Adding Friction to A Frictionless World: Cryptocurrency and Intellectual Property Protections

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1. Why Intellectual Property Rights can be the Breaks for the Runaway Cryptocurrency Train

Despite cryptocurrency’s meteoric rise from fringe internet phenomenon to widely acquiesced payment option, its legal status has never been properly settled.1 While “currency” is written into the name and many people think of them as such, coins such Bitcoin, Etherium, and Dogecoin are not actual legal tender. They are simply practical applications of blockchain software that we have deemed to have value. However, because of the value cryptocurrency is determined to have, various financial and regulatory groups have been forced to determine exactly how to tax and appraise such assets.2 Ultimately, issues of cryptocurrency and the attendant blockchain technologies are the domain of intellectual property law because of the constant levels of innovation, change, and creative ideas that support this market, and these ideas deserve to be protected.

The idea for Bitcoin originated in a 2008 paper by Satoshi Nakamoto, and quickly turned into a reality the following year.3 It was not until 2011 that rival coins began to enter the market, creating competition in this newborn sphere.4 In staying true to the ideals of transparency and decentralization, most of the software that is the foundation of cryptocurrency was open source, which allowed anyone to use and improve them so long as the result remained open to the public.5

While these ideals still permeate the use of cryptocurrency, what if a new player in this market wanted to protect an improvement in the technology or process, or a new coin name via intellectual property rights? This article seeks to explore that question and the other questions held within like Russian Nesting Dolls. First, can someone protect cryptocurrency or blockchain

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1 See Uche Ewelukwa Ofodile, The Intersection of FinTechs and Trademark Law: Focus on Cryptocurrency, 53 UC Davis L. REV. ONLINE 141, 147-48 (2019-2020) (referencing the myriad legal issues that are still swirling around cryptocurrency).
technology through patent, copyright, trademark, or trade secret statutes? If crypto can be protected, should it? Assuming for the purposes of argument that crypto is deserving or capable of IP protection, which of the main four identified disciplines above would be most suitable? Alternatively, is there a combination that would work best? Finally, if a person was able to obtain IP protections what would be the practical results?

Cryptocurrency and blockchain technologies are capable and deserving of intellectual property protections. Of all the classifications that the federal government has placed upon crypto, property is the closest. As property, crypto and blockchain should be afforded the protections given to other innovations. Also, as a policy matter, the world of cryptocurrency is vast, largely unregulated, and often utilized as a means to further criminal activity. This is assisted by the fact that it is largely a frictionless market and intellectual property rights are infamous for introducing friction into markets. While this ad hoc regulation is far from a perfect solution to this problem, it would begin to slow down the market and allow the introduction of greater levels of stability and oversight to this space.

2. Bitcoin, Blockchain, Background

Cryptocurrency is not a relatively new phenomenon in the digital age, but it has received significantly greater attention in recent years. The origin of this technology is generally traced back to a 2008 white paper that made the argument, and laid out the process for, a decentralized online ledger to track financial information. The two crucial pieces to making this system work are a public, decentralized ledger that can track all of the financial activity and because of its decentralized nature is effectively immune to alteration; and a type of digital currency exchanged on peer to peer networks. With these fundamentals in place, the cryptocurrency environment had a relatively slow growth, that has since exploded. Cryptocurrency has largely emerged from its original, shunned position in both the financial world, with major banks and investment groups seeking to add cryptocurrency services to their portfolios, and the political world, as certain nations do recognize it as a legitimate currency. Alongside this growth, cryptocurrency has and is consistently utilized to fund all sorts of criminal activity.

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6 For purposes of this paper cryptocurrency will be treated as property as noted by the Internal Revenue Service in IRS Notice 2014-21.
7 See Morin, supra note 2 at 21-22 (noting the IRS classification of cryptocurrency).
8 See Marvin, supra note 3 (providing a timeline of cryptocurrencies growth over the years).
9 See Nakamoto, supra note 3 (explaining the basis of blockchain technology and application).
10 See Joseph R. Lavoie, A Cryptocurrency Orientation for Property Insurance Professionals, 49 BRIEF 8, 9-10 (2019) (explaining the key pieces allowing cryptocurrency and the blockchain to function).
11 See Bigmore, supra note 4 (noting the growth of cryptocurrency).
a. Origins and Definitions of Blockchain and Cryptocurrency

As noted above, the birth of the blockchain occurred during the midst of Great Recession. The paper describes an online financial system that can operate wholly divorced from long standing institutions such as banks or governments. From this, the actual application of blockchain technologies and attendant cryptocurrencies were born.

