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Governing the Wild West of Blockchain: Corporate Governance Issues with DAOs

Chris Coon

Decentralized Autonomous Organizations ("DAO") have promised a new democratized age of corporate governance. They claim to allow completely open corporate structures of hundreds to millions of internet users to vote as a board of directors on internet companies and allow all investors to share in business decisions anonymously and without judgment. However, early DAOs have proven not to protect minority investors as project teams and entrepreneurs still maintain the lion's share of the influence and, without service of process or regulation, oppress and marginalize dissenting voices in business operations. This paper will explain how DAOs have not lived up to their ideals and how a new regulatory framework is required to protect minority investors and sacrifice some of the alleged benefits of DAOs, like anonymity. This comment proposes that state governments should require a minimum level of transparency into DAO voting operations and major stakeholders and provide regulatory and judicial vehicles to protect minority investors.

I. Background on DAOs

DAOs take many forms; thus, there is a mosaic of the good, the bad, and the ugly within the industry. Within "the good" exists The ENS (The Ethereum Naming Service) DAO. The ENS is an example of many things that one would want from a DAO or any organization, including financial reports, an open governing system, as well as a profitable business model.[1] Within the bad exists Index Coop. Index Coop appears profitable, decentralized, and open, but similar to many DAO projects, it is ripe with incestuous business relationships that are not immediately

[1] ENS DOCUMENTATION, https://docs.ens.domains/v/governance/ (last visited Dec. 16, 2022); INDEX COOP., https://indexcoop.com/index-token (last visited Dec 16, 2022).

obvious. [2] [3] Many organizations other than Index Coop create valuations of the financial products that Index Coop create, but those organizations are often subsidiaries of Index Coop or the engineering team that underlies the program. [4] Within the ugly resides groups such as The DAO[5] and Olympus DAO. These DAOs either created faulty code that created exploits for hackers or capitalized on anonymity to defraud business partners and avoid the long arm of the law.[6] All these organizations have a common thread: they exist outside of many state or federal governing structures that allow for predictable commerce between owners, entrepreneurs, and customers. As noble or as horrid as their activities are, business never relies on the goodwill of others and requires predictable business decisions in light of thoughtful regulation and judicial determinations.

DAOs can be thought of as a discrete corporate governance structure. A DAO is not unlike a limited liability company, publicly traded corporation, or partnership in the sense that they have their own rules and habits that dictate how the stakeholders decide to run the organization. A DAO requires some basic attributes that link the stakeholders together. In order for a DAO to exist, there must be four things: a blockchain, a smart contract, a token [7], token-holders, and, ideally (though not required), an interface for them to vote.[8]

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[2] INDEX COOP., https://indexcoop.com/index-token (last visited Dec 16, 2022).

[3] DeFinn, *Index Coop Launches New Leverage Index on Polygon Using Pulse.inc's FLI Methodology*, DeFi Pulse (Feb. 4, 2022) https://www.defipulse.com/blog/index-coop-launches-new-leverage-index-on-polygon-using-pulse-incs-fli-methodology.

[4] *Id.*

[5] The DAO was the first DAO and named itself after the governing structure.

[6] LAURA SHIN, THE CRYPTOPIANS 144, (Public Affairs, 1st ed., 2021).

[7] A token here is a digital asset that is on a blockchain, a bitcoin, an eth (Ethereum token), and many other tokens can fall into this category. The tokens that are important for the above stated DAOs are: ENS Token (ENS), INDEX (Index Coop), ETH Classic (The DAO), and OHM (Olympus DAO),

[8] *The Book of Jargon Blockchain, Crypto, & Web3*, Latham & Watkins, at 20 (2nd ed. 2022). https://www.lw.com/admin/Upload/Documents/Books%20of%20Jargon/boj-blockchain-crypto-web3.pdf

A blockchain is an immutable ledger.[9] This immutable ledger can only receive records of transactions, verify them, and record them.[10] These transactions can include executable code, transfers of assets, or the creation of wallets in order to send and receive assets.[11]

A smart contract is a piece of code that is deployed to a blockchain which can do many things outside of operating a DAO.[12] A smart contract that governs a DAO is called a governance smart contract.[13] It is a code that verifies token-holders, receives information on proposals, executes proposals, and maintains a record of all proposals and information on the DAO. [14]

Generally, one of the first things encompassed in a governance smart contract for a DAO is the code to create or assign the token that is the representation of a token-holder's stake in the DAO.[15] These tokens can already exist, or, more generally, can be created by interacting with the smart contract, and such is the case of the Index Coop and the INDEX token.[16] Whether or not these tokens existed before or after the deployment of the governance smart contract to the blockchain, these tokens then become governance tokens (in addition to whatever utility they may have had prior).[17] These governance tokens are digitally stored in wallets that individual users create and have exclusive access to.[18] The governance tokens serve as the digital asset that provides the token-holder the right to vote on DAO proposals, not unlike a stockholder's rights.[19]

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9 *Id.* at 10.
10 *Id.*
11 *Id.* at 25.
12 *Id.* at 59.
13 The Book of Jargon Blockchain, Crypto, & Web3, *supra note* 8, at 20.
14 *Id.* at 32.
15 *Id.*
16 *Id.*; INDEX COOP., https://indexcoop.com/index-token (last visited Dec. 16, 2022).
17 The Book of Jargon Blockchain, Crypto, & Web3, *supra note* 8, at 32.
18 *Id.*
19 *Id.*

The difference between a governance token and a stock certificate is the token provides the actual utility needed to vote on proposals. Thus, the governance token provides the right but also is the means by which one votes on a technical level.[20] The last essential element of the DAO is the token-holders.

The token-holders are people or entities that control wallets that contain the smart contract tokens on the blockchain. Wallets are digital locations on the blockchain in which assets are stored.[21] The token-holders are the voting members of the DAO.[22] The token-holders store the governance tokens in their digital wallets, and when they want to add a proposal or vote on a proposal, they connect these wallets to a website that communicates with the governance smart contract.[23] The token-holders are then able to vote for or against the proposals in proportion to their votes or in whatever voting method the smart contract determines.[24] These four things, the blockchain, the governance smart contract, the token, and the token-holders, are the essential elements of a DAO.

