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INITIAL COIN OFFERINGS – TOO SOON OR TOO LATE?

An analysis of the French regulatory approach to ICOs,
introduced in 2019

November 2019



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Initial Coin Offerings: Too Soon or Too Late?

This issue brief looks at the French regulatory approach to ICOs introduced in 2019. It investigates whether this approach can act as a precursor for European and international regulatory action.

This research also examines the accounting issues posed by these ICOs and the paradox digital assets represent from an environmental perspective.

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1. Foreword

CFA Institute has a core interest in monitoring structural changes in the capital formation process and in understanding how these developments affect the investment opportunities for end-investors. In the European Union (EU), the Capital Markets Union (CMU) action plan, which was adopted in 2015, has set a strategic course to encourage market-based capital formation in the EU. The CMU's goal is to “provide businesses with a greater choice of funding at lower costs, offer new opportunities for savers and investors and make the financial system more resilient.”¹

Although the CMU aims to encourage market-based finance in the EU, market-based finance is changing rapidly. As part of the CMU research agenda, CFA Institute released a research report in November 2018 investigating the evolving role of public and private markets.² Specifically, the report focused on the causes of an observed shift in capital formation away from publicly listed markets in favor of private markets. The report concluded that this shift was occurring for a variety of both cyclical and structural reasons, one of which was the development of services that disintermediated traditional financial markets.

This issue brief focuses on one of these disintermediating technologies — initial coin offerings (ICOs). To highlight the difficulties policy makers are encountering when determining the proper regulatory regime for ICOs and crypto assets, this report presents a case study of the French experience in proposing the first organized regulatory framework for ICOs in the EU. The report also addresses the accounting treatment of digital assets and foreshadows a looming clash between the fintech and sustainable finance regulatory agendas.

To conduct this research, CFA Institute partnered with CFA® Society France and Romain Devai, CFA, a board member of the Society.

¹ See “What Is the Capital Markets Union? European Commission, https://ec.europa.eu/info/business-economy-euro/growth-and-investment/capital-markets-union/what-capital-markets-union_en.

² See Sviatoslav Rosov, “Capital Formation: The Evolving Role of Public and Private Markets,” Position Paper, 29 November 2018, <https://www.cfainstitute.org/en/advocacy/policy-positions/capital-formation>.

2. Introduction

ICOs are a new way to raise funds to finance a project. An ICO is conducted by issuing a finite amount of a crypto asset³ (an individual unit is known as a coin or token), which then can be traded between investors. On the backend, a blockchain⁴ (or distributed ledger) is used to implement the initial issue of tokens as well as keep track of all subsequent transactions. Blockchain technology (also known as distributed ledger technology or DLT) uses cryptographic algorithms during the processing of transactions to avoid the need for a trusted third party to administer the ledger. This is called a “trustless” record-keeping system. Most of the tokens⁵ issued during an ICO are utility tokens meaning that they give certain rights to their owner. Typically, these tokens should be used as a medium of payment for the future service whose development is being financed by the ICO.

The ICO phenomenon effectively started in 2014 with the development of the Ethereum blockchain network.⁶ The Ethereum network’s fundraising effort was one of the first significant examples of this new type of capital formation (around USD18 million was raised) and paved the way for the ICO boom that would peak in 2018. It also represented a milestone for blockchain technology as the Ethereum distributed ledger added the smart contract feature, which allowed for the processing of complex workflows, and not solely the recording of transactions in digital assets, as was the case for bitcoin. Ethereum has since become the technology of choice for ICOs because it is the dominant smart-contract-enabled network by a variety of metrics.

It is not easy to assess the amount of capital raised through ICOs because a reliable definition has not specified which coins or tokens are issued to fund the development of a project and which are simply speculative attempts to create a new bitcoin. Various estimates point

³ A crypto asset refers to an asset that is created, stored, and traded digitally, using cryptographic techniques to ensure its provenance and establish property rights.

⁴ A blockchain is an electronic ledger that is distributed widely among users of the specific blockchain, which is why it is sometimes referred to as distributed ledger technology (DLT).

⁵ See Rudiger Fahlenbrach and Marc Frattaroli, “ICO Investors,” ECGI, Working Paper No. 618/2019, July 2019, https://ecgi.global/sites/default/files/working_papers/documents/finalfahlenbrachfrattaroli.pdf, p. 19, 24; see also “French ICOs: A New Method of Financing?” AMF, 14 November 2018, https://www.amf-france.org/en_US/Publications/Lettres-et-cahiers/Risques-et-tendances/Archives?docId=workspace%3A%2F%2FSpacesStore%2F27604d2f-6f2b-4877-98d4-6b1cf0a1914b.

