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Issue Note. Recording of Crypto Lending/Borrowing, Staking, Pooled and Cloud Mining in Macroeconomic Statistics

Issue Note: Recording of Crypto Lending/Borrowing, Staking, Pooled and Cloud Mining in Macroeconomic Statistics[1]

BACKGROUND

1. The Guidance Note (GN) F.18, "The Recording of Crypto Assets in Macroeconomic Statistics," provides recommendations on typology and classification of crypto assets. Crypto assets without a corresponding liability designed to act as a general medium of exchange (CAWLM) are treated as nonproduced nonfinancial assets and reported as a separate category.

2. As CAWLM continue to evolve and are becoming more mainstream in the world of finance and business, they are being used to generate additional revenues for their holders through lending and staking, and to support operations for borrowers (e.g., crypto exchanges/digital platforms).

3. Lending of crypto assets with a corresponding liability is relatively straightforward to record as they are treated as financial instruments. However, for CAWLM, further elaboration is necessary on the treatment of lending, staking, pooled and cloud mining.

CRYPTO LENDING: PROPOSED OPTIONS FOR RECORDING STOCKS AND FLOWS

CRYPTO LENDING/BORROWING

4. **Crypto assets lending is a process where institutional units lend their crypto assets to other institutional units for a specified period in exchange for an agreed payment/revenue in crypto assets or in fiat currencies**.[2] It operates like traditional lending in financial instruments, where borrowers receive funds and agree to repay them with interest over a specified period to the lender. The borrower can use the borrowed funds for various purposes, such as lending, trading, investing, and liquidity management. Crypto lending is applicable to both crypto assets with a corresponding liability (e.g., stablecoins) and those without a corresponding liability (e.g., Bitcoins, Ether).

5. **Mostly, crypto lending and borrowing is channeled through crypto exchanges/financial digital platforms** both centralized (CEX) and decentralized (DEX), specialized in this business (e.g., Nexo, YouHolder, Crypto.com).[3] Lenders earn revenue on their crypto holdings while they are being lent out. These platforms offer fixed and flexible accounts to earn revenue on the crypto assets deposited with them.[4] These accounts are known by different names such as interest-bearing accounts, earn programs,

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[1] Prepared by the Crypto Assets Compilation Guidance drafting team in consultation with the SNA/BPM editorial teams.

[2] Financial reports of companies and market participants such as crypto exchanges generally refer to these payments/revenue as "interest".

[3] In addition to crypto lending/borrowing accounts, these platforms typically offer a broad range of financial services centered around crypto assets such as crypto trading (in some cases including NFTs), crypto wallet, staking, tokens of their platform and loyalty programs.

[4] See for example Nexo Fixed term deposits. The balance limit for Bitcoins in the Base tier is 25,000 USD. If the lender's Loyalty level is Base and have 60,000 USD worth of Bitcoins in a fixed term, lender will be earning 4%

crypto earn. On the other hand, institutional units can borrow crypto assets from these platforms at an agreed rate of revenue/payment (known as interest payment).

OUTPUT OF CRYPTO LENDING PLATFORMS

6. The crypto exchanges/platforms act as intermediaries between lenders and borrowers of crypto assets. They take custody of deposited assets, set payment rates, handle collateral, and manage the lending/borrowing process. **They lend crypto assets to borrowers at a higher rate of revenue and pay revenue at a lower rate to institutional units that deposit crypto assets with them.**

7. **For the service provided by the platform, lenders and borrowers pay an implicit fee to the platform, which is the output of these platforms**.[5] Actual payment/revenue (as referred by the platform) on deposited assets and the assets lent (known as loans) can be seen as including both an income element and a charge for a service (i.e., the implicit fee).

PROPOSED OPTIONS FOR RECORDING REVENUE

8. The following options are considered for recording the revenue associated with lending/borrowing of CAWLM:

- Option 1. Property income

  Option 1A: Rent

  Option 1B: Interest

- Option 2. Services

Option 1. Property income

9. This option examines the feasibility of recording revenue from lending/borrowing operations under property income. The Glossary of Terms and Definitions in Macroeconomic Statistics (Glossary) defines property income as:

> *Income receivable by the owner of a financial asset or the owner of a nonproduced nonfinancial asset in return for providing funds to or putting the nonfinancial assets at the disposal of, another institutional unit*.