Ideally and the most successful DAOs operate through an interface that allows for easy votes and easy reading of the passed votes taken by the DAO. These interfaces can take many forms, but the most popular is snapshot.org. Websites such as snapshot.org act as a gateway to interface with the governance smart contract. [25] All one requires is a wallet plug for their web browser, and a wallet that contains the governance tokens to connect to snapshot.org.[26] Once a

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[20] It is similar to if owning the key to a house allowed one to vote in the homeowners' association meeting when the key is presented at the meeting. The key has both utility to open the house and allows voting rights at the meetings.

[21] The Book of Jargon Blockchain, Crypto, & Web3, *supra note* 8, at 35.

[22] *Id.* at 32.

[23] *Id.*

[24] *Id.*

[25] SNAPSHOT DOCUMENTATION, https://docs.snapshot.org/ (last visited Dec. 16 2022).

[26] *Id.*

user connects their wallet to snapshop.org they can propose changes to a DAO, vote and change the operating structure based on the DAO's self-determined governance rules.[27] This is an unprecedented democratization of corporate governance and is a radical departure from conventional corporate governance structures.

DAOs are inherently governance structures for organizations. They advertise as trustless and open-source where all actions are recorded, viewable, and amenable. [28] They also provide the democratization of finance and corporate governance. [29] Not only can people buy stakes through decentralized and centralized exchanges, but they can also have a proportionate amount power in determining the governance of the companies that they believe in.[30] This is a radical governance structure.[31] DAOs act similarly to a corporation structure that essentially removes the board of directors for sake of the shareholders.[32] The shareholders in an efficient and organized way can contract corporate executives, contract assignments out to others, and change the governing smart contract by consensus.[33] This techno-utopian vision of democratized governance that forsakes corporate director fat cats for the hard-working proletariat is highly experimental and DAOs brief life cycle has not been without flaws.

II. The Good, The Bad, and The Ugly

[27] *Id.*

[28] LAURA SHIN, THE CRYPTOPIANS 121–28, (Public Affairs, 1st ed., 2021).

[29] *Id.*

[30] *Id.*; Crypto currency exchanges come in two flavors centralized and decentralized. Centralized exchange such as Binance, Coinbase, and the defuncted FTX hold digital assets in custodial accounts. Decentralized exchange such as sushiswap allow users to trade self-custodial assets from liquidity pools directly to their wallets.

[31] LAURA SHIN, THE CRYPTOPIANS at 121–28.

[32] *Id.*

[33] *Id.*

Within the good of DAOs is the ENS. The ENS's primary function is to mint and sell Ethereum naming services.[34] This service allows a user to create a unique name across the Ethereum network that can be unique to that user.[35] These names are denominated with the ".eth" at the end.[36] The names can be used for usernames and website domain names.[37] They created a fungible market to exchange websites and screen names for the internet for those who require specific branding.[38] This is not unlike large name brands that buy the rights to use the ".com" domain names for websites in web 2.0.[39] The ENS also has many of the properties one may hope for in any corporate structure let alone a DAO.

The ENS has many corporate characteristics that are desirable for a company. The ENS has over 86,000 members.[40] This means that 86,000 wallets have been connected to the DAO on snapshot.org to take part in the governance structure.[41] The ENS lets any of its members who hold more than 10,000 ENS take part in the voting process.[42] Any member however with ENS can vote on a proposal.[43] This gatekeeping procedure is in place to stop a mass of proposals, but smaller shareholders still maintain a delegation power within the governance structure to compile their shares into one combined position.[44] Additionally, ENS post their financial records

[34] ENS DOCUMENTATION, https://docs.ens.domains/v/governance/ (last visited Dec. 16, 2022).
[35] *Id.*
[36] *Id.*
[37] *Id.*
[38] *Id.*
[39] Web 2.0 is the current internet structure with centralized server systems. This is compared to Web 3.0 which is built of a decentralized blockchain server. *The Book of Jargon Blockchain, Crypto, & Web3*, Latham & Watkins, at 32 (2nd ed. 2022). https://www.lw.com/admin/Upload/Documents/Books%20of%20Jargon/boj-blockchain-crypto-web3.pdf
[40] ENS SNAPSHOT, https://snapshot.org/#/ens.eth (last visited Dec. 16 2022).
[41] *Id.*
[42] ENS SNAPSHOT GOVERNANCE PROPOSAL, https://snapshot.org/#/ens.eth (last visited Dec. 16 2022).; At the time of this writing ENS traded between $20.38 and $10 per token meaning that the cost to propose any changes would be between $203,000 and $10,000. https://www.coinbase.com/advanced-trade/ENS-USD.
[43] *Id.*
[44] ENS SNAPSHOT DELEGATE, https://snapshot.org/#/delegate/ens.eth (last visited Dec. 16 2022).

regularly in order to be viewed by stakeholders.[45] They include many financial documents such as cash flow, assets and liabilities among others.[46] This is not unfamiliar to publicly traded companies and the token-holders have come to expect as much from the ENS project team.[47] [48] The team is responsive, active, transparent and accountable. [49] This is an ideal DAO though many DAOs have not lived up to this ideal organization. One of the DAOs with bad characteristics at first glance seems similar to ENS but differs in some key unsustainable ways.