At this point it would be helpful to provide definitions to what are very technology jargon heavy terms related to blockchain. Blockchain refers to the decentralized ledger that tracks the online transactions utilizing the cryptocurrencies. This information is stored on “blocks”, which are “a record in the block chain that contains and confirms many waiting transactions.” These blocks are then all “chained” together in chronological order of transaction, with each block containing some information of the previous block, going back to the original. These repeating lines of information are known as “hashstamps.” These hashstamps are partially responsible for the independent verifying nature of cryptocurrency, because if a hashstamp is altered at any point, the rest of the chain shows the alteration. When coupled with the transparent nature of the decentralized ledger, when only one or a very small handful of individual records have this alteration, it becomes very easy to identify fraudulent activity. These verifications are done through the process of “mining” where users employ “computer hardware [to] do mathematical calculations for the Bitcoin network to confirm transactions.” As a reward for mining, miners can collect transaction fees and, in the case of Bitcoin, the chance to receive a new Bitcoin for their work.

Cryptocurrencies are the “digital or virtual currency that is secured by cryptography, which makes it nearly impossible to counterfeit or double-spend.” The original, and the most utilized cryptocurrency is Bitcoin, which as of November 6, 2021 is being traded at roughly $61,000 per coin. This valuation has since dropped to roughly $47,800 by March 29, 2022. However there are a multitude of different cryptocurrencies currently, being traded and valued at

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14 See Bigmore, supra note 4 (noting the timing of the introduction of blockchain and cryptocurrency).
15 See Nakamoto, supra note 3 (describing the mechanics of the blockchain system).
16 See Marvin, supra note 3 (describing how cryptocurrencies work).
17 See Lavoie, supra note 10 at 10 (defining the word blockchain).
19 See Lavoie, supra note 10 at 10 (defining the connection between the blocks).
20 See id (providing the term for the long strings of information).
21 See id (noting how these long strings of information come to represent the distributed, transparent nature of the information captured on the blockchain).
22 See id (discussing how information on the blockchain is verified).
23 See Some Bitcoin Words You Might Hear, supra note 18 (defining the phrase “mining” in the cryptocurrency context).
24 Compare See Some Bitcoin Words You Might Hear, supra note 18; with Lavoie, supra note 10 at 10 (explaining the benefits to the individual doing the mining).
26 See Assets, Coinbase.com (last accessed Nov. 6, 2021), https://www.coinbase.com/price (noting the price at the time it was checked).
27 See id.
wildly different prices. An important aspect of cryptocurrency worth noting here is that cryptocurrency transactions are completely nonreversible, even in instances of fraud or mistake.

b. Cryptocurrency’s Growth

Cryptocurrency certainly had humble origins, but has outgrown them in a truly astounding way. The first Bitcoin blockchain began in 2009, but the first purchase using Bitcoin did not occur for another year, when the buyer purchased two pizzas for 10,000 Bitcoin. During the rest of the 2010s interest in cryptocurrency grows sharply as various other developers introduce their own cryptocurrencies or coins. No longer viewed as purely internet fad, various companies including the electric car manufacture Tesla began to accept cryptocurrency as valid payment.

While significant, fundamental questions remain about cryptocurrency, its use and popularity cannot be denied. The first “exchange-traded funds tracking crypto assets” was just added to the New York Stock Exchange in October 2021 after receiving implied approval from the SEC. Major investment groups such as JPMorgan, Wells Fargo, and Goldman Sachs have been on hiring sprees to obtain experts on cryptocurrency to assist their customers. After previously shunning cryptocurrencies, these investment groups were forced to accept them after significant, sustained client interest. Most notably, El Salvador is the first nation to have fully legalized cryptocurrency, in an attempt to spur greater outside investment in the nation. However this move has been plagued by technical issues, and opposition both at home and abroad. While cryptocurrency’s growth over the last decade can be viewed as laudable, the technology has been consistently connected to a shocking amount of criminal activity.

c. Cryptocurrency and Crime

Cryptocurrency has long been tied to online criminal activity. This is partially due to the anonymity that is fundamental to its nature, as Bitcoin transactions, while stored on the

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28 See id (providing a list of currently traded cryptocurrencies).
29 See Lavoie, supra note 10 at 10 (noting a danger in cryptocurrency transactions).
31 See id (noting the growth of cryptocurrency during the 2010s).
32 See id (noting a few companies that were early adopters of cryptocurrency).
34 See Song and Doherty, supra note 12 (noting the various financial institutions that have increased their hiring of people with cryptocurrency experience).
35 See id (describing why these traditional financial institutions changed their practices).
37 See id (noting opposition to this new law).
public ledger, are done through anonymous or pseudonymous online accounts. Observers can see that the transactions are happening, but all they see is amounts of cryptocurrencies being moved from one series of random numbers representing an account to another series of random numbers. This anonymity, coupled with the fact that users often have multiple accounts and transactions can happen effectively immediately, makes investigation and attribution a nightmare.