⁶ The Ethereum network, including its cryptocurrency Ether, can be thought of as the more versatile cousin of bitcoin, which can record segments of computer code (e.g., smart contracts) rather than simply account balances.

to a total of USD12–14 billion raised in 2018.⁷ This is still quite small compared with initial public offerings (IPOs, more than USD200 billion raised in 2018⁸ globally or venture capital investment (more than USD250 billion raised in 2018⁹). This amount, however, is not insignificant, especially when considering the growth rate (up from USD5.5 billion in 2017) and the scope for market abuse and lack of investor protections. So far, the year 2019 has seen much-reduced ICO activity, although it has become increasingly complicated to track ICOs as new kinds of arrangements continue to emerge, including security token offerings (STOs) and initial exchange offerings (IEOs).

Although ICOs have been around since at least 2014, it took until 2017 before ICOs really entered the mainstream consciousness of the public and regulators. In 2017 significant amounts of money started to be raised through ICOs, while traditional IPOs continued to lose momentum. Originally limited to a technically enthusiast audience, ICOs began to attract a wider variety of investors, which likely was a side effect of the rapidly inflating bitcoin bubble that same year. Regulators began to investigate this phenomenon, specifically to establish which regulatory definition and regime (an ICO, in theory, could be considered a security, commodity, or payments system) was most appropriate for this new wave of financial services and assets.

⁷ See “Coindesk ICO Tracker,” Coindesk, <https://www.coindesk.com/ico-tracker>; “CRYPTO: Blockchain Lands at \$24B in 2018 Funding, \$1B in STOs Coming,” Autonomous Next, 21 January 2019, <https://next.autonomous.com/thoughts/crypto-blockchain-lands-at-24b-in-2018-funding-1b-in-stos-coming>; and “4th ICO/STO Report,” PwC with Crypto Valley, March 2019, <https://cryptovalley.swiss/wp-content/uploads/ch-20190308-strategyand-ico-sto-report-q1-2019.pdf>.

⁸ See “Big vs Agile: Global IPO Trends” Q4 2018,” EY, 2018, [https://www.ey.com/Publication/vwLUAssets/ey-global-ipo-trends-report-q4-2018/\\$FILE/ey-global-ipo-trends-report-q4-2018.pdf](https://www.ey.com/Publication/vwLUAssets/ey-global-ipo-trends-report-q4-2018/$FILE/ey-global-ipo-trends-report-q4-2018.pdf).

⁹ See “Venture Pulse Q4 2018,” KPMG Enterprise, 15 January 2019, <https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/01/kpmg-venture-pulse-q4-2018.pdf>.



3. The Difficulties of Regulating ICOs

3.1. The Technical Challenges for Regulators

Regulators face a difficult task of trying to protect investors while not stifling financial innovation. This goal has been complicated by the fact that ICOs rely on a new and poorly understood technology — that is, blockchain — around which a lot of hype and misplaced expectations exist. Blockchains can be used in various applications, including financial ones. This dual-use nature of blockchains can result in confusion as to whether a coin or token is primarily financial in nature or is instead simply a component of some nonfinancial service. Thus, the main challenge for regulators in dealing with ICOs is to determine whether any given token is a financial instrument and whether it should be subject to securities law.

This task is complicated by the fact that most ICOs have been deliberately structured to *not* be subject to securities law, which, ironically, is an implicit acknowledgment that tokens are surely, in their basic form, securities.

Investors buying tokens are not (typically) entitled to regular dividends or coupon payments, or even any residual claims on assets, but they do invest in a project with a clear return on investment objective. This return objective either can either be short term in nature, relying on the liquidity provided on the secondary market, or can have a long-term basis, assuming that the value of the token will increase once the project is completed. In either case, the obligations of the promoters of ICOs are extremely light as they merely commit to develop the promised project on a best-effort basis.

Regulators face two additional challenges when looking at blockchain-enabled financial products:

- Ensuring that proper know your customer (KYC) and anti-money-laundering (AML) processes are followed: Blockchain technology, particularly that underlying ICOs (i.e., Ethereum), is conceptually driven by a desire to ensure the anonymity of users. Although anonymity can be foregone in any given blockchain algorithm construction, this is nevertheless a key feature of the technology.
- Ensuring the confidentiality of financial information: Blockchain technology, again, particularly that underlying ICOs, requires all transactions to be public for the trustless consensus algorithm to operate.

Private (or permissioned) blockchains — as opposed to public blockchains (or permissionless blockchains, in which anyone can be part of the network) — have emerged to tackle these privacy issues that are critical in the financial sector. The removal of anonymity and public ledgers, however, renders a significant part of the blockchain’s unique selling proposition moot. Once trusted third parties and any kind of centralized authority have been introduced, blockchain technology quickly begins to resemble a needlessly complicated variant of traditional database solutions. Because of the significant uncertainty surrounding the future of blockchain technologies, regulators are justifiably cautious and prefer to remain technologically agnostic, rather than seek to develop technology-specific regulations.

