INVESTOR-FUNDED CRYPTOCURRENCY MINING FARMS

MARCH 8, 2022

AN INVESTOR’S GUIDE TO RISK MITIGATION
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main people</td>
<td>3</td>
</tr>
<tr>
<td>Abstract</td>
<td>4</td>
</tr>
<tr>
<td>01 Introduction</td>
<td>5</td>
</tr>
<tr>
<td>02 A Cryptomining Primer</td>
<td>6</td>
</tr>
<tr>
<td>03 U.S. Regulatory Landscape amid Global Trends</td>
<td>9</td>
</tr>
<tr>
<td>04 The Contractual Bargain and Market-Specific Risks</td>
<td>13</td>
</tr>
<tr>
<td>05 Regulatory risks</td>
<td>15</td>
</tr>
<tr>
<td>Investment Solicitation Laws</td>
<td>15</td>
</tr>
<tr>
<td>Money Transmission Laws</td>
<td>18</td>
</tr>
<tr>
<td>06 Creditor protections</td>
<td>21</td>
</tr>
<tr>
<td>Article 9 of the Uniform Commercial Code</td>
<td></td>
</tr>
<tr>
<td>07 Mined Cryptocurrency Units</td>
<td>25</td>
</tr>
<tr>
<td>08 Parting Thoughts</td>
<td>30</td>
</tr>
</tbody>
</table>
Khalil is based in Al Jad’s Beirut office, focusing on corporate and regulatory matters in the technology, banking, natural resources and construction/infrastructure sectors in addition to advising on the tax implications of various corporate transactions and reorganizations.

Malek is Managing Partner at Lebanon-based law firm Al Jad, which has been recognized by Legal 500 for its work in the energy, digital technology and banking sectors. Malek previously worked at the UK offices of international law firm CMS, and has over 17 years of experience working on corporate and commercial matters in challenging jurisdictions in the MENA region.

In addition to having authored several publications on local Lebanese laws, Malek is regularly invited to speak at conferences and roundtables in Dubai, Lebanon, Washington D.C. (the Aspen Institute), London and Aberdeen.

Khalil El Assaad
Head of Fintech Practice | Al Jad Law Firm

Khalil is based in Al Jad’s Beirut office, focusing on corporate and regulatory matters in the technology, banking, natural resources and construction/infrastructure sectors in addition to advising on the tax implications of various corporate transactions and reorganizations.

Khalil’s experience includes advising on cross-border and domestic mergers and acquisitions, joint ventures, oil and gas disputes, early-stage investments, fund formation, as well as a wide variety of corporate, commercial and financial transactions across the MENA region.
Investor-funded cryptocurrency mining farms — a novel and most promising investment vehicle still taking shape, before shaking up the mining space and crypto industry writ large — present a number of legal challenges and considerations for potential investors. We frame the most important issues investors are likely to face in the course of their contractual, and pre-contractual dealings with mining farm companies financed largely through investor solicitation and public offerings. On a number of fronts, regulatory clarity remains elusive, as U.S. regulators attempt to keep up with the pace of developments across crypto’s rapidly changing terrain. Ultimately, we provide a list of recommendations intended to help the uninitiated, crypto-novice investor better understand and identify the risks attending passive investment in cryptomining, as well as available measures for mitigation.
INTRODUCTION

From the lay investor’s perspective and the prism of U.S. law, the article examines ‘investor-funded mining farms,’ a term we coin to describe the synergy witnessed of late between mining farm companies and outside investors. The business model we hypothesize — and on which little to no public information is presently available — assumes the following contractual and transactional backdrop: A farm company looking to finance large-scale expansion of mining operations actively solicits outside capital from crypto-curious investors. The passive investor naturally expects repayment of the principal along with agreed-upon returns (to be disbursed by some reasonable date post investment as presumably stipulated in the parties’ underlying agreement).

A latest trend at the intersection of crypto’s ever-growing mining subsector and debt- and revenue-based financing, investor-funded mining farms hold ample promise of optimum operational efficiency. But as one would expect of relatively untested business models within new and volatile industries, the investment carries considerable risk and uncertainty. Specifically, three types of risk factors attend crypto investments in general: (1) market risks; (2) regulatory risks; and (3) operational risks. We attempt to untangle each risk category in the context of investor-funded mining farms, by identifying (and positing ways around) potential pitfalls lurking within the digital space.

Perhaps most importantly, we provide a list of recommendations intended to guide pre-contract due diligence and negotiation, as well as the parties’ course of performance, with the ultimate goal of helping the average investor better assess and identify mitigable risks and worthwhile investment opportunities in an ever so volatile market. Though the analysis which follows is grounded in U.S.-specific law, our recommendations can shed light on, and may even echo analogue findings and recommended practice in other jurisdictions. Indeed, a patchwork regulatory landscape typifies crypto’s precarious legal standing both within and outside the United States.

1Aside from cost savings and other efficiencies commonly enjoyed by larger scale operations, cryptomining is particularly susceptible to economies of scale. For instance, a one hundred percent increase in computing power would boost total mining output by well over one hundred percent.
Aside from lining the pockets of big farm companies and manufacturers of mining hardware, cryptomining serves two distinct yet interrelated functions. For one, it is the process through which new coins are minted and released into circulation.\(^2\) Mining’s principal function, however, is to audit and validate user transactions.

Mineable cryptocurrencies like Bitcoin rely on blockchain or distributed ledger technology to set up a currency system that is fully peer to peer, with no central authority or trusted intermediary. Bitcoin is the first successful attempt at “an open-source (transparent), decentralized (democratic), immutable (incorruptible), truly international (not tied to any one government or nation) medium of exchange.”\(^3\)

End user willingness to trust a novel unit of account having no central authority or intermediary to resolve inter-user disputes is owed entirely to blockchain: the technological juggernaut which underlies each of hundreds of mineable digital\(^4\) currencies presently in circulation. Blockchain networks verify, validate and record peer-to-peer user transactions through what is commonly called ‘mining’, a computing process performed by network participants (i.e., miners) and somewhat akin to guesswork. At its core, the blockchain is a decentralized (and continuously expandable) public ledger that cryptographically tracks, logs, and encrypts every user transaction in its ecosystem, with each transaction becoming irrevocable and unalterable post-encryption.

But without a trusted third party to police user transactions, the potential for fraud and double spending must be addressed differently. Bitcoin and other mineable coins rely on ‘proof of work’ consensus protocols\(^5\) to solve the double spending problem within a decentralized, trustless environment. Though not all cryptocurrency is mineable,\(^6\) proof-of-work protocols provide everyone with the opportunity to mine for coins which are.

\(^2\) In the case of Bitcoin, for instance, each of eighteen-plus million coins in circulation today reflects the product of miners’ computational hard work, save of course for the very first coin set released in January 2009 via Bitcoin’s genesis block.


\(^4\) Though we realize not all digital currencies rely on cryptographic protocols, we use the qualifiers ‘digital’ and ‘crypto’ interchangeably throughout to refer to blockchain-powered currencies that rely on proof-of-work consensus protocols to verify and validate user transactions.

\(^5\) Proof-of-work protocols are said to ensure that every blockchain-recorded transaction is forever unique, secure and incorruptible. Gary Anetsberger, Is Blockchain the Next Financial Disruptor?, WEALTH MANAGEMENT, Wealthmanagement.com/technology/blockchain-next-financial-disruptor (Feb. 7, 2018) (“The technology underlying blockchains was originally created to keep track of Bitcoin, by allowing anyone in the Bitcoin network to view any and all verified transactions. Since this open source record doesn’t reside on a single server, nor can it be controlled by a single individual, it is virtually impossible (at least so far) to alter transaction information after the fact.”); but see Mike Orcutt, How secure is blockchain really?, MIT TECHNOLOGY REVIEW (Apr. 25, 2018), https://www.technologyreview.com/2018/04/25/143246/how-secure-is-blockchain-really/ (“[B]lockchains store data using sophisticated math and innovative software rules that are extremely difficult for attackers to manipulate. But the security of even the best-designed blockchain systems can fail in places where the fancy math and software rules come into contact with humans, who are skilled cheaters, in the real world, where things can get messy.”).

\(^6\) While many cryptocurrencies are not mineable — Stellar, Cardano, Ripple and NEO, to name but a few — they are largely beyond the present scope. Non-mineable currencies follow one of several alternatives to the proof-of-work consensus model, most prominently proof of stake. Proof of stake protocols require users to stake their own cryptocurrency coins before receiving validation privileges. By so doing — conditioning validation authority on proof of buy-in — proof of stake eliminates proof-of-work’s energy-intensive computer race. And in so doing, proof of stake addresses proof of work’s most problematic feature, the latter’s exponential electricity needs. According to an underreported estimate published by the Cambridge Center for Alternative Finance, Bitcoin alone “currently consumes around 110 Terawatt Hours per year — 0.55% of global electricity production, or roughly equivalent to the annual energy draw of small countries like Malaysia or Sweden.” Nic Carter, How Much Energy Does Bitcoin Actually Consume?, HARV. BUS. REV. (May 5, 2021), available at https://hbr.org/2021/05/how-much-energy-does-bitcoin-actually-consume. Proof-of-stake protocols, on the other hand, have modest computing needs and run perfectly well on run-of-the-mill everyday laptops.
Proof-of-work validation operates via a network of nodes often called miners. Each enlisted node (i.e., each network user or participant) retains a copy of the full blockchain. That is, the entire user transaction history is made accessible, allowing every node to verify and relay transactions to other nodes in the network. The ledger is thus at all times surveyable by all network participants — and is in this sense wholly distributed.

