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International Variation in Regulations Related to Initial Coin Offerings: Preliminary Findings and A Research Agenda

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International Variation in Regulations Related to Initial Coin Offerings: Preliminary Findings and A Research Agenda

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Abstract

As prior researchers have suggested a firm's success in an international market depends on how well its strategy fits with the nonmarket environment such as formal institutions. This paper examines the determinants of formal institutions around new areas of economic activities. Specifically, we propose a framework for understanding how the quality of formal institutions to promote entrepreneurship drives the focus of such institutions with respect to initial coin offering (ICO), which is emerging as a popular fundraising method. The paper also analyzes how nonmarket factors such as a jurisdiction's tax haven nature, regulators' perceptions of ICOs as threats to national or political interests and trade and industry associations might moderate the relations between quality of institutions and the focus of such institutions with respect to ICOs. We utilize inductive analysis. A key finding of this study is that an economy's quality of entrepreneurship-related institutions, perceived threats to national/political interests and tax haven nature lead to different policy orientations. Consequently, regulators assign different importance to promote crypto-entrepreneurship and to deal with associated risks. Regulators with main focus on promoting crypto-ventures have taken measures to enrich blockchain ecosystem and provided tax and non-tax incentives to attract such ventures. Regulators with main focus on dealing with risks of crypto-ventures are relying on regulatory sandbox and close regulatory monitoring of such ventures.

Keywords: *blockchain; crypto-currencies; crypto-ventures; initial coin offerings; regulatory sandboxes; tax havens*

1. Introduction

The success of a firm in an international market depends on how well its strategy has taken into account the nature of the environments, which have market as well as nonmarket components (Baron, 1995; Engelen, Schmidt & Buchsteiner, 2015; Miller and Friesen, 1983; Porter, 1990, 1996). Among the nonmarket environments are legal, political, regulatory, social, cultural, economic, and technological factors (Varadarajan & Yadav, 2002). Formal or regulative institutions (North 1990; Scott, 1995) such as rules, laws and constitutions thus are a key element of nonmarket environments that influence a firm's strategy.

An interesting question would be how nonmarket environments such as formal institutions develop around new areas of economic activities. Entrepreneurship researchers could benefit greatly from an understanding such evolutions. An understanding of such a critical facet of nonmarket environments is also of relevance for international ventures in the newly evolved industry and market to formulate strategies across different jurisdictions (Baron, 1995; Porter, 1990, 1996).

A rapidly evolving phenomenon of particular interest is a capital-raising method known as initial coin offering (ICO), which involves offers and sales of crypto-tokens using blockchain technology. In 2018, startups raised about \$11.4 billion worldwide through ICOs (Pozzi, 2019). Nations vary widely in terms of what institutional theorists refer to as “rules of the game” (North, 1990), and “rule setting, monitoring and sanctioning activities” (Scott, 1995: 42) related to ICOs. For instance, while countries such as China (Stanley, 2017c) and South Korea (O’Leary, 2017b) have imposed strict regulatory measures such as a total ban on ICOs, others such as Puerto Rico (Bowles, 2018) and Panama (FTNS, 2016) have shown a high degree of openness to ICOs.

Researchers have detailed a variety of policy responses to, and their effects on, different types of financing and investment mechanisms and tools such as foreign direct investments (FDI) (Blomström, Kokko and Mucchielli 2003; Mallampally and Sauvart, 1999), venture capital (VC) (Cumming et al., 2017; Keuschnigg and Nielsen, 2003; Da Rin et al., 2006), equity crowdfunding (ECF) (Kshetri, 2015) and sovereign wealth funds (SWFs) (Johan et al., 2013; Murtinu and Scalera, 2016; El-Kharouf et al., 2010; Drezner, 2008). Due to blockchain’s disruptive nature (WEF, 2015), there are various reasons to believe that theories developed in the context of other financing and investment mechanisms may not be applicable for ICOs. First,

while prior research has shown that information and communication technologies (ICTs) are key enablers and facilitators in the creation of new ventures (e.g., von Briel et al., 2018), blockchain has brought about a fundamental transformation in the way such ventures are created. This technology allows startups to seek new ways of raising funds beyond their reliance on traditional sources. For instance, prior research has suggested that authoritarian regimes are against decentralized fundraising such as CF (Kshetri, 2015). Unlike CF, however, blockchain also allows an entrepreneur to reach directly to investors without the need of ECF platforms. Due to this feature, ICOs may elicit different regulatory responses across various jurisdictions.

Second, anonymity and irreversibility of transactions can fund entities owned or controlled by terrorists (Brill and Keene, 2014). Countries differ in the degree of concern they have about this issue, which may lead to different regulatory responses to ICOs.

Third, discontinuous and disruptive technologies such as blockchain generate exogenous shocks (Haveman et al., 2001), which may make it difficult for nations to develop guidelines and templates (Greenwood and Hinings, 1993) to deal with such technologies. Countries are likely to differ in the degrees of motivation and degrees of flexibility in establishing regulatory and policy guidelines related to ICOs. For instance, whereas small countries with homogeneous population such as tax havens exhibit higher degree of flexibility to rapidly respond (Read, 2001), bigger economies with more established institutions related to entrepreneurship may lack such flexibility.

We thus need new theoretical approaches to explain formal institutions' interaction with ICOs' unique features. The goal of this paper is to fill the gaps in the sparse literature on ICOs and help relevant stakeholders (e.g., regulatory authorities, entrepreneurs, investors, trade associations, etc.) take timely and informed decisions. Specifically, it examines the following

research questions: RQ1) What is the nature of divergence in ICO-related formal institutions?
RQ2) Are specific economic and institutional characteristics linked to specific policy responses related to crypto-ventures?

Our framework and analysis contribute to the telecommunications literature in several ways. First, we provide a framework for understanding how the quality of formal institutions to promote entrepreneurship drives the focus of such institutions with respect to crypto-ventures. Specifically, we explain how economies with higher quality entrepreneurship-related institutions are more likely to focus their efforts on assessing, analyzing, and controlling risks associated with crypto-ventures compared to economies with lower quality entrepreneurship-related institutions. On the other hand, economies with lower quality entrepreneurship-related institutions are more likely to focus their efforts on promoting entrepreneurial activities in the crypto-arena compared to economies with higher quality higher quality entrepreneurship-related institutions. In this way, the framework of this paper has contributed important insights into factors that affect how the rules of the game (North, 1990) as well as monitoring and sanctioning activities (Scott, 1995) evolve around crypto-ventures in economies across different levels of entrepreneurship-related institutions.

A second contribution of our framework is that it highlights the process by which factors related to nonmarket environment such as trade and industry associations, perceived threats to national and political interests and tax haven nature of a jurisdiction moderate the relationship between quality of institutions and the focus of institutions. This means that the impacts of the quality of formal institutions on the focus of such institutions with respect to crypto-ventures vary with the levels of these moderators. For instance, by means of framing, justification and persuasion, trade associations can help develop crypto-accommodating legislation and more

favorable rules of the game for crypto-ventures. In this way, they can stimulate the development of formal institutions to promote entrepreneurial activities in this arena. Specifically, the paper analyzes how the coercive power of the state (Groenewegen and Van der Steen, 2007) and expert power of trade associations (Kshetri and Dholakia, 2009) can possibly be combined to explicate an optimal rule of the game around new economic activities.

Third, our study highlights the important role of legal clarity of crypto-tokens and measures to enrich blockchain ecosystem in order to promote entrepreneurial activities in the crypto-arena. The main idea underlying this approach is that blockchain can be used to create digital information units that have elements of a property right. These new types of decentralized assets are also referred to as blockchain crypto properties (BCPs), which can be transferred via a protocol (MME, 2018). Cryptocurrencies can be viewed as BCPs.

The evolution of ICOs and the associated regulatory and economic implications are of theoretical, practical as well as policy interest. BCPs are considered to be novel and groundbreaking in many ways. From a practical legal point of view, BCPs possess many of the characteristics of physical and tangible properties (e.g., store of value). Nonetheless, BCPs also have purely digital characteristics (e.g., zero distribution costs and algorithm-based). BCPs are a new and revolutionary concept and can be considered to be a new way of thinking about money and transactions. BCPs also have unique characteristics from fundraising and investment points of view. Unlike IPOs, most ICOs are not currently regulated or audited. In some cases, they are issued by people that are not identified. While IPOs entail shares in operational companies, ICOs issue tokens for projects that have not yet been developed (Adham, 2017).

ICOs also differ in a significant way from equity crowdfunding (ECF). Crypto-token purchasers have a right to vote on future decisions related to a project (Dickson, 2017). They do

not, however, own a part of the company. Blockchain's decentralized nature allows an entrepreneur to reach directly to investors without the need of equity crowdfunding platforms such as SeedInvest. In this way, blockchain helps create higher value by enabling an entrepreneur's fundraising actions and changing the nature of the work to be performed by the entrepreneur.

There are thus sufficient differences between ICOs and other fundraising methods such as IPOs or ECF. Due to blockchain's disruptive nature and a high degree of complexity of BCPs, policy responses to ICOs need to be different from other financing and investment mechanisms and tools such as FDI, VC, ECF and SWFs. However, regulations related to BCPs as assets or ICOs as a fundraising tool have received little theoretical or empirical attention. ICOs thus may provide a good setting to learn more about the relationship between entrepreneurship and institutions. The existing literature, however, provides little information regarding policy response to ICOs.

In this way, this paper offers important insights into the contexts and mechanisms associated with policy response to deal with disruptive technologies (Haveman et al., 2001). We have explained how countries that are forced to choose strategies within the constraints defined by the existing rules of the game find it difficult to respond rapidly to benefit from disruptive technologies. Such constraints do not apply to small countries with homogeneous population (e.g., tax havens) that lack monitoring and sanctioning activities **to** ensure compliance with regulations.

Fourth, this study provides insights into the functioning of ICOs. This is especially important due to the early stage of research in the area and the lack of theoretical underpinning. In this regard a parallel can be drawn with early research on VC. Drover et al. (2017) noted that

most of the early research on VC was highly descriptive in nature. The articles focused on the VC process, and the roles of key players. The concepts and frameworks developed in the early stage of a development of this field helped to develop the foundations upon which subsequent research was built.

Fifth, prior research has suggested that there are different mechanisms by which an entrepreneurial ecosystem can be developed (Spigel, 2017). Some economies have chosen ICOs as one of the many different ways in which they can develop entrepreneurial ecosystem. In this regard, this article addresses some of the learning mechanisms that are important to a nation's ability utilize ICOs for entrepreneurship development.

The article is organized as follows. We proceed by first discussing some background, concepts and facts about blockchain and ICOs. The section following this provides a literature review. Next, we discuss methods employed in the study. Then we explain the findings and develop some propositions. It is followed by a section on discussion and implications. In the final section we offer conclusions.