Two possible sub-options are discussed below.

Option 1A. Rent

10. As CAWLM are classified as nonproduced nonfinancial assets, it could be argued that the revenue receivable from lending these assets to other institutional units may be recorded as rent. Such

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annual interest on 25,000 USD, whereas the remaining 35,000 USD (above the balance limit) will be earning 2.5% annual interest.

[5] The implicit fee could be seen as working in a similar way as “implicit financial services on loans and deposits” or “FISIM” in the *2008 SNA/BPM6*.

treatment will be consistent with the treatment applied to the investment income for nonproduced nonfinancial assets other than CAWLM, but it requires modification to the current definition of rent. **The main argument for modifying the definition of rent is that while the classification of nonproduced nonfinancial assets has been expanded by including CAWLM, the related income associated with nonproduced nonfinancial assets has not followed suite**. Recording as rent would maintain the link between income and the related stocks.[6] If the treatment as rent were to be the preferred option, the definition of rent could be modified by deleting "for use in production" from the current definition, as indicated below.

> *Income receivable by the owner of a nonproduced nonfinancial assets (the lessor or landlord) for putting the assets at the disposal of another institutional unit (a lessee or tenant) ~~for use in production~~.*

11. Further, if the on-lent[7] of borrowed CAWLM to other institutional takes place, the revenue receivable from such lending could be recorded as rent, provided the current definition of rent is modified as indicated above and the following adjustments (text in bold) are made to the guidance on sub-leasing from paragraph 11.90, *BPM6*.

> *If a lessee subleases a **non-produced nonfinancial asset including on-lent crypto assets without a corresponding liability**, the income receivable from the subleasing **or on-lending** should be recorded as rent, as should the income payable to the owner of the **non-produced nonfinancial asset** by the owner of the lease.*

12. Moreover, in the case of lending channeled through crypto lending/borrowing platforms, it would be appropriate to record the total revenue as consisting of two distinct components: i) implicit service charge payable to the platform; and ii) rent excluding the service charge for the deposited assets (see paragraphs 6-7). **However, splitting the total revenue into these two components may be challenging in practice and requires further guidance.**

13. It may be argued that treating the revenue from lending as rent may not be conceptually sound as the current definition requires the assets to be used in production, which is not the case with CAWLM. Further, the concept of rent may be considered narrow in the context of crypto lending as one of the key functions of the platform, i.e., liquidity management, is not captured.

Option 1B. Interest

14. The process of lending/borrowing and the related revenue, especially through platforms, may resemble the interest income receivable by the owners of certain kinds of financial assets. Therefore, **revenue from crypto lending could be recorded as interest as a convention for CAWLM, on the lines of fees for securities lending, gold loans and loans of nonmonetary gold, which are treated as interest (paragraph 11.68, *BPM6*)**. It is emphasized that drawing parallel with gold lending is relevant in this context as the institutional unit that lends CAWLM remains the economic owner as is the case with units lending gold. Further, the institutional units that borrow CAWLM (e.g., crypto exchanges/platforms) can on-lend those assets to other institutional units as they are legal owners of the borrowed assets.

[6] For CAWLM stocks held by domestic institutional sectors (given that stocks of nonproduced nonfinancial assets are not part of the international investment position).

[7] The re-lending of borrowed CAWLM

15. It may be argued that recording the revenue from lending as interest may not be appropriate as it contradicts the concept of interest in macroeconomic statistics. As per the Glossary, interest and similar returns is defined as:

> *Form of investment income or interest-like income that is receivable by the owners of certain kinds of financial assets, namely: deposits, debt securities, loans and other accounts receivable and some similar instruments…..*

16. **Moreover, with this recording, the link between income and related stocks will not be maintained**. For example, in the case of securities lending, the borrower will record investment income debit/expenditure but no financial position.[8] As in the case of rent, it may be argued that recording the total amount of revenue from lending as interest may not be conceptually sound. For example, this completely ignores the intermediation services of crypto lending/borrowing platforms (paragraphs 6-7), in the case of lending/borrowing channeled through them and leads to an underestimation of platforms' contribution to GDP/services trade.[9]

Option 2. Services

17. Revenue from crypto lending may be recorded under services (e.g., financial services, trade-related services, operating leasing services, other business services or a new services category) by **treating it as a payment for making these assets available to another institutional unit.** This treatment could be extended to securities lending and gold loans, and thereby making it possible to treat the revenue from lending of all these assets as explicit service charges.