For a transaction to be validated, therefore, all nodes must generally agree. In order to facilitate communication and consensus among nodes, transactions are organized into blocks, namely time-stamped append-only blocks. While block-assembly protocols can vary from blockchain to blockchain, a chain’s constituent blocks are always sequentially ordered, as are individual transactions within each block. The upshot of it all is a global currency network that at any given time enjoys complete agreement among all members.

Take Bitcoin, for example. As the premier digital coin, Bitcoin sets the currency benchmark relative to which all other coins are measured, traded and collectively denominated ‘altcoins’ — short for alternative coin. Tens of thousands of nodes on Bitcoin’s blockchain network agree on the precise number and sequence of past transactions and transaction blocks. Again, consensus is maintained via mining: validator nodes compete against one another to solve the cryptographic puzzle for subsequent transaction blocks. In Bitcoin’s case, the puzzle consists of a complex hashing problem generated via cryptographic hash function (i.e., a most secure data compression algorithm). Once a node solves a block’s computational puzzle, the solution (also called nonce) is transmitted to all other nodes in the network, so that each may update its own copy of the ledger before starting the mining race anew, in search of the solution for the next batch of transactions. Proof of work thus allows cryptocurrencies to serve as decentralised, peer-to-peer networks, through which users may freely and reliably transact with no central authority or intermediation costs.

The blockchain network accordingly depends on nodes operated by miners to process and audit user transactions. And to ensure that miners continue to perform this validation function, the network compensates miners by way of block rewards payable to the first miner or group of miners to successfully mine a transaction block (i.e., by solving the block’s computational puzzle).

7 Every computing device connected to Bitcoin’s blockchain network is a node with validation privileges.
8 Accidental (usually short-lived) forks may result from disagreement among network participants as to the exact sequence of user transactions. Accidental forks come about when two or more miners (or groups of miners) successfully solve a batch of transactions at roughly the same time, thereby creating a split in the chain which puts miners and participants alike to the choice between one of two chain sequences. The split is ultimately resolved when the addition of subsequent blocks causes either chain sequence to display a longer proof of work. At which point network participants may regain consensus by abandoning transaction blocks in the shorter chain sequence, commonly called ‘orphaned blocks,’ in favor of the more elaborate sequence.
9 Blockchain-recorded data derives its immutability largely from the technology’s append-only block structure.
10 “The term is seemingly fitting because of Bitcoin’s status as the first working cryptocurrency ever, and the fact that most coins that launched afterward tried to offer an alternative approach to Bitcoin’s design.” Wilfred Michael, What Is an Altcoin? Types of Altcoins, BITCOURIER, https://bitcourier.co.uk/blog/altcoins (last visited Jan. 3, 2022).
11 A block consists of permanent time-stamped transaction records stored alongside records of other synchronous transactions.
12 The cryptographic hash function converts data of random and variable length into a bit array of predetermined length (which in Bitcoin’s case is a sixty-four-digit hexadecimal configuration). For mineable digital coins like Bitcoin, the hash function is what ties together a blockchain’s constituent blocks. It works by generating ‘a string of random-looking characters that uniquely identifies the [original] data, much like your fingerprint identifies you.’ Goforth, supra note 3 at 77 n.184.
13 Defined as a random number that is only once usable, a nonce is sufficiently close to the target hash so that if added to an encrypted block and then rehashed, it meets the network’s difficulty level restrictions. It is thus rare but possible for two or more miners to simultaneously solve a block’s computational puzzle, which is how accidental forks came to be. See supra note 8.
14 Bitcoin’s mining rewards, for instance, are cut by half roughly every four years. When Bitcoin first launched in 2009, block rewards meant 50 bitcoins per single block. Bitcoin’s block rewards today stand at 6.25 coins.
Investment in cryptomining consists in its most basic form of buying mining hardware, ‘setting up shop’ and starting the computing work. Cryptomining’s profitability, however, is far from guaranteed. There are financial risks to consider, especially in the case of Bitcoin, as one could purchase thousands of dollars’ worth of mining equipment only to end up with zero returns on investment.

For one, Bitcoin mining has exponential energy needs, from powering specialized hardware (whose energy needs run well above your everyday computer) to air conditioning their processing units (which emit a ton of heat).\(^\text{15}\) Bitcoin’s proof-of-work protocols quite literally set up a supercomputer race with each of thousands of high-performance servers vying for block rewards payable to the first miner (or group of miners) to successfully solve the next block’s hash problem. And because mining equipment is to run uninterrupted and at full capacity, maintenance and replacement costs can run up the bill. Needless to say, aggregate costs can add up to a hefty sum — i.e., mining hardware (including purpose-built Bitcoin-mining chips); upkeep and maintenance, wear and tear and electricity costs.

Second, the mining difficulty increases the more bitcoins enter circulation, and the more computing power is channeled towards Bitcoin mining.\(^\text{16}\) So as mining traffic increases, so does the difficulty level. And at today’s difficulty levels, the odds of finding a winning nonce is infinitesimal: one in the tens of trillions.\(^\text{17}\) All told, individual miners are unlikely to profit much off the enterprise. This economic reality has helped inspire new business models in the form of leaner and more cost-effective mining operations, such as pool mining and cloud mining arrangements. Pool mining, for instance, consists of a group of miners who join forces by combining computational resources into one common server with the understanding that block rewards would be distributed evenly among pool participants.\(^\text{18}\) Cloud mining, by contrast, frees miners of the hassle and expense of installing and powering requisite hardware and equipment: in return for a fee, cloud mining firms offer users the ability to partake in globally accessible mining operations hosted entirely through the cloud.\(^\text{19}\)

As for the model around which the present article revolves, investor-funded mining farms consist of farm companies soliciting outside capital from crypto novice investors as a means of financing large-scale mining operations, in return for which the investor expects reasonable returns by way of periodic disbursements in accordance with agreed-upon payment terms.

The analysis which follows addresses key legal considerations under U.S. law, considerations that are certainly relevant, and may be extrapolated to non-U.S. jurisdictions. The end purpose is to present a holistic list of recommendations on which investors can rely before entering the cryptomining business.

---

15 For years, mining companies have been flocking to China on account of relatively cheap electricity. As of 2018, bitcoin mining in China represented 74 percent of global bitcoin production. It had been estimated that “China’s bitcoin mining industry by 2024 could consume more energy than Italy.” Gerry Shih, Bitcoin Miners Exit China, Beat a Path to the U.S. as Crypto Climate Shifts, WASHINGTON POST (June 17, 2021). From 2018 to date, however, the Chinese government has managed to dial back mining operations within its borders to better meet environmental benchmarks. See generally Lefan Gong & Luping Yu, Country Chapter: China, in GLOBAL LEGAL INSIGHTS: BLOCKCHAIN & CRYPTOCURRENCY REGULATION 262, 262–66 (2019); see also Omer Ozden, America Is Losing Out to China in the Development of Blockchain Technology, MARKET WATCH (July 1, 2021).

16 In order to keep blockchain’s functioning smooth as well as secure, the Bitcoin network was programmed to produce one transaction block every ten minutes or so. But if one million miners are to compete over solving the next transaction block, then validation could take fewer than ten minutes. Hence why Bitcoin was programmed to allow for reassessment and adjustment of mining difficulty every 2,016 blocks, or roughly every two weeks.

17 That is because the probability that a miner will be first to solve the next block’s hash problem is equal to each miner’s own proportion of the total mining power on the network.


19 See, e.g., Koki Cueng, Crypto Mining Farm Companies, TECHTIMES (May 1, 2021), available at https://cryptorig.blogspot.com/2021/05/crypto-mining-farm-companies.html (discussing cloud mining arrangements in Australia).
As a nascent technology of exponential potential for revolutionizing — or subverting (depending on one’s standpoint) — entire industries and business models as well as the underlying technological landscape, blockchain presents myriad novel challenges for lawmakers and regulators alike, chiefly among them that of grappling with the interstitial regulatory implications posed by a novel, decentralized token economy and the sweeping technological shifts made possible by blockchain’s distributed ledger functionality. Owing to the transparency and immutability of blockchain-recorded data, entrepreneurial interest in the technology is ever growing and presently spans a few dozen different sectors and industries.

As of this writing, a robust regulatory framework that is both time-tested and of comprehensive scope has yet to be developed, with many jurisdictions continuing to enforce wholesale bans on cryptocurrency, presumably in attempt to cabin its meteoric rise and feared disruption to a wide array of local industries. Most bans purport to protect the public from crypto’s market volatility or perceived connections to drug trafficking, money laundering and other illicit activities and financial crime. To be sure, digital currencies may well represent the payment of choice for some criminal enterprises. The bans, however, appear primarily animated by blockchain’s potential to disrupt and upend traditional monetary systems and related industries on a local level.

20 The overnight proliferation of cryptocurrencies “raised concerns for regulators (especially for securities and commodities regulators) as well as for governments and central bankers, about the impact that privately issued money-like instruments could have on monetary policy and financial stability.” Marco Dell’Erba, Stablecoins in Cryptoeconomics: From Initial Coin Offerings to Central Bank Digital Currencies, 22 LEGIS. & PUB. POL’Y 1, 3 (2019). Indeed, the number of jurisdictions reported to be presently considering issuance of a central bank digital currency designed to rival and counteract the rise of digital currencies is a healthy double digit figure. See, e.g., Arys Aditya, Bank Indonesia Mints Digital Currency as a Way to ‘Fight’ Crypto, BLOOMBERG (Nov. 30, 2021). https://www.bloomberg.com/news/articles/2021-11-30/bank-indonesia-mulls-digital-currency-as-a-way-to-fight-crypto.

