◉ Mycelium

Submission

ASIC Consultation Paper 343

Crypto-assets as underlying assets for ETPs and other investment products

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1. About Mycelium

Mycelium is a technology company, based in Brisbane, Australia. We specialise in building with blockchain technology, particularly within the data and finance industries. Our focuses are:

1. Providing secure, accurate and timely data, as part of a decentralised network, to smart contracts, in order to enable blockchain-based transactions (with self-executing settlement);
2. Enabling the community to visualise the end-to-end relationship between data and blockchain-based transactions (notably those occurring via decentralised finance applications);
3. Researching and investing in applications of blockchain technology, particularly relating to decentralised finance and other Web3 applications; and
4. Building financial applications with blockchain technology.

Mycelium is taking a considered approach to building with blockchain technology in Australia by ensuring that we: have strong partnerships and advice within Australia; consistently speak with other teams building with blockchain technology in Australia and abroad; and keep a close eye on other progressive jurisdictions. Our partnership with Blockchain Australia is very strong and continues to be an important vehicle for effecting positive change in the space. Building in Australia is a highly desirable outcome for us. We are "innovation maximalists looking to build on the cutting edge of technology with a global solution."[1]

In recent years, we have grown to employ over 50 Australians. Due to the nature of our work, we are largely interested in public blockchains. At the time of writing, the largest public blockchains are Bitcoin and Ethereum. However, by our estimations, there are currently over 1,200 public blockchains and well over 8,000 cryptocurrencies.

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[1] James Eyers, 'UQ alumni raise $6m for DeFi derivative system', Financial Review (online, 29 June 2021) <https://www.afr.com/companies/financial-services/meet-the-defi-developers-who-ve-raised-funds-for-a-derivatives-system-20210628-p5850t>.

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2. Executive Summary

We are grateful for this opportunity to contribute to Australian Securities and Investments Commission's ("**ASIC's**") Consultation Paper 343: Crypto-assets as underlying assets for ETPs and other investment products ("**CP 343**"). Our answers to the questions listed therein are detailed in Annexure 1 below. We have had the opportunity to review the comments of Piper Alderman in preparing this submission.

Australia is currently recognised amongst those nations leading blockchain innovation. The blockchain industry is broadly recognised as one of the fastest growing industries globally. Australia's opportunity to continue as a market leader in the blockchain industry cannot be overstated. In order for this to be achieved, the industry needs:

1. Institutional support for securing Australia's technical leadership in the nascent blockchain industry;
2. Clarity and support for innovators from a regulatory perspective; and
3. Governmental support for the peripheral blockchain education sector, to ensure clear communications for those curious about the technology.

To achieve each of these ends, industry consultation with those building within the blockchain industry is required.

We believe that it is somewhat short-sighted to talk about crypto-asset ETPs without talking about smart contracts. Crypto-assets are, themselves, usually generated and controlled by smart contracts. For this reason, the most efficient infrastructure for dealing in crypto-assets is usually one or more smart contracts. We expect that a regulatory solution developed for crypto-asset ETPs that does not properly contemplate the role of smart contracts will soon need to be redeveloped.

There are qualities inherent to smart contract-based crypto-asset ETPs ("**Smart Contract ETPs**") that inherently align with ASIC's stated aim to support "fair, orderly and transparent markets",[2] such as:

1. Accessibility: all market participants (globally) are interacting on the same terms;
2. Reliability (through being immutable code);
3. Defined risk frameworks: counterparty risk is managed algorithmically; and
4. Transparency (through being open sourced),

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[2] Australian Securities & Investments Commission, *Consultation Paper 343: Crypto-assets as underlying assets for ETPs and other investment products* (Consultation Paper, June 2021), 1.