3.2. The Existing Regulatory Context

To date, international agreement or harmonization on how best to categorize ICOs and whether or not they fall within existing securities laws has not been achieved. Most stakeholders do agree that several types of tokens (or coins) can be the subject of an ICO, some of which look more like securities than others. For example, an ICO can issue currency tokens (a store of value), investment tokens (akin to securities), or utility tokens (access rights to future services or products). Consensus has not been reached on the appropriate regulatory treatment for each category.¹⁰

Furthermore, because ICOs can be marketed and distributed worldwide, it is unclear in which jurisdiction they are conducted and which law should apply. Despite this fact, coordination between regulators is limited, which perhaps is understandable given the fact that this is such a new issue. Securities laws also remain national, to a significant extent.¹¹ Therefore, to determine whether a blockchain can be used to issue securities, individual national law codes must be referenced. For example, in Germany, the issuer has to create a physical certificate for the establishment of securities in accordance with civil law requirements, which makes it impossible to issue securities through an ICO.

Another consideration is regulatory competition or arbitrage. Some countries may consider ICOs a promising new financing tool and a new source of dynamism for their jurisdiction.

¹⁰ In this regard, it is interesting to note a proposal made by the Securities and Markets Stakeholder Group (SMSG) in October 2018, which advises ESMA, about how to classify tokens based on specific criteria and how to consider the regulatory risks they pose. Securities and Markets Stakeholder Group, “Advice to ESMA,” ESMA22-106-1338, 19 October 2018, https://www.esma.europa.eu/sites/default/files/library/esma22-106-1338_smsg_advice_-_report_on_icos_and_crypto-assets.pdf.

¹¹ See, for example, a 2016 ESMA Discussion Paper noting that “for record-keeping of ownership at issuer level, the rules will depend on each national Corporate Law.” ESMA, “The Distributed Ledger Technology Applied to Securities Markets,” ESMA/2016/773, 2 June 2016, https://www.esma.europa.eu/sites/default/files/library/2016-773_dp_dlt_0.pdf.

Such regulators might be tempted to rush to put in place the most favorable framework to attract ICOs, potentially undermining efforts to ensure consistently stringent market integrity and investor protection standards.

Some regulators take the opposite approach. For example, in September 2017, China banned companies from raising capital through ICOs and South Korea followed in its footsteps that same month. Although the United States has not banned ICOs and has not clarified their legal status, in 2017, the SEC declared that tokens could be subject to the entire scope of US securities regulation.¹² This move caused a shift in the ICO market such that most ICOs ceased to be available or marketed to US retail investors.

In 2018, the Swiss Financial Market Supervisory Authority (FINMA) released guidelines on ICOs¹³ that clarified the different categories of tokens it would consider and how some categories of tokens should be considered securities subject to the applicable securities laws and regulations. In July 2019, the UK's Financial Conduct Authority (FCA) released its final guidance on crypto assets, incorporating a three-tier classification with some tokens being under its jurisdiction and others continuing in an unregulated category. Malta has been particularly active and an early adopter of regulations on blockchain-related activities, even launching an independent supervisory authority for these activities. In contrast, the Australian Securities and Investments Commission (ASIC) declared that it would hold back on attempting to regulate ICOs until it reaches an in-depth understanding of how they operate and the potential consequences for investors.

At the EU level, ICOs are permitted even though a harmonized regulatory framework is lacking. The European Securities and Markets Authority (ESMA) has been warning investors about the high risks posed by ICOs since 2017¹⁴ and has suggested that they are not suitable for retail investment purposes. In March 2018, the European Commission adopted a proposal to regulate European crowdfunding service providers,¹⁵ which advocated for adopting disclosure requirements for ICOs. More recently, in January 2019, the

¹² See "Investor Bulletin: Initial Coin Offerings," US Securities and Exchange Commission, 25 July 2017, https://www.sec.gov/oiea/investor-alerts-and-bulletins/ib_coinofferings.

¹³ See "FINMA Publishes ICO Guidelines," FINMA, 16 February 2018, <https://www.finma.ch/en/news/2018/02/20180216-mm-ico-wegleitung/>.

¹⁴ See "ESMA Highlights ICO Risks for Investors and Firms," ESMA, 13 November 2017, <https://www.esma.europa.eu/press-news/esma-news/esma-highlights-ico-risks-investors-and-firms>.

¹⁵ See "Commission Proposal for a Regulation on European Crowdfunding Services Providers," European Commission, 8 March 2018, https://ec.europa.eu/info/publications/180308-proposal-crowdfunding_en.

European Banking Authority (EBA)¹⁶ and ESMA¹⁷ published advice on crypto assets for the European Commission and other EU institutions. They concluded that the small size of the crypto-asset market posed little financial stability risk. They also recognized the lack of clarity in how the existing EU regulatory frameworks apply, or should apply, to this new financial activity.

The lack of clarity on common technical definitions is clearly holding back the development of meaningful regulatory frameworks for the issuance of tokens through ICOs. One approach is to separate the universe of tokens into tokens with a primarily speculative purpose and tokens with a primarily functional purpose. Only the former would be classified as a financial instrument.

