A comprehensive review of the global development of initial coin offerings (ICOs) and their regulation

Cristiano Bellavitisa,*, Christian Fischb,c, Johan Wiklunda

a Whitman School of Management, Syracuse University, 721 University Ave., Syracuse, NY, 13244, USA
b Faculty of Management, Trier University, 54296, Trier, Germany
c Erasmus School of Economics and Erasmus Institute of Management, Erasmus University Rotterdam, P.O. Box 1738, 3000 DR, Rotterdam, Netherlands

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ABSTRACT

Initial coin offerings (ICOs) represent an innovative and new funding mechanism for new technology ventures. In our comprehensive review of the industry’s evolution, we show that despite its short history, there have been dramatic changes and shifts in the number of ICOs, the amount of money raised, the geographic distribution of ICOs, and their regulation. This dynamism calls into question current research practices and findings. We propose that scholars sort out and differentiate supply of vs. demand for ICO funding, taking geography and regulation into account with a global perspective.

1. Introduction

Securing financial resources is one of the most significant challenges for innovative new ventures all over the world (e.g., Baum and Silverman, 2004; Bellavititis et al., 2017; Cochrane, 2005). The most recent innovation in entrepreneurial finance is initial coin offerings (ICOs). ICOs enable ventures to raise capital by selling digital assets (“tokens”) to a crowd of investors (e.g., Block et al., 2020; Fisch, 2019; Gan et al., 2020; Momtaz, 2020a, 2020b). The first ICO occurred in July 2013. Since then, thousands of ICOs have followed, collectively raising billions of dollars for new ventures around the globe, in particular technology-oriented ones (Howell et al., 2020).

There are several reasons for the rapid increase in ICOs. The’s disintermediated nature of blockchain technology facilitates peer-to-peer transactions, cutting out financial intermediaries. Consequently, ventures can potentially raise money at lower costs, without giving equity in exchange for funding (e.g., Chen and Bellavitis, 2020; Martino et al., 2020; Momtaz, 2020a). The technology also facilitates transparency and safety of financial transactions as they are publicly recorded and verified (Chen et al., 2020; Natarajan et al., 2017). Blockchain also facilitates innovation, new business models, and solutions to existing problems (Chen and Bellavitis, 2020; Mohan, 2019). Additionally, cryptocurrency exchanges offer additional liquidity and anytime-exit opportunities (e.g., Howell et al., 2020).

However, ICOs are characterized by uncertainty on multiple levels. Blockchain technology is still novel and in flux. Ventures often conduct ICOs at a very early development stage when the fate of the venture is still uncertain. As such, most tokens are not useable at the time of the ICO, and instead provide the token holder a promise of future rewards (e.g., Fisch, 2019; Fisch and Momtaz, 2020). There is also considerable information asymmetry between ventures and investors, with ventures often disclosing little information to potential investors (e.g., Fisch, 2019; Momtaz, 2020a, 2020c). Lack of regulation facilitates opportunistic behavior and even fraud, further
These peculiarities brought the ICO industry to the attention of practitioners, regulators, and the media. Despite the popularity and relevance of ICOs, systematic scholarly research on the topic is nascent. So far, existing empirical studies have mainly investigated the determinants of ICO success (e.g., Adhami et al., 2018; Fisch, 2019; Mømtz, 2020c) or ventures’ operational and financial post-ICO performance (e.g., Drobetz et al., 2019; Fisch and Mømtz, 2020; Howell et al., 2020; Lyndres et al., 2019). Most of these initial studies examine a specific aspect or dimension of ICOs at a given point in time, which is in contrast with the rapid and dynamic evolution of the ICO industry. As we will show, there have been dramatic changes in the number of ICOs, the amounts of money raised, the geographic distribution of ICOs, and in ICO regulation. These rapid changes may potentially render findings from prior research invalid. To understand the ICO sector’s rapid and global evolution, a holistic, dynamic approach is needed. We address this research gap by exposing how ICOs have changed over time and by outlining corresponding changes in regulations. We rely on exploratory graphical expositions of the evolution of the ICO industry because the rapid change and volatility of the ICO sector suggests non-linearities, and our approach allows for minimum model restrictions, and minimum distributional assumptions (Singer and Willett, 2003).

In carrying out this research, we make the following contributions to the literature. First, to the best of our knowledge, this is the first comprehensive overview of the ICO industry on a global scale, which follows overall developments as well as geographical re-distributions. It is only through such an overview that the extraordinary dynamic changes can be revealed and understood. This dynamism also has important implications for research, which we develop at the end of this study. Second, we explore in detail the ICO regulations that countries have developed. These regulations, we argue, are essential for understanding the evolution of the industry, as well as its geographical redistribution. While previous research has noted that regulations may have a profound impact on the evolution of the ICO sector (e.g., Bellavitis et al., 2020; Cumming et al., 2019; Fisch, 2019), these studies have not assessed these relationships in detail. Since financial regulation is subject to national legislation, the development, extent, and content of ICO regulations vary considerably over time and around the world. Against this background, we engaged in a comprehensive data collection and coding effort to capture ICO and cryptocurrency exchange regulation on a quarterly basis around the world and relate it to the development of the ICO sector. Again, we discuss the implications of our findings for future research.

2. An overview of ICOs and the ICO literature

2.1. ICOs explained

The feature that distinguishes ICOs from other forms of entrepreneurial finance is the concept of raising capital by selling tokens, which represent blockchain-based digital assets (e.g., Fisch and Mømtz, 2020; Chen et al., 2020). Blockchain technology, a potentially revolutionary technological innovation (e.g., Yermack, 2017), is required for issuing and selling tokens and is at the core of token-based business models.

Despite their recency, ICOs have evolved since they were first introduced. This includes security token offerings (STOs) and initial exchange offerings (IEOs). While ICOs usually refer to the sale of utility tokens, tokens can also function as securities. Security tokens, which are sold in STOs, resemble traditional financial investments, and have an underlying investment asset that investors acquire. As such, they can entitle token holders to equity shares, debt, revenue, or interest (e.g., Fisch, 2019). Ventures often position their tokens as utility tokens to avoid the complex securities regulations associated with STOs (e.g., Howell et al., 2020). Nevertheless, STOs represent a regulated and less uncertain type of token offerings, which may increase in importance (e.g., Fries, 2019; Rathi, 2019). IEOs have emerged as a new type of token offering where an intermediary platform (exchange) manages the token sale. Thus, the token offer can be examined, validated, curated, and endorsed by a stable platform. As previously noted, STOs and IEOs only recently emerged and represent a tiny portion of the overall market. It is for this reason that we focus on ICOs and exclude IEOs and STOs from our sample.

