

In Practice

Crypto yield

Author Charles Kerrigan

Bitcoin, the original cryptoasset, does not pay interest or otherwise generate cashflows under the smart contract of the protocol. That has not, however, stopped the crypto community from developing products and code that do exactly that both for bitcoin and for many other types of cryptoasset. Charles Kerrigan explores the new market for crypto products with cash flows.

Not all cryptoassets are cryptocurrencies and not all cryptocurrencies are currencies. Bitcoin (BTC) is (although, like everything else in crypto, not everyone – including at times employees of the Bank of England – agrees) in the sense that one BTC represents value that can be owned and transferred.

Broadly, crypto – in this article, to avoid spending the whole of it defining terms while at the same time explaining that not everyone agrees with a definition that I am using, I use the term in a non-technical sense to interchangeably refer to the assets, the industry or the community and I hope that it is clear in each case from the context – sits at the junction between innovation in money and innovation in technology.

What currencies do (act as a medium of exchange for goods and services) is well established and does not change. But what currencies are changes a lot, which is why we get into the tangle in the first paragraph above. Physical money (notes and coins) has become digital money (shown on a screen) but the same abstract idea of a balance in an account that can be spent remains. So, we see that examples of currencies, if not the concept of currencies, change and evolve.

BOX 1:

As notable crypto philosopher Luca Proserpi, writer of the Dirt Roads substack channel, says: “The fact is that currencies are just such an awesome product. They bundle so many crucial functionalities (accounting, exchanging, reserving and, I might add, allocating) into a seamless experience that has resisted and improved over the centuries. I might push myself to say that the invention of currencies has been the highest philosophical achievement of the human being on the other side of set theory.”

In the last few years crypto has been experimenting with the concept and it may not be surprising that cryptocurrencies also change and evolve but at faster rates. This is an illustration of the fact that technology accelerates change, not of the fact that cryptocurrencies and fiat money are fundamentally different.

One common statement made about cryptoassets is that they are worthless because they have no cash flows. They therefore cannot be valued using conventional models. (Leaving aside the large question of

whether traditional models are the correct way to value a novel asset class) it is incorrect to say that crypto does not have cash flows. Some cryptoassets are designed to entitle the holder to more of the same, a crypto cash flow.

It is commonly understood that BTC does not generate yield. This lack of cash flows is often a point raised when comparing BTC to gold. BTC does not have cash flows; gold does not have cash flows; both are stores of value (if arguing from the crypto perspective); BTC is “digital gold”.

In fact, BTC can yield cash flow.

This brings us to crypto yield. Box 2 is a short explanation of how crypto yield is generated. (I have translated the crypto terminology into traditional finance terminology to explain and to illustrate how familiar most of the concepts are. The note below is very simplified and describes the early stages of a market that has since developed in many different directions in the last two years.)

BOX 2: HOW CRYPTO YIELD IS GENERATED

What is involved in generating yield?

Yield farming is the practice of:

staking or locking up (“depositing”) by **liquidity providers** or **LPs** (“contributors of capital, similar to wholesale funders”) of **crypto** (“cryptoassets that are accepted by the particular exchange”) in a **liquidity pool** (“cryptoassets deposited by other investors subject to smart contracts that execute instructions in relation to the funds”) provided by a **DeFi platform** (“a decentralised exchange or DEX”) in return for **rewards** (“interest”) in the form of **tokens** (“the local currency of the platform”) paid for by **users** (“borrowers”) to **LPs** (“lenders”) in consideration for **borrowing** (or, in other transactions, lending or exchanging) the crypto, where of course, this being crypto, parties can hold more than one of the roles and enter into more than one of the transactions at the same time.

HOW IS YIELD GENERATED?

Yield originated with developers of DEXs giving users a small share of transaction fees paid by their users (essentially the same as the fees paid by users to centralised exchanges) in exchange for contributing liquidity to the exchange (ie incentivising participants to join and add tokens to the exchange). Later, new features were added such as “rewards” funded by the protocol’s governance token (ie a utility token, issued in exchange for value that entitles holders to take decisions relating to the business of the exchange – since it is decentralised, there is no central controller and decisions reflect the outcome of votes by holders of the governance tokens).

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WHO ARE THE PARTIES?

Again, since there is no central controller, only smart contracts, DEXs use automated market maker (AMM) models. On one side of the transactions are the LPs who deposit funds into smart contracts controlling liquidity pools. On the other side of transactions are borrowers who want to use the cryptoassets held in the pools.