21 Blockchain’s gestalt-like quality is best reflected in its successful integration of several key functionalities under one umbrella platform — namely public-key encryption, Merkle tree hashing, consensus algorithms, distributed ledgers, digital signatures and timestamping and identification protocols. Indeed, “there is no true technical innovation in Bitcoin and blockchain. All the components had already been developed before the publication of the Bitcoin whitepaper in 2008.” Paolo Tasca & Claudio J. Tessone, A Taxonomy of Blockchain Technologies: Principles of Identification and Classification, & LEDGER J. 1, 1 (2019); see also Bernard Marr, A Short History Of Bitcoin And Crypto Currency Everyone Should Read, FORBES (Dec. 6, 2017) (recounting pre-Bitcoin projects to create similar encryption-secured currency systems).

22 Malta may be one notable exception in that regard. With the express purpose of becoming the “Blockchain Island,” Malta has enacted a comprehensive legal framework for the promotion and regulation of blockchain and the cryptocurrency industry. Particularly noteworthy are Malta’s government-funded blockchain projects which appear designed to lure big industry players into setting up shop on the island. See generally Malcolm Falzon & Alexa Valenzia, Country Chapter: Malta, in GLOBAL LEGAL INSIGHTS: BLOCKCHAIN & CRYPTOCURRENCY REGULATION 378, 378–84 (2019). India appears to be following in Malta’s footsteps, at least judging by the ambitious draft proposal to overhaul public infrastructure by incorporating blockchain technology into government-offered services and administrative processes. See Ministry of Electronics & Information Technology, Government of India, National Strategy on Blockchain: Towards Enabling Trusted Digital Platform (Dec. 2021), https://www.meity.gov.in/writereaddata/files/National_BCT_Strategy.pdf.

23 The technology is not problem free, however, as scalability and interoperability challenges continue to undermine full realization of Blockchain’s still vast unexplored potential. Though a number of scaling and interoperability solutions are in the works, of which some have already shown great promise (e.g., plasma, rollups, sidechains protocols).

Nonetheless, blockchain and blockchain-run currencies are increasingly gaining acceptance in many parts of the world. In fact, an increasing number of countries where wholesale bans had only recently been in place appear to have now conceded blockchain’s undeniable staying power, opting instead to repurpose existing legal frameworks so as to regulate the nascent technology. As exemplified below, few bespoke regulations meaningfully tailored to the blockchain ecosystem cater to the needs of the crypto industry in all its different facets. Rather, a jumbled patchwork of outdated laws and regulations reflects the crypto rulebook of many a jurisdiction.

While investor-funded mining operations may come within the purview of a number of federal and state laws and regulations, our scope of analysis is confined to the following (1) federal securities laws; (2) federal money transmission laws; and (3) state secured lending statutes as supplemented by state common law rules (to the extent our passive, outside investor may be likened to a secured—or as is more likely, unsecured—creditor depending on the contractual terms governing the investor-funded venture).

As observed by the IMF in a cross-jurisdictional research paper, 64 percent of institutional stakeholders across surveyed jurisdictions had concerns over gaps in the legal framework governing crypto assets and digital currency transactions. See Cristina Cuervo et al., Regulation of Crypto Assets at 13, FinTech Note 19/03, IMF Publication (2019).
RECOMMENDATION 1

It is recommended that investors assess the host state’s governing body of law — that is, the laws of the country within whose borders the mining farm is to operate. Where no codified law or specific rules govern cryptocurrency transactions and related activities in the host state, a prudent investor should still probe whether a contemplated venture may be de facto prohibited or regulated by way of local authorities’ informal rules and enforcement practice. Also worth considering are average utility rates in the host locality, among other operating costs and expenses with potential to influence the farm’s overall performance, financial solvency and profitability.
Notably, cryptomining as an activity — though generally permitted across the United States, at both the federal and state level — is not expressly regulated: no law or regulation purports to permit (or otherwise address) the mining of cryptocurrency. And yet its legality is presumed to follow from that of other crypto-related activities like buying, owning and trading in digital currencies, which U.S. law permits within regulatory parameters. Cryptomining’s legal status may likewise be said to follow from the recent proliferation of municipal ordinances charging miners and mining companies higher utility rates.

One other thing to bear in mind is that crypto businesses in the United States may have to navigate the dichotomy of state and federal laws, including the prospect of overlapping and conflicting rules and regulations. While federal law may in certain instances occupy the entire field, each state’s own law is generally alone controlling as to local (and intrastate) affairs. Perhaps most problematic are prospects of concurrent and overlapping state and federal laws, to the extent businesses would need to conform to two different sets of laws — as in sectors and industries over which federal and state officials share regulatory power (e.g., securities offerings), as well as in the case of businesses whose physical operations straddle the territory of two (or more) states.


31 See Dewey, supra note 30 (“If you are able to own and use cryptocurrency where you live, you should also be able to mine cryptocurrency in that location as well.”).


33 In that regard, Arizona may well be the optimal locale in the United States for investments in blockchain and digital currencies. In an attempt to foster development of new technologies and the local economy, Arizona law accords various forms of regulatory relief to entrepreneurs hailing from emerging industries. See Dewey, supra note 30, at 484.
As with any transaction, the terms of the contract governing the investment are key. The solicited investor presumably enters the picture as a passive source of funding having little to no understanding of the crypto industry or its mining subsector. The investor parts with capital on the expectation it will be redeemed in full along with healthy returns to be disbursed within a reasonable time period.

But depending on the parties’ relative bargaining power, which in turn may depend on a host of different factors, the farm company is more likely to adopt a take-it-or-leave-it approach to contract negotiation so as to effectively dictate contractual terms. In other words, stark asymmetries and power differentials may altogether preclude investor negotiation of the terms and conditions that are to govern the parties’ business relationship and course of performance.

The terms of the underlying contract are paramount and should be thoroughly reviewed (and to the extent possible negotiated) to protect the passive investor’s stake in the enterprise. For that reason, contract execution should be preceded by careful consideration of key contractual terms, such as the payment schedule, the denominated currency for proceeds disbursement; minimum output requirements; liability for electricity costs and other operating expenses etc.

It may also be worth considering a contingency clause allowing either party to propose the mining of a different currency (and requiring good-faith consideration by the counterparty), should market conditions so change that continued mining of the originally agreed-upon currency ceases to be commercially viable.

In that regard, a perhaps most important quantitative metric with which investors ought to be familiar is a given currency’s market capitalization, which many crypto analysts treat as the most telling indicator of currencies’ present viability and growth potential (far more so than market price per individual coin) — not to discount, of course, chiefly qualitative factors which may be just as key even if not readily measurable, namely currency potential to undergird future technological growth and pave the way for valuable financial and administrative services.34

---

34 For a ranked overview of digital currencies’ different market capitalization figures (as well as other key financial metrics), visit CoinMarketCap at https://www.coinmarketcap.com.
Investors should certainly not assume simply because their capital investment was made in fiat (or ‘real’) currency, that investment proceeds will be disbursed in similar fashion. A farm company is likely to expend investor funds towards maintenance and expansion costs (e.g., mining hardware and equipment), leaving the farm’s crypto output as the most likely source of payment. Therefore, unless otherwise stipulated in the underlying agreement, investors should reasonably expect investment proceeds to be disbursed in crypto. Where payments are made in crypto, investors ought to plan ahead accordingly with due regard for crypto markets’ volatility and consideration of available loss mitigation measures.

Investing in cryptomining is best approached from an entrepreneurial standpoint rather than just another way of expanding one’s crypto portfolio. Even if optimally structured to account for all potential risks, residual risks and uncertainty are inevitable under current conditions of market hyper-volatility and increased regulatory scrutiny. For example, a risk-averse investor may opt to sell off its crypto proceeds upon the slightest dip in the market, whereas a more level-headed (and otherwise similarly situated) investor might see great potential in holding firm and waiting out short-term market turbulence to sell at a later more opportune time.35

Moreover, should the investment venture ultimately redound to investors in the form of actual net profits, the tax code would seem to offer investors added incentive to wait out market tumbles long enough to benefit from capital gains treatment, subject to a 365-day holding period. Otherwise, sale proceeds would be taxed as ordinary income, which means a higher tax rate for all but the wealthiest taxpayers. See I.R.S. Notice 2014–21, 2014–16 I.R.B. 938 (Apr. 14, 2014), https://www.irs.gov/pub/irs-irbs/irb14-16.pdf (classifying all crypto assets as property for tax purposes); see also Paul Caron, Marian: Bitcoin and Notice 2014-21, TAXPROF BLOG (Mar. 26, 2016), http://taxprof.typepad.com/taxprof_blog/2014/03/marianBitcoin.html (highlighting problems with treating cryptocurrency like property for tax reasons).

If token accumulation is the chief animating purpose for one’s parting with capital, then perhaps the simple (though likely more costly) alternative of direct purchase via crypto exchanges is a more suitable route fraught with fewer pitfalls.

Having explored crypto market fundamentals and the basic ground rules governing the contemplated venture, the below considers the various U.S. laws and regulations that could reasonably be read to govern investor-funded mining farms, with particular focus on regulatory risks and legal obligations that could potentially undermine the venture’s commercial viability.