Technical impediments also have made it difficult to reach a consensus on the regulatory treatment of tokens. ICOs rely on networks that are, by design, decentralized (i.e., blockchain or DLT) and that use sophisticated cryptography and network technology. These factors make it even more difficult to establish regulatory policy consensus. As a result, regulators have been hesitant to take concrete steps toward regulating such a nascent area.

Nevertheless, clear regulatory concerns justify an international consensus on the treatment of ICOs. CFA Institute believes this consensus should balance investor protection concerns with the desire to promote innovation.

3.3. A Diversion Into the Accounting Treatment of ICOs

Parallel to the confusion surrounding the regulatory status of ICOs, their accounting treatment is also proving difficult to establish. As it stands, crypto assets fail to meet the technical definition for either *cash and cash equivalent* or *financial instruments* under the International Financial Reporting Standards (IFRS). To be included as cash and cash equivalents, an ICO issuance needs to fulfill a legal tender definition, which in most cases involves a sovereign backing of the currency.

Similar to *cash and cash equivalent*, ICOs also have failed to meet the *financial instrument* definition because they do not necessarily create an obligation or result in an equity-like instrument on the part of the issuer. Therefore, the remaining option is to place

¹⁶ See “EBA Reports on Crypto Assets,” EBA, 9 January 2019, <https://eba.europa.eu/-/eba-reports-on-crypto-assets>.

¹⁷ See “Advice: Initial Coin Offerings and Crypto-Assets,” ESMA, ESMA50-157-1391, 9 January 2019, https://www.esma.europa.eu/sites/default/files/library/esma50-157-1391_crypto_advice.pdf.

ICOs under *intangible assets* — that is, non-monetary assets without physical substance. Consider the following two options for valuation:

- Cost, less accumulated amortization and impairment losses; or
- Fair value, less accumulated amortization and impairment losses.

The challenges do not end there. If an accounting treatment based on fair value through profit and loss was adopted, an active market with price discovery would be necessary, but unregulated crypto exchanges have significant challenges with market integrity. If such secondary market prices cannot be trusted, it could be argued that a *cost less impairment approach*, similar to that used for goodwill, should be used. The intangible assets approach assumes, however, that crypto assets are wasting assets that require amortization. This likely will not be true in most cases.

An IFRS staff paper released in January 2018¹⁸ concludes that crypto assets and digital currencies may not be captured properly within the scope of *any* current IFRS standard.

¹⁸ See “Staff Paper: IASB Meeting: Commodity Loans and Related Transactions,” IFRS, January 2018, <https://www.ifrs.org/-/media/feature/meetings/2018/january/iasb/ap12a-commodity-loans-and-related.pdf>.

4. A Deep Dive Into the French Attempt to Regulate ICOs

France, as one of the first to implement a formal framework for ICOs, has two distinct pieces of legislation dealing with this new type of fundraising.

First, a new law on business growth and transformation, *loi Pacte*,¹⁹ was adopted by the French parliament in April 2019. It includes a provision that implements a specific section for ICOs into the *Code monétaire et financier* (CMF), with subsequent details and rules added to the AMF (*Autorité des marchés financiers*) General Regulation. The CMF is the French legislative and regulatory package that governs professional activities related to banking, finance, and insurance. The AMF General Regulation includes the rules adopted by the French securities and markets regulator. As such, ICOs are formally introduced into Book V of the CMF under the section covering the monetary and financial code applying to service providers. This new framework defines two types of crypto participants: “issuers of tokens” and “service providers in digital assets.”

Second, a new framework deals with the use of blockchain technology (i.e., in French, *dispositif d'enregistrement électronique partagé* or *DEEP*) to issue and register non-listed securities, which in effect introduces STOs into French law.

4.1. *Loi Pacte*

This new legislative framework stems from a 2017 public consultation²⁰ on ICOs by the AMF (to which CFA Society France responded²¹). The regulator presented three options regarding ICO regulation:

¹⁹ See “PACTE, the Action Plan for Business Growth and Transformation,” French Government, <https://www.gouvernement.fr/en/pacte-the-action-plan-for-business-growth-and-transformation>.

²⁰ See “AMF Public Consultation on Initial Coin Offerings (ICOs),” AMF, 26 October 2017, https://www.amf-france.org/en_US/Publications/Consultations-publiques/Archives?docId=workspace%3A%2F%2FSpacesStore%2Fa2b267b3-2d94-4c24-acad-7fe3351dfc8a&clangSwitch=true.

²¹ See *Réponse à la consultation publique de l'AMF sur les ICOs*, CFA Society France, 10 January 2017, https://www.cfasociety.org/France/Documents/Advocacy/R%C3%A9ponse%20consultation%20AMF%20sur%20les%20ICOs_vfJan10.pdf.

