On Cryptocurrency: A Cryptoeconomic Model For Consumer Use

For much of the nineteenth and twentieth centuries, currency was convertible into fixed amounts of gold or other precious metal, and for thousands of years prior to that, many currencies were minted directly from those precious metals. The direct connection between money and gold, initially integral to the money itself and later secured by sovereign inventories such as the United States Bullion Depository, created public confidence in a currency's value. The gold standard was abandoned in most economies between the 1920s and the 1970s, due to war (Spain, Britain, Germany) or simply because the worldwide production of gold did not keep pace with economic growth. Since then, every economy has produced paper fiat currency, the value of which relies on public belief that a nation's central bank will not increase the supply of new banknotes too rapidly.

Fiat currency's greatest asset is the perceived belief of continued intrinsic value, lost once the gold standard was abandoned and now contained in circular arguments by each issuing bank, and the actual worth which hinges on its usefulness as a currency in the consumer economy.

The lack of intrinsic value in cryptocurrency is a matter of some debate in public discourse[i] [ii], though not in most academic circles.[iii] [iv] What is clear to the causal observer is that cryptocurrency lacks an organized economic model and a supporting business use case to enable broad usefulness in the consumer economy. This is the central thesis to Radpay's crypto-economic model.

To be broadly useful to consumers, the cryptocurrency must address itself as a reasonable medium of exchange among a large ecosystem, it must be treated as a unit of account such that current market prices are without sharp swings, and it must be used as a store of value such that it can be "stashed under a mattress" for later redemption.

Central to Radpay's crypto-economic model is a patent pending dynamically minted, cryptocurrency underpinned token (RDX) and a cryptocurrency (RAD). This RDX token establishes a store of value use case for the cryptocurrency underpinning the currency derivative, which in turn is affirmed as a medium of exchange with every Radpay transaction. The RDX token and the underpinning cryptocurrency is established as a unit of account as each transaction on the Radpay Network is tied to the value of local currency, and each RDX creation event is simultaneously linked to that local currency and to a measure of the underpinning cryptocurrency. As such, the currency token RAD and the underpinned token RDX pair represent a viable digital currency with demonstrable and sustainable functionality as a viable currency alternative.

Scarcity is managed very differently between the two Radpay tokens, which represents another distinct advantage of Radpay's crypto-economic model. The cryptocurrency RAD is minted at one time and thus in a finite amount, and scarcity is managed through network growth and through burning as virtual crypto "fuel" for certain designated functions. Quite differently, the currency derivative token RDX is minted on a per-transaction basis and thus an infinite amount, and scarcity is managed through business logic rules for redemption and retention. The contrasting scarcity methods provides Radpay with an interesting tool to manage adoption and growth. These scarcity methods are described in different terms in the sections below.

RAD Token: The cryptocurrency underpinning Radpay

The native digital cryptographically-secured token for Radpay is RAD. RAD is a major component of the ecosystem on the Radpay Network, and is designed to be used solely on the network. The token will exist as an EIP20 (formerly ERC20)[v] compatible token on the Ethereum blockchain.

We anticipate that RAD will be required for access to the Radpay Network, such that participation in the ecosystem is established through the presence of a certain threshold of RAD by each peer actor on the Radpay Network. It is planned that RAD will provide virtual crypto "fuel" for using certain designated functions on the Radpay Network (such as executing transactions and running distributed applications, including third-party distributed applications built for use on the Radpay Network), providing the economic incentives which will be consumed to encourage peer actors to contribute and maintain the ecosystem.

RAD is an integral and indispensable part of the Radpay Network because in the absence of RAD there would be no common unit of exchange to pay for these costs, thus rendering the Network ecosystem unsustainable.

The most basic anticipated operational function of RAD is to allow access to the Network. A threshold level of held RAD is necessary to demonstrate to the ecosystem that the tokenholder is a participant in the ecosystem. It is also planned to serve as a unit of exchange between Radpay Network participants, and may serve as either the currency within the Radpay ecosystem itself or as a validator of a different transited currency (for instance, a digital representation of a fiat currency). Finally, RAD is intended to serve as the governance token for the Network, such that the Network is self-directed and self-managing through a strong governance functionality and cost system.

RAD is a non-refundable token which may be used as the unit of exchange between peer actor participants on the Network. The goal of introducing RAD is to provide a convenient and secure mode of validity and governance between peer actors who interact within the ecosystem on the Network. RAD does not in any way represent any shareholding, participation, right, title, or interest in Radpay, Inc., its affiliates, or any other company, enterprise, or undertaking, nor will RAD entitle token holders to any promise of fees, revenue, profits, or investment returns, and are not intended to constitute securities in any relevant jurisdiction. RAD may only be utilized on the Radpay Network, and ownership of RAD carries no rights, express or implied, other than the right to use RAD as a means to enable usage of and interaction with the Network.

