Initial Coin Offerings:
Overview & Global Regulatory Environment

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1. List of Abbreviations

Abbreviation	Term
AML	Anti-Money Laundering
AUTO	Anguilla Utility Token Offering Act
BDA	Bermuda Business Development Agency
CARICOM	Caribbean Community
CTF	Counter-Terrorist Financing
CTO	Caribbean Tourism Organization
EBA	European Banking Authority
ECCB	Eastern Caribbean Central Bank
ECJ	European Court of Justice
FINMA	Financial Market Supervisory Authority
GDAX	Global Digital Asset Exchange
ICO	Initial Coin Offering
IPO	Initial Public Offering
KYC	Know-Your-Customer
MAS	Monetary Authority of Singapore
PSB	Payment Services Bill
SFA	Securities and Futures Act
STO	Security Token Offering
TGE	Token Generating Event
TT	Trading Technologies International
VC	Venture Capital

2. Executive Summary

Initial Coin Offerings (ICOs) have become an increasingly popular source of financing for blockchain-based products and services. According to data collected by CoinDesk, a leading digital currency research platform, ICO funding since 2014 has exceeded $12 billion. Through Q1 of 2018, the average amount raised by any given ICO has exceeded $31 million.[1] Attracted by lower levels of regulatory scrutiny and rapid access to capital, many blockchain entrepreneurs have turned to ICOs as alternatives to traditional fundraising channels such as venture capital.

Blockchain is an innovative technology that allows data transfer and storage over the internet. By providing a novel avenue for financing, as well as a mechanism for stimulating usership, ICOs stand to bolster development across the blockchain ecosystem. However, despite their innovative potential, ICOs have not emerged without reports of fraud and other suspicious behavior. Some reports estimate that over 10% of all ICO proceeds are lost as result of attacks by hackers.[2]

The rapid uptick in volume and value, as well as malicious behavior associated with ICOs over the last few years has drawn the attention of lawmakers and financial regulators globally. Reactions to ICOs and related activities have varied drastically by jurisdiction. Some countries, such has China and South Korea have shut down cryptocurrency exchanges or altogether outlawed ICOs.[3]

In support of wider research by the Chamber of Digital Commerce, a Washington DC-based non-profit, our study focuses on how regulators and legislators across the global financial system have reacted to ICOs. We focus primarily on regulatory developments in three jurisdictions – Switzerland, Bermuda, and Singapore – which have emerged as leaders in ICO landscape. This sampling was targeted due to the high volume and value of ICOs in each country.

The goal of this study is to highlight how jurisdictions might effectively develop regulatory frameworks that protect investors, while still fostering blockchain-driven innovation. In doing so, it relies on interviews with relevant industry stakeholders and extensive secondary research. Given the technical nature of blockchain and digital currency, it will start by introducing key concepts. It will then survey the business environment surrounding ICOs, highlighting differences among digital currencies (i.e. tokens), as well as the actors involved executing ICOs. It will end with three country-level case studies.

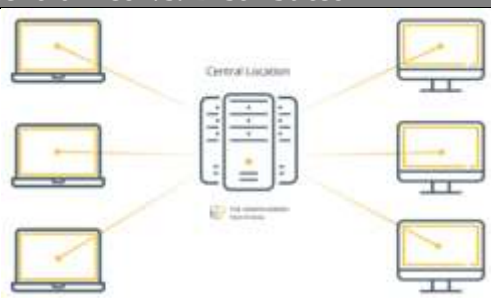
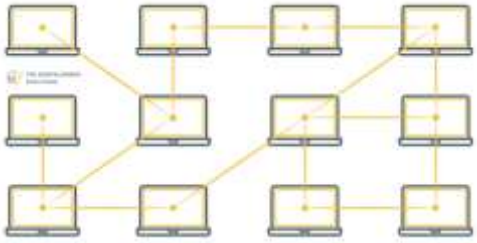
ICOs can play a vital role in accelerating entrepreneurial activity and stimulating country-level economic progress. Our research finds various factors may explain why certain jurisdictions have become attractive locations for ICOs. In terms of similarities, each jurisdiction analyzed shares a tradition of innovation in the financial services sector, as well as clear fundamental requirements around cryptocurrencies and ICOs. In terms of differences, Switzerland is unique in the effectiveness of its industry advocacy groups in collaborating with government to drive regulatory progress. For its part, Singapore sets itself apart from Switzerland and Bermuda in terms of the strength of its fintech ecosystem more broadly, which serves as a foundation for continued ICO activity.

3. Introduction to Key Concepts

The following sections provide a brief introduction to blockchain technology and its relationship to ICOs. Given the highly technical underpinnings of blockchain, this summary is not meant to be an exhaustive analysis. Instead, it aims to highlight features and interactions which may inform subsequent discussion of regulatory developments. Baseline familiarity with key concepts allows for increasingly robust conversation around policy design and implementation.

3.1. Blockchain

In contrast to traditional data storage methods, blockchain utilizes a distributed approach to data storage, whereby information is held on multiple severs or "nodes". Blockchain refers to a form of distributed ledger technology through which data can be stored and transmitted.[4] Once information is stored on a given node, a collection of nodes is then consolidated in a "block". Each block is then linked to the preceding block in sequential manner. This linkage results in a chain of blocks, or "blockchain", the structure from which the technology's name is derived.[5]

Database Design: Centralized vs. Decentralized vs. Distributed[6]	
Centralized Data are a unified body that is stored on one computer. Information access requires connection to the main computer (i.e. server).	
Decentralized No central storage. Some servers provide information to the clients. The servers are connected with each other.	
Distributed No separate data storages whatsoever. All the nodes contain information. Clients have equal access and data rights.	

Basis for Blockchain Technology

A series of technical principles underpin blockchain technology. Understanding them provides grounds for exploring blockchain's diverse application as a data management solution, ranging from supply chain coordination[7] to mitigating against voter fraud.[8]

Blockchain Technology: Technical Principles[9]	
Principle	**Description**
Decentralized Data Storage	Each participant has access to the data being stored on the infrastructure. There is no reliance on a central administrator and a given participant can freely verify the actions (e.g. transactions) of all participants.
Participation and Information Transmission	Communications do not have to pass through central router. Participants instead share information directly with one another.
Transparent and Pseudonymous	All transactions are visible to all participants. Participants have a unique identifier and can choose to remain anonymous or provide proof of identity.
Immutable Record Keeping	Records in the database cannot be altered. Records are grouped into blocks which are digitally protected and permanently linked to one another in chronological order.
Underlying Logic	Digital format means all activity on platform underpinned by computer logic. Participants exert influence on blockchain activity through programming and algorithms

In addition to its use as a form of data storage, blockchain structures and facilitates engagement among participants in a given transaction. Many blockchain-based projects, including popular cryptocurrencies Bitcoin and Ethereum, provide features to encode rules for how transactions are processed.[10] These features, commonly referred to as "smart contracts", have been reconfigured and redeployed across various blockchain use cases.[11]As blockchain pioneer, Nick Szabo, summarizes:

The basic idea behind smart contracts is that many kinds of contractual clauses… can be embedded in the hardware and software we deal with, in such a way as to make breach of contract expensive (if desired, sometimes prohibitively so) for the breacher".

Many similarities exist between smart contracts and traditional business procedures based on contracts and controls. A key difference between traditional static contracts and smart contracts is that they latter serve to secure relationships over computer networks, combining protocols with user interfaces to formalize interactions. [12] Most importantly, they are automatically executable and enforceable.

Smart Contracts: Sample Process View[13]		
Contract	**Triggering Event**	**Activity Monitoring**
		
Contract between parties written as code into blockchain	Event (i.e. an expiration date) occurs and contract executes itself according to code	View contract to monitor activity in market while maintaining actors' privacy

To illustrate the relationship between the above principles and smart contracts, consider a potential application: the process of cross-border payments. Traditionally, depending on the jurisdiction, this process might take days and numerous financial institutions and currency exchanges.[14] Implementation of blockchain technology and smart contracts in its international payments business has enabled BBVA, a global bank, to drastically reduce clearing times and increase transparency around transfer status. Blockchain creates permanent records of underlying transfer operations and drastically improves traceability. Additionally, the use of integrated messaging and settlement enables all parties to have access to the underlying payment information. [15]

In other instances, BBVA pilots have highlight blockchain's potential at the digital (e.g. payments processing) and physical (e.g. goods imports/exports) realms.