2. Blockchain and ICOs: Some background, concepts and facts

Table 1 provides definitions of key terms and concepts used in this article. As mentioned, in order to raise money through ICOs, a start-up creates its cryptocurrency or crypto-tokens utilizing blockchain, a decentralized ledger. After a block of records is entered into the ledger, the information in the block is mathematically connected to other blocks. In this way, a chain of immutable records is formed (Yaga et al., 2018). Due to this mathematical relationship, the information in a block cannot be changed without changing all blocks in the chain. Any alteration of information in a block would create a discrepancy that is likely to be noticed immediately by others in the network. To ensure that only authorized users have access to the information identities are verified using cryptography-based signatures. Transactions are signed

with “private key,” and “public keys”, which are created using complicated algorithms.

Blockchain-based ledgers thus do not require record-keepers to trust each other.

<i>Table 1 about here</i>

A crypto-token denotes a unit of value issued by a project or a company, which rewards the owner of the token. For instance, crypto-tokens can be used to get a specific service on the network.

Smart contracts and ICOs are closely related because minting, distribution, sale, resale and use of tokens are facilitated by such contracts. Smart contracts execute automatically when certain conditions are met. In general, implementing smart contracts is among blockchain's most transformative applications. A smart contract contains the logic that defines ICOs’ rules such as how cryptocurrencies are collected and stored (e.g., until the investment goal is reached), the point at which it can complete the airdrop (distributes free tokens to eligible recipients), and how the issued tokens are to be used for services that the ICO is planning to offer.

Smart contracts utilized by a large proportion of ICOs run on Ethereum (Fenu et al., 2018), which is also the first blockchain to implement such contracts. Bitcoin, on the other hand, is considered to be the first accounting ledger that can be shared globally (MIT Technology Review, 2017). While Bitcoin stores data related to transactions, Ethereum stores diverse types of data such as those related to finance, industry, legal, personal information, community, health, education and governance. In Ethereum, computers (nodes) connected in an open and distributed network verify and record transactions and provide the processing power needed to run smart contracts. Smart contracts are “installed” in each node, which allows users to interact with other nodes. The data can be accessed and used by computer programs known as decentralized applications (dApps). This is a major difference between dApps and applications hosted by a centralized organization. In the latter, while the codes may be distributed across

multiple servers, a single entity controls them. For instance, Facebook is a centralized app controlled by Facebook Inc. dApps are not controlled by a central entity.

The codes are generally open sourced, which means that anybody can use them to create a new dApp choosing their own ‘rules’ for ownership, transactions formats and other aspects that may underlie the interactions among various parties. That is, Ethereum can be customized to offer unique solutions to special needs. Some Ethereum-based successful dApps include Golem, Augur, and Melonport. Ethereum can be viewed as the first shared global computer.

Ethereum-based ERC-20 is a technical standard used for smart contracts (Fenu et al., 2018), which keeps track of token owners at a given point of time (Consensys Media, 2017). It defines a set of functions to be implemented by ERC20 compatible tokens so that they can be integrated with other smart contracts, or wallets. An ERC20 token can be created with less than 100 lines of codes (Wolfson, 2017).

3. Literature review

Researchers have started to explore nonmarket environments (Baron, 1995; Engelen, Schmidt & Buchsteiner, 2015; Miller and Friesen, 1983; Porter, 1990, 1996) especially formal institutions related to ICOs. Prior research has noted that ICOs pose risks due partly to the lack of clear regulatory mechanisms in most jurisdictions (Chohan 2017; Conley, 2017; Kaal, 2018). Due to the nascentness of regulations, most ICOs “rely on legislative loopholes or, more accurately, what the issuing entity hopes (or prays) is a loophole or grey area” (Zetzsche et al., 2018, p. 11).

Unsurprisingly prior researchers have noted pervasive fraudulent practices in ICOs (Hornuf et al., 2021). For instance, a study found that 40% of all ICOs destroyed investor value just on the first day of trading (Momtaz 2020).

It is in the interest of most ICOs to register with regulatory agencies. For some firms, an attractive response would be to register in a tax haven jurisdiction (Marian, 2019) so that they can operate confidently without the fear of being investigated by regulators. Tax havens thus allow intermediaries such as cryptocurrency exchange platforms (e.g., Coinbase) to operate away from regulators by offering an “unregulated or lightly regulated environment” (Marian, 2019, p. 16).

Research has just begun to consider this new fundraising mechanism in relation to formal institutions. Therefore, the current research in the area of ICO cannot help us understand the nature and sources of international variation in ICO-related formal institutions. The rest of this section is devoted to describing formal institutions in the contexts of broader issues.

3.1. Formal institutions and entrepreneurship development

Elements of the nonmarket environment, specifically formal institutions, such as minimal rules, tax incentives, availability of training and counseling services, government programs to enhance skills and education, technological services, and other administrative measures influence the success of start-ups (Keuschnigg and Nielsen, 2001).

Financial and fiscal incentives such as lower taxes play a key role in attracting FDI (Blomström et al., 2003). The reduction of “hassle costs” such as those associated with corruption and administrative inefficiency can also stimulate FDI (Mallampally and Sauvart, 1999).

Attracting funding, especially from specialized financial agencies such as venture capitalists that have the potential to generate high yields (Keuschnigg and Nielsen, 2003) has been a key policy issue. Prior research has suggested that countries that have lower capital gains taxation can attract more early stage and high-tech VC investments (Da Rin et al., 2006). The

EU has been trying to stimulate the VC market through tax incentives and other measures that are targeted at the supply and demand sides (Cumming et al., 2017).

An issue that is relevant in the context of this paper is how formal institutions evolve in response to disruptive technologies, which are viewed as exogenous shocks (Haveman et al., 2001). In such cases, there are no recommended policy guidelines and templates to follow to increase the level of national entrepreneurial activity (Greenwood and Hinings, 1993).

3.2. Formal institutions and the selection process of entrepreneurial ventures

Institutions affect the quality of entrepreneurial activity. In the EU economies, subsidies and other programs especially target innovative industries (Keuschnigg and Nielsen, 2003). While subsidy programs exist in many countries to encourage start-ups, they do not necessarily stimulate entrepreneurial activities.

R&D subsidies provided to new technology-based firms (NTBFs) can have substantially positive economic impacts if such subsidies are selective and based on systems committed to competitive principles (Grilli and Murtinu, 2014, 2018). Some jurisdictions have developed principles, guidelines and criteria for selecting firms to receive subsidies. In order to evaluate applications for subsidies, the Agency for Innovation by Science and Technology in Flanders (IWT-Flanders), which is a governmental agency established by the Flemish Government in Belgium's Flemish Region has developed several criteria. Subsidies cover some costs of start-ups. The support rate was 50% with a maximum subsidy of €250,000. The criteria include innovation, knowledge acquisition, quality of the execution, commercialization potential, the value added for the Flanders region and the firm's financial viability (Meuleman and Maeseneire, 2012).

A society's power structure and the vested interests of powerful actors affect the ways how illegal and destructive entrepreneurial activities are defined and policed (Brownstein, 2000).

Regulators often get to decide whether certain types of funds should be allowed. For instance, prior research has suggested that authoritarian regimes are against decentralized fundraising such as CF (Kshetri, 2015).

Institutions often determine the type of entrepreneurial activities that may flourish. Some institutions are more likely to promote productive entrepreneurial activities while others encourage destructive entrepreneurship (Baumol, 1990; Stenholm et al., 2013). Some policy-makers have been concerned with some categories of foreign investments, that are potentially linked to unproductive and destructive entrepreneurial activities. Among examples of such investments are SWFs, which are state-owned investment funds that are invested real and financial assets (e.g., stocks, bonds, real estate, precious metals) or in alternative investments such as private equity fund or hedge funds (Johan et al., 2013). Two major concerns have been expressed regarding SWFs-- opacity and politicization (Murtinu and Scalera, 2016). As to the first concern, skeptics pointed out that, due to confidentiality practices, SWFs from some economies may be hiding some “threatening secrets” (El-Kharouf et al., 2010). Second, some critics argue that SWFs may have hidden political agenda (Murtinu and Scalera, 2016). SWFs in strategic sectors or critical infrastructures can thus pose national security threats (Drezner, 2008).

Some SWFs are associated with adverse political, financial and economic consequences (Drezner, 2008). In 2006, Norway’s Government Pension Fund managed by Norges Bank Investment Management shorted the stocks of Iceland’s banks. This negatively affected Iceland’s economy (Setser, 2008). Likewise, a key trigger that led to the 2006 coup in Thailand was a SWF investment (Drezner, 2008). Singapore’s SWF Temasek invested \$1.9 billion in Shin Corp, which was owned by the then prime minister Thaksin Shinawatra’s family. Shin allegedly paid no taxes on profits (Burton, 2006).

Others are less concerned about the potentially destructive effect of SWFs. Some states are willing to allow SWFs or other funds that may promote low quality or destructive entrepreneurship. In response to some countries' oppositions to SWFs, managers of such funds were reported to say that they can easily invest elsewhere as some countries badly need them (Drezner, 2008). A similar pattern has been noted in ICOs. For instance, An et al. (2019) found no relationship between the rule of law score and the amount of capital raised by ICOs.

3.3. Inter-jurisdictional competition

States tend to engage in regulatory competition (Konisky, 2007), especially to attract MNEs' investments (Foss et al., 2019). While corruption, in general, negatively affects entrepreneurship (Dutta and Sobel, 2016; Liu et al., 2018), the exact relationship between corruption and entrepreneurship is not very clear which depends on other contextual factors (Uribe-Toril et al., 2019). For instance, Mohamadi et al. (2017) found that government efficiency moderates the relationship between corruption and entrepreneurship development. In the context of this paper, even countries with high levels of corruption may benefit from blockchain-related entrepreneurship if they are more efficient than other economies in introducing new policy measures to attract crypto-ventures. The mobile nature of assets and other resources allows MNEs to shift activities across jurisdictions (Foss et al., 2019). Firms can engage in regulatory arbitrage and move capital, human resources and technology to the country with the most favorable regulations (Vogel, 1996).

As mentioned, newly emerging funding mechanisms such as CF and VC which focus on early-stage companies, including some innovative ventures, have potential to generate significant spillover externalities that are commonly associated with innovations (Agrawal et al., 2014; Keuschnigg and Nielsen, 2003). Attracting such investments has been a key policy priority for many governments worldwide. For instance, European policymakers have realized

that such financing mechanisms increase the birth and growth of high-tech firms, which are critical in order to raise living standards, revitalize the economy and catch-up with international competitors in innovation capabilities (Grilli and Murtinu, 2014, 2015).

3.3.1. Tax havens and regulatory competitions

From the standpoint of regulatory competition for investments, tax havens, which offer a minimal tax liability for foreign individuals and businesses, possess special characteristics. Many tax havens have been attractive destination for FDI (Jones and Temouri, 2016). Their extremely low tax rates result in unfair competition to other jurisdictions. Some researchers have suggested that such jurisdictions act in a parasitic manner and cause a decline in the revenues of other countries (Slemrod and Wilson, 2009).

