Acacia Protocol

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Abstract

Decentralization matters. Decentralized Finance covers a range of products and services which aim to make participation in financial services more accessible to everyone. This paper presents a plan to create sophisticated products usually reserved for UHNWIs, Institutional investors and Asset Managers within the traditional finance world for the Decentralized Finance ecosystem. Structured Capital Market Products are innovative, ever evolving and well established in traditional finance and by this decentralized creation, a catalyst that will speed up the capacity of "decentralized" for everyone's economic empowerment and the real accessibility to the global financial marketplace.

Introduction

This paper will present a case for development of Structured Products for and within the Decentralized Finance (DeFi) ecosystem. In order to determine the requirements of both the product and its environment, it is necessary to analyze its form and function.

Structured Products refer to combinations of individual financial instruments, such as bonds, stocks and derivatives. The payoff for the investors is dependent on a combination of bond rates, interest rates, equity prices and FX rates. At first glance, most of these composite products are very similar to plain vanilla coupon bonds (*R. Rebonato, 1997*). What sets them apart from bonds is that both interest payments and redemption amounts depend on, in a rather complicated fashion, the movement of stock prices, indices, exchange rates or future interest rates.

Since structured products are made up of simpler components, we usually break them down into their integral parts when we need to value them or assess their risk profile and any hedging strategies. This should facilitate the analysis and pricing of the individual components. Mathematically, the price of the Structured Product must equal the sum of the prices of the individual components, otherwise, an arbitrage opportunity to net a risk-free profit would present itself.

The concept of designing and "offering" such beautiful and complex products for low barrier entry within the Decentralized Finance universe, would enable this tool of Wealth Management to continue to evolve and develop within open source software on top of P2P protocols, for the benefit of the ecosystem and all its Market Participants.

To reach toward this, we will explore a simple form of a Structured Product in traditional finance, to provide an in-depth analysis of its replication techniques and mapping out into its simpler components "Zero-Coupon Bonds" and Options, both Calls and Puts.

We will assess the available tools within the DeFi ecosystem, along with those currently in development and describe implementation, its use cases and potential adoptability.

Reference Names

Like many financial product groups, uniform naming conventions are evolving and even where naming conventions exist, some issuers still use differentiating "alternative" names. This paper will use the market names for products that are common; we endeavor to be as accurate as possible. As these names can be rather unclear in practice, it is not possible to categorize and valuate a product on this basis alone; valuation is only possible on the basis of cash flow structure.

Pricing Safe Assets

The value of assets is the reciprocal of the value of money and credit. The value of money is the reciprocal of the quantity of it in existence. When central banks produce a lot of money and credit thus making it cheaper, it is wise to be more aggressive in owning assets.

As a reference, recently, a combination of negative interest rates and ECB asset purchases appear to have given rise to a persistent negative pressure on the "Swiss safety premium". A move to negative rates make government debt less attractive and the continued safe asset purchases by foreign central banks reduce the supply and in effect reduce the relative uniqueness of the Swiss confederation bonds within the class of highly safe assets. This points to an important international spillover channel that impact on the relative scarcity of safe assets (*J.H.E. Christensen, N. Mirkov, 2019*).

The prospect that even the safest assets can become unattractive provided interest rates are sufficiently low is not new. Unattractiveness is also becoming from relative illiquidity. Yet in traditional finance, any convenience yield in their pricing mainly reflects a safety premium and is unlikely to represent any liquidity premium.

The current blockchain environment does not offer the opportunity for Safety Asset pricing. As the decentralized ecosystem evolves and develops, new products would eventually shed light on the role of credit quality, liquidity and convenience. Allocations by traditional finance funds into Structured Products could embrace the DeFi space and fast track of Safe Haven Asset pricing for the benefit of all yield participants, supply and demand.

What are Structured Products?

Structured products can be loosely defined as investment products where the return is linked to an underlying asset with pre-defined features such as maturity date, coupon date, capital protection level, etc. They can be seen as a product package using three main components:

1. A bond;
2. One or more underlying assets; and
3. Financial instruments linked to these underlying assets, or a derivative strategy.

The three biggest advantages of structured products are the products' defined returns, market protection barriers and known maturity dates. They are an attractive addition to many portfolios because they can diversify the risk of portfolios and they can be selected with their defined outcomes to meet specific financial objectives – considering factors such as goals, risk tolerance and time.