The Index Coop at first glance looks similar to ENS, but still falls into the bad category for long-term DAO survival. The Index Coop is a DAO that creates and sells financial products.[50] Under lying the Index Coop is Set Labs who is the group responsible for creating computer programing architecture that enabled the Index Coop DAO and the financial products that Index Coop creates, but it is a separate entity.[51] There are over 1,400 members of the Index Coop DAO.[52] A member needs 1,000 INDEX tokens to make a proposal.[53] Thus buy in value is thus subject to the volatility associated with the token.[54] Additionally, the Index Coop DAO allows users to delegate their tokens to specific positions.[55] The token-holders of Index Coop include the Index Coop project team, the Set Labs project team and the token is publicly traded.[56]

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[45] ENS DOCUMENTATION META-GOVERNANCE WG BUDGET, https://docs.ens.domains/v/governance/governance-proposals/term-2/ep16.1-executable-q3-and-q4-2022-meta-governance-wg-budget (last visited Dec. 16 2022).
[46] *Id.*
[47] A project team is generally the main force behind digital asset projects. They usually deployed the original smart contract and token by setting out a white paper and other such entities.
[48] U.S. SECURITIES AND EXCHANGE COMMISSION, "SEC Filings & Forms (EDGAR)," https://www.sec.gov/edgar.shtml (last visited Apr. 24, 2023).
[49] DISCUSS ENS, https://discuss.ens.domains/ (last visited Dec. 16, 2022).
[50] INDEX COOP OUR PRODUCT RANGE, https://indexcoop.com/products (last visited Dec. 16, 2022).
[51] INDEX COOP OPTIMISM, https://www.tokensets.com/trader/IndexCoopOptimism (last visited Dec. 16, 2022).
[52] INDEX COOP SNAPSHOT, https://snapshot.org/#/index-coop.eth (last visited Dec. 16 2022).
[53] *Id.*
[54] At the time of writing this INDEX traded between $2.36 and $2.03 which means that it would require between $2,030–$2,360 in a wallet to write a proposal to the Index DAO.
[55] INDEX COOP SNAPSHOT DELEGATE, https://snapshot.org/#/delegate/index-coop.eth (last visited Dec. 16 2022).
[56] $INDEX- GOVERNANCE TOKEN, https://docs.indexcoop.com/governance/the-index-token (last visited Dec. 16 2022).

Most of Index Coop's financial products can be thought of as a mutual funds of crypto tokens.[57] Index Coop bundles a certain amount of different crypto tokens into a fund and then sells a different crypto token that represents the fund.[58] These different funds include yield generating, leverage/ inverse products, NFT index, and a metaverse token index.[59] One of these such products is the Decentralized Finance Pulse Index ("DeFi Pulse").[60] DeFi Pulse is Index Coop's most successful product and is focused around tracking "the most successful DeFi products." [61]

DeFi Pulse is Index Coop's most successful DeFi product.[62] The market cap for DeFi pulse is 32.97 million between all the DeFi Pulse tokens ("DPI") in circulation.[63] Index Coop in conjunction with Set Laps created DPI and Index Coop collects .95% of the fund for maintaining the infrastructure.[64] Once a month, an entity called Scalara restructures DPI to maintain the desired proportions of tokens and releases the new value of the product.[65] Scalara uses an open-source methodology that can be viewed online.[66] Scalara, however, is a new name for the organization.[67] Prior to being named Scalara, the entity that was in charge of valuing the DPI was

[57] *Id.*
[58] *Id.*
[59] INDEX COOP OUR PRODUCT RANGE, https://indexcoop.com/products (last visited Dec. 16, 2022).; Yield Generating products are tokens that by holding or staking them in a blockchain a user is able to receive more of the digital asset. Staking a digital asset stabilizes a blockchain network and for doing so the user receives more of the digital asset in return.; NFT stands for "Non-fungible Token" and while can take many forms is generally associated with unique productions of art; The metaverse is a concept that involves digital worlds that allow users to play in a video game style world associated with a blockchain (Facebook owns the largest "metaverse" and it is not associated with blockchain technology).
[60] INDEX DEFI PULSE INDEX (DPI), https://indexcoop.com/defi-pulse-index-dpi (last visited Dec. 16, 2022).; Decentralized Finance ("DeFi") is a term used in opposition to traditional finance ("TradFi") or centralized finance ("CeFi"). Traditional and Centralized Finance is similar to an investment bank where a centralized actor acts as a trusted third part between transactions. DeFi over the blockchain allows the ability to remove the trusted third party for an automated system that does not require trust in favor of a peer to peer system.
[61] INDEX DEFI PULSE INDEX (DPI), https://indexcoop.com/defi-pulse-index-dpi (last visited Dec. 16, 2022).
[62] *Id.*
[63] *Id.*
[64] *Id.*
[65] *Id.*
[66] DEFI PULSE INDEX: A METHODOLOGY DEEP DIVE, https://www.scalara.xyz/blog/defi-pulse-index-a-methodology-deep-dive (last visited Dec. 16 2022).
[67] Christopher Gackstatter, *Pulse.inc is now Scalara*, defipulse.com Blog (Mar. 04 2022). https://www.defipulse.com/blog/pulse-inc-is-now-scalara.

called pulse.inc, a subsidiary of the DPI entity.[68] Scalara's opaque role in the valuation of DPI is deepened because there is no named product team or group of people that are responsible for it.[69] This complex web of products, entities, and valuation methods create some concerning outcomes for the Index DAO Coop token-holders.

Index Coop is similar to ENS on the surface, but has several drawbacks that make it difficult to say it's a good DAO. Firstly, Index Coop to its credit has substantial open-source information. The Index Coop website is open about how many tokens they hold, and the DAO governance structure.[70] The DAO is even responsive to nonmanagerial token-holders such as Set Labs.[71] A member of Set labs wrote an open letter to the Index Coop DAO arguing to winddown certain unprofitable products.[72] It eventually led to a streamlining of Index Coop's products in the wake of the so-called crypto winter.[73] The apparent transparency and responsiveness ends here, however.

The ambiguous nature of the Scalara organization and how much overlap it maintains with Index Coop, Set Labs, and the DPI shows the inherent weakness of anonymous and pseudo-anonymity within DAOs. Traditional Finance hosts many third-party organizations such as Standard and Poor's, Moody's, tax auditors, and others on top of their transparency to rate and

[68] It should be noted here, DPI is at different times referred to as a separate "entity" and as a "product" of Index Coop. Obviously it cannot be both, but considering that there is no governance of DPI outside of Scalara and the Index Coop it is more likely a product than a separate organization.; Christopher Gackstatter, *Pulse.inc is now Scalara*, defipulse.com Blog (Mar. 04 2022). https://www.defipulse.com/blog/pulse-inc-is-now-scalara.