2.2. The scholarly literature on ICOs

ICO research is generally very recent. Several initial studies are descriptive or normative in nature, describing how blockchain works and how ventures can leverage blockchain to fundraise through ICOs or how ICOs can facilitate the creation of network economies more efficiently and effectively (e.g., Li and Mann, 2019; Martino et al., 2019). Other studies focus on ICO investors and assess their investment behavior (e.g., Boreiko and Risteski, 2020; Fisch et al., 2019) or take a macro-level perspective and focus on how blockchain (and ICOs) can shape the financial system (e.g., Chen and Bellavitis, 2020) and digital platforms (e.g., Chen et al., 2020). Also, the geographical distribution of ICOs has received scholarly attention due to their rapid international expansion (e.g., Bellavitis et al., 2020; Huang et al., 2020; Masiak et al., 2020).

The bulk of ICO research, however, focuses on ICO fundraising (e.g., Adhami et al., 2018; Fisch, 2019; Mømtz, 2020a; 2020c; Schückes and Gutmann, 2020) or the effects of ICO fundraising on post-ICO financial and operational outcomes (e.g., Fisch and Mømtz, 2020; Mømtz, 2019; 2020b; Drobetz et al., 2019; Howell et al., 2020). Research on post-ICO financial performance draws on an attractive feature of ICOs compared to other forms of financing: After an ICO has been closed, the issued tokens can be traded on a

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1 Utility tokens are digital assets that enable the exchange of utility, which can take many forms. For example, utility tokens can pay transaction fees on the platform the venture intends to build, convey voting or governance rights, or entitle the holder to rewards (e.g., software licenses, vouchers) (Fisch, 2019).

2 This section excludes conference presentations and working papers.
secondary market.

In sum, these existing empirical studies have examined many different aspects of ICOs, collectively providing valuable insights into the ICO industry. However, these studies typically cover short time periods, not sufficiently taking into account the dynamic development of the industry (most rely on cross-sectional data or short time series). As we will show, the industry is extremely volatile and changes rapidly. We, therefore, doubt that results obtained at one point in time will replicate later. In what follows, we will provide an alternative approach to making sense of ICOs.

3. Methodology

3.1. Empirical approach

Capturing the rapid development of ICOs using traditional statistical analyses (e.g., linear regression analysis) is difficult due to the phenomenon’s non-linearity and complexity. Therefore, we use a holistic, dynamic approach and analyze the coevolution of various variables via exploratory analyses using tables and figures. The advantage of this approach is that it allows us to capture the massive dynamism displayed in the industry, not assuming linearity. We can also show covariance between different developments. The trade-off is that our analysis is not multivariate and not causal. We complement these descriptive analyses by case studies and inductive assessments of ICO regulations’ development in the countries with the most ICO activity.

3.2. Focus on ICO regulation

ICO regulation is at the core of our investigation because it is a crucial determinant in the dynamic evolution of the ICO sector. Regulation strongly influences the level of ICO activity as well as its geographical location (cf. Bellavitis et al., 2020; Cumming et al., 2019; Fisch, 2019).

In contrast to other means of entrepreneurial finance, the ICO sector is characterized by a comparably low degree of regulation (e.g., Bellavitis et al., 2020; Huang et al., 2020). On the positive side, the absence of regulation potentially enables ventures to raise large sums of funding with lower effort and costs (e.g., Fisch, 2019; Howell et al., 2020). On the negative side, the lack of regulation potentially increases investment risk because of opportunistic or malevolent behavior. Indeed, the ICO industry is notorious for high prevalence of fraudulent activity resulting from lack of regulation (e.g., Howell et al., 2020; Momtaz, 2020a). For example, “exit scams”, in which the venture team disappears after raising funds, thereby swindling investors, seem relatively common (Fisch, 2019). The lack of regulation makes prosecution of such scams difficult.

High investment risk and fraudulent activity have attracted scrutiny from regulators (Howell et al., 2020). Since financial regulation is primarily governed by national legislation, the development, extent, and content of ICO regulations vary considerably around the world. Fig. 1 visualizes the evolution of the number of ICOs, ICO volume, and Bitcoin price.

![Fig. 1. Evolution of the number of ICOs, ICO volume, and Bitcoin price.](image-url)
world. For example, some jurisdictions take a very restrictive approach towards ICOs. This group of countries includes China and South Korea, which banned ICOs in 2017 (Bellavitis et al., 2020). The ban is still in place as of October 2020, although China’s stance toward blockchain seems to be turning. Other countries, such as Germany and the US, are less restrictive. Both the German Federal Financial Supervisory Authority (BaFin) and the US Securities and Exchange Commission (SEC) issued an official consumer warning to investors that urge investors to be cautious when engaging in ICOs (BaFin, 2017; SEC, 2017a). However, both regulatory authorities also acknowledged the innovative potential of ICOs and refrained from outright banning them. In contrast, other countries, such as Singapore and Switzerland, implemented accommodating regulatory frameworks to attract ICOs and blockchain ventures to be able to leverage their vast innovative potential (Howell et al., 2020).

Many governments strive to attract and stimulate the establishment and growth of innovative, technological ventures and ICOs typically concern ventures in such sectors. Therefore, there are also incentives for policymakers to have lax regulation, or to not enforce strict rules, if in place. In other words, ICO regulation requires a careful balance between the upsides and downsides. The challenge of this balancing act is exacerbated by increasing international regulatory competition between countries that seek to establish themselves as hubs for ICOs and blockchain ventures (Howell et al., 2020), risking a race to the bottom.

Finally, Bitcoin and the subsequent ICO movement have been developed with the explicit intention of reducing the influence of central financial institutions and governments, which has also fueled their popularity (Chen and Bellavitis, 2020). This is supported by the fact that some 12% of ICOs cannot be attributed to a specific country (e.g., Adhami et al., 2018; Bellavitis et al., 2020). This re-inforces the challenges national regulators face when addressing this new global entrepreneurial finance phenomenon.

4. Results

This section discusses our findings. Details of our data collection process, variables included in the study are reported in Appendix A.

4.1. Number of ICOs, ICO volume, Bitcoin, and Ethereum price

Our first analysis focuses on the evolution of the number of ICOs and the funding raised. Due to the strong connection between ICOs and the two main cryptocurrencies, Bitcoin and Ethereum, we also consider the average Bitcoin and Ethereum price per quarter. The results are displayed in Fig. 1.

