# Sperax Financial Service Network White Paper

### Sperax Team

# July 8, 2020

#### Abstract

This white paper describes Sperax Financial network and decentralized economy over Sperax blockchain. The Sperax financial system aims to provide a global, open, instant, and low-cost payment system for all people around the world with distributed governance. The paper starts from a discussion on Sperax blockchain characteristics and then show how to build financial services on Sperax blockchain with a focus on being programmable, inter-operable, upgradeable, safe, and compliant with regulations of servicing regions.

# **Contents**

1	Introduction		
2	Sperax Blockchain2.1Byzantine Fault Tolerant consensus protocol BDLS2.2Sperax Virtual Machines (SVM)2.3Sperax tokens2.4Sperax foundation		
3	Sperax stablecoins and Sperax Reserve3.1Sperax single-currency stablecoin3.2Sperax multi-currency stablecoin3.3Sperax Reserve	4	
4	Sperax Association, Compliance, and the Prevention of Illicit Activity 4.1 Sperax Association		
5	Sperax Stablecoin Use Cases5.1 Payment system5.2 Global remittance and transfer5.3 Decentralised financial services	8	
6	Values of Sperax regular tokens SPA		
7	Conclusion		

### 1 Introduction

Sperax aims to provide the trusted infrastructure for a decentralised economy. The world needs decentralisation more than ever to bring everyone together, to collaborate and to share the value created. We believe that blockchain technology is the key to decentralisation and it will shift the way how people interact with one another and how money flows; we want to leverage on the powerful technology to drive further adoption, to enable more possibilities for builders and to improve lives across the globe. At Sperax, we take a layered approach to solve the problem. At the infrastructure layer, we developed BDLS protocol, which is an innovative consensus module that is more secure and efficient than other Byzantine Fault Tolerant protocols. On top of it, we introduced Sperax financial system to create more possibilities for application developers and to further drive financial inclusion.

Sperax stable coins are fiat-pegged stablecoins issued on the Sperax blockchain and is the native stablecoin in the ecosystem. By providing a digital token with price pegged to fiat currency, Sperax stable coins could lower the barrier for users to adopt the usage of blockchain. Moreover, by partnering with designated dealers, regulated and certified VASPs in different countries, Sperax stable coins network is able to serve a global user base. The Sperax stablecoin financial system aims to provide a global, open, instant, and low-cost payment system for all people around the world with distributed governance. At launch, payment, global transfer and remittance would be supported for stablecoin users. Gradually, the Sperax financial network will become an open platform for developers and liquidity providers to launch innovative products based on the blockchain and financial infrastructure.

## 2 Sperax Blockchain

Sperax Blockchain aims to serve as a foundation for decentralised financial services, including a convenient global payment system minimizing remittance charges including financial institute charges and exchange rate margin. Sperax blockchain is intended to address a global audience and the software that implements the Sperax blockchain is open source. The Sperax blockchain is built from the ground up to prioritize the following properties:

- Safety: Highly secure to ensure the safety of the financial system.
- Efficiency/low latency: Most transactions could be fulfilled within minutes (this requires high transaction throughput).
- Scalability: The system is reliable with billions of accounts with various network connectivity speed.
- Flexibility: It could power future innovation in financial services such as DeFi applications.

The Sperax Blockchain is designed from the ground up with technology innovations including

- Secure and efficient Byzantine Fault Tolerant (BFT) consensus protocol DBLS.
- Sperax Virtual Machines (SVM) that supports Solidity programming language (in the future, Sperax will also support Libra's Move programming language).
- · Adopting best practices and data structures that are widely adopted by mature blockchains.