Smart contracts and the blockchain on which they reside can be either public or private. Key similarities between public and private blockchains include the use of decentralized data storage and immutable record keeping. An important distinction relates to who can participate in and share information across the network. Public blockchain networks, such as Bitcoin, are completely open to anyone interested in joining. In fact, they often rely on an incentive structure to stimulate participation. A public blockchain requires substantial computational power to maintain its distributed ledger across many participants. Each node in the network must solve complex cryptographic problems, referred to as a "proofs of work", to ensure accurate coordinating of records. [16]

3.2. Initial Coin Offerings

A successful ICO results in the issuance of a new cryptocurrency, coin, or token, the end use of which varies drastically by project. Motivations for pursuing an ICO by token issuers can be structured across two general goals:

- **Raise Capital:** Receive financial resources to aid in identifying and executing on objectives for a blockchain-based project or product
- **Grow User Base:** Provide end users or customers access to the tools and products developed as a result of a given blockchain-based project

The relationship between these activities varies drastically based on the type of token being issued, as well as the individuals and organizations involved in the issuance and subsequent use of the token. A similarity is that funds are raised in an ICO using already existing, widely

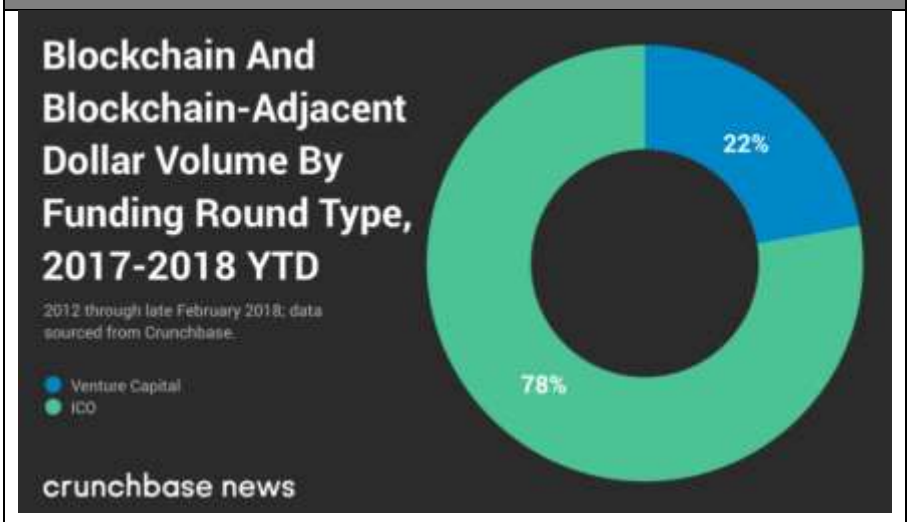
circulated cryptocurrencies. That is, tokens are benchmarked against and exchanged for certain denominations of usually either Bitcoin or Ethereum.

Rather than exploring variation between activities in detail, the following sections provide high level perspective on the purpose of ICOs. The complex relationship between token types, issuers and owners is the subject of later analysis (see Section 4 "Business Environment").

3.2.1. Raise Capital

From a capital raising standpoint, ICOs are often understood relative to other fundraising approaches such as Initial Public Offerings (IPOs), Venture Capital (VC) funding, and Crowdfunding. Similarities and differences are visible across various categories, including: perception of credibility (e.g. maturity of underlying project, product or service), asset structure (e.g. availability of equity or utility to recipient), timeframe for execution, and regulatory oversight.

Blockchain Project Capital Raising: ICOs vs. VC



IPOs are a fundraising approach by which ownership shares in a private company are offered to the general public. IPOs are generally undertaken by mature companies whose revenue volumes and profitability are large enough to warrant public ownership.[17] In contrast, ICOs can be undertaken by various entities (e.g. decentralized networks, foundations, and/or established companies) which are typically less mature. Unlike IPOs, which require participants to issue a prospectus and meet certain standards of transparency, ICOs in many jurisdictions are not currently bound by legal requirements. Rather than a prospectus, most ICOs use a "white paper" to explain their vision, business model, and use of proceeds. IPOs and ICOs both often offer a range of windows through which interested parties can participate, with the later frequently defining "pre-ICO" periods during which tokens are offered at a discount or with a wide range of utility options. Some ICOs have been observed to sell out in seconds; for example, Esports platform, FirstBlood, raised more than $5.5 million in under a minute.

VC fundraising represents a popular avenue for early stage companies looking to access capital, as well as expertise in scaling a business.[18] Unlike VC fundraising, which entails arduous due diligence requirements and execution timelines, ICO fundraising is generally understood to be faster and less expensive.[19] Additionally, ICOs are often viewed as business-to-consumer

fundraising, rather than business-to-business fundraising as is the case with venture capital. A successful ICO results in the issuance of tokens to the individuals from which funds were raised. In this sense, it provides evidence of public demand for a specific project or product, however, ICOs can be successfully executed even before a project has met all requirements and reached a viable level of maturity. This stands in contrast to venture capital fundraising, which often demands at least a working prototype, as well as deep knowledge of how to bring a product to market. [20]

Crowdfunding allows for managers of a given project or product to fund their efforts by soliciting contributions from individuals using the internet.[21] Similar to VC funding, which demands a certain level of project maturity, Crowdfunding participants are also driven by final product expectations. In contrast to these approaches, it can be challenging to predict the outcome of an ICO and token issuers often set token values based on products that have not yet been fully developed.[22] Another distinction between ICOs and Crowdfunding is the expectation for "investment potential". As explored in more detail in later sections, certain tokens share characteristics with corporate securities, insofar as they carry ownership rights and may increase (or decrease) in value. Crowdfunding, by contrast, may or may not provide rights to access or own the product or service created by a given project. Within the context of an ICO, similarities and differences along these lines is directly dependent on the type of token being issued (e.g. security vs. utility token).[23]

Capital Raising Methods: Juxtaposition of General Features				
Area	**Perception of Credibility**	**End-Use Considerations**	**Execution Timeline Requirements**	**Regulatory Oversight**
IPOs	High	Equity and/or Utility	High	High
VC Funding	Medium	Equity and/or Utility	Medium	Medium
Crowdfunding	Low	Utility	Low	Medium
ICOs	Low	Equity and/or Utility	Low	Low

Variation to be explored

3.2.2. Grow User Base

While much attention is focused on the potential of ICOs as an avenue for fundraising, they also support token issuers by fostering awareness of and providing access to a new blockchain-based product or service. As previously noted, there is substantial variation on this front based on the type of token being issued, as well as the individuals and organizations involved in the issuance and subsequent use of the token. Blockchain strategist, William Mougayar, outlines several methods by which token issuance can catalyze usership.[24]

ICO Goal: Identifying and Catalyzing Users	
Method	**Description**
Rights	Drive token owner engagement with the blockchain platform; token ownership may not only provide access to a product, but also certain forms of decision-making power, voting rights, and ownership.
Value Exchange	Create economies within the blockchain platform; token ownership may stimulate activity (e.g. content creation, transactions) on the platform.
Toll	Inventive token owner behavior on the blockchain platform; tokens can be exchanged as a security deposit or for the purpose of charging usage fees for certain kinds of activity on the platform.
Currency	Enable frictionless transactions on the blockchain product; tokens serve as payment unit or mechanism to transmit value.
Earnings	Distribute benefits to of the blockchain platform (i.e. token owners); share eventual profits created as result of the blockchain-based product or service.

The above methods can be directly or indirectly associated with the various token types produced in an ICO (e.g. security tokens, utility tokens) and users (e.g. product customers, institutional investors). For example, features which permit the distribution of benefits to the users of the platform may indicate that a token is a security token. Similar to how common stock may provide its holder rights to dividends, this type of token allows holders to share in the eventual profits created by a blockchain-based product or service.

Differences in motivation across token types, token issuers, and token owners are explored in Section 4 “Business Environment”.

ICO sale structure, the method by which tokens are issued, varies depending on the ultimate objectives of the ICO.[25] For example, token issuers may wish to raise a capped amount of capital that aligns with the projected costs of executing on objectives for a blockchain-based project or product. That is, they may want to limit the responsibility and attention of securing and holding more capital than is required. Alternatively, issuers may want to be certain that tokens are sold or allocated along predefined parameters to the development team, investors, and other token recipients. They may not want a large volume of tokens concentrated in the hands of a few token holders, instead opting to diversify distribution to ensure application decentralization.

The following table provides a sample of possible ICO sale structures. Tradeoffs exist with each approach and structure selection largely reflects wider ICO goals.

