2023/10/12 16:45 1/10

Question: 07. What tools could be considered to mitigate any adverse impact of CBDC on the financial sector? Would some of these tools diminish the potential benefits of a CBDC?

Question: 07. What tools could be considered to mitigate any adverse impact of CBDC on the financial sector? Would some of these tools diminish the potential benefits of a CBDC?

Return to CBDC Benefits, Risks, and Policy Considerations | **Provide Feedback**

Question

Return to Top

1. **What <u>tools</u> could be considered to <u>mitigate any adverse impact of CBDC</u> on the financial sector?**
2. **Would some of these <u>tools</u> diminish the potential benefits of a CBDC?**

Answer

Return to Top

Before an answer can be formulated to the question, it is important to clarify the part of the question **mitigate any adverse impact of CBDC**. Since there is not currently a U.S. CBDC nor even a design for a U.S. CBDC, at this point in time, the adverse impacts are conjecture. Therefore, it is not possible to Mitigate[1] the adverse impact of an unknown.

Consequently, the following question will be answered:

- **<u>What tools could be considered to address any negative aspects of a CBDC in the financial sector?</u>**

Probably the biggest negatives for the CBDC would be similar to those that are currently the biggest problem of Cryptocurrencies. These include:

- Lack of a solid, U.S. CBDC Platform
- Lack of adherence to reporting requirements on transactions, thus supporting criminal activity
- Lack of well defined and understood metrics and assessment of the overall value of the currency

Lack of a Solid CBDC Platform

Return to Top

The Financial Sector could be adversely affected by U.S. CBDC failing due to inadequate planning, designing, and implementation of a CBDC Platform. Many of these inadequacies could be addressed by using the proper tools during the creation, development, and deployment of the CBDC. Many of these tools have been eluded to throughout this response and have been identified in the OMG DIDO-Reference Architecture (DIDO-RA).

In summary, some of these tools are listed here.

By all descriptions, the U.S. CBDC is primarily a large System-of-Systems (SoS) or even an SoS of SoSs. Some of these would ideally already exist and some will need to be created. The new systems are predominately a Software (SW) effort. Yes, there will be some specialized Hardware(HW) required, but the primary focus appears to be Software (including Commercial-Off-The-Shelf (COTS), Government Off-The-Shelf (GOTS), or Modified Off-The-Shelf (MOTS). This software will ultimately need to be Managed and Modified.

- See Section Question: 11. Are there additional ways to manage potential risks associated with CBDC that were not raised in this paper? for more specifics.

Would some of these tools diminish the potential benefits of a CBDC?

Return to Top

The following tools are used during Requirements Analysis:

- Assessing Requirements
- ISO/IEC 25030:2007 SQuaRE -- Quality Requirements

The following tools are used during Modelling:

- SQuaRE -- System and Software Quality Models
- SQuaRE -- Data Quality Model
- Business Motivation Model (BMM)
- Business Process Model And Notation (BPMN)
- Common Warehouse Metamodel (CWM)
- Distributed Ontology, Model, and Specification Language (DOL)
- Semantics Of Business Vocabulary and Rules (SBVR)
- Systems Modeling Language (SysML)
- Unified Architecture Framework (UAF)
- Unified Modeling LanguageTitle (UML)

The following tools are used to aid in the development of software, particularly the development of Open Source Software (OSS).

- Archiving and Release Management
- Bug and Issue Tracking
- Code Reviews

- Contributor License Agreements (CLA)
- GitHub Management at Corporate Scale
- Logging Tools
- Open Source Paradigm
- Project Quality
- Source Code Scanning and License Compliance
- Tracking Project Health
- How to create an open source program
- Measuring your open source program's success
- Tools for managing open source programs
- Using open source code
- Participating in open source communities
- Recruiting open source developers
- Starting an open source project
- Improve your open source development impact
- Shutting down an open source project
- Building leadership in an open source community
- Setting an Open Source Strategy

Lack of Reporting and Oversight

Return to Top

According to Jason Bloomberg[2], the Cryptocurrency transactions can be classified into eight different categories, see Figure 1, and Table 1.