#### 2.1 Byzantine Fault Tolerant consensus protocol BDLS

Sperax Blockchain is a Proof of Stake (PoS) blockchains which leverages BFT consensus protocol as a finality gadget. This approach helps Sperax blockchain to achieve three important goals. Firstly, a BFT consensus protocol builds trust in the network since it tolerates one-third of the network participants to act maliciously. Secondly, BFT based PoS blockchain enables high transaction throughput, low latency, and a more energy-efficient approach to consensus than "proof of work" blockchains. Thirdly, since the BFT protocol is used as a finality gadget, when a user sees confirmation of a transaction in the finalized block, the user is guaranteed that the transaction has completed. Though several BFT protocols are available in the market, Sperax adopted Wang's BDLS [12] as Sperax blockchain's finality gadget. This is based on an extensive review of cryptographic literatures on BFT protocol design. Specifically, as analyzed in Wang [12], other BFT protocols may not achieve the liveness property in the Internet environments or are not as efficient

as BDLS. DBLS protocol assumes a network which operates in alternating synchronous and asynchronous stages with unknown Global Standard Time (GST) each time. Sperax blockchain uses a Random Beacon Protocol involving RANDAO to select the block proposers and BDLS BFT protocol validators for each height, ensuring that there is unpredictability of the identity of the producer and validators of the next block.

Though the DBLS BFT based finality gadget is robust against attacks launched by at most one-third of the participants (validators), Sperax Association and Sperax foundation will perform due diligence on Sperax blockchain policies and procedures for reconfiguring the Sperax blockchain in the case of malfunction or a need for upgrades. This will guarantee that the financial services on Sperax blockchain is programmable, interoperable, upgradeable, safe, and compliant with regulations of servicing regions.

#### 2.2 Sperax Virtual Machines (SVM)

It is not Sperax's goal to emulate other blockchains. But we are open to leverage existing innovative techniques that have been developed by other parties. Sperax team has investigated and compared several excellent programming languages for "smart contracts" such as Michelson [4] from the Tezos project, Solidity [8] from the Ethereum project, and Move [5] from the Libra projects. In the end, Sperax selected Solidity and Libra's Move programming language for implementing "smart contracts" on the Sperax Blockchain. Move programming language is designed to prevent assets from being cloned and enables "resource types" that constrain digital assets to have a single owner. Thus any digital assets can only be spent once and the creation of new resources is restricted. The Move language also has a built-in mechanisms to allow automatic proofs that transactions satisfy specific properties.

#### 2.3 Sperax tokens

Sperax blockchain uses Sperax native tokens SPA at layer 1 for blockchain management. There are two kinds of native tokens for Sperax blockchain management:

- 1. Regular SPA tokens: This kind of SPA tokens will be distributed via private sales, public sales, marketing process, ecosystem, and team and advisors. This kind of SPA tokens could be freely traded on Sperax blockchain via smart contract and could be used to build customized DeFi financial services on Sperax blockchain by third parties. There will be total of 5 billion such kind of tokens.
- 2. SPA partner tokens for Sperax Association: These tokens will be distributed to Sperax Association members. The Sperax foundation will distribute these tokens to the founding members of the Sperax Association when Sperax blockchain is launched. These tokens cannot be traded on the Sperax blockchain. Based on Association member's performance, these tokens may be withdrawn from some members and be redistributed to new members by the Sperax Association. Any action on the redistribution of these partner tokens must be approved by more than 2/3 of the Sperax Association members. There will be a total of 1 billion of such kind of partner tokens.

Though regular SPA tokens have market values and can be traded on the Sperax blockchain via smart contract, the partner SPA tokens do not have a market value and cannot be traded on the Sperax blockchain. However, partner SPA tokens could be redistributed over the Sperax blockchain via smart contracts that are signed by at least 2/3 members of the Sperax Association. Furthermore, both regular SPA tokens and partner SPA tokens have the equal weight in the PoS blockchain management (e.g., participating in block production process). The reader could find details on the Sperax blockchain management protocols in Sperax Technical white paper [11]. By using two kinds of equal weight SPA tokens, Sperax blockchain can be thought as a hybrid of permissioned and permissionless blockchain. This helps Sperax blockchain to use one stone for two birds: the "permissionless" characteristics helps Sperax blockchain to build decentralized financial services and the "permissioned" characteristics helps Sperax blockchain to comply with laws and financial regulations of servicing resigns and to fight against illicit activities such as money laundering.

