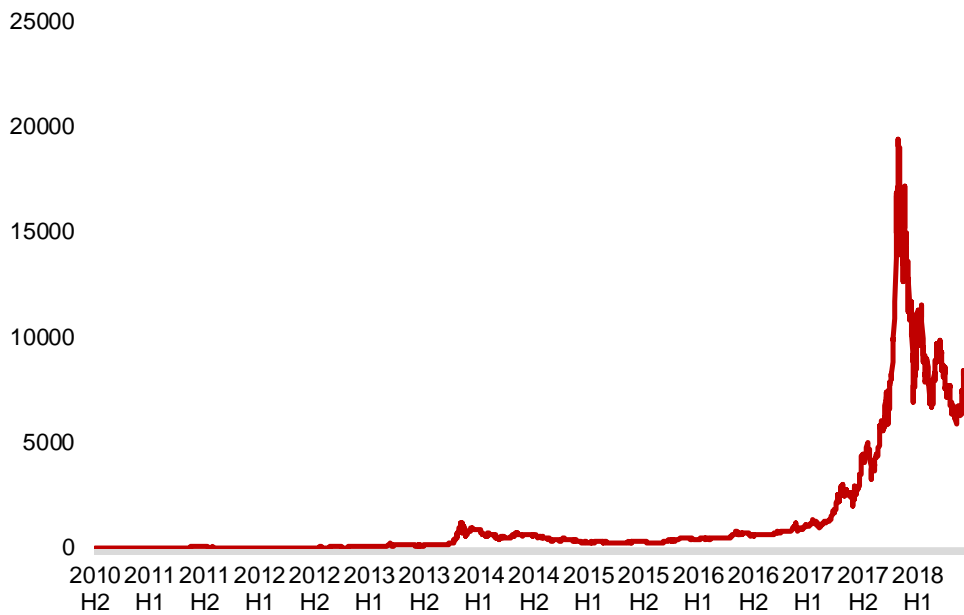


The economic potential and risks of crypto assets: is a regulatory framework needed?

Maria Demertzis, Guntram B. Wolff

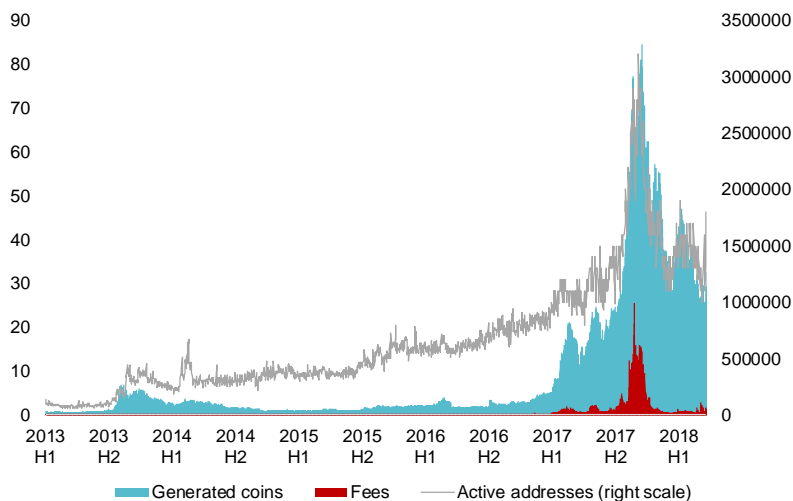
Online annex

Figure A1: The price of bitcoin (\$)



Source: coindesk.com. Note: Close price. Latest observation is August 16, 2018.

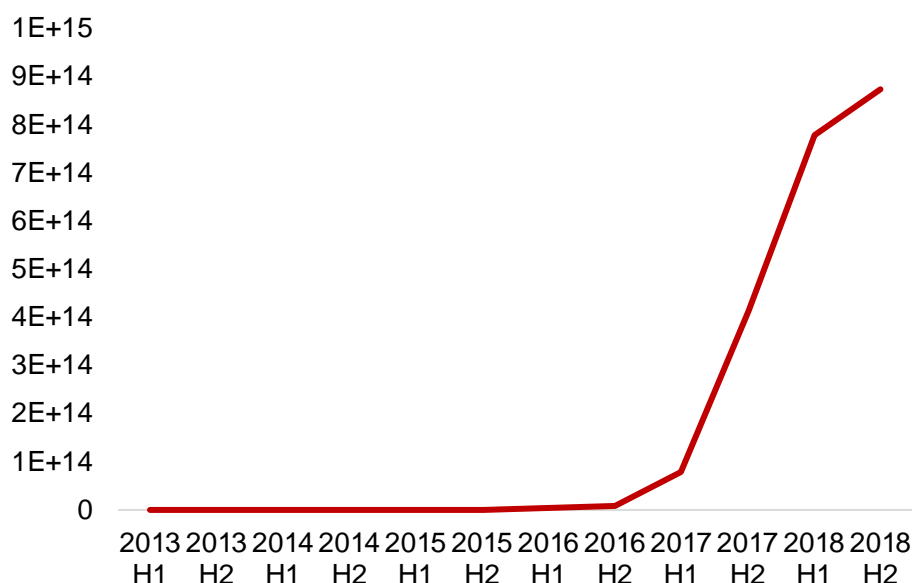
Figure A2: Mining revenues and users (\$ millions, units)



