For Global Consultation

Crypto Assets Compilation Guide

Crypto Assets Compilation Guide

Draft version June 2026

Prepared by the Statistics Department

INTERNATIONAL MONETARY FUND

CONTENTS

BOXES

FIGURES

TABLES

ANNEXES

PREFACE and Acknowledgements [to be added]

ACRONYMS

2025 SNA	*System of National Accounts, 2025*
AEG	Advisory Expert Group on National Accounts
BIS	Bank for International Settlements
BOP	Balance of Payments
BOPCOM	IMF Committee on Balance of Payments Statistics
BPM7	*Integrated Balance of Payments and International Investment Position Manual*, seventh edition
CBDC	Central Bank Digital Currency
CASPs	Crypto asset Service Providers
CAWLM	Crypto Assets Without a Corresponding Liability Designed to Act as a General Medium of Exchange
CAWLP	Crypto Assets Without a Corresponding Liability Designed to Act as a Medium of Exchange Within a Platform or Network
CEX	Centralized Exchange
DGI	Data Gaps Initiative
DEX	Decentralized Exchange
DeFi	Decentralized finance
DLT	Distributed Ledger Technology
IIP	International Investment Position
ISIC	International Standard Industrial Classification of All Economic Activities
ITRS	International Transactions Reporting System
NFTs	Non-fungible Tokens
PBFT	Practical Byzantine Fault Tolerance
PoA	Proof of Authority
PoS	Proof-of-Stake
PoW	Proof-of-work

CHAPTER I. OVERVIEW OF CRYPTO ASSETS ECOSYSTEM

A. PURPOSE AND BACKGROUND OF THIS COMPILATION GUIDE

1.1 The primary purpose of this *Guide* is to offer practical guidance on the source data and compilation methods for measuring crypto asset-related transactions and positions in macroeconomic statistics, consistent with the *System of National Accounts 2025 (2025 SNA), Integrated Balance of Payments and International Investment Position Manual,* seventh edition *(BPM7).*

1.2 Significant challenges related to the compilation of crypto assets data were recognized during discussions on developing methodological guidance on the treatment of these assets. These challenges arise from their inherent complexities and limited access to suitable data sources. Considering suggestions from compilers during the global consultation on the relevant Guidance Notes and draft *2025 SNA/BPM7* chapters, the Advisory Expert Group on National Accounts (AEG) and the IMF Committee on Balance of Payments Statistics (BOPCOM) recommended developing practical guidance to support the implementation of the *2025 SNA/BPM7* treatment of these assets.

1.3 Additionally, the IMF is leading the G20 Data Gaps Initiative (DGI-3) Recommendation 11, which aims to address data gaps concerning digital money and covers central bank digital currencies, stablecoins, and other types of crypto assets used as a means of payment. Thus, data collection related to these assets following the Recommendation 11 task team templates will also be supported by this *Guide* (see Section F, Chapter 3 for additional details).

1.4 National compilers are encouraged to adapt data sources and methods recommended in this *Guide* to align with their national circumstances, ensuring the compilation and dissemination of consistent and comparable estimates of crypto assets across different economies.

1.5 The remainder of this chapter is organized as follows. Section B presents the current state of play, providing an overview of the growing significance of crypto assets and the broader crypto assets ecosystem. It describes the key elements of this ecosystem, including fungible and nonfungible crypto assets; distributed ledger technology; miners and validators; crypto exchanges and custodians; and issuers of stablecoins and nonfungible tokens. Section C provides a brief overview of the relevant regulatory and legal frameworks. Section D explains the overall organization and structure of the *Guide*. In addition, several boxes are included throughout the chapter to clarify key concepts, such as centralized versus decentralized ledger systems; crypto exchanges and on-chain/off-chain transactions; consensus mechanisms in public and private blockchains; and public keys, public addresses, and private keys.

B. CURRENT STATE OF PLAY

1. OVERVIEW OF THE SIGNIFICANCE OF CRYPTO ASSETS

1.6 Over the past decade, the number of crypto assets has surged from a few hundred including Bitcoins to nearly 20,000, fueled by the growth of blockchain technology and the expansion into assets like Ether, stablecoins, etc. At the time of writing this *Guide*, the total market capitalization of crypto assets stands at approximately $2.5 trillion, with Bitcoin representing around 60 percent of that value. The market has experienced considerable volatility, reaching a peak of $3 trillion in November 2021 before

dropping below $1 trillion. While crypto assets are not a major part of the global financial system, they are emerging as a potential source of systemic risk in certain jurisdictions.[1] The interconnected, opaque, and complex nature of crypto asset issuers, exchanges, and underlying transactions further exacerbates these risks.