#### 2.4 Sperax foundation

Sperax foundation is the research and governance organization for the Sperax Blockchain and it is registered in Singapore. Sperax foundation encourages participation, development, and innovation on Sperax's permissionless proof-of-stake blockchain. The Sperax foundation is dedicated to fulfilling the global promise of blockchain technology by

leveraging the BDLS BFT protocol and open source software. The Sperax foundation focuses on Sperax blockchain technology and source code development.

## 3 Sperax stablecoins and Sperax Reserve

There are several different attempts in creating stablecoins in blockchain, with the most notable categories being fiat-pegged stablecoins and algorithm-based stablecoins. Fiat-pegged stablecoins achieve stability by depositing fiat collateral in banks or other licensed custodial facilities. Algorithm-based stablecoin models are more complicated; so far, the more prominent cases include Maker DAO (which uses Ethereum as an collateral to mint US dollar-pegged stablecoins), Terra (seigniorage model), Ampleforth (dynamically adjusting demand and supply) and so on. Compared to the current solutions, fiat-pegged single currency stablecoin have more advantages in terms of usability and stability. For users in different geographies, to earn and spend in USD does not offer the most intuitive user experience; let alone understanding the complex mathematically model why stability could be achieved. Furthermore, though algorithm-based stablecoins offer more leverage and flexibility for the issuer, it could not ensure a high level of stability in the face of extreme conditions. For instance, in the case where another cryptocurrencies (like Bitcoin or Ethereum) are used as collateral, there is a chance that reserve pool is less valuable than the actual stablecoins issued when price fluctuates significantly. We've seen the first test for such stablecoin systems on March 12, 2020 when Ethereum price tanked over 50% in a day1 and it is not the best experience for the holders of the stablecoins.

#### 3.1 Sperax single-currency stablecoin

Sperax stablecoin network issues single currency based stablecoins for different markets and currencies. For instance, there will be  $\cong$ USD (or SperaxUSD),  $\cong$ HKD (or SperaxHKD),  $\cong$ TWD (or SperaxTWD), and  $\cong$ CNY (or  $\cong$ CNH), at the launch of the network and more currencies will be supported in the future. Each Sperax single-currency stablecoin will be fully backed 1:1 by the Sperax Reserve, which will consist of cash or cash equivalents and short-term government securities denominated in that currency. The system will mint new stablecoins when new deposit is made to the Sperax Reserve and stablecoins will be burned when deposit is withdrawn from the Sperax Reserve. In order to issue single-currency stablecoins, the Sperax Association will work with regulators, central banks, and financial institutions at the home country of that currency to reduce concerns about currency substitution. For central banks that develop their central bank digital currencies (CBDCs), Sperax network will allow these CBDCs to directly integrated with the Sperax network. This would remove the need for Sperax Association to manage the associated Sperax Reserves.

#### 3.2 Sperax multi-currency stablecoin

Sperax stablecoin network also issues multi-currency stablecoin  $\cong$ SSC which is realized using several single-currency stable coins. That is,  $\cong$ SSC is a digital composite of some of the single-currency stablecoins available on the Sperax network. Specifically,  $\cong$ SSC is implemented as a smart contract that aggregates single-currency stablecoins using fixed nominal weights, in the same way that the Special Drawing Rights (SDR) maintained by the International Money Fund (IMF). The Sperax Association maintains and updates  $\cong$ SSC's nominal weight for the basket composition (both currencies included and their respective weights). The reliability of  $\cong$ SSC is fully backed by fixed amounts of single-currency stablecoins which is again supported by the Sperax Reserve assets.