The vast majority of structured products are offered by high investment-grade issuers, mostly large global financial institutions that include Barclays, Deutsche Bank, JP Morgan, UBS and Credit Suisse.

This paper will focus on, as an analysis, the simplest form of structure: a Capital Guaranteed Structured Product.

Conventions Applied

In the case of options, a unit of the underlying asset invariably serves as the imputed unit of trading. While this will mostly differ from the actual unit of trading, the valuation process will thus be easier to understand.

The term "foreign currency" refers to currencies other than the product's issue currency or base currency. In practice, the investor's reference currency determines whether a given currency is foreign or not (*D.F. DeRosa, 2013*).

Black-Scholes Model

The valuation formulas used for embedded options are based on the Black-Scholes model (*E.G. Haug, p41-47, 1997*), which makes the following central assumptions:

(1) Changes in the price of the underlying products (stock, index) follow geometric Brownian motions, with volatility constant over time;
(2) Trading is continuous;
(3) No market participant has market power and all participants are price takers, which means that no one can influence an instrument's price;
(4) The short selling of securities is permitted without restriction;
(5) There are no transaction costs or taxes;
(6) The market offers no arbitrage opportunities; &
(7) The risk-free interest rate is constant over time.

In practice, a multitude of methods is used to determine the fair value of such sophisticated products. Simple valuation models are applied even if they are not really appropriate or attempts may be made to replicate structured products in the form of portfolios of simple products which at any time pay off at least as much as the respective structure.

Traditional Capital-Guaranteed Structured Products

Capital-guaranteed products have three distinguishing characteristics:

1. Redemption at a minimum guaranteed percentage of the face value (redemption at 100% face value is frequently guaranteed);
2. No or low nominal interest rates; &

3. Participation in the performance of an underlying asset; this participation is sometimes referred to as interest that is always paid out at the same time as the redemption amount (In this paper this is interpreted and treated as part of the redemption amount).

The products are typically constructed in such a way that the issue price is as close as possible to the bond’s face value (with adjustment by means of the nominal interest rate). It is also common that no payments (including coupons) are made until the product’s maturity date.

The investor’s participation in the performance of the underlying asset can take an extremely wide variety of forms. In the simplest variant, the redemption amount is determined as the product of the face value and the percentage change in the underlying asset’s price during the term of the product. If this value is lower than the guaranteed redemption amount, the instrument is redeemed at the guaranteed amount.

This can also be expressed as the following formula:

$$R = N \cdot (1 + \max\left(0; \frac{S_T - S_0}{S_0}\right))$$
$$= N + \frac{N}{S_0} \cdot \max\,(0; S_T - S_0)$$

Where:

Notation	Explanation
R	Redemption Amount
N	Face Value
S_0	Original Price of Underlying Asset
S_T	Price of Underlying Asset at maturity

Therefore, these products have a number of European call options on the underlying asset embedded in them. The number of options is equal to the face value divided by the initial price (*cf.* the last term in the formula). The instrument can thus be interpreted as a portfolio of zero-coupon bonds (redemption amount and coupons) and European call options.

The possible range of capital-guaranteed products comprises combinations of zero-coupon bonds with all conceivable types of options. This means that the number of different products is huge.

The most important questions and characteristics for classifying these products are as follows:

1. Is the bonus return (bonus, interest) proportionate to the performance of the underlying asset (like call and put options), or does it have a fixed value once a certain performance level is reached (like binary barrier options)?
2. Are the strike prices or barriers known on the date of issue?
3. What are the characteristics of the underlying asset? Is it an individual stock, an index or a basket?
4. Is the currency of the structured product different from that of the underlying asset?

Traditional Zero-Coupon Bonds

Zero coupon bonds represent the most basic type of interest rate instruments. They do not pay interest periodically but involve only a single cash flow at the end of a fixed maturity. The issuer does not pay any interest up until the bond matures. The investor's income equals the spread between the issue price and the redemption price. The yield on a zero-coupon bond is called spot rate. Depending on the compounding technique used, the outcome is either:

$$\left(1 + s(T)\right)^{T} \cdot\ P(T) = 100\%$$

or

$$P(T) \cdot e^{r(T)T} = 100\%$$

Where:

Notation	Explanation
T	Time to maturity (years)
P(T)	Present Value (in % of principle)
s(T)	Discretely compounded annual spot rate
r(T)	Continuous compounded annual spot rate

Depending on the issuer's default risk, different spot rates apply to identical times to maturity. Vice versa, it is possible to value a zero-coupon bond based on the spot rate for the relevant time to maturity and the respective default risk. When we consider the annualized spot rates as a function of the time to maturity, we refer to the term structure of interest rates.

