User consultation

F.18 The Recording of Fungible Crypto Assets in Macroeconomic Statistics

Crypto Assets Without Corresponding Liability: Background Note on the Proposed Options

Prepared by the SNA and BPM editors

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Background Note on the Proposed Options

(Refer to guidance note F.18 Recording of Fungible Crypto Assets in Macroeconomic Statistics, for full details)

1. **Crypto assets are digital representations of value** that rely on cryptography and decentralized peer-to-peer architecture based on distributed ledger technology (DLT), which enables two parties to directly transact with each other without the need for a trusted intermediary.

2. **Crypto assets can be broken down into fungible and non-fungible**. The former refers to assets which are divisible and not unique. Bitcoin and Ether are prominent examples of fungible crypto assets—one bitcoin is equal to any other bitcoin and can be divided into equal pieces of similar value. Conversely, non-fungible crypto assets, commonly referred to as nonfungible tokens, are unique and non-divisible.

3. **Fungible crypto assets can be grouped into three broad categories:**

   a) Crypto assets designed to act as a general medium of exchange[1]
      - ✓ with a corresponding liability (e.g., stable coins such as the USD coin that are claims on the issuer)
      - ✓ without a corresponding liability (e.g., Bitcoin and Ether)—known as non-liability crypto assets

   b) Crypto assets that only act as a medium of exchange within a platform or network
      - ✓ with a corresponding liability (e.g., stable coins with a claim on the issuer within a platform)
      - ✓ without a corresponding liability—also part of the non-liability crypto assets[2]

   c) Security tokens (which always have a counterpart liability): crypto assets which have the characteristics of debt, equity, and derivatives

4. **This consultation focuses on non-liability crypto assets (e.g., Bitcoin and Ether). In discussions so far, valid arguments have been made to treat these crypto assets as either financial or nonfinancial assets, in macroeconomic statistics such as the national accounts, balance of payments, and monetary and financial statistics.** The rationale supporting their classification as financial or nonfinancial assets are presented below so that respondents can indicate their preferred option after assessing them. Annex 1 presents numerical examples of the proposed options, Annex 2 present the proposed classification of the options in the macroeconomic standards and Annex 3 presents a summary of the pros and cons of each option.

5. **In addition, there have been discussions on whether non-liability crypto assets should be regarded as produced or non-produced nonfinancial assets[3], which may have an impact on macroeconomic aggregates such as GDP and gross fixed capital formation (especially for the countries involved in mining these crypto assets or in designing and bringing them into**

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[1] Medium of exchange is defined as a means for acquiring nonfinancial assets (goods, merchandise equipment, etc.), services, and financial assets without resorting to barter. Means of payment, on the other hand, refers to the instrument used to make the payment, such as a check, debit, or credit card.

[2] The drafting team has not yet found a good example of this specific category, but still decided to include it to arrive at a comprehensive classification from a conceptual perspective.

[3] By contrast, financial assets are not considered to result from a process of producing goods and services.

circulation). The rationale supporting their classification as produced or non-produced nonfinancial assets is also presented below so that respondents can indicate their preferred option.

Rationale for Classifying Non-Liability Crypto Assets as a New Type of Financial Asset

6. **This approach recommends classifying non-liability crypto assets as financial assets because they are designed to act as a general medium of exchange.** This would require expanding the definition of financial assets, which currently consists of financial claims, including shares and other equity, and, by convention, gold bullion held as monetary gold.[4] Gold bullion held as monetary gold is the only case of a financial asset with no counterpart liability.[5]

7. **Viewpoints for treating non-liability crypto assets as financial assets consider that most nonfinancial assets derive their value from benefits that can be obtained from their (direct or indirect) use in production activities, which is not the case for non-liability crypto assets.** Furthermore, unlike many valuables[6], these assets do not derive their intrinsic value from underlying artistic and/or sentimental reasons, but instead from the expectation that they may (now or in the future) be used as a medium of exchange. Therefore, it is unlikely that treating non-liability crypto assets as a financial asset would open the door for other commodities frequently traded in financial markets (such as nonmonetary gold, silver, platinum, etc.) to be treated as a financial asset, as they do not derive their value from similar expectations.