1. **Speculation** ‡
2. Darknet
3. Money Laundering
4. Ransomware
5. Evading Sanctions
6. Crypto Theft
7. Hacking Crypto Infrastructure
8. **Legitimate** ‡

   Note: ‡ Considered useful to the economy

Figure 1: Eight Common Cryptocurrency Transaction Types.[3]

Of the eight types of Crypto Transactions, only 2 would be considered useful to an economy: **Speculation** and **Legitimate**. The remainder of the Transaction Types are not considered desirable and should be actively discouraged by a U.S. CBDC as is currently the case with the U.S. Dollar. See Sections 4.5 National Security Considerations, and 4.6 International Considerations.

   Note: Even though **Speculation** is not considered bad *per se*, it has come under further U.S.

Federal Scrutiny. See the Volker Rule which limits the types and kinds of speculation that financial institution can participate in. A U.S. CBDC would need to follow similar rules and not provide a "back door" around these kinds of transactions.

Even the much-touted Privacy aspect of the cryptos is a double-edged sword. Granted, it does offer some anonymity to transactions, but without proper safeguards and assessment of the Crypto and its platform, there can be privacy breaches leading to harm. See Section 4.4 National Privacy Considerations. Sometimes these breaches have to do with fraud and theft of Cryptos, other times they can divulge proprietary aspects of transactions such as who is transacting with whom and when.

Table 1: Taxonomy of the Transactions Types used in Cryptocurrencies.[4]

Rank	Cryptocurrency Transaction Type	Description
1	Speculation	Speculation is far from being the only reason to conduct transactions with crypto.[5]
2	Darknet Transactions	The Darknet consists of parts of the Internet that standard search engines cannot reach – those dark corners of the Web where purveyors of contraband from illegal drugs to child pornography do business. In fact, if it weren't for crypto, the Darknet would be a mere shadow of its current self – and Bitcoin remains the coin of the realm. "Bitcoin is the most common form of payment for drug sales on darknet marketplaces and is emerging as a desirable method to transfer illicit drug proceeds internationally," according to the US Drug Enforcement Agency's (DEA's) 2017 National Drug Threat Assessment Report. "Bitcoin is the most widely used virtual currency due to its longevity and growing acceptance at legitimate businesses and institutions worldwide."[6]
3	Money Laundering	Remember the piles of illicit currency from Scarface, or for that matter, Breaking Bad? Back in the day, turning criminal gains into legitimate assets required processing mountains of cash. Not so much anymore. Today, in spite of (or perhaps because of) dramatic improvement in anti-money laundering (AML) regulatory enforcement, the money laundering action has largely moved to crypto. "97% of criminal Bitcoin directly received by [crypto] exchanges flowed into those Located in countries with weak AML laws," writes CipherTrace Cryptocurrency Intelligence in its report Cryptocurrency Anti-Money Laundering Report 2018 Q3. "Cryptocurrency exchanges in countries with weak AML regulation receive nearly 5% of their payments directly from criminal sources." In particular, given China's restrictions on the movement of capital, crypto has become quite popular for evading its laws. "CUBS [Chinese Underground Banking Systems] money brokers sell Bitcoin to drug traffickers for cash earned from drug sales in the US, Australia, and Europe. This drug cash is then sold to Chinese nationals in exchange for Bitcoin the Chinese nationals use to transfer the value of their assets outside of China," according to the DEA report. "Many China-based firms manufacturing goods used in TBML [Trade Based Money Laundering] schemes now prefer to accept Bitcoin. Bitcoin is widely popular in China because it can be used to anonymously transfer value overseas, circumventing China's capital controls."[7]