Source: coinmetrics.io. Note: Coins and fees value in USD obtained using daily market prices. Included assets: bitcoin, Ethereum, cash, Litecoin, Monero, Dash, Ethereum Classic, Zcash, Decred, Bitcoin Gold, DigiByte, Dogecoin, Verge, PIVX, Vertcoin. Last

observation is July 18, 2018.

Figure A3: Mining difficulty index



Source: coinmetrics.io. Note: Semestral weighted averages, with market cap weights. Included assets: bitcoin, Ethereum, cash, Litecoin, Monero, Dash, Ethereum Classic, Zcash, Decred, Bitcoin Gold, DigiByte, Dogecoin, Verge, PIVX, Vertcoin. The bitcoin difficulty index measures the difficulty of finding a new block on the blockchain. The greater the difficulty, the longer the time it takes on average for a miner to find a valid block. Last observation is July 18, 2018.

Table A1: Largest global and EU-based crypto exchanges

Some major global exchanges									
	Volume (24h)	Volume (7d)	Volume (30d)	No. Markets	Change (24h)	Users	Profits/Revenues	Launched	Headquarters
OKEx	857984214	2437159552	28616275456	525	-15.93%	20 million	\$20.5 million (30d)*	Jan. 2014	Hong Kong
Binance	828702705	2538452480	30811083648	380	-10.71%	10 million	\$300 million in 2018 H1	Jul. 2017	Hong Kong
Huobi	771476053	1895250240	20159884960	266	7.56%	5 million	\$40.3 million (30d)*	Sep. 2013	Singapore

Some major EU-based exchanges									
	Volume (24h)	Volume (7d)	Volume (30d)	No. Markets	Change (24h)	Users	Profits	Launched	Headquarters
Bitstamp	69894767	266170582	2506343396	>=14	-3.56%	3 million	\$4.2 million (30d)*	Jul. 2011	United Kingdom
Cryptonex	48711767	89806444	695020364	50	4.88%	-	\$0.7 million (30d)*	Oct. 2017	United Kingdom
CoinsBank	42126225	88375652	1233063124	7	5.18%	-	\$5.5 million (30d)*	Apr. 2016	Estonia
Bitbay	18523378	58568250	459395003	44	6.81%	0.8 million	\$1.3 million (30d)*	May 2014	Malta

Source: Bruegel based on bitbay.net, bitstamp.net, coinmarketcap.com, bloomberg.com, okex.com, huobigroup.com, medium.com, coinsbank.com, cryptonex.org, binance.com. Note: CoinsBank's website operated by a UK-based company, financial services are reportedly operated by an Estonian company. Binance is reportedly planning to move its headquarters to Malta. *30 days revenues estimated multiplying reported fees (in %) and volumes. Data for 13 August 2018.

Table A2: Major regulatory initiatives in the EU

	Virtual currencies (VCs)	Initial coin offerings (ICOs)	Crypto exchanges
<i>EC/EU</i>	<p>The European legislators recently adopted the Fifth Anti-Money Laundering Directive (5AMLD), which defines VCs as “a digital representation of value that is neither issued by a central bank or a public authority, nor necessarily attached to a fiat currency, but is accepted by natural or legal persons as a means of payment and can be transferred, stored or traded electronically.”</p> <p>The European Commission’s FinTech Action Plan from March 2018 also reports on the creation of a EU Blockchain Observatory and Forum, appointed with the task to “report on the challenges and opportunities of crypto assets later in 2018 and is working on a comprehensive strategy on distributed ledger technology and blockchain addressing all sectors of the economy”</p> <p>The plan also emphasises that international coordination and consistency will be essential and states that the “Commission will continue monitoring the developments of crypto-assets [...] with the ESAs, the ESB and the FSB as well as other international standard setters. Based on the assessment of risks, opportunities and the suitability of the applicable regulatory framework, the Commission will assess whether regulatory action at EU level is required.”</p>	<p>The FinTech Action Plan acknowledges that an “assessment of the suitability of the current EU regulatory framework with regard to ICOs [...] more generally is necessary”.</p> <p>As with VCs, the Commission will continue monitoring the developments of [...] ICOs with the ESAs, the ESB and the FSB as well as other international standard setters. Based on the assessment of risks, opportunities and the suitability of the applicable regulatory framework, the Commission will assess whether regulatory action at EU level is required.”</p>	<p>The European legislators recently adopted the Fifth Anti-Money Laundering Directive (5AMLD), which requires Member States to bring VC exchange platforms (VCEP) and custodial wallet providers (CWP) within the scope of their AML/CFT regulation (Keatinge et al., 2018).</p>

In February 2018, ESMA, EBA, and EIOPA released a joint [warning](#) on the risks of VCs.

