\tau) = O - \alpha$$
$$\tau = O - \alpha$$

In a contraction example, the price of Silk is trading at $0.98. To resolve the peg disparity, there needs to be a decrease in the total supply of Silk in order to increase the price of Silk to its intended target of $1.00. This decrease in Silk supply is facilitated by the following process: a holder of Silk will burn 1 Silk and mint $1 worth of Shade (conversion). This holder of Shade will then have the opportunity to trade that amount of minted Shade that the market values at $0.98 (while the holder minted at a $1.00 rate) to any asset available on an AMM. The sell pressure of Shade arbitrage created by negative conversion minting as well as the decrease in the total supply of Silk are what pushes the price of Silk to its intended target of $1.00.

$$\textit{Initial Silk Position Value } (\sigma) = \textit{Total Silk} * \textit{Silk Open Market Price}$$
$$\textit{Shade Arbitrage Position Value } (\boldsymbol{\lambda}) = \textit{Total Silk} * \textit{Shade Conversion Minting Rate}$$
$$\textit{Silk Arbitrage Profit } (\phi) = \boldsymbol{\lambda} - \sigma$$
$$\phi = \boldsymbol{\lambda} - \sigma$$

An additional reason to convert Silk to Shade when it's less than $1 would be to own more Shade (at an arbitrage discount) so as to leverage any future expansionary arbitrage using an even greater position of Shade. Ultimately, the drop in value from the decrease in demand of Silk that resulted in a sub $1.00 price of Silk is absorbed by Shade holders, and as the Shade supply is diluted (and the Silk supply decreases), the value is essentially transferred from the Shade collateral into collective Silk market capitalization in order to raise the price of Silk back to the target peg.

Entry Minting

The entry mechanism gives Silk and Shade unique value propositions over other stablecoins and their respective governance tokens. While other algorithmic stablecoins are by definition not backed by any collateral, Shade and Silk are backed by a set of uncorrelated assets on the ShadeDAO (as a result of entry minting) which helps actively arb the Silk peg. While other protocols leave minting to validator inflation or collateralized leveraged positions, Silk architecture empowers users to directly transfer value into the Silk and Shade ecosystem via the entry minting mechanisms as well as bonds. The entry minting mechanism creates a supply sink for sSCRT - creating value for Secret Network and SCRT holders by decreasing the total supply of active SCRT circulating supply,

An additional benefit of entry minting is that decentralization of the governance token Shade is not largely controlled by a validator set as with other protocols. Instead, ownership will be attached to both holders and minters of Shade. This will increase the decentralization compared to other ecosystems where a subset of entrenched network participants (validators and stakers) benefit in the long run due to indefinite inflation required to secure the protocol and also to maintain peg-stability.

Finally, entry minting can be expanded to additional tokens beyond sSCRT. Due to Secret Network interoperability with IBC, other tokens such as sATOM could leverage entry-minting into Shade Protocol. Shade Protocol governance will have the opportunity to vote on token contract addresses that can be added as possible entry assets.

Synthesis

A dual-variable system known as “synthesis” is incorporated into a range of Shade Protocol primitives and many of their respective mechanics. The two variables are “burn” and “synthesize”. Burn is used to destroy a certain percentage of a token as a result of a given action executed. Synthesize sends the remaining unburned percentage to the ShadeDAO contract address which is controlled by staked decentralized Shade governance. These functions are in place to allow users to reflect the accurate value of synthetic assets as well as to redirect revenue to the ShadeDAO.

$$Burn = 1 - X$$
$$Synthesize = 1 - Burn.$$

Entry Minting Cap & Attack Vectors

Shade Protocol caps daily entry minting for Silk and Shade to a fixed amount of Shade on a daily basis. This parameter is controlled by Shade governance. To understand the reasons behind not having unfettered burn-based entry into Shade Protocol, this section will outline the possible attack vectors, as well as the thought process behind this design decision.

The primary attack vector against Shade Protocol and Silk is known as an “Entry Dilution Attack” (EDA) which would occur if Shade Protocol supported unfettered and unlimited burn entry into Silk or Shade at any given moment. Shade Protocol stops EDA by hard-capping Silk & Shade entry minting on a daily basis.