8. **Recording non-liability crypto assets as nonfinancial assets would lead to the recording of barter trade when used as a medium of exchange to purchase goods and services**, with corresponding implications for the current account balance and institutional sector net lending/net borrowing.[7]

9. **Those supporting the financial asset option consider that the discussion on whether non-liability crypto assets are money or not is not relevant for deciding their classification.** It is noted that these assets do not generally meet the standard definitions of money, which is the case with many other financial assets. Therefore, their classification as financial assets should be based on the considerations presented above, as a new separate asset class.

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[4] Monetary gold is defined as gold to which monetary authorities have title that is held as reserve assets. It includes gold bullion and unallocated gold accounts. Gold bullion not held as reserve assets is included in nonmonetary gold and considered a nonfinancial asset. Treating monetary gold as a financial asset is mainly linked to the role it plays in international payments and reserves management.

[5] Proponents of the treatment as financial assets also argue that fiat currency could be considered as a similar case, as the claim on the money issuer—usually the central bank—is often a matter of convention.

[6] The produced nonfinancial asset option proposes treating these assets as digital valuables. Valuables are a sub-category of produced nonfinancial assets and defined as produced goods of considerable value that are not used primarily for purposes of production or consumption but are held as stores of value over time. Refer to footnote 12 for the definition of produced nonfinancial assets

[7] If treated as produced assets, the current account will be unaffected by trade transactions paid with non-liability crypto assets, while the creation (for the countries involved in mining) and net acquisition of those assets would contribute to gross capital formation.

10. **Following this option, the activities of miners and validators would be considered as the provision of validation services**, for which they are remunerated via explicit fees and via new coins either in return for mining or for other ways of validating transactions.

Rationale for Classifying Non-Liability Crypto Assets as a New Type of Nonfinancial Asset

11. **Treating non-liability crypto assets as a nonfinancial asset would be consistent with the current convention that financial assets require the existence of a counterpart liability in macroeconomic statistics, except in the case of gold bullion held as monetary gold.** As noted earlier, an asset is generally regarded as financial when there is a corresponding claim on another institutional unit, and non-liability crypto assets do not represent a claim on another institutional unit.

12. **Supporters of this treatment consider that there is not a strong enough basis to warrant applying the same special treatment—for historical reasons—afforded to gold bullion held as monetary gold to non-liability crypto assets**. Given that these assets are primarily designed to act as a medium of exchange, they consider that non-liability crypto assets could be treated as financial assets only if they meet the definition of money, which is not currently the case.[8]

13. **Considering their current use as investment assets for speculation, they are more suitable to be classified as nonfinancial assets (similar to precious metals/commodities traded in financial markets).** There is evidence that the use of non-liability crypto assets for speculation purposes is at present substantially higher than their use for purchasing goods and services. As such, they do not meet the criteria for recording them as money. It is thus proposed to treat these assets as a new subclass of nonfinancial assets, either as produced or non-produced (see below), until there is evidence that they are widely used as a medium of exchange (in simple terms, for purchase of goods and services).[9]

14. **As there is no identified issuer for non-liability crypto assets, recording them as financial assets would create imbalances between the sum of financial assets and the sum of liabilities.** In addition, classifying them as financial assets would imply the need to decide whether these assets (which have no issuer/counterpart) should be considered as domestic or cross-border, i.e., whether they should be included or not in the international investment position (IIP).[10]

Produced or non-produced non-financial assets

15. **If non-liability crypto assets are treated as nonfinancial assets, a choice must be made whether these assets are produced or non-produced.** This has an impact on important macroeconomic aggregates such as GDP and gross capital formation.

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[8] To qualify as money, assets should meet the following criteria: must be issued or authorized by the government; be a generally accepted means of payment; be a reliable or stable store of value; be a unit of account; and be a widely used medium of exchange.

[9] Proponents of nonfinancial asset option also note that this treatment is consistent with the current international accounting standards (see the IFRS Interpretation Committee Agenda Decision of June 2019).

[10] For the purposes of the examples below, it is necessary to make an assumption about whether the crypto assets are domestic or cross-border. Therefore, as noted in footnote9, they are presumed to be external assets and included in the IIP.