Second, corporate tax cuts may attract wrong kinds of investments that are mainly motivated by profit-shifting but may not result in real benefits to the broader economy (Shaxson, 2016). In most tax havens, only a small segment of the population may benefit from foreign investments and there is often the lack of clear positive benefits to the national economy. In some of them, high-salaried finance jobs have attracted skills and talent and thus have had detrimental effects on other economic sectors such as tourism (Christensen et al., 2016). Tax havens' attempts to attract foreign investments may also lead to a degradation of the entrepreneurial climate. For instance, according to Zucman (2015), Luxembourg's role as a leading tax haven has benefitted foreign expats at the expense of locals.

3.4. Trade and industry associations' roles

Nascent industries lack well-developed regulatory agencies (Powell, 1993). In such cases, industry bodies and trade associations may fill the regulatory vacuum (Kshetri, 2015). Their participation in national policy making arena is critical for the success of the industries they represent (Kshetri and Dholakia, 2009).

Various mechanisms and factors are involved in industry bodies and trade associations' roles in filling the regulatory vacuum and strengthening the formal institutions. One of the roles of trade associations is to monitor their members' compliance with normative and coercive expectations (Greenwood et al., 2002). In emerging economies, trade associations also replace the roles that are often played by consultancy firms in filling the institutional voids (Back et al., 2014). They may also engage in lobbying activities to convince policy makers to introduce legislative measures to facilitate the growth of new areas such as crowdfunding (Kshetri, 2015). In some situations, the nation state also finds it necessary to collaborate with professional associations in order to “rationalize” an arena of activity (Scott, 1992, p. 211).

Trade associations can also play the role of an institutional entrepreneur by acting as institutional change agents (Kshetri and Dholakia, 2009). Theorization, which is defined as “the development and specification of abstract categories and the elaboration of chains of cause and effect”, is an important mechanism by which institutional entrepreneurs bring changes (Greenwood et al., 2002, p. 60). Two key elements of theorization are framing and justifying. Framing focuses on the need for change and justification is value of the proposed changes for concerned actors (Greenwood et al., 2002). Overall trade associations can be a key force in changing ICO policies.

4. Methods

There is a relatively small amount of research involving ICOs. In areas like this, much initial research needs to be qualitative, concept- and theory-building (Eisenhardt, 1989). We utilize inductive analysis (Thomas, 2006). The goal of this study is to summarize raw data and capture key themes, processes, and patterns. The product of the inductive process consists of a model of the ICO phenomenon intended to be helpful in organizing further investigation of its components and holistic behaviors.

4.1. Raw data

The data for this study mainly involved articles, blogs (from popular media), reports (e.g., the Swiss blockchain law firm MME's report on BCPs), and policy documents from a number of governments. Archival data are among a variety of recognized data sources for academic research (Ansari et al., 2016; Eisenhardt and Graebner, 2007).

We took a number of precautions to ensure data quality. As recommended by prior researchers, we analyzed the sources of evidence as well as the evidence (Gottschalk, 1969; Kshetri, 2018c). We started with the “10 Must Read Bitcoin and Blockchain Blogs and Webpages” of Fintechnews Switzerland (FTNS, 2016, Table 2) (<http://fintechnews.ch/>) (May 13, 2016). A search in Google Scholar indicated that FTNS has been widely cited in academic research.

<i>Insert Table 2 here</i>

The FTNS's must read sources mostly include new outlets focusing on cryptocurrencies and blockchain as well as established news media such as *Wall Street Journal* (WSJ) and *Financial Times* (Table 2). While these outlets do not specifically focus on ICOs and cryptocurrency-related regulations, we found sufficiently high number of articles covering regulatory aspects of ICOs in various jurisdictions.

<i>Insert Table 3 here</i>

Some main criteria suggested by Gottschalk (1969) for evaluating the evidence and their sources are include in Table 3. The sources chosen in this paper are respected by peers. For instance, WSJ's MoneyBeat (Vigna, 2014) has cited news from Coindesk (The #1 source in FTNS). Articles published by newsbtc and others cited Brave New Coin. Ripple Insights has been covered by newsbtc and other established sources.

We utilized each of the news websites' search function to look for relevant articles. In order to locate articles related to ICO regulations, we searched using various combinations of

keywords such as “ICO”, “cryptocurrency”, “blockchain”, “policy”, “regulations”, and “laws”. At least one ICO-or cryptocurrency-related action taken by a regulatory agency was the minimum requirement for inclusion. CoinDesk had the most articles. We found at least one article in each of the other sources. The articles analyzed covered the period from June 2014 to May 2018. We chose this period because the first ICO was launched in 2013. Regulators need time to think about and adjust to the changes. Ethereum raised over \$18 million in 2014, which was the largest ICO until that time (bitcoinmagazine.com, 2018).

Just like in snowball sampling, when we read an article recommended by FTNS, we also followed links to other articles. Additional sources found this way such as businesstimes.com.sg, bakermckenzie.com, wired.co.uk, lexology.com, fastcompany.com have also been cited in academic research.

We repeated the process until we felt that a coherent set of themes representing regulatory and policy actions on the crypto front had been developed. After eliminating the redundant items, we analyzed a total of 68 items, mainly popular press articles. The relevant materials from various sources resulted in 152 pages of text. They also included video recordings of interviews with people with experiences in ICOs (about 23 minutes). The sources used in the analysis are marked with an asterisk (*) in the reference list.

Gottschalk (1969) suggested to corroborate information from multiple sources. Data and information were thus triangulated from many sources. One of the best ways would be to go to the original source (Joselyn, 1977). When possible, we verified the information from the websites of the relevant regulatory agencies such as Monetary Authority of Singapore (MAS) (MAS, 2017a, b), the U.K.’s Financial Stability Board (FSB), the U.S. SEC (SEC, 2017) and The Swiss Federal Council (Werder, 2017), the Government of Mauritius (Government of Mauritius,

2019) and the South Korean financial regulator, the Financial Services Commission (FSC)¹. The original sources also allowed us to make updates and corrections as emphasized by Gottschalk (1969). For instance, visiting the FSB website (<https://www.fsb.org/profile/mark-carney/>), we found that Mark Carney was no longer the FSB Chair as reported in Zagone (2017).

As emphasized by Joselyn (1977), we assessed the possibility of bias. For instance, an article from a source recommended by FTNS was excluded due to a bias in information provided by a Western blockchain company regarding its plan to collaborate with a country's government. We visited the country's official websites, which had a lot of blockchain-related plans and activities, but no information related to the collaboration.

4.2. Data analysis

Three broad tasks have been suggested for data analysis: data reduction, data display, and drawing conclusions (Miles and Huberman, 1994). As to the first task, researchers need to describe procedures to create meaning in complex raw data (Thomas 2006). They can do so by developing summary themes or categories. In the process of data reduction, the categories that emerge from the coding of raw data have five features: a) category label (a word or a phrase to refer to the category); b) category description (meaning of the category, key characteristics, scope and limitations); c) texts associated with the category (examples that illustrate meanings, associations, and perspectives), d) links (a category's relation with other categories); e) the model embedding the category (Thomas, 2006).

Regarding data display, the category labels have been represented by boxes in Figure 1. We followed the coding process that Thomas (2006) suggested. We read and reread the text for

¹The statement was in the Korean language:
http://www.fsc.go.kr/info/ntc_news_view.jsp?bbsid=BBS0030&page=1&sch1=&sword=&r_url=&menu=7210100&no=32085. We relied on the summary provided in O'Leary (2017b)

generating key categories. Due to a low amount of data, the process was manageable without software. The data were manually coded.

As suggested by prior researchers, we revised and refined the category system (Kshetri, 2018c). Under a given category, we also searched for subtopics. In addition, conceptual themes were searched within the sub-topics in order to provide new insights. Moreover, as suggested by Thomas (2006, p. 242), we combined categories with similar meanings under a “superordinate” category. To take an example, formal institutions are “superordinate” categories that have a number of categories (Figure 1).

4.3. Writing the findings

Prior researchers have suggested to include detailed descriptions of the categories emerged from the data as well as appropriate quotations to illustrate the categories’ meanings (Kshetri, 2018c; Thomas, 2006). As such, Tables 4a and 4b explain the meaning and characteristics of the categories.

<i>Insert Table 4a and 4b here</i>

Figure 1 presents the final outcome in the forms of a model incorporating important categories. The constructs and relationships in Figure 1 are based on insights that emerged from the data. Together with the testable propositions they represent a theory regarding the relationships among key ICO concepts.

4.4. The nature of theory developed

Put simply, a theory is a “statement of relations among concepts within a boundary set of assumptions and constraints” (Bacharach, 1989, p. 496). The theory developed in this paper is what Gregor (2006) refers to as Type IV-theory, which explains and predicts a phenomenon. In this paper, we have explained constructs related to dependent and independent variables, their associations as well as the states covered. Such an approach can help researchers and practitioners develop a more refined understanding of ICO-related policies and enable reliable

and accurate prediction. Future empirical testing may support or refute the theory presented in this paper.

Prior researchers have suggested that the boundary conditions related to a theory's assumptions should be specified (Bacharach, 1989; Whetten, 2002). Two types of assumptions suggested by Whetten (2002) deserve mention: conceptual and contextual. Conceptual assumptions are the "implicit whys underlying an explicit answer to a specific why question" (p. 58). This paper's foundational theory institutional theory makes the assumption that institutional actors seek legitimacy from various groups and that they "accept and follow social norms" (Tolbert and Zucker, 1996, p. 176).

Contextual assumptions, on the other hand, determine the conditions that circumscribe the explanation proposed by the theory and hence specify a theory's boundary (Whetten, 2002). A theory covers only a particular class or state of things (Weber, 2012). In a strong theory, it is possible to "discern conditions in which the major proposition or hypothesis is most and least likely to hold" (Sutton and Staw 1995, p. 376). Put differently, contextual assumptions explain when, where, and for whom a given theory holds (Whetten, 2002). The contextual boundary of the model presented in this paper comprises ICOs, the processes of raising and investing in ICOs, and the institutions in which the fundraisers and investors operate. The context does not include other types of fundraising activities. An additional point is that the proposed associations among the various constructs presented in Figure 1 are expected to be positive or negative on a ceteris paribus basis.

5. Findings and propositions

This section is organized according to Figure 1.

<i>Insert Table 5 and Figure 1 here</i>

5.1. Quality of entrepreneurship-related institutions

By quality of entrepreneurship-related institutions, we mean “regulatory efficiency and quality” required to “enhance business activity” (WB, 2019). Such institutions are a key component of the nonmarket environment (Baron, 1995; Engelen, Schmidt & Buchsteiner, 2015; Miller and Friesen, 1983; Porter, 1990, 1996) affecting crypto-ventures’ location decisions. In this section, we discuss the regulatory responses to ICOs in economies with high- and low-quality entrepreneurship-related institutions. Table 5 compares such responses of four jurisdictions—two with low and two with high quality levels of entrepreneurship-related institutions. Specifically, we use the Global Entrepreneurship and Development Index (GEDI), which *measures* and ranks nations’ entrepreneurship climates (Acs et al., 2016) and the World Bank’s Doing Business (WBDB) ranks (WB, 2019) as proxies to assess the quality of such institutions.