Here is an example of an EDA:

1. Attacker drives the price of Shade down on the open market with a mass sell-off of Shade
2. Attacker then entry-burns a massive amount of accepted tokens (sSCRT, sATOM, sBTC, etc.) to directly mint a large amount of Shade at a price rate significantly lower than currently circulating Shade.

EDA results in the following:

- Inflation of supply at the cost of all Shade holders
- Unpredictable price volatility that can impact peg stability
- Reduction of attacker’s total value
- Growth of Synthesis Treasury

EDA is a self-inflicted and sacrificial financial attack because the attacker upon entry minting is mass diluting their own Shade entry position with no promises of liquidity post EDA. Despite this, the following are reasons why EDA would still be executed:

- Hedge fund executes an EDA for $2,000,000,000 while having short position opened on the open market worth $10,000,000,000
- Competitor protocol executes an EDA, resulting in additional value or capital flowing to the attacking protocol

To put it into simple economic terms, EDA will be performed if :

$$Benefit\ of\ EDA\ >\ Cost\ of\ EDA$$

Imagination is the only limitation on picturing when this equation becomes true for a range of entities. As such, the protocol hard caps the amount of Shade and Silk that can be entry minted with no slippage on a daily basis using an epoch implementation, denominated in X amount of Shade that can be burned into.

By fixing the daily entry-burn cap to a fixed number of Shade on a daily basis, the protocol becomes immune to unpredictable mass dilution (EDA) in favor of a maximum amount of dilution on a daily basis. Shade Protocol replaces block-based inflation (which protocols like Terra need in order to secure the protocol and incentivise validators) by instead using a burn-based expansion of supply where the only limited dilution of the system goes directly to a public good (the treasury via the synthesis mechanics) that is by default not an active part of circulation.

Philosophically, the dilution from entry-minting is sent to a democratized and public address which all Shade holders have ownership of, which makes the specific dilution tradeoff deemed as acceptable. Additionally, the dilution was created by a burn and a sacrifice, as opposed to an indefinite block-based reward mechanic. The end result is that token supply expansion is tied to increases in Shade market capitalization (which increases the amount of Silk that can be supported) as well as the amount of value willing to be burned into Shade Protocol via entry minting.

Burn based entry with a cap achieves the following:

- Stops EDA
- Builds adoption of Silk
- Consistently grows the ShadeDAO to promote ecosystem adoption and security
- Solves liquidity issues for users who use the daily limited no slippage entry
- Reduces active circulating supply of tokens that are entry minted
- Predictable token expansion based on value burned

All of these are benefits. To realize these benefits, Shade holders have a % of their value diluted and pushed to the Synthesis treasury (a public good) whenever a user uses the limited entry minting of Shade Protocol.

The only unavoidable attack vector that remains is known as an “Entry Minting Discount Attack” (EMDA) which is performed as followed:

1. Attacker mass sells of a large amount of Shade, decreasing the price
2. Because the oracle entry minting rate is pointed at Shade pairs, attackers are able to entry mint into the limited amount of hard-capped Shade at a discounted rate while the price of Shade is temporarily reduced due to the mass sell-off

EMDA still grows the treasury, and still pushes value into the system. Additionally, the attacker must have a large amount of capital available, and must be willing to incur the risks of trying to move the price on the open market. The more liquidity provided on pairs that involve Shade, the more difficult it will be to execute an EMDA.

The end goal of Shade Protocol and the range of products that are set to be released on Shade Protocol is the following:

$$Daily\ Shade\ Entry\ Minted\ <\ Daily\ Shade\ Burned$$

Supply

The total supply of Silk (tsS) and the total supply of Shade (ts-S) is bounded by the following equations:

$$tsS\ =\ \Sigma\ (Silk\ Entry\ Minting\ +\ Shade\ Conversion\ Minting)$$
$$ts-S\ =\ \Sigma\ (Shade\ Entry\ Minting\ +\ Silk\ Conversion\ Minting\ +\ Initial\ Shade\ Distribution)$$

It is important to note that outside of the fixed initial shade distribution (ISD) all other upper-bounds are limitless - only tied to the amount of value burned and transferred into the Silk and Shade ecosystem over time, as well as SHD minted by the treasury for the sale of bonds.

