FSB FINANCIAL STABILITY BOARD

Crypto-assets

Report to the G20 on work by the FSB and standard-setting bodies

16 July 2018

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Executive Summary

At their 19-20 March 2018 meeting in Buenos Aires, G20 Ministers of Finance and Central Bank Governors called on the FSB to report by July 2018 on its work and that of other standard-setting bodies (SSBs) on crypto-assets. This note provides an overview of the work of the Financial Stability Board (FSB), Committee on Payments and Market Infrastructures (CPMI), International Organization of Securities Commissions (IOSCO) and the Basel Committee on Banking Supervision (BCBS). The current work can be summarised as follows:

- The FSB, in collaboration with CPMI, has developed a framework and identified metrics to monitor the financial stability implications of crypto-assets markets.
- CPMI has conducted significant work on applications of distributed ledger technology, and is conducting outreach, monitoring, and analysis of payment innovations.
- IOSCO has established an initial coin offering (ICO) Consultation Network to discuss experiences and concerns regarding ICOs, and is developing a Support Framework to assist members in considering how to address domestic and cross-border issues stemming from ICOs that could impact investor protection. IOSCO is discussing other issues around crypto-assets, including, for example, regulatory issues around crypto-assets platforms.
- The BCBS is quantifying the materiality of banks' direct and indirect exposures to crypto-assets, clarifying the prudential treatment of such exposures, and monitoring developments related to crypto-assets and FinTech for banks and supervisors.

This work is being coordinated among members. Collectively, the work of the FSB and SSBs, including the Financial Action Task Force (which is reporting separately to the G20), should help to identify and mitigate risks to consumer and investor protection, market integrity, and potentially to financial stability.

1. Work by the FSB

In the first quarter of 2018, the FSB discussed potential financial stability implications from crypto-assets. The FSB agreed that crypto-assets do not pose a material risk to global financial stability at this time, but supported vigilant monitoring in light of the speed of developments and data gaps. FSB members requested that the Standing Committee on Assessment of Vulnerabilities (SCAV) and the CPMI work jointly to develop a framework for monitoring of financial stability risks related to crypto-assets with a focus on identifying potential metrics. The FSB Plenary approved the framework at its June meeting in Basel.

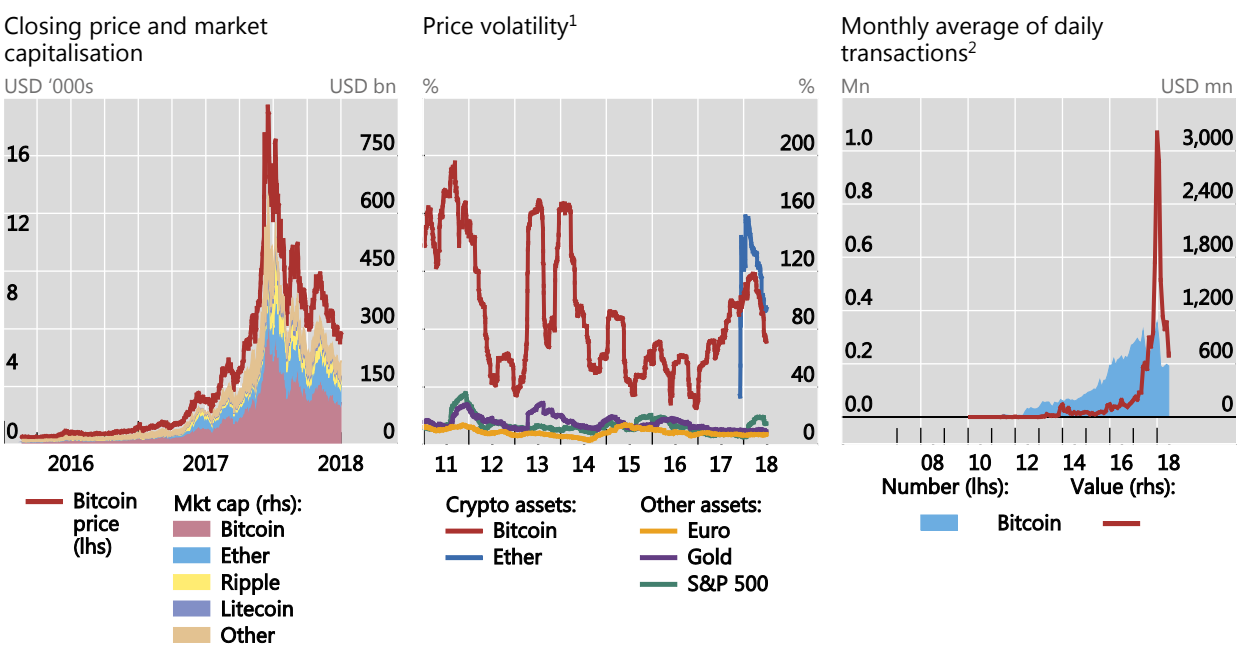
The objective of the framework is to identify any emerging financial stability concerns in a timely manner. To this end, it includes risk metrics that are most likely to highlight such risks, using data from public sources where available. Supervisory data pertaining to crypto-assets are potentially more reliable and could complement data from public sources.