Sample ICO Sale Structure: Approach Varies by Objectives	
Method	**Features**
Capped First-Come First Serve	• Fixed number of tokens sold at a fixed price until all tokens are sold • Cap on amount raised (e.g. number of tokens to be sold) • Project team (e.g. foundation, investors, development team) are allocated fixed percentage of total token supply • Possibility for discount during certain sales window to encourage early participating
Uncapped	• Unlimited number of tokens sold at fixed price over extended period of time • Token buyers can purchase as many as desired • No cap on amount raised (e.g. number of tokens to be sold) • Project team (e.g. foundation, investors, development team) are allocated fixed percentage of total token supply
Capped Auction	• Variable number of tokens sold • Token buyers bid a desired price and total to be spent • Sales price set at the lowest successful bid price, in proportion with each buyer's pledged total spend • Project team (e.g. foundation, investors, development team) are allocated fixed percentage of total token supply
Uncapped Auction	• Fixed number of tokens sold • Token buyers bid a desired price and total to be spent • Sales price set at fixed price, in proportion with each buyer's pledged total spend • Cap on amount raised (e.g. number of tokens to be sold) • Project team (e.g. foundation, investors, development team) are allocated fixed percentage of total token supply

3.2.3. Disclosure Practices

Despite the variation introduced by market perspective and token type, ICOs have come to follow a similar template for execution.[26] Token issuers provide multiple waves of information both before and after ICOs. Before an ICO, token issuers will release business plans, technical documentation, legal disclosures and marketing materials. After an ICO, they will provide a recap either through a public website or private memo to ICO participants. On an ongoing basis, token issuers will share information with participants to keep them apprised of progress of the blockchain-based project. Prior to running an ICO process, successful token issuers produce a series of reporting materials.[27]

ICO Reporting Materials	
Item	**Description**
Positioning Paper	Describes the problem a company is trying to solve and attempts to explain the business idea, market size, and solution. Often shared on a public website or distributed internally among a smaller audience, it aims to provide enough information on the issuer's intention as to solicit constructive feedback from the audience.
White Paper	Provides a detailed description of the problem, market size, technology solution, and team. Many White Papers go beyond basics to provide revenue projections, legal terms of agreement, risks to participants, user voting rights, and location of origin.
Yellow Paper	Includes further detail on technical components of the project including codebase, system design, and architecture. Yellow Paper often contains information on the effort required to implement the project. It additionally may be used as a proof of concept for other technical readers to review for gaps.
Legal Terms	Highlight risks and disclose additional information to potential ICO participants. Relevant information includes detailed purpose and use of cryptoassets, jurisdictions of governing bodies, cancellation policies, sales procedures, limitation of liability, dispute resolution, arbitration, AML/KYC requirements.

Following a successful ICO, a company will release a memo summarizing final results. The memo will share information about the number of assets sold and token price. More detailed information about the distribution of tokens among founders, advisors, and other participants may also be provided. Ongoing reporting is provided on an ad hoc basis to disclose business updates and performance metrics.

Further research by The Georgetown Center for Financial Markets and Policy will focus on the quality and consistency of information investors receive from companies ICO white papers and other reporting methods. The report will focus on key pieces of information such as financial disclosures, operating results, and management background and compensation.

4. Business Environment

ICOs are enabled by various organizations and structures. The following sections shed light on the rich interaction between these actors across three fronts: token categories, token issuers and owners, and market components. The role that each actor plays in an ICO varies drastically depending on the type of token being issued as a result of the ICO. For example, following an ICO which results in a security toke, financial exchanges may play a role in providing a marketplace for subsequent trading activity. The relationship between these actors provides a potential starting point for if and how certain interactions might be regulated.

4.1. Token Categories

In the past few years, hundreds of organizations have created new cryptoassets which have created different forms of value for their holders. The terms "cryptocurrency" or "coin" can be misleading in many ways and do not fully capture the distinctions in technology, structure, and incentive alignment amongst the different digital assets. While the terms convey attributes that define some, they fail to capture the nuances and capabilities of others.

Below, we have defined the three types of cryptoassets: cryptocurrencies, security tokens, and utility tokens. It is worth noting that some tokens can be referred to as "hybrid tokens," offering elements of both security tokens and utility tokens.

4.1.1. Cryptocurrency

Cryptocurrencies, sometimes referred to as "digital currencies" or "virtual currencies," can be viewed as digital assets that function as currencies, which transactions are secured using cryptography. Like any functioning form of currency, cryptocurrencies facilitate payments between parties and provide a store of value. The original intent of this new medium of exchange, which began with Bitcoin, was to create a decentralized universal currency that was not controlled by any institutions, such as governments, banks, or companies. Unlike with fiat currencies, a central bank does not influence the issuance of a cryptocurrency or guide its monetary policy.

Cryptocurrencies such as Bitcoin can be earned through mining on the blockchain. Supporting the cryptographic protection of the network gives miners a small chance of earning a reward, commensurate with the hashing power that they contribute to the effort. As follows are the three key attributes of a cryptocurrency.[28]

- The currency is tied to an open and publicly accessible blockchain.
- Anyone can send, receive, and earn (mine) coins or fragments of coins through participation in the blockchain.
- The owner has full control at all times, helped by a public and private key system tied to the cryptocurrency wallets.

In its current state of development, cryptocurrencies are not functioning better than fiat currencies for everyday use due to technical limitations in transaction speeds and volume. Hence, many alternative coins or "altcoins" have surfaced, aimed at improving many of Bitcoins inefficiencies as a means of payment. Some of these improvements include lower fees, quicker transactions, increased transaction volumes, more security, and greater anonymity. Millions of

people around the world have adopted bitcoin and other altcoins as a medium of exchange. Examples of altcoins include Litecoin, Bitcoin Cash, and Monero, among others.

4.1.2. Security Token

Security tokens, sometimes referred to as "equity tokens" or "asset tokens," is a broad classification of digital assets backed by external, tradeable assets. Usually, security tokens provide ownership rights over a given portion of a blockchain project or organization.[29]

Security tokens constitute an investment contract, where the main use-case, and reason for the purchasing the tokens, is the expectation of future profits in form of price appreciation, dividends, or revenue share.[30] This definition creates the potential for a variety of applications including, but not limited to, buying and selling on an exchange.[31] Proponents of security tokens highlight their ability to reduce traditional barriers to entry in financial markets and increase accessibility of trading to the average investor.[32] Through ICOs, or "security token offerings" (STOs), investors have access to a wide variety of assets such as real estate (i.e. REITS), financial instruments (i.e. stocks and bonds), and commodities (i.e. gold and silver).

Unlike cryptocurrencies, the control for access and exchange of security tokens is not on a public blockchain and is maintained by individual companies or project teams on a private ledger.

An example of a security token is Property Coin, which is managed by Aperture, a California-based real estate technology and investment company. Aperture will invest 100% of the net proceeds from the Property Coin STO in real estate and loans. Each coin holder will own a fractional percentage of all assets owned by Property Coin. Coin holders will also be entitled to 50% of the net profits, with the remaining 50% being reinvested towards new real estate related investments. The Property Coin STO begins in May 2018[33].

4.1.3. Utility Token

A token class that is growing in popularity within the blockchain ecosystem is the utility token. Utility tokens, sometimes called "user tokens" or "app coins," provide the purchaser with an intangible right to a platform, good, or service, similar to a digital coupon. By creating utility tokens, a startup can sell "digital coupons" for the service it is developing, though it may not be available for several months, or perhaps longer.

The defining characteristic of utility tokens is that they are not designed as investments. If properly structured, this feature exempts utility tokens them from current U.S. federal laws governing securities. There is a great deal of regulatory uncertainty, however, and many argue that most tokens can be considered securities since the majority of ICO participants view crowdsales as investment opportunities. Because the supply is fixed, utility tokens may appreciate over time if demand for the product or service increases.

In the United States, any crowdfunding arrangement in which investors are asked to contribute money in exchange for potential profits based on the work of others would be considered a security according to the "Howey Test," which is used to determine whether a transaction is to be considered a security. Utility tokens should never provide holders with an ownership stake in a company's platform, dividend rights or another asset.

Because the term "ICO" is a derivative of "initial public offering", utility token creators often refer to these crowdsales as "token generation events" (TGEs) to avoid the appearance that they are engaging in a securities offering. The SEC has not given official guidance on utility tokens,

and a cloud of uncertainty remains over the industry about whether the tokens will be subjected to securities regulations in the U.S.

An example of a utility token is Filecoin, which raised an ICO-record $257 million in 2017. Filecoin plans to provide a decentralized cloud storage service that will take advantage of unused computer hard drive space. ICO contributors received tokens that they will be able to use to purchase storage space from Filecoin once the service has launched. Conversely, Filecoin "miners" will earn the native protocol token by providing storage to clients.[34]

4.2. Token Issuers & Owners

Token issuers and owners take various forms. Similar to the difficulties in exploring differences and similarities among token types, variation between these actors often leads to a definitional grey area. The following sections explore ICO participants from both sell side and buy side perspectives. Given the dynamism around terminology and creative approaches to ICO execution, what proceeds is, at best, a quick unexhaustive summary of ICO participants, as well as the organizations supporting the wider ICO marketplace.

Token Issuers & Owners: Likelihood of Interaction by Token Type			
Type	**Cryptocurrency**	**Security Token**	**Utility Token**
Token Issuer			
Foundations	✓	✓	✓
Established Companies		✓	✓
Token Owners			
Product Team	✓	✓	✓
Product Customers			✓
Retail Investors	✓	✓	
Institutional Investors	✓	✓	

4.2.1. Foundations

Foundations refer to a particular type of legal entity that are often set up to support an ICO.[35] Often developed for the purpose of philanthropy or other legal economic objective, they are nonprofit organizations whose funds are managed by a formal board or "council" and allocated in alignment with its founder's goals. Such entities are hybrid in nature in that they contain the features of a corporation (i.e. legal personality) and a trust (i.e. created for a specific purpose). Rules, definitions, and regulations around foundations vary by jurisdiction, however, below are a few features consistent across many countries:

Foundation Components: Roles & Responsibilities	
Role	**Description**
Founder	Natural person or corporate entity that establishes the foundation
Council	Natural persons or corporate entities that carry out the purpose of the foundation as unstructured by the Charter
Charter	Document outlining governing rules of foundation, including foundation purpose and other roles and responsibilities
Members	Actors responsible for electing the council; typically do not have rights to foundation profits
Protector	Natural person or corporate entity that oversees council and ensures functions are working property
Beneficiaries	Purpose for which a given foundation exists; key to ICOs is that specific beneficiaries are not named

Although potentially contentious in their use, foundations have become popular entities for coordinating and executing an ICO due to their unique characteristics. While non-profit status provides certain tax benefits, the lack of formal ownership provides anonymity to individuals driving the blockchain-based project.