5.1.1 High quality entrepreneurship-related institutions

Talking in terms of what institutional theorists describe (North, 1990; Scott, 1995), in countries with high quality entrepreneurship-related institutions, the rules of the game and sanctioning activities ensure that (minority) investors are protected (LaPorta et al., 2002). Crypto-ventures thus should be subject to the same rules of the game. This is however a challenging task. ICOs differ in a significant way from other fundraising methods such as IPO and ECF. Crypto-token purchasers have a right to vote on future decisions related to a project (Dickson, 2017). Unlike in an IPO or an ECF, they do not, however, own a part of the company. Thus crypto-token holders often lack the ability to control and influence the actions of the directors. As noted above, ensuring regulatory compliance of crypto-ventures is even more important in due to a high degree of fraud proneness in ICOs (Hornuf et al., 2021) and due to that fact that a large proportion of ICOs destroy investor value just on the first day of trading (Momtaz 2020). All these underscore the importance of monitoring ICOs by regulators. For

instance, the U.S. regulators are closely monitoring ICO activities (Table 5). In the mid-2018, 40 jurisdictions including many U.S. states, Canadian provinces and the two countries' national regulators launched a probe dubbed "Operation Cryptosweep". They cracked down fraudulent ICOs and opened about 70 investigations. They warned 35 companies about violating securities laws (Kshetri, 2018a). The SEC has been active in investigating and controlling fraudulent ICOs. The July 2017 SEC report was a direct response to the attack on the DAO hub. In its report, the SEC determined that DAO tokens were securities (Shin, 2017). In October 2017, the SEC announced that it would prosecute the creator of two ICOs-- REcoin and DRC-- that were allegedly structured-like stocks (Morris, 2017). The main goal of this ruling was to protect smaller investors from overextending themselves in the ICO market and investing in fraudulent projects (Galka, 2018).

Regulators have put sanctioning and monitoring activities (Scott, 1995) to ensure that crypto-ventures comply with existing rules of the games. The ex-CEO at Coinapult pointed out that rules related to money service businesses and money transmitter businesses force foreign companies to block U.S. investors (letstalkbitcoin.com, 2014). Compliance requires huge investments and burdensome activities. The rules of the law may not support lax monitoring, lenient sanctions and non-compliance in the name of promoting crypto-ventures.

Monitoring and sanctioning activities to enforce the rules of the game are even more apparent in economies such as in South Korea (Table 5), which have used outright bans of ICOs. While such activities put too much and too one-sided emphasis on controlling risks and largely ignores the importance of innovations (Zetsche et al., 2018), these extreme measures have been justified to ensure that rules of the game are adhered to.

These governments view that regulations should be established only after ICOs' careful cost-benefit evaluation. To address this, regulatory sandbox approaches have been adopted in some countries. Within the sandbox, startups test new services and products under the supervision of regulators (Higgins, 2016). The goals are often to facilitate product testing and promote consumer safety in order to minimize destructive consequences.

In 2014, the U.K's Financial Conduct Authority (FCA) announced several blockchain and cryptocurrency projects to its regulatory sandbox. Likewise, in 2017, Canadian Securities Administrators (CSA) launched a new fintech "sandbox" program, which was aimed at encouraging blockchain and other fintec firms (Higgins, 2017a). The goal was to "curate" an environment in which companies can test new kinds of blockchain-based financial products without affecting the broader marketplace (Higgins, 2017a). In the words of institutionalists (North, 1990; Scott, 1995), these monitoring activities aim to ensure that crypto-ventures play by the existing rules of the game.

In an effort to attract blockchain innovators, in 2016, Mauritius began the process of establishing a regulatory sandbox license (RSL) (Stanley, 2017a). The RSL "offers the possibility for an investor to conduct a business activity for which there exists no legal framework, or adequate provisions under existing legislation in Mauritius". Based on above discussion, the following proposition is presented:

P₁: In jurisdictions with high quality entrepreneurship-related institutions, formal institutions' main focus is more likely to be on assessing, analyzing, and controlling risks associated with crypto-ventures compared to jurisdictions with low quality entrepreneurship-related institutions

5.1.2. Low quality entrepreneurship-related institutions

Whereas some policymakers are concerned with foreign investments such as SWFs (Johan et al., 2013), countries with less developed entrepreneurial ecosystem need to tackle more

serious challenges than those arising from such investments. As noted above, despite an overall negative effect of corruption on entrepreneurship (Dutta and Sobel, 2016; Liu et al., 2018; Uribe-Toril et al., 2019), even corrupt governments can help develop entrepreneurship if they are efficient in introducing new policy measures (Mohamadi et al., 2017). For instance, Puerto Rico (Table 5) has shown a high level of interest in attracting crypto-entrepreneurs and investors following the Hurricane Maria. The government wants to diversify its economy (Reutzel, 2018). Such economies are likely to adopt the rules of the game (North, 1990) that are favorable to new firms. Puerto Rico's attractive tax incentives include zero federal personal income taxes, zero capital gains tax and low business taxes (Bowles, 2018).

Such economies are more likely to set up new rules of games (North, 1990) that incentivize activities such as crypto-ventures. Regarding sanctioning and monitoring (Scott, 1995) of new ventures, they are likely to be less concerned about potentially negative consequences. For instance, Puerto Rico is in desperate need of FDI and has seen an opportunity in blockchain. The Island's government officials have emphasized the openness of the Island's economy to blockchain and cryptocurrency industry (Reutzel, 2018).

Whereas the state closely monitors the actions of crypto-ventures in economies with high quality entrepreneurship-related institutions, monitoring and sanctioning activities lack in economies with low quality entrepreneurship-related institutions. That is, regarding the state's monitoring activities (Scott, 1995), crypto-firms are subject to lax monitoring in the latter groups.

The rule of the game (North, 1990) often is an outcome of bargaining between politicians and entrepreneurial firms (Dagher, 2018). Blockchain companies are likely to enjoy higher bargaining power vis-a-vis the governments in economies with low quality entrepreneurship-

related institutions. Put differently, the propensity to engage in competition for attracting investments (Konisky, 2007; Vogel, 1996) is likely to be higher in countries with low quality entrepreneurship-related institutions (Figure 1). Panama (Table 5) has attracted a large number of crypto-ventures despite the lack of specific regulations concerning ICOs (FTNS, 2018). While the U.S. and many other jurisdictions have been cracking down and getting tough on cryptocurrencies and blockchain, a number of crypto-ventures Decent.bet (online sports betting and casino), Monster Byte (cryptocurrency gaming platform), Prime-Ex Perpetual (real estate tokens) and Orocrypt (precious metals tokens) have launched ICOs in Panama (FTNS, 2018; Yashu, 2017). These observations confirm with An et al.'s (2019) study, which found no relationship between the rule of law score and the amount of capital raised by ICOs in an economy. Crypto-ventures are attracted in economies that belong to the upper box on the right side of Figure 1 despite low rule of law scores because such economies provide incentives to such ventures. On the other hand, crypto-ventures are also attracted in economies that belong to the lower box on the right side because of high rule of law scores, which are characterized by overall better entrepreneurial ecosystems.

In general countries with low quality entrepreneurship-related institutions lack what institutional theorists (North, 1990; Scott, 1995) refer to as formal controls such as sanctioning and monitoring systems to minimize illegal and illicit activities. Thus:

P₂: In jurisdictions with low quality entrepreneurship-related institutions, formal institutions' main focus is more likely to be on promoting entrepreneurial activities in the crypto-arena compared to jurisdictions with high quality entrepreneurship-related institutions.

5.2. Regulators' perceptions of ICOs as threats to national/political interests

Some sources of financing such as SWFs are perceived to serve the political interests and hidden agendas of source countries (El-Kharouf et al., 2010; Murtinu and Scalera, 2016;

Drezner, 2008) and thus are viewed as political and economic threats. A point worth noting is that following the September 11, 2001 attacks, the U.S. has intensified measures against terrorist financing (Biersteker and Eckert, 2007; Zetsche et al., 2018). Some regulators are of the view that ICOs exhibit economic and political concerns of similar magnitude. Key features of cryptocurrencies such as anonymity and irreversibility of transactions may facilitate terrorist acts by funding entities owned or controlled by terrorists (Brill and Keene, 2014).

Just like some types of SWFs (Drezner, 2008), ICOs may be associated with possible adverse political, financial and economic consequences. Whereas some analysts have feared that SWFs might possess “threatening secrets” (El-Kharouf et al., 2010), ICOs’ risks such as terrorist financing and money laundering have been of concerns. States are unsurprisingly exercising their power through the enactment of new rules and measures, enforcement of existing rules and monitoring, and sanctioning activities (Groenewegen and Van der Steen, 2007; Scott, 1995) to minimize the threats to national and political interests.

In the U.S., the bill (H.R. 4752) “Financial Technology Innovation and Defense Act” was introduced into the Congress in 2018, which aims to establish an independent Financial Technology Task Force. The charge of the task force would be to examine whether and how cryptocurrencies would finance terrorism and subsequently propose regulations to counter such activities (Zhao, 2018).

Monitoring is a key feature of regulative institutions (Scott, 1995). Economies such as China have channeled resources and discourse to implement additional levels of monitoring to ensure that crypto-ventures do not threaten political and national interests. The need for heightened monitoring is justified since many Chinese citizens were using cryptocurrencies to circumvent strict capital controls due to the depreciating yuan (newsbtc.com, 2016b). In 2017,

officials from China's central bank, the People's Bank of China (PBoC) were reported to visit the offices of the country's largest crypto exchanges in order to identify whether the exchanges were satisfying the AML and capital control requirements (Zhao, 2018b).

Moreover, the rules of the game (North, 1990) in authoritarian regimes are against decentralized funding such as CF (Kshetri, 2015). In addition to decentralization, cryptocurrencies' anonymity and privacy may increase political concerns. ICOs thus may face a higher risk of more severe sanctioning and additional level of monitoring. This is because the Chinese Communist Party (CCP) are concerned that ICOs could threaten traditional power players by changing the nature of control the CCP has over the populations as well as its interactions with firms. For instance, ICOs may allow firms to overcome regulatory obstacles and access VC-type funding in new ways. They thus view cryptocurrencies as a means to subvert state power (Tian, 2017a).

ICO-funded firms may build projects or protocols that might compete with incumbent businesses. They may provide censorship-resistant alternatives. All these mean that state control may erode (Hackett, 2017). The PBoC argued that many ICOs were "covers" for illicit activity (Tian, 2017b). 85 ICOs were shut down in 2017 (Marinoff, 2018).