1. Maintain the regulatory status quo and establish best practice guidelines;
2. Regulate ICOs using the existing legal framework for prospectuses; or
3. Adopt an ad hoc regulation tailored to ICOs with two additional options:
 - a. An authorization regime applicable to all ICOs available to the public in France; or
 - b. An optional authorization regime.

At the time, most respondents to the consultation supported option 3. The Pacte Law that was finally implemented further narrowed the selection to option 3b (i.e., ad hoc regulation with an optional authorization regime).

CFA Society France also responded to the consultation. It advocated in favor of option 2, considering it was the best option to protect investor interests. It also reckoned that subsequent amendments probably would become necessary given the specific nature of ICOs, especially their technological component. Hence, option 3a was deemed a possible transitory option while the existing framework for prospectuses was progressively adapted.

4.2. The *Code Monétaire et Financier* and the AMF General Regulation (*Reglement General de l'AMF*)

Subsequently, in June 2019, the AMF introduced a brand new section dealing with “issuers of tokens and service providers in digital assets” (Book VII not yet translated in English at the time of writing) to its *General Regulation*.²² This new regulation applies to issuers established in France conducting a public offer (the AMF General Regulation specifies that private placements are also possible because an offer to less than 150 investors is not covered by the regulation).

In this section, AMF clarifies that the ICO framework relates to utility tokens and is intended to “promote the development of ICOs”²³ and does not apply to STOs. The French framework introduces a clear distinction between securities and utility tokens.

²² See “General Regulation,” AMF, 8 June 2018, https://www.amf-france.org/reglement/en_US/RG-en-vigueur.

²³ See “Listed Companies and Corporate Financing: Initial Coin Offering (ICO),” AMF, 14 June 2019, https://www.amf-france.org/en_US/Acteurs-et-produits/Societes-cotees-et-operations-financieres/Offres-au-public-de-jetons-ICO?langSwitch=true.

Token issuers are defined alongside cryptocurrencies in the sub-section dedicated to “other service providers,” and a new chapter has been added to introduce a broad category of “service providers in digital assets” (*Prestataires de services sur actifs numériques*).

Digital assets include cryptocurrencies and utility tokens. The term “digital assets” can be a bit misleading — for instance, existing financial instruments that have been dematerialized and exist only as digital records do not qualify for this definition. The law defines utility tokens as “any intangible asset representing, in a digital form, one or more rights, that can be issued, registered, kept or transferred using a shared electronic registration device through which it is possible to identify, either directly or indirectly, the owner of said asset.”²⁴ Note that tokens are not described in the section relative to products and savings products (Book II).

ICOs are described in the subsection that previously was dedicated to intermediaries in miscellaneous properties (Title V: *Intermédiaire en biens divers*). This definition covers a variety of investments that are not financial instruments (e.g., rare books or wine) and has been updated to cover intermediaries in miscellaneous properties *and issuers of tokens* (*Intermédiaires en biens divers et émetteurs de jetons*). Combining intermediaries and issuers in one catchall category gives the sense that the precise nature of ICOs and their tokens still is not completely clear.

4.3. The ICO Disclosure Document

The cornerstone of the AMF regulation is the information document that the ICO promoters must submit to the regulator if they want to obtain its approval (however, this approval is not mandatory to conduct an ICO). The requirement to produce this document largely mirrors the established practice for issuers to publish a white paper describing their projects before their ICO. Because the quality of white papers historically is quite variable, the emphasis has been set on allowing the public to have access to a standardized document that has been reviewed by the AMF. The rationale for the optional approval is therefore twofold:

- Approval of an information document to help the general public make informed investment decisions; and
- This approval is optional to retain maximum flexibility for all kinds of issuers.

²⁴ See “Pacte Act’ — Initial Coin Offerings Poised to Enjoy an Ad Hoc Regulatory Regime in France,” Gide, 28 June 2018, <https://www.gide.com/en/news/pacte-act-initial-coin-offerings-poised-to-enjoy-an-ad-hoc-regulatory-regime-in-france>.

In retaining a balance between providing an optional regulatory regime that provides investors with some level of regulatory approval while not excluding any issuers, the regulation is intended to attract high-quality ICOs to France.

The AMF describes a template of the document and the main information to be disclosed:

- Information about the issuer;
- Information about the token issued;
- Information about the ICO;
- Information about the risk factors; and
- Custody and refunding of the funds and digital assets collected via the initial coin offering.

The pieces of information provided in this document are similar to those found in a prospectus for a traditional equity IPO, but are not provided at the same level of granularity. Notable differences include the lack of financial information and the presence of custodial information.

