

INNOVATING RESPONSIBLY

Protecting Investors and Managing Risks in Initial
Coin Offering Financial Cryptocurrency Markets

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CAPCO

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Disclaimer

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List of Acronyms

1. SEC – Securities and Exchange Commission
2. ICO – Initial Coin Offering
3. IPO – Initial Public Offering
4. PICO – Private Initial Coin Offering
5. CIP Rule – Customer Identification Program rule
6. KYC – Know-Your-Customer
7. AML – Anti-Money Laundering
8. CFTC – Commodity Futures Trading Commission
9. FinCEN – Financial Crimes Enforcement Network
10. OTC trading system – Over-the-counter trading system
11. SAFT – Simple Agreement for Future Tokens
12. VC – Venture Capital
13. PE – Private Equity
14. FOMO – fear of missing out
15. Fin-tech firms – financial technology firms
16. VPNs – Virtual private networks

Executive Summary

Initial Coin Offerings (ICOs) are a financial innovation which threatens to disrupt the existing capital raising ecosystem, namely initial public offerings (IPOs), venture capital (VC)/private equity (PE), and a relatively new yet analogous innovation Equity Crowdfunding. Building off the working definition offered by Adhami, Giudici and Martinazzi, an ICO is an open call, through the internet, for the provision of cryptocurrency or traditional currency in exchange for tokens generated through underlying blockchain technology and smart contracts, allowing the pledger to enjoy an exclusive right, reward or financial gain. ICOs solve an economic function, offering potentially higher returns than equity finance yet greater risks for investors. Namely, ICOs have not up to this point been subject to traditional SEC requirements, allowing firms to use the market for capital raising without facing certain investor disclosure requirements as well as access a previously untapped funding base. These markets currently present considerable risks to investors, for reasons including the novelty of the markets, widespread fraud such as pump-and-dump schemes and the difficulty in valuing the distributed tokens. The all-time total cumulative value of ICO funding as of May 1, 2018 is \$12.1 billion according to coindesk.com with 97.2 percent of that number raised in just the last twelve months.

The Securities and Exchange Commission (SEC), created by the 1933 Securities Act in the aftermath of the Great Depression, has three primary responsibilities as part of its mandate as an independent federal agency to regulate the securities industry (*The Role of the SEC*, n.d.) These duties include protecting investors, maintaining fair and organized markets, and making capital distribution and formation possible. Because cryptocurrencies and initial coin offerings have elements of securities within them, the SEC has recognized its role in applying its jurisdictional authority over securities to these markets, despite their design structured to function outside traditional financial regulation. Nonetheless, with the appropriate approach to regulation, the SEC can ensure it fulfills its mandates while making the system for ICOs, the primary focus of this paper, safer for investors and start-ups. If done correctly, the agency can also limit downside

risk to the organic growth of this market, though evaluating this counterfactual remains exceedingly difficult.

This paper focuses on policy alternatives designed for Capco – a private financial services consulting firm – to present to the SEC on how it should approach regulating Initial Coin Offering markets. These options include:

1. *A laissez-faire approach*
2. *Delay of market intervention and continuation of case-by-case approach*
3. *Issue new regulation exemption and related provisions*
4. *Strict enforcement of current securities laws*

To determine the impact and effectiveness of these policy alternatives, this paper tests the stated options against a set of four criteria. These evaluative criteria include:

1. Implementation difficulty
2. Effect on risk-adjusted investor parity
3. Extends market benefits of ICO markets
4. Reduces investor risk

Based on the analysis of the four potential options against the set of four evaluative criteria, this paper recommends adoption of *Option #3: Issue new regulation exemption and related provisions*.

Problem Statement

Financial innovation is a crucial driver of economic growth, particularly in capitalistic economies. In the context of early stage financing, initial coin offerings can address issues of exclusion, opacity and coordination problems that can prevent entrepreneurs from obtaining the capital necessary to successfully grow their ventures (Li & Mann, 2018). Nevertheless, the vast majority of ICOs are structured to circumvent

regulation, intensifying concerns over investor protection, systemic risk and fraud. (Zetzsche, Buckley, Arner, & Ffhr, 2017)

The SEC does not currently prevent U.S investors from participating in ICOs. However, many U.S. investors are excluded from participation because most organizers of ICOs explicitly prevent participation from U.S. citizens for fear of running afoul of American securities laws. Thus, the challenge for the SEC is clear: how should the agency use its regulatory power over securities to foster growth of capital intermediation in Initial Coin Offering financial cryptocurrency markets while mitigating investor risk, systemic risk and fraud.

Understanding Cryptocurrencies

In order to understand the economic function fulfilled by ICOs, it's useful to have a grasp of the mechanics and markets behind cryptocurrencies which are used as the primary funding mechanism for ICOs. Cryptocurrencies are based on blockchain technology, a publicly distributed ledger which records and authenticates transactions using encryption on a decentralized (peer-to-peer) computer network architecture (Li & Wang, 2017). While that definition sounds confusing, the mechanics are fairly easy to grasp. This ledger is called the "blockchain" and solves an economic problem called the "double-spending problem" (Brito & Castillo, 2016). Bitcoin is the first application of this technology becoming the world's first decentralized digital-payments system. Before approving a new transaction, it's checked against the public ledger to confirm that the same Bitcoin hasn't been previously spent. Thus, these digital currencies do not require central institutions such as Paypal or MasterCard to verify transactions or a traditional bank to serve as a repository (Li & Wang, 2017).

The Bitcoin network requires a critical element in order to verify all the transactions: computational power. For "miners" who supply their computers to fulfill this needed function, they are rewarded with a bounty of Bitcoins. The clever design of this system is that as more Bitcoins are mined, the bounty decreases and the amount of computational power required increases (Brito & Castillo, 2016). It's a savvy incentive structure, bounding the total supply of the digital currency and encouraging the growth of

the network. Bitcoin can thus be thought of as a commodity, or a digital analogue of gold, with a capped supply and a unique identification (a Bitcoin is a Bitcoin is a Bitcoin). It's estimated that the last, the 21 millionth, Bitcoin will be mined in 2140 after which bounties will cease and replaced with transaction fees to maintain the incentive structure (Brito & Castillo, 2016). When purchasing Bitcoin or another cryptocurrency, one must visit an exchange, with the online site serving as the depository. The danger is that these exchanges can be hacked, as famously occurred in 2014 when Mt. Gox lost Bitcoins worth over \$480 million at the time, though some since have been recovered (Dougherty & Huang, 2014). Purchased digital currencies can be transferred to an offline digital wallet for storage to ensure safekeeping. The current market value of some 1,600 publicly tracked cryptocurrencies is \$415 billion as of May 1, 2018 according to coinmarketcap.com.

Cryptocurrencies can be understood to function as a currency, a security or some gray area between the two. This disparity exists because the term cryptocurrencies is a bit of a misnomer, itself a broad term denoting various digital financial instruments. A helpful distinction is to separate cryptocurrencies into three different buckets: Bitcoin, Altcoins (or simply “coins”) and Tokens.