35 Moreover, should the investment venture ultimately redound to investors in the form of actual net profits, the tax code would seem to offer investors added incentive to wait out market tumbles long enough to benefit from capital gains treatment, subject to a 365-day holding period. Otherwise, sale proceeds would be taxed as ordinary income, which means a higher tax rate for all but the wealthiest taxpayers. See I.R.S. Notice 2014–21, 2014–16 I.R.B. 938 (Apr. 14, 2014), https://www.irs.gov/pub/irs-irbs/irb14-16.pdf (classifying all crypto assets as property for tax purposes); see also Paul Caron, Marian: Bitcoin and Notice 2014-21, TAXPROF BLOG (Mar. 26, 2016), http://taxprof.typepad.com/taxprof_blog/2014/03/marianBitcoin.html (highlighting problems with treating cryptocurrency like property for tax reasons).
A public offering of digital assets may be deemed a securities offering within the remit of U.S. federal securities laws, depending on the nature of the digital asset, the scope of pre-sale promotion and investor solicitation, and the extent to which the investment’s profitability depends on the efforts of third parties. Should a proposed sale be deemed a securities offering covered by the law, it would have to undergo an arduous registration process, whose preparatory costs alone tend to be quite onerous, if not outright prohibitive. A registrant issuer, moreover, faces continuous reporting obligations post-registration. And depending on the targeted investor class and scope of offering, state securities laws may also be in play.

The principal securities statute, the U.S. Securities Act of 1933, is said to serve twin congressional purposes: (i) providing potential investors with all relevant information pertaining to a public sale of securities; and (ii) protecting potential investors from fraud, deceit and misrepresentations in connection with a public sale of securities. To achieve those ends, every sale or offering of covered securities — that is not otherwise exempt — must comply with the 1933 Act and be registered with the Securities and Exchange Commission (SEC), the agency entrusted with the Act’s proper implementation and enforcement.


37 Registration expenses preceding any actual sale of security may in some cases amount to more than ten percent of the value of the offering. See Avery Minor, Cryptocurrency Regulations Wanted: Iterative, Flexible, and Pro-Competitive Preferred, 61 B.C.L. REV. 1149, 1162 n.90 (2020) (“Such expansive costs involve the utilization of multiple professionals including attorneys, underwriters, and accountants. Ideally, an offering would take six months, but there is no guarantee of a quick preparation period or SEC review.”). “After going public, the company is required to participate in ongoing reporting in compliance with the Sarbanes-Oxley Act of 2002, requiring even more audit and advisory expenses.” Id.

By way of example, consider Coinbase’s decision to cancel at the eleventh hour rollout of a much anticipated crypto-product. Faced with the prospect of SEC enforcement, the multi-billion dollar company does not appear to have given much thought to actually undergoing SEC registration. See Peter Feltman, SEC Seen Having Clear Case Against Coinbase’s Lending Program, ROLL CALL (Sept. 28, 2021), available at https://www.rollcall.com/2021/09/28/sec-seen-having-clear-case-against-coinbase-s-lending-program/; but see Eversheds Sutherland (US) LLP, SEC’s Latest Shot at the Crypto Industry: BlockFi Sanctioned for its Unregistered Crypto-Lending Product, LEXOLOGY https://www.lexology.com/library/detail.aspx?g=e5612b98-ac48-4e44-91dd-1f979309da26 (Feb. 16, 2022) (discussing recent SEC settlement with BlockFi whereby BlockFi agrees to undergo SEC registration for similar crypto-lending product in addition to payment of USD 100 million in penalties).


39 See Stuart R. Cohn & Gregory C. Yadley, Capital Offense: The SEC’s Continuing Failure to Address Small Business Financing Concerns, 4 N.Y.U. J. L. & BUS. 1, 7–10 (2007) (recounting the many requirements with which businesses must comply to carry out a registered sale of securities).


A security is statutorily defined in relevant part to cover “any note, stock, treasury stock, security future, security-based swap, bond, debenture, evidence of indebtedness, certificate of interest or participation in any profit-sharing agreement... investment contract [and so on].” Of particular relevance here is the term “investment contract” which the seminal case of SEC v. Howey Company broadly defines as a pecuniary investment in a common enterprise whose profitability depends in large part on the entrepreneurial efforts of distinct third parties.

A short rundown of Howey’s facts reveals some key parallels vis-à-vis our investor-funded venture. Howey involved an offering to investors of individual units in a citrus grove development. Each individual offering came with its own optional service contract to grow and harvest the citrus crop with sale proceeds therefrom payable to investors. As the Howey court reasoned, this profit-seeking, investor-funded enterprise exhibited both hallmarks of an investment contract: investors parted with capital on the expectation of future profits all the while, Howey, the third-party promoter retained full management authority over the citrus grove development (and to that extent controlled the enterprise’s profitability).

In light of the foregoing, it would appear difficult to distinguish Howey on any principled basis, at least one sufficient to place our investor-funded farm outside the remit of federal securities laws. Indeed, investor-funded mining farms appear on all fours with Howey’s enterprise, which instead of crypto-mining farms involved individual units of a citrus grove development. And as in Howey, our investor is solicited solely for its capital contribution, and is to have no involvement beyond that initial provision of capital funds. And perhaps more importantly, any return on investment seems to rest entirely on the performance of farm company executives.

Therefore, should the farm company engage in presale promotion and solicitation of investors, it may well draw the ire of the SEC, and should therefore adequately consider the prospect of SEC enforcement proceedings including possible sanctions and penalties for what would be an unregistered sale of securities.
In any event, the mining farm may qualify for one of two regulatory exemptions and thereby avoid the burden and expense of SEC registration, as well as of continuous reporting and disclosure post-registration. An exempt company may conduct an unregistered sale of security, provided an SEC exemption form is duly filed within fifteen days. Such exemptions from SEC registration are broadly referred to as private placements. They are most often used in early-stage financing of small businesses, though companies of all sizes may be eligible.

RECOMMENDATION 4

The transaction underlying investor funded mining farms is likely to give rise to SEC registration and post-registration obligations under federal securities laws, for which compliance costs alone may cut significantly into the venture’s overall profitability. The investor ought to properly consider likely registration and SEC compliance costs in its pre-contract negotiations with the farm company.

As for investments not governed by US law, the above analysis may be eerily similar. Most jurisdictions regulate securities offerings in analogous terms, with largely similar provisions on registration, disclosure, and private placement. Where jurisdictions tend to diverge is in defining the object of regulation. The meaning and scope of the term “security” — and the range of instruments it is read to cover — may vary markedly across jurisdictions.

47 17 C.F.R. § 230.506.
50 Although Canada follows a close variant of the Howey test. And in 2011, Taiwan’s high court adopted wholesale Howey’s four-part test (in a case which held that foreign investment contracts are securities for purposes of Taiwan’s securities law). Jaime Cheng & Teresa Huang, Cryptocurrency Laws and Regulations in Taiwan, ASIA BUSINESS LAW JOURNAL (July 23, 2018), available at https://law.asia/cryptocurrency-law-taiwan/.
Some of the most problematic red tape facing our investor-funded model is perhaps the fifty different money-transmission regimes that exist across the several states. That is, U.S.-based businesses operating in the digital currency industry have to contend not only with an overarching framework of federal rules, but more dauntingly with “the intricate (and often confusing) web of state money transmission laws.” 51

At the federal level, money-transmission regulations flow from the Currency and Financial Transactions Reporting Act of 1970 — better known as the Bank Secrecy Act (BSA) — which delegates to the Financial Crimes Enforcement Network (FinCEN) rulemaking authority to carry out the act’s objectives.52 And whereas the federal statute reflects an anti-money laundering and counter-terrorism financing regime, state money transmission laws are singularly concerned with consumer protection and are outside the scope of this article.53

There are those who continue to cheer on disruption of the cryptocurrency industry, by openly lobbying U.S. regulators for a most expansive reading of money transmission business, one broad enough to saddle the most casual miner out there with money transmitter status and the myriad of restrictions that come with that designation.54 As of this writing, however, the standalone mining of digital currencies remains outside the scope of the BSA and FinCEN’s regulatory scheme. Nonetheless, agency-issued guidance suggests that FinCEN regulations may well govern investor-funded mining farms should the disbursement of proceeds to investors pass through third-party intermediaries.55