Most ICOs are taking advantage of legislative loopholes (Zetzsche et al., 2018). Some governments may take legislative and/or enforcement actions to close such loopholes if such actions contradict other institutional policies and expectations. Seo and Creed (2002, p. 226) call such phenomenon as "intra-institutional conformity that creates inter-institutional incompatibilities". Here is how it may operate. Creative and innovative mindsets that see the value in ICOs, which are referred to as cognitive institutions and policy measures to promote entrepreneurship, which are regulative institutions (Scott, 1995) are internally compatible. They

are, however, incompatible with other rules of the game such as international money laundering and terrorist financing laws and political hostility towards decentralized fundraising system. The above leads to the following:

P₃: The perceived threat to national/political interests has a positive moderating effect on the relationship between the quality of institutions and the focus on assessing, analyzing, and controlling risks associated with crypto-ventures.

5.3. Tax haven jurisdictions

The effect of the quality of entrepreneurship-related institutions on the focus on attracting entrepreneurial ventures in the crypto-arena is especially apparent in tax haven jurisdictions. Regarding the characteristics of institutions, there is a criticism that they allow tax havens to act in a parasitic manner, causing a decline in other countries' revenues (Slemrod and Wilson, 2009). While such a criticism may be valid, the rules of the game in tax havens provide low-regulation and low-tax jurisdiction to start their ventures, which is preferred by some founders of blockchain projects (Marian, 2019). For instance, in order to operate in Gibraltar, crypto firms need to pay application fees in the range of \$12,500-\$37,500, the same amount of annual fees and other supplementary fees (gfsc.gi, 2017). Many tax haven jurisdictions are tiny and thus are well-suited to serve entrepreneurial activities that do not require complex digital and physical infrastructure. Blockchain applications are virtual and operate via nodes that are distributed worldwide (Marian, 2019). In light of the sanctioning and monitoring systems (Scott, 1995) to track potentially illegal activities in the U.S. and other jurisdictions as noted above, many tax haven jurisdictions lack such formal control systems.

While market as well as nonmarket components of environment affect a firm's strategy (Baron, 1995; Engelen, Schmidt & Buchsteiner, 2015; Miller and Friesen, 1983; Porter, 1990, 1996), due to ICOs' virtual nature, the firm's location is mostly irrelevant from the market point

of view. Nonmarket factors such as low tax and the lack of sanctioning and monitoring systems thus make tax havens attractive destinations for locating ICO activities.

Due to factors such as social homogeneity such economies also exhibit a higher degree of responsiveness to change and flexibility compared to bigger economies (Read, 2001). Their ability to rapidly redefine the rules of the game (North, 1990; Scott, 1995) allows them to create a resource-rich institutional environment, in which the government takes legislative, regulatory administrative and fiscal measures to facilitate the availability of key ingredients needed for firms (Feldman and Kelley 2002; Keuschnigg and Nielsen, 2001). An example is Switzerland, especially its Zug Canton. In 2017, the Swiss Federal Council initiated a move to amend the country's Banking Act and Banking Ordinance to reduce market entry barriers for fintech companies and strengthen its competitiveness. The plan would allow small fintech firms (blockchain-based and others) that accept up to 1 million CHF (US\$1.02 million) from customers to conduct business without seeking authorization (Werder, 2017).

Prior researchers have established significant relationships between tax incentives such as lower capital gains taxation and the level of early stage and high-tech VC investments (Da Rin et al., 2006; Cumming et al., 2017). Many popular ICO destinations offer favorable tax treatment to ICOs. For instance, Zug Canton, where the Crypto Valley is located, has a tax rate of 14.6%, which is among the country's lowest tax rates (gibraltarlaw.com, 2018). Switzerland is touted as a cryptocurrency haven. Four of the world's ten largest ICOs took place in Switzerland in 2017 (Atkins, 2018). Companies that have launched ICOs in Singapore pay 17% corporate tax. There is no capital gains tax (RESSOS, 2018). Likewise, Gibraltar's corporate tax is 10% (gibraltarlaw.com, 2018).

A further benefit that tax havens possess is that their small size and homogeneity (Read, 2001) would allow them to show a faster response to develop ecosystems needed for new areas of economic activities. These include government initiatives such as programs to enhance skills and education, technological services, and legislative, regulatory and administrative measures (Keuschnigg and Nielsen, 2001). Zug is well known for its heavy investment in education and efficient infrastructure (Chadwick, 2018). The competitive hiring environment attracted more than 200 fintech startups, mostly based on blockchain as of November 2018 (ambcrypto.com, 2018). For instance, MME needed to assemble a team of experts in diverse areas such as technology, banking, corporate law, tax and AML in order to develop its proposal on BCP (Müller et al., 2017).

Administrative measures to facilitate the success of start-ups are a key component of formal institutions (Keuschnigg and Nielsen, 2001, North, 1990). From 2016, Zug started accepting cryptocurrency payments for public services (newsbtc.com, 2016a). Such measures facilitate the ease of operations of crypto-ventures. Likewise, the Mauritius government has collaborated with the private sector, both in the country as well as international companies, to develop blockchain ecosystem (Government of Mauritius, 2019). They included KYC rules, digital identity and title registries. In the subsequent phase, it plans to help the country to build a talent pool of developers, entrepreneurs, executives and regulators to further enrich the ecosystem (Stanley, 2017b; newsbtc.com, 2017).

Their size, social homogeneity and flexibility (Read, 2001) have also allowed tax havens to rapidly introduce new rules of the game (North, 1990; Scott, 1995), which are especially important for new activities such as ICO. As an example, some tax havens have provided legal clarity to crypto-tokens, which has helped ICO promoters to provide effective signals to attract

investors. For instance, the Swiss financial watchdog Financial Market Supervisory Authority (FINMA) has identified three categories of ICOs: (a) Payment ICOs (function as means of payment, need to comply with AML regulations); b) Utility ICOs (provide access rights to applications or service); c) Asset ICOs (function in the same manners as equities/bonds). Under Swiss laws, (a) and (b) would not be treated like financial securities but (c) will be subject to securities law requirements if they satisfy certain conditions (e.g., paying dividends/interest or giving claims to earnings streams) (Atkins, 2018).

In 2017, the Monetary Authority of Singapore (MAS) published a statement explaining various crypto-token models (MAS 2017). The report also contained several case studies with illustrations. One example of a non-security crypto-token was one tied to a computing power-sharing platform. Another crypto-token connected to a startup investment fund would count as a security (Sundararajan, 2017).

Bermuda expressed a desire to be “one of the first countries ..to specifically regulate ICOs” (Milano, 2018). Likewise, according to the Gibraltar Financial Services Commission (GFSC), Gibraltar was among the first jurisdictions to have bespoke crypto-token rules (gfsc.gi, 2017).

As prior research has shown, states engage in regulatory competition (Konisky, 2007). such a competition is especially apparent in tax havens in which providing legal clarity regarding crypto-tokens has become a key area of competition.

An important question is: how policy makers in tax haven jurisdictions view and deal with what is referred to as destructive entrepreneurship (Baumol, 1990) associated with BCPs. The power of the state (Groenewegen and Van der Steen, 2007) is being exercised to minimize potentially negative effects of ICOs on the local economy. In 2017, Puerto Rico issued a banking

license for a Cryptocurrency International Financial Entities, which is among the most powerful international banking and financial services structures in the territory (Reeves, 2017). Such Entities can offer all types of international banking, brokerage, investment management, and financial services from Puerto Rico to clients outside the territory. Puerto Rican policy makers know that the new policies may not necessarily attract actors that engage in high quality entrepreneurial activities. An International Financial Entities is prohibited from doing business with persons or businesses in Puerto Rico.

Overall, the rules of the game as well as sanctioning and monitoring activities (North, 1990; Scott, 1995) in tax havens are designed to attract new firms. Various sources of contradictions (Seo and Creed, 2002) that led to monitoring and sanctioning of ICOs in economies such as China and the U.S. do not exist in these economies. The existing and the newly created rules of the games have provided certainty regarding BCPs as well as low regulations and minimal or no monitoring of crypto-related activities, which have been attractive for blockchain-based firms. Thus, we propose:

P₄: The tax haven nature of a jurisdiction has a positive moderating effect on the relationship between the quality of institutions and the focus on promoting entrepreneurial activities in the crypto-arena.

5.4. The presence of trade and industry associations

National legal systems related to crypto-entrepreneurship are underdeveloped. In nascent areas trade and industry associations, which can be considered to be a key element of the nonmarket environment (Baron, 1995; Porter, 1990, 1996) introduce voluntary instruments and ethical principles such as codes of conduct and other mechanisms to influence regulations (Kshetri and Dholakia, 2009). For instance, trade association engage in lobbying to convince regulators to introduce legislative measures to facilitate the growth of the industry (Kshetri, 2015, 2018c).

In ECF, influencing regulations has been a major goal of National Crowdfunding Association of India, the African Crowdfunding Association and Danish crowdfunding Association (Kshetri, 2018c). The National Crowdfunding Association of the U.S. played a key role in the enactment of the JOBS Act (Kshetri, 2015). Similar developments have been taking place in the crypto arena. A highly visible example of blockchain-related trade associations is the Crypto Valley Association (CVA) in Switzerland. The CVA has engaged local government, startups, VC investors and other key actors, initiated research projects and organized conference, hackathons, and other industry events (Parker, 2017).

The Russian government announced a plan to form a similar trade association: the Russian Association of Blockchain and Cryptocurrency (RABIK). It was reported that the RABIK would work with regulators to develop policy and increase the “legitimization” of the technology (O’Leary, 2017). Through framing and justification (Greenwood et al., 2002), these associations can present their ideas that connect regulations with positive economic results, and persuade policy makers about the importance of regulations (Kshetri and Dholakia, 2009). The RABIK, for instance, argued that the Russian economy lost \$310 million in the first ten months of 2018 due to a lack of ICO regulations (<https://news.bitcoin.com/russian-economy-18-billion-rubles-ico-regulation/>). Such activities can influence the regulators to redefine the rules of the game that favor crypto-ventures.

High performing and exemplar organizations are also likely to frame a need for a change and justify it in order to make the rules of the game favorable to the industry (Kshetri and Dholakia, 2009). One such example is the Swiss blockchain law firm MME, a member of the CVA, which released “Conceptual Framework for a Legal and Risk Assessment of ..BCP” in 2017 (Müller et al., 2017). The main thrust of the report is to assess and analyze, risks associated

with crypto-ventures. MME uses functionality-based method to assess BCPs' legal and tax implications and evaluate associated risks and investment suitability. MME argues that its method can be considered in all jurisdictions irrespective of legal and regulatory frameworks. The CVA distributed the MME report on BCP. The report also explained where the Swiss law stands in each BCP type. Actions such as this give crypto-ventures an accurate understanding of regulatory systems for BCPs. Such an understanding would help promote entrepreneurial activities in the crypto-arena (Figure 1).