Once an interest rate (“reward”) for a loan has been agreed upon, the borrower (“user”) gets the funds and the lender (“liquidity provider”) gets a native token of the exchange redeemable pursuant to the operation of the smart contract.

WHAT ARE THE RATES?

Rates are measured in annual percentage yield (APY) (a rate assuming compounding by reinvestment of all returns during the term of the trade) and annual percentage rate (APR) (a rate assuming no compounding). To attract large volumes of funds early in the life of a project rates can be high, far higher than interest rates offered to savers by banks. On the day I checked in January, PancakeSwap, a DEX allowing investors to swap tokens built on top of the Binance Smart Chain, had an APY of 1065871.07% (not a misprint – but an indication of the fact that these are not ordinary financial products).

WHERE DOES THE MONEY COME FROM?

Supply and demand. Owners of large crypto portfolios look to actively trade them. Developers set up new DEX models to attract their funds. Borrowers of crypto are taking a position that they can earn more than they pay. This is through arbitrage opportunities, investing in new projects, lending to another market participant or converting the borrowed crypto into another token that yields more on another exchange. (But note the point at Market risk below which illustrates that supply and demand exist in both good and bad projects.)

WHAT IS THE POINT?

Apart from the technical innovation and the money, yield farming uses “idle cryptos” that would otherwise simply sit in an exchange or a hot wallet. In time we will see cryptoassets funding real world projects as a logical commercial outcome of DeFi. As SIMETRI by Crypto Briefing, an internet-based newsletter, put it:

“The competition is forcing innovation in DeFi, creating new value that is ultimately passed on to token holders.”

WHAT EXAMPLES OF YIELD PRODUCTS ARE THERE?

There are hundreds of DEXs. Compound – <https://compound.finance/> – a large and popular specialised DEX, issues COMP tokens to lenders and borrowers using the protocol. On the day I checked in January, Compound had \$13,597,640,284.47 of cryptoasset supply (ie the amounts staked in its pools).

WHAT ARE THE RISKS OF ACCESSING YIELD THROUGH A DEX?

- **Commercial risk:** Most calculation models are estimates. It is difficult to accurately calculate returns because it is a dynamic market. As with any trading or arbitrage strategy a trade can go bad quickly and a leveraged trade can go very bad very quickly. The crypto market is particularly volatile because there are so many opportunities and traders with different strategies, skill levels, and levels of understanding of both the market and the latest opportunities in the market.
- **Smart contract risk:** Smart contracts are computer code, generally not legally enforceable contracts as a lawyer would understand them, and not entered into between two counterparties. They work on predefined rules that self-execute. Smart contracts eliminate intermediaries and are efficient. But they are susceptible to attack vectors, bugs in the code and misunderstandings by inexperienced traders.
- **Impermanent loss risk:** Yield farming requires liquidity providers to supply funds into pools to earn yields and trading fees from DEXs. Because of the volatility of the market and the fact that AMMs don't update staked token prices in real time to track movements in the market, there is a risk that an asset price drop on a centralized exchange will not immediately be reflected on a DEX. The economics of a trade are therefore impacted by conversion rates coming out of the trade. Therefore, LPs bear the risk that their yields in the DEX will be less than the reduction in the price of their assets during the time they were locked in the contract. This is impermanent loss.
- **Liquidation risk:** Since decentralised finance (DeFi) is pseudonymous, credit assessment cannot be done on the basis of the identity of a counterparty and can only be done on the basis of the assets that the counterparty is prepared to provide as collateral for its positions. A loan of one cryptoasset collateralized by another will be automatically liquidated by the smart contract if the price of the assets diverge in a way that means the loan is no longer fully collateralised by the value of the collateral posted against it.
- **Market risk:** Some projects are poorly thought out (so that they do not work), some are poorly executed (so that they can be hacked), some are intended to defraud investors (who suffer from rug pulls where founders drain the treasury of a project and disappear. Unless an investor can read code and has a good understanding of “tokenomics” including characteristics of scams (such as lockups that prevent investors but not founders from selling) investment can simply be what has been referred to as “poorly-thought-out gambling.” Ironically, given the decentralised nature of the market, the identity of founders is usually considered all important. As a general guide, users must be able to determine whether a project has innovation that could really create value or if it simply employs the latest jargon to move value from less

Biog box

Charles Kerrigan is a Fintech partner at CMS London. He is the author of *The Financing of Intangible Assets; TMT Finance and Emerging Technologies* (2019) and editor of the forthcoming book *Artificial Intelligence Law and Regulation*.
Email: charles.kerrigan@cms-cmno.com

experienced users to more experienced users; what is known in crypto (showing how sensitive the market is to those features that outside observers may believe it ignores) as “Ponzi economics”.