Fig. 1 shows the enormous dynamism of the ICO industry. From the first ICO in July 2013, virtually no activity is recorded until the end of 2016. The ICO sector rapidly grew in 2017, in which year 952 ICOs were conducted and ICO numbers approximately doubled from quarter to quarter. The ICOs conducted in 2017 raised a combined 7,443m USD. The first quarter of 2018 marks the current peak in ICO activity. In Q1 2018, there were over 800 ICOs, collectively raising the equivalent of 4,639m USD (i.e., approximately 440,000
From this peak, the number of ICOs began to decrease from quarter to quarter gradually. While the decline in ICOs was less steep than the rapid increase in 2017, the number of ICOs dropped off to only 87 ICOs in Q1 2020, which is similar to the number of ICOs recorded in Q2 2017. The drop in ICOs was accompanied by an even more dramatic decline in the amount of money raised, down to only 31m USD in Q1 2020. Our graph shows further declines in Q2 2020 but, as previously mentioned, this might be due to missing data. This recent decline could also partly be due to an increased occurrence of IEOs and STOs. For example, in unreported analyses, we found that 263 IEOs were launched in 2019. As a comparison, during the same period, 832 ICOs were launched. Hence, although the ICO path is still the most predominant, IEOs (and STOs) are on the rise.

Examining Bitcoin and Ethereum price, it is clear that both the number of ICOs and ICO volume closely track the cryptocurrencies’ prices. Most ICOs offer their tokens in exchange for Bitcoin or other cryptocurrencies. In addition, most ICOs state their funding goals in Bitcoin instead of USD, so that the amount collected is more substantial when the price of Bitcoin is higher (Fisch, 2019). The Bitcoin (or Ethereum) price may also serve as an indicator of market sentiment in which ICOs are generally able to collect higher amounts of funding (Howell et al., 2020). The opposite causality would also be possible, i.e., that the Bitcoin price follows the number of ICOs and money raised. However, this is unlikely since the amount collected is larger when the price of Bitcoin is higher and since Bitcoin price is often described as a leading indicator of market sentiment due to its predominance in the crypto-sector (Fisch, 2019; Howell et al., 2020).

It would be easy to conclude that the price of Bitcoin or Ethereum is the only driver of ICOs. However, that would be overly simplistic. Towards the end of 2019 and beginning of 2020, Bitcoin’s price increased, while Ethereum price remained stable, but we see no corresponding increase in ICOs or ICO volume. The reason, we will argue, is that regulation plays a vital role in the evolution of ICOs. Major regulatory changes also affect Bitcoin’s and Ethereum price. For example, during the period in which China banned ICOs, the Bitcoin price declined 11% from about 4600 USD before the ban to 4100 USD a week after the ban. The impact of regulation on the industry becomes clear when we examine the geographical distributions of ICOs, to which we turn in the next section.

Overall, from Q2 2015 to Q2 2020, seven countries account for approximately half of the ICO activity (51%): United States (US, 537 ICOs), Singapore (457), United Kingdom (UK, 430), Russia (262), Estonia (255), Switzerland (225), Hong Kong (144). Focusing on the evolution over time, however, a different image emerges. Fig. 2 illustrates the ICO distribution across countries by quarter. In the early stages of the industry, the US had a large share of the market, comprising 30% of ICOs. However, this early dominance has disappeared, with the US responsible for only 1 ICO in Q2 2020. Russia and Switzerland are two other countries that were popular early in the game but have lost steam. In terms of increases, it is primarily “other” countries (outside the main seven) that have steadily taken over the market and are responsible for 59% of all ICOs at the end of our study period, suggesting that the ICO industry has become increasingly global over time.

Fig. 3. Geographical spread of ICO regulation. Notes: red = banned, orange = regulated, green = not regulated, grey = no ICO. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)
4.2. ICO regulation, regulation delay, and warnings

We now turn our attention to regulation and warnings issued by governing bodies. Fig. 3 shows the geographical spread of regulations and bans at four time points.

As of Q3 2019, slightly more than half of the countries in our sample (69 out of 140) had implemented some type of ICO regulation. Four of these countries banned ICOs entirely (i.e., China, South Korea, Egypt, and Indonesia). For example, in Q3 2017, the People’s Bank of China (i.e., the central bank of China), issued a joint statement in conjunction with six other regulatory bodies stating that all ICO activities were subsequently banned in China. The statement reiterated that ICOs are considered an illegal activity in China and warned investors about the risk of crypto investments (IOSCO, 2017).

Fig. 4 illustrates the temporal dynamics of ICO regulation and shows that ICO regulation spreads exceptionally quickly. In the second quarter of 2017, only two countries had implemented specific ICO regulations (Ecuador and Guernsey & Jersey). In Q2 2018, only one year later, 64 countries had implemented regulations, and only a few followed after that. Essentially, ICO regulations spread worldwide in a single year. Within our dataset, only 20 countries out of 140 had neither planned nor adopted any cryptocurrency regulation as of Q3 2019.

These results are best understood in light of the regulation of cryptocurrency exchanges. Cryptocurrency exchange related regulation appeared much earlier, as can be seen in Fig. 5. In contrast to dedicated ICO regulation, which was only implemented in two countries, 27 countries had implemented regulation on cryptocurrency exchanges by Q2 2017. The spread of cryptocurrency exchange regulation was also more gradual, but with the main increase during the same time period as the regulation of ICOs. This figure also clearly shows that regulation closely follows the price of Bitcoin with a slight delay. Cryptocurrencies were introduced before ICOs and received much (and often negative) media attention. As the economic impact of cryptocurrencies increased, so did the attention of regulatory bodies toward cryptocurrency, and regulations soon followed. The familiarity with cryptocurrencies can explain why the regulating bodies were much quicker to introduce regulation on cryptocurrency exchanges and trading, compared to regulation of ICOs. Fig. 5 provides evidence for this conclusion and illustrates that cryptocurrency exchange regulations precede the regulation of ICOs. Also, the development of these regulations was more gradual and less explosive.

Given the rapid evolution of cryptocurrencies and the associated regulation, it is also interesting to examine the delay between the time when regulations were announced until they were enacted. This is shown in Fig. 6. The figure combines regulations of ICOs and cryptocurrency exchanges.

Countries started announcing potential regulation as early as 2014, yet the low number of ICOs and cryptocurrency trading volume did not provide a sense of urgency. Our analyses show that governments spent an average of 4.6 quarters, more than a year, between

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3 For an analysis of the regulation of cryptocurrencies, see Borrás and Edler (2020).
4 For the sake of simplicity, we do not include the Ethereum price in Fig. 6.
announcing their intentions to regulate and the actual implementation of the regulation. An interesting observation is that these numbers change over time. During 2014, 2015, and 2016 it took an average of five, eleven, and six quarters to implement regulation, respectively. By 2017 and 2018, the time between planning and implementing regulation had decreased to 1.4 and 0.2 quarters, respectively. Governments seem to have reacted to the rapid growth in ICOs and the spike in Bitcoin price and trading starting at the end

![Fig. 5. Evolution of cryptocurrency exchange regulation.](image)

![Fig. 6. Planned and implemented ICO and exchange regulation.](image)
of 2017, realizing the pace at which the industry evolved, forcing them to act faster. Also, those later to regulate could learn from the regulatory efforts of earlier countries, facilitating implementation.

