UNIVERSITY of NICOSIA

Week 5, Session 10

Economics of Security Tokens

BLOC 528: Token Economics

Today's Overview

- Objective #1: To understand the role of debt tokens.
- Objective #2: To investigate different payment structures on tokens.
- Objective #3: To discuss stablecoins and their use of collateral.

Recap of Security Tokens

In 1946, the U.S. SEC had a case, SEC v. Howey Co in front of the Supreme Court that now has become known as the “Howey Test” for determining what is a security.

A token is a security if:

- It is an investment of money
- The investment of money is in a common enterprise
- There is an expectation of profits from the investment.

While tokens often satisfy the first two requirements, the third is not always satisfied.

- Create utility from the tokens (and some governance rights)
- Avoid promotional language

Debt Tokens

Definitions

- Debt tokens are the tokens that represent a debt or cash that is similar to short term loans on an interest rate for certain principal amount lent to the company. It is equivalent to the raised capital through debt.
- Debt security tokens generally collateralize real world assets or debt instruments, such as real estate mortgages and corporate bonds. Risk and dividend are the primary drivers of value.

Risk and Dividend

- Risk: a risk that subject to the debtors in default or a sudden changes while considering the debt valuation.
- Dividend: they provide a common dividend that is based on the payment amount of the debt instrument.

Benefits of Debt Tokenization

- Universality: Everyone understands debt and it makes sense to traditional financial institutions.
- Fractionalization: You can fractionalize by considering the opens with the asset to new sets of investors.
- OTC Trading: Since lots of debt transportation trading takes place over the counter, can streamline.
- Composability: Debt is composed easily with the representation by making the real estate leases as a security token symbolizing the collateralized debt obligation (CDO).

https://www.securitytokenizer.io/what-is-debt-token

Types of Debt Tokens

- Debt Tokens: Tokens that represent a debt or cash generating vehicle.
- Equity Tokens: Tokens that represent an equity position in an underlying asset.
- Hybrid/Convertible Tokens: Tokens that convert between debt and equity based on their behavior.
- Derivative Tokens: Tokens that derive its value from underlying tokens.

While Collateralized Debt Obligations (CDOs) received a lot of bad attention in the 2008 financial crisis, they are simply ways of pooling cash flow-generating assets and repackaging the asset pool into discrete tranches that can be sold to investors. Each tranche in a CDO has a different risk profile with the senior tranches being safer and the first priority of liquidity; higher risk debts can be hedged by being packaged with safer debts.

Thus, consider a token that is an aggregation of security tokens with different risk profiles. These tokenized securities can combine the high-dividend/high-risk model of riskier debt tokens with the medium-dividend/low-risk model of safer debt instruments.

https://hackernoon.com/security-token-2-0-protocols-debt-tokens-af17d5c91a25

Different Payment Structures on Tokens

- Easiest to value since the total value is the sum of discounted future cash flows.
- Depending on the quality of the issuer, it is also important to take into account the “slope” of the yield curve – for example, 1 year rates might be at 0.5%, but 5 year rates at 7%.
- Fixed rate bonds are priced off the yield curve: term structure and risk premium.
- There are also variable tokens (those where the coupon resets to the prevailing interest rate and is at par for each of the fixing dates) and callable tokens (those that pay a fixed interest rate and can be redeemed by the issuer at a point in time, always, or at specific points in time… regular token + short call option).
- Putable token can be put back to the issuer at a point in time, always, or specific points in time. The investor usually pays a premium or accepts at a lower rate.
- Convertible bonds are those that can convert into equity; not as many equity tokens (some governance capabilities might be included too) around yet.
- Equity, revenue/profit tokens generally sell a portion of revenues/profits to investors (e.g., Royal.io).

Price, Value, and Trading Strategies

Price v. value

- Value is what you believe an asset should be worth, so when you see a gap between the value and the price, you want to be sure that you really do know better than everyone else.
- Price is the number that you can trade an asset for – and it always has a direction (bid/offer), and a size for each direction. But sometimes there is only a price in one direction.

Trading strategies

- "Greater fool theory" – value becomes secondary, and you look more at whether you simply think it can be sold for profit, but risky since true value is what drives growth.
- Momentum – you "go with the market" and its momentum, but risky since momentum eventually stops.
- There are sometimes true arbitrage opportunities, but they are hard to find – usually there's some version of "statistical" or "approximate" arbitrage where you see a certain type of situation and believe that there's a good deal to be had, and want to capitalize on it.
- Realistically, you "bracket" by looking for conditions that might lead you to trade at a particular price.

Stablecoins with Collateral

- Remember, stablecoins were designed to offset the high crypto volatility and provide a convenient way for crypto traders to preserve their fiat value without cashing out of the market and allowing users to pay for everyday goods and services in crypto without all the budgeting drama.
- They allow users to avoid having multiple international bank accounts, and avoid going through a centralized source, instead doing peer to peer.
- The issuer (e.g., MakerDAO) credibly promises to everyone to redeem the coin against its face value in USD, and the coin is issued to everyone against USD.
- The ratio is always 1:1 – you would never pay more than 1 USD (for 1 USD, you can directly get it from the issuer), and you would never accept less than 1 USD (you can redeem it at the issuer for 1 USD).
- Liquidity challenges can emerge in what's called a "gating dilemma" – when withdrawals increase losses ("fire sales"), and the first one out the door loses less. That also happens with organizations going bankrupt, but with large institutional investments it's especially costly – so centralized entities sometimes use "gating" to restrict withdrawals until events improve.

Additional concepts

- Seignorage refers to profit made by a government issuing currency, capturing the difference between the face value of the coins and their production cost.
- If you can issue a pure cash instrument in a positive interest rate environment, you can make seignorage gains even without being a government – that is, you receive cash that you deposit, earn interest, and your liability remains at a constant face value.

How do you make stablecoins sustainable?

- Maturity curve – long term investments yield a premium so there is a return to carry – although they can fall below par at times and redemptions can become losses (gating problem).
- Liquidity curve – illiquid investments can yield a premium, but when forced to sell, they can go at a big discount (fire sales – e.g., housing bubble and foreclosures on mortgages).
- Credit curve – credit investments should yield a premium due to the incorporation of a risk premium, but still can create liquidity risk at times of financial instability.

MakerDAO Example

- MakerDAO is a collateralized lending protocol where one fungible asset (DAI) can be borrowed against a range of other collateral; DAI is intended to be stable at $1. Initially, ETH was the only collateral.
- When borrowing DAI, the borrower pays a “stability fee” (interest rate) that accrues continuously and has to be repaid at the end of the loan; the rate is usually 2-5%.
- There is also a deposit facility (smart contract) that allows users to deposit DAI they do not currently use, and that earns interest at the DAI Savings Rate (DSR).
- Loans are over collateralized by a ratio that depends on the underlying quality of the collateral; undercollateralized positions will be liquidated; and losses after liquidation are borne by the protocol.
- Initially the ETH ratio was 150% and the collateral ratios are calculated with respect to USD prices.
- There is an ecosystem of bots that support the system by arbitrage to keep the value of DAI at $1.
- The DAI money supply is driven by a “push” from the borrowers, not by “pull” from potential DAI investors. That is different from USDC and USDT where you can go to the issuer and ask them to issue you $1 billion in coins against cash, and they will probably do so.

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Questions?

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