4.2.2. Established Companies

Established revenue-generating corporations have more recently joined the deluge of blockchain-based startups holding ICOs to raise capital and catalyze customers. Attention to ICOs has directed such firms, especially those with business platforms that can easy tokenized, to start thinking of ways of implementing blockchain in their company.[36] Examples include Eastman Kodak, a US technology firm, and Telegram, a cloud-based messaging service.

Kodak has developed KODAKOne, an image rights management platform which provides an encrypted, digital ledger of rights ownership for photographers to register and license work. The benefits of KODAKOne are many, including, the ability to "allow participating photographers to take part in a new economy for photography, receive payment for licensing their work immediately upon sale, and sell their work confidently on a secure blockchain platform". The token sale of KODAKCoin, which remains active, has received so far received the attention of over 40,000 potential investors and $2 million in funding.[37]

Telegram has developed Telegram Open Network (TON), a project aimed at decentralizing multiple aspects of digital communication including file sharing and transaction browsing. According the Telegram ICO website, GRAM token will "accommodate millions of users [currently using Telegram] and thousands of decentralized applications, to provide direct payment channels to transfer value in milliseconds". Like KODAKCoin, subsequent sales token sales of GRAM remain active and have thus far raised $5.8 billion.[38]

Established Company ICOs	
Kodak's KODAKCoin	**Telegram's GRAM token**
	

4.2.3. Product Team

As explored in Section 3.2.4 "Sale Structures" ICOs issue tokens using a variety of allocation methodologies. Oftentimes, the team driving the blockchain-based project (e.g. developers, managers, founders) receives a portion of the tokens being issued. In some instances, token allocation follows a lock-up period, a contractual period similar to IPOs, which prevents insides from redistributing and/or selling a certain number of tokens. This approach serves to incentivize and align the team with project milestones and helps to ensure token value is not put to risk.

4.2.4. Product Customers

Another category of ICO participants and token owners are represented by product customers.[39] This cohort, which some argue represent the rarest form of token owners, are the "real" users of the tokens which function of a given blockchain platform. They are those who wish to use a given product or service and, in the absence of participating in an ICO, may be required to purchase the tokens at a late date on a token exchange or directly from the sponsoring entity. Variation across product customer demographics, business experience, and thematic interest vary drastically depending on the type of blockchain project being discussed.

Product customers are most often associated with Utility Tokens. As previously explored, tokens provide the purchaser with an intangible right to a platform, good, or service, similar to a digital coupon.

4.2.5. Investors

The ICO investment environment is a dynamic space characterized by high levels of activity by new and existing types of investors. Investors in ICOs and tokens are a diverse group which includes a blend of institutional and retail investors.[40]

On the retail investor front, a popular cryptoasset exchange, Kraken, recently noted that they were onboarding 50,000 new accounts and logging 10,000 new support tickets on a daily basis. In response to this demand a Kraken developer noted, "This blaze is on fire. The recent, unexpected explosion in demand has been overwhelming. Concurrent users, daily trades and volumes are also hitting new all-time highs. We are struggling to keep up".[41]

Opportunities for institutional investors are myriad. Goldman Sachs, an investment bank, has discussed developing a new trading operation centered on bitcoin and other cryptoassets. The move comes, according to one spokesperson, "in response to client interest in digital currencies".[42] Institutional client services contributed to 37% of Goldman Sachs revenue or $11.8 billion.[43] While the majority of interest and activity by institutional investors has focused more on post-ICO token trading, its implications on increasing the volume and value of ICOs is notable.

4.3. Market Components

The ecosystem that facilitates cryptocurrency transactions shares similarities and differences with traditional financial markets. Some infrastructure, such as cryptocurrency exchanges, clearly serves similar ends and operates in the same manner as stock exchanges like the United States NASDAQ. While the underlying assets of exchange may vary in purpose or function (i.e. utility token, security token), the overarching goal of this infrastructure remains the same at a high level. In contrast, other infrastructure, such as the digital wallet, is a unique component required for transacting and managing cryptocurrencies. Given novelty of and variation that exists across digital wallet service providers, these elements present a unique avenue for discussion.

The following sections are not meant to provide a comprehensive analysis of all components of cryptocurrency markets. Instead, they aim to illustrate how the movement of cryptocurrencies across market actors requires modifications to existing structures, as well as the formation of new structures. To introduce this topic, consider the below transaction summary for bitcoin, one of the most widely circulated cryptocurrencies.

Cryptocurrency Transaction Overview: Perspectives from Bitcoin	
Action	**Notes**
Create Balances[44]	All confirmed transactions are included in the blockchain. This way, Bitcoin wallets (explored later) can calculate their spendable balance and new transactions can be verified to be spending bitcoins that are actually owned by the spender. The integrity and the chronological order of the block chain are enforced with cryptography.
Transactions[45]	Keys are used to show the right as the owner of the asset. The key also prevents the transaction from being altered unauthorized party. All transactions are broadcast between owners and usually begin to be confirmed by the network through a process called mining.
Processing	Transactions follow chronological order on the blockchain. To be confirmed, transactions must be packed in a block that fits very strict cryptographic rules that will be verified by the network. These rules prevent previous blocks from being modified because doing so would invalidate all following blocks.

4.3.1. Wallet Service Providers

On unique feature of cryptoassets is that owners are required to have digital wallets for storing and managing various tokens. Wallets range in terms of features, platforms they can be used on, and security features.[46] [47]

Wallet Services: Main Provider Types	
Type	**Description**
Online Wallet	Store cryptocurrency in a place that's easily accessible from anywhere in the world, on any device you choose. Often linked to an exchange, they make trading for fiat currencies, or other cryptocurrencies, quick and easy, and are straightforward to set up and get started with. Many also feature smartphone apps to give owner easier access to bitcoin, more reliant on a third party for support.
Offline Software Wallet	Sometimes called "desktop wallets," retain the ease of use and access. Some are aimed specifically at use on desktop and laptop PCs, while others have a more mobile focus, and are app exclusive. This approach is independent. Every exchange in the world can go down, yet and owners still have technical ownership and access to cryptocurrency.
Hardware Wallet	Sometimes called "cold wallets", for owners who want to have the utmost security for their bitcoin investment, or plan to deal with a lot of high-value cryptocurrency in general. By storing bitcoin on a specific piece of hardware that is "cold" (i.e. not connected to the internet) owners can be sure that no one will be able to steal cryptocurrency. Hackers and malware will find it very difficult to infiltrate wallet, and barring someone physically stealing the device, it's almost impossible to lose access to it. These cold wallets can be connected to any computer in the world and easily transfer funds from it to a "hot" wallet.
Paper Wallet	Although less secure than hardware wallets in terms of physical durability, a paper wallet is a very inconspicuous way to store bitcoin. They do allow you to 'send' bitcoin using neat homemade gift-cards, and store your bitcoin in an entirely non-electronic medium, but if you decide to utilize this option we would seriously recommend a waterproof, airtight bag, and fire-proof safe as a secondary measure.

Wallets help to reduce the risk of asset theft, which has become increasingly commonplace in the cryptocurrency marketplaces. For example, Mt. Gox, the world's largest bitcoin exchange, almost fell into bankruptcy in 2014 when the equivalent of $460 million in bitcoin was taken from its servers. It is for this reason that some owners have been skeptical about the wider use of Bitcoin as it means that wallets need to be duplicated and backed up to offer maximum safety.

4.3.2. Exchanges

Cryptocurrency exchanges are platforms where you can buy, sell or exchange cryptocurrencies for other digital currency or traditional currency like US dollars or Euro.[48] Currencies that are less well known can only currently be transferred through private means that are not as active as and harder to value than other currency forms. Currencies that are more popular, such as the Ripple or Bitcoin are traded via particular special secondary exchanges that are similar to those used by fiat currencies. These essentially allow people to exchange their fiat currencies or, in some cases, cryptocurrency into other forms of cryptocurrency and vice versa. This service is not free however and the platforms take a small cut of the transaction price, which normally stands at less than 1%, for example.

Exchanges: Main Provider Types	
Type	**Description**
Trading Platforms	These are websites that connect buyers and sellers and take a fee from each transaction.
Direct Trading	These platforms offer direct person to person trading where individuals from different countries can exchange currency. Direct trading exchanges do not have a fixed market price, instead, each seller sets their own exchange rate.
Brokers	These are websites that anyone can visit to buy cryptocurrencies at a price set by the broker. Cryptocurrency brokers are similar to foreign exchange dealers.