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Through consultation, these kinds of products can be well aligned with regulations developed by ASIC, even more so than existing ETPs. We are aware that rogue smart contracts will lead to rogue outcomes. We recommend that regulation should focus upon ASIC defining a regime of mandatory minimum requirements for Smart Contract ETPs. This would require:

1. Standardised contract terms. A useful analogy here is the role of the International Swaps and Derivatives Association ("**ISDA**") in derivatives transactions today; and

2. Mandatory minimum standards for Smart Contract ETPs, including for:

    a. data provision (ie, oracles); and

    b. public disclosure of:

        i. The source code and bytecode ("**code**") underlying Smart Contract ETPs and the blockchains on which they exist (save for certain elements designed to preserve privacy);[3] and

        ii. An audit report that is prepared in accordance with mandatory minimum standards and compulsory registration for smart contract audits and auditors.[4]

If you have any questions or require further information, please do not hesitate to contact Jack Deeb at ▮▮▮▮▮▮▮▮▮▮▮▮▮▮

Yours sincerely,

Jack Deeb (for Mycelium)

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[3] Mycelium, Submission No 19 to Senate Select Committee on Australia as a Technology and Financial Centre (30 June 2021) 12 ("*Mycelium Bragg Submission*").

[4] ibid 12.

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Table 1: Mycelium's Answers to CP 343

Item	Question	Mycelium's Answer
B1Q1	Do you consider that crypto-asset ETPs should be available to retail investors through licensed Australian markets? Please provide details, including data on investor demand where available.	Yes While crypto-asset ETPs have remained largely unavailable to retail investors through licenced Australian markets, the demand for crypto-asset ETPs has boomed. Products like the Bitwise 10 Crypto Index Fund[5] were available as early as 2017. The product currently has U$748 million AUM and requires accredited investment status and a minimum contribution of U$10,000. Retail investors have been engaging with crypto-asset ETPs since 2018. One of the earliest cryptocurrency ETPs made available to retail investors was CRYPTO20[6]. The product has been traded consistently by retail investors since January 2018 (currently U$55 million AUM). Since then, we have seen an explosion of crypto-asset ETP products used by retail investors emerge, most of which rely on Smart Contract ETPs, such as Synthetix[7] (U$1.05 billion locked in protocol), Barnbridge[8] (U$262 million locked) and Set Protocol[9] (U$190 million locked). None of the projects mentioned above (nor any others that we are aware of) limit their product offering to BTC, ETH or a combination of the two.

5   Bitwise, *BITW: Bitwise 10 Crypto Index Fund* (Web Page) <https://www.bitwiseinvestments.com/funds/Bitwise-10>.
6   Crypto20 by Incticus (Web Page) <https://crypto20.com/en/>.
7   Synthetix (Web Page) <https://synthetix io/>.
8   Barnbridge, *SMART Yield* (Web Page) <https://app.barnbridge.com/smart-yield/markets>.
9   Set TokenSets, *Explore* (Web Page) <https://www.tokensets.com/explore>.

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Item	Question	Mycelium's Answer
B1Q2	Do you consider that crypto-asset ETPs should be cleared and settled through licensed Australian clearing and settlement facilities? Please provide details.	No Due to the relationship between crypto-assets and smart contracts, most crypto-asset ETPs will be more efficiently cleared and settled on blockchains using smart contracts, meaning that "settlement and depository functions employed in existing clearing systems would be largely unnecessary in an efficient DLT system".[10] Where clearing and settlement for crypto-asset ETPs happens automatically using smart contracts, relevant questions are: 1. Is a clearing and settlement facility licence needed? 2. Who should own the licence on behalf of the smart contract?
B1Q3	If you are a clearing participant, would you be willing to clear crypto-asset ETPs? Please provide your reasons.	No comment

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[10] Hogan Lovells and EY, *Innovate Finance: Blockchain, DLT and the Capital Markets Journey: Navigating the Regulatory and Legal Landscape* (Report, 2016), 7 <https://www.hoganlovells.com/~/media/hogan-lovells/pdf/publication/2016/hogan_lovells_innovate_finance_and_ey_blockchain-digital_spread.pdf>.

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Item	Question	Mycelium's Answer
B1Q4	If you are a trading participant, would you be willing to trade crypto-asset ETPs? Please provide your reasons.	Yes In our experience, traders engage with smart contract-based crypto-asset ETPs for the following reasons: 1. Accessibility: 100% service uptime, meaning constant access to the product and ability to enter and exit positions; 2. Transparency: ability to see and scrutinise the product's attributes, including: a. How the product works; b. Which and how other (pseudonymous) participants use the product; c. Where the data will come from that informs the transactions; and d. What results have others had when using the product; 3. Affordability: either due to product type (ie, automatically rolling futures versus traditional futures) or lower transaction fees; and 4. Variety: access to products that otherwise do not exist. For example, bitcoin miners who are looking to short their exposure to the price of bitcoin.

