# KRWR
Stable Coin

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**WHITEPAPER**
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# KRWR White Paper *

Jung Jae Woong, Ph.D.†and REMIIT Team
Translated by Louie Lee and Danny Kim

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**Abstract**

Determining whether cryptocurrencies are an investment asset or a currency is not easy. Of course, cryptocurrencies hold stronger characteristics as an investment asset than a currency, but the ultimate goal of cryptocurrency is because it is a digital asset that performs payment functions equivalent to fiat currency. In terms of monetary economics, the government does not necessarily have to be involved in issuing money. However, this theory of monetary economics cannot be applied to current cryptocurrency situation. It is because the value as an asset and the role as a currency collide. The reason people invest in assets is the expectation that their prices will continue to rise, increasing their wealth. Thus, in order for an asset to function properly, the value must rise in the long run, even if there are short-term price changes. Money is the opposite. The continued rise in value of money is deflation. Inflation, where the value of money falls and prices rise, is naturally accompanied by the growth of an economic system. Economic growth is accompanied by an increase in the circulation of money. However, deflation, which continues to rise in value, creates a problem for an economic system. This is because the value of money continues to rise, people within an economic system accumulate value without using money. The accumulation of money means a decrease in the overall liquidity of the economy, which in turn leads to a recession. This is because both consumption and investment shrink. In the current cryptocurrency market, which is an investment property, has serious drawbacks because it is used also as a currency. The cryptocurrency designed to solve this problem is the stable coin. Such stable coins are divided into cryptocurrency-collateralized stable coins and fiat-collateralized stable coins. The former representative is Maker Dao, and the latter representative form is Tether. This paper deals with the KRW-denominated stable coin, KRWR, which is a combination of cryptocurrency and fiat-currency collateral.

*Jung Jae Woong deeply appreciate token economy adviser Prof. Jin-Wan Cho.

†Ph.D. in Financial Engineering, REMIIT TEAM CFO and Economist. For more information, please contact jay@remiit.io or yanwenry1333@gmail.com.

# 1 Introduction

Is a cryptocurrency an investment asset or a currency? Determining this is not an easy problem. Of course, cryptocurrencies are now much closer to investment assets than currencies, but what cryptocurrency ultimately aims at is a digital asset that performs payment functions comparable to fiat currency.

In terms of monetary economics, there is no need for the government to be involved in issuing a currency. According to the Cash-in-Advance Theory, money must be owned first in order to trade all goods and services, so that money provides people with liquidity. Thus, the value of money is calculated as the present value of the future liquidity supply that accompanies ownership of money.[1] Samuelson also calculated the value of currency per capita using the Overlapping Generation Model, which was overlapped between younger and elder generations. As a result, elder generations purchase goods produced by younger generations using their accumulated wealth, in other words, currency. This currency becomes once again an asset that younger generations purchase goods in their elderly. In this case, fiat currency is a marketable security that does not pay interest or dividends. However, the balance in which fiat currency exists is more pareto-efficient than the balance in which currency does not exist.[2] Lastly, Kocherlakota says that if it is possible to record all economic activities within a single economic system in a single ledger, it can trade goods and services without fiat currency through its offset disposal, but because these records and offsets are impossible, currency is the means used to supplement this and facilitate activities. In other words, Kocherlakota says, "Money is Memory." [3]

However, it is difficult to apply the above-mentioned monetary economic theory to cryptocurrency. The problem here lies in the conflict between the value of assets and currency. The reason why people invest in assets is that the prices of those assets will continue to rise, increasing their wealth. Thus, in order for an asset to function properly, the prices should rise in the long run, although the short run price fluctuations may occur. Money is the opposite to this. The constant rise in value of currency is deflation. Inflation, where money depreciates and prices rise, this is a natural accompanying phenomenon as the economy grows. Because economic growth is soon accompanied by an increase in currency flows. However, deflation, which continues to rise in the value of money, causes a problem of an economic system. Because the value of money continues to rise, people in an economic system accumulate money without using it. The accumulation of currency means a decrease in the overall liquidity of the economy, this decrease in liquidity leads to a recession. This is because both consumption and investment shrink. Cryptocurrencies, which have the characteristics of an investment asset, has serious drawbacks in their use as money.