Finally, Fig. 7 illustrates the number of investor warnings issued by official regulatory bodies. A lot of warnings were issued in 2013 and 2014 because the European Banking Authority (EBA) issued warnings “to highlight the possible risks [investors] may face when buying, holding or trading virtual currencies such as Bitcoin.” (EBA, 2013). Thus, we coded warnings issued by all member countries. Some individual European countries also issued early warnings (e.g., Germany). Also, twelve extra-European countries (e.g., China, India, US) warned investors about the risks involved in cryptocurrencies already in 2013. Similar to regulations, warnings seem to closely follow the price of Bitcoin, with the most substantial numbers in the quarters when the Bitcoin price was the highest (i.e., end of 2017 and beginning of 2018). Detailed analyses not presented here also show a 40% correlation between Bitcoin price volatility and the number of warnings issued. By Q3 2019, almost all countries with cryptocurrency activity had issued warnings. The states with the highest number of warnings were Belgium (12) and the US (9).

4.3. Different types of ICO regulation across countries

We have made the case that in order to understand the evolution of the ICO industry, regulations and the price of Bitcoin need to be considered. So far, we have put all regulation on equal footing. However, regulation differs across countries, and to understand its effect on ICOs, a more fine-grained analysis is needed.

An important distinction is between supportive and restrictive regulation. The most restrictive regulation takes the form of a ban of ICOs, which is the case in China and South Korea. Other countries, such as Mexico, impose restrictive regulation without altogether banning ICOs. In contrast, other countries have supportive regulation. In addition to countries like Switzerland or Singapore, which are often described as accommodating to ICOs (e.g., Howell et al., 2020), countries such as Barbados explicitly aim to increase their attractiveness for blockchain ventures and ICOs.5

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Table 1: Key information about regulation across countries with the highest number of ICOs.

<table>
<thead>
<tr>
<th>Country</th>
<th>Actions identified</th>
<th>First regulatory action</th>
<th>Dedicated ICO regulation</th>
<th>AML mandatory</th>
<th>KYC mandatory</th>
<th>CFT mandatory</th>
<th>Investor warning(s)</th>
<th>ICO ban</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>18</td>
<td>Q1 2013: Clarified that virtual currencies are not legal tender and are not subject to MSB registration, reporting, and recordkeeping regulations.</td>
<td>Yes (since Q3 2017)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>8 (Q3 2013, Q2 2014, Q3 2014, Q3 2017, Q4 2017, Q1 2018, Q3 2018, Q2 2019, Q3 2019)</td>
<td>No</td>
</tr>
<tr>
<td>Singapore</td>
<td>11</td>
<td>Q2 2013: Warning about the risks associated with virtual currencies</td>
<td>Yes (since Q3 2017)</td>
<td>Yes (Q1 2018)</td>
<td>No</td>
<td>Yes (Q1 2018)</td>
<td>5 (Q2 2013, Q1 2014, Q4 2017, Q1 2018, Q3 2019)</td>
<td>No</td>
</tr>
<tr>
<td>Estonia</td>
<td>6</td>
<td>Q1 2014: Warning about Bitcoin as a potential ‘problematic scheme’</td>
<td>Yes (since Q3 2017)</td>
<td>Yes (Q4 2017)</td>
<td>Yes (Q2 2016)</td>
<td>Yes (Q4 2017)</td>
<td>2 (Q1 2014, Q2 2019)</td>
<td>No</td>
</tr>
<tr>
<td>UK</td>
<td>8</td>
<td>Q1 2014: Clarified the taxation of virtual currencies</td>
<td>Yes (since Q3 2017)</td>
<td>Yes (Q4 2017)</td>
<td>No</td>
<td>No</td>
<td>3 (Q3 2017, Q4 2017, Q3 2019)</td>
<td>No</td>
</tr>
<tr>
<td>Russia</td>
<td>7</td>
<td>Q1 2014: Warning about cryptocurrencies</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>3 (Q1 2014, Q3 2017, Q1 2018)</td>
<td>No</td>
</tr>
<tr>
<td>Switzerland</td>
<td>10</td>
<td>Q2 2014: Report on virtual currencies’ economic significance, legal treatment, and risks.</td>
<td>Yes (since Q3 2017)</td>
<td>Yes (Q3 2017)</td>
<td>No</td>
<td>No</td>
<td>3 (Q2 2014, Q3 2017, Q1 2018)</td>
<td>No</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>6</td>
<td>Q1 2014: Warning about the use of virtual currencies to finance illegal activities</td>
<td>Yes (since Q4 2017)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>5 (Q1 2014, Q1 2015, Q1 2018, Q4 2018, Q1 2019)</td>
<td>No</td>
</tr>
</tbody>
</table>

Notes: AML = anti-money laundering, KYC = know-your-customer, CFT = combating the financing of terrorism. This table only considers national regulatory actions. As such, EU wide regulations, that partly apply to Estonia and the UK are omitted.

The level of effort put into regulation also varies. At the most fundamental level, regulators simply extend existing securities laws to cryptocurrency exchanges and ICOs. At the next level, AML/KYC/CFT laws are amended to also include cryptocurrencies (e.g., Estonia). The most ambitious level includes laws written specifically for cryptocurrencies, developing comprehensive frameworks. The development of ICO regulation develops overtime, and countries often start with AML provisions before drafting a comprehensive cryptocurrency regulatory framework.

To gain more nuanced insights on the extent and development of regulation across countries, we extend our exploratory analysis with inductive insights obtained from the seven countries with the largest number of ICOs within our time period, sorted according to the number of ICOs in Q3 2019: United States, Singapore, United Kingdom, Russia, Estonia, Switzerland, Hong Kong. Table 1 summarizes the main milestones of regulation for each country to facilitate comparison. A brief case study for the regulation of each country included in Table 1 is reported in Appendix B.