Given the pace of cryptocurrency growth, several factors differentiate channels and requirements for entering the market. What constitutes the visual market are various website service providers for companies aiming to undergo an ICO.

Websites have a wide range of perceptions in the marketplace from the owner comments. Most exchanges also provide fee-related information through websites. Fees differ substantially depending on the exchange platform investors use. Many regulators are concerned with the legal status of investments, so verification will also have specific requirements. The vast majority of the Bitcoin trading platforms both in the US and the UK require identification in order to make deposits and withdrawals in order to avoid money laundering. Further, there are geographical restrictions. Some owner services offered by exchanges are only accessible from certain countries.

Coinbase is one of the most popular and well-known brokers and trading platforms in the world. The platform makes it easy to securely buy, use, store and trade digital assets. Owners can purchase assets through a digital wallet available on a mobile device or through other market participants on the company's Global Digital Asset Exchange (GDAX) platform. GDAX currently operates in the US, Europe, UK, Canada, Australia, and Singapore. GDAX does not charge any transfer fees for moving funds between Coinbase account and GDAX account.

Founded in 2011, Kraken is one of the largest Bitcoin exchanges, as well as serving as a partner in the first cryptoasset bank. Kraken allows owner to buy and sell bitcoins and trade between bitcoins and fiat currencies. It's also possible to trade digital assets other than Bitcoin like

Ethereum. For more experienced owners, Kraken offers margin trading and a host of other trading features.

Cex.io provides a wide range of services for using bitcoin and other cryptoassets. The platform allows users to trade between fiat money and cryptoasset. For those looking to trade bitcoins professionally, the platform offers personalized and user-friendly trading dashboards and margin trading. Alternatively, CEX also offers a brokerage service which provides novice traders an extremely simple way to buy bitcoin at prices that are more or less in line with the market rate. The Cex.io website boasts security features, intuitive navigation, as well as cold storage for cryptocurrencies.

Cryptoasset Trading Comparison			
Name	**Service Summary**	**Cryptoasset (Bitcoin, Ethereum, etc)**	**Brokerage**
Coinbase	Buy, use, store and trade digital assets	✓	
Kraken	Buy and sell bitcoins and trade between bitcoins and fiat money, margin trading for experienced users	✓	
Cex.io	Wider range of service, users trade between fiat money and cryptoasset, margin trading, brokerage	✓	✓

4.3.3. Listing Sites

ICOs must provide liquidity to users in order to issue the cryptoasset for use and, where applicable, trading on an exchange. As more and more communities are involved in the market, there has been more public information available to the users or investors by way of ICO listing sites. Going forward, these websites will become increasingly helpful in fostering a robust marketplace for the purchase and sale of tokens.

Some ICO listing platforms highlight transactions while others simply focus on providing relevant information on ICOs. There are also websites that take advertisement fees or donations to help marketing ICOs. The information for the public could be arranged in the following ways:

- **ICO Agenda:** Provide the presale and ongoing ICO listings, with or without analysis
- **ICO Comparison:** Provide rankings, metrics to compare ICOs and analysis or advisory based on the information
- **ICO Market Trends:** Includes information on market capitalizations and trading volume
- **ICO Whitepaper or Project Information:** Gather ICO whitepapers and provide information for potential projects, including information on teams and roadmaps

ICO Listing Platform: Comparison of Samples[49]		
Name	**Service Summary**	**Specialty**
ICO Alert	Information on ICO	List of ICOs, token sales, but no investment suggestion
Smith and Crown	ICO research, analysis cryptoasset, technology and related market	Focus on global trends, industry intelligence, and cryptoeconomic systems to provide advocacy and advisory
CoinMarketCap	Information on ICO market	Market volume, data on demand and supply

4.3.4. Proprietary Trading Firms

In traditional financial markets, proprietary trading firms are likely large and have sufficient avenues for accessing capital. They tend to focus on a specific asset class and focus on generating gains from transacting in that one class.[50]

Established players in the market have been hypothesizing approaches for engaging the market without taking on too much risk. Other major trends include firms who are hiring cryptoasset teams and firms who are developing products to fit into spot transactions and futures for underlying cryptoassets.

Trading software provider Trading Technologies International Inc (TT) has teamed up with crypto-currency exchange operator Coinbase to give institutional traders direct market access to both bitcoin and bitcoin futures. TT, is connected to 45 markets worldwide, including CME Group and Cboe Global Markets, which both introduced bitcoin futures trading in December. The cash-settled futures give speculators a chance to short bitcoin, meaning they are betting the price of the underlying security will fall. TT also counts Goldman Sachs, JPMorgan, and most other Wall Street banks as clients, as well as many Chicago-and London-based proprietary trading firms. Following the trend, data terminal providers like Bloomberg and Thomson Reuters also would provide increasing trading information on cryptoasset.

Much of the interest in trading bitcoin has come from retail traders, but institutional participation has been picking up steam, especially over the past year, Adam White, general manager of Coinbase's GDAX, one of the biggest cryptocurrency exchanges, notes, "This is the first time hundreds, if not thousands of institutional clients will have the ability to trade the crypto spot market side by side with 45 other markets." [51]

The rising trend for involvement of large traditional organization in the space will help boost the investors' confidence in control the cryptoasset risk of price volatility. However, there are voices in the market worried that the increasing of the market players could eliminate the high volatility character of the cryptoasset transactions as a result make it less attractive for investors who are willing to take the risks.

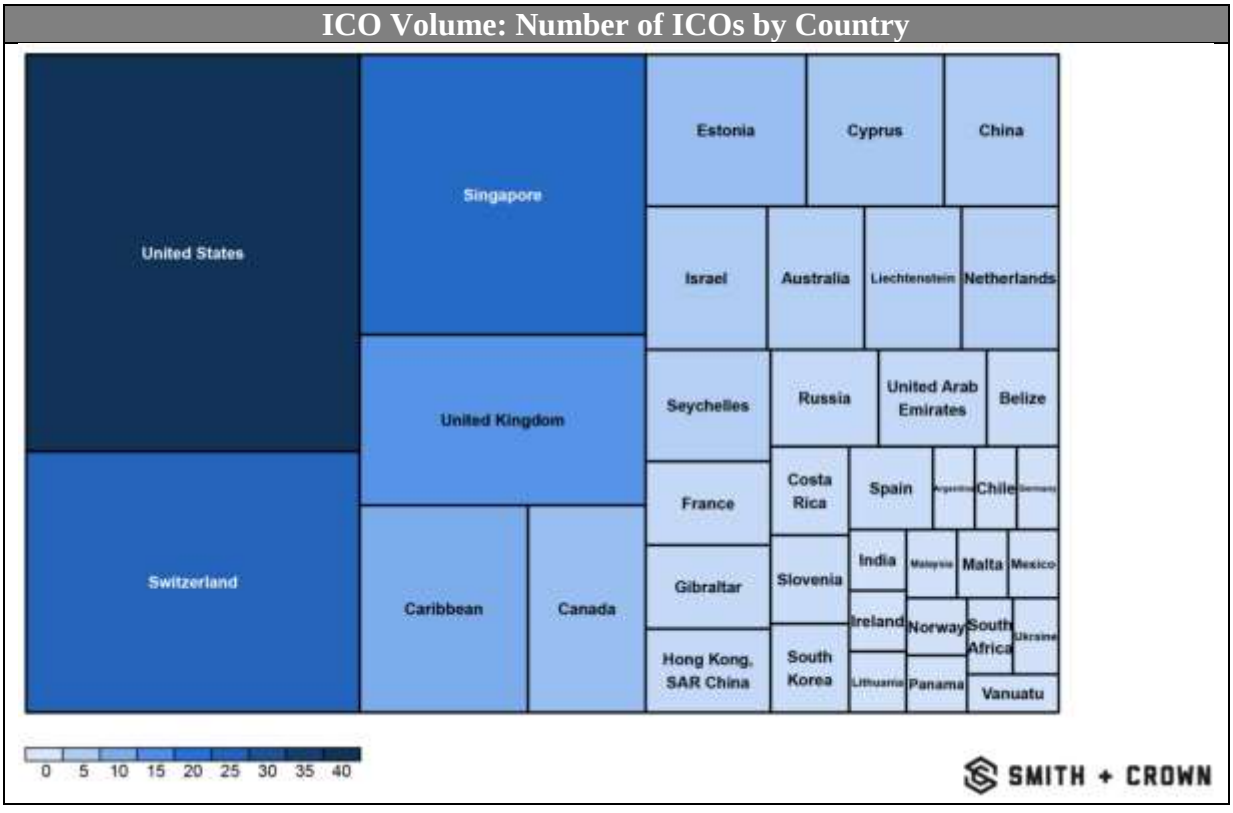
5. Global Regulatory Environment

The regulation of ICOs globally varies substantially by region and country. Many countries currently have limited, if any, regulatory measures in place. Others, such as the United States, are actively analyzing developments with the aim of adjusting existing anti-money laundering (AML), know-your-customer (KYC), and counter-terrorist financing (CTF) frameworks.[52] In contrast, China has emerged as one of the most stringent regulators of cryptocurrencies and ICOs. Andrew Nelson, writer at Bitcoin Magazine, confirms developments in China largely reflect broader national priorities:

> Starting off by banning ICOs, China ordered a bank account freeze associated with exchanges, kicked out bitcoin miners, and instituted a nationwide ban on internet and mobile access to all things related to cryptocurrency trading… Though strict, the regulatory actions of the People's Republic of China, under the stewardship of Xi Jinping, makes contextual sense as the country has recently been focused on stemming capital outflows and stomping out corruption. [53]

Regardless of the strength of regulatory reaction, efforts regarding cryptocurrencies and ICOs may highlight a fundamental mismatch between the pace at which new technologies and legislation emerge.