51 Michelle A. Gitlitz & Grant E. Buerstetta, An Introduction to Virtual Currency Money Transmission Regulation, in GLOBAL LEGAL INSIGHTS: BLOCKCHAIN & CRYPTOCURRENCY REGULATION 132, 133 (2019) (“Virtually every state has its own money transmission licensing regime, which is inefficient, particularly in the context of virtual currency businesses whose technologies and products may operate fluidly across state lines.”). For a take on federal preemption of state money transmission laws via a re-imagined Consumer Financial Protection Bureau, see Carol R. Goforth, The Case for Preempting State Money Transmission Laws for Crypto-Based Businesses, 73 ARK. L. REV. 301 (2020).
52 FinCEN is the federal agency charged with administering and enforcing the Bank Secrecy Act, which together with FinCEN-issued rules and regulations form the principal AML framework governing U.S. banks and other financial intermediaries.
53 For a breakdown of each state’s money-transmission regime, check out Gitlitz & Buerstetta, supra note 51, at 132–48. Regrettably, the veritable maze of state licensing schemes is enough to counsel investor restraint, or at the very least the exercise of thorough due diligence pre-investment. On a positive note, efforts to inject some measure of uniformity and predictability into interstate monetary transactions include most prominently the launch of the Nationwide Multistate Licensing System (NMLS) portal, which creates a sort of uniform licensing system for money transmitters in about a half dozen participating states. See NMLS Resource Center, Multistate MSB Licensing Agreement Program, https://nationwidelicensingsystem.org/slr/Pages/Multistate-MSB-Licensing-Agreement-Program.aspx (last visited Feb. 17, 2022) (acknowledging “the pain points MSB companies were experiencing when seeking licensure in individual states, including different legal requirements, resources and turn times, procedural requirements and interpretations, and satisfying these similar requirements in each state”).
54 See, e.g., Nicholas Weaver, How to Start Disrupting Cryptocurrencies: ‘Mining’ Is Money Transmission, LAWFARE (June 9, 2021) (“It is time to seriously disrupt the cryptocurrency ecology. Directly attacking mining as incompatible with the Bank Secrecy Act is one potentially powerful tool.”).
55 “Once the virtual currency is mined, a miner, depending on how he/she uses the convertible virtual currency and for whose benefit, may potentially become a money transmitter. . . . A person who creates units of a [decentralized virtual currency], and sells those units to another person for real currency or its equivalent and is engaged in that transfer as a business, is a money transmitter to the extent that he/she is transferring it from one person or location to another person or location.” Gitlitz & Buerstetta, supra note 51, at 135–36.
As defined and regulated by FinCEN, “money transmission” may cover a wide array of business models dealing in convertible virtual currency (CVC) such as bitcoin and similarly mineable altcoins.66 Distinct registration, reporting and recordkeeping obligations are imposed on money transmitter designees.67 Money transmitters are, for example, required to formulate and administer anti-money laundering compliance programs, file suspicious activity reports, maintain certain customer records and institute other internal controls, such as continuous risk assessment and proper monitoring of transactions.68 FinCEN regulations define “money transmitter” in relevant part as:

(a) [a]ny person, whether or not licensed or required to be licensed, who engages as a business in accepting currency, or funds denominated in currency, and transmits the currency or funds, or the value of the currency or funds, by any means through a financial agency or institution [. . .]; or

(b) [a]ny other person engaged as a business in the transfer of funds.69

In a similar vein, money transmission activities are defined in relevant part as “receiving one form of value (currency, funds, prepaid value, value that substitutes for currency – such as CVC, etc.) from one person and transmitting either the same or a different form of value to another person or location, by any means.” 60 Any business undertaking such an activity may be designated as a money transmitter (and charged with all the obligations attending the designation), even if the activity represents a one-off transaction and not a routine aspect of the business’s operations.61 As articulated by FinCEN, whether a particular business is a money transmitter within the scope of the federal scheme depends on a case-specific inquiry into business activities as actually performed, even if the business entity’s constitutional document or mission statement may provide otherwise.62

---


68 See id.

69 31 C.F.R. § 1010.100(ff)(5).

60 Financial Crimes Enforcement Network, FIN-2019-G001, Application of FinCEN’s Regulations to Certain Business Models Involving Convertible Virtual Currencies at 8 (May 9, 2019) [FinCEN 2019 Guidance]. As applied to our investor-funded model, the farm may be viewed as engaging in money transmission to the extent that, having received investor funds, it proceeds to deposit the mined output/coins earmarked for investors in the custody of an intermediary like a third-party provider of wallet services charged with the coins’ remittance to investors. FinCEN’s regulation of digital currency businesses was justified on the basis of an agency rule finalized in 2011 (notwithstanding that FinCEN has long maintained that digital currency does not qualify as currency for BSA purposes). See Bank Secrecy Act Regulations; Definitions and Other Regulations Relating to Money Services Businesses, 76 Fed. Reg. 43,585, 43,596 (July 21, 2011); see also John L. Douglas, New Wine into Old Bottles: Fintech Meets the Bank Regulatory World, 20 N.C. BANKING INST. 17, 41–42 (2016). The rule expanded “money transmission services” to include “acceptance of . . . value that substitutes for currency from one person and the transmission of . . . value that substitutes for currency to another location or person by any means.” Id.; see also Financial Crimes Enforcement Network, FIN-2013-G001, Application of FinCEN’s Regulations to Persons Administering, Exchanging, or Using Virtual Currencies 1 (Mar. 18, 2013). About a decade later, congress adopted FinCEN’s definitional rule as a statutory matter via the Anti-Money Laundering Act of 2020.

61 See FinCEN 2019 Guidance, at 8.

62 See id. at 7; see also 31 C.F.R. § 1010.100(ff)(5)(ii).
This is arguably consistent with FinCEN’s earlier interpretation as set forth in a 2014 advisory ruling on cryptomining activities. On the one hand, the 2014 ruling makes clear that mere mining of cryptocurrency is outside the purview of FinCEN regulations so long as the mined coins are expended towards the miner’s own personal use.\(^{63}\) On the other hand, the 2014 ruling warns that “a user wishing to purchase goods or services with Bitcoin it has mined, which pays the Bitcoin to a third party at the direction of a seller or creditor, may be engaged in money transmission.”\(^{64}\)

---

**RECOMMENDATION 5**

To ensure that the investor-funded venture remains outside the scope of FinCEN regulations, it is recommended that the mined proceeds investors stand to receive be disbursed directly to investors. The involvement of third parties (e.g., providers of depository services) may alone trigger application of money-transmission laws and regulations.

---

**RECOMMENDATION 6**

Seeing that investment proceeds are most likely to be paid in the mined digital currency, we recommend that investors plan well ahead and consider the different ways in which returns may be leveraged and potentially re-invested without coming within FinCEN’s regulatory remit.

---

\(^{63}\) See Financial Crimes Enforcement Network, Department of the Treasury, FIN-2014-R0001, Application of FinCEN’s Regulations to Virtual Currency Mining Operations, at 3 (Jan. 30, 2014) [FinCEN 2014 Ruling].

\(^{64}\) FinCEN 2014 Ruling at 3 n. 8. As FinCEN further explains: “situations involving persons that would have been exempted from [money transmitter] status, but for their payments to third parties not involved in the original transaction” are not uncommon. Id. at 3 n. 9 (“[A] user engaging in such a transaction, which pays the Bitcoin to a third party at the direction of the counterparty, may be engaged in money transmission.”).
CREDITOR PROTECTIONS: ARTICLES 9 OF THE UNIFORM COMMERCIAL CODE

On account of their public financing aspect, investor-funded mining farms may, depending on the parties’ relative bargaining power, be configured in such a way as to afford investors important creditor safeguards. Ideally, the underlying contract would, in accordance with the host state’s secured transactions regime, create a security interest(s) enforceable as against collateral property owned by the farm company (should the latter prove unable to meet its repayment obligations). As already observed, however, bargaining power disparities may deprive the investor of a meaningful opportunity to negotiate contract terms with the farm company, in which case the investor would essentially be in the same boat as an unsecured creditor.65

All fifty states (in addition to the District of Columbia and the U.S. Virgin Islands) follow some version of the Uniform Commercial Code’s secured-transactions regime (that is, UCC Article 9), with largely inconsequential variations across jurisdictions.66 In accordance with each state’s own formulation of the UCC, investors may pursue a security interest in collateral property, such as the farm’s mining equipment or even its future mined output.67

RECOMMENDATION 7

Investors should consult the version of the UCC in force in their host state in order to identify the precise mechanics for creating, perfecting and enforcing a security interest in the farm’s equipment and/or mined output.

---

65 Unsecured creditors are often unable to recover their dues, and the passage of time renders prospects of recovery increasingly less likely, as it becomes more difficult to locate sufficient debtor property against which the unsecured creditor is both eligible and first in line to recover.

As a first measure, an unsecured creditor or investor should petition the local courts for declaratory and injunctive relief by way of a judgment lien on property of the debtor — here, any unencumbered assets of the farm company. A duly issued judgment lien transforms the formerly unsecured party into a secured ‘judicial lien’ creditor eligible to seek foreclosure thereon at an execution sale of the property. But should the debtor declare bankruptcy within ninety days of the judgment lien, section 547 of the bankruptcy code would make the lien voidable — or recoverable if improvidently paid off — as a type of preferential transfer which the law views as unfair to the estate, including similarly situated unsecured creditors whose expected recovery is thereby further reduced. See In re XYZ Options, Inc., 154 F.3d 1276 (11th Cir. 1998) (judgment lien against the debtor’s property is as much a “transfer” as obtaining consensual lien or security interest).

66 See U.C.C. § 9-109(a) (Am. Law Inst. & Unif. Law Comm’n 2019); see also Bob Lawless, Is U.C.C. Article 9 the Achilles Heel of Bitcoin?, CREDIT SLIPS, http://www.creditslips.org/creditslips/2014/03/is-ucc-article-9-the-achilles-heel-of-bitcoin.html (Mar. 10, 2014) (“The bank that gave you a car loan has an Article 9 security interest in the automobile serving as collateral for the loan and the bank providing operating capital for your corner bakery similarly may have an Article 9 security interest in the inventory, equipment, and accounts at the store.”).

67 Note that investors may also pursue the farm company’s leasehold and/or freehold interests in real property as collateral. The UCC being only applicable to movable goods, each state has developed its own set of rules for dealing with creditor liens and secured interests in realty — namely, a common law overlay as supplemented by the provisions set forth in the state’s recording statute. Recording acts across the fifty states comprise notice statutes, race statutes and race-notice statutes, with each statute type prescribing a potentially different order of priority in multiple-creditor cases.
RECOMMENDATION 8

Investors ought to ensure that adequate collateral is in place should the mining farm prove unable to meet its payment obligations. To that end, the underlying agreement should designate as collateral the farm’s mining equipment and future mined output. To collect on later-acquired equipment/output, the investor’s security interest should be designated as a “floating lien”; or alternatively the underlying agreement should refer to both existing and later-acquired collateral.