One of the early criminal usages of cryptocurrency was in the infamous Silk Road online marketplace, where crypto was utilized to pay for drugs and other illegal materials. While the technology may be hard at times to grasp, it can be easy to use as people will buy data such as credit card numbers or medical information using cryptocurrencies. Today cryptocurrency is the preferred form of payment for the unending litany of ransomware and cyberattacks. Coupled with this threat, terrorist organizations such as Hamas and ISIS have solicited donations and payments through cryptocurrency, prompting the Department of Justice to step in and seize funds and accounts to stop this revenue stream. Despite this explosion of use and growth, fundamental question about cryptocurrency remain.

3. Cryptocurrency Classifications: Security, Commodity, Currency, or Property?

Perhaps unsurprisingly, United States regulatory agencies have had significant difficulty in responding to cryptocurrencies. Partially fueling the confusion is the seemingly basic question about what cryptocurrency is: a security, a commodity, a currency, or property? Different agencies have taken different approaches. The Securities and Exchanges Commission (SEC) has taken action in a few instances when a new coin is being brought to market, known as an initial coin offering or ICO, arguing that the ICOs were unregistered securities offerings. The Commodity Futures Trading Commission (CFTC) has taken the position that cryptocurrency can be considered commodities and subject to the CFTC’s oversight. Complicating all of this is the fact that people use cryptocurrency as if it were legal currency in a wide variety of business transactions. Finally, the Internal Revenue Service (IRS) has taken the position that

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40 See Greg Myre, How Bitcoin Has Fueled Ransomware Attacks, NPR (June 10, 2021) https://www.npr.org/2021/06/10/1004874311/how-bitcoin-has-fueled-ransomware-attacks (describing how there can be such anonymity in ostensibly public transactions).
41 See id (describing the significant difficulties with trying to connect cryptocurrency transactions with specific criminal activity).
42 See Keel, supra note 38 (noting the early online marketplace where cryptocurrency was utilized to fund criminal activity).
43 See id (describing the ease in which cryptocurrency can be picked up for criminal transactions).
47 See Digital Assets Primer, Commodity Futures Trading Commission (December 2020), 24 accessible at https://www.cftc.gov/digitalassets/index.htm (listing the decision that provide the basis for CFTC jurisdiction).
cryptocurrency should be treated as property for tax purposes.48 For purposes of this paper, the best approach is the IRS view that cryptocurrency is property. Further, the scope of the below discussion is limited to the perspective of a theoretical inventor or creator of a new coin, improvement to blockchain technology, or coin name to be used in commerce than the individual user trading units of cryptocurrency online.

4. Patents, Copyrights, Trademarks, and Trade Secrets: Where does Cryptocurrency and the Blockchain Fit In?

One of the beauties of intellectual property law is that there seems to be a level of protection for almost any idea a person can have. As cryptocurrency and the blockchain can be best defined as property, individuals who are able to add innovations and updates to this sphere should be able to protect their advancements. The question then becomes how does cryptocurrency and the blockchain fare under the existing intellectual property regimes? For patents, any innovation would need to be new, useful, and nonobvious.49 These technologies would likely face significant patentability challenges on the grounds that they are merely applications of an abstract idea.50 To obtain a copyright, any addition would need to be an original work, fixed in a tangible medium.51 For trademark protection, the creator would need to be able to create a unique mark that is used in commerce.52 Finally, to achieve trade secret protection a creator would need to have something that they have kept reasonably secret, and that secret has independent economic value.53

a. Patent Protections and the Blockchain

Patent protection is reserved for “new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.”54 In this context, new means that the invention was not described in a printed publication, patented, publicly used, or generally available to the public before an inventor filed for their patent.55 Useful means that the invention must have some sort of practical utility, though that utility does not need to be so grand as to eclipse all other inventions that came before it.56 Finally, “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.”57 These three requirements are the foundations for obtaining a patent on an invention.