"Foreign currency" bonds may be valued by using two equivalent techniques:

(1) Use the respective spot rate of the "foreign currency" for valuation and convert the outcome at the current exchange rate;

(2) Convert the (known) cash flows into the issue currency and value the resulting cash flows at the issue currency spot rates.

Both techniques must result in (almost) the same outcome; otherwise, arbitrage opportunities would exist. For some types of structured products, future cash flows are not known at the time of valuation. In such case, we can only use the first technique.

We cannot break down zero coupon bonds into simpler components. To value a zero-coupon bond, it suffices to know the spot rate applicable to the time to maturity and the respective default risk.

Traditional Options embedded – Calls and Puts

The simplest of Capital Guaranteed products are distinguished by the fact that the redemption amount is made up of a guaranteed percentage of the instrument's face value, often 100%, and a bonus return which varies in proportion to the performance of an underlying asset between the issue and maturity dates. The bonus return is calculated as a percentage of the difference by which the underlying asset's price on the maturity date exceeds its price on the issue date.

For Capital Guaranteed products with embedded Call Options, if the price falls, no bonus return is paid out (*D.F. DeRosa, 2013*). Thus, the investor profits from a rise in the price of the underlying asset. However, if the price drops, the investor does not have to bear the loss.

For Capital Guaranteed products with embedded Put Options, if the price rises, no bonus or "interest" return is paid out. The investor can thus profit from a drop in the price of the underlying asset without having to bear losses if the price rises.

Note that with capital-guaranteed products, it is often the case that no payments are made, including coupons, until the maturity date.

Capital-Guaranteed Bond with Call Options embedded

Face Value – 100 *Capital Guaranteed – 95%* *Participation rate b – 50%*

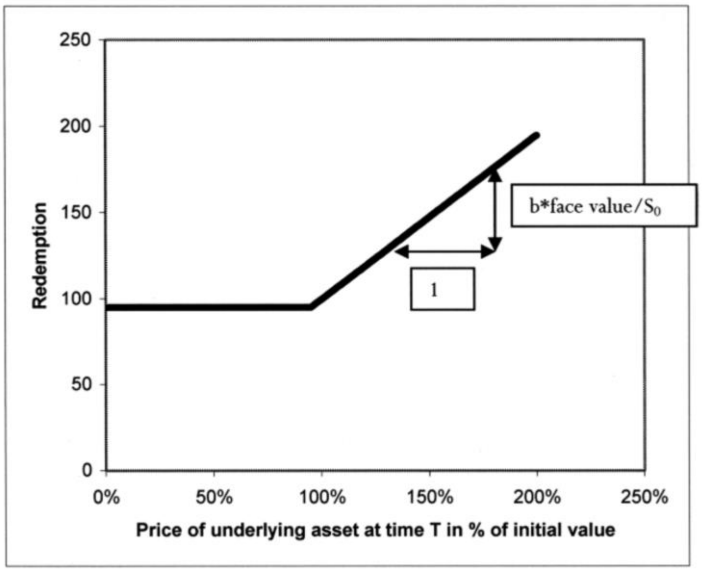

Fig.1 – Payment diagram for capital-guaranteed bonds with call options embedded – face value 100, 95% capital guarantee and participation rate b). Retrieved from J. Christl, (2004). Financial Instruments – Structured Products Handbook, p70.