Since the UCC’s secured transactions regime predates the advent of blockchain, it should come as no surprise that its attachment, perfection and priority rules are ill-suited to the digital space. In fact, pending clarifying case law or legislative amendment, the UCC cannot reasonably guarantee crypto’s viability as adequate collateral, in the UCC’s property classification framework, and specifically the general intangible subcategory — as the weight of scholarship would seem to currently suggest.

In a nutshell, and at the risk of oversimplifying the UCC’s otherwise elaborate secured-transactions regime, an enforceable security interest in property requires, among other things, that the underlying agreement adequately describe the property serving as collateral (so that it may reasonably be identified). Standard practice is to use the UCC’s own definitional language to describe the collateral property and thereby avoid potential insufficient-description claims. That seems simple enough for the farm’s mining equipment which may be designated as collateral in the underlying agreement and adequately described using the UCC’s own model language. The farm’s mined output, on the other hand, raises a whole set of problems.

68 As recently as March 2021, the UCC’s sponsors and original drafters were contemplating draft amendments to Article 9 so as to provide needed clarity on the use of virtual assets as collateral in secured lending transactions. See National Conference of Commissioners on Uniform State Laws, Selected Issues with Nevada AB 324 and the Uniform Commercial Code, UNIFORM LAW COMMISSION, at 1 (Mar. 26, 2021). Though a draft proposal was released in May 2020, the Uniform Law Commission has yet to issue draft amendments in final form, leading some states to sidestep the Commission’s process and roll out their own Article 9 amendments. See, e.g., Robert T. Isham III, Wyoming’s Digital Assets Amendments: Marked Out or Missed Out? A Review of Recent Amendments to Article 9 of the Wyoming UCC, AMERICAN BAR ASSOCIATION (Oct. 1, 2019).

69 See, e.g., Sharon E. Foster, Virtual Currency as Crypto Collateral Under Article 9 of the UCC: Trying to Fit a Square Peg in a Round Hole, 73 ARK. L. REV. 263, 288 (2020) (citing U.C.C. § 8-102 cmt. 9). That would also bring them within the remit of FinCEN’s money transmission scheme (as noted earlier).

70 Should the mined proceeds be deposited with a third-party intermediary (e.g., depository institutions, investment banks, pension funds), they would more appropriately qualify as “financial assets” rather than general intangibles. See Sharon E. Foster, Virtual Currency as Crypto Collateral Under Article 9 of the UCC: Trying to Fit a Square Peg in a Round Hole, 73 ARK. L. REV. 263, 288 (2020) (citing U.C.C. § 8-102 cmt. 9). That would also bring them within the remit of FinCEN’s money transmission scheme (as noted earlier).


72 There are in effect three prerequisites for an enforceable security interest: (i) the underlying agreement must be signed by the farm/debtor and include a fair description of the asset(s) serving as collateral (and otherwise make it clear that a security interest is thereby intended); (ii) the farm/debtor must have received some cognizable value (i.e., consideration) from the investor/secured creditor; and (iii) the farm/debtor must own (or otherwise have some proprietary right over) the collateralized property. See U.C.C. § 9-203(b)(1)–(3). There is of course the additional hurdle of perfection, though a security interest is enforceable whether or not perfected; perfection merely informs the order of priority as among multiple creditors with overlapping security interests in the same collateral.


74 See U.C.C. § 9-108(b), (d) and (e) [setting forth statutory examples of adequate collateral description including “a type of collateral defined in the Uniform Commercial Code”].

75 “Equipment” is defined as all “goods” excluding inventory, consumer goods and farm products. U.C.C. § 9-102(a)(33). And “goods” is in turn defined as “all things that are movable when a security interest attaches” including fixtures. U.C.C. § 9-102(a)(44).

76 In terms of the indeterminate character of future output, the UCC has long recognized security interests in after-acquired property such as future proceeds, future inventory and the like. See generally William E. Boyd, The Specifics of Enforceability; After-acquired Collateral, Future Advances, Transferred Collateral and Proceeds, and the New Debtor Problem (2011), https://www.cali.org/lessons/web/c11/chapter_9.htm; see also U.C.C. § 9-108, cmt. 3. One potential limitation may nonetheless apply in the bankruptcy context: although its creation may precede the debtor’s bankruptcy filing, a security interest may not be enforceable as against proceeds generated post-filing. 11 U.S.C. § 552.
For one, the standard practice of tracking the UCC's own definitional language for the collateral's description poses a taxonomic quandary: cryptocurrency does not readily fit within any one class of property as presently defined by the UCC (and as delimiting the UCC's entire sphere of application).77 Worthwhile contenders78 include "money," 79 "investment property, 80 "deposit accounts," 81 and "negotiable instruments," 82 with "general intangibles," 83 as the clear front-runner.

Second, just consider the perfection puzzle that crypto's classification problem begets. Perfection generally governs the order of priority as among multiple creditors with overlapping security interests in the same collateral. Depending on the collateral's property classification, the UCC prescribes one of four different methods for perfecting security interests therein.84 But as already explained, digital assets do not readily fit within any one class of property as defined in the UCC, and so long as that's the case, none of the UCC's perfection methods could fairly reassure investors of the adequacy of digital collateral.85

77 See U.C.C. § 9-102(a). Importantly, the UCC’s remit is confined to specific classes of property and particular kinds of transactions. See U.C.C. § 9-109 (limiting the UCC’s application to inter alia “a transaction, regardless of its form, that creates a security interest in personal property or fixtures by contract”); see also Schroeder, Bitcoin and the Uniform Commercial Code, 24 University of Miami Business Law Review 1, 10 (2016) (listing the various classes of property that may serve as collateral under Article 9 of the UCC).

78 “[D]eep tensions . . . arise when new asset classes challenge static regulatory approaches.” Kirstin N. Johnson et al., (Im)Perfect Regulation: Virtual Currency and Other Digital Assets as Collateral, 21 SMU SCI. & TECH. L. REV. 115, 116 (2018). And while cryptocurrency may arguably be classified as software, placing it in the general-intangible category, digital currencies share many similarities with investment property and deposit accounts — both asset classes which the UCC expressly excludes from its general intangible definition. See Ian A. Holcomb, Bitcoin’s Standing Within the Global Regulatory and Economic Marketplace, 23 CURRENTS: J. OF INT’L ECON. L. 56, 61 (2016); see also Sharon F. Foster, Virtual Currency as Crypto Collateral Under Article 9 of the UCC. Trying to Fit a Square Peg in a Round Hole, 73 ARK. L. REV. 263, 276 (2020) (listing UCC classes of property that may plausibly be viewed as subsuming cryptocurrency).

79 “Money is defined in relevant part as “a medium of exchange currently authorized or adopted by a domestic or foreign government.” U.C.C. § 1-201 (a) (24). The literature has generally ruled out this most intuitive asset class to the extent that cryptocurrency has not yet received legal tender treatment by governments. However, at least one cryptocurrency qualifies as “money” under the UCC, following El Salvador’s formal adoption of bitcoin as legal tender back in September 2021. Although it remains to be seen whether El Salvador will be better off thereby. See Fitch Wire, El Salvador Bank Bitcoin Risk to Depend on Adequacy of Regulation, Fitch Ratings (Nov. 11, 2021), https://www.fitchratings.com/research/banks/el-salvador-bank-bitcoin-risk-to-depend-on-adequacy-of-regulation-11-11-2021.

80 The investment property category includes “security, whether certificated or uncertificated, security entitlement, securities account, commodity contract, or commodity account.” U.C.C. § 9-102(a)(49).

81 “Deposit accounts” covers any “demand, time, savings, passbook, or similar account maintained with a bank” excluding “investment property” and “accounts evidenced by an instrument.” U.C.C. § 9-102(a)(29).

82 A negotiable instrument entails an unconditional promise in writing for the payment of a fixed sum of money. U.C.C. § 3-104.

83 As defined by the UCC, general intangibles are “any personal property, including things in action . . . payment intangibles and software” but expressly excluding “accounts” and “investment property” among others. U.C.C. § 9-102(a)(42).

84 See U.C.C. §§ 9-310(a) (filing financing statement), 9-312(b) (possession), 9-313 (control) and 9-309 (automatic perfection).

85 There are some who maintain that cryptocurrency is best classified as a general intangible under the UCC property classification framework, glaring inconsistencies be damned. Compare, e.g., Josias N. Dewey & Michael D. Emerson, Beyond Bitcoin: How Distributed Ledger Technology Has Evolved to Overcome Impediments Under the Uniform Commercial Code, 47 U.C.C. L. J. 1 (2017); with Kirstin N. Johnson et al., (Im)Perfect Regulation: Virtual Currency and Other Digital Assets as Collateral, 21 SMU SCI. & TECH. L. REV. 115, 132 (2018) (“Demonstrating that virtual currencies are not ‘general intangibles’ may simply involve confirming that this new asset class is not among the list of excluded assets in the term’s definition.”). Should the courts embrace the invitation to so forcibly classify crypto as a general intangible, security interests would presumably be perfectible via filing of a UCC-1 financing statement adequately describing secured digital assets, and thereafter serving as notice to the world — namely future lenders and/or bona fide purchasers — of creditors’ accrued interest in the digital collateral. See, e.g., Kevin V. Tu, Perfecting Bitcoin, 52 GA. L. REV. 505, 552 (2018). Notably, the collateral’s description for perfection purposes (i.e., description set forth in financing statement filing) need not be as rigorous as that which the underlying agreement must provide to create the security interest in the first instance. See, e.g., In re ProvideRx of Grapevine, LLC, 507 B.R. 132, 163 (Bankr. N.D. Tex. 2014).
Third, unlike crypto’s attachment and perfection problems, both of which may be resolved via statutory amendment, crypto presents a seemingly insolvable tracing problem:

“If a debtor transfers the virtual currency from one wallet to another . . . what remedy exists for the secured creditor who has a valid, perfected security interest in the virtual currency in the wallet? Due to the operational mechanics of the blockchain on which the transaction occurred, the transfer would be irreversible and facilitated by the anonymous body of participants on the blockchain.”