The framework discusses the primary risks within crypto-assets and potential transmission channels to financial stability risks. The framework identifies which metrics the FSB might usefully monitor in the short-to-medium term, and some monitoring objectives that may provide further insight but would take longer to implement, and may be more appropriate should

potential financial stability concerns increase. The FSB selected metrics for the monitoring framework based upon several criteria, including comparability over time and across jurisdictions, ease of access and repeatability, degree to which the metric is anchored in data, and analytical effort to compute.

The monitoring framework focuses on metrics to assess the transmission channels from crypto-asset markets to financial stability. In general, monitoring the size and rate of growth of crypto-asset markets is critical to understanding the potential size of wealth effects, should a decline in valuations occur. These metrics are currently available (graph 1). The use of leverage, and financial institution exposures to crypto-asset markets are important metrics of transmission of crypto-asset risks to the broader financial system. Some derivatives metrics are available, and metrics on exposures would become part of the monitoring framework to the extent that they become available.

Market capitalisation and transactions in crypto-assets — Graph 1



[1] Ninety-day moving standard deviation of daily returns. [2] Total estimated value of transactions on the Bitcoin Blockchain, in USD value.

Sources: coinmarketcap.com; CoinDesk, https://www.coindesk.com/price/; www.blockchain.info; BIS calculations.

Confidence effects related to price volatility in crypto-asset markets may be quite important, but are more difficult to measure except through qualitative market intelligence. Similarly, the impact of fraud on confidence effects may be very important. The use of crypto-assets for payment or settlement is another transmission channel to be monitored, together with CPMI.

Previous FSB analyses of crypto-asset markets, including initial coin offerings (ICOs), highlighted challenges such as rapid developments in these markets, lack of transparency including around the identity and location of token issuers and the governing law for white papers, and data gaps. The fragmented nature of crypto-asset markets is another complication.

The crypto-asset market is rapidly evolving, as are public data sources. The treatment and characterisation of crypto-assets may vary across jurisdictions or may not yet have been clarified. Given that the proposed monitoring metrics are mainly based on public data, it should

be stressed that the quality of the underlying data can vary, and might not always be satisfactory. Furthermore, market-related figures, such as metrics on prices, trading volumes, and volatility may be manipulated by generally prohibited practices such as "wash trading,"[1] "spoofing,"[2] and "pump and dump,"[3] the existence of which cannot be ruled out at this stage. Moreover, the proposed metrics may not fit all types of crypto-assets equally. Caution should therefore be applied when considering data metrics and how to gather, measure and analyse the data proposed by this framework.

Nonetheless, the FSB believes that the proposed metrics outlined in the Annex provide a useful picture of crypto-asset markets and the financial stability risks they may present. As understanding develops and new sources of public data become available, the FSB, with CPMI, will consider how improvements can be made. In particular, the FSB will – where possible – continue to work on assessing data reliability and data completeness for the existing metrics. Additionally, the FSB will assess whether new metrics could be added at a later stage.

2. Update from CPMI on its work

Work to date

The CPMI has a mandate to promote "the safety and efficiency of payment, clearing, settlement and related arrangements, thereby supporting financial stability and the wider economy." In pursuit of its mandate, the CPMI has paid particular attention to innovations in payments.