AN INNOVATION CYCLE

Crypto is an innovation machine. Its genesis and development is fundamentally about better solutions. As problems are identified, multiple projects put forward real products to solve them. Liquidation risk is a known problem with yield farming. Alchemix, a relatively new DeFi lending protocol, protects against automatic liquidation by coding that makes loans automatically pay themselves back over time.

- **Legal risk:** Among the technical issues to consider in establishing or trading on a DEX are:
 - DeFi is unregulated – in the opinion of the DEXs they are not conceptually capable of being regulated – there is no firm to regulate, no entity carrying on activities and no “home” regulator in any jurisdiction because no incorporated entity exists – but, of course, regulators say that they will test this in cases that they take forward to determine if in fact the DEX is decentralised or it has been developed and run by identifiable individuals;
 - if tokens issued by the DEX are found to be securities and have been offered to the public then they will be in breach of securities offerings rules – DEXs argue that there is no issuer to sanction, simply code;
 - pooled funds may constitute a collective investment scheme (in the UK under s 235 of the Financial Services and Markets Act 2000) – DEXs argue that the profits of trades are not pooled because individual trades are identifiable and separate;
 - in some jurisdictions lending is a regulated activity, in most jurisdictions derivatives business is a regulated activity – DEXs argue that they are not in the business of lending or arranging derivatives trades, merely providing technology that replicates aspects of the structure of these transactions;
 - (with exceptions in the new “compliant DeFi” market) DEXs do not conduct KYC or AML checks on users – DEXs, philosophically, are built to be blind to the identity of users so KYC and AML are immaterial in this context;
 - income and gains are taxable – DEXs are not known for volunteering information to taxation authorities;
 - since DEXs can be accessed via the internet they may be subject to consumer protection rules in any jurisdiction where they have users – DEXs operate geoblocking software to reduce the risk of access by citizens of jurisdictions perceived to harbour unfriendly regulators, notably the US (although one of the elements of the US “Howey test” of whether an instrument is a security is that profits are generated for an investor through other people’s efforts, an element that should not be satisfied by DeFi “be your own bank” tenets);

Each of these points is fact-dependent, complex and not yet settled. For now DeFi continues on its path with a “low risk” rating from many regulators on the basis that the users are all expert and using funds that they are by and large recycling from gains in other crypto projects. Certainly the UI of most DEXs is currently a significant practical bar to adoption by anyone other than serious experts.

WHAT EXAMPLES OF CENTRALISED EXCHANGE YIELD PRODUCTS EXIST?

Consumer-facing apps and neobanks such as Wirex, a crypto-friendly app-based digital payments platform, now provide yield on crypto without the users interacting directly with DEXs. On the day I checked in January, the Wirex X-Account product provided yield up to 16% AER on specified currencies, net of fees and with no minimum deposit term. It should be clearly noted that firms like Wirex are quite different to DEXs. Wirex is centralised, regulated and has customer service people. A DEX does not.

ALL CRYPTOASSETS ARE NOT THE SAME

This article often refers to BTC because it is the best known cryptoasset.

A technical note: BTC cannot be deposited direct into DEXs because, although the Bitcoin protocol is a smart contract, BTC cannot be subject to other smart contracts. Instead “wrapped” bitcoin (WBTC) is used. WBTC is a token that represents BTC on the (programmable) Ethereum blockchain. Each WBTC token is backed 1:1 by a BTC and this backing is transparently verifiable through a “proof of reserve” system showing WBTC tokens and BTC stored by custodians.

Any token that operates on ERC-20, the main technical standard for smart contracts for token implementation on the Ethereum blockchain, may be deposited direct in most exchanges.

This is a reminder that:

- cryptoassets have different characteristics to each other; and
- it is commonly the case in crypto that where a technical obstacle exists to a commercial aim, an engineering solution is found.

CONCLUSION

Confused? Don’t be put off. It is confusing. I’ve spent some years on this including playing with all the products and I’m normally confused. Crypto can seem complicated but the best way to understand it is to spend time with it. There are familiar aspects to anyone who understands what banks do, including paying interest on deposits. The ingenuity and engineering in crypto is often sublime. And it repays some patience and does make sense in the end. It is (at least one of) the future(s) of finance. So, be openminded and try to learn more (while never spending money that you would not be prepared to lose 100%). ■