5. Conclusion

5.1. Discussion

Our most salient findings relate to the extraordinarily rapid but volatile development of the industry. Examining the overall development of ICOs, we document an astounding increase in ICOs, with numbers doubling from quarter to quarter, followed by an almost equally dramatic downturn shortly after that. The results suggest that the sector’s development was initially fueled by movement in Bitcoin price, although more recently, the number of ICOs has kept falling despite increased Bitcoin prices. We suspect that this more recent downturn relates to the fact that more countries are introducing regulations to protect investors. This has likely curtailed more speculative (or even fraudulent) ICOs. In addition, increased government warnings might have cooled investors’ interest in ICOs. Relatedly, access to other forms of finance for technology-oriented new ventures that ICOs appeal to, in particular early-stage venture capital, has increased substantially from 2017 to 2019. Thus, the rapid downturn may not necessarily be indicative of poor health of the type of businesses typically funded by ICOs per se.

Given the rapid evolution, it is hardly surprising that ICO regulation has been lagging behind. That said, some countries have been relatively swift at introducing both supportive and restrictive legislation (see Appendix B). Our analysis of regulation and national differences thereof highlights the variety and truly global nature of ICOs. ICOs quickly move from one geography to another in ways consistent with regulations, seeking out countries with fewer or less restrictive regulations. In other cases, countries such as Estonia coupled regulation with supportive institutional initiatives, encouraging investors to launch ICOs from their countries. Perhaps most noticeable is the move away from ICOs in the US following the introduction of restrictive legislation, whereas lax (e.g., UK) or supportive (e.g., Singapore) legislation seems to be associated with larger ICO volume.
5.2. Implications for practice

Our findings have important implications for policymakers. We show that national and international regulations play central roles in both overall ICO activity and its geographical distribution and should be taken into account. This is not unique to ICOs – other industries are influenced by regulation in similar ways. However, something that sets ICOs apart is how fluidly they can move from one country to another. In addition, compared to much other regulation, the lack of international harmonization stands out, with large differences across countries in terms of both the level and nature of regulation and also in terms of the rapid regulatory changes over time. For example, the seven countries covered in our case studies (see Appendix B) have all introduced and also changed regulation over the few years that ICOs have been around. The global nature of ICOs, and the modern financial system, emphasize the need for regulators to implement coordinated practices. Otherwise, the risk is regulatory arbitrage. Others have observed “the need for improved policy coordination across jurisdictions” when it comes to blockchain technology (Allen et al., 2020: 6). The same is likely true when it comes to ICOs.

5.3. Implications for future research

Our findings have some straightforward, albeit important implications for future research. First, to understand ICOs conceptually, scholars need to sort out and differentiate the supply of versus the demand for ICO funding, taking geography and regulation into account. Second, examining ICOs across the globe versus within a given country provides very different images of which scholars need to be aware. For example, the rapid downturn in US ICOs did not reflect an overall global downturn. Given a choice between the two, we advocate for global analyses over country-specific ones. Given how fluidly ICOs can (and do) move from one country to another, analyses focusing on the state of affairs or developments within an individual country without taking the global picture into account will inevitably lead to incomplete or even erroneous conclusions.

5.4. Method-related implications for future research

Finally, our findings have method-related implications for future research. Scholars need to adopt research methods that account for dynamic change. This has several implications. Most obviously, the timing of data collection should be clearly noted and disclosed, and analyses should be replicated during different time windows to establish if results are robust across time or not. Previous studies, for example, found that the availability of a technical white paper has a positive (Fisch, 2019) effect as well as a negative, although not statistically significant (Adhami et al., 2018), effect on ICO fundraising. Large swings in variable values make it difficult to establish consistent empirical relationships. As such, traditional analysis methods building on assumptions of consistent linear relationships may be less suitable, at least for early-stage analyses.

While this approach is effective for deriving preliminary insights on the development of ICOs and ICO regulation, more sophisticated analyses are needed to drill deeper into the relationships among variables. Agent-based modeling is useful for developing theory when a phenomenon is relatively unexplored, variable relationships potentially nonlinear, and change is dynamic and frequent (Davis et al., 2007). For example, it should be possible to rely on existing findings regarding ICO fundraising success (the most popular ICO research question) to model how success varies with different environmental conditions. If data quality allows, dynamic panel data approaches may also be suitable.

Authors’ statement

The authors contributed to the following: Cristiano Bellavitis: Conceptualization, methodology, investigation, data curation, funding acquisition, writing (original and review). Christian Fisch: Conceptualization, writing (original and review), investigation. Johan Wiklund: Conceptualization, writing (original and review).

Declaration of competing interest

The authors whose names are listed immediately below certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers’ bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

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Appendix A. Further information on the empirical approach

Data

Our primary data source is ICObench (www.icobench.com). As of October 2020, ICObench is the most comprehensive source of ICO data and is often used in academic research (e.g., Bellavitis et al., 2020; Lyandres et al., 2019; Momtaz, 2020a). Also, ICObench distinguishes ICOs, STOs, and IEOs, which allows us to more precisely focus on ICOs. While the first ICO took place in 2013, there was no meaningful ICO activity until 2015. Hence, our period of investigation spans from Q3 2015 to Q2 2020, which comprises a substantial fraction of the population of all ICOs. We collected this data in October 2020.9

During this period, 5722 ICOs were launched, according to ICObench. This initial sample was reduced because of missing values regarding ICO location (5%) and ICO timing (21%). A peculiarity of ICOs is that they can be conducted virtually and do not require a company’s physical presence in a specific country, so in some cases, a lack of location might be a byproduct of the team’s desire for anonymity (e.g., Fisch, 2019; Bellavitis et al., 2020). The remaining sample comprises 4528 ICOs (79% of the initial sample) located in a total of 140 countries. These countries represent the sample for which we collect regulation data.

Data on ICO regulation, or an established way to code ICO regulations, especially in a longitudinal format, does not exist. To gather data on regulation, we thus manually assessed whether each of the 140 countries in our sample had (a) enacted any ICO or cryptocurrency exchange regulation, (b) planned any such regulation, or (c) officially warned the public about investing in cryptocurrencies or ICOs. Notice that we collect data on both more general cryptocurrency regulations and dedicated ICO regulations because cryptocurrency regulations usually include ICO regulations, even if ICOs are not explicitly mentioned. Hence, focusing only on ICO regulation would significantly underestimate the regulations that ICOs face in most jurisdictions.

We collected our data on regulation from multiple sources until February 2020.7 The data was collected and curated using a comprehensive, multi-step process. The first step involved exploring existing works on cryptocurrency regulation from the US Library of Congress (and similar sources) that combined data from multiple sources. The second step involved using Google for keywords such as “cryptocurrency regulation” and “ICO regulation”. We then searched the archives of cryptocurrency news sites (e.g., www.cointelegraph.com, www.coindesk.com). Where possible, we double-checked information with data sourced from official government or regulator websites. The final step involved searching for additional regulation directly on the websites of regulators. If an official announcement was no longer available online, we ensured that the information was confirmed by multiple unofficial sources such as international media, local newspapers, and reliable cryptocurrency news aggregators. In ambiguous cases (e.g., the wording of the regulation was unclear, a specific document could not easily be assigned to a specific coding), two ICO researchers discussed the coding until they agreed.