Even assuming the creditor is somehow able to identify the third-party purchaser or recipient, location in a remote jurisdiction is likely to frustrate enforcement — whether on account of cross-jurisdictional hiccups or the high costs and uncertainty associated with cross-border litigation.

**RECOMMENDATION 9**

Investors should conduct a record search (or alternatively have the farm company produce an official credit report issued within the twelve-month period preceding contract execution) in order to suss out any competing security interests in the farm’s equipment collateral.

---

86 Kirstin N. Johnson et al., *(Im)Perfect Regulation: Virtual Currency and Other Digital Assets as Collateral*, 21 SMU SCI. & TECH. L. REV. 115, 139 (2018); see also Michael R. Gordon et al., *Bitcoin to Blockchain: How Laws and Regulations Are Conforming to and Impacting the Use of Virtual Currency*, 20160428P N.Y. CTY. BAR 1, 40–41 (2016) (“First, even if a secured creditor has a valid, perfected security interest in Bitcoins, a separate concern is whether the secured creditor would have an effective remedy to realize upon its collateral after a default. Users typically hold Bitcoins in a digital ‘wallet’ and while Bitcoin transactions are recorded on a decentralized public ledger (the ‘blockchain’), the users are anonymous and Bitcoin transactions are irreversible. Thus, a secured creditor would have difficulty learning that Bitcoin collateral had been transferred or identifying the transferee. Consequently, upon a default, the secured creditor would have no rapid mechanism to prevent the debtor from transferring Bitcoins (unlike when a secured creditor has a control agreement with a bank and can sweep an account). Second, there is a question as to whether Bitcoins can be described with sufficient specificity to create and perfect a security interest. For example, although each Bitcoin is unique, Bitcoin exchanges might place all Bitcoins into a single pot and Bitcoin wallets present an anonymity issue.”).

MINED CRYPTOCURRENCY UNITS: STORING AND TRADING OPTIONS

As investors start to rake in investment proceeds disbursed in the mined currency, they ought to look to digital wallets and online exchanges for their storage and trading needs. Unlike fiat currency which may be carried around on one’s person and visibly brandished to convey a proffer of sorts to onlookers in the real world, cryptocurrency and crypto transactions exist solely within blockchain networks. Digital wallets and online exchanges respectively enable the safekeeping and trading of digital assets. Cryptocurrency exchanges are online platforms offering users easy access to trading markets for sale and purchase of digital assets. Whereas crypto wallets are a means of virtual storage: a hardware device (or online service) encapsulating in a set of numeric codes ultimate control over user blockchain accounts (including the ability to dispose of digital holdings stored thereby).

While some appear to treat the two as substitute services, the two are better viewed as complementary for they perform different functions and serve distinct purposes. In other words, crypto users looking to maintain a diverse portfolio over the long term should covet both: a wallet for securely storing one’s digital coins, as well as access to trade opportunities via exchanges, which offer users the potential to leverage and earn interest on their digital holdings and perhaps even cash in on crypto market volatility. Moreover, digital storage on custodial exchanges for any extended period of time increases the risk of electronic theft (relative to other more secure storage options), since custodial exchanges tend to hold billions of dollars’ worth of crypto and are therefore prime targets for hackers.


89 For users of decentralized exchanges, a wallet is indispensable. Decentralized exchanges (which comprise a sizeable majority of all crypto exchanges) require users to remain in possession of their cryptographic keys and to use a separate wallet service to be able to trade on the platform. Accordingly, decentralized exchanges do no more than connect individual buyers and sellers of cryptocurrency, and all trading takes place via peer-to-peer transactions without the platform’s direct involvement. This is largely why decentralized exchanges are not deemed money transmitters for purposes of FinCEN’s AML scheme. Another benefit of decentralized platforms is diversification: decentralized exchanges support the full range of available digital currencies, even those whose ICO remains underway.

Users of centralized custodial exchanges, moreover, stand to similarly benefit from storing a large chunk of their holdings on a separate personally protected wallet, which not only guards against electronic theft, but also enables a more diversified portfolio, inasmuch as personal wallet services support a greater number of currencies than is otherwise storable-tradeable via centralized exchanges.

90 Most personal wallet services support many more digital currencies than are otherwise tradeable on centralized exchanges.

91 Using an online exchange service as one’s principal means of storage is ill-advised. Such users of centralized/custodial exchanges cede control of their private keys to the online provider, meaning that users stand to lose the entirety of their digital holdings should the platform fall victim to cyberattacks and electronic theft. See generally Henry S. Zaytoun, Cyber Pickpockets: Blockchain, Cryptocurrency, and the Law of Theft, 97 N.C. L. REV. 399, 399–400 (2019) (criticizing present-day efforts by governments and prosecutors to address “innovations in theft” brought about by cryptocurrency).

92 The only custodial storage worth considering as a long-term option is the guaranteed and insured kind with full refundability in case of theft. Very few service providers actually offer such fully insured storage options (e.g., Coinbase).
Considering the hundreds of different exchange and wallet services available nowadays, it can certainly be overwhelming to select the service most suited to one’s needs. Nonetheless, investors and users new to the space stand to benefit from surveying and weighing in a range of potential options before committing to any particular wallet service or exchange platform. Below is an overview of service features with potential bearing on investor choice.

### RECOMMENDATION 10

Exchange platforms and wallet service providers abound nowadays, and the broad range of available options may overwhelm investors new to the space. It is recommended all the same that investors survey and weigh in available options before committing to any one service or platform.

### RECOMMENDATION 11

To both protect and diversify one’s crypto portfolio, access to a personal wallet is vital. As is access to exchange platforms should investors be interested in trade opportunities or the ability to earn interest on one’s crypto holdings.

### (I) CHOICE OF WALLET SERVICE

Preliminarily, investors new to the space should understand, not every service advertised as a wallet will in fact operate and function as one. At bottom, a wallet is a personally protected device, one which does not commit the user’s private keys to the custody of third-party service providers. Many self-proclaimed wallet services (as hosted and operated by custodial exchanges) require users to entrust custody of their private keys to the service provider. For present purposes, only personally protected wallets are considered qua wallets, as any other wallet is but a custodial exchange in disguise.

Wallet storage services are often classified as “hot” or “cold” depending on the service’s internet connectivity. Alternatively, wallets may also be sorted into software, hardware and paper wallets depending on service apparatus. The near total overlap calls into question the utility of retaining both nomenclatures.

---

93 To the novice user, it may not be clear whether a wallet service offers a personally protected wallet or one hosted, operated and controlled by the service provider. “Whether these companies offer a personal wallet or a hosted wallet . . . the user interfaces may look and function in similar ways, but the ramifications of using one kind of wallet versus the other are quite different. In particular, the question of who is liable if bitcoins are stolen may be determined by who had access to the private keys. If you’re in doubt, ask whether you have access to the private keys.” Personal vs. Hosted Wallets, https://ebrary.net/7911/education/personal_hosted_wallets (last visited Jan. 28, 2022).

94 Paper wallets have become largely obsolete and are therefore sparingly considered. Suffice it to say, a paper wallet consists of a one-page printout displaying as QR codes the user’s blockchain address along with its private key.

95 All hardware wallets operate as cold storage devices, and (nearly) all software wallets are Internet-enabled.
A wide variety of wallet services allow for storage of crypto assets with different functionality and security features. In addition to security and functionality, considerations of potential relevance to investor choice of wallet service include the number and variety of supported (i.e., storable) currencies, as well as user incentives and loyalty rewards — such as eligibility to earn interest on stored digital assets through staking, inflation and saving rates as well as other interest-earning features.\(^\text{96}\)

As the name suggests, software wallets consist of software programs that interact with a variety of blockchain networks to make way for peer-to-peer swapping and other user transactions. Software wallets have two distinct advantages over hardware wallets: (i) convenience and ease of use, and (ii) affordability (as software wallets are usually free). On the flip side, and owing to their 24/7 Internet connectivity, software wallets are more vulnerable to electronic theft than cold storage alternatives.\(^\text{97}\)

Cold or hardware wallets are the ultimate physical storage device for digital assets, and second to none in asset security and protection against physical and electronic theft. Hardware wallets are offline electronic devices that employ a pseudorandom number generator to reproduce user public and private keys. And though software wallets may be more user friendly, hardware wallets are not difficult to use either. To consummate a trade or transaction using digital funds, all a user need do is plug in the hardware device, at which point user transactions may be carried out via the user’s public keys\(^\text{98}\) without ever compromising the user’s private keys (which are instead stored offline outside the prying eyes of the Internet).

Notably, moreover, today’s newer models come in small and compact cold storage devices, which allows users to effectively keep their crypto stash on them at all times.\(^\text{99}\) At the end of the day, ““[a]n all-in-one package wallet does not exist. It is important that you manage to find the wallet that addresses your greatest concern, be it security from theft, ease of transfer, convenience, monetary cost, or even style.”\(^\text{100}\)

---

\(^{96}\) By way of example, the following Coinbase Q&A guidance webpage outlines different interest-earning features available on Coinbase’s custodial exchange and hosted wallet service. See Staking and inflation on Coinbase. COINBASE https://help.coinbase.com/en/coinbase/trading-and-funding/staking-rewards/staking-inflation (last visited Dec. 27, 2021).