Moreover, EBA [suggested](#) that **VC transactions should remain outside the scope of Payment Services Directive as of now**, as “the denomination of ‘currency’ that has been associated with this particular innovation suggests an analogy with existing fiat currencies that is, on close scrutiny, not warranted”.

In June 2018, ESMA [adopted](#) “new measures on the provision of contracts for differences (CFDs) and binary options to retail investors”, which entails limits also to cryptocurrencies.

In November 2017, ESMA released two statements related to ICOs: [one](#) “**alerts investors to the high risks**” associated with them; [the other](#) warning “**firms involved in ICOs to the fact that they must give careful consideration as to whether their activities constitute regulated activities** [...] depending on how they are structured”, and in particular whether they “qualify as financial instruments”. According to the statement, ICOs may be regulated by the Prospectus Directive, the Markets in Financial Instruments Directive (MiFID), the Alternative Investment Fund Managers Directive (AIFMD), and the Fourth Anti-Money Laundering Directive.

EBA [supported](#) the idea to **bring VCEP and CWP into the scope of 5AMLD**. It further proposes, among other things, that “the status of VCEPs and CWPs should be clarified”, “competent authorities [should be able to] easily to exchange information in relation to VCEPs and CWPs” and “carry out fit and proper tests of owners and controllers of VCEPs and CWPs”.

In 2015, an ECB [report](#) defines VCs as a **digital representation of value, not issued by a central bank, credit institution or e-money institution, which in some circumstances can be used as an alternative to money**.

In 2016 the ECB [commented](#) that VCs “do not qualify as currencies from a Union perspective”, and that “they are not in fact currencies”.

ECB President Draghi in 2018 [stated](#) that “**bitcoin and other digital currencies are in the unregulated space and should be regarded as very risky assets**, that “work is under way in the Single Supervisory Mechanism to identify potential prudential risks that

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In 2016 the ECB [strongly supported](#) the idea to **bring VCEP and CWP into the scope of 5AMLD**.

Yves Mersch [stated](#) in 2018 that “there is a “need to hold VC exchanges to the same rigorous standards as the rest of the financial system”.

ESAs

ECB

these digital assets could pose to supervised institutions”, and [that](#) “bitcoins are not coins but mainly assets”. He also reportedly added that is that it is not part of the ECB’s role to regulate VCs such as bitcoin, and that the ECB would lack the competence to prohibit or regulate VCs such as bitcoin ([Allen and Lastra 2018](#)).

Yves Mersch also [stated](#) in 2018 that “VCs currently do not fulfil the three basic functions of money”.

Finally, in 2016 the ECB and the Bank of Japan [launched](#) “their joint research project entitled “Stella”, which studies the possible use of Distributed Ledger Technology (DLT) for financial market infrastructures.

Germany

BaFin [takes the view](#) that VCs are units of account “within the meaning of section 1 (11) sentence 1 of the Kreditwesengesetz, comparable to foreign exchange with the difference that they do not refer to a legal tender. Included are also value units which function as private means of payment” [... **They are not] currencies nor foreign notes or coins, [...] e-money [... and] do not represent any claims on an issuer”.**

The **Bundesbank [stated](#)** in February 2018 **that “bitcoin is not a virtual currency”**. However, in 2016 [revealed](#) (with the Deutsche Börse Gruppe) a “prototype functional prototype for the blockchain technology-based settlement of securities”.

Assess on a “case-by-case basis whether a token constitutes a financial instrument within the meaning of the German Securities Trading Act or MiFID II, **a security** within the meaning of the German Securities Prospectus Act, **or a capital investment** within the meaning of the German Capital Investment Act”, depending on the type of issuance. ([BaFin, 2017](#))

BaFin [stated](#) that exchanges “buying and selling VCs commercially in their own name for the account of others carry out principal broking services which are subject to authorisation”.

Bitcoins are **not considered as financial instruments as the law stands**, so “crypto” assets do not fall within the scope of direct supervision of the AMF. They **cannot be classified as currencies or considered a means of payment in the legal sense** of the term. They are therefore not subject to the regulatory framework for means of payment ([AMF and ACPR, 2017](#)).