Capital-Guaranteed Bond with Put Options embedded

Face Value – 100 *Capital Guaranteed – 95%* *Participation rate b – 50%*

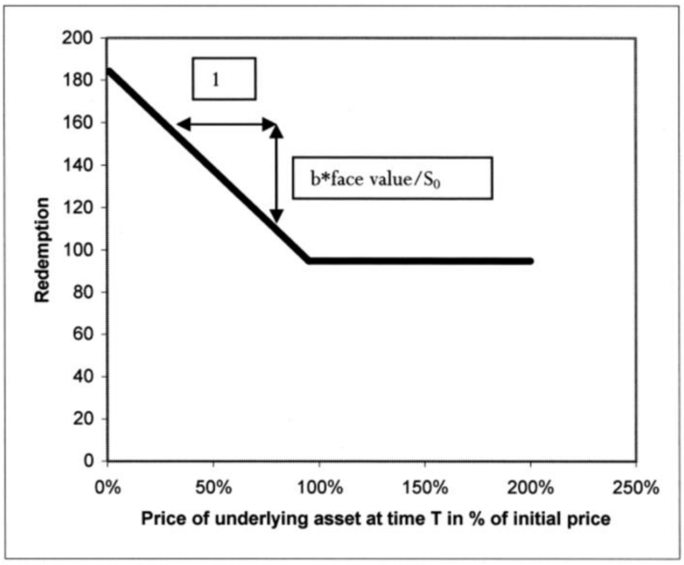

Fig.2 – Payment diagram for capital-guaranteed bonds with put options embedded – face value 100, 95% capital guarantee and participation rate b). Retrieved from J. Christl, (2004). Financial Instruments – Structured Products Handbook, p76.

These Capital Guaranteed structured products can be broken down or replicated as:

Zero-Coupon Bonds with embedded Call Options or Put Options

$$ZeroCoupon\ Bonds + \frac{N \cdot b}{S_0}\ Call\ Options$$

$$or$$

$$ZeroCoupon\ Bonds + \frac{N \cdot b}{S_0}\ Put\ Options$$

The Face Values of the Zero-Coupon Bond: Coupon payments and the guaranteed redemption amount of the bond. Note that cash flows typically do not take place until the maturity date.

The strike price of the Call Option is:

$$S_0(1 - \frac{1-a}{b})$$

The strike price of the Put Option is:

$$S_0(1 + \frac{1-a}{b})$$

For some issuers, the redemption payment for Call Options is described:

$$R = N \cdot a + \frac{N \cdot b}{S_0} \cdot \max(S_T - S_0; 0)$$

For Put Options, is described:

$$R = N \cdot a + \frac{N \cdot b}{S_0} \cdot \max(S_0 - S_T; 0)$$

Where the investor's participation in the performance of the underlying asset is also equivalent to the Call or Put Option, but with a strike price of S_0.

Where:

Notation	**Explanation**
R	Redemption Amount
N	Face Value
S_0	Original price of Underlying Asset
S_T	Price of Underlying Asset at Maturity

a	Guaranteed Redemption Amount
b	Participation Rate

Valuation

Where the currency of the product and that of the underlying asset are the same

Note that all payments typically take place at the end of the instrument's term. The products are valued using the relevant spot interest rates. Under the Black-Scholes Model, there is a closed formula for calculating the option premium. This formula applies to individual "assets", i.e. stocks as well as indexes but not to baskets of assets, equities or indexes.

For Call Options:

$$c = S_e^{-qT} N(d_1) - X_e^{-rT} N(d_2)$$

For Put Options:

$$p = X_e^{-rT} N(-d_2) - S_e^{-qT} N(-d_1)$$

Where for both:

$$d_1 = \frac{\ln(S/X) + (r - q + \sigma^2/2)T}{\sigma\sqrt{T}}$$

$$d_2 = d_1 - \sigma\sqrt{T}$$

Where:

Notation	Explanation
c	Premium of a call option (European) on 1 unit with price S at t=0. X is the exercise price and the option expires in T years.
p	Premium of a put option (European) on 1 unit with price S at t=0. X is the exercise price and the option expires in T years.
r	Risk free interest rate (constant) over the period of the option.
q	Dividend Yield
σ	Volatility of the asset
N(d)	Cumulative standard normal distribution at d

Valuation

Where the currencies are different, we distinguish two types:

(A) The price of the underlying asset is "translated" at the current spot rate on the issue date as well as the maturity date.