16. **In the case of a recording as produced assets, the miners that solve cryptographic puzzles (for mineable coins), or the designer that brings the assets in circulation (in case of non-mineable coins), are considered to be producers of crypto assets.** The result of their production process, the newly created assets, are recorded as part of gross capital formation, and thus add to GDP. While intuitively appealing in the case of miners who become the owner of the crypto assets they've mined, this may be less so for non-mineable crypto assets.

17. **The alternative is to look upon the work of miners and validators as providing validation services, for which they are remunerated via explicit fees and via new coins**, either in return for mining or for other ways of validating transactions. The remuneration via new coins can be regarded as a way of keeping explicit fees low. These validation services would then be consumed either by the payer of the explicit fees or as implicit fees payable by the owners of already existing coins, as the release of new coins dilutes the value of existing coins. The impact on GDP would depend on the recording of this use as either final consumption or intermediate consumption.

18. **Considering the non-liability crypto assets as being non-produced brings consistency in recording these assets regardless of the way in which they are brought into circulation. On the other hand, practical implementation of this recording may require some assumptions, and it may become more complicated to assign the consumption of the validation services to their users, including those across borders, which may consequently lead to bilateral asymmetries.**

ANNEX 1: Examples to Understand the Implication of Recording Non-Liability Crypto Assets as Financial or Nonfinancial (produced or non-produced) Assets

Example 1: Resident in Country A purchases 100 units of Bitcoin from Resident in Country B for US$100.[11]

Country A	Non-Liability Crypto Assets treated as		
	Financial Asset (1)	Produced Nonfinancial Asset[12] (2)	Non-produced Nonfinancial Asset (3)
Transactions and positions between residents and non-residents			
Exports of goods			
Imports of goods		100	
Current account balance	0	-100	0
Acquisitions less disposals of non-produced nonfinancial assets (crypto assets)			-100
Net lending/borrowing	0	-100	-100
Transactions in financial assets (crypto assets)	100		
Transactions in financial assets (USD)	-100	-100	-100
Change in net International Investment Position (IIP)	0	-100	-100
Transactions and positions of residents			
Net saving	0	0	0
Acquisitions less disposals of valuables (crypto assets)		100	
Acquisitions less disposals of non-produced nonfinancial assets (crypto assets)			100
Net lending/borrowing	0	-100	-100
Transactions in financial assets (USD)	-100	-100	-100
Transactions in financial assets (crypto assets)	100		

Country B	Non-Liability Crypto Assets treated as		
	Financial Asset (1)	Produced Nonfinancial Asset (2)	Non-produced Nonfinancial Asset (3)
Transactions and positions between residents and non-residents			
Exports of goods		100	
Imports of goods			
Current account balance	0	100	0
Acquisitions less disposals of non-produced nonfinancial assets (crypto assets)			100

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[11] In all these examples: i) US$ is external asset for all the countries; and ii) Bitcoin is considered as an external asset for all the countries when it is treated as a financial asset (column 1).

[12] Two different categories of nonfinancial assets are distinguished in macroeconomic statistics: produced and non-produced. Produced assets are nonfinancial assets that have come into existence as outputs from production processes; and non-produced assets are nonfinancial assets that have come into existence in ways other than through production.

Country A	Non-Liability Crypto Assets treated as		
	Financial Asset (1)	Produced Nonfinancial Asset[12] (2)	Non-produced Nonfinancial Asset (3)
Net lending/borrowing	0	100	100
Transactions in financial assets (crypto assets)	-100		
Transactions in financial assets (USD)	100	100	100
Change in net IIP	0	100	100
Transactions and positions of residents			
Net saving	0	0	0
Acquisitions less disposals of valuables (crypto assets)		-100	
Acquisitions less disposals of non-produced nonfinancial assets (crypto assets)			-100
Net lending/borrowing	0	100	100
Transaction in financial assets (USD)	100	100	100
Transactions in financial assets (crypto assets)	-100		

Summary of main differences in the key aggregates based on the recording options:

Transactions and positions between residents and non-residents

➢ Recording as a nonfinancial asset (columns 2 and 3) decreases net IIP by 100 for Country A and increases net IIP by 100 for Country B. Further, produced nonfinancial asset option (column 2) results in a decrease of current account by 100 for Country A and an increase of 100 for Country B.