[69] SCALARA ABOUT, https://www.scalara.xyz/about#hubspotForm (last visited Dec. 14, 2022).

[70] $INDEX- GOVERNANCE TOKEN, https://docs.indexcoop.com/governance/the-index-token (last visited Dec. 16, 2022).

[71] Felix Fen ("@setoshi"), *Index Coop Open Letter*, IndexCoop.com Blog (Apr. 11, 2022). https://gov.indexcoop.com/t/index-coop-open-letter/4147.

[72] *Id.*

[73] *Id.*

value the company.[74] Here we have an incestuous relationship where the parties in charge of determining the worth of products, indexes' and organizations are generally the very same entity or substantially overlapping with the same entity.[75] Even if there was a time when these entities were the same, and they have since separated, there is no public source information that can confirm this for token-holders or others which is the stated claim and benefit of DAOs. [76] While this information is hashed out, there is a multimillion-dollar organization owning a multimillion-dollar product and selling this product to a public that cannot verify the authenticity of the stated value. It is impossible to confirm any wrongdoing from publicly sourced information, but this opaque nature is enough to give supporters of DAO's pause to the mysterious inner workings of the Set Labs, Index Coop, DeFi Pulse, and Scalara's groups. Although Index Coop could end up being a dubious enterprise, it is not the worst offender in the issues with DAOs nor is it the ugliest among the world's DAOs.

The first widely used DAO, The DAO, proved to be one of the ugliest examples of the dangers of DAOs as a corporate governance model. In 2016, members of the Ethereum network created the first smart contract to operate a DAO.[77] They called the first DAO "The DAO" and envisioned a crowd-sourced venture capital organization.[78] Users stored their ETH in the DAO and received DAO tokens in exchange.[79] This crowdsourcing was so successful the DAO held 3% of the all ETH in circulation during early funding.[80] The DAO also had the ability to create

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[74] INVESTOPEDIA, "Credit Rating Agencies and the Financial Industry," https://www.investopedia.com/articles/investing/071415/role-credit-rating-agencies.asp (last visited Apr. 24, 2023).

[75] *See Supra Footnote 68*

[76] *Id.*

[77] LAURA SHIN, THE CRYPTOPIANS at 121.

[78] *Id.* at 127.

[79] *Id.* at 124.

[80] *Id.* at 133.

additional DAOs or Baby DAOs through self-executing code.[81] This early DAO had very little of the above infrastructure, and the code was highly experimental, but it achieved many of the desired goals of DAOs.[82] The DAO was distributed, anonymous, open-source, and immutable with a community vote of the governance smart contract.[83] The DAO was so successful that it was hacked suddenly, and $150 million ETH was locked in the DAO and in the process of being siphoned off into a Baby DAO or the Dark DAO.[84] It was originally thought to simply blacklist the hacker DAO and redistribute funds, but the way the hacker chose to attack the DAO was, technically speaking, completely within the bounds of the DAO.[85] By blocking the hacker, it could disprove the entire idea of DAOs.[86] Eventually, this ended with users' funds being returned and a hardfork of the Ethereum network.[87] In this situation, the DAO was so faulty and insecure that it caused an existential crisis for the Ethereum blockchain and resulted in two separate tokens ETC (Ethereum Classic) and ETH (Ethereum).[88] Although in their infancy, DAOs continue to have negative outcomes beyond what is acceptable to developing sectors, and even more mature DAOs have proven to not operate as well as one might hope.

Another example of an ugly DAO is the Olympus DeFi DAO. This DAO maintained similar DeFi protocols based on staking tokens for peer to peer transactions that would earn yield in a trustless decentralized way.[89] The DAO promised 10,000% APY return on initial

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[81] *Id.* at 124.
[82] *Id.*
[83] *Id.* at 124.
[84] LAURA SHIN, THE CRYPTOPIANS at 143–44.
[85] *Id.* at 150–51.
[86] *Id.* at 146.
[87] *Id.* at 158.; A hardfork is when the distributed computers that maintain a record of the blockchain agree to change the code so radically that there are now two distinct blockchains.
[88] LAURA SHIN, THE CRYPTOPIANS at 183.
[89] OLYMPUS DAO HOW TO PARTICIPATE, https://www.olympusdao.finance/#how-to-participate (last visited Dec. 16, 2022).

investments and was able to achieve that goal for many backers.[90] The Olympus DAO exemplified DAOs commitment to anonymity in that their founders only went by Zeus and Apollo with no real identities known.[91] This functioned well enough until one of the first founders took issue with being technologically abridged from selling their early shares and sued them in court.[92] The plaintiff in this case claimed to know who the person was, but the identity has yet to be revealed and service of process was on the individual not the organization.[93] Additionally, the Olympus DAOs spinoff DAO's founder, wonderland, recently unmasked its founded to find it was a convicted felon that would not be qualified to be a corporate officer in many states.[94] This example shows the real shortfalls of anonymity and centralized finance masquerading as unverified decentralized finance.

The mosaic of good, bad, and ugly outcomes for DAOs embody different possibilities of outcomes with DAOs. All these outcomes may be within the spectrum of risk the original entrepreneurs take but likely will not be acceptable to smaller investors who may have less tokens at stake but high proportions of their network at risk. If these minority investors are not adequately protected through legal channels, then DAOs sacrifice arguably their greatest good which is the democratization of the corporate structure. In order to create better and more predictable DAOs to foster innovations, it is important to analysis some of the better elements of corporate governance structures and apply them to DAOs.

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[90] Sam Kessler, *Olympus Dao Co-Founder Doxxed? Lawsuit Claims To Unmask "Apollo"*, https://www.coindesk.com/business/2022/04/14/olympusdao-co-founder-doxxed-lawsuit-claims-to-unmask-apollo/ (Apr. 14, 2022).