Understanding Cryptocurrencies: Bitcoin

First, Bitcoin operates on its own blockchain (remember: blockchain = public digital ledger) and “has the properties of an electronics payment system, a currency and a commodity, among other things” (Brito & Castillo, 2016). This description of Bitcoin will serve as a good basis for evaluating what type of financial instrument it is. That Bitcoin resembles a commodity has been established with the comparison to gold. The Commodity Futures Trading Commission (CFTC) regulates commodity, futures and derivatives markets. In 2015, the agency agreed with this assessment officially classifying Bitcoin as a commodity (*Order Instituting Proceedings*, 2015). That Bitcoin is a currency requires a deeper analysis. In 2013, a Texas federal judge made a key rationalization in *SEC v. Shavers* which argued that Bitcoin is a “currency or form of money.” In order to be considered money, economists widely agree that it must be a medium of exchange and a store of value.

With the former, Bitcoin's value proposition relies on its ability to facilitate electronic transactions without the need for intermediaries or governments to validate the transactions. While this component is critical, the other necessary piece is that businesses, individuals, governments or other entities must be willing to accept it as a payment. Bitcoin is not widely accepted, limited to a certain set of typically online participants and noticeably absent from most brick-and-mortar businesses as well as online retailers. The federal government does not accept Bitcoin for payment of tax liabilities. In fact, the Supreme Court has previously defined a currency as "the coin and currency of the United States or of any other country which circulate in and are customarily accepted as money in the country" (Sonderegger, 2015). Despite the ambiguity of whether Bitcoin meets the definition of a currency under this court's opinion and even with its limited market acceptance, Bitcoin can still meet the definition of a medium of exchange.

With the latter, a store of value simply asks whether it is able to retain its value over time. The difficulty in answering this question stems from its intrinsic value. Like traditional fiat currency and gold, Bitcoin does not have any intrinsic value. What separates a \$100 bill from a Bitcoin is that the federal government declares that \$1 is worth \$1 because it is backed by the "full faith and credit of the United States." It is law in the United States that you must accept dollars as a means of payment and the government accepts payment of dollars to meet tax liabilities. Furthermore, the federal reserve will take steps to stabilize its purchasing power if price inflation grows too high (Krugman, 2018). Thus, while U.S. dollars are based on trust in the United States government, Bitcoin has no government authority backing in addition to its lack of intrinsic value. The result is a highly volatile market value. According to bitcoin.com on December 16, 2017 Bitcoin hit its highest price ever, over \$19,000 for one Bitcoin (It's possible to buy fractions of Bitcoins to allow people with lower liquid cash reserves to buy in). Six weeks later the price had dropped to just \$7,000, a decline in value of roughly 63 percent. Economist Paul Krugman, a noted critic of cryptocurrencies, argues in a column for the *New York Times* that if Bitcoin were actually a currency then just a 40 percent reduction in its value over six weeks would be equivalent to an 8,000 percent increase in inflation. By this analysis, it's difficult to see Bitcoin as a store of value. However, other evidence tempers this conclusion. For instance, when Bitcoin dropped to

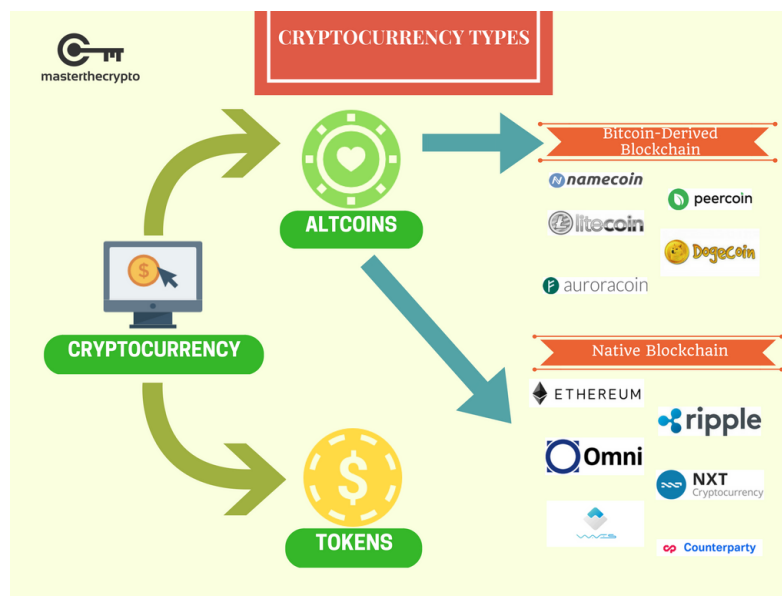
around \$7,000, it appeared to hit – in economic terms – a price floor and in the following months has maintained its value above this level. This result is significant because it hit such an apparent floor without any government-imposed price control, suggesting that Bitcoin can retain value above a non-zero level over time. Unfortunately, it's too difficult to support this claim without a much longer time horizon. Bitcoin derivatives, approved for trading in December 2017, do provide some evidence to bolster this conclusion as the prices of these multi-month contracts indicate that at least investors, who have skin in the game, expect Bitcoin to retain its value over time (Quiggin, 2018). While the academic debate among economists continues on the question of whether Bitcoin is a medium of exchange and a store of value (and thus a currency), only a new court decision or law can provide a clear resumption to this question.

Going back to the earlier definition that Bitcoin “has the properties of an electronics payment system, a currency and a commodity, among other things,” there is a few final complexities of Bitcoin that merit discussion. For one, the last piece, “among other things,” accurately leaves open the interpretation of Bitcoin as a speculative asset (Yermack, 2013). Therefore, some of the positive price and the tremendous growth in value is probably driven in part by the mania surrounding its wider recognition and the FOMO, or fear of missing out, that leads to greater demand versus its potential function as a currency or commodity. Studies have shown that increased market awareness of Bitcoin, reflected by growing numbers of internet searches for Bitcoin on search engines, is positively correlated with its price. It's further been shown that Bitcoin prices are particularly susceptible to speculative bubbles (Fry & Cheah, 2016). The literature is unclear on the proportion of price growth due to mania, though an analysis by Cheah and Fry in 2016 was unable to determine that the price of Bitcoin was statistically different from zero, suggesting that the long-term fundamental value of Bitcoin may be zero.

Another thing that the SEC has signaled is that Bitcoin is not a security, at least under the current evaluation criteria, known as the Howey Test. In *SEC v Howey*, the Supreme Court found that “[a]n investment contract for purposes of the Securities Act means a contract, transaction, or scheme whereby a person invests his money in a common enterprise and is led to expect profits solely from the efforts of the promoter or a third party” (Albert & Fry, 2015). This definition of a security proves to be absolutely

crucial to understanding ICO markets because any policy alternative could depend on the resumption of this question and whether the cryptocurrencies involved in those transactions meet such a definition. Though the SEC has yet to officially resolve this question, multiple studies have concluded that Bitcoin is not a security, in part based on its CFTC classification as a commodity, as well as a common sense assessment that it fails to meet the three-pronged criteria established by the test. Namely, that a security “must have proof of (1) an investment of money, (2) a common enterprise and (3) the expectation of profits to be derived from the effort of others.” (Alberts & Fry, 2015) In contrast, for instance, one who owns stock in a corporation expects that any profits – either through appreciation in share price or distributed dividends – rest solely on the ability of the company’s management to successfully generate those profits, thereby meeting the definition of a security under the Howey Test.