Sustainability

Value enters the Silk and Shade ecosystem through Fiat -> SCRT -> sSCRT -> Shade or alternatively Fiat -> SCRT -> sSCRT -> Silk. In the future, other assets other than sSCRT (perhaps IBC enable Secret Tokens) could be burned as well. Shade collateralizes Silk because 1 Silk can always be exchanged for $1 worth of Shade or whatever the target peg is as determined by decentralized governance. Shade also stabilizes Silk since arbitrageurs will resolve the price difference and extract profit - profits that take the form of either Shade and Silk. The balancing of the peg revolves around exchanging value between currency and collateral. Silk's utility value will continue to grow by encouraging more Secret Apps and protocols to accept Silk due to its increased convenience, privacy-preserving benefits, and stability.

Those who hold collateral (Shade minters / holders) are supporting long-term in the network and are agreeing (in an abstract way) to absorb short-term volatility in exchange for the benefits of predictable arbitrage as well as the ability to influence governance of Silk and Shade Protocol. This system continues to work if there is enough value in Shade or Silk to continue the momentum of the rebalancing act.

Terminology

- **TVB**: total value burned
- **tsS**: total supply of Silk
- **ts-S**: total supply of Shade
- **Silk**: privacy-preserving algorithmic stablecoin native to Secret Network
- **Shade**: Shade Protocol governance token, used to resolve Silk peg-disparity

- **ISD**: Initial Shade distribution

Silk: Global Volatility Shock Absorption via Standardized Currency Basket

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Abstract. Fiat currencies have become widely implemented for stablecoin pegs in Web3. Stablecoins built on top of single-fiat infrastructure inherit the individual underlying sovereign fiat currency risks and fundamentally lack monetary policy independence. Monetary policies attached to fiat systems introduce volatility into pricing relationships between goods and commodities in relation to that of the respective fiat currency. Fiat currencies have no intrinsic value and are not directly convertible into traditional stores of value (such as gold or other commodities). Value within a fiat system is derived from supply and demand for the fiat currency in addition to the demand and supply of all products and goods natively denominated by said fiat currency. Demand for fiat currency is fundamentally generated by the need to pay taxes denominated in the underlying fiat currency. Supply of fiat currency is entirely dictated by central banking systems (influenced by treasury bond markets and interest rate expectations/valuations).

Silk, a privacy-preserving global stablecoin, aims to solve the volatility and sovereign currency risk of single fiat currency stablecoins by pegging Silk to a basket of global currencies used by top 20 largest economies, with weights determined by relative GDP. The Silk peg is adjusted via Shade Protocol governance - benchmarking target weights by tracking relative GDPs and their respective size on an annual basis. The advantages of the Silk Currency Basket (SCB) are the following: lower volatility than fiat currencies and stablecoins, relative stability, bank independence, immunity to any single sovereign currency monetary risks, transparent standardization, and decentralization of governance. Additionally, Silk has the ability to add additional commodities and currencies to the peg via Shade Protocol governance - empowering Silk to not be tied to any single configuration into perpetuity.

Volatility

Fiat currencies are subject to a range of uncontrolled and semi-controlled variables: inflation, geopolitical conflicts, interest rates, FX markets, and cascading lending risks attached to domestic market interactions with central banking lending policies.[2] While volatility can be hedged against within forex markets, this does not provide protection for every day end users of the respective fiat currencies. Additionally, forex markets lack liquidity for hedges against exotic currencies, the cost of which is expensive.[3] Importantly, volatility makes prediction of future values uncertain - creating a deterrent for investment and trade that negatively impacts wealth generation and economic activity.[4] Any stablecoin pegged to a single sovereign currency (such as USD) by extension inherits the underlying risks and volatility. With the Silk Currency Basket (SCB), volatility is reduced via broad diversification and index mirroring of the global economy. As risk migrates through the global economy, it manifests itself within bilateral currency volatility and the respective currency exchange rates. This volatility is even more noticeable within smaller currencies. As such, a currency index basket that mirrors the global economy makes Silk extremely resistant to all of the uncontrolled variables and fluctuations of the global economy and by extension any single fiat currency. Thus, Shade Protocol and the architecture behind Silk posits that the creation of Silk is a net positive from a Global Modern Monetary Theory (GMMT) perspective.