An association's high performing and exemplar members can also act as institutional entrepreneurs (Kshetri and Dholakia, 2009). MME's report on BCP is helping to develop a shared understanding of various kinds of crypto-tokens among regulators to enact enforceable legislation, which can help assess, analyze and control risks associated with crypto-ventures (Figure 1). The analysis can help policy makers to take measures to promote crypto-entrepreneurship. It would also provide standard tools and techniques for token issuers and investors to evaluate and communicate risks. The expert power (Kshetri and Dholakia, 2009) is being effectively channeled to change the rule of the law in their favor.

In some cases, trade associations and regulators try to achieve the same goals (Kshetri and Dholakia, 2009). The FINMA in Switzerland has emphasized the importance of protecting investors (swissinfo.ch, 2018). The CVA's codes of conduct also aim to achieve this. The CVA has emphasized the importance of codes of conduct as a means to foster best practices and fight scams (Simpson, 2017). In order to reduce unethical practices, it has provided guidelines that new ICOs are required to follow (Jones, 2018). An optimal rule of the game can be explicated by combining the coercive power of the state (Groenewegen and Van der Steen, 2007) and expert power of trade associations (Kshetri and Dholakia, 2009). It is thus proposed that:

P₅: The presence of trade and industry associations has a positive moderating effect on the relationship between the quality of institutions and the focus on promoting entrepreneurial activities in the crypto-arena.

6. Discussion and implications

While prior research emphasized the importance of formal and informal institutions in shaping entrepreneurial financing tools and investment instruments such as ECF (Kshetri, 2015, 2018c), FDI (Blomström et al., 2003; Mallampally and Sauvant, 1999), VC (Cumming et al., 2017; Keuschnigg and Nielsen, 2003; Da Rin et al., 2006) and SWFs (Johan et al., 2013; Murtinu and Scalera, 2016; El-Kharouf et al., 2010; Drezner, 2008), the above discussion suggests that different mechanisms are involved in institutions' effect on ICOs. Due to disruptiveness of blockchain, ICOs are complicated by the possibility of contradictory social and economic effects. This has led to a wide range of policy preferences across multiple countries.

In terms of what institutional theorists (North, 1990; Scott, 1995) would call, some regulators are redefining the rules of the game. They have penalized crypto-ventures through the enactment of laws and measures that are hostile to ICOs. Some regulators have performed monitoring roles to ensure that crypto-ventures do not operate in ways that undermine the existing rules of the game. They have realized that the additional monitoring is needed to minimize the harm to the national economy.

While the state is a powerful institutional actor (Groenewegen and Van der Steen, 2007), international pressures facing small economies indicate that the power of the state has its limit. Major world economies have challenged the rules of the game in tax havens by imposing international sanctions. Blockchain may allow tax havens to circumvent the international sanctions.

Cryptocurrencies themselves can arguably act as tax haven alternatives (Marian, 2013). The central idea here is that potential tax evaders get similar advantages from cryptocurrencies

that tax havens offer: cryptocurrencies' decentralized feature means that no central authority is at a position to impose tax. Its high levels of anonymity and privacy mean that users do not need to identify themselves (Kshetri, 2018b). That is, they are relatively free from government monitoring. Compared to tax havens, cryptocurrencies are also less vulnerable to pressures from regulators from developed countries (Marian, 2013). While smaller risks are involved in just buying and selling cryptocurrencies without registering in a jurisdiction, doing so has higher risks in fund-raising activities such as ICOs. The natures of the rules of laws and sanctioning and monitoring activities (North, 1990; Scott, 1995) in tax havens offer attractive destinations for ICOs.

The above discussion indicates that other entrepreneurial policies may be complementary or substitutive to ICOs. The effect of policies to develop a rich blockchain ecosystem may be complementary because crypto-ventures see increased opportunities to enter into such markets. Mechanisms adopted by tax havens such as financial secrecy and the lack of corporate transparency and policy infrastructures developed to support such activities may also act as complementary mechanisms. Policies to stimulate the VC market through tax incentives and other measures such as followed in the EU (Cumming et al., 2017), on the other hand, may act as a substitute to ICOs. Policy makers may prefer to focus on VC which attract innovative ventures rather than investments of unproven quality such as those associated with ICOs.

Let us look at the research questions that we wanted to address. Regarding RQ1, in some economies, mitigating potentially harmful economic and social impacts has become a major focus of ICO policy discussions. In terms of regulatory responses, ICOs have strong similarities and striking differences with other investment and financing models such as SWFs and CFs. Some of the underlying concerns are similar to what researchers have found in the context of

SWFs (Murtinu and Scalera 2016; El-Kharouf et al., 2010) such as cryptocurrencies' use to harm political interests or national security.

However, SWFs and ICOs differ in the nature of threats. Whereas critics have argued that foreign governments may undermine a nation's political, economic and financial stability through SWFs, facilitation of terrorism financing has been a concern with ICOs. Other concerns, just like in CF (Kshetri, 2015; Mollick, 2014), include those related to investor protection. Due to these concerns, nations have been slow to enact ICO-related regulations. Some nations have chosen to go for an outright ban of ICOs in order to deal with these concerns. Also as is the case of CF (Kshetri, 2015), policy makers in countries characterized by strong social, political and economic controls are against ICOs due to their decentralized nature, high levels of anonymity and privacy.

Some governments have seen great opportunities in ICOs. They have created ICO-friendly environments through tax policies favoring crypto-ventures and clear regulations to attract such ventures. Such policies have attracted a larger number of crypto-entrepreneurs.

As to RQ2, the international policy divergence can be attributed in part to differences in nations' economic and institutional characteristics, which lead to different weights to benefits and costs associated with ICOs. Just like other funding mechanisms such as CF and VC (Agrawal et al., 2014; Keuschnigg and Nielsen, 2003), ICOs can generate positive spillover externalities. However, inappropriate uses and activities associated with ICOs can also lead to negative externalities. These negative externalities are likely to be viewed less negatively by regulators in countries with lower quality levels of entrepreneurship-related institutions. Moreover, in the case of a tax havens such Puerto Rico, such negative externalities often do not

affect investors in the host countries because the firm launching an ICO will engage in little or no business activities in such countries.

Countries with higher quality entrepreneurship-related institutions are likely to have developed principles, guidelines and criteria for providing government supports and incentives for entrepreneurial firms (Grilli and Murtinu, 2014; Meuleman and Maeseneire, 2012). These criteria often attract and reward efficient and competitive firms. These countries have been reluctant to jump into ICOs too quickly for fear that some illicit entities may use nefarious fundraising tactics to victimize unsuspecting investors. Worse still some governments are concerned that ICOs may work against national and political interests due to blockchain's decentralized and anonymity. In some cases, interests and values of powerful actors and their different interests and contrasting ways to make-sense have led to diverse policies.

Countries with lower quality levels of entrepreneurship-related institutions are less likely to support productive entrepreneurial activities (Baumol, 1990; Stenholm et al., 2013). Some such countries are determined to benefit from the opportunity that ICOs have given. For instance, Puerto Rico has seen blockchain as a great window of opportunity to create a diversified economy and to attract foreign investments. Not surprisingly, tax haven economies have been generally more optimistic about the benefits of ICOs and less concerned about the potential risks.

While stringent policy and enforcement measures exist in more established financing and investment mechanisms such as FDI (Blomström, Kokko and Mucchielli 2003; Mallampally and Sauvant, 1999), VC (Cumming et al., 2017; Keuschnigg and Nielsen, 2003; Da Rin et al., 2006), ECF (Kshetri, 2015) and SWFs (Johan et al., 2013; Murtinu and Scalera, 2016; El-Kharouf et al., 2010; Drezner, 2008), ICOs are characterized by nascent regulative institutions. Start-ups raising money through ICOs have more incentives to engage in opportunistic behavior.

Such incentives are even higher in jurisdictions with weak regulatory and enforcement environments. For instance, the SEC has maintained that some crypto-tokens could be considered as securities, which are required to comply with the disclosure requirements. Many other jurisdictions lack such requirements. As a result, nefarious firms unfortunately may prefer to operate in weak regulatory and enforcement environments.

Just like in other economic sectors (e.g., Kshetri and Dholakia, 2009), trade associations such as the CVA play a key role in the development of ICO-related formal institutions. By conducting research, and organized conference and other events they can identify various mechanisms by which ICOs can benefit the economy. They can work closely with government agencies and other actors and help them understand such benefits. Just like the roles played by CF-related trade associations in Africa, Denmark, India and the U.S. (Kshetri, 2015, 2018c), ICO-related trade associations may engage in lobbying activities to convince policy makers to introduce legislative measures to facilitate ICOs. Indeed, these associations can be a bigger role in shaping the ICO market due to its newness.

6.1. Managerial implications

Formal institutions related to ICOs have implications for international management. Startups as well as established firms find it attractive to register and launch ICOs in jurisdictions that have predictable and clear regulations such as legal clarity of BCPs. In addition, jurisdictions that take administrative measures (Feldman and Kelley 2002; Keuschnigg and Nielsen, 2001) to facilitate the availability of key ingredients needed for blockchain firms are preferable from the point of view of locating higher-end activities, such as headquarters and R&D facilities, and management employees. In such jurisdictions, it will be easy to retain, attract and hire key personnel such as blockchain lawyers, code writers, and researchers. Blockchain firms should also look at other positive sanctioning mechanisms that can stimulate the growth of this industry

(e.g., Switzerland's policies that allow small blockchain-based fintech firms to conduct business without seeking authorization (Werder, 2017)).

Other key elements of the nonmarket environments (Baron, 1995; Miller and Friesen, 1983; Porter, 1990, 1996) such as active industry bodies and trade associations can help develop formal institutions related to ICOs in a positive direction. By instituting industry codes of conduct, trade associations such as the CVA can encourage best practices and fight scams and thus work as a substitute of formal regulative institutions. These should also be considered to be key factors in shaping blockchain firms' location decisions.

Startups launching an ICO should keep in mind that nonmarket factors such as clear regulatory protection and well-developed ethical codes from trade associations may serve as a quality signal of the ICO as an investment option. This is important since the newness and complexity involved in blockchain and cryptocurrencies make it difficult for investors to interpret the signals. The idea is to send positive signals and avoid engaging in actions that could cause others to make unfavorable judgements (Ang and Brau, 2003). The promoters of ICOs can take a page from the lesson book of securities markets and IPO. For instance, corporate insiders hide or delay disclosing unfavorable information to sell securities at higher prices (Megginson and Weiss, 1991). An example where this can be seen is the issuance of secondary shares, which are offered by pre-IPO owners such as investors and employees. Due to potentially negative information conveyed by secondary shares, some insiders under-file such shares in the original filing. Amendment filings may be submitted in a future data, which are less noticeable (Ang and Brau, 2003). If the opportunistic insiders think that the demand of shares would be high, they may submit an amended filing in which secondary shares increase and primary shares reduce or both secondary and primary shares increase but the former account for most of the increase (Ang

and Brau, 2003). Switzerland's FINMA has published guidelines that ICOs are required to adhere to. ICOs are regulated under anti-money laundering laws or as securities. In this way, jurisdiction of ICOs can contribute to an attractive value proposition to investors by providing assurance that their investments are legally protected.