Stable coin is the cryptocurrency that emerged to solve these problems originated from the characteristics of cryptocurrencies, which aims at the substitution for fiat currency but has strong characteristics as an investment asset. Stable coins guarantee pegged prices by interlocking the value of cryptocurrency with existing fiat currency or real assets. As such, there is no way to expect

[1] Svensson, L., "Money and Asset Prices in a Cash-in-advance Economy," Journal of Political Economy 93(5), pp. 19-944, 1985.

[2] Samuelson, P., "An Exact Consumption-Loan Model of Interest with or without the Social Contrivance of Money," Journal of Political Economy 66, pp.467-482, 1958.

[3] Kocherlakota, N., "Money is Memory," Journal of Economic Theory 81(2), pp.232-251, 1998.

a long-term rise in asset values but, on the contrary, pegged exchange value can be guaranteed. In other words, stable coins pursue a cryptocurrency as a currency instead of abandoning it as an asset.

Based on this context, this white paper attempts to explain the mechanism of KRWR, a stable coin marked in Korean Won.

# 2 Current Stable Coins

## 2.1 Stable Coin Collateralized by Fiat Currency

Representative stable coins currently traded in the market include Tether, TrueUSD(TUSD), USD-Coin(USDC), and StableUSD(USDS) based on the US dollar. The coin issuance method is largely divided into two. While Tether deposits payment reserves in their own account and issues USDT equivalent to the reserve holdings, all other stable coins except Tether have the same issuance process: If a market participant wishing to issue a stable coin, they would deposit USD that corresponds to the value of the stable coin. When requesting to issue the stable coin, it must be requested to the Tether Foundation or a third-party trust company (in this case, a bank or a financial company corresponding to it) that has entered into a contract with the foundation, they issue the stable coin in return. Considering this issuance process, stable coin collateralized byfiat currency can be regarded as an IOU(I Owe You), a redemption certificate, or a certificate of deposit on the blockchain.[4]

The above-mentioned reason why the stable coins such as TUSD, USDC, USDS, etc., are able to maintain their value reliably is because the value of the cryptocurrency is functioned and maintained by the dollar deposited in the bank account account of the foundation or a financial company that has entered into a deposit agreement with the foundation. In other words, if a person who owns the cryptocurrency mentioned above sends a redemption request to the foundation in fiat currency, the value of the cryptocurrency may remain constant as it can be redeemed in one unit of fiat currency per one unit of stable coin (For example, 1TUSD = 1USD) at any time. Indeed, this value-maintaining process is no different from the existing certificate of deposit, but the difference is that redemption/collateral contract is recorded on the blockchain, which cannot be counterfeited or falsified, and can also be traded down to the same unit as other cryptocurrencies.
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## 2.2 Stable Coins Collateralized by Cryptocurrency

Unlike stable coins collateralized by fiat currency, cryptocurrencies may be used as a collateral to issue stable coins. Maker Dao is the representative project. The stable coins collateralized by fiat currency deposits fiat currency as a collateral to the foundation or a financial company and issues a cryptocurrency equal to the amount corresponding to fiat currency, the reason why the

[4].The certificate of deposit is a bearer's certificate issued by the bank for time deposits, which the depositor can freely trade in the financial market. The certificate of deposit issued by banks are usually more than 30 days, usually 90 to 180 days. There is no minimum limit, but 5 million Korean won is common, and some banks set a minimum of 10 million Korean won. 30 days is the minimum for the cut.

cryptocurrency keeps its pegged value is because the fiat currency guarantees its value. Stable coins collateralized by cryptocurrency, including Maker Dao, maintains its value stable by collateralizing cryptocurrency rather than fiat currency.

The value of fiat currency is always maintained by the government, however cryptocurrency is not. This means that even if stable coins collateralized by cryptocurrency maintain their value by taking large-scale transactions and relatively value stable cryptocurrencies such as Bitcoin or Ethereum as a collateral, they may be exposed to rapid price fluctuation of the cryptocurrency. Thus, stable coins collateralized by cryptocurrency introduced two mechanisms: Over-Collateralization and Forced Liquidation. To be specific, over-collateralization is a system that requires more cryptocurrencies to be deposited as collateral than the issued stable coins. For example, if a person wants to issue a stable coin with 100 ETH as a collateral, the amount of stable coin that can be issued is not equivalent to 100 ETH, but 70 ETH, which is equivalent to 70%. Forced Liquidation is a mechanism in which, if a cryptocurrency deposited as collateral depreciates below a certain level than its original value, the collateral is immediately sold in the market and the amount of stable coins issued is repurchased with the collateralized asset and the account is liquidated.