➢ No change occurs to the net IIP of both countries when Bitcoin is treated as a financial asset (column 1).

Transactions and positions of residents

➢ Recording as a produced nonfinancial asset (column 2) increases capital formation by 100 for Country A and decreases the stock of nonfinancial assets by 100 for Country B.

➢ Recording as a non-produced nonfinancial asset (column 3) increases the stocks of non-produced nonfinancial assets by 100 for Country A and decreases the stocks of non-produced nonfinancial asset by 100 for Country B.

➢ For the nonfinancial asset options (columns 2 and 3), the recording results in net borrowing of 100 for Country A and net lending of 100 for Country B. There would be no impact on net lending/borrowing for both countries when Bitcoin is treated as a financial asset (column 1).

➢ Net saving remains unchanged for both countries, irrespective of whether Bitcoin is treated as financial or nonfinancial.

Example 2: Resident in Country A imports goods[13] of US$80 from Resident in Country C and pays with Bitcoin.

Country A	Non-Liability Crypto Assets treated as		
	Financial Asset (1)	Produced Nonfinancial Asset (2)	Non-produced Nonfinancial Asset (3)
Transactions and positions between residents and non-residents			
Exports of goods		80	
Imports of goods	80	80	80
Current account balance	-80	0	-80
Acquisitions less disposals of non-produced nonfinancial assets (crypto assets)			80
Net lending/borrowing	-80	0	0
Transactions in financial assets (crypto assets)	-80		
Change in net IIP	-80	0	0
Transactions and positions of residents			
Intermediate consumption	80	80	80
Net saving	-80	-80	-80
Acquisitions less disposals of valuables (crypto assets)		-80	
Acquisitions less disposals of non-produced nonfinancial assets (crypto assets)			-80
Net lending/borrowing	-80	0	0
Transaction in financial assets (crypto assets)	-80	0	0

Country C	Non-Liability Crypto Assets treated as		
	Financial Asset (1)	Produced Nonfinancial Asset (2)	Non-produced Nonfinancial Asset (3)
Transactions and positions between residents and non-residents			
Exports of goods	80	80	80
Imports of goods		80	
Current account balance	80	0	80
Acquisitions less disposals of non-produced nonfinancial assets (crypto assets)			-80
Net lending/borrowing	80	0	0
Transactions in financial assets (crypto assets)	80		
Change in net IIP	80	0	0
Transactions and positions of residents			
Output (exported goods)	80	80	80
Net saving	80	80	80

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[13] In this example, it is assumed that the imported goods enter into inventories.

Country A	Non-Liability Crypto Assets treated as		
	Financial Asset (1)	Produced Nonfinancial Asset (2)	Non-produced Nonfinancial Asset (3)
Acquisitions less disposals of valuables (crypto assets)		80	
Acquisitions less disposals of non-produced nonfinancial assets (crypto assets)			80
Net lending/borrowing	80	0	0
Transactions in financial assets (crypto assets)	80	0	0

Summary of main differences in the key aggregates based on the recording options:

Transactions and positions between residents and non-residents

➤ Recording as a nonfinancial asset (columns 2 and 3) has no impact on the net IIP of either country.

➤ Recording as a produced nonfinancial asset (column 2) has no impact on the current account balance of either country—as Bitcoins are recorded as transactions in goods.

➤ Conversely, when Bitcoin is treated as a financial asset (column 1) the net IIP of Country A decreases by 80, while the IIP of Country C increases by the same amount.

Transactions and positions of residents

➤ Recording as a nonfinancial asset (columns 2 and 3) keeps financial assets unchanged and reduces the stocks of nonfinancial assets for country A, and increases them in country C. Further, if treated as nonfinancial assets, the stocks of capital assets decrease for country A and increases for country C.

➤ Conversely, recording as financial assets (column 1) increases the stocks of nonfinancial assets and decreases the stocks of financial assets by 80 for Country A, with an increase in the stocks of financial assets by 80 for Country C.