Single-currency and nulti-currency stablecoins on Sperax financial network help to support a globally accessible and low-cost payment system. Users can use these stablecoins to carry out business transactions for domestic and cross-corder use cases. Sperax multi-currency stablecoin  $\cong$ SSC could be used in countries that do not have a single-currency stablecoin on the Sperax network. Users can convert  $\cong$ SSC to their local currency and vice versa through third-party financial service providers. For example, if a Sperax user in USA wants to send money to his family in Mexico where there is no single-currency stablecoin on Sperax network, the sender would purchase  $\cong$ SSC via  $\cong$ USD on Sperax network and sends the  $\cong$ SSC to his family in Mexico. The receiver can then convert  $\cong$ SSC to his local currency MXN via a designated financial service provider in Mexico or directly buy goods and services using  $\cong$ SSC in case the involved business accepts  $\cong$ SSC. During the first stage, the Sperax financial network does not plan to provide services for conversions between Sperax stableoins and flat currency. These exchange functionality will be conducted by third-party Virtual Asset Service Providers (VASPs).

#### 3.3 Sperax Reserve

The Sperax Reserve will be administered by the Sperax Association to preserve the value of Sperax single-currency stablecoins and multi-currency stablecoin  $\cong$ SSC over time. Similar to Libra Reserve [10], Sperax Reserve will rely on high-quality liquid assets or assets that can rapidly be converted into high-quality liquid assets. Such kind of assets could include very short-term government securities issued by sovereigns with very low credit risk and whose securities trade in highly liquid secondary markets. Similar to the situation that Libra Reserve [10] described, even with these high-quality liquid assets, Sperax networks could incur losses from credit, market, and operational risks of the Sperax payment system, or incur losses from rapid changes in interest rates or could find difficult to liquidate assets in extreme economic conditions. In order to address these challenges, Sperax Reserve will hold an appropriately sized capital buffer. The Reserve assets will be held by a geographically distributed network of well-capitalized custodian banks to avoid risks to the assets. These custodian banks should not use Sperax Reserve assets for lending or investment with risks. The governance structure and the administration process of the Sperax Reserve will be transparent to the public and will be regularly audited by independent creditable auditors.

The Sperax Reserve assets will be held by a number of geographically distributed custodian financial institutes with the following qualifications:

- · They Well-capitalized
- They have sufficient risk mitigation practices in place
- They will not use Sperax Reserve for lending, pledging or repledging

Sperax Financial Networks will not directly interface with consumers directly. It will interface with liquidity service providers such as Virtual Asset Service Providers (VASP), certified VASPs, designated Dealers, cryptocurrency exchanges, and OTC desks. Liquidity partners interact with end-users and help create liquidity for Sperax stablecoins and facilitate the trading and transferring processes.

# 4 Sperax Association, Compliance, and the Prevention of Illicit Activity

#### 4.1 Sperax Association

The Sperax Association is an independent membership organization headquartered in Singapore. Membership of the foundation consists of geographically distributed businesses, and nonprofit organizations. The members of the Sperax Association are regulated financial service providers with the custodial facilities and also compliance infrastructure for auditing purposes. While Sperax Foundation plays a key role in the creation of the Association and the Sperax Blockchain, it has no special rights within the Association.

The privileges and obligations for each member are proportional to the Sperax partner SPA tokens it holds. There will be a total 100 million Sperax partner SPA tokens. It will be distributed equally to 10 reputable financial, business, and nonprofit organizations when Sperax blockchain is launched. The Sperax Association is responsible for the governance of financial services over Sperax blockchain and the Sperax Reserve. The Sperax Association should elect its ten-member board of directors (BoD) to carry out the day-to-day management and representation of the Association. The term of Board is two-year. The BoD should regularly evaluate the performance of each members of the Association. When the Board determines that a member of the Association is not capable to fulfill its tasks or has policy violation, the Board should submit a proposal to the Association for voting. After more than 2/3 of the Association members approves the proposal, the proposal goes into effect and the related membership is withdrawn. The Board can further make a proposal to add a new member to the Association. Similarly, such kind of proposal needs approvals from more than 2/3 of the Association members.