[91] *Id.*

[92] *Id.*

[93] *Id.*

[94] *Id.*

III. The Civilized World's Traditional Corporate Governance Statutory Protections and Their Relation to DAOs

One of the first ground rules corporate governance provides in standardizing organizations is provide examples of articles of incorporation and fill in then blank forms for limited liabilities companies. Business groups create these documents in order to head off many issues that generally arose when people form business groups together such as voting power, deadlock issues, and other procedural rights.[95] New Jersey's limited liability company act restricts the organizations ability to limit duty of loyalty and care among other things.[96] This could be easily applied to DAO's as a baseline structure to govern their behavior. One could imagine if the Model Business and Corporations Acts ("MBCA") created one for DAOs it could be designed to preempt many issues seen above and explored below.

Another protection for minority investors is the alternative voting procedures. Many corporate boards are elected by shareholders through a straight vote, however the California allows for allotted voting among other types of voting structure.[97] Since the DAO is so focused on the proposal system through a smart contract, standard voting procedures would be a natural fit in order to protect minority investors from larger entities within the DAO.

Another protection for minority shareholders is preemptive purchasing rights. In some jurisdictions, minority shareholders are allowed to receive first rights to buy up stakes in organizations when they become available. [98] This type of standard procedure as applied to

[95] FINDLAW, "What Types of Legal Procedures Should Corporations Maintain," https://www.findlaw.com/smallbusiness/incorporation-and-legal-structures/what-types-of-legal-procedures-should-corporations-maintain.html (last visited Apr. 24, 2023).
[96] NJ Rev Stat § 42:2C-11 (2018).
[97] Ca. Corp. Code § 708 et al.
[98] Model Business Corporation Act § 6.30 et al. (2021).

DAOs would allow for minority token-holders substantial power should the project team or larger holders choose to adopt other practices to the DAO that change the proportion of votes, and tokens in supply such as burns.[99] This would also protect minority token-holders from project teams that effectively control a poison pill level of stock and can dilute the companies DAOs token at will.[100]

Another power to protect minority shareholders is veto power on certain corporate changes. In the world of corporations certain actions cannot be taken without stockholder consent.[101] In the world of DAOs these powers are largely at the whim of the project team and the minority shareholders would not have a say. If some of these veto powers were statutorily allowed then it would assist in more protections.

Minority stakeholder also can negotiate for employment rights in organizations they are a part of. One major aspect of a DAO is the ability to contract work to be done for the DAO and reward their workers in cryptocurrencies. A provision allowing certain amounts of stakeholders to be able to work for the DAO as an active agent would go a long way to increase how much power a minority token-holder has in a DAO as well as increase their economic yield from it away from a project team.[102]

[99] Often in less reputable token projects, tokens will be "burned" by the project team or removed from circulation creating a deflationary effect on the token supply. In the case of a DAO this could effect the proportion by which voters are allocated.

[100] INVESTOPEDIA, "Poison Pill," https://www.investopedia.com/terms/p/poisonpill.asp (last visited Apr. 24, 2023).

[101] FINANCIAL INDUSTRY REGULATORY AUTHORITY, "Get on Board: Understanding the Role of Corporate Directors," https://www.finra.org/investors/insights/get-board-understanding-role-corporate-directors (last visited Apr. 24, 2023).

[102] HR DAILY ADVISOR, "Benefits of Making Your Employees Shareholders," https://hrdailyadvisor.blr.com/2019/02/05/benefits-of-making-your-employees-shareholders/ (last visited Apr. 24, 2023).

Along with employment rights, minority stakeholders can also be protected by non-compete clauses. This ensures that a project team will not be able to double dip by taking resources and expertise from the minority stakeholders to rival DAOs or more conventional organizations.[103] Along with this benefit it would be beneficial if the employees and larger stakeholders of the DAO had an explicit duty of good faith and fair dealing to their co-token-holders and the DAO writ large.[104] The DAOs loose affiliation with members could easily become ripe with conflicting interests and minority stakeholders could be hurt by such an agreement without proper protections.

Dividends are another benefit all stockholders can receive from a corporation. Model Business and Corporations Act specifies specific rules in or to distribute and vote on distribution of dividends and this clarity could be useful for the DAO area.[105] Minority token-holders in a DAO, since DAO's replace the board of directors, would be helped if they were able to have dividends built into the smart contract platform as a large token-holder project team would be to easily vote out their right to any dividends at whim.[106]

One of the most important protections minority stakeholders need are information rights.[107] In all corporate structures, minority stakeholders have a right to see the books and

[103] U.S. Department of the Treasury, Office of Economic Policy, Non-Compete Contracts: Economic Effects and Policy Implications (2016), https://home.treasury.gov/system/files/226/Non_Compete_Contracts_Econimic_Effects_and_Policy_Implications_MAR2016.pdf (last visited Apr. 24, 2023).
[104] LEXISNEXIS, "Commercial Transactions: The Implied Covenant of Good Faith and Fair Dealing," https://www.lexisnexis.com/supp/largelaw/no-index/coronavirus/commercial-transactions/commercial-transactions-the-implied-covenant-of-good-faith-and-fair-dealing.pdf (last visited Apr. 24, 2023).
[105] Model Business and Corporations Act § 6.23 et al (2021).
[106] INVESTOPEDIA, "5 Reasons Why Dividends Matter to Investors," https://www.investopedia.com/articles/investing/091015/5-reasons-why-divid.ends-matter-investors.asp. (last visited Apr. 24, 2023).
[107] William J. Piercy, "You Want to See My What?!?: An Owner's Right to Inspect Business Records," https://www.bfvlaw.com/you-want-to-see-my-what/ (last visited Apr. 24, 2023).

records of the organizations at any level of ownership.[108] DAOs pride themselves on this but these books are generally on the honor system and not verified by third parties or required by law. This would be an important statutory protection.