Figure #1: Chart of Different Cryptocurrency Types, excl. Bitcoin



Understanding Cryptocurrencies: Altcoins

The second bucket of cryptocurrencies are Altcoins, or simply coins. Of the total academic literature on cryptocurrencies, the majority of the work has focused on Bitcoin and a small percentage on Ethereum. There are virtually no studies evaluating other

coins. Nonetheless, understanding the mechanics of coins, of which there are two types, is an essential piece to the puzzle of ICOs. The first type, and the vast majority of altcoins, are Bitcoin-derived coins, meaning that their blockchain is “built using Bitcoin’s open-sourced, original protocol with changes to its underlying codes, therefore conceiving an entirely new coin with a different set of features” (Dolce, 2017). This category of coins is known as a “fork,” or simply a variant, and are possible because of the open-source nature of Bitcoin’s code allowing anyone to modify its code (Kiffer, Levin & Mislove, 2017). Examples of these coins include Litecoin, Dogecoin and Bitcoin Cash, the latter of which was a “hard” fork from Bitcoin. Delving deeper into forks is not particularly useful for the purposes of this paper.

The other bucket of coins is built on their own blockchain and protocol which sustain their own individual cryptocurrencies. The key difference here is that none of Bitcoin’s open-source code is used for these coins, instead using proprietary architecture (Dolce, 2017). Examples of these coins include Ethereum and Ripple, which issue their own respective cryptocurrencies Ether and XRP. The terminology behind these designations can be extremely confusing. The easiest way to explain the complexity is to separate platforms from cryptocurrencies built on those platforms. For instance, the cryptocurrency Bitcoin, which earlier was determined to function like a commodity and a currency, is built on an open-source distributed ledger payments system, also known as Bitcoin. The same logic can be applied to Ethereum, which itself is its own individually-made platform coded separately from the platform Bitcoin and from which the cryptocurrency Ether is derived. For some reason, Ethereum and Ether are sometimes both referred to as cryptocurrencies, reinforcing the misnomer aspect of the cryptocurrency classification.

Understanding Cryptocurrencies: Tokens & ICOs

The third bucket of cryptocurrencies is known as tokens, which grant receivers a right of some form. There are various kinds of tokens, including:

1. Usage tokens – represents a license to use a software program
2. Community tokens – represents a membership in a community

Note: These first two types of tokens are known as “utility tokens”

3. Currency tokens – represents a cryptocurrency
4. Equity tokens – promise a stake in future cash flow generated produced by an underlying asset (Zetsche et al., 2017)

Within the last kind, the taxonomy can be divided further between equity tokens that are segregated to one specific asset and equity tokens that promise a share of a pool of assets. These distinctions are helpful in separating those such as usage and community tokens which are not for “consideration” from those such as currency and equity tokens which are for “consideration,” thereby granted for a valuable financial asset. Consideration here is used as a legal term to denote something given by one party in exchange for a promise of something else. In an average ICO, entrepreneurs raise capital by selling a token which investors can purchase using cryptocurrencies or cash. Thus, the total amount of capital raised in an ICO can change based on the market value of the underlying cryptocurrencies used to purchase the tokens before their exchange. Many token purchases expect to sell these instruments in the future for financial profit (Clayton, 2018). For the ICOs which raise capital through the distribution of tokens which are for consideration, they have all the hallmarks of a security and thus would be required under the 1933 Securities Act to register with the SEC and follow certain information disclosure requirements. Currently, these types of token issuances constitute a small proportion of the total, with tokens promising access to projects (i.e. usage and community tokens) constituting the majority thus far (Zetsche et al., 2017).

Nonetheless, even ICOs which are not for consideration may indeed need to follow applicable securities laws. In testimony to Congress in February 2018, current SEC director Jay Clayton stated “I believe every ICO I’ve seen is a security.” As of that date, no ICOs had ever been registered with the SEC. Furthermore, the SEC released guidance a few months earlier on the resemblance of all tokens to securities. “Prospective purchasers are being sold on the potential for tokens to increase in value – with the ability to lock in those increases by reselling the tokens on a secondary market – or to otherwise profit from the tokens based on the efforts of others. These are key hallmarks of a security and a securities offering” (Clayton, 2017).

Of particular importance to the SEC is the speed with which the ICO market has expanded. Monthly capital raises via ICOs have exploded in size, rising 8,570 percent between March 2017 and March 2018, according to data from coindesk.com. Its data indicates that over \$12 billion has been raised – though other studies have estimated that the number may very well be over \$20 billion (Zetsche et al., 2017). The following charts display these statistics.

Figure #2: Monthly New ICO Funding (Dataset of 670 ICOs)



Figure #3: All-Time Cumulative ICO Funding (Dataset of 670 ICOs)



Of particular note, a rather noticeable drop appears in April 2018. This discrepancy may be the result of the SEC issuing dozens of subpoenas to cryptocurrency firms and ICO organizers that may be in violation of securities laws, chilling the market (Eaglesham & Vigna, 2018). It's unclear at the time whether this trend will continue.

Understanding Cryptocurrencies: A Summary

Based on what has been discussed about cryptocurrencies above, it is essential to distinguish between the different types of cryptocurrencies and what role they play in the ICO market. Since the SEC's primary function is as a regulator of securities, it's necessary to distinguish which aspects of the ICO market involve relevant securities laws. (Note: Because the SEC and other regulatory agencies have yet to legally or officially classify cryptocurrencies as certain financial instruments, in this section I'll be using the language "functions like" in lieu of a deterministic "is").

First, it was determined that Bitcoin is one of three buckets of cryptocurrencies. The cryptocurrency Bitcoin is classified as a commodity, functions like a currency but not a security, and can be used to purchase tokens which are issued in an ICO.

Second, it was determined that coins can be divided into two sub-groups. The first group is Bitcoin-derived cryptocurrencies, made by a few changes to Bitcoin's underlying open-source code. Based on current law, the Howey test serves as the best indicator of whether a financial instrument is a security and thus would be subject to applicable securities laws. According to this test, these coins, such as Litecoin and Dogecoin, do not resemble a security because they are derived from Bitcoin which is a decentralized platform without third party control. These coins can also be used to purchase tokens which are issued in an ICO.

The second group are cryptocurrencies derived from platforms other than Bitcoin's open-source platform. Depending on the type of platform and who manages the platform, these cryptocurrencies may indeed function like securities. As of May 1 2018, the SEC is currently probing whether the cryptocurrency Ether, derived from the platform Ethereum, may be in violation of securities laws because the platform is managed by a third party, the Ethereum Foundation, which created Ether and manages software

improvements to the platform (Michaels & Vigna, 2018). Similarly, they are also probing the cryptocurrency XRP, derived from the platform Ripple, and the role that the Ripple company plays in creation and management. However, this evaluation is just a probe and because Ether and XRP were issued several years ago, it may be unlikely for the SEC to retroactively classify them as having been in violation of related securities laws should they meet the SEC's or a court's interpretation of a security. This second group of altcoins can also be used to purchase tokens which are issued in an ICO.

