



July 21st, 2015

Via electronic submission

European Securities and Markets Authority
103 rue de Grenelle
75007 Paris
France

RE: Call for Evidence on Investment Using Virtual Currency or Distributed Ledger Technology

Dear Sir/Madam:

CME Group Inc. ("CME Group")¹ would like to express appreciation to the European Securities and Markets Authority ("ESMA") for the opportunity to comment on its Call for Evidence on Investment Using Virtual Currency or Distributed Ledger Technology.

As an industry leader, CME Group recognises the need to foster innovation – both within and outside of our company. With that in mind, CME Ventures LLC, a wholly-owned subsidiary of CME Group, makes minority stake investments in early stage technology companies whose innovative products and services may impact CME Group's business in the longer term. CME Ventures seeks companies with technologies that could impact platforms and systems, enhance user experience, or provide new products and services in the financial ecosystem of the future. Virtual currencies and distributed ledger technology being two such technologies.

¹ CME Group is the parent company of four Designated Contract Markets ("DCMs"): the Chicago Mercantile Exchange ("CME"), the Board of Trade of the City of Chicago, Inc. ("CBOT"), the New York Mercantile Exchange, Inc. ("NYMEX"), and the Commodity Exchange, Inc. ("COMEX"). Those exchanges are also registered with the Financial Conduct Authority ("FCA") as Recognised Overseas Investment Exchanges ("ROIE"). In the U.K., CME also operates a Recognised Investment Exchange, CME Europe Ltd. ("CME Europe"), which is authorised by the FCA. These DCMs and CME Europe offer the widest range of benchmark products available across all major asset classes, including futures and options based on interest rates, equity indexes, foreign exchange, energy, metals, agricultural commodities, and alternative investment products. CME's clearing house division ("CME Clearing") and its subsidiary, CME Clearing Europe Limited ("CME Clearing Europe") together offer clearing and settlement services for exchange-traded futures contracts and over-the-counter ("OTC") derivatives. CME Clearing is registered with the CFTC as a derivatives clearing organisation ("DCO"), has been deemed a systemically important financial market utility by the Financial Stability Oversight Council, is registered with the Bank of England ("BoE") as a Recognised Overseas Clearing House ("ROCH") and is in the process of becoming recognised under the European Market Infrastructure Regulation ("EMIR"). CME Clearing Europe is regulated and supervised by the BoE as an authorised central counterparty under EMIR. CME Group also operates derivatives data repositories based in the U.S. and Europe. The CME Swap Data Repository and CME European Trade Repository provide reporting services for exchange-traded, cleared OTC, and bi-lateral non-cleared derivatives. The CME Swap Data Repository is registered with the CFTC as a Swap Data Repository and CME European Trade Repository with ESMA as a Trade Repository under EMIR.

Our responses to ESMA's specific questions are set out below for your consideration. We would also make one technical remark. CME Group suggests that ESMA should consider using alternative terminology to that used in its Call for Evidence document. We note that the term "*virtual currency*" and especially the usage of "*VC*" as its abbreviation can confuse the market. In particular "*VC*" is broadly recognised as an acronym for "*venture capital*". In this context and in order to create consistent terminology in this new area, CME Group recommends the usage of terms "*cryptocurrency*" or "*digital currency*". Also, "*blockchain*" is referenced as one word, not two words.

Q 1: Do you have any further information about any other virtual currency investment product or platform distributing virtual currency investment products, their location or size outstanding/volume?

In addition to the examples of digital currency investment products referenced in the Call for Evidence, CME Group would like to draw to ESMA's attention the following:

- In addition to digital currency being a potential new fiat currency, digital currency presents the opportunity for a number of related products such as indices and derivatives, and blockchain as a technology to create a universal ledger.
- There is a CFTC regulated entity approved to trade NDFs on Bitcoin (BTC) and other applicants have also applied for CFTC approval to trade physically delivered options on Bitcoin. There are also companies/startups based in the UK which trade forwards of USD/BTC.
- In addition, there are also numerous companies/startups that are less developed, which trade futures on USD/BTC, and for which trading appears to settle in Bitcoin. Additionally, there are a number of digital currency related funds.
- The Isle of Man and Jersey governments have been vocal in the promotion of Bitcoin related investment products and enterprises. There are a growing number of companies/startups offering cryptocurrency-related services and products from these jurisdictions as well as from Luxembourg.

Q 2: Do you have any information about the profile of investors investing in virtual currency investment products?

CME Group notes that the pool of investors in digital currency products includes – in addition to accredited investors – also corporations, family offices and venture capital firms. They are involved in directly or indirectly investing in digital currency investment products.

Q 3: Do you have anything to add or suggest a change to the description (paragraphs 15-18) of how virtual currency distributed ledgers work? Please clearly state to which virtual currency you are referring in your answer or whether your answer refers to virtual currencies in general.