Perhaps the most important part the minority stakeholder protection in any entity is liability protection.[109] Corporate structures, and limited liability structures benefit immensely from the liability protection that they provide their members.[110] DAOs operate in a substantially grey area of the law and this has stifled growth for majority and minority stakeholders alike. Currently the Commodities Futures and Trading Commission proposes that DAOs are a mere partnerships as unincorporated entities.[111] This could imply that by mere holding of the token and the ownership interest one could be fully and personally liable for any wrongdoing or debts and obligations done by a project team or any managing member of the DAO.[112] DAO's have found unsafe homes in the United States without clear regulation and outside of Vermont, Wyoming and Tennessee no states have enacted DAO regulations that would insulate members from liability.[113] This protection is crucial to be statutorily applied.

Finally, one of the last protections of minority investors in judicial dissolution for oppression or deadlock. This is an extreme remedy in Delaware chancery courts, but a

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[108] *Id.* at § 1.20 et al.

[109] FINDLAW, "What Types of Legal Procedures Should Corporations Maintain," https://www.findlaw.com/smallbusiness/incorporation-and-legal-structures/what-types-of-legal-procedures-should-corporations-maintain.html (last visited Apr. 24, 2023).

[110] *Id.* at n 7.32(f) (2021).

[111] *CFTC v. Ooki DAO*, Compl. for Inj. and Other Relief and Civ. Monetary Penalties under the Commodities Exch. Act and Comm'n Regul., 2 (Sept. 22, 2022).

[112] Summer Mersinger, *Dissenting Statement of Commissioner Summer K. Mersinger Regarding Enforcement Actions Against: 1) bZeroX, LLC, Tom Bean, and Kyle Kristner; and 2) Ooki DAO*, (Sept. 22, 2022).

[113] Rav Guru Singh, *New York is Losing the Race to be a Home for DAOs*, N.Y. Law J. (Jul. 18, 2022).

protection nonetheless.[114] Companies who are within the Delaware court's jurisdiction can be dissolved by the courts for oppression of minority stakeholders.[115] It would seem difficult to imagine a situation where a large DAO such as ENS would come to deadlock or oppression, but if it were to become so flagrant, it is necessary that courts could regulate these entities. This protection may be hard to implement but is likely necessary at least as judicial function to make DAOs a more sustainable governing structure in the future.

Keeping these desired protections in mind, we can turn to what corporate structures already use to conduct commerce and look at them in terms of how applicable they would be to DAOs. Business structures could include corporations, limited liability companies ("LLC"), and partnerships. We can analyze each of these in kind.

At first glance, Corporation structures may embody many of our desire protections for DAOs but will come up wanting for how cumbersome they can be to smaller groups. Corporations under the Model Business and Corporations Act provide a duty of disclosure, duty of care, duty of loyalty, prohibit usurping a corporate opportunity, allow for stockholder derivative actions, and require fiduciary duties to the officers entrusted in their care. [116] There is also a robust and developing law about the effect of majority shareholders and their implications for business dealings.[117] While at first this all may seem like a good fit for DAOs, DAOs still generally start out as small organizations and would likely find the corporate legal processes too

[114] Jason C. Jowers, *DELAWARE INSID.ER: When Deciding Whether to Judicially Dissolve an LLC, the Court May Find the "Purpose" of the LLC to Be Different Than What Is Stated in the LLC Agreement*, American Bar Assoc. (Dec. 15, 2015).

[115] *Id.*

[116] *See generally* Model Business and Corporations Act (2021).

[117] *See* Musk and *In Re Facebook, Inc. Mark Zuckerberg Litigation*, 2013 WL 2401809 (Del. Ch. May 30, 2013); *In re Tesla Motors, Inc. Stockholder Litigation*, 2018 WL 1560293 (Del. Ch. Mar. 28, 2018).

cumbersome to be realistically adopted.[118] At best you would severely hamper DAO growth and adoption and at worst DAOs would remain in the wild west of cyber space and continue to be unregulated.

Another business structure could be the LLC and the Series LLC structure. LLC and Series LLC also at first appear to fit DAOs well. In fact, LLC and Series LLC's even have a similar structure to DAOs. They both tend to be member owned and managed.[119] They allow for LLC's to own other LLC's (not unlike The DAO and its Baby DAOs system).[120] The members have the desired duty of loyalty and good faith and fair dealing between reach other as well.[121] Finally, there is also a liability shield from the outside and internally from the members to debts and obligations of the entity.[122] This all important liability protection would do much to advance DAOs in the future. LLC's however still have too onerous requirements that contradict the stated mission of DAOs. Specifically LLC's that choose to be taxed as s-corps must have less than 100 members and none of the members can be foreign nationals.[123] This means that a DAO like ENS would not qualify for membership total and location of the members.[124] The LLC approach has been adopted by some states such as Wyoming which adopted their LLC statute to make a Limited Liability DAO or "LLDAO." [125] Although this is a good first step, it is likely to be litigated substantially as many of the protections established for LLC's have not been litigated

[118] Fortenberry Legal, PLLC, "Series LLCs," https://www.fortenberrylaw.com/series-llcs/ (last visited Apr. 24, 2023).
[119] *Id.*
[120] *Id.*
[121] *Id.*
[122] *Id.*
[123] INTERNAL REVENUE SERVICE, "S Corporations," https://www.irs.gov/businesses/small-businesses-self-employed/s-corporations (last visited Apr. 24, 2023).
[124] See Supra Footnote 40
[125] Wyo. Stat. § 17-31-101.

for DAOs. In addition to this many large DAOs have chosen not to incorporate in Wyoming or assign a person to receive process there.[126]

Another and the worst option is the current status of DAOs operating as partnerships. This is the CFTC's current position on DAOs absent certain state laws, but it provides the least protections possible for the DAO as a whole and to minority investors.[127] There would be a duty of care and loyalty within the DAO under this structure but that is largely where the benefits end.[128] There is no ability to protect minority investors outside of the terms of the smart contract and no protection form liabilities of the DAO simply for holding the token. The CFTC is currently bringing joint and severally liable against Ookie DAO voting members.[129] Here the CFTC determined that based on traditional principles of business that Ookie DAO was an unincorporated association and thus the voting members of the DAO were jointly and severally liable for the actions of the DAO.[130] This requirement for international and decentralized organizations where the governance tokens are easily accessible is unconscionable. This outcome should be avoided at all costs.