Sperax Association is a crucial part in the Sperax stablecoin networks as it is in charge of the minting of new stablecoins and providing custodial services for the Sperax Reserve. Though Sperax Association does not participate in the consensus and governance process of Sperax blockchain layer 1, they have the responsibility to validate, remove, and add members from/to Sperax Association. The members of Sperax Association use their SPA tokens to participate in the consensus and governance process of Sperax blockchain. In other words, though Sperax Association works in the layer 2 of the Sperax blockchain, they could interact in-directly with the layer 1 blockchain mechanism.

Being member of the Sperax Association also generates revenue. Each time new stablecoins are minted, a small stabilization fee would be charged in the system and a proportion will go to the financial node. At the same time, since a small portion of the collateral are short-term, low risk financial assets, financial nodes could also share the upside of the interest revenue from those assets. Furthermore, members of the Sperax Association participate in the Sperax Block layer 1 protocol and earns regular SPA tokens by proposing and validating new blocks.

#### 4.2 Compliance, and the Prevention of Illicit Activity

The Sperax Association will implement policies and protocol controls to create a payment system that is legally compliant, safe, and consumer-friendly. Sperax Association will develop a comprehensive framework for financial compliance with various laws and regulations. This will include Anti-Money Laundering (AML), Combating the Financing of Terrorism (CFT), sanctions compliance, and fight against terrorism financing and illicit activities. This goal is achieved by clear roles and responsibilities defined for each categories of participants as specified in Table 1.

Table 1: Types of participants and their roles/responsibilities

Participants	Role and responsibilities
SPA token holders	Participate in the Sperax blockchain layer one governance and are responsible for new
	block generation and validation. There are two kinds of SPA token holders. Regular
	SPA tokens holders who cannot participate in the Sperax Association governance and
	partner SPA tokens holders who will participate in the governance of Sperax Associ-
	ation
Sperax Foundation	Research and governance of the Sperax blockchain; implement blockchain layer 1
	controls that is recommended by Sperax Association; encourages participation, devel-
	opment, and innovation on Sperax's permissionless PoS blockchain
Sperax Association	Responsible for the governance of Sperax financial network; Carry out due diligence
	on Association Members and Designated Dealers; Mint and burn Sperax stablecoins;
	Establish compliance standards and implement compliance controls; Operate a Finan-
	cial Intelligence Function to monitor the network and flag suspicious activity
Association members	Participate in Association governance and are subject to periodic due diligence
Designated Dealers	Sperax Association will partner with Designated Dealers to extend liquidity to
	consumer-facing products. Designated Dealers trade Sperax stablecoins with Sperax
	networks and over-the-counter (OTC) dealers to facilitate the market for end users;
	Are subject to periodic due diligence by the Association and are expected to be well-
	capitalized financial institutions.
VASPs	Virtual Asset Service Providers (VASP) is defined in the Financial Action Task Force
	(FATF) guidance for a risk-based approach [6, 7]) on virtual assets and virtual asset
	service providers. VASPs perform exchange, custody, or other financial services for
	customers on the Sperax network; VASPs are required to undergo an annual risk-based
	due diligence process established by the Sperax Association.
Regulated VASPs	Registered or licensed VASPs in a FATF member jurisdiction, or are registered or
	licensed in a FATF member jurisdiction and are permitted to perform activities under
	such license or registration
Certified VASPs	Completed a certification process approved by Sperax Association. Subject to a risk-
	based compliance certification process by either the Sperax Association or a third-
	party service provider applying standards set by the Association
Other users	Other entities that would like to transact or provide services through the Sperax finan-
	cial networks. They are subject to controls and their transactions of Sperax stablecoins
	will be enforced by the compliance protocol