The following sections explore regulatory developments in Switzerland, the Caribbean, and Singapore. Given the high volume and value associated with ICO activity in these countries, they present themselves as interesting cases for further analysis. In reviewing the broader regulatory context, summarizing recent ICO progress, and forecasting what the future holds, this section highlights how these countries have become leaders across the ICO landscape.



5.1. Switzerland

5.1.1. Context

Developments across Europe suggest interest in taking a unified, regional approach to token and ICO regulation. Reports issued both by the European Banking Authority (EBA) and European Court of Justice (ECJ) serve as evidence to this end. [54] [55]

Against this backdrop, Switzerland has emerged as a leader in how to frame and promote a path forward in approaching country-level legislation. Switzerland's healthy economy, low taxes, and capital abundant business environment make it attractive to fintech startups. Financial Market Supervisory Authority (FINMA), Switzerland's financial market regulator, publicly recognizes the innovative potential of blockchain technology. Additionally, the Swiss Federal Council, a seven-member council which constitutes the Swiss federal government, aims to open a "sandbox" within which startups could experiment with new technologies.

Positive political sentiment towards ICOs and tokens is reflected by Swiss ICO investment volume and value: around half of all ICOs globally flowed into Switzerland in 2017, amounting to almost $3 million.[56] This level of support, ranging from infrastructure for blockchain projects to clarity around key ICO terminology, is likely to enhance Switzerland's attractiveness to ICO participants going forward.[57]

The Swiss government's open approach, whereby the collaborate directly with industry leaders, serves as a potential guidepost for countries with nonexistent or nascent ICO rules. In contrast to countries such as the United States, which has taken a more moderate stance on ICOs, and China, which has been openly hostile towards ICOs, this Swiss strategy presents a third blueprint. By surveying recent developments in Switzerland, the below section will shed light on specific components of the Swiss blueprint.

5.1.2. Progress

In June 2014 the Swiss Federal Council issued the country's first major report on virtual currencies.[58] The report sought to explore the applicability of existing financial market legislation to common activities connected with cryptocurrencies. In doing so, it highlighted the need to treat activities based on their underlying business model. For example, it suggested that the use of cryptocurrency as a means for payment was not currently regulated by financial market legislation. In contrast, the purchase and sale of cryptocurrency on a professional basis was deemed to be covered existing AML provisions. Going forward, the report highlighted that the role of FINMA in leading such assessments.

While focused more on cryptocurrencies, the Swiss Federal Council's report suggested that tokens and ICOs might be treated in the context of existing regulatory frameworks, rather than a legal vacuum. A guidance document published by FINMA in September 2017 confirmed this position noting, "due to the underlying purpose and specific characteristics of ICOs, various links to current regulatory law may exist depending on the services provided." The document further recognizes the variety in structure across ICO models, however, still alludes to three broad areas as potentially applicable to ICOs, including existing AML, banking, securities, and investment fund laws.[59]

In a 2017 comment FINMA CEO, Mark Branson, struck a positive tone regarding blockchain's benefits relative to a supporting regulatory framework:

> The application of blockchain technology has innovative potential within and far beyond the financial markets. However, blockchain-based projects conducted analogously to regulated activities cannot simply circumvent the tried and tested regulatory framework. Our balanced approach to handling ICO projects and enquiries allows legitimate innovators to navigate the regulatory landscape and so launch their projects in a way consistent with our laws protecting investors and the integrity of the financial system.

Reflecting this viewpoint, FINMA published a new set of guidelines in February 2018 which aimed to codify how it intends to manage questions from ICO participants.60 While the guidelines reiterated potentially applicable regulatory frameworks, they also highlighted the absence of generally recognized token terminology, ICO-specific regulation, relevant case law, and consistent legal doctrine. In the absence of such guideposts, FINMA urged that each ICO case and its underlying model must be analyzed on an individual basis. Specifically, the organization focused on two token features, economic function and transferability, in classifying tokens into one of three main types:

- **Payment Tokens:** Synonymous with cryptocurrencies. May in some cases develop the features of and be accepted as a means of payment.
- **Utility Tokens:** Provide digital access to an application or service
- **Asset Tokens:** Represent assets such as claims to real physical goods, companies, or earnings, or an entitlement to dividends or interest patents. Analogous in economic function to equities, bonds, or derivatives.

FINMA noted that the individual token classifications noted above are not mutually exclusive. For example, asset and utility tokens can be classified as payment tokens. Such a relationship gives way to a fourth category of token referred to as Hybrid Tokens.

Relative to the above categories, FINMA stresses the importance of existing AML and securities regulation, while minimizing banking and investment fund laws. Blockchain decentralized nature, by which assets can be transferred anonymously and without intermediaries, enhances money laundering risks. The application of existing AML measures is logical. In contrast, securities regulation seeks to ensure that market participants can base investment decisions on reliable information. Monitoring for accuracy and availability of token issuer information is similarly logical. To this end, and to facilitate rapid response to token issuer inquiries, FINMA has outlined a series of minimum information requirements.

In addition to providing clarification on variation between token types relative to existing regulations, Switzerland is leading the way through its engagement with other market actors. In January 2018, the Swiss government launched a blockchain task force led by its Finance Minister and Economics and Education Minister.[61] The 50-representative group —which includes a blend of federal and local officials, members of various blockchain startups, and legal representative, —has been tasked with analyzing legal guidelines surrounding ICOs and blockchain companies. As the Swiss Finance Ministry confirmed in a recent statement,

> The aim of this work is to increase legal certainty, maintain the integrity of the financial center and ensure technology-neutral regulation. This clarification of the regulatory framework should help to ensure that Switzerland remains an attractive location in this area.[62]

The task force is organized around four working groups, one of which is focused exclusively on ICOs and tokens, and two support groups, one for politics and one for industry. An April 2018 blockchain summit in Zug, Switzerland, popularly referred to as "Crypto Valley", will provide the forum for taskforce representatives to communicate recommendations for future regulation. While simply a view into the group's initial findings, co-founder and blockchain investor, Mathias Ruch, is confident in their collaborative approach, confirming, "Not only blockchain companies, but also the Swiss authorities have an open attitude towards new industries and technologies. I am proud of what the 50 task force members have achieved in a few months.[63]

5.1.3. Looking Ahead

While Switzerland's stringent bank secrecy laws and offshore wealth management capabilities were once viewed as sources of competitive advantage, many are now looking to technological innovations such as blockchain to carry the country forward. What is likely to follow is a regulatory framework that supports this vision.

According to Olga Feldmeier, CEO of Smart Valor, a decentralized marketplace for tokenized alternative investments, regulatory developments in Switzerland are likely to move slowly. "Nothing is fast in Switzerland," she confirms. The classification of ICO initiatives and subsequent allocation of reporting requirements will, over the near term, be handled on a case-by-case basis. In the absence of formal regulation, industry participants see a path forward in executing ICOs in a compliant yet "unregulated" manner. That is, the pursuit of ICOs will be viewed as a necessarily collaborative exercise between industry players and regulators.[64]

For its part, through both published ICO guidelines and stated position as an "enabler" of blockchain innovation, FINMA has set a tone of regulatory leniency. Whether or not that tone is carried forward as legislators work to refine existing or define new rules has yet to be seen, however, most observers remain optimistic. Topics such as investor protection and AML are likely to be revisited in subsequent discussions among the blockchain task force. Industry advocacy groups, of which there are approximately ten highly active organizations, will continue to serve as vital sources of feedback around which future regulation is molded. As Roger Darin, board member and community manager of Bitcoin Association Switzerland notes, the current framework for interacting with regulators on ICO matters is "a lot better than some jurisdictions". A major advantage offered by Switzerland is its transparency and openness around regulatory expectations. As Darin confirms, in Switzerland, "you know what you're getting into in terms of legality… it's not necessarily something you can legislate, it's a mindset".[65]

5.2. Bermuda

5.2.1. Context

Like Switzerland, governments in the Caribbean have shown greater willingness to embrace ICOs as an economic tool that can stimulate diversification. Being smaller nation-states, they have lesser infrastructure compared to the world's leading nations and, as a result, companies setting up in the region face lower regulatory hurdles than they might elsewhere. Typically, Caribbean countries have fewer security laws and fewer exchanges located within their jurisdictions. For example, Anguilla is currently attempting to pass an act that will provide a general purview to enable organizations to operate efficiently in a way that will not hinder their development. This regulation, like those in other countries in the region, is aimed at bolstering the development and operation of ICOs. Nonetheless, it is notable that these developing nation states tend to defer to the guidance of more established regulatory bodies like the SEC and CFTC. Thus, most jurisdictions tend to be aligned with leading country-level and international bodies.