It is also important to understand ICO-related regulations in jurisdictions all over the world to make decision regarding to whom the tokens can be marketed and sold. For instance, German jurisdiction is likely to be based on whether the ICO is marketed in Germany (e.g., ICO information in in German language, on a German website or to potential investors in Germany (Sidle, 2017). ICOs launched in foreign countries may not be able to sell tokens to U.S. investors. As noted, various rules force foreign companies to block U.S. investors (letstalkbitcoin.com, 2014).

6.2. Policy implications

Just like other funding mechanisms such as CF and VC (Agrawal et al., 2014; Grilli and Murtinu, 2014, 2015), the hope is that positive effects can be achieved through ICOs.

With **appropriate policy** interventions, governments can encourage entrepreneurial activity in the crypto arena and eliminating the national security, political, and economic risks.

Appropriate policy support mechanisms are needed to attract entrepreneurial activities in the crypto arena. In order to enrich the entrepreneurial ecosystem around ICOs, governments can combine investment subsidies and loans for blockchain and crypto start-ups. Government should collaborate also with universities and other academic institution for the development of blockchain and crypto workforce.

Strong enforcement measures are needed to reduce national security, political, and economic risks. Providing training to law enforcement agencies to investigate and prosecute

cryptocrimes must be a priority. Governments can team up with the private sector to develop criminal justice and legal actors, such as lawyers, judges, and prosecutors.

Policy makers should also undertake initiatives to create awareness about crypto-frauds. Educated consumers are less likely to fall victims of crypto-frauds. Such measures are likely to give can achieve the same as or even better effect than sanctioning and monitoring activities **to** raise the likelihood that the offender will be caught.

6.3. Future research directions

This paper focused on a number of factors such as an economy's entrepreneurial performance, perceived threat to national/political interests and tax haven nature that may affect the ICO trajectory. We did not, however, evaluate the effects of other key factors that might further explain the evolution ICO regulatory trajectory. This research also did not examine in detail the contexts, mechanisms and processes of ICO-related policy-making, responses to and impact of ICOs and ICO policies and cross-state competition collaboration and learning. In this section, we identify some important areas of future research.

6.3.1 Characteristics of a nation

In this article we discussed how small tax havens are taking several initiatives to encourage ICOs. Among the issues to be considered in future research are ICO-related regulatory responses of small economies. Prior research suggests that formal institutions such as competition policy in small economies need to be specifically tailored and designed to suit their markets (Gal, 2003). Due to factors such as social homogeneity such economies also exhibit higher degree of responsiveness to change and flexibility compared to bigger economies (Read, 2001). In ICOs' context, ConsenSys founder Joseph Lubin was quoted as saying that compared to larger jurisdictions smaller nations such as Mauritius have tools and "nimbleness" that are needed to rapidly adapt and react to changes required for new technologies (Stanley, 2017a). In

future research, thus, scholars may study how the size of an economy could affect the nature of ICO-related regulatory responses.

This study focused on formal institutions in the context of ICOs. In future research scholars need to expand the research lens to include informal institutions. Prior research has suggested that informal institutions are no less important than formal institutions in shaping economic activities such as ICOs. Entrepreneurs evaluate formal and informal institutions to make decisions to engage in specific types of entrepreneurial activities (Aidis, et al., 2008). For instance, a challenge in China is that commercial organizations such as those offering ICOs are less trusted (Kshetri, 2017). A related point is that formal and informal institutions affect each other (Axelrod, 1997). Some areas that researchers might pursue include the effects of legislations on the lens through which entrepreneurs view ICOs and potential investors development of favorable or unfavorable attitudes towards ICOs.

Future researchers also need to explore possible differences in various countries' ICO-related institutions according to their historical context. For instance, due to the regulatory asymmetry or jurisdictional arbitrage, economies with liberal regulations related to repatriation of capital and profits may create a favorable crypto-entrepreneurship environment. According to a Deloitte report, Switzerland's liberal regulations, especially the lack of state control over repatriation of capital and profits attracts foreign multinationals and enterprises. Due to numerous federal and regional incentives for new foreign investors, the country is often used as a location for international headquarters and trading companies (Parker, 2016). The blockchain company Xapo has created a dedicated page (<https://xapo.com/resources/switzerland/>), which points out the top ten reasons for FinTech startups to move to Switzerland. One of the main reasons pointed out by Xapo is Switzerland's historical independence and the country's

insulation from foreign influence. The path dependence approach, which argues that different events steer history in a particular direction, which can influence the path a nation undertakes (North, 1990), could provide a suitable analytical approach to study this phenomenon.

6.3.2. Contexts mechanisms and processes of ICO-related policy-making

In this research, we looked at the nature and sources of divergence in ICO-related regulations. Future researchers might examine more detailed context associated with such regulations and policies. For instance, the organization of ICO policy approaches of different jurisdictions into different analysis grids and graphical representations could provide a useful means to highlight policy targets (e.g., ICOs' productive, unproductive and destructive consequences), identify actors responsible for policy actions (e.g., central banks such as China's PBOC and other regulatory bodies such as the U.S. SEC), and define intervention targets. Crypto-entrepreneurs who think that certain regulations have been established because ICOs are viewed as possible threats to authoritarian power due to their decentralized nature may respond differently from those who think that the regulations are aimed at controlling fake ICOs and scams.

Prior researchers have argued that politicians consider many factors in policy formulation process such as the policy's effect on the achievement of political and ideological goals and advancement of moral values, its cost efficiency and probability of success (Volden et al., 2008). How policy makers in countries with different institutions may view potential impacts of crypto-ventures on these parameters differently may be an interesting topic of future research.

To examine or test the appropriateness of a policy, policymakers often rely on information from inside as well as outside the nation. Inside the nation, policy makers may look at public preferences, goals of interest groups and political actors as well as the lessons learned

from previous policies (Volden et al., 2008). Prior researchers have shown that organizational capabilities develop mainly through learning mechanisms such as trial and error and the selection and retention of past behaviors (Zollo & Winter, 2002). The mechanisms and processes associated with learning in ICO-related policymaking would thus provide a promising avenue for future research.

6.3.3. Responses to and impact of ICOs and ICO policies

Prior research in the context of developing countries has suggested that revenues from investments, especially in natural resources such as minerals and oil development can corrupt local elites (Haufler, 2004). There is not much information available about the impact on local economies of revenues collected from foreign blockchain and cryptocurrency firms. In this regard, one area that future researchers may wish to pursue would be how similar and how different the effects of ICOs would be on the local economy compared to other sources of financing.

It is likely that the propensity to relocate in a state with a more favorable regulatory climate may be related to attitudinal factors. Baumol (1990) noted that a given individual may not engage in productive, unproductive or destructive entrepreneurship depending on the incentive structures provided by formal and informal institutions. A more likely and logical explanation is that different individuals are likely to engage in entrepreneurial activities under different incentive structures provided by the nonmarket environment (Baron, 1995; Porter, 1990, 1996; Varadarajan & Yadav, 2002). In future research scholars need to consider how attitudinal factors could affect an entrepreneur's decision to locate ICO activities in jurisdictions with different formal institutions that provide different incentive structures.

Prior researchers have suggested that individuals' response to regulatory regimes is a function of their perceptions of the regimes' legitimacy and the associated regulators in question (Braithwaite et al., 1994). For instance, investors and entrepreneurs who think that ICO policies would reduce frauds may respond differently compared to those who think that such policies simply strengthen authoritarian rulers and elites. Another intriguing avenue for future research is to examine how individuals' perceptions of legitimacy and fairness of ICO-related regulations are linked with the perceptions of motivation of regulators.

6.3.4. Cross-state competition, collaboration and learning

Prior researchers have noted that different policy domains have been differently affected by globalization (Jänicke & Jacob, 2004). For instance, with respect to environmental policy, countries and companies that have trade relations with countries with strict regulations also were reported to have stricter policies themselves (Foljanty-Jost 1997). Porter (1990) argued that a strict environmental policy can improve the competitiveness of a country's firms and sectors. First, by adopting a strict environmental policy, country might achieve competitive advantage if the policy subsequently diffuses internationally. Firms that have developed technologies to meet strict environmental standards can export their technologies. Their competitive advantage may stem from learning effects or patent protection for their innovation (Porter, 1990; Porter and van der Linde, 1995). The applicability of this logic in the current context should be addressed in future research.

Regarding the mechanisms and processes of learning, policy makers also learn from the experiences of other countries. For instance, they may look at policies that have been successful under similar circumstances elsewhere (Volden et al., 2008). Prior researchers have referred to the spread of policies from one government to another as "learning-based policy diffusion" and

have argued that it is important to properly characterize and evaluate this process in order to understand the context, conditions, process, and consequences of such diffusion (Volden et al., 2008). At the same time, some nations (e.g., Switzerland) are less likely to be influenced by other nations. Mechanisms of learning in the context of ICO policies thus ought to be addressed in future research.

Another future research area, especially in the context of tax haven economies, involves the effect of a country's approach to diplomacy and measures to attract global crypto-ventures. Prior research has suggested that international diplomacy has effects on the private sector. Diplomacy efforts are implemented and geared toward changing the behavior of foreign investors (Haufler, 2004). To take an example, Mauritius' diplomacy in trade preferences is quite impressive, which may partly explain its different orientation to crypto-regulations compared to other tax havens. The country is known for effective political institutions. Its parliamentary system works in building consensus by representing all groups. The country scores high in several measures of institutional quality such as political participation, rule of law, and control of corruption (Frankel, 2010). Nations that have large diplomatic networks are more likely to listen to and respect the legitimate security concerns of other countries compared to nations that *lack* such networks. Such nations may face pressure from other countries to take initiatives to develop regulations and enforcement activities to control destructive consequences of crypto-ventures at the global level. Nations that take efforts to strengthen international diplomacy and cooperation with other countries are likely to take measures to control potentially harmful consequences of ICOs. It is also possible to empirically examine links between the size a country's diplomatic networks and its ICO-related actions. For instance, Lowy Institute for International Policy's Global Diplomacy Index ranks the diplomatic networks of 42 countries, that are G20 and/or

OECD members (<https://globaldiplomacyindex.lowyinstitute.org/>). Similar indices can be constructed for other economies.