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[2] *Exchange rate volatility and trade flows*. International Monetary Fund. (n.d.). From https://www.imf.org/external/np/res/exrate/2004/eng/051904.htm.

[3] Zhang, R., Aarons, M., & Loeper, G. (2021, May 11). *Optimal foreign exchange hedge tenor with liquidity risk - Journal of Risk*. Risk.net. https://www.risk.net/journal-of-risk/7801426/optimal-foreign-exchange-hedge-tenor-with-liquidity-risk.

[4] *Global currency stabilization - WOCU*. (n.d.).http://www.wocu.com/upload/20726.pdf.

Silk Currency Basket

The initial starting peg price of Silk will nominally target $1.05. To simplify examples, the SCB will will use a target peg of $100 for Silk so the weighting mechanics are clearly understood. The dollar is nominally as a reference currency used for an initial target, but actual weights and price after initial establishment is decided purely by the value of the amounts of each of the respective currencies within the peg. After the initial establishment of Silk, the price of Silk will fluctuate in relation to whatever reference currency a user uses. The fluctuation in Silk price is based on the relationship of the reference currency to the rest of the basket of currencies within SCB. The SCB will be pegged to the following currencies using weights based on relative nominal GDP percentages of the top 20 largest economies (GDPs derived from IMF monthly reports) with available currency oracle datasets (Band Protocol used for V1):[5]

Country	Currency	GDP (bn)	Amount	Weight
United States	USD	22,939.58	30.08324438	30.083%
China	Yuan	16,862.98	141.6585561	22.114%
Japan	Yen	5,103.11	763.2184019	6.692%
Germany	Euro	4,230.17	4.798457242	5.547%
United Kingdom	Pound	3,108.42	2.978750323	4.076%
India	Rupee	2946.06	289.5199473	3.863%
France	Euro	2940.43	3.335451679	3.856%
Italy	Euro	2120.23	2.405064808	2.780%
Canada	Canadian Dollar	2015.98	3.276048906	2.644%
Korea	Won	1823.85	2,813.904807	2.392%
Russia	Ruble	1647.57	153.3139914	2.161%
Brazil	Real	1645.84	12.17579453	2.158%
Australia	Australian Dollar	1710.56	2.983401206	2.243%
Spain	Euro	1439.96	1.633406338	1.888%
Indonesia	Rupiah	1150.25	21,549.31212	1.508%
Netherlands	Euro	1007.56	1.142917088	1.321%
Switzerland	Franc	810.83	0.973631646	1.063%
Turkey	Lira	795.95	10.02900189	1.044%
Taiwan	Taiwan Dollar	785.59	28.67331718	1.030%

[5] International Monetary Fund. (2021, October). *World Economic Outlook Database*. IMF WEOD.

Sweden	Krona	622.537	7.021610027	0.816%

Silk Currency Basket Advantages

Conceptually, Silk can be considered a hub or intermediary of swaps between different assets or currencies. Each currency or asset on the opposite end of Silk is valued according to the conversion rate between the local currency and Silk. As such, Silk functions as a stability hub. SCB is a direct alternative to direct conversion rates between currencies (inheriting the volatility of the currency relationships and risks) or between a currency and a respective commodity priced relative to the currency. Commodities and goods priced in relation to a sovereign currency inherit the volatility risks of the respective reference currency. By using Silk for everyday payments and settlement, there is a stabilising effect created for any and all cost and revenue projections due to the reduction in volatility due to the nature of Silk being an index currency. Additionally, Silk is a transparent derivative - making it easy to calculate its present and future value due to the collective stability of the underlying basket of currencies. As a result of Silk being a hub for swaps, settlement, and daily transactions, and due to the nature of the composition of the peg, Silk is essentially a perpetual hedge instrument that reduces sovereign currency risk. The end result is that ownership of Silk and the respective risk of holding Silk is independent of predictions for any of the following: future foreign exchange trends, currency relationship dynamics between pairs of currencies, individual currency volatility factors.