Following the reports "Innovations in retail payments" (2012)[4] and "Non-banks in retail payments" (2014) the CPMI agreed that there was a need to closely monitor digital currencies and distributed ledgers. The subsequent report "Digital currencies" (2015)[5] noted that "the development of distributed ledger technology is an innovation with potentially broad applications" and that "it is recommended that central banks continue monitoring and analysing the implications of these developments."

Since then, the CPMI has continued to monitor related developments, and to develop analytical frameworks and reports to aid central banks in their assessments, frequently partnering with other SSBs and central bank committees. Published reports include "Distributed ledger

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1 "Wash trading" describes trading activity where an investor buys and sells the same financial instrument simultaneously in order to create misleading market activity and influence the price of an asset, without changing the exposure.

2 "Spoofing" describes the placing of orders with the aim of influencing the price of an asset before revoking them again prior to their execution.

3 "Pump and dump" involves the artificial inflation of an asset's price through the use of inaccurate or misleading information in order to sell the asset at a higher price. When the initiator has sold the overvalued asset, the price falls and other investors are exposed to losses.

4 CPMI (2012), "Innovations in retail payments," May.

5 CPMI (2015), "Digital currencies," November.

technology in payment clearing and settlement – An analytical framework" (2017)[6] and, together with the BIS Markets Committee, "Central bank digital currencies" (2018).[7]

Supplementing the work of the Committee in this area, the CPMI Secretariat have also recently produced three analytical articles in the BIS's Quarterly Reviews: "The quest for speed in payments" (2017), "Central bank cryptocurrencies" (2017), and "Payments are a-changin' but cash still rules" (2018).[8]

The CPMI chairs the Economic Consultative Committee (ECC)'s ad hoc group on digital innovations. In this group the chairs of innovation working groups from the BCBS, Committee on the Global Financial System (CGFS), CPMI, International Association of Insurance Supervisors (IAIS), IOSCO, and FSB update one another and coordinate work through quarterly calls. Additionally, through a joint working group with IOSCO, the CPMI monitors innovations in clearing and settlement and their impact on current standards for financial market infrastructures (FMIs).

Present challenges

Some innovations can present challenges to current standards. The CPMI and IOSCO examined the "Principles for financial market infrastructures" in April 2018, and did not identify at this stage any critical issues or gaps for distributed ledger technology-based FMIs.

Innovations can also present opportunities and challenges to established markets and service providers through increasing competition and choice. The CPMI report "Cross-border retail payments" (2018)[9] assessed the potential efficiencies and risks from market changes in an area where many private digital tokens have claimed to improve on current arrangements.

New innovations that might add to efficiencies at the cost of safety represent an important challenge for central banks. Currently, 'first generation' private digital tokens (which include so-called 'cryptocurrencies' and crypto-assets) that are totally decentralised and do not represent a claim or underlying asset, make for unsafe money. Safer central bank issued cash may be less convenient in an era of electronic payments, and the use of cash is declining in some jurisdictions.[10] At the same time, central banks are reviewing how to improve and modernise existing central bank operated payment systems. Central banks can encourage and catalyse improvements to current arrangements, as has happened recently in the field of faster payments.[11] However, responding directly to the challenge with a central bank digital currency (CBDC) would be an entry into uncharted territory.

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6 CPMI (2015), "Distributed ledger technology in payment, clearing and settlement – an analytical framework," February.

7 CPMI and Markets Committee (2017), "Central bank digital currencies," March. Central bank digital currencies (CBDC) are not crypto-assets, which are a type of private digital tokens.

8 Morten Bech, Yuuki Shimizu, and Paul Wong (2017), "The quest for speed in payments," BIS Quarterly Review, March; Morten Bech and Rodney Garratt (2017), "Central bank cryptocurrencies," BIS Quarterly Review, September; Morten Bech, Umar Faruqui, Frederik Ougaard, and Cristina Picillo (2018), "Payments are a-changin' but cash still rules," BIS Quarterly Review, March.