Due to the national character of regulation, and because not all regulators publish their documents in English, we carried out these searches in multiple languages. The sources collected include different languages including Russian, Estonian, French, and German.

Variables

Number of ICOs

To quantify the dynamics of the ICO industry, we record the number of ICOs as our first variable of interest. This measure counts the number of ICOs launched in each quarter-year in each country. We organize our observations into quarterly spells (from Q3 2015 to Q2 2020) and assess developments throughout the study period, resulting in a total of 20 spells.

ICO volume

We also investigate ICO volume (in USD). This measure captures the cumulative fundraising volume of all ICOs launched in each country-quarter. In some cases, ICObench.com reports the amount in crypto-coins (e.g., 3000 Bitcoins) raised, rather than a USD value. In those cases, we compute the USD equivalent at the ICO launch based on the exchange rate between the coins and the USD. Unfortunately, fundraising information is only available for 31% of the ICOs in our sample (1802 ICOs). This is especially true for 2020 data where fundraising volume is only available for 9% of the ICOs. This might be due to unsuccessful fundraising or missing data. While the number of ICOs reflects the supply side of the ICO industry, the funding raised in these ICOs also considers the industry’s demand side because it indicates how much investors were willing to invest in ICO ventures.

Bitcoin and Ethereum price

Bitcoin and Ethereum are the best-known cryptocurrencies (Masiak et al., 2020). Bitcoin was introduced in January 2009 and is generally considered the genesis of the blockchain industry. Bitcoin’s market capitalization consistently exceeds other cryptocurrencies and tokens, and has done so since its inception.8 Since a relationship between ICO activity and Bitcoin’s price is likely, prior research on ICOs frequently includes Bitcoin’s price as a control variable (e.g., Fisch, 2019; Howell et al., 2020). Similarly, we include a variable that

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7 While we did not impose a starting date, most documents where published starting in 2013. We last accessed all sources reported in this document in April 2020. Some websites may be temporary and might not be accessible in the future.

8 For historical price information on cryptocurrencies, see https://coinmarketcap.com/charts/.
measures the average price of Bitcoin in USD per quarter in our analyses (Bitcoin price). We follow the same steps to collect the price of Ethereum (Ethereum price). In line with prior research, the data comes from www.coinmarketcap.com (e.g., Fisch, 2019; Momtaz, 2020a).

**ICO regulation**

ICO regulation varies across countries and likely has a profound influence on ICO’s location and funding raised. Therefore, we expended considerable effort to create indicators that capture ICO regulation from a longitudinal perspective (quarterly) across countries. We capture formal regulation regarding (a) ICOs and (b) cryptocurrency exchanges and track their evolution across time and place. In doing so, we also record whether countries had publicly disclosed their intention to regulate the ICO industry, before implementing the actual regulation (see regulation delay below).

The variable *ICO regulation* takes a value of 2 if there is a ban on ICOs in a country, (strictest level), a value of 1 if there is any other type of regulation, and a value of 0 if no ICO regulation is in place. Similarly, the variable *cryptocurrency exchange regulation* takes a value of 2 if there is a ban on cryptocurrency exchanges in a country (strictest level), a value of 1 if there is any other type of regulation, and a value of 0 if no exchange regulation is in place. In line with our other variables, ICO regulation was recorded on a quarterly basis based on each regulation’s date of enactment.

Several considerations had to be made in coding the ICO regulation variable. Countries which impose regulations on some ICOs but not others will be coded as regulated. In order to qualify as a ban, legislation must explicitly ban the issuance of cryptocurrencies or ICOs. Prohibiting “trading” but not “issuance” does not qualify. In case the regulation is concerned with the “trading” or “exchange” of cryptocurrencies, we considered the regulation to be about “cryptocurrency exchanges” rather than about “ICO’s”. If regulation concerns extension of existing legislation, date of enactment rather than enforcement will be coded. Any partial regulation will qualify as regulation. Countries which require cryptocurrency-related services to comply with Anti-Money Laundering (AML), ‘Know Your Customer’ (KYC), or ‘Combating the Financing of Terrorism’ (CFT) legislation are coded as regulated, as they are subject to regulatory oversight. Some countries have not enacted formal legislation regarding cryptocurrency but have instead indicated through regulatory announcements (or more rarely in legal cases) that existing securities laws extend to at least some crypto-assets (often classed as ‘security tokens’). These are coded as regulated. Countries that are members of extraterritorial governing or regulatory bodies (e.g. the European Union, European Banking Authority, Organization of Eastern Caribbean States etc.) are coded as regulated if the body of which they are a part imposes regulations on its constituent states. Finally, when a sovereign state is coded as regulated, its overseas territories will not automatically be coded as such. Whether or not they too are deemed regulated will depend on the degree of regulatory alignment and autonomy (e.g., regulation in the US Virgin Islands follows that of the US, while regulation in French Polynesia does not follow that of France).

**Regulation delay**

To assess the impact of regulation on the ICO industry in a more nuanced way, we also record the time elapsed (in quarters) between a regulation’s announcement and enforcement (regulation delay). Given the speed at which the ICO industry evolves, the investigation of a delay in regulation could help to explain spikes in ICO volume as well as geographical redistributions. The variable also provides insights into how governments reacted during different stages of industry development. The variable’s data collection and coding follow the same strategy as the variable *ICO regulation*. That is, we systematically scanned national government media releases, industry news websites, and newspapers for announcements that specify national institutions’ intentions to regulate ICOs. We only considered official statements by regulators or related bodies in coding.

**Cryptocurrency and ICO warnings**

As a further nuance of ICO regulation, we investigate whether governments have issued warnings to the population related to the risks involved in cryptocurrencies. Differently from formal regulatory changes, warnings do not have any legislative power but simply offer informal guidance and advice to the general public. Only warnings issued by regulators or related bodies are coded. AML/CFT warnings and guidelines issued by any related institutions and bodies are not coded as warnings. The data is retrieved in the same way as our *ICO regulation* and *regulation delay* data.

As with ICOs, countries that are members of extraterritorial governing or regulatory bodies (e.g. the European Union, European Banking Authority, Organization of Eastern Caribbean States etc.) are coded as issuing warnings if the body of which they are a part issues a warning. Only regulatory agencies with sufficient influence and oversight are included (e.g. the East Caribbean Central Bank is included, but not the International Organization of Securities Commissions). Warnings pertaining to a specific ICO are not counted as warnings, except if they also highlight the risks of cryptocurrency investment more broadly.