48 See IRS Notice 2014-21, 2 (answering the question of how to treat cryptocurrency for tax purposes).
49 See 35 U.S.C.A. § 101 (West 1952); see also 35 U.S.C.A. § 102 (West 2015); see also 35 U.S.C.A. § 103 (West 2011) (setting out the basic requirements of patentability).
50 See Alice Corp. Pty. v. CLS Bank Int'l, 573 U.S. 208, 217-18 (2014) (explaining that abstract ideas are normally outside the subject matter for patents).
51 See 17 U.S.C.A. § 102 (West 1990) (setting out the requirements for copyright protection).
53 See 18 U.S.C.A. § 1839(3) (West 2016) (defining the requirements of a trade secret).
56 See Bedford v. Hunt, 3 F. Cas. 37 (C.C.D. Mass. 1817) (explaining the utility requirement for patents).
Alongside these requirements, and particularly relevant to potential patent applications for blockchain and cryptocurrency inventions is the subject matter limitation. 35 U.S.C. § 101 provides for a comprehensive list of what can be patented, as any “process, machine, manufacture, or composition of matter, or any new and useful improvement” are considered valid subject matter for patents. However, patents whose subject matter revolve around laws of nature, natural phenomena, and abstract ideas are not valid; unless the patent provides some sort of transformative element that makes it more than just a simple application of what would otherwise be unpatentable subject matter.

Patentability for blockchain improvements is certainly possible. At this point it would be impossible to patent the basic idea of the blockchain, both because of the original paper describing it, and because the technology, a decentralized ledger with multiple copies all recording the same information, is not new. Furthermore, it can be argued that attempting to patent the concept of a decentralized ledger is of a similar subject matter to the patent at issue in Alice which was held to be an unpatentable abstract idea. A new blockchain invention could theoretically be patentable. For the past decade, a number of people have filed patent applications claiming inventions that “access control, block construction, data processing and decryption technologies, and also include inventions in areas like information coordination, authenticating goods and financial reporting.” This growth in applications has come with an attendant decline in approvals, as the Patent Office has been declining to grant patents on blockchain improvements in recent years.

Depending on the state of the prior art and the drafting, a hypothetical inventor’s invention would fit into the type of material protected by patents. It is an improvement, however limited, in the way that information on the blockchain is validated, increasing the amount of information that can be validated in less time, thus making it useful. So long as the prior art does not already cover this innovation, and does not render it obvious it can be patented; and so long as the claims are drafted well, it could avoid the Alice unpatentable subject matter refusal. Thus it is possible to patent limited, specific innovations and improvements related to blockchain technologies.

59 See Alice, supra note 50 at 216-18 (explaining the patentability requirements for patents who attempt to claim otherwise unpatentable ideas).
60 See Colandreo, supra note 5 (describing what types of blockchain improvements could be patented).
61 See id (explaining some of the novelty issues that blockchain patent applications face).
62 See Alice, supra note 50 at 226-27 (explaining why the subject matter at issue was simply a rote application of an abstract idea).
65 As a note, cryptocurrency itself is unlikely to be of patentable subject matter. It would likely fail the Alice test as a rote application of the abstract idea of a digital currency untethered from governmental control. Alternatively, cryptocurrency would fail the novelty bar as movable currency is a technology that has been in use for centuries.
b. Copyright for Cryptocurrency

Copyright law covers original works of authorship, fixed in some sort of a tangible medium that allows people to observe the authorship.66 Traditionally, copyright protection embraces literary works; musical works; dramatic works; pantomimes and choreographic works; pictorial, graphic, and sculptural works; motion pictures and other audiovisual works; sound recordings; and architectural works.67 Generally speaking, under copyright law, computer programs are considered to be a string of instructions to computers on how to perform task and thus fall under the definition of “literary works.”68

Cryptocurrency and the blockchain, at its most simple level, is just software code defining a ledger and a coin system and telling computers how to utilize these tools. Thus, under the definitions found above, they are protectable by copyright. The more difficult question that arises here is, what is the scope of that protection? Part of the problem here derives from the fact that a significant amount of coding work done for cryptocurrencies utilizes work copying and improving on open-source code.69 Open source code generally means that the source code, the foundation of the program, is publicly available to test, copy, modify and improve on.70 Some of the creators of the source code require subsequent users to obtain licenses to use the code, and these licenses can run the gamut from effectively just attribution to the original creator, to imposing requirements that the secondary user also share their improvements.71

The reason this presents a problem is that under copyright law, such improvements would be known as derivative works.72 Derivative works are works that based on an original that then have been recast, transformed, or adapted.73 Copyright protection exists for derivative works exist, but only for the extent of new material added and does not stretch back to anything found in the original work.74

Applying this to a hypothetical inventor’s creation leads to the conclusion that copyright protection is possible. Their source code would be viewed as an original work of authorship fixed in its medium of code. The larger problem is how much they took from the various open-source codes during the creation process. As all the work that came from those other works would only be viewed as derivative creations, and they could only protect additions. Ultimately, copyright protection is possible, though likely very limited.