SCB is as reliable a store of value as the currencies within the composition of the Silk basket of currencies. However, due to the fact that Silk's peg composition is diversified, a Silk holder would retain value even in the case of a currency crisis within a constituent currency within the Silk peg. Silk holders would only risk losing the weighting of that particular currency within the basket. For those who generate income across multiple international demarcations, Silk vastly simplifies the question of where value can be safely stored due to the reduced costs of hedging (by simply holding Silk instead). Another benefit of SCB is that it can be deployed and used today without regulatory scrutiny. International political agreement is not required for index currencies, and therefore it is unnecessary to wait for political processes to culminate since Silk never claims to be pegged one-to-one with a sovereign currency (thus massively reducing regulatory risk). In summary, Silk has all of the advantages of national fiat currencies without the drawbacks of volatility that are native to single-fiat protocols. The more Silk is adopted, the more Silk will be used directly to settle payments between users, merchants, firms, and institutions on a global scale. This will empower Silk to become the de facto international meta-currency - increasing wealth across international communities by giving direct access to reduced volatility and hedging costs.

Peg Migration

The peg migration of Silk is based on governance votes for changes in weightages of the underlying peg composition. The new basis for currency amounts is rebased on a snapshot of the price of Silk before a shift to the new set of weights and currency amounts per governance update of weights. $100 is the initial starting price peg for Silk. New weightages are re-applied in relation to this new amount, and individual currency amount contributions to the larger peg are shifted.

$New\ Currency\ Amount\ =\ (\$100\ *\ New\ Weight)\ /\ Current\ Currency\ Quote\ (in\ USD)$

$\Sigma\ \{New\ Currency\ Amount\ *\ Currency\ Quote\ (in\ USD)\}\ =\ target\ peg$

The following is a nominal and contrived example with a $100 starting peg:

Country	GDP	% of Total GDP	Currency	Dollar Quote	Currency amt.	Weight contr.
United States	22,939.58	43.908%	USD	$1.000000	43.90832601	$43.908326
China	16,862.98	32.277%	Yuan	$0.1561100	206.7592838	$32.277192
Japan	5,103.11	9.768%	Yen	$0.0087685	1113.963706	$9.767791
Germany	4,230.17	8.097%	Euro	$1.1561000	7.003640374	$8.096909

Now imagine that the collective value of the SCB is now worth $110 at the end of the year. Shade Protocol governance will then vote on new weights such that the underlying amounts of currency contribution to the peg shifts such that the currency amounts * currency quote adds up to the current price of Silk ($110). This is done instantaneously such that there is no jump in the price of Silk during weight changes, only direct modification to the currency contribution amounts. You will note that in the below example, the quotes for all of the currencies have changed with respect to the dollar (as well as the weights post governance ratification). These weight changes were determined by changes in GDP of the respective countries. Note that the weight contributions post update still add up to $110, as this was the price snapshotted (and is the existing quote for the value of SCB).

Country	GDP	% of Total GDP	Currency	Dollar Quote	Currency amt.	Weight contr.
United States	40,000.00	33.058%	USD	$1.0000000	36.36363636	$36.363636
China	20,000.00	16.529%	Yuan	$0.1061100	171.3487719	$18.181818
Japan	50,000.00	41.322%	Yen	$0.0093685	4851.848797	$45.454545
Germany	3,000.00	2.479%	Euro	$1.2261000	2.22434771	$2.727273
United Kingdom	8,000.00	6.612%	Pound	$1.5685000	4.636740372	$7.272727

Legal Landscape Theory

Stablecoins tied to individual sovereign currencies run the risk of a greater amount of legal scrutiny because of the derivative nature of the stablecoin. The nature of the scrutiny is tied to how large capital concentration on a derivative layer of a sovereign currency (in the form of a stablecoin) can negatively affect said sovereign currency stability and monetary policy. That is to say, stablecoins add additional risk to fiat systems because central banks no longer have 100% direct control over a portion of supply generation and contraction. Additionally, reserve backed stablecoins run the risk of directly impacting macroeconomics if enough liquidity is concentrated within these reserves as opposed to other key components of fiat distribution.