IV. Winning the Wild West of DAOs

These structures generally leave a DAO wanting for a better form of business governance. A better form of business governance would encompasses the desired aims of DAOs and help industry thrive under this new structure. It would likely need something new altogether to meet the entrepreneurs where the intersection of industry efficiency and the entrepreneur's

[126] Taras Zharun, "Wyoming DAO LLC: Decentralized Autonomous Organization," https://legalnodes.com/article/wyoming-daollc (last visited Apr. 24, 2023).
[127] *CFTC v. Ooki DAO*, Compl. for Inj. and Other Relief and Civ. Monetary Penalties under the Commodities Exch. Act and Comm'n Regul., 2 (Sept. 22, 2022).
[128] *Id.*
[129] *Id.*
[130] *Id.*

idealism meet. The first thing that would be needed is to define a DAO statutorily and that would involve two separate categorizations. As we observed above with Index Coop, while they say they are a DAO, there are many incestuous relationships that different players overlap or remain entirely the same people or groups of people. With Olympus DAO they were centralized enough to control specific aspects of the blockchain and the governance smart contract independently of any other stakeholders. This centralization element between different aspects of the products or the project team itself means these so-called "DAOs" need to be removed from a Decentralized Autonomous Organization framework to a centralized autonomous organization framework or "CAO." Working within now two different organization types, a proper DAO legislation and a CAO legislation of business governance becomes much easier to form.

A. Centralized Autonomous Organization (CAO) and the 51% Attack

In order to determine what is a Centralized Autonomous Organization it may be best to say it is simply not a decentralized autonomous organization. Technically speaking a decentralized autonomous organization would be effectively insulated from a 51% attack. A 51% attack is when a "bad actor" can hijack a blockchain and manipulate it to their will by controlling more than 51% of the nodes that control the verification process.[131] This is not as easily accomplished in networks such as bitcoin.[132] Determining this is an imperfect process, but there maybe a few ways to determine if a system is suspectable to a 51% attack starting with dividing the systems by proof of work ("PoW") and proof of stake ("PoS").

[131] The Book of Jargon Blockchain, Crypto, & Web3, *supra note* 8 at 2

[132] For example there are over 10,000 bitcoin nodes around the world. It would require the resources of a nation state in order to take control of all of them at the same time to change the blockchain to one's benefit. This is likely far more than in necessary to be considered decentralized, but can provide at least one boundary.

Proof of work systems can be decentralized only under certain conditions. If they are not vulnerable to 51% attacks it is likely that a PoW system is decentralized.[133] PoW requires that validators "race" to solve mathematical algorithms and which ever is first to solve the equation and subsequently be validated by the other validators receives the reward of a native token.[134] A system that is built on this method would be susceptible to a 51% attack if they controlled enough resources to hold 51% of the validators of a transaction and self-verify the equation and could thus contribute whatever blocks or values they desired on the blockchain.[135] The amount of resources that would be required to change the blockchain varies based on the blockchain and thus the value of the attack. The susceptibility of a 51% increases with he value of such an attack until it becomes unrealistic to muster than many resources. Here with a PoW blockchain the determination would be made on the number of validators one would need to make in order to take over 51% of the validation process. In the case of bitcoin it would cost approximately $756,000 per hour to complete a 51% attack on bitcoin.[136] It is possible this number does not include the full amount of the cost to conduct a 51% attack on the bitcoin network as well.[137] This is an expensive proposition but would also likely destroy the chain one bad actor theoretically intends to extort value from. A 51% attack on this scale would also destroy the system as people loose faith in the asset. In relation to a corporate governance structure, it would

[133] Proof of Work a method of deciding who is allowed to publish Blocks to a Blockchain by requiring a certain amount of resources to be expended. It is the mechanism used by Bitcoin to validate transactions and determine which Miners are rewarded.

[134] The Book of Jargon Blockchain, Crypto, & Web3, *supra note* 8, at 51. https://www.lw.com/admin/Upload/Documents/Books%20of%20Jargon/boj-blockchain-crypto-web3.pdf

[135] *Id.* at 2.

[136] Vladislav Sopov, Here's How Much it Costs to 51% Attack Bitcoin (BTC), U.Today.com (Sept. 17 2022). https://u.today/heres-how-much-it-costs-to-51-attack-bitcoin-btc#:~:text=The%20cost%20to%2051%25%20attack,control%20that%20much%20hashrate%20simultaneously.&text=According%20to%20him%2C%20theoretically%2C%20such,would%20require%20%24752%2C000%20in%20funds.

[137] This does not include the increased hashrate of mining bitcoin as one miner begins to change the system meaning that as one completes these transaction the cost would continue to climb towards a theoretical infinity.

likely be unreasonable to take over a DAO on a PoW system as large as bitcoin while maintaining its usefulness. Here then, it is useful to take into account the expense of the 51% and the value of the chain thus as it becomes too expensive to attack as the number of validators increase it is likely one could say the network is effectively decentralized. A legislator could find that a static value of $100,000 an hour to launch a 51% attack on a network as sufficient but could even still be considered far beyond decentralized. Once a regulator has determined that the network is sufficiently decentralized it would then be important to consider how the actual governing members operate the DAO even if the underlying blockchain is secure. However, a PoS system would be vulnerable in other ways.