9 CPMI (2018), "Cross-border retail payments," February.

10 Bech et al. (2018).

11 CPMI (2016), "Fast payments – Enhancing the speed and availability of retail payments," November.

Future work

The CPMI's workplan for innovation currently contains a number of strands including:

- Outreach, advising central banks to proceed with caution on CBDCs.
- Monitoring of CBDCs and private digital tokens used for payments, including the development of decentralised tokens with improved technology and/or underlying assets (so-called 'second generation cryptocurrencies'). A survey of global central banks is planned for later in 2018 to further inform the CPMI's work.
- Analysis, focussing on the safety and efficiency considerations for wholesale digital currencies (both public and privately issued variants).

The CPMI's workplan is flexibly designed to accommodate any significant issues as they arise. However, possible areas for further exploration include legal issues around holding and transferring digital currencies and the cross-border implications of CBDCs.

3. Update from IOSCO on its work

Initial coin offerings (ICOs)

The IOSCO Board has considered the continuing growth of ICOs at recent Board meetings. It issued a statement in November 2017 to IOSCO members on the risks of ICOs, including referencing various approaches to ICOs taken by members and other regulatory bodies. In January 2018, the IOSCO Board issued a communication to the general public setting out its concerns in this area.[12]

IOSCO has also established an ICO Consultation Network through which members discuss their experiences and bring their concerns, including any cross-border issues, to the attention of fellow regulators.

In May 2018, the IOSCO Board agreed to develop a Support Framework to provide a resource for members as they identify regulatory risks arising from ICOs and deal with the issues (both domestic and cross-border) raised by the offering of ICOs in jurisdictions across the globe. The ICO Support Framework will build on the resources developed though the ICO Consultation Network. The ICO Support Framework could potentially provide information to assist regulators when assessing within their own jurisdictions the nature of an ICO, potential gaps in investor and market protections between ICOs and conventional securities offerings and markets, and identifying potential changes to local law that would facilitate consistent standards of protection between ICOs and conventional securities offerings and markets.

Crypto-asset platforms

Crypto-asset platforms are a growing and evolving part of the crypto-asset ecosystem. Many regulators have been responding to crypto-asset developments to protect investors and maintain market integrity. First, issues like whether a traded crypto-asset is a security, commodity, or some other financial product, or the manner in which such platforms operate, are threshold questions in the context of financial regulation. Second, so-called "crypto-exchanges" may be

[12] IOSCO (2018), "IOSCO Board communication on concerns related to initial coin offerings (ICOs)," 18 January.

exchanges that are failing to comply with the laws applicable to exchanges. In some cases, they may be classified as intermediaries and may also be failing to comply with applicable laws. Finally, existing regulatory models may rely on access through a regulated entity to support many investor protection and other regulatory objectives, such as surveillance, but access to crypto-asset platforms currently may not involve such regulated entities.

At present, like crypto-assets in general, crypto-asset platforms do not pose global financial stability risks. Nevertheless, they raise other significant concerns, including consumer and investor protection, market integrity and money laundering/terrorism financing, among others.

Since certain crypto-assets offered on crypto-asset platforms may not be subject to financial regulation, it is important to coordinate with those other sectoral financial regulators who may have jurisdiction to address the significant risks arising from such other crypto-asset platforms and crypto-trading activities. Where crypto-assets are used solely for payment purposes (and are not securities), crypto-asset platforms trading such assets could, depending on the jurisdiction, be viewed more as part of the payments infrastructure or as some type of spot market exchanges. IOSCO therefore would seek to work closely with other SSBs like CPMI and BCBS to evaluate approaches to these issues.

IOSCO may also consider the issue of crypto-asset platforms that fall (or should fall) within the remit of securities regulators and consider the issues and risks associated with their operations.

IOSCO's Committee on Secondary Markets has begun to examine other internet-based platforms, including crypto-asset platforms. An initial question the Committee may further explore is whether IOSCO's Principles for Secondary and Other Markets would be applicable to crypto-asset platforms. The Committee has also preliminarily identified a number of key issues it may consider including: (i) transparency; (ii) custody and settlement; (iii) trading; and (iv) cyber security and systems integrity.