7. Concluding comments

Due primarily to newness, regulators have different perspectives and viewpoints on crypto-entrepreneurship's economic, political and societal costs and benefits. The process by which such costs and benefits are perceived and evaluated differ among countries with different quality levels of entrepreneurship-related institutions. This is because it is imperative for policy makers to align economic, political and other goals. Different governments are motivated and driven by different combinations of such goals, which have impact on their orientations towards crypto-entrepreneurship. For instance, unlike tax haven jurisdictions, countries that have high quality entrepreneurship-related institutions are only interested in high-quality and high-impact entrepreneurship not just any type of entrepreneurship.

The existing rules of the game such as those related to international money laundering and terrorist financing laws and political hostility towards decentralized fundraising systems would negatively affect ICOs. Such concerns are less prevalent in many tax havens. However, these jurisdictions will be better off if take measures to develop rich entrepreneurial ecosystem around blockchain and cryptocurrency instead of just focusing on tax incentives intended to attract low quality crypto firms.

Finally, the combination of state's coercive power and trade associations' expert power would be effective in bringing ICOs' benefits to the economy with minimum economic, social and political costs. Government-industry collaboration is especially relevant in promoting ICOs and crypto-ventures due to the current regulatory vacuum in these areas.

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Table 1: Explanation of major terms used in the paper

Term	Explanation
Blockchain	A decentralized ledger that maintains digital records of a transaction simultaneously on multiple computers.
Crypto-token	A unit of value issued by a project or company, which rewards token owners. It allows the owner to perform particular actions (e.g., get a specific service on the network).
ERC-20 token	A technical standard used for smart contracts. It keeps track of token owners. It can be created with less than 100 lines of codes (Wolfson, 2017).
Ethereum	A public blockchain-based open software platform, in which each node can be discovered by and known to other nodes in the network. It has its own cryptocurrency: Ether.
ICO	A fundraising tool that allows a company to pre-sell future cryptocurrencies in exchange for cryptocurrencies of immediate and liquid value (e.g., bitcoin and Ether). A start-up raising money through ICOs can create its own cryptocurrency utilizing blockchain protocols. Roadmap goals and strategies are outlined in a whitepaper. ICO values are set up based on the amount of money required to achieve the stated objectives. The pre-sold tokens could serve as the medium of exchange in the future on a peer-to-peer platform (Li and William, 2018).
Smart contracts	A “computerized protocol that executes the terms of a contract” (Szabo, 1994).

Table 2: FTNS's 10 must read bitcoin and blockchain blogs and webpages

Source	Articles selected for analysis
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1	CoinDesk	Hajdarbegovic (2014), Hertig (2017), Higgins (2016, 2017a, b, c), Matonis (2014), Milano (2018), O'Leary, 2017a, b), Reutzel, (2018); Rizzo (2014), <i>Simpson</i> (2017), Stanley (2017a, b, c), Sundararajan (2017). Tian (2017a, b), Zhao (2018a, b).
2	Bitcoin Magazine	bitcoinmagazine.com (2018), Marinoff (2018)
3	The LTB Network (https://letstalkbitcoin.com/)	letstalkbitcoin.com (2014)
4	Brave New Coin	Galka (2018), Lielacher (2018), Parker (2016, 2017)
5	CryptoCoinsNews (CCN)	Das (2017)
6	NewsBTC	newsbtc.com (2016a, b, 2017), Yashu (2017).
7	AVC	Wilson (2017)
8	Ripple Insights	Zagone (2017)
9	MoneyBeat (The Wall Street Journal)	Vigna (2014)
10	FT Alphaville (The Financial Times)	Atkins (2018), Scaggs (2017), Waters (2017).

Table 3: Evaluation of data quality

Criterion	Explanation	Example
Time elapsed between events and reporting	Most newspaper articles were published the same day or the next day of the key policy-related event (e.g., the new legislation signed into law, the new policy approved, etc.)	A statement released on November 14, 2017 by the MAS regarding circumstances under which crypto-tokens could be considered to be securities according to Securities and Futures Act (SFA) and the Financial Advisers Act was published the next day (Sundararajan 2017).
Openness to corrections	Corrections are incorporated in many outlets we used	Washingtonpost's corrections are stated after: "Correction to this article".
Range of knowledge and expertise of the person reporting the events	We used articles written by knowledgeable reporters/journalists.	We cited one article by coindesk.com reporter Sundararajan (2017) but she wrote hundreds of articles about blockchain/cryptocurrency. The sources and authors respected by their peers: WSJ's MoneyBeat (Vigna, 2014) cited news from Coindesk, newsbtc and others cited Brave New Coin, Ripple Insights has been covered by newsbtc and other established sources.
Corroboration from multiple sources	Data and information were triangulated from multiple sources. We also visited the original source as suggested by Joselyn (1977).	Original sources allowed to make updates and corrections: Zagone (2017) reported that Mark Carney was the Chair of the FSB but updated information on the FSB website (https://www.fsb.org/profile/mark-carney/) stated that that was no longer the case.

Source: Gottschalk (1969), Joselyn (1977) and Kshetri (2018c)

Table 4a: Key categories related to non-market environment emerged from data analysis

Category	Meaning/Explanation	Implications in relation to institutional theory (“rules of the game” (North, 1990), and “rule setting, monitoring and sanctioning activities” (Scott, 1995: 42))
Tax havens	<ul style="list-style-type: none"> • Jurisdictions that offer minimal <i>tax</i> liabilities for foreign individuals and businesses. They often have politically and economically stable environments. They share little or no financial information with other jurisdictions. 	Compared to Western economies, they provide more favorable rules of the game for illegal and illicit activities.
Quality of institutions to promote entrepreneurship	<ul style="list-style-type: none"> • “Regulatory efficiency and quality” required to “enhance business activity” (WB, 2019) 	The rules of the game favor productive entrepreneurship
Perceived threat to national/political interests	<ul style="list-style-type: none"> • Policy makers’ tendency to regard and interpret some aspects of ICOs as a potential cause of economic and/or social damage. 	In order to minimize such threats, they are likely to monitor and evaluate the actions of crypto-ventures and develop appropriate sanctioning systems.
Crypto-related trade association	<ul style="list-style-type: none"> • An organization founded by businesses that operate in the crypto industry 	<ul style="list-style-type: none"> • The goal is to develop rules of the game that favor the crypto industry

Table 4b: Key categories related to institutional response emerged from data analysis

Category	Sub-category (Meaning/Explanation)	Examples	Implications in relation to institutional theory
Formal institutions to promote entrepreneurial activities in the crypto-arena (Laws, regulations, policies and administrative provisions are geared toward stimulating ICOs)	Fiscal incentives and administrative efficiency (<i>lowering tax rates</i> and regulatory burdens for starting and operating a business)	Low tax rates in Switzerland's Zug Canton, Singapore, Gibraltar and other jurisdictions Switzerland's plan to allow small fintech firms to conduct business without seeking authorization (Werder, 2017).	Crypto-ventures can exploit specific opportunities within the existing rules of the game. In addition, regulators have devised mechanisms which potentially redefine the rules of the game in order to attract crypto-ventures.
	Legal clarity of crypto-tokens (degree of clarification of legal position regarding different types of crypto-token and certainty of their legal protection)	Switzerland's FINMA has identified three categories of ICOs and clarified which will be subject to securities law requirements Singapore's MAS provided several case studies of security and non-security crypto-tokens with illustrations Bermuda's plan to enact bespoke laws for ICOs	These regulators are clarifying the rules of the game in order to reflect the legitimacy of crypto-tokens and streamline enforcement.
	Measures to enrich blockchain ecosystem (complex relationships of blockchain firms with key players such as government agencies, industry and trade association, consumers, investors, financial institutions and capital markets and other ingredients)	Canton of Zug: investment in education and efficient infrastructure. Blockchain startups provided with a competitive hiring environment	For disruptive technologies, the rules of the game may need to be changed to include the government's proactive roles in the development of essential ingredients. While negative sanctioning (punishment) focuses on undesired effects, positive sanctioning (reward) can stimulate the growth of this industry.
Formal institutions to assess, analyze, and control risks associated with crypto-ventures (Laws, regulations, policies and administrative provisions are geared toward minimizing ICOs' costs to the national economy)	Regulatory monitoring of ICO ventures (The existence of a system to observe and check the quality of crypto-ventures to ensure that they do not violate existing regulations)	The U.S., Bill H.R. 4752: aims to establish an independent Financial Technology Task Force to examine whether and how cryptocurrencies would finance terrorism and subsequently propose regulations to counter such activities.	Regulators are creating and establishing new rules of the game to ensure that ICOs and cryptocurrencies are not used to harm the national interest. They want to put in place mechanisms to monitor and evaluate the actions of crypto-ventures and develop a negative sanctioning system that punishes the violators.
	Sandbox approaches (A government program for crypto-ventures to test new services and products with <i>partnership and supervisory</i> roles of regulators)	The U.K.'s FCA and Canada's CSA launched "sandbox" programs for blockchain projects.	Regulators are looking at how new rules of the game can be introduced in order to encourage the growth of legitimate crypto-ventures and avoiding and neutralizing potential negative consequences.

Table 5: Comparing institutional responses of jurisdictions with different quality levels of entrepreneurship-related institutions

Economy	Indicators related to entrepreneurship related institutions	Some activities on the ICO front	Implications in relation to institutional theory (“rules of the game” (North, 1990), and “rule setting, monitoring and sanctioning activities” (Scott, 1995: 42))
The U.S.	WBDB 2017 rank: 8 GEDI score (rank): 85.0 (1)	July 2017: SEC concluded that some coins were structured as securities and thus they were required to register with the agency, which forced some crypto-ventures to close down	The regulators performed monitoring roles to ensure that crypto-ventures do not operate in ways that undermine the existing rules of the game.
South Korea	WBDB 2017 rank: 5 GEDI score (rank): 50.5 (27)	September 2017: FSC announced a plan to ban all forms of virtual currencies and ICOs (Kim, 2017) noting that they are overly speculative and constitute a “violation of the capital market law” (O’Leary, 2017b).	
Puerto Rico	WBDB 2017 rank: 55 GEDI score (rank): 48.9 (51)	Issued a license for a Cryptocurrency International Financial Entities Government officials have especially emphasized the openness of the Island’s economy to blockchain and cryptocurrency industry Citing unfavorable laws in the U.S., many U.S.-based crypto-entrepreneurs moved to Puerto Rico	Lack formal controls such as sanctioning and monitoring systems to control and minimize illegal/illicit activities: more favorable rules of the game for such activities compared to the U.S. and Korea.
Panama	WBDB 2017 rank: 70 GEDI score (rank): 32.2 (118)	The lack of regulative clarity around token sales but some major ICOs have been launched. Crypto-ventures registered in Panama can operate without fear of government coercion and regulatory enforcement. A company registered in Panama was Havelock Investments dubbed as Bitcoin “stockmarket” or “proto-ICO”. 2014: many U.S.-based crypto-ventures were fined by the SEC and forced to close down for marketing securities and offering shares without registering with the commission. Panama-registered companies such as Havelock engaged in similar activities but operated with impunity.	