66 See 17 U.S.C.A. § 102 (setting the copyright requirements).
67 See id (providing the list of works protected by copyright law).
69 See Colandreo, supra note 5 (noting the ubiquitous nature of open-source code in the cryptocurrency and blockchain sphere).
70 See id (explaining the purposes of open-source code).
71 See id (describing the various licenses users can impose in open-source relationships).
72 See 17 U.S.C.A. § 101 (providing the definition for a derivative work).
73 See id.
c. Cryptocurrency, Commerce, and Trademarks

Trademark law is used to protect marks that identify goods and services in commerce.\textsuperscript{75} Because the whole purpose of a trademark is identification, new trademarks will not be granted protection if they are likely to cause consumer confusion with an existing mark.\textsuperscript{76} Finally, the United States premises trademark protection on priority of use, thus issues often hinge on who used the mark first.\textsuperscript{77}

Trademark protection for cryptocurrency is certainly possible, but like with other aspects of the law requires clever drafting. As trademark protection is only granted for goods and services in commerce, any registration application has to have a clear use identified.\textsuperscript{78} Simply claiming that the cryptocurrency is to be used as currency would not satisfy this requirement as currency, on its own, is not a good or a service.\textsuperscript{79} Trademark attorneys are clever and have included a variety of other uses in applications in recent years mostly that the trademark identifies software that can be used to facilitate cryptocurrency transactions.\textsuperscript{80}

Trademarks have to be able to identify their own good or service and should not cause confusion with other marks.\textsuperscript{81} How to prove that a consumer would be confused is a question that has multiple answers as each Circuit has its own marquee case that lays out a variety of factors.\textsuperscript{82} Here, in the Third Circuit, we follow a ten-factor test laid down in \textit{Interpace Corp. v. Lapp, Inc.}.\textsuperscript{83}

Applying this to a hypothetical inventor’s new coin, leads to a conclusion that trademark protection is likely. So long as the application is drafted well, and the good or service claimed is more than just for use as currency, it is likely that it would pass the Trademark Office’s review. To establish primacy, the inventor would be best served to launch their endeavor as soon as possible. On confusion grounds, while originally cryptocurrencies were often trademarked with the word “coin” in the name, that practice seems to have fallen by the wayside as newer cryptocurrencies are given more esoteric names.\textsuperscript{84} Thus, there are a plethora of possible names for a new cryptocurrency.

\textsuperscript{75} See 15 U.S.C.A. § 1051 (noting requirements for trademark protection).
\textsuperscript{76} See id (providing reasons why trademarks may not be granted protection under the statute).
\textsuperscript{77} See Ofodile, \textit{supra} note 1 at 168 (discussing the nature of the priority of use system in the United States).
\textsuperscript{79} See \textit{id} (noting that cryptocurrency trademark applications require more commercial use than just as a currency).
\textsuperscript{80} See \textit{id}; see also Ofodile, \textit{supra} note 1 at 150 (providing various trademark registration examples that have passed the Trademark Office’s scrutiny).
\textsuperscript{81} See 15 U.S.C.A. § 1051 (noting registration will be rejected if the second mark will cause confusion with existing marks).
\textsuperscript{82} See generally Polaroid Corp. v. Polarad Elecs. Corp., 287 F.2d 492, 495 (2d Cir.1961); AMF Inc. v. Sleekcraft Boats, 599 F.2d 341, 348 (9th Cir. 1979); \textit{Interpace Corp. v. Lapp, Inc.}, 721 F.2d 460, 463 (3d Cir. 1983) (demonstrating the similar and different factors weighed by the various courts).
\textsuperscript{83} See \textit{Interpace Corp} 721 F.2d 463 (listing the factors to consider).
\textsuperscript{84} See Ofodile, \textit{supra} note 1 at 152 (noting the change in naming practices).
d. What Can Be Secret on a Public Ledger?

Federal Trade Secret law protects any information with independent economic value, in effectively any form, that is subject to reasonable efforts to keep to secret. One of the benefits of trade secrets is that they require no kind of application, registration, or certification process. The downside is that the law only really protects these ideas when they are misappropriated.

Trade secret law seems like an odd choice to protect information that is supposed to be inherently public, but it is possible. What is most protectable under trade secret law would be the private key used to access individual wallets to view or trade their cryptocurrency. In a similar vein, the method of encryption used in a certain blockchain or in connection with a certain cryptocurrency could also be protected so long as that key was kept secret. Both examples have independent value as the private key would allow others to access a user’s current inventory of cryptocurrency and access to the encryption key of a blockchain could theoretically allow a user to splinter off and create their own cryptocurrency. The currency itself would not be protectable as it would not be subject to any reasonable secrecy efforts as a secret currency tends to defeat its own purpose. Thus trade secret law could protect aspects of the cryptocurrency sphere.