Third, tokens themselves can be referred to as cryptocurrencies. Though some are more explicitly structured like a security, such as currency or equity tokens, others, such as utility tokens, may indeed similarly meet the definition of a security because of the expectation of financial gain and emphasis on its tradable capability. The difficulty here is that the distribution of types of tokens is extremely large. Differentiating these complexities is an arduous task and outside the scope of this paper. The crucial insight about tokens is that the vast majority are derived from the platform Ethereum and its blockchain, which uses a decentralized Turing-complete structure, drastically reducing the difficulty in creating a token. The creation of Ethereum in 2015 and quick public adoption of its platform have been identified as a primary driver of the explosive growth of the ICO capital raising market (Catalini & Gans, 2018).

Capital Raising in the United States

In financial regulation, forecasting the effects of potential policy interventions into the future is extremely difficult because of uncertainty and the related axiom that there is no guarantee that what has happened in the past will continue to happen. However, extracting insights from the past and current capital raising market illuminates some key considerations for ICO regulation policy alternatives. For companies looking to raise capital in the United States, there are two distinct categories from which to choose: public and private. Public capital raising, traditionally done through an IPO, or initial public offering, is a means to generate liquid capital for businesses to use for whatever purpose they chose. For instance, with an IPO in the stock market, companies offer shares for purchase on public SEC-regulated exchanges after meeting certain information

disclosure requirements. Investors who chose to purchase those shares must also provide information on themselves, known as KYC policies (Conley, 2017). In return for providing money to these corporations, investors receive the shares and are entitled to future profits either through share appreciation or distributed dividends. Thus, stock can be thought of as an ownership share in a company, essentially a claimant on future profits and representing a ownership share in a company proportional to the number of shares outstanding. Companies already publicly listed can also issue additional shares to raise additional capital.

On the other hand, private capital raising faces lower information disclosure restrictions compared to the public markets. For instance, private companies are not required to publicly release their financial records. Private capital can be raised through many avenues including via friends and family, existing cash flow, a bank or financial institution, or firms such as PE, VC and hedge funds. The difference between these types of investment firms is primarily the time horizon of the investment, with hedge funds for instance oriented more closely to short-term profits than say VC funding. VC funding and angel investors are a primary mechanisms of investment for promising companies in the early stage of their life cycle. For

such early stage companies, signals given by the company's potential profitability and management team are crucial determinants for investors to consider before financing. The table to the right presents some of the considerations that studies have found are key to evaluating the efficacy of a venture capital investment (Yadav, 2017).

	Wells (1974)	Poindexter (1976)	Tyebjee & Bruno (1984)	MacMillan et al. (1985)	MacMillan et al. (1987)
<i>Venture capital firm requirements</i>					
Cash out potential		X	X	X	
Equity share		X			
Familiarity with technology, product, market			X		
Financial provisions for investors			X		
Geographic location			X		
Investor control		X			
Investor group	X				
Rate of return		X			
Risk		X			
Size of investment		X	X		
Stage of development	X	X	X		
<i>Characteristics of the proposal</i>					
Requirement for additional material	X				
Stage of plan	X				
<i>Characteristics of the entrepreneur/team</i>					
Ability to evaluate risk				X	
Articulate re: venture					X
Background/experience	X	X			X
Capable of sustained effort				X	
Managerial capabilities	X	X	X	X	X
Management commitment	X				
References	X				
Stake in firm	X				
<i>Nature of the proposed business</i>					
Product/market considerations	X		X		
<i>Economic environment of proposed industry</i>					
Market attractiveness			X	X	
Potential size	X				
Technology	X				
Threat resistance			X		
<i>Strategy of the proposed business</i>					
Product differentiation			X		
Proprietary product	X			X	X

Figure #4: Venture Capital Signal Indicators

Though these presented considerations were not necessarily written during a time reflective of the current internet age, they are reflective of the business fundamentals that investors must consider regardless of time period. A recent emerging method of private capital raising is crowdfunding, with its own distinct set of signaling guidelines compared to purely profit-motivated venture capitalists. This mechanism involves listing projects or companies on a funding portal, with certain limitations on who and how much one can contribute. According to Mollick 2014, there are four major types of crowdfunding:

1. Patronage model – primarily for humanities projects, donators expect no profits
2. Lending model – primarily motivated by social surplus, donators expect little to no profit
3. Reward-based model – the most common method, donators are incentivized to contribute higher levels of investment
4. Equity crowdfunding – a special type of crowdfunding, donators contribute investments in return for an equity stake in the company, subject to financial regulations of the local jurisdiction

For the purposes of this paper, the equity crowdfunding model is the most relevant. As a result of a so-called equity crowdfunding movement, provisions in the 2012 Jobs Act would eventually exempt crowdfunding investment projects from the burdens of public disclosures typically reserved for larger later-stage companies (H.R. 3606, 2012). This change allowed entrepreneurs to raise up to \$1 million over a 12 month period without having to register with the SEC, subject to three stipulations: use of a registered funding portal, restrictions on how much equity can be sold to one individual investor, known as aggregate investor limits, and certain information disclosures (Hornuf & Schwienbacher, 2017). First, funding portals must register with the SEC before hosting equity crowdfunding projects, ensuring a private gatekeeper like an exchange would follow applicable securities laws. As of 2017, there are 25 registered funding portals in the United States. Second, to ensure investor protection, the rules included a cap on how much an investor who earns less than \$100,000 can invest, set at \$2,000 or 5 percent of annual income or net worth whichever is highest. For potential investors who make

between \$100,000 and \$1,000,000 annually, the cap is raised to 10%. For investors who make above \$1,000,000 annually, the cap is set at \$100,000 regardless of income. Finally, the provisions require that entrepreneurs raising less \$100,000 must disclose to potential investors on the funding portals their most recent income tax returns and financial statements. For those raising between \$100,000 and \$500,000, a public accountant must certify those documents. Above \$500,000, the documents must be audited.

Evaluative Criteria

The following four criteria will be used to evaluate the projected effects of the proposed policy alternatives.

I. Implementation Difficulty

In order to effectively address the problem, the SEC must have the political and legal capability to carry out the recommended action within an appropriate time horizon. Thus, there are three considerations within this criteria: the politics, the legality and the timing. First, it must be possible within the political constraints of the current period. With Congress's role providing advice and consent, the SEC must be able to defend its actions before relevant House and Senate committees. There must also be a perception of impartiality and that the agency does not pick winners and losers. Second, the SEC must be able to carry out the action pursuant to its jurisdictional mandates within the relevant securities laws. Thus, it must be able to defend its action within courts. Third, the time horizon of the proposed alternative needs to be assessed. Can the proposed action be implemented quickly or will it take several years before execution? Historical precedents will be especially useful in evaluating outcomes for this criterion, rated on a high, medium or low basis.

Note: the following three respective criteria are based on the SEC's mission to a) maintain fair, orderly and efficient markets; b) facilitate capital formation; and c) protect investors

II. Effect on Risk-Adjusted Investor Parity

One part of the SEC's mission is to maintain fair, orderly and competitive financial markets. However, this purpose does not mean that it must maintain an equal playing field for everyone. For instance, just as the SEC imposes minimum risk-adjusted capital requirements for banks in order to ensure that they maintain sufficient liquidity in a financial crisis, the SEC can similarly set limits on who can participate in a financial market and the degree to which they can expose themselves to risk within those markets. These aggregate limit requirements, imposed on equity crowdfunding, restrict investor exposure based on annual income and are a good example of this power. Thus, this criterion is an investor protection evaluation which assesses whether the policy alternative ensures that potential market participants cannot obtain financial risk in excess of their capacity to sustain such risk. This criterion will be evaluated on a positive, negative, neutral or uncertain effect basis.