For Call Options:

$$R = N \cdot (a + \frac{b}{100} \cdot \max\left(\frac{E_T S_T - E_0 S_0}{E_0 S_0} \cdot 100; 0\right))$$

For Put Options:

$$R = N \cdot (a + \frac{b}{100} \cdot \max\left(\frac{E_0 S_0 - E_T S_T}{E_0 S_0} \cdot 100; 0\right))$$

Where:

Notation	Explanation
R	Redemption Amount
N	Face Value
S_0	Original Price of Underlying Asset
S_T	Price of Underlying Asset at maturity
a	Guaranteed Redemption Amount
b	Participation Rate
E_0	Exchange Rate on the Issue Date
E_T	Exchange Rate on the Maturity Date

For some issuers, the redemption payment for Call Options is described:

$$R = N \cdot a + \frac{N \cdot b}{E_0 S_0} \cdot \max\,(E_T S_T - E_0 S_0; 0)$$

For Put Options, is described:

$$R = N \cdot a + \frac{N \cdot b}{E_0 S_0} \cdot \max\,(E_0 S_0 - E_T S_T; 0)$$

The last part of the equation describes a European call/put option. The option is exercised when the price of the underlying asset in the product's issue currency ($E_T S_T$) is greater than the strike price ($E_0 S_0$), which is already known at the time of issue. Such options are referred to as **"foreign equity struck in domestic currency"** options and can be valuated with a closed formula.

For Call Options:

$$c = E_0 S_0 e^{-qT} N(d_1) - X_e^{-rT} N(d_2)$$

For Put Options:

$$p = X_e^{-rT} N(-d_2) - E_0 S_0 e^{-qT} N(-d_1)$$

Where for both:

$$d_1 = \frac{\ln(E_0 S_0 / X) + (r - q + \sigma_{ES}^2 / 2)T}{\sigma_{ES}\sqrt{T}}$$

$$d_2 = d_1 - \sigma_{ES}\sqrt{T}$$

Where:

Notation	**Explanation**
c	Premium of a Call Option "**foreign equity struck in domestic currency**" with price S at t=0. X is the exercise price and the option expires in T years
p	Premium of a Put Option "**foreign equity struck in domestic currency**" with price S at t=0. X is the exercise price and the option in T years
r	Risk free interest rate
q	Dividend Yield
σ_{ES}	Volatility of asset in the product's issue currency
N(d)	Cumulative standard normal distribution at d

(B) The change in price is measured in the original currency and then "translated" into the product's currency at the spot rate. The bonus return

For Call Option:

$$R = N \cdot a + \frac{N \cdot B}{S_0} \cdot E_T \max\left(S_T - S_0; 0\right)$$

For Put Option:

$$R = N \cdot a + \frac{N \cdot B}{S_0} \cdot E_T \max\left(S_0 - S_T; 0\right)$$

The options are valued in the underlying asset's currency using the usual Black-Scholes formula. The value in the product's currency is then determined by simply translating it at the current spot rates (*J. Christl, 2004*).

DeFi Composability

Composability is a feature of design wherein the various components of a system can be easily connected to form any number of satisfying results. It focuses on the idea that blockchain is best used as the underlying framework for how we interact in general rather than as a platform for a single type of application.

Now those elements can interact and even be configured into composite structures or flows with interoperable smart contracts. Any protocol or platform is composable if its existing resources can be used as building blocks and integrated into higher order decentralized applications. Composability leads to rapid and compounding innovation. The fact that most DeFi protocols are open source, developers across the globe can collaborate to create new products leading to innovation and maturation.

Current Decentralized Protocols

There are no existing decentralized protocols that support the building of decentralized Structured Products. There are however, few existing decentralized protocols that support derivatives although none that have any significant usage. There is also a protocol in development that will resemble the building or interest rate discovery toward that of a Zero-Coupon Bond.

In order for a decentralized structured product protocol to operate, there needs to be an effective way to price exchange digital blockchain assets. ***Acacia*** will work with any standard Ethereum-based decentralized exchange that enables token exchange at rates supplied by users.

DAI – the stablecoin "base currency"

Stablecoins are the fabric that attempt to peg their market value to some external reference. They are designed to tackle inherent volatility and are normally collateralized, meaning that the total number of stablecoins in circulation is backed by assets held in reserve.

The Maker Protocol employs a two-token system. The first being Dai, a collateral-backed stablecoin that offers stability. The Maker Foundation and the MakerDAO community believe that a decentralized stablecoin is required to have any business or individual realise the advantages of digital money. Second, there is MKR, a governance token that is used by stakeholders to maintain the system and manage Dai. MKR token holders are the decision-makers of the Maker Protocol, supported by the larger public community and various other external parties (*MakerDAO Whitepaper, 2020*).