In addition to these mechanisms, cryptocurrency collateral stable coins also use control of supply. For example, take a look at DAI and Ethereum. If the price is set to 1 DAI = 1 ETH, and the price of DAI rises above 1, Maker Dao will increase the supply to the market by increasing the issuance amount of DAI on the collateral. In this case, the number of new entrants increases as it allows more DAI to be issued with the same amount of Ethereum, and the demand for liquidation also decreases as those who have already issued DAI will have to buy more DAI from the market in order to redeem DAI and get Ethereum back. Through these two processes, the amount of DAI distributed in the market increases, so the price is pegged. In the case of falling prices, the opposite mechanism is applied.

Through the three mechanisms mentioned above, stable coins collateralized by cryptocurrency can maintain their value.

# 3 Limitations of Issuing Stable Coins in South Korea

Among the stable coin processes mentioned in this Whitepaper, stable coins collateralized by fiat currency is difficult to be proceeded in South Korea. In the case of stable coins collateralized by fiat currency, since the South Korean government regarded cryptocurrencies and exchanges as illegal, the compliance departments of financial companies, including banks, prohibit transactions involving cryptocurrencies. As a result, “the preservation through the deposit and collateral of fiat currency” itself does not proceed in the core of the stable coins collateralized by fiat currency process. As such, the possible way in situations where it is impossible to carry out a value-maintaining process through a financial company is an exchange or to entrust a company which is not a financial company as a charge of deposit and collateral, however, in the former case, it is difficult in South Korea to open an account for trading, and in the latter case, there is a high possibility of a violation problem caused by ‘Conducting Fund-Raising Business Without

Permission' for it is not a financial company.

Although fiat currency collateral stable coins are a concise and intuitive way for both markets and investors, they are not applicable in Korea because of the regulatory issues. Therefore, we would like to issue a stable coins collateralized by cryptocurrency, but in a kind of hybrid system that is linked to the fiat currency collateral. The remainder of this whitepaper will progress the discussion of hybrid systems.

# 4 Crypto-to-Crypto: A Hybrid Method

As mentioned above, how can we issue stable coins in the current situation in Korea, where there are severe restrictions on cryptocurrency? First, we can think of the Maker DAO method, which is a representative cryptocurrency collateral stable coin. In other words, it is a method of taking Bitcoin or Ethereum as a collateral, which players in cryptocurrencies, and issuing a corresponding token of a fiat currency at its face value. This method has the advantage of not having to enter into a trust agreement with a financial company that is strongly affected by government regulations. However, there is a larger problem of being exposed to risks of price fluctuations in cryptocurrencies that are deposited and function as collateral. For example, if one takes Ethereum as a collateral and issues a cryptocurrency denominated in fiat currency prices, either the issuing house or the requester can bear the risk of loss due to fluctuating Ethereum prices. For examples, if the Ethereum price is 200,000 KRW when deposited as collateral, the issuing house must issue a cryptocurrency where denominated to 200,000 KRW. Subsequently, the issuing house manages this collateralized Ethereum, and if the Ethereum price rises to 250,000 KRW at the time of the redemption request, the issuing house loses 50,000 KRW and in the opposite situation, the requester loses. Therefore, this may be a high-risk method. Of course, the above-mentioned over-collateralization and Forced Liquidation can be considered as a solution to this problem. In this case, the problem is that the additional launch of these products on the market is not very attractive to market participants while Maker DAO already exists.

The second method is to take stable coins as a collateral which is issued by collateralizing fiat USD and issues the corresponding KRW-denominated cryptocurrency. This can be a little complicated, so let's look at an example. There is a South Korean cryptocurrency user (A) holding 100 TUSD. Let's suppose that the user wants to exchange their cryptocurrency for KRW or its corresponding means at a pegged value, not at a price of $100 or exchange price.[5] The user deposits 100 TUSD at the issuing house or exchange where it has entered into a trust agreement with an issuing house and is paid a predetermined exchange rate, for example, paid with KRWR, the KRW-denominated stable coin calculated at 1 USD=1200 KRW. In this case, the paid amount of KRWR for this user is 120,000 KRWR.[6] The KRWR is thus denominated in KRW, which is the KRW-denominated stable coin whose value is guaranteed by the USD-denominated stable coin. When a request for redemption comes from the user, the issuing house receives the KRWR

[5] In other words, the user wants to hedge both currency risk and price changes in the market.