Silk is uniquely positioned because it is neither a reserve currency, nor is it directly tied to a single sovereign currency. Because Silk is not directly pegged to any given sovereign currency, it lives firmly outside the majority of regulatory scrutiny as Silk is not an underlying fiat derivative. Silk aims to be a hub and facilitator for global transactions, and does so with a level of neutrality and decentralization that is novel within Web3.

However, while Silk is uniquely positioned with the above features, there will inevitably be scrutiny surrounding the following variables:[6]

- KYC/AML/Cybercrime
- Tax Compliance

Silk is well positioned for scrutiny under the following:

- Safety, efficiency, and integrity of the payment system
- Data privacy, protection and portability (unique to Silk)
- Sound governance, including the investment rules of the stability mechanism
- Market integrity
- Auditability and compliance via permit key structure on Secret Network
    - Entities can decrypt their transactions and data

Special Drawing Rights

Special Drawing Rights (SDR) as defined by the International Monetary Fund (IMF) is an international reserve asset, created by the IMF in 1969 to supplement its member countries' official reserves. To date, a total of SDR 660.7 billion (equivalent to about US$943 billion) have been allocated. This includes the largest-ever allocation of about SDR 456 billion approved on August 2, 2021 (effective on August 23, 2021). This most recent allocation was to address the long-term global need for reserves, and help countries cope with the impact of the COVID-19 pandemic. The value of the SDR is based on a basket of five currencies—the U.S. dollar, the euro, the Chinese renminbi, the Japanese yen, and the British pound sterling.[7]

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[6] *Investigating the impact of Global Stablecoins*. (n.d.). Retrieved October 30, 2021, from https://www.bis.org/cpmi/publ/d187.pdf.
[7] *Special drawing rights (SDR)*. IMF. (2021, August 5). Retrieved October 29, 2021, from https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/14/51/Special-Drawing-Right-SDR.

Despite the global significance of SDR within the G8 and China, the SCB does not use SDR for weight standardizations for the following reasons:

- SDR is updated every 5 years
    - This frequency is not granular enough for Silk to be reflective of changes in the global economy and the respective weights associated with individual sovereign currencies
- SDR is defined by IMF, a political institution deeply impacted by sovereign nations
    - Representatives of IMF are mandated to pursue the self-interest of the countries represented within SDR
    - Currencies such as USD have an unfair weighting in relation to their respective GDP contribution - this is a result of political influence on the IMF
    - Discludes smaller economies and currencies on the global stage

SCB due to the frequency of the updates, decentralization of the peg, and the neutrality of the standard, all make Silk and the respective basket composition superior to SDR as an alternative.

Global Value Shift

In a scenario where commodities and cryptocurrencies such as Bitcoin gain a dominant position in the global volume of transactions and trades, Shade Protocol will have the opportunity to include these commodities (digital or not) into SCB in order to make Silk more resilient and reflective of the existing macro environment. Conceivably, Silk could include any type of asset or currency into the peg - creating a degree of flexibility and reactivity (subject to Shade Protocol governance) that empowers Silk to exist beyond any significant global black swan events that impact any set of currencies and economies.

Conclusion

The age of globalization is being accelerated as a direct result of Web3. Now more than ever, the need for a stablecoin that does not inherit the risks of any single sovereign fiat is key. Also, because stablecoins to date are derivatives of individual fiat systems, they add additional risk to those existing economies. Silk is the solution - a globally distributed stablecoin pegged to a basket of currencies based on relative GDPs of the world's major economies. Silk serves as a lucrative settlement layer for transactions of every kind - Silk as a currency is more resistant to volatility and monetary policy than any stablecoin to date due to the design of SCB. Finally, Silk is uniquely positioned as neither a derivative stablecoin nor reserve currency, giving a distinct path to compliance and regulatory freedom within the existing international cryptocurrency and financial regulatory framework.