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Item	Question	Mycelium's Answer
B1Q5	Do you agree with our approach to determining whether certain crypto-assets are appropriate underlying assets for ETPs on Australian markets? If not, why not?	No We second the answer provided by Piper Alderman's answer to this question, as detailed in their submission. ASIC should regulate activities, not technology, and be technologically neutral in its approach.

B1Q6	Do you have any suggestions for additions or modifications to the factors in proposal B1? Please provide details.	We recommend that the factors are rethought in accordance with the following principles:
		1. Technology neutrality;
		2. The role of smart contracts; and
		3. The current state of regulation in Australia. In the past, it has been quite difficult to for institutions to:
		   a. create or support crypto-asset ETPs; or
		   b. create or support regulated futures markets for crypto-assets.
		
		Due to the global nature of crypto-assets, most crypto-assets, particularly those that retail or institutional investors would like exposure to, do not have issues with:
		1. Mature (ie, liquid) spot markets;[11]
		2. Service providers who are willing to support the ETPs; and
		3. Pricing data, because for any crypto-asset that exists on a public blockchain (ie, the overwhelming majority of crypto-assets), price data is completely public and readily available for use.

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[11] CoinGecko (Web Page) <https://www.coingecko.com/en>.

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Item	Question	Mycelium's Answer

B1Q7	Do you have any suggestions for alternative mechanisms or principles that could achieve a similar outcome to the approach set out in proposal B1? Please provide details.	We generally agree with the answer provided by Piper Alderman on this issue, in that, by treating crypto-assets as commodities (or some other catch-all definition), market licence operators can consider applications by issuers for listing and decide whether the asset proposed to back the ETP meets the listing rules. ASIC does not need to be involved in the proposed consultation.
		
		ASIC seeks to ensure that products are compliant with Australia's regulatory framework, including with respect to "custody, risk management and disclosure." In relation to these factors:
		1. Smart Contract ETPs are often non-custodial;
		2. Risk management can be assured by smart contract standardisation and suitable auditing processes, centred upon:
		  a. Logical verification by means of a mathematical proof;
		  b. Security verification by means of testing the functionality of security-critical properties;
		  c. Security verification by means of testing the substance, form and functionality of any oracle(s) used in the contracts; and
		  d. Security verification by means of testing the liquidation and insurance functions that automatically re-collateralise systems to mitigate counterparty risk; and
		3. Data relating to Smart Contract ETPs, and their underlying assets, is inherently publicly disclosed in real time.

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Item	Question	Mycelium's Answer
B2Q1	Do you agree that a new category of permissible underlying asset ought to be established by market operators for crypto-assets? If not, why not?	No It is necessary for ASIC to resolve uncertainty for current and potential licensees with respect to crypto-assets (ie, not just ETH and BTC). This will require ASIC to either: 1. Clarify that crypto-assets fall within one or more existing categories for permissible assets (ie, commodities); or 2. Add one or more new categories of permissible assets for crypto-assets. The scope for the nature and form of crypto-assets is infinitely broad.[12] Unless a catch-all approach is used (ie, all crypto-assets are commodities), appropriate definitions for categories and subcategories are necessary (to develop an effective taxonomy), which would require industry consultation.

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[12] Digital Law Association, Submission No 49 to Senate Select Committee on Australia as a Technology and Financial Centre (July 2021) 11 ("*DLA Bragg Submission*").

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Item	Question	Mycelium's Answer
B3Q1	Do you agree with the good practices in proposal B3 with respect to the pricing mechanisms of underlying crypto-assets? If not, why not?	Yes The principles detailed in CP 343 seem reasonable, with a caveat on (a)(iii). Further to our answer in item B1Q6, pricing data is not an issue for any crypto-asset that exists on a public blockchain (ie, the overwhelming majority of crypto-assets), price data is completely public and readily available for use. In our view, the core tenets of the International Organization of Securities Commission ("**IOSCO**") Principles for Financial Benchmarks (ie, Benchmark governance, Benchmark and Methodology quality and accountability mechanisms) are suitable, but can be addressed more directly and quantitatively by: 1. Standardised contract terms for Smart Contract ETPs, particularly with respect to the interaction between the ETP and its data; and 2. Mandatory minimum requirements for data oracles used by Smart Contract ETPs, by means of testing the substance, form and functionality of any oracle(s) used in the contracts (as mentioned in our answer to Item B1Q7).