\(^{97}\) Today’s software wallets come in all shapes and forms and some of the newer models are equipped with first-rate security protocols, like the hierarchical deterministic wallet. See generally Hierarchical Deterministic Wallets; BITCOIN IMPROVEMENT PROPOSAL 32 (BIP-0032), 2012; see also Hossein Rezaeighaleh & Cliff C. Zou, Deterministic Sub-Wallet for Cryptocurrencies, UNIVERSITY OF CENTRAL FLORIDA (2019), available at https://www.cs.ucf.edu/~czou/research/subWallet-Blockchain-2019.pdf. It almost seems like every day or so there is a new and improved model being rolled out. Currently worth around one trillion U.S. dollar, the digital wallet industry “is estimated to grow to over $7T by 2027.” Research Report: The Future of the Wallet: How AI Advisors, Digital IDs, and Wearables Are Turning Mobile Wallets into the Next Super Apps, CB INSIGHTS (Feb. 23, 2022), https://www.cbinsights.com/research/report/future-of-the-wallet/.

\(^{98}\) Much like how the Internet relies on IP addresses to route digital communication data across computer networks, a public key or blockchain address (as expressed in alphanumeric form) enables transmission of transaction data across different currencies’ blockchain networks. For reasons of security, it is recommended that users generate a new public key or blockchain address for every transaction so as to prevent easy prediction of their trading habits.

\(^{99}\) While it may be tempting to conceive of crypto wallets as an actual place for ‘storing’ one’s digital coins, crypto wallets safeguard user access to blockchain accounts via numeric codes, i.e., the user’s public and private keys.

Investor choice of wallet service will depend on each investor’s particular needs and relevant circumstances. Regardless of the type of wallet one chooses, backing up one’s wallet regularly, including the wallet’s seed recovery phrase, is good practice. It is also recommended that investors select a strong wallet password and enable two-factor authentication for all wallet-to-exchange transfers.

Exchange platforms may be classified as either centralized (i.e., custodial) or decentralized, depending on how each platform processes user transactions. ‘Centralized’ signifies that the platform functions as a trusted intermediary by guaranteeing performance reciprocity between mutually distrustful parties. Decentralized exchanges, on the other hand, generally rely on atomic swaps and smart contract technology to organize peer-to-peer trade transactions within a “trustless” milieu. Decentralized exchanges do not exercise, at any stage of the transaction, custody or dominion over user funds.

Both trading models carry certain advantages and drawbacks, but a number of considerations can guide investor choice, depending on each investor’s individual needs and circumstances.

Admittedly, most crypto holders, especially those new to the space, are likely to favor trading on centralized platforms, and in fact digital currency transactions are increasingly performed “off chain” — that is, “via internal logging systems controlled by centralized cryptocurrency exchanges.” This is likely due to their better accessibility features and overall user friendliness. Decentralized platforms, on the other hand, tend to be more difficult to navigate, especially for new users. Also, centralized exchanges generally offer fiat currency convertibility, making them more accessible to novice users, many of whom may not initially own crypto assets.

101 Though a couple of newly emerging platforms purport to be both centralized and non-custodial (e.g., Commonwealth Crypto), none have made it past the pilot stage as of this writing.

102 Although with the explosion of liquidity pools of late, user transactions on decentralized exchanges are increasingly peer-to-contract rather than peer-to-peer. As of this writing, the total value locked in liquidity pools sits at USD 70.83 billion, down from USD 108.48 billion in December 2021. See DEFI PULSE, Total Value (USD) Locked in DeFi, https://www.defipulse.com (last visited Feb. 25, 2022). For an overview of liquidity pools, see generally What Are Liquidity Pools in DeFi and How Do They Work?, Binance Academy (Dec. 14, 2020), https://academy.binance.com/en/articles/what-are-liquidity-pools-in-defi (last updated Oct. 28, 2021).


104 While most decentralized exchanges do not offer crypto-to-fiat convertibility, some decentralized exchanges such as Bisq do support crypto-to-fiat convertibility, including a number of fiat currencies other than USD.
However, when it comes to asset security and hacking vulnerability, decentralized exchanges are quite superior despite widely held notions to the contrary. Centralized platforms are often touted as safer and more reliable, probably owing to their time-tested structure, and particularly the trusted third party factor, which prior to January 2009 was the sole guarantee of reliability of process in banking, financial and commercial transactions. It is hardly surprising, therefore, that centralized processes continue to elicit user trust and confidence, which at bottom spring from a certain level of societal comfort with intermediated transactions. Unlike centralized exchanges, however, decentralized platforms offer foolproof protection against hackers and thieves since the platform is never in possession of user assets. That said, decentralized exchanges arguably pose their own security risks to the extent they require users to keep their private keys on a separate wallet device, which if lost or stolen could mean irrevocable loss of stored assets.

Another advantage of centralized exchanges is off-chain processing and higher trade volume, which serve to soften the impact of crypto market volatility, and to a lesser extent price manipulation. Since transactions are performed off chain, they take significantly less time to process and complete. Significant delay in transaction processing, as experienced on decentralized platforms, means that a given asset’s market price may well change in between when a transaction is initiated and its time of completion (especially when trading in high-traffic currencies).

On the flip side, centralized exchanges have their own market manipulation problems like fake trading and wash trading. Moreover, decentralized exchanges generally offer a much broader selection of tradeable currencies.

Another potentially relevant consideration is user pseudonymity and elaborateness of user registration and screening procedures. Whereas practically no user screening is done by decentralized platforms, centralized exchanges are legally required to formulate and administer AML and KYC internal controls in compliance with FinCEN regulations (meaning that some sort of ID is generally needed to complete user registration).

RECOMMENDATION 13

It is preferable to keep the lion share of one’s digital assets in cold (offline) storage, and specifically a hardware wallet which continues to offer the best protection against electronic theft.

RECOMMENDATION 14

It is recommended to encrypt one’s wallet with a strong password and enable two-factor authentication for all wallet-to-exchange transfers. Moreover, to ensure access recovery in case of loss of one’s private and public keys, it is best to keep the wallet’s mnemonic seed in a safe and accessible place.

105 On October 31, 2008, Satoshi Nakamoto released crypto’s foremost, and still most important document to date, a white paper titled “Bitcoin: A Peer-to-Peer Electronic Cash System.” Bitcoin’s seemingly random pre-launch Halloween debut may not have been entirely coincidental: “The time works well with Satoshi Nakamoto, whose real identity is still under wraps. The world is yet to know whether it is a group, male or female.” John K. Mwaniki, INTERACTIVE CRYPTO (Dec. 1, 2020), available at https://www.interactivecrypto.com/the-truth-behind-the-release-of-bitcoin-white-paper. On January 3, 2009, Bitcoin officially launched.

106 Though most modern wallets are backed up by seed recovery phrases, or what is typically a twelve-word mnemonic that allows a wallet’s on-chain recovery in case of loss.

107 Since they are never in possession of user funds, decentralized exchanges do not warrant money-transmitter treatment under the BSA and FinCEN’s implementing regulations.
PARTING THOUGHTS

As with any novel investment model, it is important for prospective investors to understand and, to the extent possible, attempt to mitigate potential risks and areas of uncertainty. Needless to say, no finite set of recommendations could possibly account for all potential risks and variables, and our analysis in no way purports to be so exhaustive. Perhaps just as needless to say, our present understanding lacks the benefit of foresight to predict, for instance, whether the current downturn still unfolding across crypto markets will soon level off and allow last January’s stepwise upward trend to be reenacted.

Importantly, our recommendations should be considered within the context of a still burgeoning industry that has continued to prosper despite wild market gyrations and the all but certain prospect of regulatory tightening. Aside from having to operate in a fickle regulatory climate marked by haphazard and fragmented enforcement, crypto businesses must contend with a host of market-specific risks (liquidity challenges, hyper volatile markets etc.), all the while enjoying virtually zero institutional backing. Potential investors should thus carefully consider the many perils attending crypto-based investments, before irrevocably committing capital funds towards the contemplated venture. And while crafted with the investing public in mind, our analysis of regulatory risks may equally inform the farm company’s negotiating posture and bottom line assessment ahead of discussing contract terms with keen investors — or as is more likely the case, ahead of putting to investors the company’s standard form contract with scant room for compromise.

All in all, the article addresses the key, likely challenges facing investor-funded mining farms, and provides investors with potential solutions and workarounds to identified risk factors. As to investor-funded mining farms located outside the United States and governed by non-U.S. law, the article may offer comparative insight into crypto’s similarly precarious standing, at least in those jurisdictions where, like the United States, a splintered network of enforcement agencies administers a patchwork of outdated laws and regulations.

It is often said that risk mitigation is an ongoing, continuous process, seldom attainable in one fell swoop. That seemingly clichéd truism rings particularly true in the case of the cryptocurrency industry, and we predict will hold enduring salience for investor-funded ventures, and really, all crypto-based investments, at least for as long as the regulatory landscape remains liable to change at a moment’s notice.
CONTACT US

Level 9 | Le Bureau Building
Pierre Gemayel Street | Court House District
Beirut - Lebanon

https://www.linkedin.com/company/al-jad-llp

info@al-jad.com

www.al-jad.com