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9 Countries which have banned certain types of cryptocurrency from exchange, or certain investor groups from participating in cryptocurrency exchange, are coded as regulated. Only countries with blanket bans are coded as ‘banned’.

10 Countries which allow cryptocurrency exchange through both regulated and unregulated channels, or countries which only regulate the exchange of certain crypto-assets, will both be classified as regulated.
Appendix B. Case studies

United States

The first regulatory action that we recorded in the US occurred at the federal level. The Financial Crimes Enforcement Network (FinCEN), which regulates Money Services Businesses (MSBs), issued interpretive guidance in March 2013 stating “an administrator or exchanger [of virtual currency] is an MSB under FinCEN’s regulations, specifically, a money transmitter, unless a limitation to or exemption from the definition applies to the person” (FinCEN, 2013). This guidance marks a milestone in cryptocurrency regulation because the US became the first country in the world to regulate the exchange of cryptocurrencies.

Subsequently, Bitcoin and other cryptocurrencies became subject to further regulation. For example, in September 2015, the Commodity Futures Trading Commission (CFTC) clarified that cryptocurrencies were considered commodities (CFTC, 2015). An implication is that futures and other derivative contracts that refer to the price of a “crypto asset” like Bitcoin are subject to regulation by the CFTC. The regulation also gave the CFTC jurisdiction over market manipulation of crypto-assets, which enabled the CFTC to prosecute fraudulent activity related to cryptocurrencies.

In July 2017, the US introduced its first set of ICO-specific regulation when the SEC clarified that some ICOs could be classified as securities if they meet specific criteria, and are therefore subject to securities law. This means that ICO need to meet certain requirements before that they can be issued (Howell et al., 2020). These requirements include a pre-registration with the SEC and imply that tokens can only be sold to accredited investors. It appears that the involvement of the SEC and a potential classification of some ICOs as securities had a substantial cooling-off effect on the US ICO industry. For example, Fig. 2 shows that the significant drop-off on US ICOs starts in Q3 2017 when the legislation is introduced and continues into the next few quarters. Up to Q2 2017, the US was the dominant player, with a 30% global share of new ICOs. In the next quarter (Q3 2017), that share was cut almost in half (19.5%) and then steadily declined each quarter.

As these descriptions show, the US approach to regulating cryptocurrencies and ICOs has been restrictive, protecting investors. SEC Chairman Jay Clayton summarized this view in the following statement: “[I] believe that initial coin offerings – whether they represent offerings of securities or not – can be effective ways for entrepreneurs and others to raise funding, including for innovative projects. However, any such activity that involves an offering of securities must be accompanied by the important disclosures, processes, and other investor protections that our securities laws require” (SEC, 2017b). Restrictive rules and careful regulators seem to have dampened entrepreneurs’ interest in launching ICOs from the US.

Singapore

Singapore announced plans to regulate cryptocurrencies early but has generally been slow at implementation. In Q2 2013, authorities warned the public about investing in cryptocurrencies. In March 2014, the Monetary Authority of Singapore (MAS) said that intermediaries, such as virtual currency exchanges, would need to verify their customers’ identities under their proposals, thus proposing one of the first know-your-customer frameworks (KYC). However, MAS did not elaborate on when regulations would be implemented. In August 2017, MAS clarified that some ICOs might fall under existing securities laws. Similar to the US, the consequences of an application of securities law include the preregistration of the ICO with the MAS and the application of AML and CFT laws (MAS, 2017). In January 2018, Singapore formally regulated cryptocurrency exchanges stating that “MAS’ AML/CFT requirements apply to all activities of financial institutions, whether conducted in fiat or virtual currencies” (MAS, 2018), thereby creating some barriers for Singaporean investors and ICO ventures. However, the statement framed cryptocurrencies in a positive light and recognized new opportunities in addition to risks. Furthermore, Singapore was proactive in exploring applications of blockchain and cryptocurrency. For example, in August 2019, MAS launched a regulatory sandbox that enables ventures to test financial products and services regarding their compliance before introducing them in the market.

Overall, these initiatives, coupled with legal clarity and a generally positive attitude toward ICOs and cryptocurrencies have fostered an attractive environment for ICOs. In June 2018, PwC (2018) described Singapore as a “jurisdiction of choice” for ICOs. Also, Singapore might have benefited from its location nearby countries such as China and South Korea that banned ICOs at the end of 2017. The global market share for ICOs in Singapore was 5% in Q2 2017, increased to 8% in Q3 2017, and hovered between 11 and 14% in the following quarters up to Q2 2020. Despite the small size of the Singapore economy, it is one of the worlds’ leading locations for ICOs.

Estonia

Estonian regulators first referred to cryptocurrencies in January 2014, when Mihkel Nõmmela of the Central Bank of Estonia called Bitcoin a “problematic scheme” in an email to Bloomberg (Ummelas and Sepuyte, 2014). Further documenting Estonia as an early mover, it was one of the first countries to regulate the exchange of cryptocurrency in April 2016, when the Supreme Court ruled that Bitcoin exchanges were subject to Estonian AML/CFT law (Higgins, 2016). Next, Estonia extended its existing securities laws to ICOs in Q3 2017, when the Estonian Financial Supervisory Authority (EFSA) clarified that certain ICOs, depending on their structure, might be considered as securities (EFSA, 2017). Estonia then formally codified cryptocurrency regulation for AML/CFT purposes in October 2017, one of the first countries in the EU to do so,. The Act requires companies that provide exchange services and wallet services to obtain a
license. As of March 2019, the government had granted virtual currency-related licenses to 1367 companies, suggesting that the regulatory environment did not discourage crypto-entrepreneurs. The regulation was further tightened in May 2019, implementing extensive background checks as part of the application process. It also requires the address of the company, the board, and the activities to be located in Estonia, obliging foreign companies to open a local branch to be eligible for a license.

Despite regulating both cryptocurrency exchanges and ICOs, Estonian authorities were generally amicable towards cryptocurrencies and ICOs. Low taxes, coupled with precise, well-defined regulations have encouraged a significant number of ICOs to be domiciled there. As of Q3 2019, Estonia is the second-largest market for ICOs worldwide. With a population of 1.3m, Estonia is the fourth-smallest country in the European Union. Despite its small size, Estonia has developed a reputation as a global leader in digital innovation and technology (Reynolds, 2016). Estonia has also been an early adopter of blockchain and describes itself as the first country to use blockchain at a national level. Blockchain technology has been in use in numerous Estonian Government registries such as national health, judicial and legislative systems since 2012 (E-Estonia, 2020). Estonia also entertained plans of developing a proprietary cryptocurrency (“Estcoin”). However, these plans were eventually scrapped due to disapproval from European regulators (Newsbtc, 2018).