➤ There would be no impact on net lending/borrowing for either country when Bitcoin is treated as a nonfinancial asset. Conversely, when Bitcoin is treated as a financial asset Country A becomes a net borrower of 80 and Country C a net lender by the same amount.

➤ Net saving for both countries is the same irrespective of whether Bitcoin is treated as a financial asset or a nonfinancial asset.

ANNEX 2: Options to Record Non-Liability Crypto Assets, such as Bitcoin

Financial assets

	Stocks of assets
AF	Financial assets
AF1	Monetary gold and SDRs
AF2	Currency and deposits
	of which: Central Bank Digital Currencies (CBDCs)
AF3	Debt securities
	of which: debt security crypto assets
AF4	Loans
AF5	Equity and investment fund shares
	of which: equity crypto assets
AF6	Insurance, pension and standardized guarantee schemes
AF7	Financial derivatives and employee stock options
	of which: derivative crypto assets
AF8	Crypto assets designed to act as medium of exchange
AF81	*…with a corresponding liability, e.g., stablecoins*
AF81	*…without a corresponding liability, e.g., bitcoins*
AF9	Other accounts receivable/payable

Produced nonfinancial assets

	Stocks of assets
AN	**Non-financial assets**
AN1	Produced non-financial assets
AN11	*Fixed assets*
AN12	*Inventories*
AN13	*Valuables*
	of which: crypto assets without a corresponding liability designed to act as medium of exchange, e.g., bitcoins
AN2	Non-produced non-financial assets

Non-produced nonfinancial assets

	Stocks of assets
AN	**Non-financial assets**
AN1	Produced non-financial assets
AN2	Non-produced non-financial assets
AN21	*Natural resources*
AN22	*Contracts, leases and licences* *of which: crypto assets without a corresponding liability designed to act as medium of exchange, e.g., bitcoins*
AN23	*Goodwill and marketing assets*

Annex 3: Pros and cons of the proposed options for classifying non-liability crypto assets

Financial Assets	Produced Nonfinancial Assets	Non-Produced Nonfinancial Assets
Consistent with the view that some financial assets (like monetary gold, money, equity, etc.) do not need to have a counterpart liability	Consistent with the view that all financial assets (except monetary gold) should have a counterpart liability	Consistent with the view that all financial assets (except monetary gold) should have a counterpart liability
Consistent with the view that miners do not actually produce coins but receive them in exchange for validation services	Consistent with the view that mining non-liability crypto assets is akin to a production process, and they appear for the first time in the wallet of miners	Consistent with the view that miners do not actually produce coins but receive them in exchange for validation services
	Consistent with the current international accounting standards	
Considering it as a financial asset (an additional exception) may open the door for other commodities to be treated as financial assets	Inconsistent with the definition of produced nonfinancial assets and requires an expansion of, or change to, one of the categories of produced nonfinancial assets to include this specific type of digital valuables (possibly an update to the current definition of valuables)	Inconsistent with the definition of non-produced nonfinancial assets and requires an expansion of, or change to, one of the categories of non-produced nonfinancial assets to include this specific type contracts (possibly an update to the current definition of contracts, leases, and licenses)
Does not imply barter trade transactions in case non-	Leads to transactions akin to barter trade in	Leads to transactions akin to barter trade in case non-

Financial Assets	Produced Nonfinancial Assets	Non-Produced Nonfinancial Assets
liability crypto asset is used as medium of exchange (i.e., for purchase of goods and services)	case non-liability crypto asset is used as medium of exchange (i.e., for purchase of goods and services)	liability crypto asset is used as medium of exchange (i.e., for purchase of goods and services)
Holdings of non-liability crypto assets may increase the country's net financial position with the rest of the world, without any counterpart external liability, creating an additional inconsistency between total financial assets and liabilities world-wide		
Practical implementation of this treatment may require some assumptions on the counterpart of the implicit validation fee, which may pose challenges and consequently may affect bilateral asymmetries	Adds to GDP (for the countries involved in mining) and capital formation.	Practical implementation of this treatment may require some assumptions on the counterpart of the implicit validation fee, which may pose challenges and consequently may affect bilateral asymmetries