In its guidance, the AMF makes it clear that any approval does not imply that the AMF has made any judgment about the appropriateness of the issuer's project or authenticated the financial, accounting, or technical information presented. This approval also does not mean that the AMF has carried out any verification of the smart contracts linked to the offering, and it also has not verified whether these smart contracts are adequate in relation to the content of the information document.²⁵

This disclaimer is interesting because it points out two major issues with the new framework. First, although there is no requirement to provide any financial information in the disclosure document, it is interesting that the AMF's disclaimer clearly refers to financial and accounting information presented in the disclosure. This inconsistency illustrates the difficulty of characterizing tokens, even when narrowly defined as utility tokens, without acknowledging the fact that they have a lot of similarities with traditional financial instruments.

²⁵ See "Policy: Issuers and Financial Disclosure: Procedure for Examination of the Application and Establishment of an Information Document for Approval by the AMF on an Initial Coin Offering," AMF, 6 June 2019, https://www.amf-france.org/en_US/Reglementation/Doctrine/Doctrine-list/Doctrine?docId=workspace%3A%2F%2FSpacesStore%2Faf1f24bd-6d7b-4386-aa4b-f1fb69ea877f&category=I+-+Issuers+and+financial+disclosure&docVersion=1.0&langSwitch=true.

The second issue relates to smart contracts, that is, the small pieces of executable code that can be processed by the Ethereum blockchain. The innovation of smart contracts is that these executable functions can allow verifiable workflows between several parties to occur, without a trusted party administering the execution of these workflows. One application that these executable functions can be used for is the issuance and subsequent administration of tokens.

Smart contracts distinguish ICOs from traditional IPOs. The ability to automate the issuance process and the subsequent administration of the asset to be issued has the potential to significantly disintermediate capital markets.

For this reason, it is disappointing that the AMF's approach largely ignores the smart contract aspect of ICOs. Furthermore, because the funds raised and the issued tokens are administered by smart contracts written into the ICO, it is critical for investors that these contracts are free of errors or malicious intent. The information document allows for voluntary disclosures about the underlying smart contracts, a link to the code along with a brief overview of the code's inner workings. A third party audit of the code is another optional disclosure. This is insufficient because oftentimes significant discrepancies exist between the content of a white paper and the workings of the associated smart contract.²⁶

Also disappointing is the excessively light-touch approach to post-offering information disclosures, such as the following:

- Intentions of the issuer regarding dilution of the token holders post-offering;
- Conditions under which the issuer can buy back or cancel tokens;
- Intentions of the issuer regarding custody of the treasury tokens and the placing of treasury tokens on the market;
- Description of any commitments (e.g., lock-up of the tokens) made by the issuer or anyone coming into possession of the tokens; and
- Intentions of the issuer to disclose any element that may affect the value of the tokens and the conditions under which the issuer.

A notable imbalance exists between the emphasis placed on the issuance process and the post-issuance phase.

²⁶ See, for instance, Shaanan Cohny, David A. Hoffman, Jeremy Sklaroff, and David A. Wishnick, "Coin-Operated Capitalism," *Columbia Law Review* 119 (2019): 591, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3215345.

4.4. Emerging Framework for STOs

Before the Pacte Law, an interesting development in French securities law paved the way for STOs, which are traditional securities issued and administered on a blockchain. A decree published at the end of 2018²⁷ filled a regulatory gap in securing the use of blockchain technology for the issuance and tracking of certain securities in France.

Before this new framework, French law necessitated that the proof and transfer of securities ownership was recorded through a book entry in a securities account (or *inscription dans un compte-titres*). When the idea of applying blockchain technology to issue and administer securities first emerged in 2015–2016,²⁸ legal issues addressed how to use a distributed ledger. Such a ledger would record all transactions sequentially but would at no point explicitly record the account balance (remember that blockchain account balances are calculated off-chain by software known as wallets that net all historical transactions involving a given account).

The French legislation permitted this blockchain experiment to move forward for non-listed securities by allowing the transfer of ownership to be administered by a “shared electronic recording facility” (i.e., DEEP).

The scope of non-listed securities is interesting because it covers shares and bonds as well as mutual funds. Several projects have been under development to use blockchain technology to disintermediate fund distribution and administration.

Challenges to implementing STOs, in particular those relating to the custody of the issued security tokens, persist. Ensuring proper custody of an asset on a decentralized ledger is different to the usual approach of nominating a trusted third party to take this responsibility. Further technological development may be needed before securities tokens are widely issued and recorded on a blockchain.

²⁷ See Décret n° 2018-1226 du 24 décembre 2018 relatif à l'utilisation d'un dispositif d'enregistrement électronique partagé pour la représentation et la transmission de titres financiers et pour l'émission et la cession de minibons, Legifrance, version consolidée, 13 November 2019, <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000037852460>.

²⁸ See “Blockchain in Capital Markets,” Oliver Wyman, February 2016, <https://www.oliverwyman.com/content/dam/oliver-wyman/global/en/2016/feb/BlockChain-In-Capital-Markets.pdf>.