In addition, IOSCO may examine issues around access to platforms as certain crypto-asset platforms are subject to non-intermediated access. This may raise investor protection concerns related to fiduciary duties and suitability and know-your-customer obligations that are not typically responsibilities borne by regulated markets that trade securities. However, this type of access has been seen in other types of platforms, such as crowdfunding platforms. Crypto-asset platforms also may raise cross-border challenges similar to those that IOSCO has addressed in other internet-based financial markets, such as with binary options. In these cases, enforcement is often difficult because rules governing the instrument, the exchange and any intermediary may differ across jurisdictions. Authorities can therefore benefit from co-coordination with regard to supervision and enforcement.

4. Update from BCBS on its work

The BCBS is pursuing a number of policy and supervisory initiatives related to crypto-assets. Given the number of initiatives taking place across different SSBs and international fora, the work of the BCBS is focused on aspects related to its mandate to strengthen the regulation, supervision and practices of banks worldwide, with the purpose of enhancing financial stability.

The BCBS's initiatives can be grouped into three broad categories: (i) quantifying the materiality of banks' direct and indirect exposures to crypto-assets; (ii) clarifying the prudential

treatment of banks' exposures to crypto-assets; and (iii) monitoring developments related to crypto-assets/FinTech and assessing their implications for banks and supervisors.

Quantifying banks' exposures to crypto-assets

One challenge encountered in the existing analyses related to crypto-assets is the scarcity of reliable data on banks' holdings of crypto-assets. Accordingly, the BCBS is currently conducting an initial stocktake on the materiality of banks' direct and indirect exposures to crypto-assets. In principle, this could be followed by a structured data collection exercise on crypto-assets as part of the BCBS's half-yearly Basel III monitoring exercise.[13]

Prudential treatment of crypto-assets

While the current Basel framework does not set out an explicit treatment of banks' exposures to crypto-assets, it does set out minimum requirements for the capital and liquidity treatment of "other assets". The BCBS is conducting a stocktake of how its members currently treat such exposures as part of their domestic prudential rules. Based on the results of this stocktake and the aforementioned quantitative analyses, the BCBS will consider whether to formally clarify the prudential treatment of crypto-assets across the set of risk categories (credit risk, counterparty credit risk, market risk, liquidity risk, etc.).

Monitoring and assessing crypto-asset and FinTech developments

The BCBS is continuing to monitor developments related to FinTech, following the publication of its "Sound Practices on the implications of FinTech developments for banks and bank supervisors" in February 2018.[14]

[13] See https://www.bis.org/bcbs/qis/.

[14] BCBS (2018), "Sound Practices: implications of fintech developments for banks and bank supervisors," February 2018.

Annex – Metrics to be initially monitored by the FSB[15,16]

Channel	Metric	Collection/Source
Primary risks / basic market statistics	Market capitalisation (size and rate of growth), price levels and volatility of major crypto-assets Developments in non-FSB jurisdictions (qualitative)	BIS, based on public sources IMF
Confidence effects	Qualitative market intelligence gathering	Periodically by the FSB, from members and through regular calls and meetings
Wealth effects / market capitalisation	Market capitalisation metrics i. Size and rate of growth ii. ICO issuance iii. Inflows/outflows from fiat currencies	BIS, based on public sources
	Price metrics i. Price levels ii. Price volatility iii. Rate of growth	BIS, based on public sources
Institutional exposures	Derivatives metrics i. Trading volumes ii. Price levels and open interest iii. Number and type of clearing members iv. Margining	FSB Secretariat and member authorities, based on publicly available CCP disclosures and/or publicly available market data
	Market capitalisation metrics	As above
	Banks' exposures to crypto-assets	BCBS
Payments and settlement	Wider use in payments and settlements	CPMI, based on member and collective intelligence gathering
Comparators	Comparisons of volatility and correlations between major crypto-currencies with other asset classes such as gold, currencies, equities	BIS, based on public sources

[15] As technology evolves and market conditions develop, other metrics may be appropriate for collection if the FSB deems it necessary.

[16] As outlined on p. 3, any analysis of the metrics as well as the interpretation of the results, should appropriately take into account the information outlined in the disclaimer on data quality and reliability.