Rank	Cryptocurrency Transaction Type	Description
4	Ransomware	Ransomware may now be less popular than cryptojacking, but it still remains a potent form of criminal extortion – and it's simpler than ever. "Easy-to-use 'ransomware as a service' can be purchased cheaply on the Darknet, and at least one vendor offers customer support for users of its malware," writes Michael Baker, Founder, and Principal at Mosaic451, a bespoke cybersecurity service provider and a consultancy, and a member of the Forbes Technology Council. "Would-be hackers who don't want to purchase off-the-shelf ransomware can hire black-hat coders for custom development. All of these services are bought and sold using – you guessed it – cryptocurrency." Even our phones aren't safe from this pernicious application of crypto. "It is likely that ransomware will target connected devices containing personal data such as photos, emails, and even fitness progress information," according to The cyber threat to UK business 2016/2017 Report by the National Cyber Security Centre of the National Crime Agency in the UK. "Ransomware on connected watches, fitness trackers, and TVs will present a challenge to manufacturers," the report continues. "This data may not be inherently valuable, and might not be sold on criminal forums but the device and data will be sufficiently valuable to the victim that they will be willing to pay for it."[8]
5	Evading Sanctions	It's no surprise that countries like North Korea are desperate for hard currency – and crypto gives them one avenue to obtain it. "Crypto-currencies have the added advantage to the DPRK [North Korea] of giving them more ways to circumvent US sanctions," according to Lourdes Miranda, cryptocurrency analyst, and financial crimes investigator at MirandaFinIntel Consulting, and Ross Delston, an attorney and certified AML specialist who frequently serves as an expert witness. "DPRK can create their own crypto-currencies or use established ones like Bitcoin. Having their own crypto-currency would also facilitate their ability to open online accounts under the guise of a non-adversarial nation using anonymous communication to conceal the user's locations and usage on the internet." Furthermore, while the United States and many of its allies have sanctions against such countries as North Korea and Iran, there are also economic sanctions against much larger economies like Russia that encourage Mr. Putin's empire to make serious investments in crypto. Such investments, in fact, take place at the nation-state level. "[The] Russian government is about to take a step to start diversifying financial reserves into Bitcoin since Russia [is] forced by US sanctions to dump US Treasury bonds and [take] back US dollars," according to Vladislav Ginko, an economist at the Russian Presidential Academy of National Economy and Public Administration, which is ironically funded by the Russian government itself. "These sanctions and the will to adopt modern financial technologies lead Russia to the way of investing its reserves into Bitcoin."[9]

Rank	Cryptocurrency Transaction Type	Description
6	**Crypto Theft**	Money laundering, ransomware, and state-sponsored sanctions evasion all have a spine-tingling James Bond flavor to them – but what about simple theft? "CipherTrace revealed a three-fold increase in cryptocurrency thefts during the first half of 2018 compared with the entire year of 2017," according to the Cryptocurrency Anti-Money Laundering Report 2018 Q3 by CipherTrace Cryptocurrency Intelligence. "CipherTrace estimates this trend will bring the total stolen and reported in 2018 to well over \$1 billion by the end of [2018]." The FBI, in fact, is warning about a type of theft that is targeting holders of small amounts of crypto. "Virtual currency is increasingly targeted by tech support criminals, with individual victim losses often in the thousands of dollars," according to the FBI Public Service Announcement I-032818-PSA from March 2018. "Victims contact fraudulent virtual currency support numbers usually located via open-source searches. The fraudulent support asks for access to the victim's virtual currency wallet and transfers the victim's virtual currency to another wallet for temporary holding during maintenance. The virtual currency is never returned to the victim."[10]
7	**Hacking Crypto**	Why bother stealing crypto if you can simply print more for yourself? That's exactly what a particular group of criminals accomplished earlier in 2019 by targeting weaknesses in Ethereum Classic, one of the most popular cryptos behind Bitcoin. "We observed repeated deep reorganizations of the Ethereum Classic blockchain, most of which contained double spends," reports Mark Nesbitt, Security Engineer at Coinbase. "The total value of the double spends that we have observed thus far is 219,500 ETC (~\$1.1M)." Double spending means taking the same unit of crypto and spending it twice – the online equivalent of running your greenbacks through a copier. A victimless crime, perhaps? You be the judge.[11]
8	**Legal Use**	Let us not forget the eighth type of crypto transaction: legal transactions that exchange crypto for goods and services – you know, like real money. Some crypto fans would have you believe that using crypto at your local coffee shop – or even sending funds to your relatives in Venezuela for buying food there – will be the prominent use of crypto at some point in the near future. Don't believe it. "Cryptocurrencies will likely become a bigger part of the cybercrime realm," concludes Yaya Jata Fanusie, director of analysis for the Center on Sanctions and Illicit Finance at the Foundation for Defense of Democracies. "Any police and intelligence departments dealing with cyber issues need to deepen their expertise on cryptocurrencies and blockchain technology."[12]

Would some of these tools diminish the potential benefits of a CBDC?