5. Too Soon or Too Late?

It is too soon to know whether the ICO market will bounce back, yet the market for crypto fundraising in 2019 looks weak compared with the historical peak in 2018 (around USD400 million raised so far in 2019²⁹ — or about USD1.5 billion when including STOs and IEOs³⁰). It is difficult to use public statistics about this market because they are often unreliable, but clearly this is a downward trend, even considering the increasing popularity of IEOs and STOs. IEOs are essentially ICOs that are issued on, and operate under, the rules of (unregulated) crypto exchanges and that attempt to bring some sense of self-regulation to the world of ICOs. The fact that the industry is now focusing on IEOs and STOs also demonstrates that secondary liquidity (even on unregulated exchanges) is a key factor to the success of an ICO.

In some sense, the crypto community is busy reinventing the wheel as both IEOs and STOs show that the market is converging back toward issuing securities on-exchange, albeit a crypto exchange. Another point in favor of this argument is that the costs associated with conducting an ICO are increasing and are becoming significant (the most expensive costs are the marketing and the cost of listing as providing liquidity on a secondary market is key³¹). An entire cottage industry of advisors and other intermediaries has arisen to re-intermediate the disintermediating effects of the blockchain. Regulators often are criticized for always being one innovation late, so in this case, was the French regulator too hasty?

Even with the new French legal framework, investors buying tokens face huge information asymmetry and have no residual claims or legal recourse to the assets of the issuer. Clearly, the AMF is taking a risk by being potentially seen to put investor protection below the need to favor innovation in fundraising for issuers.

But why, in this case, were investors rushing to subscribe to ICOs and why is secondary market trading so important? If investors were convinced of the project in which they were investing, surely they would hold their *utility* tokens. They would do so either to use their tokens to pay for the service to be developed or to get a full potential price increase

²⁹ See “Funds Raised in 2019,” ICOData.io, <https://www.icodata.io/stats/2019>.

³⁰ See “5th ICO/STO Report,” PwC with Crypto Valley, 2019, <https://www.pwc.ch/en/publications/2019/ch-PwC-Strategy&-ICO-Report-Summer-2019.pdf>.

³¹ See for instance, “Crypto: Token and Coin Exchange Listing Fees,” Autonomous Next, 3 April 2018, <https://next.autonomous.com/thoughts/crypto-exchange-listing-fees>; and OECD, *Initial Coin Offerings (ICOs) for SME Financing*, 2019, <http://www.oecd.org/finance/ICOs-for-SME-Financing.pdf>, p. 20.

of their tokens. The explanation for this behavior is that the main driver behind ICO investments in 2018 was probably pure speculation, as evidenced by the post-ICO transaction volumes.³²

Going back to the initial question about how to categorize the tokens issued from ICOs, the importance of the secondary market in their success provides another argument in favor of categorizing them as financial instruments. Paradoxically, this is precisely why most ICOs are carefully structured to avoid securities regulation — to avoid not only listing requirements but also, and even more important, the associated secondary market regulations (including the EU Market Abuse Regulation, MAR).

³² An evidence of the huge volume transacted is the daily velocity of some of these tokens. They can be similar to Apple daily velocity (around 1% per day) and can peak to dozens of percentage. Even if the volumes are inflated, it still represents very high liquidity compared with the most-traded blue chip stocks. Such volumes and the fact that there is no way to establish official volumes support suspicion of heavy market manipulation. Calculations were based on the figures available on OpenMarketCap website, which claims to provide cryptocurrencies without relying on unproven trading volumes.

6. An Even Bigger Regulatory Challenge for ICOs on the Horizon?

In the time that regulators have been failing to adequately characterize and account for ICOs in the context of existing securities regulations and accounting standards, an entirely new and rapidly dominant regulatory concern is threatening to overshadow the promise of blockchain technology.

Discussions over fintech's energy consumption have been relatively mute, particularly considering the continuous rise of sustainability as a priority topic in financial series. When present, these discussions typically focus on bitcoin — a truly enormous consumer of energy. As of September 2019,³³ bitcoin has been estimated to use around 9 GW of electricity, leading to an annualized electricity consumption almost equal to the Philippines, a country of more than 100 million people. Another comparison is that the carbon dioxide footprint of this energy use is equivalent to more than 1 million transatlantic flights.³⁴ What makes this consumption even more unacceptable is that the number of transactions being processed is quite small in comparison. Fewer than 100 million transactions can be processed by the bitcoin network per year, compared with the 500 billion processed by traditional financial services players. This equates to about 600 kWh of electricity per transaction, or enough electricity to propel a Tesla Model 3 for nearly 4,000 km.³⁵ To reiterate, that is for a single transaction.

Although the energy use of bitcoin is particularly egregious given the extremely limited role it plays in economic terms, the broader fintech space will have to acknowledge its contribution to carbon emissions and energy use in the near future. Digital energy consumption is already estimated to be twice that of civil aviation³⁶ and is growing both in

³³ See “Comparisons” on the Cambridge Centre for Alternative Finance, Cambridge Bitcoin Electricity Consumption Index, <https://www.cbeci.org/comparisons/>.