[6] This exchange rate is an example only. The actual exchange rate is determined by the 30-day average of the KRW-USD exchange rate or the 30-day average of the exchange rate between the dollar price of Ethereum and the KRW.

and redeems the TUSD again. As the exchange rate is predetermined, the issuing house and the requester can be considered to be exposed to exchange risk, but in this case, it is correct to consider the exposure to the price risk of cryptocurrency traded on the exchange than the exchange risk. This is because the exchange rate is a pre-determined exchange rate, and in practice, both the issuing house and the requester are exposed to the price risk of USD-denominated stable coins in the market at the end of the contract. However, the variability of USD-denominated stable coins in the cryptocurrency market is small compared to other cryptocurrencies.

# 5 KRWR Issuance Process

Basically, this process assumes that the requester for issuing a KRW-denominated stable coin is the holder of a USD-denominated stable coin. A user who holds a USD-denominated stable coin and wants to issue a KRW-denominated stable coin will first ask the issuing house, that is, REMIIT to issue a KRW-denominated stable coin. The issuing house that received this request and the market participant who requested to issue decide and approve all matters such as the exchange rate against the USD, the expiry date, and the collateral rate. After approval, the requester deposits USD-denominated stable coin to the issuing house and receives the KRW-denominated stable coin. This USD-denominated stable coins are entrusted and operated by a third party or pledged by a third party to ensure its value. Upon expiration, the requester redeems the KRW-denominated stable coin to the house, returns the USD-denominated stable coin, and the contract is terminated.[7]

# 6 Issuance and Value Stabilization Process

## 6.1 Separation etween Issuance and Use

In this process, the first thing we must think about is the separation between issuance and use. In other words, the issuer and user of the KRWR must be separated. An issuer is a market participant who deposits a USD-denominated stable coin and issues a KRW-denominated stable coin, KRWR, allowing it to be distributed through the exchange, and a user purchases and trades KRWR on the exchange or exchanges it peer-to-peer. This separation naturally divides the interests of the issuer and user. What is important for the issuer is the exchange rate of the USD-denominated stable coin and the KRWR, and the KRWR price traded on the market is not of his interest. On the contrary, what is important to the user is only the stable and pegged exchange rate of KRWR and KRW, and the exchange rate of the USD-denominated stable coin and KRWR is not of his interest. Therefore, the issuer and the exchange manage their interests separately through the division, which enables the maintenance of value stability.

In maintaining this value, we can think of two ways: First, the way of maintaining the exchange rate of USD-denominated stable coin and the KRWR constant and exposing KRWR and KRW

[7]If the issuer manages a dollar-denominated stable coin deposited during the term of the agreement, whether the revenue or losses incurred therein will be attributed to the issuer or partly to the requestor is determinded to the agreement between the issuer and the requester.

to price fluctuations. Second, the way of exposing USD-denominated stable coin and KRWR to fluctuation at the exchange rate determined by the market and maintaining the exchange rate of KRWR and KRW constant. Of these two, we choose the latter. Because the exchange rates of KRW and USD fluctuate frequently in the market, it is impossible to control. Therefore, the exchange rate of USD-denominated stable coin and KRWR should follow the exchange rate determined by the market. In addition, maintaining the exchange rate between KRWR and KRW constant is more precise for the characteristics of the KRW-denominated stable coin. Therefore, we would comply with the exchange rate of USD-denominated stable coin and KRWR determined by the market, we would like to choose a way to stabilize the value by pegging the exchange rate between KRWR and KRW.

In other words, the issuer's main role is to fulfill the market participants' demands for KRW liquidity by issuing KRWR to supply liquidity by using the USD-denominated stable coin as collateral on the request of the market participants. Therefore, the issuer should set the exchange rate between the USD-denominated stable coin and the KRWR and ensure a smooth exchange between the two. The exchange rate between the USD-denominated stable coin and the KRWR is determined by the average of the KRW-USD exchange rate set in the market and the market price of the USD-denominated stable coin. For examples, if the KRW-USD exchange rate notified by KEB Hana Bank is 1,218.60 KRW per 1 USD as of August 13, 2019, and 1 USDC based on 'CoinMarketCap' is trading at 1,223.74 KRW, the exchange rate becomes 1 USDC = 1,221.17 KRWR.