[Return to Top](#)

Thinking about the U.S. CBDC as just another form of U.S. Currency and requiring the implementation to enforce the same rules will allow the leveraging of existing tools. See Section 4.7 Dual Payment Networks.

Figure 2: Theoretical Very Simplified Dual ACH-CBDC Network Concept.

There will most undoubtedly need to be more tools developed and the existing ones updated to counteract the "arms race" between criminal activity and the security of the Financial Services.

Measuring Value

[Return to Top]

> The question is I do not understand where the backing of Bitcoin is coming from, you have to really stretch your imagination to infer what the intrinsic value of bitcoin is. I haven't been able to do it.
> Alan Greenspan, former chairman of the Federal Reserve. [13]

A major problem confronting the Cryptocurrency world is the lack of tools and metrics to assess the intrinsic value of a Cryptocurrency offering. Unfortunately, at the present, most of the ways of assessing a cryptocurrency's values are to use non-empirical methods. Yes, some of the data can be empirical in nature (i.e., Market Cap), but the majority rely on feelings, emotions, and groupthink.

Table 2 provides a list developed by Richard Knight on the Seven Steps to Analyzing Crypto Projects Before Investing[14]. It is interesting to note, that only the first step on **Check the Market Listing** uses empirical data, all the others rely on non-empirical data.

Table 2: Seven Steps to Analyzing Crypto Projects Before Investing[15]

Step	Activity	Description
1	**Check the Market Listing**	'The first step is to look up the project on a cryptocurrency aggregator. The two largest cryptocurrency aggregators are CoinMarketCap and Coingecko. CMC is the most well-known while CoinGecko is known for more smaller-cap projects. These sites provide a high-level overview of the project: trading history, crypto ranking, a brief description of the project as well as the primary links to the project website and the project's social media links. [16] 1. Project Ranking 2. Market Cap 3. Price History 4. Trading Volume & Liquidity 5. Circulating Supply vs Total Supply 6. The Price

Step	Activity	Description
2	**Visit the Project Website**	If the initial review of the project details on the cryptocurrency aggregator site looks positive, then the next step would be to check out the project website. Visiting a project's official website is a must! There is no excuse for a poorly developed website. Today it is very easy and relatively inexpensive to develop a clean and functional website. The project website should be well put together, functional and openly share details about the project, the people behind it, the roadmap, and the investors (if applicable). If the website is of poor quality, has spelling mistakes, is reluctant to disclose to the team members, or even worse is a copy-and-paste of a prior fork, then these are all cause for concern and should be avoided. [17] 1. The Team (developers, executives, partners, advisors) 2. The Road Map & Vision 3. Investors
3	**Check Social Media Profiles**	If everything looks good at this point, the next step is to check the social media profiles. This step will take a bit more time to assess. [18] 1. Twitter 2. Telegram / Discord 3. Reddit
4	**Assess the Community**	It's likely been said many times and worth saying again — No community, no future. It is the community supporting the project which makes it successful! It can't be underestimated the importance of the community. If you are familiar with either Doge or Shibu, it was the community that brought these projects to great heights. The enthusiasm and size of the community play a large role in the initial and continued success of the project. Look for cryptocurrencies with strong, active communities. This is a good sign that there is genuine interest and belief in the project. Again, it's worth noting that Reddit is a great place to start researching the community and gaining 'street knowledge' not otherwise available anywhere else. [19]
5	**Read the White Paper**	A white paper is a document created by a crypto project that provides investors with technical information about the project, including the concept, the roadmap as well as how the project plans to grow and succeed. A project's white paper can provide insight into the inner workings of the project. Although many white papers may be highly technical, it is an important data point in assessing the quality of the project and the team behind it. If there is no White Paper, generally this is seen as a red flag. Also, White Papers with spelling mistakes, unnecessary technicality, or lacking basic grammar and punctuation are also red flags. [20]