III. Extends market benefits to U.S. investors

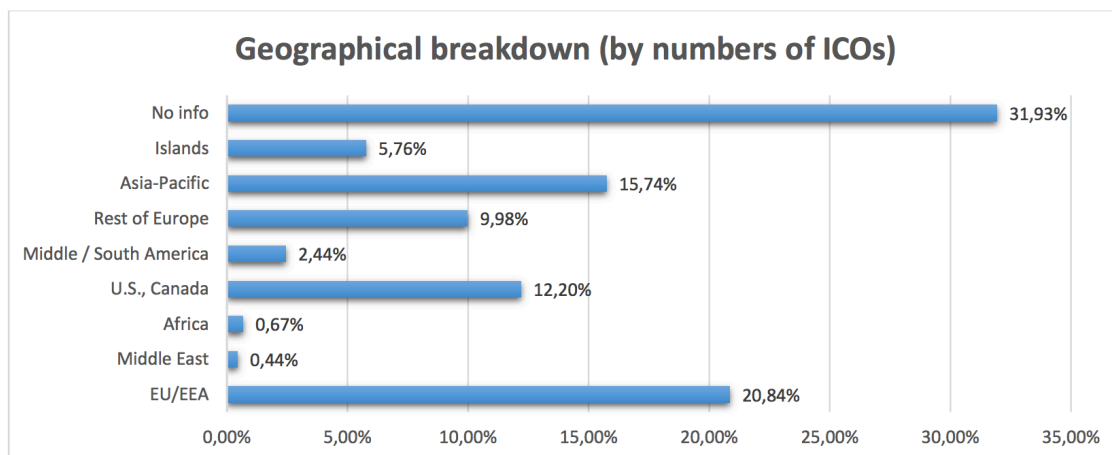
Another part of the SEC's mission is to facilitate capital formation. Currently, U.S. investors are unable to legally participate in an ICO, as most ICOs explicitly bar them from participation. The lack of a final determination about whether none, some or all ICOs are in fact securities sales as well as the disclosure requirements that a securities designation would place on ICO-interested ventures are main drivers of this inability to participate. This criterion asks whether the policy alternative would expand the benefits of ICO markets to U.S. investors. In order to evaluate this criterion, it's first necessary to understand the benefits of ICO markets. As a combination of blockchain and crowdfunding, ICOs have unique benefits, several of which are highlighted below:

1. wider funding base
2. diversification of acceptable methods of financial payment
3. mechanisms in place to boost "security, transparency and permanence"
(Zetsche et al., 2017)
4. lowers threshold for critical mass and network effects

5. higher rates of return, subject to one's appetite for risk

First, ICOs follow the path of previous financial innovations in further democratizing finance. Because startups and early stage companies can now raise capital without having to meet the signals that private investors, such as venture capitalists, look for, they are able to solicit funding from a community who could be more attracted to their offered set of signals. This benefit may be particularly beneficial to blockchain and fin-tech ventures. Data supports this claim as blockchain startups raised an estimated \$7 billion through ICOs between January 2017 and March 2018 compared to just \$1 billion via venture capital funding (Catalini & Gans). Furthermore, while it's estimated that there have been over 1,600 worldwide ICOs up to the writing of this paper, a smaller sample collected by Zetsche et al. is able to confirm that ICOs are a global phenomenon. The chart below displays this diversification.

Figure #5: Percentage Geographical Breakdown of ICOs



Second, ICOs permit potential funders to use a wide variety of currency such as traditional U.S. dollars as well as cryptocurrencies such as Bitcoin. Sometimes these capital raises explicitly require only cryptocurrency can be used, particularly those based on the Ethereum platform and thus requiring purchase of Ether (Li & Mann, 2017). Capital raising in the traditional public and private markets do not currently permit the use of cryptocurrencies, nor is it allowed in equity crowdfunding.

Third, ICOs take advantage of the financial innovations on which they are built. A simultaneous revolution in blockchain technology makes a platform like Ethereum possible. When initiating an ICO, a firm typically publishes a “white paper” or a document detailing the venture’s team, the purported payment schedule, and the “smart contracts” that form the basis of the governance structure of the capital raising. These contracts are in effect scripts that can force an ICO seller to “credibly pre-commit to an algorithm which future coins will (or will not) be added to the current stock” (Li & Mann, 2018). This mechanism can help reduce or eliminate the potential for exploitive share dilution. In addition, the white paper might disclose the amount of equity retained by the team’s founders or management, thus tying their economic incentives to the value of the issued token or coin. Investors can then judge the efficacy of ventures based on their responses to some of these questions and the quality of the white paper.

Fourth, ICOs can help solve coordination failures by lowering the threshold required to induce network effects. A coordination failure in this context refers to a failure of a firm or group of firms because of an inability to coordinate decision-making, while a network effect occurs when a “user’s surplus from a transaction increases with the total number of transactions (‘the more the merrier’)” (Li & Mann, 2018). Many early stage ventures require meeting a critical mass of users in order to succeed. This reality is especially true for large ventures that plan to build platforms. Ventures can achieve this target by setting attractive pricing in order to induce participation or expend resources directly in order to hit the critical mass threshold. With the latter, early stage ventures typically lack significant expendable resources. Therefore, they may have to use the pricing method, i.e. setting a low price, thereby straining potential future profits. ICOs facilitate social networks, sharing economies and the build-up of communities, leading to mega-deals which can raise tens of millions in a matter of minutes. While potentially a reflection of irrational exuberance, the model offered by Li and Mann 2018 concludes the network effect facilitated by ICOs to be “likely the primary benefit from analyzing existing deals.” This benefit can help front-load participants leading to more easily realized network effects as their model finds a dominant strategy for participating immediately in order to avoid the coordination failure.

Fifth, Catalini and Gans 2018 present a model that ICOs result in higher rates of return versus equity finance, conditional on ventures' raising sufficient funds to cover their marginal costs. This result offers several interesting implications. For instance, despite financial viability, ICOs are not always guaranteed to meet their funding targets, in which case projects that don't would return the contributions offered by participants. In distinction, firms who use equity finance and have financial viability will *always* be able to raise financing because equity finance is based on the financial value of the venture ad infinitum. Thus, an implication of this result is that investors looking for higher rates of return with shorter time horizons will find ICOs as a better market for those needs compared to equity finance.

The five benefits highlighted above are unique qualities of ICOs and depending on the policy alternative could be enjoyed by U.S. investors. An optimal policy would expand the benefits of ICO markets to U.S. investors, thereby fulfilling one of the SEC's missions to facilitate capital formation. This criterion will assess whether each policy alternative allows such participation, assessed on a yes, no or uncertain basis.