³⁴ See “Bitcoin Energy Consumption Index,” <https://digiconomist.net/bitcoin-energy-consumption>.

³⁵ This assumes a 150 Wh/km electricity consumption; see the Electric Vehicle Database, “Tesla Model 3 Standard Range,” <https://ev-database.uk/car/1060/Tesla-Model-3-Standard-Range>.

³⁶ See “Lean ICT: Towards Digital Sobriety,” The Shift Project, March 2019, https://theshiftproject.org/wp-content/uploads/2019/03/Lean-ICT-Report_The-Shift-Project_2019.pdf.

absolute terms as well as in terms of energy intensity.³⁷ The coming years are likely to see a growing realization that transferring financial services into the cloud will put not only data but also pollution into the atmosphere. Where do ICOs fit into this?

ICOs typically utilize the Ethereum network. Bitcoin is unsuitable for this usage because it does not process smart contracts. Currently, the fundamental mechanism behind Ethereum is the same as that of bitcoin — proof-of-work (PoW). This mechanism, which sees transactions validated and trust created through the brute expenditure of resources³⁸ (specifically electricity), is the key driver of the outsize energy use of both networks. Although private blockchains between trusted parties do not need to incorporate PoW algorithms to generate consensus, and thus avoid these energy use challenges, it is not clear whether private blockchains can serve any purpose for ICOs that depends on broad-based investor interest.

Ethereum, largely by virtue of being smaller as a network than bitcoin, uses between one-quarter to half of the electricity that bitcoin consumes.³⁹ Thus ICOs, should they continue to function as they currently do, will soon face the issue of their outsize contribution to energy use and emissions.

Ethereum, led by its founder Vitalik Buterin, has acknowledged this issue and intends to change the fundamental mechanism behind transaction validations, which the company claims will reduce Ethereum's energy use by 99%. This alternative algorithm — proof-of-stake (PoS) — removes the need for brute force resource expenditure to generate trust in transactions validations and replaces it with an approach that sees miners “bid” for the right to validate transactions by depositing collateral in the network. Those miners who have deposited the most collateral are most likely to be awarded the task of verifying a transaction — and will have the most to lose if they do so fraudulently.

Should this algorithm change be implemented, and it is not clear whether the algorithm would function in the real world,⁴⁰ it would seem to resolve the issue of ICOs and their energy use. Until then, however, we expect the controversy surrounding crypto emissions to increase along with the emissions themselves.

³⁷ See “Just Because It’s Digital Doesn’t Mean It’s Green,” *Financial Times*, Alphaville, 6 March 2019, <https://ftalphaville.ft.com/2019/03/06/1551886838000/Just-because-it-s-digital-doesn-t-mean-it-s-green/>.

³⁸ Specifically, a transaction is verified once the number key to a cryptographic code is provided by a miner. This number key can only be “guessed” and thus mining under the PoW algorithm involves sequential trial and error of numbers until the correct number is found, which is similar, in essence, to the brute force hacking of a password.

³⁹ See Peter Fairley, “Ethereum Plans to Cut Its Absurd Energy Consumption by 99 Percent,” *IEEE Spectrum*, 2 January 2019, <https://spectrum.ieee.org/computing/networks/ethereum-plans-to-cut-its-absurd-energy-consumption-by-99-percent>.

⁴⁰ See Daniil Gorbatenko, “The Potential Economic Problems of Proof of Stake,” Medium.com, 15 June 2019, <https://medium.com/swlh/the-potential-economic-problems-of-proof-of-stake-2e4b3911a136>.

7. CFA Institute View

CFA Institute supports the technical innovation in financial services that makes markets more efficient and capital allocation more effective. This innovation, however, cannot come at the expense of market integrity, market fairness, or investor protection. As a result, we have several reservations about the AMF's recent attempt to create a regulated ICO market.

First, the proposed information document does not require the disclosure of any financial information. Typically, most ICO white papers include some form of financial projections, similar to a traditional business plan, which is what makes these tokens resemble financial instruments. It is intuitive that investors would base their token investment decision on the future expected value of the service to be developed. It is therefore surprising that the AMF's information document does not require financial disclosures.

Second, we believe that the current requirements for technical disclosures are insufficient, particularly in regard to the underlying smart contract functionality of the ICO.

Third, the importance of post-ICO secondary market trading seems to have been underestimated or overlooked, as it is mostly absent from the new ICO regulatory framework. This lack of attention is detrimental to investor protection as those markets are mostly unregulated and likely suffer from market integrity and market fairness issues. It does not seem to make sense to ignore the dynamics between primary and secondary markets — regulating one and not the other is unlikely to produce good outcomes.

Finally, we believe that an opportunity has been missed to integrate the EU's sustainable finance agenda into the fintech space. We predict that this issue will intersect with ICOs and other crypto assets in the near future as the realization of their outsize energy consumption spreads.

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