Gabriel Taylor, head of operations at Novelty Curve, a Bermuda-based blockchain technology private equity firm and advisory group, said, after speaking with Central Banks and other major financiers within the region,

> …we're trying to follow what the big boys and major international regulators, such as the SEC, are saying. We're also proceeding with caution, with regards to, for example, ICOs. What makes the distinction, in their eyes, between security tokens and regulatory tokens. If it looks like a duck and it quacks like a duck, it must be a duck.

Currently, regulatory bodies are working on collaborative projects with governments, such as St. Lucia, which falls under the ECCB region. St. Lucia is interested in developing core banking systems for taking in digital assets and cryptocurrency. The aim is to have the ability to operate conventional banking networks using traditional correspondent channels while simultaneously developing the capability of interacting with and accepting payments from cryptocurrency-oriented companies. This would include crypto exchanges along with other businesses that accept cryptocurrencies as a payment method, such as Expedia.

In contrast, there are instances where certain, more liberal governments within the region, such as Bermuda, are trying to lead the way by taking a risk to try to create a sandbox for the development of ICO tools.

5.2.2. Progress

Recognizing the opportunities for economic growth that this area of the technology industry can provide, Bermuda has been one of the most proactive countries in the world at developing infrastructure and encouraging organizations to make the country their home base. In fact, Bermuda has developed the regulatory framework necessary to create a technological environment for blockchain to enable it to become a real economic driver for the region.

Bermuda has been an associate member of the economically-incentivized Caribbean Community (CARICOM) since 2003. The country's Premier, David Burt, who assumed office in July 2017, is one of the key political figures in the region that is championing blockchain technology. In November 2017, Premier Burt announced the formation of the Government of Bermuda's Blockchain Task Force in an effort to "advance the regulatory environment and develop the

small Caribbean island as a destination for Utility Tokens, Tokenized Securities, Cryptocurrencies, and Initial Coin Offerings."[66] The Task Force has two main initial responsibilities. First, it aims to create a self-governing Crypto Currency Association with a defined Code of Conduct and Rules of operation. Second, the Task force will work in conjunction with the Bermuda Monetary Authority and the Ministry of Finance to draft appropriate documentation confirming that because they provide no promise of future value, Utility Tokens cannot be considered a security. Such certification will provide companies from around the world with the assurances necessary to set up crowd funding endeavors in Bermuda.

The task force has established two working groups to push forward its initiatives, the Business Development Working Group and the Legal and Regulatory Working Group, each of which consists of a mixture of business people and government officials. The first group, the Business Development Working Group, is responsible for identifying new opportunities to increase Bermuda's global profile and to foster new business relationships. The second group, the Legal and Regulatory Working Group, is responsible for developing an appropriate legal framework to govern the products and services related to financial technology. Premier Burt has gone on record as stating that the latter group will be able to confirm that Utility Tokens do not violate any local legislation, thus indicating that they are legal within Bermuda.

In March 2018, Premier Burt touted the potential of this evolving technology and its ability to benefit the nation. He told Bermuda's House of Assembly,

> We live in a dynamic world, which is constantly evolving as a result of technological innovation. The recent emergence of distributed ledger technology, which includes Blockchain, has provided a foundation to disrupt and revolutionize the traditional methods by which we live and transact business on a day-to-day basis.

Subsequently, in April 2018, the Bermudan government proposed a draft bill, for which it is seeking consultation. This draft bill proposes amendments to the Companies Act 1981 and the Limited Liability Company Act 2016 that will provide governance for the conduct of ICOs in Bermuda. Under the proposed bill, ICOs will be treated as restricted business activities that will require consent from the Minister of Finance. In order to gain this consent, organizations must fill out an application that discloses specific details about the ICO. The bill includes requirements including mandatory disclosures about the company, the digital asset being offered for sale, and the rights of the purchasers. Through such initiatives, Premier Burt aims to place Bermuda on the cutting edge of fostering a potentially lucrative industry. Premier Burt suggests that:

> Bermuda has an opportunity to become a global leader in the Fintech space by being one of the first countries in the world to specifically regulate ICOs. The proposed regulatory framework will provide legal certainty to companies looking to conduct ICOs in Bermuda," the Premier added.[67]

Companies are often formed in Bermuda because of tax neutrality – no income or capital gains tax. For multinational companies that are being double-taxed around the world, it makes sense for them – from a corporate structuring perspective – to have their headquarters on the island. However, to be taken seriously as a business center and a future leader in this space, Bermuda wants to differentiate itself from the bracket referred to as "tax-havens" or "offshore" which includes many jurisdictions with relaxed KYC and other compliance standards, and that often draw companies and individuals with opaque business practices.

Panama, for example, has only recently vowed to end the use of bearer shares, which are often used to protect the anonymity of companies' owners, making it harder to ascertain the exact ownership of the companies. Unlike most shares, which when they are bought and sold, require a registered shareholders name to be included on share certificate details, bearer shares do not include the name of the holder on a physical share certificate.

Kevin Richards is the business development manager for the Bermuda Business Development Agency (BDA), an agency formed in 2012 which is aimed at growing the Bermuda economy across the shipping, aircraft, and technology sectors. Mr. Richards, who oversees the agency's technology sector, said "we want to create jobs for Bermudians and jobs in Bermuda and we want to attract foreign direct investment into the country, but it's important that the message about Bermuda is correctly communicated, globally. We've seen an increased level of rhetoric around offshore financial centers and people have forgotten why we exist and the benefit that Bermuda plays in the global marketplace." Mr. Richards pointed to the important role that Bermuda's insurance industry has played on the global stage.

A major trepidation for many governments about cryptocurrencies is not knowing who is behind the money. There is a fear that companies will be established with nefarious actors who may be "washing" their money through their businesses, using the companies for purposes such as money laundering or terrorist funding. For the past 70 years, Bermuda has had a beneficial ownership registry, requiring companies to register the names of all equity holders of 10% or more. Some of the other "tax haven" jurisdictions that Bermuda often finds itself lumped in with have taken similar measures only recently, after facing pressures from countries which they conduct business with and that have higher compliance standards. Being lumped in with the jurisdictions with lower compliance standards has led the country to being put on some countries trading partners 'blacklists.', only to be removed after agreeing to sign further tax information exchange agreements. This has led to a great deal of frustration for the island's business and government leaders who already consider Bermuda to be highly transparency. In 2015, shortly after the European Commission revealed its 30-jurisdiction 'blacklist' of non-cooperative tax jurisdictions, Mr. Richards father, former Finance Minister Bob Richards, was quoted as referring to Bermuda's initial inclusion on the list as "unjustified and baseless."[68]

5.2.3. Bitt Inc. (Barbados)

To better understand the combined efforts of companies and governments in creating a Caribbean-wide blockchain ecosystem, consider the experiences of Barbados-based blockchain startup Bitt Inc. Bitt is working to create a Caribbean-wide settlement network.

According to the company's website, Bitt is "the Caribbean's fastest growing platform for moving and holding any form of money commodity, instantly and securely". A slogan for the company is "Mobile Money Without the Hassle." In addition, it is notable that the Caribbean's leading authority on digital currencies was co-founded by Gabriel Abed, who also serves as the company's CEO, and who is one of the business leaders who has been developing a strong relationship with Premier Burt and who champions Burt's efforts to expand the industry in Bermuda.

First launched near the end of 2013, Bitt became the original cryptocurrency exchange in the region spanning the Caribbean and South America. Initially, the exchange offered many fiat-to-crypto-currency pairings. However, the region was damaged by de-risking, which is the termination of or the restriction of business relationships as part of regulatory AML measures as

well as CTF measures. De-risking is conducted by the Financial Action Task Force (FATF), an independent inter-governmental body that develops and promotes policies to protect the global financial system against these types of threats. As a result of this designation, Bitt now solely exchanges Bitcoin-to-Barbadian dollars.

Because of its prominence, Bitt has taken an active role in creating a digital money ecosystem in the Caribbean. The company recently launched a new digital-payment product with the Central Bank of Barbados called mMoney. This product serves as a digital version of the Barbadian Dollar. Under the mMoney brand, Bitt is launching a blockchain-based mobile wallet that allows clients the payment alternative of using their smartphones to participate in digital transactions from secure accounts.[69]

In Barbados, using digital currency is well past the ideation stage; in fact, the platform is gaining traction among the island's retailers, as over 100 merchants on the island have adopted it as a point-of-sale system while several others have signed up and are currently being onboarded to use the mobile money platform. This is quite an impressive feat for Bitt, especially considering Barbados is a 280,000-person, 1700 square-mile island.