For the user, the exchange rate between the USD-denominated stable coin and the KRWR is not his concern. The concern to the user is the price of KRWR traded on the exchange. Of course, the value of KRWR is maintained by its collateral, the USD-denominated stable coin, but the short-term price fluctuations that are traded on the exchange are bound to occur, and the user's interest is to benefit from these price fluctuations or to make payments using KRWR. An important point in this process is to ensure that KRWR has the right place for use. Maker DAO has successfully maintained its value with its stable coin DAI which is collateralized by another cryptocurrency, but because there is no suitable place to use DAI. It is currently used as a cryptocurrency collateral loan or cryptocurrency margin trading. Of course, cryptocurrency collateral loans and cryptocurrency margin trading are also appropriate methods for financial markets in terms of keeping the market running smoothly and eliminating arbitrage opportunities, but if there is a practical place for use, it is better for the market as well as for the user. This being so, starting with KRWR being used for REMIIT, we plan to continue to expand the usability such as exchange fee payment to make KRWR be used actively in the market and maintain its value.

## 6.2 Issuance Method

Following the separation of issuance and use and value maintenance methods described above, we must determine the issuance method. There are two major cases: the Maker DAO method and the Central Clearing Partner method.

First, let's take a look at the Maker DAO method. As we know, Maker DAO provides a Smart Contract called "Collateralized Debt Position Smart Contract (CDP)" instead of directly

issuing DAI, users use it to issue the cryptocurrency DAI, pegged at 1 USD, by collateralizing their cryptocurrency (in this case, ETH), and the deposited ETH will be kept by escrow until the issued DAI is redeemed. In this process, the collateral ratio is adjusted by the target price adjustment feedback system, for example, if the DAI price falls below 1 USD, the supply is reduced to raise the price by decreasing the issuing DAI ratio against the collateral. On the contrary, if the DAI price rises above 1 USD, the supply is increased to reduce the price by increasing the issuing DAI ratio against the collateral. In this process, the issuing DAI ratio against the collateral is generally maintained at around 60%. Through this demand-supply adjustment process, DAI price is stably maintained at 1 USD. This method also includes a forced liquidation process. In other words, if the collateral ratio falls below a certain ratio, it proceeds to liquidate the collateral immediately and purchase DAI from the market with the collateral, and through this, even if the price of collateralized Ethereum falls, DAI price will remain stable.

The opposite of such Maker DAO method is the Central Clearing Partner (CCP) method. In other words, if Maker DAO allows any market participant who uses the CDP to be an issuer, rather than being the issuer itself or a specific market participant, CCP takes charge of having certain issuer issues KRW-denominated stable coin by collateralizing the USD-denominated stable coin. This method is used by stable coins such as TUSD, USDC, and USDS. The difference may be that if these coins are receiving and depositing the USD from users who want to issue a stable coin and issuing the corresponding USD-denominated stable coin, KRWR is receiving USD-denominated stable coin from the user and issuing the corresponding KRW-denominated stable coin.

The two methods described above have its pros and cons. Maker DAO's method has the advantage that the issuer only provides a platform for converting USD-denominated stable coin into a KRW-denominated stable coin, so there is no need to risk the exchange rate, while there is a disadvantage that the total amount of USD-denominated stable coin cannot be converted into 100% of the KRW-denominated stable coin and is limited and issued less than 100% (usually around 60-70%). If the attractiveness or incentive to offset this disadvantage is not given to the users, this process is difficult to maintain the stability. The CCP method is the opposite. Issuer may issue the amount of KRW-denominated stable coins equivalent to the full amount of USD-denominated stable coin deposited by users, but the issuer must take all the risks from the fluctuation of the USD and KRW exchange rate. Although users can issue KRW-denominated stable coins equal to the total amount of USD-denominated stable coins deposited by users, the issuer must bear the risks associated with fluctuations in the USD and KRW exchange rates.

Of the two methods, we want to choose the Maker DAO method. There is no need to bear the risks associated with the exchange rate between the dollar-denominated stable coin and the won-denominated stable coin. The collateral rate is set under 100%, the price stability is high, and it is not hard to deal with market conditions. Not only can the users get revenue from the profit of managing the collateral, but there is also room to establish relevant strategies for both issuers and exchanges.

# 7 Risk Burden and Hedge

The exchange risk does not occur during the exchange and issuance described above, even though it is an exchange between the USD-denominated cryptocurrency and the KRW-denominated cryptocurrency. Generally, foreign exchange risk is "the risk that a currency loss can occur due to the change in the exchange value of the foreign currency.""[8] Although the swaps between the USD-denominated cryptocurrency and the KRW-denominated cryptocurrency described in this document are denominated in denominations of USD and KRW, the essence is the cryptocurrency swap. In other words, the exchange of cryptocurrency equivalent to US $1 in exchange for a value equivalent to won would cause a currency exchange risk, but it would not be considered a currency risk because the cryptocurrency corresponding to the value deposited is being issued.