A similar compliance program as in Libra Financial networks [10] will be implemented to meet relevant laws and requirements. Specifically, the Sperax Association will appoint a designated Chief Compliance Officer and a

designated committee with oversight reporting responsibilities. The Chief Compliance Officer and the committee will develop comprehensive compliance policies and procedures based on a risk assessment. The policies and procedures should be approved by the Sperax Association with at least 2/3 votes. The Sperax Association will set mandatory standards for Association Members, Designated Dealers, Regulated VASPs, and Certified VASPs and perform annual risk-based due diligence on all Association members, Designated Dealers, and Regulated and Certified partner VASPs. Only entities that meet these standards may transact on the Sperax Financial network with higher transaction and balance limits.

Sperax Financial network will mint Sperax stablecoins and will only distributed these coins to the market through Designated Dealers and will only redeem Sperax stablecoins from those Designated Dealers. These Designated Dealers will then trade Sperax stablecoins with exchanges and OTC dealers to facilitate the market for consumers. Most users will interact with the Sperax payment system through regulated or certified VASPs. To improve efficiency, VASPs may record some transactions internally on their own books instead of on the Sperax blockchain. Both regulated and certified VASPs should be allowed to perform transactions on the Sperax blockchain without being subject to the transaction and balance limits that other entities may have.

Registered or licensed VASPs in FATF member jurisdiction regions may apply for Sperax regulated VASP memberships. After verification of its credentials and due diligence review of its risk-based regulatory compliance program and controls, the Sperax Association may approve the VASP to create Regulated VASP addresses on the Sperax network. Some entities may not qualify as a Regulated VASP on the Sperax Financial network. But they may still meet the standards established by the Sperax Association. The Sperax Association will certify these entities as certified VASPs. Certified VASPs will mainly operate in a FATF jurisdiction without VASP regulations or in a non-FATF member jurisdiction. Certified VASPs will have the same privilege as regulated VASPs on the Sperax Financial networks. For example, they will get addresses on the Sperax network and conduct transaction without address balance limit. The Sperax Association will record and publish a directory of regulated/certified VASPs and their status.

The goal of the Sperax Financial network is to provide financial services for under-represented communities across the world. These communities may have no access to a Regulated or Certified VASP. It is estimated [10] that 1.7 billion adults globally remain outside of the financial system with no access to a traditional bank though most of them have mobile phones or Internet access. In order to provide financial services to these communities, the Sperax Association will provide Special-Addresses that are subject to transaction and address balance limits and other controls. It is clear that these Special Addresses may pose increased compliance and financial crime risks. To address those risks, the Sperax Financial network will enforce a transaction limit and a maximum address balance on these Special Addresses. The criminals may carry out Sybil attacks (e,g, creating multiple Special Addresses to circumvent these threshold limitations and controls). The Sperax Financial network develop and deploy detection techniques to deter such kind of attacks. Furthermore, as soon as illicit activities are detected in Sperax Financial networks, they will be reported to law enforcement organizations.

# 5 Sperax Stablecoin Use Cases

#### 5.1 Payment system

Even though the Internet technology has changed many aspects of our lives in the past two decades, the banking infrastructure remain very much the same. A lot of the payments are still made using credit cards and bank transfers the vision for "Internet Money" is yet to be achieved since cryptocurrencies are not a payment choice for the mainstream users. The first use case that Sperax would offer is a global payment system based on stablecoins. Sperax single currency stablecoins could be used in their respective markets to fulfill the need for payment similar to credit cards or mobile-based payment solutions. Sperax foundation expects to launch a small number of single-currency stablecoins at the beginning. We hope to work with payment gateways, merchants, financial institutions, and regulators around the world to expand the number of single-currency stablecoins overtime and to explore the operational and legal requirements to access direct custody with them.