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Item	Question	Mycelium's Answer
B3Q2	Are there any practical problems associated with this approach? If so, please provide details	Yes See our answer to Item B3Q1 above.
B3Q3	Do you think crypto-assets can be priced to a robust and transparent standard? Please explain your views.	Yes Further to our answers in Items B1Q6 and B3Q1, pricing data is not an issue for any crypto-asset that exists on a public blockchain (ie, the overwhelming majority of crypto-assets); price data is completely public and readily available for use. Relative to other assets, crypto-assets can be priced to a robust and transparent standard very easily.
B3Q4	Do you consider that a more robust and transparent pricing standard is achievable in relation to crypto-assets? For example, by using quoted derivatives on a regulated market. Please explain and provide examples where possible.	Yes To give an example to contextualise our answer to B3Q3, the 14th largest crypto-asset by market capitalisation (A$11.5 billion), Chainlink's LINK token, currently has 250 active spot markets, 33 perpetual swap markets and 11 futures markets.[13] The price data generated from these markets is readily available.
B4Q1	Are there any other good practice expectations in INFO 230 that need to be clarified or modified to accommodate crypto asset ETPs?	No comment

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[13] CoinGecko, *Chainlink (LINK)* (Web Page) <https://www.coingecko.com/en/coins/chainlink#markets>.

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Item	Question	Mycelium's Answer
C1Q1	Do you agree with our proposed good practices in relation to the custody of crypto-assets? If not, why not? Please provide any suggestions for good practice in the custody of crypto-assets.	No comment
C1Q2	Are there any practical problems associated with this approach? If so, please provide details.	No comment
C1Q3	Do you consider there should be any modifications to the set of good practices? Please provide details.	No comment
C1Q4	Do you consider that crypto-assets can be held in custody, safely and securely? Please provide your reasons.	Yes Holding crypto-assets on blockchain accounts is inherently secure (due to the inability for third parties to manipulate account balances). These crypto-assets will be held safely, provided that: 1. Private keys are properly managed by their custodian; and 2. Private keys are stored securely.
C1Q5	Do you have any suggestions for alternative mechanisms or principles that could replace some or all of the good practices set out in proposal C1? Please provide details.	No comment

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Item	Question	Mycelium's Answer
C1Q6	Should similar requirements to proposal C1 also be imposed through a market operator's regulatory framework for ETPs? If so, please provide reasons and how it could work in practice	No Smart Contract ETPs are generally non-custodial. Accordingly, none of the requirements to proposal C1 would be appropriate.
C2Q1	Do you agree with our proposed good practices in relation to risk management systems for REs that hold crypto-assets? If not, why not?	No comment
C2Q2	Are there any other regulations (other than KYC and AML/CTF) that should form part of an appropriate baseline level of regulation for crypto-asset trading platforms used by REs and connected service providers? Please provide details.	No comment
C2Q3	Are there any practical problems associated with this approach? If so, please provide details.	No comment
C2Q4	Are there any other matters related to holding crypto-assets that ought to be recognised in the risk management systems of REs and highlighted through ASIC good practice information? Please provide details and any specific proposals.	No comment

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Item	Question	Mycelium's Answer
C2Q5	Should similar requirements to proposal C1 also be imposed through a market operator's regulatory framework for ETPs? If so, please provide reasons and how it could work in practice.	No Smart Contract ETPs are generally non-custodial. Accordingly, none of the requirements to proposal C1 would be appropriate.
C3Q1	Do you agree with our proposed expectations regarding disclosure obligations for registered managed investment schemes that hold crypto-assets? If not, please explain why not.	No comment
C3Q2	Are there any practical problems associated with this approach? If so, please provide details.	No comment
C3Q3	Are there any additional categories of risks that ought to be specified by ASIC as good practice for disclosure in relation to registered managed investment schemes that hold crypto-assets?	No comment
C4Q1	Are there any aspects of the DDO regime that need to be clarified for investment products that invest in, or provide exposure to, crypto-assets?	No comment