18. If the CAWLM assets lent to platforms are considered as providing support to validation services and/or other services to support the functioning of the platform, then one can argue that the lending activities are simply other business services. Without these services, the platform will not be able to provide the necessary facilities for crypto transactions. Considering that the activities relating to crypto assets and their use has been continuously evolving, the treatment as services ensures a uniform recording for all types of revenues associated with similar transactions (e.g., crypto staking, cloud, and pooled mining) and could be easily implemented.

19. It may be argued that recording the revenues as explicit service charges may not be appropriate because these arrangements will not hold true when the assets are on-lent, which is the practice with crypto lending. **Services "cannot be traded separately from their production. By the time their production is completed, they must have been provided to the consumers."** (paragraph 6.17, *2008 SNA*).

CRYPTO TRANSACTIONS RELATED TO STAKING, CLOUD AND POOLED MINING

CRYPTO STAKING

[8] This may not be relevant for CAWLM as they are nonfinancial assets.

[9] As revenue appears to consist of two distinct components: i) implicit service charge payable to the platform; and ii) interest excluding the service charge for the deposited assets.

20. Crypto staking is a process where users allocate a certain amount of crypto assets in a designated wallet to actively participate in and support the operations of a blockchain network based on a proof-of-stake (PoS) mechanism. PoS is a consensus mechanism used in blockchain networks to achieve agreement on the state of the network and validate transactions. PoS relies on validators who are chosen to create new blocks and validate transactions based on the amount of cryptocurrency they hold and are willing to "stake" or commit to the network. Stakers, also known as validators, are rewarded for their participation in securing and validating transactions on the network. Staking provides means for cryptocurrency holders to earn rewards while contributing to the network's security and decentralization.

21. Crypto assets holders could participate in staking directly through the blockchain network or using CEX and DEX. Direct participation in staking is also known as active staking and can be distinguished from contribution to staking through CEX/DEX, which are the examples of passive staking. In the case of passive staking, the rewards are received net of any fees imposed by the exchange for providing the staking as-a-service.[10]

22. **In the case of active staking**, revenue receivable should be treated as for the provision of validation services (block rewards or transaction fees) and not income on the asset placed as collateral. Therefore, **it is proposed to record such revenue as the output of validation services (i.e., computer services in balance of payments)**.

23. **In the case of passive staking**, stakers lock up their crypto assets in a validator's wallet without providing keys. Stakers receive payouts even though they do not undertake any other activity. Validators cannot use staked assets for other purposes, nor can they sell or lend them. As CAWLMs are nonproduced nonfinancial assets, payments for their use conceptually can be seen as rent. Such treatment means that payouts for these type of arrangements have to be separated from other types of transactions related to pooled and cloud mining, increasing granularity of data collection and adding burden on reporting entities. Therefore, **it is proposed to also treat payouts for passive staking as computer services for practical reasons**.

POOLED MINING

24. Pool mining is a method of mining cryptocurrencies where a group of miners combine their computing power to work together on solving cryptographic puzzle. By pooling their computing power, they increase chances of finding the solution and earning reward in the form of a new block. As a rule, the earned rewards are then divided among the pool members according to the amount of computing power each miner has contributed.

25. Two types of revenue associated with pool mining need treatment. The first is the payout to miners, and the second is the fee charged by the pool organizer to pool participants.

26. **Payouts** are directly connected to the rewards received for validation services. As the rewards are technically received by the pool organizer, they should be rerouted to the pool participants, and **classified as computer services**.

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[10] Users who stake through a CEX delegate the staking process to the exchange, which manages the technical aspects of staking on their behalf.

27. **The fee charged by organizers should be recorded under computer services as well**, similar to other commissions that are recorded within the same category as the underlying service.