In addition, Bitt is piloting its entire software suite to provide currency digital issuance for central banking services. The company recently announced a partnership with the Eastern Caribbean Central Bank (ECCB) to help with its KYC, AML, and CFT procedures, with regards to their Central Banking members. The alliance also involves Bitt facilitating ECCB's inter-jurisdiction and inter-bank settlements within the central banking network, which encompasses nearly a dozen Caribbean jurisdictions. This arrangement provides Bitt with greater power and legitimacy within the region. As a result, Caribbean government agencies are looking at Bitt's platform as an alternative for their receiving and making international payments

In addition, in an effort to strengthen the company's position, Bitt has formed a partnership with the Caribbean Tourism Organization (CTO). The Barbados-based agency is a joint-venture comprised of nearly thirty islands within the Caribbean Community. Involved in promoting and marketing various Caribbean tourist destinations, CTO partnered with Bitt with the aim of implementing a software suite to receive payments from international travel organizations in exchange for their products and services. If Bitt and CTO can successfully implement this digital-dollar service, they can effectively cut out the middlemen, including large companies such as Expedia and Priceline, which will lead to governments and merchants keeping larger amounts of tourist dollars on the island. In a region whose primary export is tourism, this is of vital importance. This could enable Caribbean countries to conduct greater international business, bringing immense economic benefits to them. "We are the perfect case study for this kind of technology. We are the perfect hot bed for seeing how this stuff is really viable in terms of being able to provide that sort of outlet as an alternative to conventional banking channels and rails," said one bit executive.

5.2.4. Looking Ahead

With the success of Bitt in mind, industry experts forecast that Bermuda's strategies can serve as an example to other countries throughout the world that have been afflicted by de-risking. This includes nearby countries like Nicaragua as well as far-away countries likes Latvia. Specifically, policies such a using distributed ledger technologies are deemed widely helpful. These enable countries to conduct international business while still being able to audit the conduct of organization. Distributed ledger technologies provide records of transactions that are

indisputable. By putting in place the proper processes, the transactions are cryptographically secured while also being transparent to scrutiny.

Many countries in the Caribbean saw their economic stability impeded by de-risking. As a result, they are seeking new methods to do international business. This alternative to banking could provide great benefits if proper safeguards are put into place and the method is deemed to be successful. Many Caribbean nations are observing the efforts of Bermuda and consider digitizing their sovereign currency as well as blockchain.

The British territory of Anguilla recently became the first government in the region to formally harness the red-hot growth of ICOs by adopting legislation aimed at creating regulatory clarity for the industry and at attracting new investment to the island. In December 2017, the 35-square mile, eel-shaped island east of Puerto Rico passed the Anguilla Utility Token Offering (AUTO Act), establishing the world's first registration process for an offering of cryptocurrency. Once registered for this proposed ICO, Anguillan entities with clearly defined utility tokens can present their offering, as long as they meet certain criteria. Such criteria includes having at least one utility feature within their current or proposed blockchain platform and not having features of a security issuer's.[70]

The passage of this legislation could lead to new revenues for the island state both in the form of ICO registration fees and due to the 1.5-percent levy on the total amount of revenue raised by a token offering. The office of Commercial Activity would oversee the registrations; its Deputy Registrar told Bloomberg Law: "The hopes are that these funds will be used to go toward training and also the development of the blockchain register." As a British territory, all Anguilla's legislation that falls under the auspices of financial services requires final approval from the UK Government before being implemented into law. Once this happens, the country will begin accepting registration applications.

The foray of Caribbean nations into the ICO and cryptocurrency realm has led to an increase in the number of companies that are relocating to the region. Naturally, these decisions are based on corporate strategies; thus, companies are seeking the most beneficial conditions for their businesses. This strategy coincides with the island nations' efforts to entice such companies, although the nations must also consider their national legislations in an effort to safeguard them from unnecessary risks.

5.3. Singapore

5.3.1. Context

Many regulators in the Asia Pacific region, including those in China and Australia have become increasingly uneasy with the rise of cryptocurrencies. Japan, South Korea and Vietnam together accounted for 80 percent of bitcoin trading activity at the end of 2017.[71]

China and South Korea are the latest two countries to step up their scrutiny and regulation of Bitcoin use. Sell offs in the cryptocurrency market resulting from these actions are notable, as China and South Korea historically contribute substantial trading liquidity in traditional emerging markets. Regulators' actions in South Korea have been challenged on numerous levels. For example, a recent petition to end the ban on cryptocurrency and remove responsible government officials from office exceeded 100,000 signatures.[72]

On the whole, Eastern countries appear more unwilling to allow cryptocurrencies to go mainstream than their Western counterparts. Despite sometimes clear decisions to outright ban cryptocurrency, regulators in many jurisdictions are not clear how to effectively monitor and regulate ICOs.

5.3.2. Progress

Similar to Switzerland and Caribbean countries, Singapore is general amicable towards the rise of cryptocurrencies. In 2017, Singapore had three companies listed on the Asia's top 10 ICO in terms of capital raised.[73]

The Monetary Authority of Singapore (MAS) is the integrated regulator and supervisor of financial institutions. It is responsible for establishing rules for financial institutions which are implemented through legislation, regulations, directions and notices. Across various market components, rules have been formulated by the authority to encourage best practices among financial institutions. Combined with close supervision, these instruments help MAS achieve the outcome of a sound and progressive financial services sector.[74]

Beginning in 2014 Singapore became the second country to regulate bitcoin after the US. The MAS proposed that the virtual currency exchanges need to verify the identities of their customers and report any suspicious transactions in order to avoid any potential risks of money laundering or terrorism financing.[75]

A key concern of MAS is that ICOs may be vulnerable to money laundering and terrorist financing risks. This is due to the anonymous nature of the transactions, and the ease with which large sums of monies may be raised in a short period of time. On August 2017, MAS clarified that the offer or issue of digital tokens in Singapore will be regulated if the digital tokens constitute products regulated under existing securities regulation. The authority also mentioned that that MAS's relatively lenient position on virtual currencies is similar to that of many of the jurisdictions

MAS further observed that the function of digital tokens has evolved beyond just being a virtual currency. For example, digital tokens may represent ownership or a security interest over an issuer's assets or property. MAS indicated that should digital tokens fall within the definition of securities in the SFA, issuers of such tokens would be required to lodge and register a prospectus with MAS prior to the offer of such tokens, unless exempted.[76]

Falling short of creating new regulation, the authority has mandated cryptocurrency intermediaries like exchanges and remittance operators to address the previous concern on money laundering and terrorist financing risks. As confirmed by an observer in Singapore, “We regulate the activities that surround virtual currencies if these pose specific risks.” [77]

Apart from the money laundering and terrorist financing risks, is the potential risk to investors posed by token sales. In December 2017, MAS advised the public to act with extreme caution and understand the significant risks they take on if they choose to invest in cryptocurrencies. It highlighted that there is no regulatory safeguard for investments in cryptocurrencies. Further, MAS issued A Guide to Digital Token Offerings which stated that, if a digital token constitutes a product regulated under the existing securities laws, the offer or issue of digital tokens must comply with the applicable securities laws.

While the proliferation of tokens have created new challenges for regulators, Singapore has largely embraced the uptick in ICO activity. At the 13th Asia-Pacific High Level Meeting on Banking Supervision Mr. Ong Chong Tee, Deputy Managing Director at MAS, addressed that they will regulate the activities that surround virtual currencies only if additional, substantial risk emerges. He further emphasized that AML requirements will be imposed on intermediaries providing virtual currency services. In recognition of the risks that these digital payment platforms can pose to the system as a whole if they are not adequately secure, he confirmed MAS plans to issue a new bill centered on payment services.[78] [79]

5.3.3. Looking Ahead

Singapore's government has indicated that it sees no need to tighten the reins on cryptocurrency activity, including ICOs and subsequent trading. Tharman Shanmugaratnam, Singapore's deputy prime minister and chairman of MAS, confirms the view that cryptocurrency and related trading activity currently do not pose any threat to Singapore's finance system. Companies and foundations looking to benefit from ICOs view Singapore in a generally favorable light relative to other regions. Other actors in the market, such as exchanges, have followed in a similar vein of thought. For example, one of the region’s largest exchanges, Bithumb, recently announced the launch of its own virtual currency in Singapore instead of South Korea, the country in which the exchange is based.[80]

6. Conclusion

As discussed, the regulatory environment surrounding digital currencies and ICOs is highly dynamic. Jurisdictions globally differ drastically in their approach to modifying existing or creating new regulatory frameworks to address concerns stemming from the rise in ICO activity. In reviewing developments in Switzerland, Bermuda, and Singapore, our research finds that nurturing a business environment with clear regulatory requirements and collaborative public-private relationships enables entrepreneurs, consumers, and governments alike to benefit from blockchain technology and digital currencies.

Building on this analysis, research by the Chamber of Digital Commerce will assess a wider sample of countries in hopes of identifying and codifying industry best practices, frameworks, and standards. Further jurisdiction-level analysis will enable future analysts to help shape balanced legal frameworks that drive blockchain innovation and investment.

7. End Notes

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