CME Group would like to suggest the following changes to the relevant paragraphs:

- Paragraph 15:
 - “Every time a block gets completed a new block is automatically generated” – This depends on the definition of “automatic”. In practice, a process begins to generate the next block. This may involve miners trying to mine the next block (e.g. Bitcoin), or nodes trying to form consensus (e.g. Ripple). This process is not necessarily instantaneous (automatic).
- Paragraph 16:
 - It is stated that mining is a “game” in as much as solving computationally intensive math problems is a “game.” We would suggest changing the description to use the word “puzzle” instead.
 - “Someone wanting to buy sell or transfer bitcoins” – We would like to clarify in this context that a person is not able to buy or sell Bitcoins via the blockchain. The blockchain rather records transfer of ownership; it is the public ledger /bookkeeping mechanism. The other part of the trade occurs off the blockchain.
 - “...automatically broadcasts the relevant information to the network. The system bundles those transactions into blocks and wraps them in a mathematical problem.” – Transactions get validated against the existing state of the blockchain. The transactions are broadcast to the community of miners in what is called the “mempool”. Miners pick transactions to include in a proposed block, attempt to determine a valid signature for that block via mathematical operations, and publish the signed block on success. Miners keep the transaction fees in addition to the (currently) 25 Bitcoin block reward. The purpose of these fees is that miners choose which transactions to include in a block. As blocks have finite size, miners prefer transactions with fees. Transactions with no fees or very low fees may take longer to confirm.
 - “recommended confirmation time” implies an official authority making a recommendation. Each user of Bitcoin can choose their own confirmation time based upon their required level of confidence commensurate with the risk they assume.
- Paragraph 17:
 - NXT uses “Proof of Stake” while Bitcoin uses “Proof of Work”. Proof of Stake means that the more NXT one owns, the more likely one will be to forge the next block. In theory, people owning a large amount of NXT would have a vested interest in the currency retaining its value, so they would not do something to damage the integrity of the NXT blockchain.

Q 4: Do you agree with the general investment process in VC based financial assets as described above (paragraphs 19-24)? Please explain where this process could differ for different virtual currencies.

In our opinion, the description included in ESMA's Call for Evidence appears to be an overly complicated representation of the investment process. Moreover, this only refers to a specific type of transaction (digital currency that operates independent from the Bitcoin blockchain). Ripple (XRP), for example, does not utilize the blockchain. Other investments can be direct equity (USD) investments in digital currency holding companies.

We would also like to point to the fact that paragraphs 22-24 are based on NXT Asset Exchange. For the sake of readers' clarity this should be noted in the text and not the footnote. Otherwise, it appears to provide a misleading representation as if these are characteristics of other/all transaction systems, not just NXT itself. Finally, terms like "order mask" are not commonly known or understood.

Q5: Which VC based financial assets exist other than the broad categories mentioned (paragraph 24)?

CME Group considers that the broad categories listed in Paragraph 24 should be more specifically defined. It is unclear if these are categories specific to NXT or representative of other asset exchanges. Otherwise, there are a number of digital currency-based assets in development.

Q 6: Do you agree with the analogies to traditional regulated entities as outlined (paragraph 25-32)? Please explain where you have a different opinion, including where the analogies are different for different VCs.

The analogies differ substantially for different digital currencies to the point where a graphical representation may not actually be helpful. A blockchain is fundamentally a technology, not a financial service, and its protocol can be extended well beyond the visual representation. As mentioned previously, other digital currency organizations like Ripple do not use the blockchain but rather rely on consensus algorithms. Often, a wallet provider is together with the digital currency exchange (so called "universal"), in which the representation becomes complicated further.

Some clarifications to specific paragraphs are as follows:

- Paragraph 26:
 - In some cases, different digital currencies can be exchanged without any intermediary at all. The Ripple protocol itself can be used to exchange different currencies on the Ripple network directly, without relying on a central exchange. In most cases, though, an exchange is operated by a corporation that acts as intermediary, and one faces risks specific to the intermediary (e.g. Mt. Gox).
- Paragraph 28:
 - Asset exchanges can, in theory, be operated without any intermediary at all, similar to the point made in the above bullet. The Ripple network could be used to list shares of stock, and people can communicate bids and offers directly via the Ripple.

Q 7: Do you have more evidence on how widespread ownership of VC based financial assets/securities is? Please mention your sources.

CME Group has no further evidence to provide at this stage. However, it is unclear whether the prevalence of Bitcoin ATMs is related to digital currency-based financial assets. Presumably, Bitcoin ATM use is for investing in the Bitcoins itself, or to obtain Bitcoins to use for the purchase of goods and services.

A better barometer of potential widespread ownership of digital currencies is the proliferation of digitised debt, and potentially equity and derivative instruments.

Q 8: Do you agree with the assessment of benefits and risks of VC based financial assets/securities or are there other benefits/risks for investors, for other market participants, and for the financial system as a whole?