BdF, in a March 2018’s [report](#), stated that “**crypto-assets are not currency**”. It also calls for coordinated action and **potentially supplement regulation with a limitation of the possibility for certain regulated companies to develop activities in crypto assets**.

A 2016 ordinance included two provisions that allowed the use of blockchain technology for [...] “mini-bonds”. The main impact [...] was to provide the “first definition of ‘blockchain’ in French law, [...]. Another ordinance, from December 2017, “went further and made it possible to use blockchain technology for a broader range of financial instruments.” ([The Law Library of Congress, 2018](#))

The respondents [of a public consultation] agree essentially with the findings of the regulator's preliminary legal analysis [...] on the difficulty of providing a unique response to the qualification of tokens issued in ICOs given their diversity. The AMF had also presented three possible regulatory options:

Promote a best practice guide without changing existing legislation (option 1); Extend the scope of existing texts to treat ICOs as public offerings of securities (option 2); Propose new legislation adapted to ICOs (option 3). ([AMF, 2018](#))

BdF, in a March 2018’s [report](#), stated that “the conversion of crypto-assets into fiat currency by internet platforms that play the role of intermediary between buyers and sellers is considered to be a payment service and requires an authorisation”.

Platforms which offer [cryptocurrency derivatives] must abide by the authorisation and business conduct rules [...]. ([AMF, 2018](#))

France

Spain

Comisión Nacional del Mercado de Valores (CNMV) and Banco de España note that, to date, no VC issue has been registered, authorised or verified by any supervisory agencies in Spain ([CNMV and Banco de España 2018](#)). Moreover, CNMV takes the view that for the time being (until further EU harmonisation in this area is achieved), a **case-by-case ‘substance over form’ approach** is needed ([Allen and Lastra](#)

CNMV and Banco de España note that, to date, no ICO has been registered, authorised or verified by any supervisory agencies in Spain. ([CNMV and Banco de España 2018](#)). CNMV considers that a **good number of the operations structured as ICOs should be treated as issues or public offerings of transferable**

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[2018](#)).

securities ([CNMV, 2018](#))

<i>Italy</i>	<p>The Ministry of Economy and Finance (MEF) launched in February 2018 a consultation regarding a draft regulation. Aims at recognize VCs as means of exchange, separate from legal tender, for purchases of goods and services, and expand AML laws for exchanges. In May 2017, a legislative decree (introducing the AML5) requires identities of parties in VCs transaction, and also defines VCs as means of exchange, not legal tender (sources in English: here and here).</p>	<p>The Commissione Nazionale per le Società e la Borsa (CONSOB) issued a warning in December 2017 (referring to recent ESMA statements) of the risks of ICOs.</p>	<p>The Ministry of Economy and Finance (MEF) launched in February 2018 a consultation regarding a draft regulation, which also aims at expand AML laws for exchanges.</p>
<i>Lithuania</i>	<p>Bank of Lithuania has published a position paper in October 2017, adopting the view of the EBA in that VC are “ungoverned and unregulated digital money, which may be used as a means of payment”, but not issued and guaranteed by a central bank. VC “may also comprise means of accumulation for saving or investment purposes”. In March 2018 it also announced issuance of a digital collector coin within the year.</p>	<p>In June 2018, the Ministry of Finance has published ICO guidelines, which state that “Organizing ICO is not regulated by specific legislation, however, taking into account different ICO models and different characteristics of tokens, in some cases, such activity may be subject to the requirements of the legislation of the Republic of Lithuania and supervision of the Bank of Lithuania.” This depends primarily on whether the token issue grants “governance rights” or not, ending in a range of legislation from the Civil Code to Securities, Crowdfunding laws, and others. AML and CFT law</p>	<p>Bank of Lithuania has published a position paper in October 2017, prescribing financial institutions to run their VC activities separately, and warns about their risks.</p> <p>The June 2018’s ICO guidelines also specifies that “only the entities that are planning to provide regulated financial services and (or) projects which released tokens that have</p>

		applies.	characteristics of securities will be under its scrutiny”. Financial institutions should comply with AML/CFT legislation when running VC activities.
<i>United Kingdom</i>	<p>The Financial Conduct Authority (FCA) defined VCs in April 2017 as “any publicly available electronic medium of exchange that features a permissionless distributed ledger and a decentralised system for exchanging value”. It also set a regulatory sandbox (Project Innovate).</p> <p>The Treasury Committee of the House of Commons has an open inquiry about the “use of digital currencies and distributed ledger technology in the UK”. Oral witness from an FCA director suggests that whether VCs may fall within its regulation depends ultimately on their characteristics.</p> <p>BoE’s Governor stated that “a better path would be to regulate elements of the crypto-asset ecosystem to combat illicit activities, promote market integrity, and protect the safety and soundness of the financial system”.</p>	According to the FCA , ICOs “have various parallels with Initial Public Offerings, private placement of securities, or crowd sales . Depending on how they are structured, they may, therefore, fall into the regulatory perimeter”.	-
<i>Sweden</i>	<p>The Riksbank recently commented that “Crypto-assets or cryptocurrencies are not the same thing as money.”</p> <p>The statement seems in contradiction with an October 2013’s preliminary ruling of the Swedish Skatterättsnämnden (Tax Board), which</p>	A report by the Swedish Financial Supervisory Authority defines ICOs as investment projects and means of securing capital , while also warning against their unregulated nature, referring to ESMA’s opinions.	<p>The Riksbank states that “issuing virtual currencies is not subject to regulation and the issuers are not under financial supervision”.</p> <p>The Swedish Financial</p>