United Kingdom (UK)

The UK has been slower in adopting cryptocurrency regulation than many other developed countries. It started in Q1 2014 by clarifying how virtual currencies would be taxed. The first plan for regulation was released in March 2015, when Her Majesty’s Treasury (HMT) published a report acknowledging the innovative potential of digital currencies, outlining the intention to deter the use of digital payments in illegal activities by extending AML frameworks to cryptocurrencies (HMT, 2015). Still, the proposals of this report do not appear to have been implemented as of May 2020.

ICOs were first indirectly and partially regulated in September 2017, when the Financial Conduct Authority (FCA) issued guidance that case-wise decisions will determine whether an ICO falls within the FCA’s regulatory boundaries or not. The FCA also points out that depending on the ICO’s structure, existing securities regulations may apply (FCA, 2017). This initial ICO regulation was extended in a report published in October 2018 (FCA, 2018). The report outlined the UK’s dual objective of fostering an environment supportive of innovations such as blockchain and crypto-assets, but at the same time ensuring high regulatory standards, such as AML and CTF (counter-terrorism financing) rules. Further, they reinforced the restrictions on the sale to retail consumers. In January 2019, the FCA clarified its stance on cryptocurrencies, when it borrowed the categorization of ‘Security Tokens’, ‘Exchange Tokens’ and ‘Utility Tokens’. Only ‘Security Tokens’ are consistently regulated, even though the other types can be regulated under specific circumstances (FCA, 2019).

In addition to a generally light ICO regulation, the UK has launched several initiatives devoted to promoting the implementation and adoption of blockchain technologies. For example, like Singapore, a regulatory sandbox allows businesses to test innovative products or services in the real market, with real consumers in a controlled environment. The UK has maintained its share of ICOs throughout the studied period, with somewhat around 10% of all ICOs appearing within its jurisdiction.

Russia

In August 2014, the Russian Ministry of Finance announced that it was drafting a bill to ban Bitcoin and other cryptocurrencies, to prevent their use in the exchange of illicit goods or money laundering. However, no such ban has entered into effect, with some news sources citing a conflict of vision amongst Russian regulators (Higgins, 2017). In October 2017, Russia published a guide for the implementation of future cryptocurrency regulation. However, this guide does not constitute a regulation per se (Kremlin, 2017). The document includes five recommendations that range from the clarification of digital concepts (e.g., mining operations, ICOs) to the creation of a regulatory sandbox, and the intention to create a single payment technology built on the blockchain. Rumors suggested that Russia intended to create a “cryptorouble”, indicating a favorable stance towards cryptocurrencies and ICOs. In March 2018, Russia proposed a law to regulate the exchange of cryptocurrencies by the introduction of specialized exchange operators. ICOs would also be regulated under the bill, requiring information memoranda, and additional protections for people not classified as qualified investors. Russian regulators also independently proposed extending AML laws to cryptocurrency. While the bill passed its first reading unanimously in May 2018, further implementation was postponed in March 2019.

Despite Russia’s discussion of cryptocurrencies and ICOs, the country has not formally enacted a dedicated ICO regulation as of March 2020. Hence, cryptocurrencies and ICOs currently operate in a regulatory grey area in Russia, making it a popular location for ICOs looking to skirt the disclosure requirements of other jurisdictions. For some time during 2017, over 10% of all ICOs were conducted in Russia, but its share stabilized around 5% in 2019 and decreased to 2% in 2020.

14 Source: https://www.ft.com/content/54d026d8-e4cc-11e7-97e2-916d4fba0da (last accessed: November 4, 2020).
Switzerland

Switzerland was one of the earliest countries to regulate cryptocurrencies, with the Swiss Financial Market Supervisory Authority (FINMA) extending AML requirements to the professional trading of Bitcoin in June 2014. The FINMA also stated that professional trading of cryptocurrencies might require a banking license (FINMA, 2014). After this somewhat restrictive initial regulation, Switzerland took a more accommodating stance towards cryptocurrencies and ICOs. In November 2016, the Swiss Federal Department of Finance (FDF) announced its intention to reduce regulatory barriers to market entry in Fintech alongside increasing legal certainty for the sector overall by loosening its banking regulations (FDF, 2016). The FDF acknowledged the innovative potential of blockchain technology and stated Switzerland’s intention to benefit from the opportunities offered by digitalization by creating “the best possible framework conditions so that Switzerland can establish and develop itself as a leading, innovative and sustainable location for fintech and blockchain companies” (FDF, 2016).

In April (FINMA, 2017a) and September 2017 (FINMA, 2017b), FINMA released guidelines about ICOs. It reiterated the innovative potential of blockchain technology and ICOs, welcoming “all efforts to develop and implement blockchain solutions in the Swiss financial centre.”. While noting that ICOs were not subject to any specific regulation, FINMA advised that current securities law may extend to ICOs. FINMA published additional clarifications in February 2018 (FINMA, 2018). Switzerland published a new draft of law relating to blockchain and cryptocurrency in March 2019 (Partz, 2019). By the end of our data collection, this law is yet to be enacted.

Switzerland has a well-developed legal framework for regulating ICOs and was early to introduce regulations. Examining the evolution of the number of ICOs in Switzerland, it appears that the clear regulations dampened the interest in ICOs within this jurisdiction despite the country expressing strong support of blockchain initiatives and ICOs.

Hong Kong

In contrast to China, which banned ICOs, Hong Kong has imposed few cryptocurrency regulations. In February 2015, the Hong Kong Monetary Authority (HKMA) issued a statement clarifying that it does not regulate Bitcoin or similar virtual commodities (HKMA, 2015). Hong Kong did not issue further guidance on cryptocurrency exchanges until December 2017, when the Securities and Futures Commission (SFC) published an advisory statement notifying that some forms of exchange fell under existing regulation (SFC, 2017a). The SFC also issued a statement specifically concerning ICOs (SFC, 2017b). It clarified circumstances when ICOs would be regulated as securities As of March 2020, however, no dedicated laws have been enacted. Enforcement takes place under existing regulations.

In sum, regulation in Hong Kong appears minimal. This seems to encourage ICOs to take place in this jurisdiction. As shown in Fig. 2, early on, ICO activity was minimal in Hong Kong, but the share has grown with a peak in the first quarter of 2019 with 6.1% of the world’s ICOs.

References