IV. Effect on investor risk

In order to evaluate the effect of proposed policy alternative on investor risk, it's necessary to understand the risks within ICOs. These markets present numerous challenges for financial regulators. A summary of some primary risks that policymakers should be concerned with are listed below:

1. Information asymmetry
2. Capital misallocation
3. Weak legal protections
4. Systemic risk (Zetsche et al., 2017)

First, it is a generally accepted concept in finance and economics that information asymmetries can lead to market failures. ICOs rely heavily on white papers, absent any regulator requirements for certain provisions and information disclosures. This result leads to ventures that do not disclose potentially vital information to prospective investors

on its founders, financial standing, funding, strategy, payment schedule and token structure, amid numerous other necessary signals. Furthermore, the term Initial Coin Offering is itself a misnomer. Though “initial” indicates that this structure is a first sale of tokens or coins, in most cases the issuance is actually the second or third offer, yet the first one offered to the public. Zetzsche et., al’s dataset found that this case held true in 70 percent of their analyzed ICOs leading them to conclude that ICOs share few similarities to IPOs despite the similarly titled lexicon. Thus, these pre-sales of tokens can increase the potential, in such an unregulated market, for ponzi-schemes whereby successive rounds of offerings are used to meet existing obligations. The “wisdom of the crowd” phenomenon, which suggests that a collective is smarter than a single individual, can exacerbate this risk. For example, prospective investors in ICO markets often use the price charged and the number of participants as an indication of quality (Li & Mann, 2018) When the participation in earlier pre-sales, which has been manipulated, is used to justify the next round, then the wisdom of the crowd phenomenon can lead unwitting investors to be induced into participation.

Second, capital provided in ICO markets may not be going to its most optimal sources. Data suggests an element of irrational exuberance, the hallmark of a mania or bubble, as less than 10 percent of the tokens distributed in 226 ICOs analyzed were utility tokens with the rest only tradable tokens (Li & Mann, 2018) The failure rate for ICOs to meet their funding targets is extremely low compared to the failure rate of the actual venture after successfully receiving funding. One analysis found the failure rate to meet funding targets to be just 19 percent (Morris, 2018). Yet, an analysis by bitcoin.com of ICOs funded in 2017 found that 46 percent of the ventures had failed by February 2018. That discrepancy is astounding and suggests that the information asymmetry risks from above are an exacerbating factor of this risk. Moreover, while VC firms and ICO/crowdfunding models provide similar functions in distributing capital, a crucial distinction is that VC firms actively provide advice and strategic direction which is not a function of the latter. Thus, the lack of an oversight function could be a driver of this divergence in failure rate.

Third, ICOs operate in a virtually non-existent regulatory environment, potentially tacitly incentivizing fraudulent behavior. Some of the inherent anonymity

built in blockchain technology can lead to a set of participants or prospective venture organizers who seek to exploit such vulnerabilities (Venegas, 2017). Furthermore, there are weak governance controls in these markets. While smart contracts offer a clever way to get around the share dilution problem, there is nothing that could stop a backed-venture from issuing a new protocol that overrides the protocol at launch nor a regulatory body that could enforce penalties for reneging on a promise not to do so. In addition, the lack of a legal structure means there are no requirements for token sellers to maintain a minimum equity portion in the firm nor accredited investor or KYC requirements, exposing individual investors to additional risk. Those with limited understanding of the market may take excessive leverage detrimental to their financial well-being.

Fourth, managing systemic risk has been a key consideration for financial regulators after the 2006 housing bubble and 2008 financial crash. Currently, the cumulative total number of money raised by ICO's varies depending on the number tracked. Though data from coindesk.com only reports a current cumulative total of \$12 billion, the site only tracks about 670 ICOs. An estimate from Zetzsche et al holds that with an estimated total of 1,600 ICOs the market value is about \$25 billion. These figures are not nearly high enough to warrant fear of systemic risk yet. However, the rates of increase in new monthly ICO capital raising are particularly concerning and suggest that continuous years of regulator inattention could expose the financial system to a crash.

These four highlighted risks are key considerations that the SEC must consider when assessing how to approach regulating these markets. An optimal policy would reduce investor risk, thereby fulfilling one of the SEC's missions to protect investors. This criterion will be evaluated on an increases, decreases, neutral or uncertain effect basis.

Policy Alternatives

Option #1: Laissez-Faire Approach

A laissez-faire approach would be an endorsement of the private market's ability to self-regulate in lieu of an SEC intervention. Such a path may reflect a belief that intervention in such a nascent market would be premature and employing a hands-off

approach would be the best course of action for the near future. There are a growing number of suggested private market solutions that may be able to sidestep the need for the SEC to officially settle the question of whether ICOs and token or coin issuances are indeed securities offerings. For instance, the Simple Agreement for Future Tokens (SAFTs) proposes a workaround of securities laws by allowing accredited investors to supply capital to a venture, pursuant to Regulation D of the Securities Act, in exchange for a SAFT (Batiz-Benet, Santori, & Clayburgh, 2017). The venture can then use the supplied capital to build their service and when completed the SAFT is converted into the right to purchase issued tokens at a discount. This framework does not recognize SAFTs as securities and given that the SEC's public statements have all pointed toward the conclusion that tokens are securities, this proposal faces an uncertain future. Another suggested solution is a private ICO or PICO which is similarly modeled on raising funds through a SAFT via issued tokens to accredited investors (Sacks, n.d.) After a lock-up period, accredited investors could begin trading with other accredited investors and then eventually would be opened to all investors. These private market solutions, among others and despite their current likely unfitness for addressing the problem, nonetheless suggest that the private market may eventually be able to develop a viable answer.

Implementation Difficulty

Adopting a laissez-faire approach faces low implementation difficulty because it requires no new interpretation of securities laws nor a long time horizon. Essentially, the SEC could begin this approach tomorrow, renouncing its already growing intervention in ICO markets, such as when it issued subpoenas and launched probes of applicable cryptocurrency firms.

Effect on Risk-Adjusted Investor Parity

As a pull-back from potential market regulation, there would be no explicit requirement issued by the SEC that firms enact certain provisions to discourage excessive risk-taking. However, that is not to say that the private market would not enforce such provisions themselves, fearing that their inability to do so could invite a strict enforcement in the future. Therefore, this effect is uncertain without knowing how the

market will react to an SEC signal that it instead wants the private market to regulate themselves.

Extends market benefits to U.S. investors

A laissez-faire approach was the original position of the SEC in the very early stages of the ICO market, as U.S. investors were unable to legally participate. However, virtual private networks, or VPNs, allow users based in one location to circumvent I.P. address indicators that would ordinarily reveal that user's location (McLeod, 2017). Thus, some U.S. based users are able to participate illegally in an ICO, thereby enjoying the benefits of ICO markets. However, this option does nothing to definitively extend those benefits legally to U.S. investors nor definitively prevent them from using a VPN to participate. Without knowing whether a private market solution in the future will be able to provide a viable solution which the SEC deems acceptable, this effect is uncertain.

Effect on investor risk

Similar to the structure of the earlier evaluated criteria, this option has an uncertain effect on investor risk. It could reduce risk if the private market takes steps to reduce information asymmetries, allocates capital more efficiently or boosts stronger governance procedures. However, with the absence of a clear incentive to change its behavior beyond the threat of potential future SEC intervention, it is also possible that none of these risks are changed, and thus this effect is also uncertain.