considered bitcoins transactions as equivalent to that of currency, similarly to the Swedish Administrative Supreme Court.

Supervisory Authority deemed trade in VCs a financial service subject to reporting.

The cabinet of Malta has recently approved “Crypto Bills”, published in the official gazette on May 22, 2018 and enacted by Parliament on 4 July 2018:

Innovative Technology Arrangements and Services Act, providing the regulatory framework to register “innovative technology services” and certify “innovative technology arrangements”.

Malta Digital Innovation Authority Act (MDIA), establishing an Authority for “the development of visions, skills, and other qualities relating to technology innovation.

Under the Virtual Financial Asset Act (VFA), a **virtual financial asset (VFA) is defined as “any form of digital medium recordation that is used as a digital medium of exchange, unit of account or store of value and that is not (i) electronic money, (ii) a financial instrument, or (iii) virtual token”**, where a **virtual token is “a form of digital medium recordation that has no utility, value or application outside of the DLT platform** on which it was issued and may only be redeemed for funds on such platform directly by the issuer of such DLT asset, provided that electronic money shall be

The cabinet of Malta has recently approved “Crypto Bills”, published in the official gazette on May 22, 2018 and enacted by Parliament on 4 July 2018:

the VFA would in particular regulate ICOs, including requirements for the whitepaper and advertisement rules. Moreover, **“an issuer is required to appoint, and have at all times in place, a VFA agent** who shall be registered with the competent authority”, which would be a “person of trust”, ensuring “compliance with the provisions of this Act and of any rules or regulations issued thereunder”, along with other monitoring and reporting tasks.

As the Malta Financial Services Authority (MSFA) stated on July 20, the VFA “is not yet in force and will take effect on such date as the Minister for Digital Economy may establish by notice in the Government Gazette”. Moreover, the MSFA is “currently devising the Virtual Financial

The cabinet of Malta has recently approved “Crypto Bills”, published in the official gazette on May 22, 2018 and enacted by Parliament on 4 July 2018:

the Malta Digital Innovation Authority Act (MDIA) **establishes an Authority** for “the exercise [...] of regulatory functions regarding innovative technology arrangements”, for example consumer protection and registration of technology services providers.

Under the Virtual Financial Asset Act, a **VFA exchange is a “DLT exchange** operating in or from within Malta, **on which only virtual financial assets may be transacted** in accordance with the rules of the platform or facility, which is **licensed by the competent authority** under this Act to

Malta

	<p>excluded from this definition.”</p> <p>Finally, the Malta Financial Services Authority developed a “financial instrument test” to assess the nature of a “DLT asset”.</p>	<p>Assets Framework [...] underlying and complementing” the VFA, publishing a Consultation paper in the process.</p> <p>provide such services” (the Malta Financial Services Authority).</p>
<p><i>Austria</i></p>	<p>The Austrian Ministry of Finance defines VCs as intangible commodities (“unkörperliche Wirtschaftsgüter”). Thus, mining is considered as a commercial activity.</p> <p>The OeNB does not consider bitcoin as a currency but as a speculative investment not subject to regulation, with high associated risks. It also warns that bitcoin is also not covered by the E-Money Act or the Payment Services Act.</p> <p>The FMA also states that “bitcoins are a virtual currency and are not subject to supervision by the Financial Market Authority. For some bitcoin-based business models, it may, however, be necessary to hold a licence issued by the Financial Market Authority”</p>	<p>OeNB’s governor recently shared his support for the proposal of the Austrian Ministry of Finance to introduce a prospectus obligation and an authorization requirement by the Financial Market Authority (FMA) for ICOs.</p> <p>The FMA itself states that “an assessment under supervisory law must always be based on the specific design of the ICO on a case-by-case basis”.</p> <p>The Austrian Ministry of Finance considers VC’s exchanges and VC ATMs (“Kryptowährung-Geldautomaten”) as commercial activities.</p> <p>Moreover, OeNB’s governor recently shared his support for bringing VCEP and CWP into the scope of 5AMLD.</p>