Cryptocurrency and blockchain technologies are protectable, to various degrees, under our current federal intellectual property scheme. That answer, by itself, cannot solve the larger issue of if they should. Ultimately, cryptocurrency should not be excluded from intellectual property protections as our system protects arguably more dangerous technologies, and the effective enforcement of intellectual property rights can act as a source of friction to potentially slow this runaway train.

5. Should Cryptocurrency and the Blockchain Be Protected?

Having resolved the question of can cryptocurrency and the blockchain be protected under our existing federal intellectual property regime we must then ask, should it? Ultimately, yes it should receive all applicable protection for three major reasons. First, there has been a general shift away from denying intellectual property rights on moral grounds. Second, as some commentators have noted previously, protection of arguably unsavory products through intellectual property law can act as a way to slow the spread of unwanted material. Third, the

85 See 18 U.S.C.A. § 1839(3) (providing the definitions of a trade secret).
88 See id (explaining the independent economic value found in the private keys).
89 See id (explaining why the cryptocurrency itself would not be protected).
90 See Juicy Whip, Inc. v. Orange Bang, Inc., 185 F.3d 1364, 1368 (Fed. Cir. 1999) (striking down the doctrine of moral utility in patent law); see also Matal v. Tam 137 S. Ct. 1744, 1764-65 (2017) (holding that the disparaging clause of the Lanham Act was viewpoint discrimination and thus unconstitutional) and Iancu v. Brunetti, 139 S. Ct. 2294, 2299-2300 (2019) (holding that the scandalous or immoral provision was viewpoint discrimination and thus violated the first amendment).
The cryptocurrency market is notoriously volatile, and while that may be appealing to some users, this volatility needs to be brought in check.92

Cryptocurrency would not be the first dangerous, immoral, or unsavory invention that has received federal intellectual property protections. In fact, such value heavy exclusion doctrines are being stripped out of intellectual property law. In patents, there used to be a doctrine of “moral utility” or the idea that patents should not be granted to inventions that are “injurious to the well-being, good policy, or sound morals of society,”93 However the Federal Circuit killed this doctrine more than twenty years ago, and there has barely been any fight to try and resurrect it.94 Furthermore, in the last five years the United States Supreme Court has struck down trademark application rejections that are based on moral grounds.95 First in Matal v. Tam and subsequently in Iancu v. Brunetti, the Court found that sections of the Trademark Act that prevented registration of trademarks that were disparaging, immoral, or scandalous amounted to government restriction of free speech and thus were unconstitutional.96 Even in copyright law, there is no longer any barrier that would exclude providing protections to immoral or obscene works.97 Thus moral arguments should hold no water in a discussion of intellectual property protections for cryptocurrency.

In fact, granting intellectual property protections to cryptocurrency may be the best way to slow its spread. For example, the patenting of tax planning strategies can increase the cost of the service, and drive down its user base in the process.98 Additionally, through copyright protection of pornography, purveyors can actually decrease the spread of complete, unlicensed copying and actually work to diminish the amount found online.99 Why should we think cryptocurrency would be any different? Intellectual property rights can provide the individual creators the ability to protect their own innovations, and such enforcement can theoretically act as a brake on the industry.100

Finally, cryptocurrency should receive these protections to act as some sort of a brake here because this market is far too volatile and dangerous in its current unregulated state. In just the past year, Bitcoin’s value has risen from $20,000 to $65,000 to fall below $30,000, only to

92 See Noelle Acheson, Crypto Long & Short: Crypto Markets Are Volatile Because They're Free, coindesk.com (Sept. 14, 2021) https://www.coindesk.com/markets/2021/05/23/crypto-long-short-crypto-markets-are-volatile-because-theyre-free/ (arguing it is a benefit that cryptocurrency markets are so volatile and should stay that way).
93 See Juicy Whip, 185 F.3d at 1366 quoting Lowell v. Lewis, 15 F. Cas. 1018 (C.C.D.Mass.1817) (establishing the doctrine of moral utility).
95 See id.
96 See id at 962-63 (noting how copyright protection can actually decrease the amount of pornography found online).
97 See id at 972-74 (explaining how individuals could be incentivized to enforce their intellectual property rights, even if such enforcement could harm the market).
rise again to around $60,000 before dropping off precipitously again.\footnote{Compare What Makes the Cryptocurrency Market So Volatile? Find Out, NDTV.com (Aug. 14, 2021) https://www.ndtv.com/business/why-is-the-cryptocurrency-market-so-volatile-2509836 (tracking the various values that Bitcoin has had over the year); with Assets, supra note 26 (noting the current value of Bitcoin).} The Twitter account of one billionaire who thinks of himself as the expert on all things in the technology sector can change the value of Bitcoin by tens of thousands of dollars.\footnote{Compare Eric Lutz, Elon Musk Just Tanked His Second Cryptocurrency In A Week, Vanity Fair (May 13, 2021) https://www.vanityfair.com/news/2021/05/elon-musk-just-tanked-his-second-cryptocurrency-in-a-week; with Bitcoin is bouncing back after Elon Musk’s tweets cause a roller coaster of volatility, Financial Post (May 26, 2021) https://financialpost.com/personal-finance/business-essentials/bitcoin-is-bouncing-back-after-elon-musks-tweets-cause-a-roller-coaster-of-volatility (describing the outsized effect that Elon Musk has on the value of Bitcoin).} Some developers start joke cryptocurrencies named after popular bits of current media and use it as a vehicle to take millions from regular people after artificially raising and crashing value.\footnote{See Amy Cheng, ‘Squid Game’-Inspired Cryptocurrency That Soared By 23 Million Percent Now Worthless After Apparent Scam, Washington Post (Nov. 2, 2021) https://www.washingtonpost.com/world/2021/11/02/squid-game-crypto-rug-pull/ (describing how a cryptocurrency named after the popular show “Squid Game” was used to take millions from regular users).} All of this can happen because the market has no one that is enforcing rights, and slowing down wild speculation. It would not be perfect, but intellectual property rights enforcement could add friction to this space and thus cryptocurrencies and blockchain technologies should be protected by intellectual property laws.