CLOUD MINING (CONTRACT MINING)

28. Cloud mining (sometimes called contract mining) works similar to pooled mining. Cloud mining is an arrangement that allows for mining by renting computing power from large companies owning significant resources of computing power. Entities that do not own their own computing equipment can rent "hashing power" from a mining company in exchange for a fee and receive a portion of the rewards from successful validation services (mining) proportional to the rented computing power. The rental can take the form of either leasing mining machines hosted in a remote facility or renting computing power (hashing power). Such contracts are also available in the form of smart contracts, ensuring the enforcement of liabilities by all parties involved. Technically, the reward is initially received by the lessor company (owner of the hardware), which later distributes the reward according to the agreements, however, these rewards belong to the participants and the reward should be rerouted as being received directly by the contractors.

29. There are two types of revenue that need to be classified: renting of computing power and distribution of rewards. **Renting of computing power should be classified under computer services**, like cloud computing services, data processing, or hosting clients' applications. As discussed, **the rewards** are considered to be received by the contractors directly and **should be treated as computer services**. The hardware owner should only record the own portion net of payouts to contractors, though technically it may receive the full amount of the reward.

RECOMMENDATIONS

30. As discussed above, lending of nonproduced nonfinancial assets does not properly align conceptually with the current macroeconomic statistics frameworks. The Note presented possible options with pros and cons based on the conceptual recommendations provided in the SNA/BPM frameworks. In addition, financial reporting standards are still evolving, and businesses do not provide clear and uniform disclosures when presenting crypto asset lending and other related transactions. Overall, the drafting team acknowledges that the recording of crypto asset lending and borrowing is a very complex issue.

31. Taking into consideration the pros and cons of the three options, the drafting team considers that Option 1A is appropriate based on the current understanding of the lending process. For the lending channeled through platforms, the revenue to be paid by the borrower should be split into that portion which corresponds to the institutional unit that lends CAWLM to the platform (to be treated as rent) and that which corresponds to the service that the platform provides in intermediating between CAWLM lender and borrower (to be treated as services).

32. However, considering the practical difficulties in implementing this approach and the evolving nature of CAWLM, **in the interim, the drafting team recommends treating CAWLM lending/borrowing revenue as a new category under services (i.e., Option 2)**. This classification will permit compilers, at least for the time being, to record the information as the issue continues to develop.

33. Nonetheless, in order to reach a conceptually sound and practically feasible treatment, current concepts/definitions of assets, revenue relating to crypto activities may require further elaboration.

Considering that the treatment of CAWLM is retained as part of the SNA/BPM research agenda, **the drafting team proposes including the treatment of CAWLM lending in the research agenda, irrespective of the recommendation at this stage**. The research on this issue may also cover the recording of lent/borrowed assets in the balance sheets of institutional units involved depending on the agreed treatment of revenue; and treatment of on-selling the lent/borrowed crypto assets and whether negative asset positions of CAWLM (i.e., nonproduced nonfinancial assets) can be recorded on balance sheets, as is done with the on-selling of gold or securities temporarily acquired through gold loans or securities lending/repurchase agreements. **Revenues from securities lending and gold loans should also be included in the research agenda to enable a holistic discussion on this type of revenue.**

34. Further, the drafting team recommends **treating income related to staking and payments for cloud mining and pooled mining as services, more specifically as computer services**. In the latter cases, the reward should be rerouted from the cloud mining service providers/organizers of pooled mining to the cloud contractors/pooled mining participants directly.

35. The drafting team proposes developing practical guidance on the agreed recommendations to support compilers with implementation in the macroeconomic statistics frameworks.

QUESTIONS FOR AEG/BOPCOM

1. *Do you agree with option 2 (services) for recording CAWLM lending/borrowing revenue? Or do you have a preference for the other options?*
    Option 1. Property Income:
    - *A. Rent*
    - *B. Interest*
2. *Do you agree with the recommendations for treating crypto staking, cloud, and pooled mining as (computer) services?*
3. *Do you have any other suggestions on how the revenue from CAWLM lending/ borrowing should be treated?*
4. *Do you agree that the recording of CAWLM lending/borrowing be included in SNA/BPM Research Agenda irrespective of the recommendation at this stage?*
5. *Do you agree that the recording of revenues from securities lending and gold loans should also be included in the SNA/BPM Research Agenda to enable a holistic discussion on this type of revenue?*