For users that we do not have their native single-currency stablecoins, they may choose to use Sperax multi-currency stablecoin  $\cong$ SSC so that they can benefit accessing Sperax network with increased financial inclusion. In particular, they may choose  $\cong$ SSC as their settlement coin for commercial transactions within their region or cross-border. The recipients of the  $\cong$ SSC stablecoin may use these  $\cong$ SSC coins to carry out business activities (e.g., spend

them on goods or services using Sperax Apps) or they can convert ≊SSC coins into local currency through third-party financial service providers.

#### 5.2 Global remittance and transfer

Sperax stablecoin network could support fast global transfers at a low cost. According to the World Bank, global remittances reached \$689 billion in 2018 [1] which is up 11% from the previous year; and over 76% of the total remittances are flowing to the low and middle-income countries. Currently, the majority of the volume is handled by traditional money transfer companies such as Western Union and MoneyGram; which is often costly and time consuming. The current global remittance system costs an average of 6.79 percent of the amount sent during Q1 2020 [2]. For example, on average, it would cost around \$10 for sending \$200 from the US to Philippines [3].

For the foreign currency exchanges, CLS Group is currently handling a large proportion of the global settlement and it interfaces directly with the Central Banks in different countries. On average, over 1.55 trillion USD is settled on the network each day during April 2020 [9]. It acts as the trusted third party in the currency transfer between two banks; the counter-parties of a trade pay to CLS the currency that they are selling on the settlement date and that CLS will pay out the bought currency only if the sold currency is received. Since its establishment in 2002, this process greatly reduces the principal risk in foreign exchange settlement; however, the process is not entirely real-time and that books are only cleared on a settlement date.

In designing the Sperax stablecoin network, we took into account the best practices of the current global currency transfer processes and leveraged on the features of blockchain technology to reduce the time and cost. Liquidity service providers act like the money transfer companies in Sperax stable coins network. For example, if a user wants to send money from the US to Hong Kong, what happens in the network would be a swap between ≊USD and ≊HKD. We would work with liquidity providers that facilitate bilateral money transfers by keeping two books and aggregating orders. In this case, OTC desks would keep a book of  $\cong$ HKD and  $\cong$ USD, they would provide the swap when user wants to do the transfer, in this case, from ≊USD to ≊HKD, and transfer the ≊HKD to the recipient in Hong Kong. There will be a small fee charged for liquidity service provider to take profit. Service providers could also aggregate orders in a period of time to reduce the cost even furthur — for example, if the user is not time sensitive, he/she could choose a lower transaction fee and increase the time for the transfer; at the same time, orders between US and Hong Kong could be aggregated and some transfers might not involve an actual swap (e.g. User A sending \$100 from US to Hong Kong and User B sending \$100 worth of HKD to the US). Since both ≅USD and ≊HKD are backed 1:1 by fiat currencies, there would be minimal platform risks for liquidity service providers. In the event where demand for one currency is largely skewed (e.g. more demand for ≊USD as compared to ≊HKD), the liquidity service providers could always exchange the stablecoin back to fiat currencies. It is noted that the Sperax network does not itself provide for, record, or settle conversions between Sperax stablecoins and fiat currency or other digital assets. Instead, the exchange functionality is conducted by third-party liquidity service providers. These liquidity service providers should be Sperax foundation certified Virtual Asset Service Providers (VASPs) and they should fully comply with all applicable foreign exchange limitations and capital controls in order to mitigate currency substitution risk.

#### 5.3 Decentralised financial services

Since Sperax stablecoin network is an open system, there could be financial applications built on top of the infrastructure. All the single-currency stablecoins are also issued on chain; considering that Sperax blockchain is compatible with the Libra Virtual Machine, a lot of the decentralised financial applications could also be supported by the Sperax stablecoin system. Sperax Foundation will built the first group of protocols to support basic currency features such as compound interest, lending and borrowing, token swaps etc. More complex financial products could be added by developers.