<p><i>Belgium</i></p>	<p>In January 2014, BNB and FSMA published a joint press release warning against the “risks of virtual money”, stating that they are “not issued by a central bank or a licensed issuer of electronic money” and that they are subject to “no regulation, supervision or oversight”.</p> <p>The Minister of Justice in 2017 stated that he plans to regulate VCs, in particular with respect to exchange rates and conversion.</p>	<p>-</p> <p>In January 2014, BNB and FSMA published a joint press release stating that there is “no regulation, supervision or oversight on [...] issuers of virtual money, barter sites, internet platforms where virtual money is used for payment, and digital wallets.”</p>
<p><i>Bulgaria</i></p>	<p>In February 2018, the National Bank of Bulgaria warned consumers about VCs’ risks, following the joint release by the ESAs.</p> <p>In 2015, a Bulgarian court reportedly affirmed that “bitcoin is not a legal tender”, that “bitcoins and other virtual currencies are not legally recognised and treated as financial instruments”, and that “the activities associated with buying, selling and paying with bitcoins are not regulated by an applicable national and European law and are not subject to licensing requirements. [...] The conclusion of bitcoin transactions does not require any approval by the Commission for Financial Supervision for investment activities and provision of investment services.”</p>	<p>-</p> <p>The court “concludes that the hypothetical exercise of activities [...] related to the offering of financial instruments whose underlying is a currency, such as for example, contracts for difference or contracts with derivative financial instruments that require authorization as an investment firm cannot be an argument for rejecting their application for registration.”</p>

<p><i>Croatia</i></p>	<p>In September 2017, the Croatian National Bank provided a warning with VC-related risks, stating that VCs “are not electronic money [...] or payment services.</p> <p>In February 2018, the Croatian National Bank defines VCs as a “digital display of values [...] considered as a specific type of property that its holders are willing to keep and / or electronically exchange and use sporadically for each other to make payments, consistent with the belief that such currencies have real value.” It also reiterates that VCs are not money.</p>	<p>In September 2017, the Croatian National Bank also shared the FCA’s warning against ICOs.</p>	<p>In September 2017, the Croatian National Bank also added that it “does not issue a license to business entities issuing or trading in virtual currencies nor has a legal basis for their supervision.”</p>
<p><i>Cyprus</i></p>	<p>In February 2014, The Central Bank of Cyprus stated that VCs are not legal tender, and that it “does not authorise any activity falling within its mandate unless legal compliance is ensured. Any activity without the required license is liable for breach of law.”</p>	<p>-</p>	<p>In February 2014, The Central Bank of Cyprus stated that “there are no specific regulatory protection measures to cover losses from the use of virtual currencies if a platform that exchanges or holds them collapses”.</p>
<p><i>Czech Republic</i></p>	<p>In February 2018, the Vice-Governor of the Czech National Bank (CNB) stated that no VC “conforms to the three basic functions of money” and that to him they “resemble commodities”. He added that “we [at the CNB] do not want to ban them and we are not hindering their development, but we are also not actively helping or promoting them and we are not protecting them or the customers that use them”.</p>	<p>-</p>	<p>In 2016, Czech’s AML regulation has been amended to include service providers of VCs, defined as “a person who buys, sells, stores, manages or mediates the purchase or sale of a virtual currency as the subject of his / her business, or provides other services related to the</p>

virtual currency”.

In March 2014, the Danish Nationalbanken **stated** that bitcoin is not a currency, and that it is “not covered by depositors or consumer protection legislation”.

In February 2018, the Danish Finanstilsynet **endorsed** “consumer warning about cryptocurrency from the EU’s three financial supervisory authorities – EBA, EIOPA and ESMA”, following its 2013’s warning.

In November 2017, the Danish Finanstilsynet also **pointed out** that “cryptocurrencies that are only usable as a means of payment, remain unregulated [...]. However, certain tokens increasingly resemble financial instruments, which could potentially cause them to fall within the scope of the regulation. Whether this is the case, will always depend on a case by case assessment.”

In November 2017, the Danish Finanstilsynet **stated** that “even though an offered token is not a financial instrument, **the way an ICO is structured, or the way investments in them take place, can still be regulated activities**”.

It also added that “**businesses involved with ICOs [...] should carefully consider, if their activities fall within the scope of the financial regulation [...].**For example, the Prospectus Directive, the Alternative Investment Fund Managers Directive, the [AML] Directive and more could be relevant. Whether an ICO is regulated or not will always be subject to an **individual assessment by the Danish FSA.**”

In November 2017, the Danish Finanstilsynet **noted** that “certain tokens increasingly resemble financial instruments”, thus warning “**businesses involved with [...] cryptocurrencies [...] to carefully consider, if their activities fall within the scope of the financial regulation.** For example, the Prospectus Directive, the Alternative Investment Fund Managers Directive, the [AML] Directive and more could be relevant.”