The new version of the Maker Protocol, Multi Collateral Dai (MCD) is being released and live on the main Ethereum network; the biggest change is that it now accepts any Ethereum-based asset as collateral to generate Dai given that it has been approved by MKR holders and has been given specific, corresponding Risk Parameters through the Maker decentralized governance process.

Even though MakerDAO has some of the most secure smart contracts around, the traditional finance world does have a much longer history and with better studied and understood risks. A stablecoin needs something much more to rise above this competition. A dedicated community greatly assists in creating the necessary network effects and could make all the difference in the long run.

MakerDAO does have a broad support from the Ethereum community and is an ever increasingly established and thriving ecosystem; it's future is properly aligned with the democratising potential and the impending success of the open finance movement we are currently experiencing.

yToken – the "Zero-Coupon Bond"

Buying yTokens is economically similar to lending the target asset. Because yTokens are not redeemable until expiration, they are likely to trade at a discount until maturity, particularly if there is demand to borrow the target asset. This means the value of yTokens (denominated in the target asset) will tend to appreciate over time as they approach maturity. This is analogous to the interest earned by lenders in other protocols.

Thus, a yToken resembles a secured Zero-Coupon Bond in DeFi (*A. Niemerg, D. Robinson, 2020*). Upon expiration, the yToken can be redeemed for its face value.

yTokens from different vaults in the same token contract are fungible. yTokens enable a fungible market for fixed-term secured lending on-chain. By minting, holding and/ or trading yTokens, users can synthetically borrow and lend the target asset. Users are guaranteed a particular interest rate if they hold the position to maturity.

dYdX – Decentralized Options

The dYdX option protocol uses one Ethereum Smart Contract per type of option. A type refers to a given set of input parameters including the *base token* , *quote token*, strike price, and expiration date. *Base token* refers to the asset the option is for and *quote token* refers to the token in which the premium and strike price are denominated. Each option contract is able to issue new options of its type at any time before the option expiration date. The contracts can act as either a put or a call option by simply switching the *base token and quote token* and inversing the strike price (*A. Juliano, 2018*).

Writers of the option list offers for a specified lot size and premium on an off blockchain platform. Buyers can buy options from a writer by sending a transaction containing a write offer to the smart contract. After receiving such a transaction, the smart contract transfers the premium in *quote token* to the writer, and the offered amount of *base token* to itself. The buyer is issued options which can be transferred and traded as any other ERC20 token. The smart contract holds on to the *base token* until the option is either exercised or expired.

Any holder of the option can choose to exercise at any time before the expiration date. Upon exercise, the option holder pays *strike price* × (# *options*) of *quote token* to the smart contract and is sent # *options* of *base token* from the smart contract. The *quote token* paid to the contract is distributed to the writer or writers of the option. After the option expires, all writers can withdraw *base token* from the smart contract corresponding to:

$$\frac{Options\ written}{Total\ Options\ written} \cdot Total\ tokens\ held$$

Acacia Protocol

To be built on top of other protocols, the Acacia Protocol will enable the building of these sophisticated products, beginning with the simplest of them all, the Capital Guaranteed Product. Future developments within the DeFi space should allow for the product development to develop in tandem.

The ability for sophisticated investors to build towards portfolio optimization, tailoring to their respective specific requirements based on a broad array of underlyings, designed to facilitate highly customized risk-return objectives, will definitely increase the allocation flows into the space.

In its current limited form, this perilous space is unaccommodating to sophisticated investors desiring protection strategies i.e. principle guarantees, or portfolio optimization i.e. bespoke structures, or even, when speculative and willing to trade off some or all protection in favour of more attractive performance potential, strategies allowing for a more potent performance feature i.e. conditional 2x or 3x performance on an underlying asset. We foresee that continued development in this space would increase investment allocations, thus increasing further development in even more complex structures opening the doors for ever increasing allocations into a growing menu of strategies in the space.

Some examples of sophisticated structured products that could be developed in the future:

- Floored/ Capped/ Collared/ Reverse Floating Rate Notes;
- Multitranche “Bonds”, Step-up/Step-down “Bonds”;
- Barrier Notes and Binary Barrier Options;
- Interest Rate linked notes and other various asset linked notes;
- Thematic and other Bespoke strategies.