CME Group suggests that the definition of speed should be clarified for the consistency of further use. Currently, electronic stock exchange latency is measured in microseconds. However, when the settlement cycle is included, then digital currency-based financial assets may have a strong advantage.

New use cases in developments utilising these technologies have the potential to reap large benefits to regulators from a transparency and enforcement point of view, to corporations and banks from an efficiency standpoint (especially related to post-trade functionality); and to end users /consumers as these technologies bring down pricing and result in faster execution and settlement as well as new investment opportunities. These developments could be viewed as the democratisation of access to investment products.

In addition, CME Group notes the following as prospective risks:

- As digital currency-based asset trading without an intermediary is generally anonymous, no effective client identification or market regulation can exist. The application of anti-money laundering regulations, know-your-client rules, or enforcement of sanctions may therefore be difficult. Investors may be subject to manipulative marketplace practices that regulated exchanges would prevent. Thinly traded digital currency-based assets might also be more subject to market manipulation.
- Most blockchain technology utilizes a global public ledger that is pseudonymous. It may therefore be possible by learning a few individuals' addresses on the blockchain to trace transactions to/from those individuals, resulting in a loss of confidentiality of transactions.
- Risks for non-blockchain distributed ledgers are that any number of "*bad actors*" could hypothetically collude on a network to fraudulently confirm transactions.

Finally, we would like to stress that the technologies are in an infancy state and need further development. It is too early to tell how far-reaching an impact these technologies will have on how we invest, trade and report.

Q 9: How is distributed ledger technology being used or likely to be used in relation to the issuance, distribution, trading, recording of transactions and ownership of ‘traditional’ securities or investment products and why?

CME Group is of the opinion that the technology is an excellent method for recording documents. By imbedding information, such as the hash of a document, in a transaction in the blockchain, the indelible nature of the blockchain fulfils the function of a notary public.

Furthermore, assets could be transferred in this fashion without necessarily using the functions of a digital currency. One could envision a recorder of deeds filing all quit claim deeds on a blockchain. This also may have potential for preserving audit records, where one may wish to prove that the records could not be falsified at a later date.

The concept of coloured coins or digital assets issued using a digital currency that supports this can just as easily represent traditional assets, such as stocks, bonds, and real estate, instead of digital currency-based assets. Parties can transfer these directly with each other, or via an exchange matching buyers and sellers. Proof of ownership of the private key can be used to prove ownership of the underlying asset.

The concept of “*smart contracts*” is developing and again, we would note that it is too early to tell what the far-reaching impacts could be.

Q 10: To what extent is the use of distributed ledger technology in relation to ‘traditional’ securities or investment products being separated from an associated virtual currency and, if so, how and why?

For digital currencies like Bitcoin, which do not support the issuance of digital assets directly, efforts have been made to designate trivially small portions of a Bitcoin as a “*coloured coin*” that has intrinsic value separate from Bitcoin due to a digital marker placed on it. This may correspond to, say, a vault deposit of gold, or any other financial instrument. In this use case, Bitcoin as a digital currency is irrelevant, since the underlying asset has far more value than the nominal amount of Bitcoin associated with it. This is not necessary for digital currencies like XRP and NXT that support native asset generation.

Additionally, there is concern about use of public, global blockchains and networks like Bitcoin to transact business in other assets. Financial institutions may wish to create the equivalent of private blockchains among themselves, their trading partners, settlement banks, etc. so that they do not need to rely on random Bitcoin miners to confirm their transactions. Certain users can be permissioned to create assets as coloured coins. In this case, mining no longer generates wealth and becomes a formality.

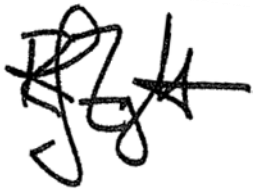
However additional factors must be considered to keep the system secure in the absence of a large global network of miners. Sidechains are also a concept in development which allows corporations/institutions to create “*private blockchains*” and then allows for future allowance of “*ledger information*” to be connected to the public ledger (aka the blockchain).

Conclusion

The technologies discussed in the Call for Evidence are in a state of infancy and need time to develop. Development is progressing faster than the way the Internet developed as mobile connectivity, social media, computing speed, and venture capital funding of early stage startups act as agents of change and progress. From 2014 to 2015, we have observed leaps in the industry's attention to digital currencies and ledger technology issues. Should this progress continue at a similar pace, we may see mainstream adoption of these technologies within a short period of time. As with every new and yet uncharted market, it is critical that the prospective regulation is prudent and measured. It should allow enough room for innovation and new technologies to develop, whilst ensuring financial market integrity and safety.

We would be happy to further discuss and clarify any of the above with ESMA. If you have any comments or questions regarding this submission, please feel free to contact Sandra Ro, Executive Director, FX & Metals Research & Product Development, CME Group at +44 20 3379 3789 and sandra.ro@cmegroup.com.

Sincerely,



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