6. Which Protection would be Best?

If cryptocurrency can and should be protected under intellectual property law, which protection would be best? Perhaps unsurprisingly, the answer to this question is both it depends and a mixture of all of them as they all have benefits and detriments. A patent would be difficult to get, but would provide the greatest bundle of rights.\footnote{For more information on the difficulties of obtaining a patent in this area see supra notes 54-65 and the accompanying text; see also 35 U.S.C.A. § 154 (West 2015) (providing the rights found in a patent).} A copyright would protect the exact means of the expression, in this case computer code, but not the idea itself.\footnote{See 17 U.S.C.A. § 102 (noting the limitation of copyright).} Trademark law will only protect the identifying mark.\footnote{For more information on the scope of trademark law see supra notes 75-84 and the accompanying text.} Trade secret law will only cover the misappropriation of the idea, not the idea itself.\footnote{See 18 U.S.C.A. § 1839(3); see also 18 U.S.C.A. § 1832 (describing the protection that trade secret law provides).} These doctrines put together will provide an inventor fairly robust protection.

Patents would provide the greatest protection to an inventor, but would also be the most difficult protection to obtain. As noted above, there has been a rush to try and patent different blockchain inventions\footnote{For a further discussion of the patentability of blockchain improvements see supra notes 60-61 and the accompanying text.} As this body of prior art grows, it increases the difficulty of overcoming both the novelty and obviousness hurdles as there is simply more material to draw on. Added on to this is the looming issue of the Alice test, with patent attorneys needing to be able to describe their client’s invention such that it can be viewed as a transformative application of an abstract idea, which in terms of software patents can be difficult.\footnote{See Is Software Patentable in The United States?, ShahIPLaw.com (last accessed Nov. 22, 2021) https://www.shahiplaw.com/software-patents/ (discussing the difficulty of patenting software).} All that being said, if the inventor is
able to obtain the patent on their invention, they then gain the right to exclude all others from making using, or selling technologies that utilize their invention.\textsuperscript{110} This would be the most robust intellectual property right as it can allow the inventor to dictate certain terms to the players in the market on if and how the invention will be used.

Copyright could provide a moderate amount of protection here. Here, a copyright of the source code would end up protecting that exact expression of the code.\textsuperscript{111} It would not protect the idea of it, so a separate creator who created the same or similar code would not be liable to the relevant authors. Furthermore, as recently seen in \textit{Google v. Oracle}, if what the copyright protects is simply prewritten code that facilities communication between devices, that may not be fully protectable.\textsuperscript{112} There, the Supreme Court held that Google’s usage of the software used to assist in the creation of new smartphone applications was fair use.\textsuperscript{113} Thus, if what an inventor tried to protect is simply facilitating software, that may not receive the same level of protection as a wholly new piece of writing but otherwise he could still protect his code through copyright.

Trademark and trade secret protection would be limited here, which reinforces the need to have multiple overlapping forms of protection. Trademark only protects the identifying mark, and little about the good or service being identified.\textsuperscript{114} This only prevents a competitor from using that specific identifying mark and its perceived good will in the market. Trade Secret law only protects the information if it has been misappropriated by a third party.\textsuperscript{115} While an injured party could potentially recover damages for their idea being stolen, the idea itself will still be public at that point.\textsuperscript{116} This is where having multiple forms of protection would be best, as a combination of the above regimes would allow an inventor to potentially protect the idea, its expression, and its marketing.