If so, how should we judge the risks that arise? In this case, it would be right that the risk consists of the price volatility of the cryptocurrency itself, the market risk of cryptocurrency, and the credit risk and price volatility risk of individual cryptocurrencies. First, the price volatility of cryptocurrency itself cannot help but occur as long as it is a traded asset in the cryptocurrency market. Gold or US Treasury bonds, which are representative risk-free assets, are also less volatile than other assets, but price volatility exists. In addition, price volatility cannot be controlled by market participants. Second, the risk of the cryptocurrency market is the same. Like stocks, bond and foreign exchange markets, the cryptocurrency market also has volatility in the market, besides individual assets, which are at their own risk. High price fluctuations from the second half of 2017 to the second half of 2018 are typical examples. The price volatility and market risk of such assets are "systematic risk", so they cannot be hedged within the cryptocurrency market. In the case of credit risk on an individual asset, it can be prevented through the role of deposit insurance or the lender of the last resort which is the one of the main roles of the central bank, and offset by the individual investor's diversified investment. However, within the crypto market, the risks of credit risk and price fluctuations between each cryptocurrencies are not easy to hedge. Since the USD-denominated cryptocurrency is converted to the KRW-denominated cryptocurrency, the volatility of cryptocurrency itself may not be high. It is likely that the agreement to determine the conversion ratio is not easy. This is because one's profit is the loss of the other on this contract. Therefore, detailed and specific processes for the conversion rate decision-making process should be made. In addition, in the case of credit risk, the exchange or, if possible, the two cryptocurrency issuing companies may invest in a fixed amount of currency to create deposit insurance. In the short term, this would appear to abandon profits, but in the long run, it will be a way to develop trust.

[8] Bank of Korea, Busan Head Office, "Foreign Exchange Risk Management Guide for Businessmen," 2009, 02, pp. 3.

# 8 Conclusion

Through the discussion above, we have discussed about the mechanisms of KRWR, a hybrid form of the existing stable coin collateralized by fiat and cryptocurrency. The purpose of the REMIIT team's issuance of KRWR is not simply to present a single KRW-denominated "stable" coin to the market, but to present financial products allowing the market to advance further. Exchanges between USD-denominated stable coins and KRW-denominated stable coins based on market exchange rates, so-called swapping would provide holders of USD-denominated stable coins with liquidity that can be used in the Korean market. It also offers market participants a variety of trading opportunities, including arbitrage trading opportunities. The KRWR will provide these liquidity and trading opportunities to the existing cryptocurrency market, thereby contributing to the Pareto efficient improvement of the cryptocurrency market.

In addition, KRWR can be used on the REMIIT team's remittance and payment platforms and cryptocurrencIn addition, KRWR can be used on the REMIIT team's remittance and payment platforms and cryptocurrency derivatives exchanges. The usage of KRWR will be gradually expanded in the future, so that these various usages will make market participants improve their value not by locking the KRWR in their wallets but by using their coins in real life.In addition, KRWR can be used on the REMIIT team's remittance and payment platforms and cryptocurrency derivatives exchanges. The usage of KRWR will be gradually expanded in the future, so that these various usages will make market participants improve their value not by locking the KRWR in their wallets but by using their coins in real life.y derivatives exchanges. The usage of KRWR will be gradually expanded in the future, so that these various usages will make market participants improve their value not by locking the KRWR in their wallets but by using their coins in real life.

# References


[1] Bank of Korea, Busan Head Office, "Foreign Exchange Risk Management Guide for Businessmen," 2009.

[2] Kocherlakota, N., "Money is Memory," Journal of Economic Theory 81(2), pp.232-251, 1998.

[3] Samuelson, P., 1958, "An Exact Consumption-Loan Model of Interest with ol' without the Social Contrivance of Money," Journal of Political Economy 66, 467-482.

[4] Stockman, A., 1981, "Anticipated inflation and the capital stock in a cash-in-advance economy," Journal of Monetary Economicss 8(3), 387-393.

[5] Svensson, L., 1985, "Money and Asset Prices in a Cash-in-advance Economy," Journal of Politica Economy 93(5), 919-944.