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Item	Question	Mycelium's Answer
D1Q1	Do you agree that crypto-assets are capable of being appropriate assets for listed investment entities on Australian markets? If not, why not?	No comment
D1Q2	Do you agree with our proposed expectations for LICs and LITs that invest in crypto-assets to ensure equivalent standards are applied by market operators? If not, why not?	No comment
D1Q3	Are there any practical problems associated with this approach? If so, please provide details.	No comment
D1Q4	Are there additional standards which ought to apply via market operators to LICs or LITs that invest in crypto-assets? If so, what are these expectations and why should they apply?	No comment
D1Q5	Should LICs and LITs only be able to invest significant funds in crypto-assets if this is either set out in their investment mandate or with member approval? If not, why not?	No comment

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Item	Question	Mycelium's Answer
D1Q6	For the purposes of this proposal, we consider a material investment is where an entity invests or plans to invest more than 5% of its funds in crypto-assets. Should another materiality threshold apply	No comment
E1Q1	Do you agree with our proposal to establish a new asset kind that will cover crypto-assets?	No We echo our answer to Item B2Q1. It is necessary for ASIC to resolve uncertainty for current and potential entities engaging with crypto-assets (ie, not just ETH and BTC). This will require ASIC to either: 1. Clarify that crypto-assets fall within one or more of the existing asset kinds (ie, commodities); or 2. Add one or more new asset kinds for crypto-assets. The scope for the nature and form of crypto-assets is infinitely broad. Unless a catch-all approach is used (ie, all crypto-assets are commodities), appropriate definitions for asset kinds or subkinds are necessary (to develop an effective taxonomy), which would require industry consultation.

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Item	Question	Mycelium's Answer
E1Q2	Do you consider that crypto-assets may be captured by the existing asset kinds? If so, please explain.	Yes We generally agree with the answer provided by Piper Alderman on this issue, in that crypto-assets could be treated as commodities.
E2Q1	Do you agree with our approach to restrict the crypto-assets a registered managed investment scheme is authorised to hold (e.g. to bitcoin or ether)?	No Once it is clear which asset kind(s) apply(ies) to crypto-assets: 1. Managed investment scheme ("**MIS**") operators can, when writing their Product Disclosure Statement or Information Memorandum, consider whether they wish to hold a certain crypto-asset (just as they would any other asset); and 2. Investors can consider whether they wish to invest in a certain MIS holding crypto-assets (just as they would any other MIS). ASIC does not need to be involved in blacklisting or whitelisting each crypto asset. This approach would give rise to two key issues: 1. There are already approximately 8,000 crypto-assets (according to our estimates). Assessing each asset on its merits will lead to an extraordinary overhead and extraordinary delay; and 2. This approach is unlikely to be competitive globally. As mentioned above, since 2017, it has been extremely rare for crypto-asset ETPs to limit their offering to BTC and ETH.

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Item	Question	Mycelium's Answer
E2Q2	Do you consider there are any other aspects of the AFS licensing regime that need to be clarified or modified to accommodate investment products that invest in, or provide exposure to, crypto-assets?	Yes Smart Contract ETPs, and their underlying crypto-assets, often exist on or are governed by decentralised blockchain-based systems ("**decentralised systems**").[14] The types of entities currently making up decentralised systems are:[15] 1. Software developers: who write code for the decentralised system (or part of the system); 2. Auditors: who review the code for the decentralised system, to ensure it works as intended and is secure; 3. Governors: who participate in proposals and votes in order to make changes to the decentralised system; 4. Token-holders: who hold some rights (governance, economic, utility, etc.) in relation to the decentralised system; 5. Oracles: who provide data to decentralised systems, allowing them to make decisions or execute transactions; 6. Graphical user interface ("**GUI**") providers: who build, deploy or maintain a GUI (including a website or app) to the decentralised system; and 7. Users: who use the decentralised system (both retail and institutional). *[cont. on next page]*

[14] Mycelium Bragg Submission (n 3) 4.
[15] Ibid 10.

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Item	Question	Mycelium's Answer
E2Q2	Do you consider there are any other aspects of the AFS licensing regime that need to be clarified or modified to accommodate investment products that invest in, or provide exposure to, crypto-assets?	*[cont. from previous page]* Under the current AFS licensing regime, it is unclear whether, and in what contexts, these entities require an AFS licence. We refer to our submission provided to the Senate Select Committee on Australia as a Technology and Financial Centre's consultation on Australia's role as a technology and financial centre[16] for our explanation of the problem, and our recommendations for the best path forward.

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[16] bid.