Option #2: Delay market intervention and continue case-by-case approach

This option similar to the previous one reflects a recognition that an SEC intervention may be too early for this market and could lead to less market growth. The SEC's current approach to regulation in this market has been described as a case-by-case approach, electing to review individual securities cases in lieu of making a broad statement or determination about all ICOs. Up until December 11, 2017, the SEC had only ever prosecuted an ICO for reasons of fraud and misleading investors. However, on that day, the SEC sent a cease-and-desist letter to Munchee Inc., a restaurant review app, for violation of securities laws because it had failed to file a registration statement with

the agency (*In the Matter of Munchee Inc.*, 2017). Over a two-month period, the firm had issued an MUN token, which had elements of a utility token that could be expended once the product was finished while on the other hand had elements of a tradable asset that could increase in value. The SEC's own analysis states, "Determining whether a transaction involves a security does not turn on labeling – such as characterizing an ICO as involving a "utility token" – but instead requires an assessment of 'the economic realities underlying a transaction.'" A few months later this action was followed by a halt to AriseBank's coming \$600 million coin offering (Li & Mann, 2018). Another feature of the case-by-case approach is the publication of guidance such as investor warnings, investor bulletins, 21a reports and no-action letters. A 21(a) investigative report is simply an official policy statement issued under a provision in the Securities Act. These instruments allow the SEC to regularly communicate with the market and its community participants by responding to questions and outlining its potential interpretation of issues. Thus, this option advocates continued use of these tools.

Implementation Difficulty

Adopting this option faces low implementation difficulty because it would simply be a continuation of its earlier approach. By not explicitly making a determination of whether tokens are indeed securities and by regularly publishing its own guidance on the situation while if necessary prosecuting violations, the SEC can avoid running into more difficult implementation problems that other more aggressive interventions could trigger. Despite this option's pro-innovation which many in the cryptocurrency community have praised for not being preemptive, it faces an uncertain time horizon, as future activities might necessitate a change away from this stance. Already, there have been indications that the SEC might follow such a path, with recent subpoenas as well as probes of altcoins such as Ether and XRP.

Effect on Risk-Adjusted Investor Parity

Because this option advocates enforcement of ICOs on a case-by-case basis and does not contain any recommendation imposing certain investor protection requirements (instead focusing on warnings and guidance), it has a neutral effect on risk-adjusted

parity. Furthermore, this option doesn't address excessive risk-taking on behalf of potentially unsophisticated investors, primarily because it does nothing to change the status quo preventing U.S. investors from participating in the market legally.

Extends market benefits to U.S. investors

As the paragraph above indicates, this option does not address extending ICO markets to U.S. investors. Instead, the policy continues the status quo where U.S. investors can largely not participate legally due to their often exclusive prohibition from participation or participate illegally after using a VPN. Therefore, this option clearly does not extend any of the five defined market benefits to U.S. investors.

Effect on investor risk

Within the ICO market, this policy does not materially increase or decrease information asymmetries, capital allocation, legal protections or systemic risk. Therefore, this option has a neutral effect on investor risk.

Option #3: Issue new regulation exemption and related provisions

This alternative advocates a clear departure from earlier laissez-faire and case-by-case approaches. Namely, it requires the SEC to explicitly decide whether tokens and coins distributed in an ICO are indeed securities. This option presents some administrative leeway, allowing the SEC to ultimately choose between classifying all of the tokens and coins in ICOs as securities, some (i.e. not classifying utility tokens as securities), or none. There is historical precedent for such a move, albeit within its existing case-by-case basis so not applying to other ICOs. In July 2017, the SEC determined in a 21(a) report that the DAO organization, which had issued DAO tokens in exchange for the cryptocurrency Ether, was indeed a security and thus in violation of U.S. securities laws (*Report of Investigation*, 2017). Whatever the SEC's ultimate determination is, this policy would then have the SEC publish this information publicly also in a 21(a) investigative report. A 21(a) report in this case authorizes an administrative body known as the Commission to investigate potential violations of securities laws and publish information online. The report is not an investigation by the

Enforcement division but rather a public document outlining a violation as well as indicating that future violations will likely be investigated by its Enforcement division. The SEC seldom publishes these reports, posting just eight in the last decade.

However, this option would go further once this step has been completed by explicitly forcing the SEC to issue a new regulation, modeled similarly to the crowdfunding rules set forth in the 2012 Jobs Act and the creation of regulation S (Atkins & Bondi, 2008). The resulting framework would provide a legal basis for U.S. investor participation in ICO markets, applying three key provisions from the Jobs Act into this rule. First, it would require exchanges, like funding portals, which sell tokens or coins during an ICO to register with the SEC. Second, it would define aggregate limits on U.S. investor exposure, based on their annual income or net worth. Third, it would place information disclosure requirements on investors as well token or coin issuers, pursuant to KYC and AML objectives. In addition, this policy would be similar to regulation S in that the SEC would be exempting the ICO market from certain provisions in the Securities Act (Lander, 1996).

Implementation Difficulty

This policy option faces noticeably higher implementation difficulty than the previous two options. Sorting through the legal complexities of this move is outside the scope of this paper but certainly would add some workload to the SEC's legal division. With regards to political feasibility constraints, providing a framework to open the ICO market to U.S. investors would be welcomed by those in the cryptocurrency community, but it's uncertain what the greater public effect would be. If the adoption of regulation S is any guide, then it may likely prove to be a "well-known and controversial" move (Lander, 1996). For these reasons, the implementation difficulty of this option is medium.

Effect on Risk-Adjusted Investor Parity

Because a component of this option specifically focuses on setting aggregate investor exposure limits, similar to those for equity crowdfunding, there would be a positive effect on risk-adjusted investor parity. In another way, investors with low annual income or net worth would be prevented from taking highly leveraged risk.

Extends market benefits to U.S. investors

As noted above in the definition section above, this option explicitly provides a framework for U.S. investor participation in ICO markets, subject to the regulation and facilitation of the SEC. This move would thus allow the benefits of ICO markets to be enjoyed by certain U.S. investors, thereby fulfilling a key mission of the SEC to facilitate capital formation in the economy. The SEC's potential classification of all, some or none of the ICO tokens and coins as securities would affect the degree to which those benefits are enjoyed by U.S. investors but not the net effect, which is that it does extend market benefits to investors.

Effect on investor risk

This policy alternative would materially affect the investor risks within ICO markets. First, it would lower information asymmetries by increasing investor and token or coin issuer information disclosure requirements. Data suggest that KYC and AML requirements would reduce inconsistencies in financial markets. For instance, a study which evaluated 11 Bitcoin exchanges found that ones which did not require certain KYC and AML policies exhibited statistically different price patterns from those which did. (Pieters & Vivanco, 2017). Second, this option would lead to more optimal allocation of resources since the market would now be subject to increased oversight from and registration with the SEC, thereby lowering the potential for fraud and manipulation. Third, this option strengthens legal protections because of the very framework outlining a legal basis for its existence. Finally, this option would likely increase the potential for systemic risk because opening ICO markets to those willing to register with the SEC under the proposed rule exemption may lead to an even higher market growth rate. This result could increase as for instance more institutional investors participate in the market. As a result of the positive, negative or neutral basis of this policy's effect on four risks within ICO markets, this alternative would net reduce investor risk.