RDX Token: The cryptocurrency underpinned token

We plan to introduce a second native digital cryptographically-secured token, RDX. RDX will exist as an EIP20 (formerly ERC20) compatible token on the Ethereum blockchain. RDX is planned to be a dynamically minted, underpinned token where the asset underlying RDX is the RAD token. RDX is planned to be minted at the time of a Network transaction. RDX's underlying asset RAD is planned to be funded through a portion of the fee generated through settlement. The currency derivative RDX is delivered to the peer actor originating the transaction on the peer-to-peer Network.

As such, RDX is intended to serve as a reward token which is both tied to value of fiat currency at the time of minting (which provides short-term stability to the token) and underpinned by the cryptocurrency (which provides longer-term store of value). It is intended to introduce cryptocurrency into daily use in a model which today has value but is not emotionally tied to the value of a checking, savings, or retirement account (e.g., a consumer is much less likely to have a negative response to losing "reward points" than they are to losing their life savings). Through this adoption cycle, Radpay plans to introduce both cryptocurrency to the broad consumer audience and demonstrates how a cryptocurrency token pair can meaningfully derive sustainable value.

We begin with the simplest example of a financial transaction involving Radpay, the RAD currency token, and the RDX reward token. In our example, the following conditions hold:

1. RDX is established as 1/1,000 RAD;

2. Transaction 1 takes places between Peer 1 (a consumer buying dog toys from a retail storefront) and Peer 2 (a merchant selling dog toys in a retail storefront), where Peer 1 originates the transaction;

3. At the moment of Transaction 1, ETH is valued at US$522.51 and RAD is valued at 0.0012500ETH;

4. The value of Transaction 1 is $83.20 and the reward amount is set by Radpay at 1%; and

5. The fee for Transaction 1 is set by Radpay at 0.75%.

When Transaction 1 is conducted and settled, the following events take place through the transaction smart contract:

a. US$83.20 is debited from Peer 1's bank account linked to Peer 1's wallet;

b. A fee is identified by oracle query, and $0.6240 is deducted from the transaction and credited to Radpay's wallet;

c. The reward amount identified by oracle query as $0.8320;

d. Net transaction ($83.20 less fee less reward amount) is deposited to Peer 2's wallet;

e. The value of RAD on the open market confirmed via oracle;

f. Completes an incremental transaction for 1.27385122 RAD, which is placed in escrow to serve as the asset underlying the reward; and

g. The transaction smart contract assigns 1,273.85122 RDX to Peer 1 for claim and use subject to Radpay's business policies.

It is left as an exercise to the reader to evaluate more complex transactional mechanisms. A variety exist. Further, it is clear to the casual observer that a range of hedging and arbitrage opportunities exist in this transactional environment. A few notable examples:

Radpay could choose to intermediate the incremental transactions, such that Radpay facilitates a more timely valuation and exchange for the smart contract. Radpay can then take place in increasingly sophisticated financial planning.

Radpay could choose to reduce fees collected by using hedge strategies with a variety of different claim and use business policies.

Radpay could choose to accelerate R/OPEN adoption by seeding RAD to peers or subset groups of peers as determined by Radpay's business policies.

Closing

While this document has provided an overview of the crypto-economic model contemplated by Radpay, no one document can be either comprehensive or exhaustive in scope. The overview of the currency derivative and its use as a "reward point" blends two major fields of study and while it appears to be novel from a search of the literature, those two major fields of study cannot be described in detail in just a few pages.

Radpay's goal in designing this novel crypto-economic model is to provide a means of establishing, maintaining, and enhancing the value of our cryptocurrency token. It perhaps has much broader applications.

Endnotes

[i] https://www.forbes.com/sites/jasonbloomberg/2017/06/26/what-is-bitcoins-elusive-intrinsic-value/

[ii] https://www.wired.com/story/bitcoin-has-no-intrinsic-value-neither-does-a-dollar1-bill/

[iii]

https://www.researchgate.net/publication/303094852_Cryptocurrency_Value_Formation_An_empirical_study_leading_to_a_cost_of_production_model_for_valuing_Bitcoin

[iv] https://arxiv.org/abs/1803.08405

[v] https://github.com/ethereum/EIPs/blob/master/EIPS/eip-20-token-standard.md