Norman Chan: Crypto-assets and money

Keynote speech by Mr Norman T L Chan, Chief Executive of the Hong Kong Monetary Authority, at the Treasury Markets Summit 2018 "Crypto-assets and Money", Hong Kong, 21 September 2018.

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Ladies and gentlemen,

1. In the past few years, different forms of “crypto-currencies”, notably Bitcoin, have emerged and become a catchword. Bitcoin is the number 2 trending searches of global news according to Google Trends. These crypto-assets normally deploy the Distributed Ledger Technology, or DLT, and have a limited amount of issuance based on “mining” by participants. These crypto-currencies can be transferred between participants through the internet without a central clearing agent. There are many trading platforms that allow these crypto-currencies to be traded. It has been argued by some people that crypto-currencies would disrupt or at least seriously challenge the traditional fiat money, especially when some central banks have been issuing enormous amount of fiat money through quantitative easing. What I’ll do today is to discuss this important question: will crypto-currencies become an alternative form of money in the future?
2. To answer this question, it is necessary to start with the basic issue: what is money? I think there is little disagreement amongst us that money should have three key attributes or functions:

   (a) Medium of exchange: Money must be generally accepted as a means or instrument of payment to facilitate the sale and purchase of goods and services.

   (b) Store of value: Money must hold its value over time. For example, precious metals such as gold and silver have high intrinsic value and they have been used as money for thousands of years. In modern times, fiat money has no intrinsic value other than the fact that it is the liability of the issuing central bank. The track record in maintaining the value, or purchasing power, of the fiat money varies considerably over time and in different jurisdictions. Moreover, balances in commercial banks are also widely used as money in modern societies.

   (c) Unit of account: This is also an important attribute or function of money. Money must be accepted as a standard measure of value or price of goods, services, assets, liabilities, income, expenses, profits and losses, in addition to serving effectively as a store of value and medium of exchange.

3. While these three attributes define what money is, I would like to add the concept of “moneyness” to the formula. This concept is important because over many centuries of evolution, we have witnessed major shifts in the use of different and new instruments as “money”. In the last century or so, there has been explosive improvement in the ease, speed, cost and safety of keeping and transferring money. But there is always a question of relativity. There are many commodities, such as diamonds and gold, that command high value over time and are readily traded in the open market. These commodities meet partially the three functions of money, but they score very poorly in the ease and cost of use. As a result, these commodities have a low degree of “moneyness” and cannot be regarded as “currencies”, other than in exceptional times, such as wars or crises in which the mainstream “money” is no longer trustworthy or usable.

4. Now let's get back to the theme of my remarks: to what extent crypto-currencies can serve as money and will they become a credible alternative to traditional forms of money? So it would be useful to measure them using the benchmarks I have just talked about.

(a) Medium of exchange: Crypto-currencies are not readily accepted as a medium of exchange. Despite sporadic news that appear from time to time, we have seen no real evidence that crypto-currencies are widely used as a medium of exchange in the purchase of goods or services in any meaningful scale. While it is true that crypto-currencies such as Bitcoin have attracted many investors and speculators around the world who own and trade them, it is very different from such crypto-currencies being accepted as a medium of exchange. As a matter of fact, Bitcoin is a very inefficient means of payment for several reasons. First, as Bitcoin operates in a decentralised network, each Bitcoin transaction needs to be validated by the so-called "miners", who need to solve a complex maths problem using specialised computers. It takes a lot of time and consumes considerable electricity to complete a transaction. Currently, the average transaction time is some 20 minutes per transaction. During periods of high network traffic, the average transaction time can take anywhere from 30 minutes to many hours. Transaction fee is also high and can spike up suddenly from time to time. The average fee per transaction in December 2017 was US$34. To put the matter into proper perspective, electronic payments, using either balances kept by commercial banks at central banks or retail payments using commercial bank balances, typically take a few seconds and cost a fraction of the transaction fees in Bitcoin transfers.

(b) Store of value: Crypto-currencies such as Bitcoin have displayed very high volatility in value. Crypto-currencies have no intrinsic value and are not backed by any institution or body regarding its value or purchasing power. Their price and thus value are determined solely by the supply and demand forces prevailing at the time, which can fluctuate sharply depending on the appetite of the participants. It is true that in some countries, there has been high volatility in the value or purchasing power of their money, too. However, one must bear in mind that this kind of volatility normally happens in times of crisis or in jurisdictions that have rather bad macroeconomic, fiscal or monetary discipline. But for Bitcoin and most other crypto-currencies, their volatility seems to be structural in nature and the market dynamics that determine their price or value is rather opaque and hard to discern. With such high volatility in value and opaqueness, it poses great risks to the parties in accepting crypto-currencies as a store of value or means of exchange for goods and services.

(c) Unit of account: With very high volatility and limited use as a means of payment, it is hard to envisage how any society could adopt crypto-currencies as a unit of account.