Step	Activity	Description
6	**Understand the Utility & Use Case**	For the long-term viability of a project, it needs to have a well-defined and clear use case. Does the project solve an important problem? If you are looking to invest in this project for the long term, then the answer needs to be a definitive YES. A project's success is directly related to something which its users will need (or want). While gaming and metaverse projects may not at first glance solve an important problem, they do offer something people want. No matter the niche or project, it must be able to solve an important problem (or need). When assessing the utility or use case of a project, it's important to look at both the current demand and potential future demand. Does the potential future demand include worldwide adoption or is it only local? If you are not able to determine the reasons or motivations for significant future demand, then then it's likely not a project you will want to hold for the long term. [21]
7	**Conduct Scam Checks**	Unfortunately, there are many scams within crypto and these scams are becoming increasingly more sophisticated, such as malicious contracts and rug pulls which are very difficult to detect for the average investor. To help protect against these potential scams as well as provide additional (technical) analysis of the project, there are many free online tools that can help.[22] Some of the tools: 1. Scamsniper 2. BSCheck 3. RugDoc 4. Token Sniffer

However, investors are used to a rich set of tools and metrics to assess the quality of investments. Here are some of the metrics (i.e., tools) used to assess the worthiness of the investment. Some widely used examples of metrics used to assess stocks values are:

<cpation>Some Existing tools (i.e., metrics) used by traditional investers.
Table 3:

- Debt-to-Equity ratio (D/E)
- Free Cash Flow (FCF)
- Price/Earnings-to-Growth (PEG) ratio
- Trailing Price-to-Earning (P/E)
- Forward Price-to-Earning (Forward P/E)
- Market Capitalization
- Market Value
- The Volatility Index (VIX)
- High-Low Index
- Bullish Percent Index
- Moving Averages

Would some of these tools diminish the potential benefits of a CBDC?

[Return to Top](#)

What tools are available, and which ones can be used with a U.S. CBDC is dependent on the system requirements, design, implementation of the CBDC, and ultimately which Asset Class it becomes. For the most part, the current tools set in use for the U.S. Dollar should be applicable to the CBDC with only minor tweaks if it is considered as a **cash or cash equivalent** asset. Obviously, the Currency Model selected for the CBDC (i.e., Digital Cash versus Digital Account) and how the CBDC is implemented (i.e., Stablecoins) all become factors in the tools used and the modifications those tools may need.

[1]

Collins Dictionary, To mitigate something means to make it less unpleasant, serious, or painful. Accessed: 5 May 2022, https://www.collinsdictionary.com/us/dictionary/english/mitigate

[2], [3], [4], [5], [6], [7], [8], [9], [10], [11], [12]

Jason Bloomberg, The Eight Most Popular Cryptocurrency Transaction Types Are Not What You Expect, Forbes, 19 July 2019, Accessed 5 May 2022, https://www.forbes.com/sites/jasonbloomberg/2019/01/19/the-eight-most-popular-cryptocurrency-transaction-types-are-not-what-you-expect/?sh=4680b45616ea

[13]

Jason Bloomberg, What Is Bitcoin's Elusive Intrinsic Value?, Forbes, 26 June 2017, Accessed: 5 May 2022, https://www.forbes.com/sites/jasonbloomberg/2017/06/26/what-is-bitcoins-elusive-intrinsic-value/?sh=435db04f7194

[14], [15], [16], [17], [18], [19], [20], [21], [22]

Richard Knight, How to Evaluate a Cryptocurrency - 7 Steps to Analyzing Crypto Projects Before Investing, 3 January 2022, Accessed: 5 May 2022, https://medium.datadriveninvestor.com/how-to-evaluate-a-cryptocurrency-c4c9d37ebbff

From:
https://www.omgwiki.org/CBDC/ - **OMG Central Bank Digital Currency (OMG-CBDC) Working Group (WG) Wiki**

Permanent link:
https://www.omgwiki.org/CBDC/doku.php?id=cbdc:public:cbdc_omg:04_doc:20_comments:brp:q07:start

Last update: **2022/06/17 18:55**