1.7 Crypto assets have a significant and multi-channel impact on the financial system. They may be used for cross-border payments, including remittances, and in some cases offer advantages such as faster and cheaper transactions. At the same time, they create significant risks such the ones related to money laundering, tax avoidance, etc. Moreover, their potential adoption, in particular as a means of payment, may have macroeconomic consequences, including for the monetary policy transmission mechanism. Overall, regulatory uncertainty remains a significant challenge, limiting their broader integration into the global financial system.

2. CRYPTO ASSETS ECOSYSTEM

1.8 Crypto assets are digital representations of value that use cryptography and distributed ledger technology (DLT) such as blockchains to enable parties to transact directly with each other without the need for a trusted intermediary.[2] Two types of crypto assets are distinguished—fungible and nonfungible. Fungible crypto assets are divisible and not unique, while nonfungible crypto assets (most commonly known as nonfungible tokens or NFTs) are unique and nondivisible. Examples of fungible crypto assets include Bitcoin, Ether, and stablecoins such as the USD Coin and Tether, while examples of NFTs include Bored Ape Yacht Club, CryptoPunks, and NBA Top Shot. Further details on these assets are provided in Chapter 2.

1.9 Crypto assets can be classified as native and non-native, depending on whether they exist solely on a blockchain or represent traditional financial or real-world assets. Native crypto assets originate on their own blockchain and exist only on that ledger. They do not represent, nor derive their value from any assets. Bitcoin and Ether prominent examples of native crypto assets. By contrast, non-native crypto assets represent assets external to the blockchain. These tokens function as digital representations of underlying financial or real-world assets, with their value directly linked to those assets. In this context, tokenization refers to the process of issuing a digital token on a blockchain that represents a financial or tangible asset. In principle, almost any asset can be tokenized—including financial instruments (such as equities or bonds) and physical assets (such as real estate or gold). Crypto securities are a notable example of non-native crypto assets, referring to traditional securities that are issued or represented in tokenized form on a blockchain.

1.10 The crypto assets ecosystem refers to an interconnected network of technologies, digital platforms, users, investors, and financial services that facilitate the creation, exchange, and utilization of

[1] Higher adoption and weak regulatory frameworks—especially in emerging and low-income economies—can elevate macro-financial and systemic risks through currency substitution, capital outflows, and interlinkages with the financial system.

[2] As explained in Box 1.1, a trusted intermediary is a central entity (e.g., a bank) that facilitates and verifies transactions between the parties involved. Crypto assets use DLT to enable peer-to-peer transactions without the need for an intermediary such as a bank.

different types of crypto assets. Crypto assets ecosystem is dynamic and multifaceted, involving a wide range of stakeholders, each contributing to the ongoing evolution of blockchain technology and financial services in the digital age.

1.11 In addition to fungible and nonfungible crypto assets discussed above, other key elements of the ecosystem are listed below[3] and explained further in this section.

- Distributed ledger technology (e.g., blockchain)
- Miners and validators of crypto assets
- Issuers of stablecoins and nonfungible tokens
- Crypto exchanges, custodians, wallet providers
- Decentralized finance (DeFi)
- Crypto payment processors

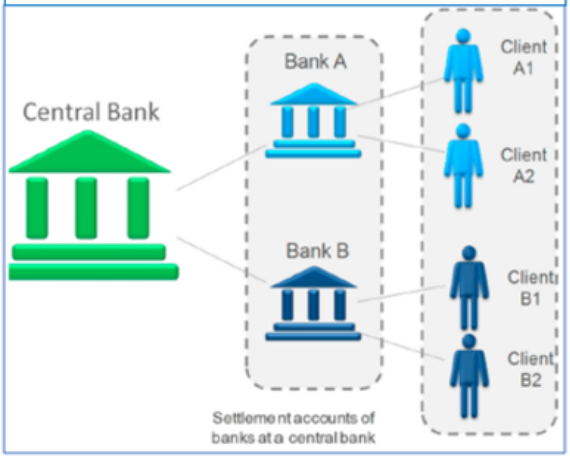
a. Distributed Ledger Technology

1.12 Distributed Ledger Technology (DLT) refers to recording data or information (for example on transactions and balances of crypto assets) in multiple places at the same time, ensuring that system/network participants have consistent access to the same data. Unlike conventional centralized ledger system, DLT in principle has been designed to operate without a central authority that serves as third trusted party in the financial transactions. **Box 1.1** explains the key differences between centralized and distributed ledger systems.

[3] The entities in this list are not mutually exclusive with regards to their operations as there could be overlaps in some cases. For example, there could be overlap between crypto exchanges and custodians, as centralized crypto exchanges (e.g., Coinbase, Binance) also offer custodial services to store users' assets securely.