Denmark

<p><i>Estonia</i></p>	<p>In November 2017, amendments were passed to the AML legislation. VC is defined as “a value represented in the digital form, which is digitally transferable, preservable or tradable and which natural persons or legal persons accept as a payment instrument, but that is not the legal tender of any country or funds [...] or a payment transaction”.</p> <p>Moreover, Estonian officials have been reportedly planning to offer digital tokens to e-residents as an incentive.</p>	<p>-</p>	<p>According to new AML legislation, VC service providers require a license, and AML rules are extended to VC-to-fiat exchanges and VCs wallet service provides.</p>
<p><i>Finland</i></p>	<p>In November 2017, the Finnish FSA stated that it “appears that bitcoin and other cryptocurrencies are primarily used as speculative investments and their use for payment is secondary”, warning against VCs’ risks.</p> <p>Moreover, in January 2014, the Finnish Central Bank defined VCs as “mediums of exchange used by Internet communities”, adding that “bitcoin does not fulfil the criteria for an official currency, or indeed the criteria for a payment instrument”, and that it “is not currently supervised or regulated in any way”.</p>	<p>In November 2017, the Finnish FSA shared - ESMA’s view about ICOs’ risks. In particular, it affirmed that “organisers must find out whether some regulatory requirement is applicable to the ICO. Regulatory requirements applicable to the ICO are determined according to the how the ICO is structured. The ICO may, for example, be subject to crowdfunding regulations, securities legislation, regulations on alternative investment fund managers or it may also be structured such that it falls outside the regulated space.”</p>	<p>-</p>
<p><i>Greece</i></p>	<p>In February 2018, the Bank of Greece shared EU ESAs’ warnings about VCs’ risks.</p>	<p>-</p>	<p>-</p>

<i>Hungary</i>	In December 2016, the National Bank of Hungary released the most recent warning about VCs’ risks, highlighting their unregulated nature.	-	-
<i>Ireland</i>	In March 2018 a Central Bank of Ireland’s Director defined a VC , in a speech , as “a digital representation of value that is neither issued nor guaranteed by a central bank or public authority and does not have the legal status of currency or money” , endorsing ESAs’ warnings.	<p>In March 2018 a Central Bank of Ireland’s Director stated, in a speech, that “ICOs are capital- or finance-raising events, whereby a business or an individual raises money from the public by issuing so-called coins or tokens in exchange for something, generally either real or virtual currencies”, endorsing ESAs’ warnings.</p> <p>Moreover, he added that “if the token issued in an ICO is deemed to be a “transferable security,” then a range of financial services legislation— including MiFID, the Prospectus Directive, etc., - will apply. However that question needs to be considered on a case by case basis.”</p>	<p>In March 2018 a Central Bank of Ireland’s Director stated, in a speech, that “the Fifth Anti Money Laundering Directive, for example, will bring Virtual Currency Exchanges and Custodian Wallet Providers within the scope of European Anti Money Laundering (AML) rules”.</p>
<i>Latvia</i>	In November 2017, Latvia’s AML legislation was amended , and defines VC as a digital representation of value that “may be digitally transmitted, stored, or traded, and acts as an exchange instrument without being legal tender” .	-	In November 2017, Latvia’s AML legislation was amended , extending AML rules to exchanges.

<p><i>Luxembourg</i></p>	<p>In March 2018, the Commission de Surveillance du Secteur Financier released a warning on VCs' risks, defining VCs as “means of exchange or digital representations of unsecured values which are neither issued nor controlled by central banks and of which supply, and / or demand may be limited.” It added that VCs “do not have a course legal basis and do not represent means of exchange whose value is guaranteed by a central bank.”, and that they are unregulated.</p> <p>Moreover, the Finance Minister reportedly stated in Parliament that VCs “are currency because they are accepted as a means of payment for goods and services by a sufficiently large circle of people”.</p>	<p>In March 2018, the Commission de Surveillance du Secteur Financier released a warning on ICOs' risks.</p>	<p>In March 2018, the Commission de Surveillance du Secteur Financier released a warning on VCs' risks, also specifying that despite lack of regulation, the provision of any financial services requires nonetheless an authorization from the Minister of Finance.</p>
<p><i>Netherlands</i></p>	<p>In January 2018, De Nederlandsche Bank published a position paper highlighting that “crypto’s do not currently fulfil the role of money – in fact, they are hardly ever used for payment, and they are not a universally accepted and stable medium of exchange, a suitable unit of account or a reliable store of value.” It also mentions that DNB “alerted the general public to the risks of bitcoin and other crypto’s as early as 2013 because there is no supervision, no deposit guarantee scheme and no counterparties from which losses may be recovered”</p> <p>It added that DNB does “not currently support a ban on crypto’s”, and that it would “also ensure that banks and other financial institutions that offer current accounts and other services to crypto firms take</p>	<p>In January 2018, De Nederlandsche Bank published a position paper, also warning about ICOs' risks.</p> <p>Moreover, also the Autoriteit Financiële Markten issued an ICO-related warning, noting that “most tokens can be structured [...] so that they fall outside the scope of the Financial Supervision Act” (Wtf). Token may qualify as a security if “for instance represents a share in the project or if the token gives entitlement to part of the (future) returns from the project”. Assessment would be done on a case by case basis, and “issuers need to properly analyse the</p>	<p>In January 2018, De Nederlandsche Bank published a position paper, welcoming the extension of AML rules to exchanges.</p> <p>It also stated that DNB is also looking into whether the provision of a combination of services, in which crypto’s are converted into euros or other currencies, or vice versa, and a payment service is provided, qualifies as issuing electronic money or as providing a payment service. [...] If such</p>