7. What Happens Next?

Accepting all of the above as true, what would happen to this market? Certainly, transaction costs and frictions would be added in, as exchanges, creators, and users would be forced to accept licensing deals or be sued for infringement or drop out of the market. Liability under both patent and copyright third party liability doctrines would cause the various players involved a great deal of concern. These frictions are not necessarily a bad thing, as increased friction could provide an opportunity for congressional action and regulatory catch up.\textsuperscript{117} If

\begin{itemize}
\item \textsuperscript{110} See 35 U.S.C.A. § 154 (providing the rights found in patents).
\item \textsuperscript{111} See 17 U.S.C.A. § 102 (noting the limitation of copyright).
\item \textsuperscript{112} See \textit{Google LLC v. Oracle Am., Inc.}, 141 S. Ct. 1183, 1191, 97 (2021) (holding that Google using the software written by Java was fair use).
\item \textsuperscript{113} See id at 1201-09 (explaining the fair use holding).
\item \textsuperscript{114} For more information on the scope of trademark law see \textit{supra} notes 106-115 and the accompanying text.
\item \textsuperscript{115} See 18 U.S.C.A. § 1839(3); see also 18 U.S.C.A. § 1832 (describing the protection that trade secret law provides).
\item \textsuperscript{116} See 18 U.S.C.A. § 1836 (West).
\end{itemize}
nothing else, these frictions could slow down or prevent another bubble burst as seen in the early 2000s with the Dot Com boom.\textsuperscript{118}

Increased friction in this space would likely come from owners and inventors exercising their rights against the exchanges and other large operators in this space. This would likely come through patent and copyright doctrines of third-party liability, as going after individual users would be a time consuming and likely fruitless endeavor.\textsuperscript{119} Under copyright law a third party can contributiorily infringe by intentionally inducing or encouraging infringement, and vicariously infringe by profiting off of infringement and not exercising a right to control or stop infringement.\textsuperscript{120} Under patent law a person can be held liable if they actively induce infringement or contribute to infringement by selling or providing a part in a patented invention or process.\textsuperscript{121} All of this taken together means that if a patent or copyright owner believed that an exchange such as Coinbase was profiting or contributing to the infringement of their rights, the owner could sue. Such lawsuits would likely affect the value of the cryptocurrency traded, due to the high levels of volatility noted above.\textsuperscript{122}

This friction could be beneficial in the long run. It may give Congress enough time to finally consider one of the many cryptocurrency bills that have been introduced so that clarity could be injected into this sphere.\textsuperscript{123} The increased friction could lower the likely artificial value of various cryptocurrency, which could hopefully prevent those who bet wrong from losing everything. Currently, as noted by some investment experts, the cryptocurrency space heavily resembles the Dot Com boom where everyone believed they needed a website even if it did not do anything, and thus a loss of value here could prevent a similar meltdown.\textsuperscript{124} This friction will add short term costs and headaches, but it is needed to prevent long term disasters.

Ultimately, cryptocurrency and the blockchain is a significant technological advancement of the last dozen years. The concept is sound, being able to move money and pay for goods online in a market that completely records and validates all transactions and does not need the intervention of current middlemen and third-party organizations. However, its current unregulated, highly volatile and dangerous state threatens those advancements. As such, cryptocurrency and the blockchain is both capable and deserving of intellectual property protections. These protections, when used in combination to their fullest effect can add the necessary frictions to this market to prevent overheating or bursting similar to other unchecked advances. Temporary pain is unavoidable here, but it is better than permanent injury.

\begin{itemize}
\item \textsuperscript{118} See Bryan Martin, \textit{Tech Boom 2.0: Lessons Learned From the Dot-Com Crash}, WIRED.com (last accessed Nov. 23, 2021) \url{https://www.wired.com/insights/2013/08/tech-boom-2-0-lessons-learned-from-the-dot-com-crash/} (noting the differences in how the technology industry operates and invests after the lessons of the Dot Com Boom).
\item \textsuperscript{119} See \textit{Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.}, 545 U.S. 913, 929-30 (2005) (noting why lawsuits target the larger developers and operators rather than individual users).
\item \textsuperscript{120} See \textit{id} at 930 (explaining the major doctrines of third-party liability in copyright infringement).
\item \textsuperscript{121} See 35 U.S.C.A. § 271(b)-(c) (West 2010) (listing the theories of patent liability).
\item \textsuperscript{122} For a further discussion of cryptocurrency’s volatility please see \textit{supra} notes 101-102 and the accompanying text.
\item \textsuperscript{123} See Brett, \textit{supra} note 117 (noting the different cryptocurrency bills introduced in this Congress).
\end{itemize}