5. As far as I can see, crypto-currencies are not qualified to become money based on the analysis mentioned above. It is not a question of time that they can become more widely accepted as money. Quite the contrary, the design of these crypto-currencies, such as Bitcoin, is such that the transaction time and costs would go up if more people use or transfer them. Unlike other forms of electronic money using central bank or commercial bank balances, crypto-currencies are not scalable, which undermines its prospect of gaining "moneyness" over time. For this reason, I would like to call these "crypto-currencies" as crypto-assets for the rest of our discussion as they do not qualify to be called "currencies".
6. Having concluded that crypto-assets do not qualify as money or currencies, let me highlight a couple of challenges that they present to supervisors and policy makers around the world:

(a) Financial stability risk: The Financial Stability Board (FSB), of which I am a member, has recently presented its assessment to the G20 Leaders. Basically the FSB considers that while crypto-assets do not pose a material risk to global financial stability at this time, given the relatively small size of this market, vigilant monitoring is necessary in view of the speed of developments and data gaps. The FSB has developed a framework, in collaboration with the Committee on Payments and Market Infrastructures, to monitor the financial stability implications of the developments in crypto asset markets. Noting that crypto assets raise a host of other issues that I will explain shortly, the FSB also considers that further international coordination is warranted.

(b) Illicit activities risk: As many of these crypto-assets are so designed that anonymous email accounts can be used for trading and transfers without a central clearing agent, they effectively bypass the existing regime in combatting money laundering, terrorist financing and other illicit activities. The ease with which crypto-assets can be transferred across national borders has made it even more attractive to criminals in laundering their proceeds and income. For the banks and other regulated financial institutions, it is proving difficult, if not impossible, for them to comply with the statutory or supervisory requirements in respect of know-your-customer (KYC) or ascertaining the source of funds. This was why the HKMA issued a circular in 2014 to banks in Hong Kong advising them to be mindful of the need to comply with all relevant KYC and anti-money laundering (AML) requirements in their dealings with crypto-assets.

(c) Investor protection or market integrity: As most of these crypto-assets are traded in unregulated platforms, usually via the internet, there are significant gaps in data collection and investor protection. Crypto-asset markets are therefore prone to market manipulation, such as spoofing or flooding the market with fake orders to trick others into buying or selling. Moreover, the security or integrity of some of the trading platforms is also in doubt given the number of cyber incidents that have led to significant losses of the investors.

7. Having said all the above, I wish to conclude by making the following points:

(a) Crypto-assets are not money or currencies. So people wishing to invest or speculate in crypto-assets should do so without harbouring the unrealistic expectation that they would one day become money or currencies that can be used as a means of exchange.

(b) Central banks must take extra care in making sure that the issuance of fiat currencies is managed prudently in order not to diminish the purchasing power of the currencies or people's confidence in them.

(c) Overseers of payment systems must take proactive steps to ensure that large value as well as small value retail payment systems, making use of commercial bank or central bank balances, are efficient, convenient and at low cost to the users. This is increasingly important as the public now expects and demands a faster and cheaper means of electronic payment or digital cash, as some would call it, for their day to day transactions. If the central bank fails to do this, the market will certainly come up

with some alternatives for this purpose. In this connection, you are no doubt aware that the HKMA has just launched the Faster Payment System a few days ago. Once the system goes live on 30 September, people in Hong Kong will be able to enjoy almost instantaneous P2P payments, making use of either mobile phone number or email address, free of charge to the users.

(d) While the Distributed Ledger Technology used in crypto-assets creates many issues, the technology has shown great potential in many other applications. For example, the HKMA and the banks in Hong Kong will soon launch a digital trade finance platform using DLT. We are also in the process of developing a DLT interface that can link the domestic trade finance platform with those of other trading partners, such as Singapore, on a bilateral basis. This new interface is expected to be launched sometime next year.

(e) Despite some improvements made in the past few years, cross-border payments, especially retail or small value, remain inefficient and costly. This is unsatisfactory as it is not conducive to financial inclusion in relation to remittances by SMEs or individuals. In this connection, I am pleased to note that progress is being made recently, as some banks and non-bank e-wallet operators are now developing new cross-border payment channels, making use of DLT in some instances, that would result in faster and cheaper services for users.

(f) Like several overseas central banks, the HKMA is studying the technical feasibility and merit of Central Bank Issued Digital Currency (CBDC). It is still early days, but it seems CBDC offers greater potential in wholesale than the retail area in terms of payment and settlement, especially in the cross-border context. However, considerably more research work is needed to analyse the relative merit of CBDC over the existing electronic or digital forms of payment in which central bank funds are used, cleared and settled centrally. It is also necessary to assess the likely impact CBDC has on the monetary policy transmission mechanism. We will share with the public the findings of our research work in due course.

8. Ladies and gentlemen, we are now in an exciting era in which FinTech, including DLT, is advancing in a speed that was unthinkable 10 years ago. All of us, industry practitioners and regulators alike, must try our best to keep up with the pace or else we risk being left behind. However, in embracing new technology and innovation, we must also guard against the risk of overlooking the nature of the financial transactions and the risks that are inherent in these transactions under the pretext of technological advancement. Crypto-assets are one such example in which the use of new technology does not alter the nature or risks of the products or the transactions.
9. I hope you will find my remarks today helpful as an elucidation of the HKMA's stance on crypto-assets and on digital payments and settlement. One final word of caution though. Notwithstanding what I have said today about crypto-assets, I won't rule out one day new technology emerges in such a way that would address the KYC or AML concerns that are present in the current generation of crypto-assets. We just need to keep an open mind and stand ready to learn and adapt to new technology and trends. Thank you for your attention.