# 6 Values of Sperax regular tokens SPA

Sperax's secure and efficient permissionless blockchain is a flexible platform for users to develop various blockchain applications (e.g., DeFi) that could gain widespread adoption. Sperax regular token SPA is the official cryptographic token for facilitating these applications. Like other blockchains, Sperax blockchain is resource constrained and an

appropriate economic model based on Sperax token could help to defeat potential abuses of these constraint resources such as bandwidth, log/block storage, computational capabilities (CPUs and RAMs),

With Sperax stablecoin financial networks, Sperax Reserve will be able to generate revenues from the assets held in Sperax Reserve. These revenues will be divided into two categories. Sperax Association will distribute 50% of these revenues as stablecoin interests. Sperax Association the other 50% of the revenues to purchase Sperax regular token SPAs on the market and then burn these purchased tokens. This will increase the market demands for Sperax regular token SPAs (thus increase the market value of SPA tokens).

For other SPA token holders, they may want to participate in the Sperax blockchain consensus process. However, they have small amount of SPA tokens so it is expensive for them to run a full Sperax blockchain node. To help these SPA token holders to participate in the Sperax blockchain governance process, Sperax blockchain will allow entities to set up group alliance nodes, individual SPA token holders could delegate their SPA tokens to these group alliance nodes, they group alliance nodes could distribute the received reward from the blockchain governance process to these individual SPA token holders.

### 7 Conclusion

The mission of the Sperax Financial network is to build a global decentralized financial infrastructure for financial inclusion and to provide a global, open, instant, and low-cost payment system for all people around the world. Sperax Association acknowledges the importance for Sperax Financial network to be compliant with regulations and laws across the world. Sperax Association will continuously work with regulators, central banks, and financial institutions of the serving regions to achieve its ultimate goal of building a decentralized payment infrastructure and creating a core transport layer for value that is low-cost, interoperable, and compliant.

#### References

- [1] The World Bank. Record high remittances sent globally in 2018. https://www.worldbank.org/en/news/press-release/2019/04/08/record-high-remittances-sent-globally-in-2018, April, 2019.
- [2] The World Bank. Remittance prices worldwide. https://remittanceprices.worldbank.org/sites/default/files/rpw\_report\_march\_2020.pdf, March, 2020.
- [3] The World Bank. Sending money from united states to philippines. https://remittanceprices.worldbank.org/en/corridor/United-States/Philippines, March, 2020.
- [4] Bruno Bernardo, Raphaël Cauderlier, Zhenlei Hu, Basile Pesin, and Julien Tesson. Mi-cho-coq, a framework for certifying tezos smart contracts. *arXiv preprint arXiv:1909.08671*, 2019.
- [5] Sam Blackshear, Evan Cheng, David L Dill, Victor Gao, Ben Maurer, Todd Nowacki, Alistair Pott, Shaz Qadeer, Dario Russi Rain, Stephane Sezer, et al. Move: A language with programmable resources, 2019.
- [6] FATF. The fatf recommendations. https://www.fatf-gafi.org/media/fatf/documents/recommendations/pdfs/FATF%20Recommendations%202012.pdf, 2020.
- [7] FATF. Guidance for a risk-based approach: Virtual assets and virtual asset service providers. https://www.fatf-gafi.org/media/fatf/documents/recommendations/RBA-VA-VASPs.pdf, 2020.
- [8] The Ethereum Foundation. Solidity. https://solidity.readthedocs.io/en/v0.6.8/, 2020.
- [9] CLS Group. Cls fx trading activity april 2020. https://www.cls-group.com/news/cls-fx-trading-activity-april-2020/, April, 2020.
- [10] Libra Team. Libra whitepaper 2.0. https://libra.org/en-US/white-paper/, 2020.
- [11] Sperax Team. Sperax blockchain: Secure bft consensus protocol for asynchronous networks. https://sperax.io, 2020.

[12] Yongge Wang. Byzantine fault tolerance in partially connected asynchronous networks. http://eprint.iacr.org/2019/1460, 2019.