Proof of stake systems are vulnerable to 51% attacks in other specific ways.[138] PoS's validation process allows for a delegation of staking power as compared to the PoW system which allows for equal staking power relative to the available hardware. The system alternatively assigns a validator randomly based on their proportionate *stake* and all other validators verify the block once the block is solved. This system can thus be decentralized easier than a PoW system because the validator, chosen at random, cannot know if they will be the chosen validator and only knows the proportion of time they will be chosen by their own staked tokens. The second part of the validation process is as susceptible to the 51% attack just as PoW because the system must still be validated by 51% of the other nodes, but if a bad actor submits a fraudulent validation then their stake is slashed.[139] This makes a 51% and all or nothing enterprise. If the bad actor fails the first time or submits fraudulent blocks they will need more resources to attempt another attack. In this way a PoS system could in theory require a lower

[138] Proof of stake attributes Mining power to the proportion of Coins held by a Miner such that the more Coins owned by a Miner, the more Mining power they have. A Miner in a system using the POS Consensus model is limited to Mining a percentage of transactions that is reflective of the Miner's ownership stake.
[139] This is the case with the Ethereum PoS Blockchain, but may not be the case with other systems.

threshold to be considered decentralized as it is harder to commit attack and increasing harder when a bad actor is identified. In this situation it may be clearer that a DAO built on a PoS system does not require as high percentage of decentralization of PoS. Ethereum is widely considered to be decentralized as it contains 435,000 validators This is the largest PoS system and may not be practical model for many organizations to be compared to when considering if they are decentralized. It is also likely that as validators increase so would the value of a 51% attack so as the network increases in value it also increases in resiliency. The number of validators in conjunction with a sufficient number of DAO voting members that follows similar standards could form a two prong test with a non-dispositive third factor to determine if a DAO on a proof of stake is decentralized or centralized.

B. Decentralized Autonomous Organization Legislation

Once a legislator found a method to determine if a system was susceptible to a 51% attack, that method could be a strong basis for a decentralized autonomous organization. If we map this onto established Delaware corporate law, an effectively decentralized system could be higher than 100 validators (the number determined for the max LLC membership) and taking into account any controlling shareholder powers from corporate law could also help determine a governance structure along with the network is decentralized enough.[140] If there are between 1 and 100 voting members in the autonomous organization it's more likely that they are a CAO than a DAO. A court or a legislature could thus take a twostep process with a tie breaker to

[140] The Ethereum network is similarly a decentralized, but the Ethereum Foundation is led by one of the Ethereum Founders, Vitalik Buterin, he carries a disproportionate sway in Ethereum's governance both as a validator and by the weight his opinion carries in the public domain and among other validators. It may be prudent for regulators to foresee this type of weight in systems not unlike Elon Musk was found to be a controlling shareholder *In re Tesla Motors, Inc. Stockholder Litigation*. Vitalik proposed "hardforking" the Ethereum network from Ethereum classic and the opinion carried the vote by a margin of 97% for to 3% against though only 5% of validators voted for the fork.

determine centralization. First is the network itself susceptible to a 51% attack? Then is the governance structure sufficiently decentralized? Finally, if they cannot determine one or both for sure is there elements of a controlling stakeholder that could wield undue influence? The possible iterations outcomes are listed in figure 1 and would be determinative in how a DAO statute would treat different organizations.

In the case of a determination that the organization is effectively a CAO, there is no reason that the organization could not start as a Wyoming style LLCAO "Limited Liability Centralized Autonomous Organization." This entity could have all the benefits of an LLC as well as being kept to the same requirements of an LLC but with the effective and digitals native governing structure of a governance smart contract. In the alternative, statutes would need to be more creative in thinking about a proper LLDAO governing structure.

Assuming the statue has properly constituted decentralized membership and resistance to a 51% attack, an LLDAO statue can properly be thought through. The requirements of LLDAO should remain the essential elements of s DAO plus the decentralization element. Additionally, similarly to the Vermont DAO statue there should be some written record of the code submitted to the government if not for review but for records.[141] The Vermont statute is likely be too cumbersome in its requirements to constantly update the code as code changes rapidly on-chain and would limit their abilities. Once all these criteria however are met and there is a Bonafede DAO that can receive process in a state, the statute provide the desired benefits ala carte. The above stated protections should all be included in such a bill. Specifically, the liability protection for members and managing members as well as the duty of loyalty and care to each other

[141] 11 V.S.A. § 4175

member of the organization as well. Finally, it is likely that the desire for anonymity and pseudo-anonymity will need to be eschewed for stake of legal clarity. It may be possible for members who simply vote on proposals or are mere token holders to remain anonymous but there will need to be some sort of record keeping in a proper sense when a person's involvement rises to the level of creating proposals and executing work in the named of the LLDAO. In application we will see that this fixes many of the perceived problems from the DAOs in existence now.

Should states adopt a similar statutory solution, minority stakeholders would be more protected. As we observe in the examples of good, bad, and ugly DAOs any minority protection have been incidental at best and completely ignored at worst. By looking at the DAOs as centralized and decentralized they become less opaque as a governing structure. It is clear that CAOs, DAOs, and their members should have some form of protection that is similar if not as comprehensive as other corporate governance structures. The statutes for CAOs and DAOs should first distinguish between centralized and decentralized organizations. Having discussed some solutions to determine that above, others may exist and it is important for the American state's to act as the laboratories of democracies to explore these and other avenues. Once a CAO and a DAO are separated legally the legislation should enshrine the protections that are commiserate with the protections that are needed. The Wyoming statue that graphs the language od DAO's on to the LLC statute would likely be sufficient for CAO, but would be insufficient for a DAO. It would be helpful to invent a new framework all together with the DAO structure. It could incorporate the Vermont statute which made specific mention of registering the code for disclosure purposes. Finally, there must be a way to serve process on CAOs and DAOs that are in states respective jurisdictions. This likely means removing the anonymity to from the founding members in order to allow minority stakeholders and others to bring legal action against them. This would initially stir backlash in the community, but it is the only way to realistic bring CAOs and DAOs into the light to experiment with this radical and redefining corporate governance structure. This may be a cumbersome process, but it may also be a step in the right direction towards Enshrining rules of the road for these new structures are the only way that they can grow and continue to reach many of the ideals of the DAO.

Figure 1:

Resilient against a 51%	Yes	Yes	Yes	No	No	No	No
More than 100 token holders	Yes	No	Yes	Yes	Yes	No	No
Controlling Token holder	Yes	Yes	No	Yes	No	Yes	No
DAO	Likely yes, dependent upon controlling shareholder's influence	No	Yes	No	No	No	No
CAO	Likely no, possibly yes	Yes	No	Yes	Yes	Yes	Yes

Chart shows all iterations for three prong test outcomes: Resilient against 51% attack, more than 100 token holders, and a controlling token holder