Option #4: Strict enforcement of current securities laws

The final alternative proposes fully enforcing current U.S. securities laws and classifying all ICOs as securities' sales. Therefore, the coins and tokens issued during past ICOs would be in violation of those laws, though the SEC wouldn't have to necessarily bring such violators to court. For instance, when the SEC issued the DAO report, the DAO organization did not fight the order in court and instead chose to cease operations which could happen in this case as well. However, it's expected that at least some market participants may decide to bring the issue to court, where a legal opinion would eventually be issued which would provide additional clarity on the relationship of the Howey test to initial coin offerings. Furthermore, strict enforcement would require publicly communicating to exchanges and prospective future ICO token or coin issuers of the requirement that any securities sale must be registered with the SEC. However, in contrast to the previous option, this alternative does not propose a rule exemption, thereby forcing those interested in issuing a token or coin sale to meet the same investor and disclosure requirements that large-firms publicly listing in the United States have to adhere to as well. Finally, it's possible that this option could have a negative effect on the market growth of the market as all ICOs would now be required to register with the SEC.

Implementation Difficulty

This policy option would face similarly higher implementation difficulty than the first two alternatives. Because strict enforcement could lead to a protracted legal battle stretching years, the timing and legal difficulties of this option can vary from low to high depending on the projected future outcome. In this case, historical precedent may prove helpful in estimating this effect, though to the best of this author's knowledge there is not a useful historical analogue given the complexities and novelties of the ICO market. Therefore, the implementation difficulty of this option is medium.

Effect on Risk-Adjusted Investor Parity

Because this option advocates strict enforcement of ICOs and does not contain any recommendation imposing certain aggregate investor protection requirements, it appears to have a neutral effect on risk-adjusted parity. In addition, while this option proposes a legal framework – namely, that an ICO must register with the SEC pursuant to

existing securities laws – it proposes no change from the current status quo allowing excessive risk-taking by unsophisticated investors, should an ICO of the future register with the SEC. For these two reasons, the alternative would have a neutral effect.

Extends market benefits to U.S. investors

This option could extend ICO market benefits to U.S. investors should an ICO in the future register with the SEC as a securities sale and comply with all existing requirements. On the other hand, this option might not extend market benefits to U.S. investors because the strict enforcement action of this option could force token issuers not to register with the SEC because of the disclosure requirements and pursue other capital raising avenues. Therefore, the effect of this option is uncertain.

Effect on investor risk

This policy alternative would likely have an uncertain effect on investor risk in contrast to the previous option. By signaling to the market that enforcement by a financial regulator is coming for those found in violation of securities laws, firms could take steps on their own to reduce information asymmetries, thereby leading to more optimal capital allocation. On the other hand, on a net basis, firms in the ICO market might not change the information asymmetries they may make, thereby not affecting the allocation of capital either. Furthermore, legal protections could be strengthened because individuals firms might take steps to increase legal transparency though legal protections might be unaffected as the market could severely contract due to the SEC's enforcement action without making material changes to existing legal protections as the vast majority of ICOs already exclude U.S. investor participation. Finally, the potential for systemic risk, while very small currently, could either be even further reduced because of slower market growth or neutral because firms outside SEC jurisdiction looking to raise ICO funds could do so, allowing the market to continue to grow and gradually increase systemic risk. Therefore, systemic risk changes are uncertain. As a result of the positive, negative or neutral basis of this policy's effect on four risks within ICO markets, this alternative would have an uncertain effect on investor risk.

Outcomes Matrix

	Laissez-Faire	Delay & Case-by-Case	Issue New Regulation Exemption	Strict Enforcement
Implementation Difficulty	Low	Low	Medium	Medium
Effect on Risk-Adjusted Investor Parity	Uncertain	Neutral	Positive	Neutral
Expands market benefits to U.S. investors	Uncertain	No	Yes	Uncertain
Effect on investor risk	Uncertain	Neutral	Decreases	Decreases

Recommendation

Given the projected outcomes of each alternative, it is recommended that Capco in its own recommendation to the SEC pursue with *Option #3: Issue new regulation exemption and related provisions*.

Rationale

This alternative recognizes many of the unique benefits and risks of ICO markets. This option is the only one that increases risk-adjusted investor parity, an investor protection modeled on a similar provision for equity crowdfunding which is the best financial innovation analogue for ICOs. This option is also unique in that it lays out a definitive legal framework which extends the benefits to U.S. investors while reducing the most of the four stated components of investor risks in ICO markets. Finally, the option recognizes historical precedents while fulfilling the SEC's three-part mission.

Considerations and Concerns

There are several concerns which need to be discussed before laying out implementation concerns. First, because of the novelty of ICO markets, there undeniably is a limited set of academic literature, forcing this paper and the market as a whole to rely on fewer sources than would have been optimal. Thus, in a curious reverse effect of an earlier discussed concept, the wisdom of the crowd effect has not been able to fully develop in ICO and cryptocurrency literature. It's likely that over time, the best evidence and policy alternatives will eventually be elevated to the surface.

Second, a number of the projected outcomes in this paper are based on historical precedents. While this limitation has already been discussed, it's necessary to reiterate that there is no guarantee that what has happened or worked in the past will continue to behave similarly in the future. Accordingly, a specific word of caution. All the above inferences on taxonomy made in especially the Understanding Cryptocurrencies section, at the time of writing, are based on the best available academic literature as well as public statements and actions from the SEC. These classifications and definitions may

change in the future based on new legislation, court decisions or SEC guidance and rule determinations.

Third, the complexity and explosive growth of the ICO market places considerable constraints on the literature because developments in this space are proceeding at a torrid pace. For instance, within the final two days of submission of this paper, the largest projected ICO in history was abruptly cancelled and *The Wall Street Journal* reported on the SEC's newly launched probe of Ethereum and its cryptocurrency Ether. With the former, Telegram was able to raise \$1.6 billion through ICO pre-sale pledges from venture capital funds, raising the capital it needed without having to proceed with an actual ICO. This result suggests that the additional complexity of multiple rounds of investment and the role that VC funds play within that place should be a key area of attention for policymakers. Even as recent as a couple months ago, a federal judge found that all cryptocurrencies are commodities, another example of each month bringing additional layers and complexities to the market.

Implementation Steps

There are several implementation considerations that will enhance the effectiveness of the proposed policy solution. First, the time horizon of the recommended alternative faces uncertainty. However, implementing an internal timeline of 270 days, as the 2012 Jobs Act, will ensure an adequate yet an expedited window for publication of the proposed rulemaking procedures. Second, the SEC may also wield flexibility in its implementation by initially using accredited investor limits. For instance, should they be determined to be necessary, the limits could be modeled similarly to the 2012 Jobs Act's phase-in period whereby only accredited investors could participate before a later rule went into effect opening the market to everyone. This step would ensure gradual adoption of the market versus a quick liberalization. Finally, as a word of advice to the SEC from this paper's analysis of the ICO market. Financial innovation does play a crucial role in expanding the economy. However, gradualism and an incessant aspiration to get the regulations right will help ensure that the ICO market's benefits flow where they need to while keeping risks under a close supervision.

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