Translation of Acacia Protocol

Thanks to the advent of smart contracts, tokenized strategies for structured products can be created without the need for a third party. Counterparty agreements are now able to be programmatically encoded thus considerably reducing the risk for malicious activity. This development will permit retail investors access to investment opportunities previously restricted only to institutions, family offices, UHNWIs and other sophisticated investors.

The Acacia Protocol aims and intends to tailor and customize solutions for all major smart contracts distributed ledger infrastructures.

Governance

Acacia will consider using a DAO to govern upgrades to the protocol.

Especially important governance questions we ask in an era when the greatest efficiencies can be gained by technologies:

“Whom are we optimizing these efficiencies for?”;

“What should be done if the benefits are not broad-based?”;

“Will we modify so that it both increases the size of the pie and divides it well?”.

Market Participants

Market players looking for liquidity, should stay within the traditional markets. With the global Covid-19 pandemic, government mandated central bank enabled quantitative easing has recently been offered as relief to much of the traditional currencies, such helpful interventions have been lacking in the digital blockchain asset markets. Many investors thus still remain uncomfortable allocating meaningful amounts to digital blockchain assets. This is the main struggle of blockchain players, a struggle that is no longer about being that of legality, but a lack of allocation from traditional finance.

Investors who are looking for investments with a limited downside, as well as a possibility of having a return connected to “the market” would find attraction toward structured products that have a high focus on capital protection. These are usually risk-aversive investors who would only be looking at traditional portfolios with stocks and bonds combinations. Products that can provide a lower downside risk than competing traditional mixed funds will be an attractive investment alternative to them. With an increasingly sophisticated products offering, the DeFi space affords amplified allocations from safe yield seeking investments from the traditional finance arena.

Adoptability

Structured Products can provide tailored solutions in line with a specific strategy in all market configurations. Whilst they are a useful tool for portfolio management and risk control, they are nonetheless very sophisticated. This sophistication is needed to meet the specific requirements of investors who each have their own investment profile and market knowledge.

However, there remains a lack of understanding between the various stakeholders within and without the decentralized space; most blockchain enthusiasts do not yet understand traditional finance markets, nor have the ability to describe, examine, question, and analyse the sequence of past events and its many patterns of “cause and effect”. Likewise, traditional finance also needs to understand what digital blockchain assets are all about. The pseudonymity nature of blockchain may raise issues with transparency, however as more traditional finance institutions engage with the digital blockchain world, the more transparent it becomes. This fastening situation could be achieved with increased adoptability via the launch of decentralized Structured Products.

Conclusion

Humans have always been driven by a strong desire to improve speed, security, and convenience in everything we do; the decentralized finance space offers us some of these attributes although the cost of transactions and the resistance to change in time-honored financial settlements between financial institutions and investors remain ongoing challenges. Applications in Decentralized Finance have chiefly centered on building a parallel financial system to the functions and services of the traditional banking stack. Like all previous technology shifts, many issues remain open and quite predictably, methodical challenges will continue to make impromptu appearances.

The DeFi ecosystem’s exponential growth endorses its capacity for automating trust and facilitating collaboration while enabling liquidity. It strives to approach a convergence of protocols and platforms that reduces inefficiencies. The world’s appeal of blockchain assets has begun shifting from that of privacy and anonymity to that of convenience and security. This brave new frontier is now at a point of no return, with new use cases fueling development and vice versa. These technologies and their usage have yet to congregate to an accepted standard for all.

Acacia Protocol’s endeavor at developing this new DeFi use case will surely influence “top down” progression, expand “bottom up” democratic market reach by lowering high entry barriers and address habitual financial standards; it will also be an exciting catalyst for future challenges in the financial world, both decentralized as well as centralized.

Glossary

Call option	The right to buy the underlying asset at a specified price on a predetermined date (or dates).
Put option	The right to sell the underlying asset at a specified price on a predetermined date (or dates).
European option	An option which can only be exercised at expiration.
Strike price	The price at which the underlying asset can be purchased or sold when the option is exercised.
Underlying asset	The instrument which the parties agree to exchange in a derivative contract.

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