	<p>sufficient measures to adequately and demonstrably control the resulting potential risks of financial and economic crime.”</p> <p>DNB has also been running an internal experiment (DNBCoin).</p>	<p>extent of any overlap with financial regulation and supervision before launching their ICO”.</p>	<p>combined services qualify, they come under the scope of our supervision legislation and require a licence”.</p>
<i>Poland</i>	<p>In July 2017, Narodowy Bank Polski and the Polish Financial Supervision Authority issued a warning about VCs’ risks, stating that VCs “are neither issued nor guaranteed by a country’s central bank, they cannot be considered to be money, which means they are neither legal tender, nor a currency, they cannot be used to pay taxes, and they are not widely accepted in retail and service outlets.” They “cannot be considered e-money, and they are not regulated under the provisions of the Act [...] on Payment Services and the Act [...] on Trading in Financial Instruments.</p> <p>In January 2018, Polish Prime Minister reportedly stated intentions to ban VCs or regulate them in a way to avoid pyramid schemes.</p>	-	-
<i>Portugal</i>	<p>Banco de Portugal’s view is that VCs are “not regulated or supervised by Banco de Portugal or by any other financial system authority, either domestic or European”. Moreover, it highlights that VCs “are not legal tender in Portugal”.</p>	-	<p>Banco de Portugal states that entities that issue and trade virtual currencies are not required to have authorisation from or be registered with Banco de Portugal, and as a result their activity is not subject to any type of prudential or conduct</p>

supervision.

<i>Romania</i>	<p>In February 2018, the National Bank of Romania released its position about VCs, reaffirming its views from previous warnings about VCs' risks, and noticing a “lack of regulation and a lack of supervision of global currency schemes”. It further defines VCs as speculative assets.</p>	-	<p>In February 2018, the National Bank of Romania discouraged “any involvement” in VCs. Reportedly, many exchanges' accounts in local banks have been closed.</p>
<i>Slovakia</i>	<p>In November 2013, Národná banka Slovenska issued a warning “to inform the general public that virtual currencies, such as the so-called bitcoin, are not national currencies. As such, they are not subject to national regulation. Activities related to virtual currencies are not recognized or defined in European or Slovak law, nor are they regulated or supervised by Národná banka Slovenska or the European Central Bank.” Moreover, it added that “any unauthorised currency production or issue into circulation constitutes a criminal offence”.</p> <p>In January 2018, the Finance Minister reportedly stated that VCs have “two roles now: one as a means of exchange and the other, as an investment asset”, adding that that “this sphere has to be regulated globally, although he does not plan to regulate it in Slovakia for now”.</p>	-	-

<i>Slovenia</i>	<p>In January 2018, Banka Slovenije published a Q&A, defining VCs as “a form of unregulated digital representation of value that is neither issued nor backed by a central bank or a public authority, nor necessarily attached to a fiat currency, but is accepted by natural or legal persons as a means of payment, and can be transferred, stored or traded electronically”. It is also specified that VCs are not foreign currencies, nor e-money.</p>	<p>In September 2017, the Financial Stability Board released a warning about VCs and ICOs risks, noting that “the amount and credibility of information about the project, the process of crowdfunding via an ICO and the issuance of coin are also not regulated or supervised systemically”</p>	<p>In January 2018, Banka Slovenije published a Q&A, stating that “stakeholders in virtual currency schemes that facilitate the purchase (e.g. trade platforms), storage (e.g. digital wallet providers) and trading of virtual currencies in Slovenia are not systemically regulated and supervised”.</p>
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Source: Bruegel based on governments’ and agencies’ websites, Allen and Lastra (2018), [The Law Library of Congress \(2018\)](#).