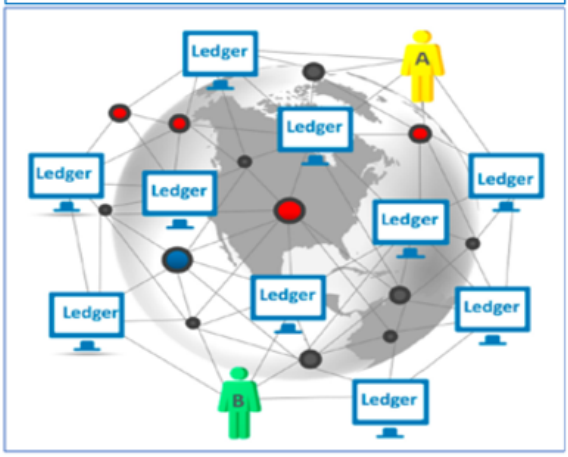
Box 1.1. Centralized vs Decentralized Ledger Systems

Figure 1. Centralized Ledger System



- Institutions such as central banks and private banks maintain own records (ledger) of transactions/positions.
- Central bank / private bank function as intermediaries
- Central bank / private bank validates the recorded information and safeguard against double-spending or counterfeit.

Figure 2. Distributed Ledger System



- Distributed ledger is a database consensually shared and synchronized across a network of computer nodes.
- Distributed ledger technology (DLT) facilitates the use of distributed ledger system.
- Transaction records (ledgers) are kept in these nodes and are visible to anyone.
- Peer-to-peer transactions take place without an intermediary such as bank.
- Transactions verified by nodes (miners) for double-spend or counterfeit
- Blockchain is one type of distributed ledger and is the technology underlying Bitcoin.

Source: IMF Staff Discussion Note 16/03 Virtual Currencies and Beyond: Initial Considerations

1.13 The most well-known application of DLT is blockchain technology, which serves as the foundation for crypto assets such as Bitcoin. Blockchain is a type of DLT that has a specific set of features, organizing its data in a chain of blocks. Each block contains data that has been verified, validated, and then "chained".[4] Blockchains can be categorized into public and private. While public blockchains are usually permissionless and decentralized, private blockchains are permissioned and centralized. The most well-known example of a classic public blockchain is Bitcoin blockchain. One of the basic features of classic public blockchains such as Bitcoin is pseudonymity. This implies that although transactions are public and fully traceable, the parties involved in the transactions can only be identified by their public addresses, which cannot be easily linked to real world identity. The pseudonymity of public blockchains creates challenges to obtain even highly aggregated data for compiling macroeconomic statistics, as information on the holders' residency and institutional sector is not directly available from the blockchain. **Box 1.2** provides further clarifications on basic terms related to blockchains such as public key, public

[4] Based on: Parma Bains (2022). Blockchain Consensus Mechanisms: A Primer for Supervisors, IMF Fintech Note 2022/003.

address, and private key[5], while **Box 1.3** elaborates on the range of information available directly from public blockchains.

Box 1.2. Crypto Assets: Public Keys, Public Addresses, and Private Keys

Public and private keys are fundamental components of the cryptographic framework that underpins crypto assets. They enable secure transactions by allowing users to send and receive assets without relying on a centralized third party to verify the transaction.

A private key is a secret cryptographic key that is used to sign transactions and provide proof of ownership of crypto assets. Private key allows the owner to access and manage their crypto assets. It grants the holder complete control over the crypto assets associated with the corresponding public key and address. A Bitcoin private key is an alphanumeric string, typically 64 characters long.

From the security perspective, it is important that private key has to be kept secret and secure, as anyone with access to the private key can access and transfer the associated crypto assets. Losing the private key means losing access to the crypto assets, such as Bitcoins, under a given public address permanently, as there is no way to recover private key.

Public key is a cryptographic key that can be shared with anyone. It is generated from a private key, with a one-way mathematical function. There is no way to get private key knowing the associated public key. Public key is used to encrypt information or to verify a digital signature. The public key can be shared with anyone, allowing them to send encrypted messages or verify transactions signed by the corresponding private key.

Public address is a unique code derived from a public key, used to receive crypto asset. It is in more user-friendly format than public key, shorter than public key, which makes it more practical for sharing. It is the address that users share with others to receive funds in crypto asses such as Bitcoins. While public address denotes “place” on the blockchain where crypto assets are and can be figuratively compared to the account number, private key (that has to be protected and kept secret) can be described as an access password to the crypto assets.

Public keys are strings of alphanumeric characters and are typically longer and more complex than public addresses. Public keys and public addresses serve different purposes, although they are closely related, and both can be shared with others.

[5] For further elaboration refer to: H. Arslanian (2022). The Book of Crypto. The Complete Guide to Understanding Bitcoin, Cryptocurrencies and Digital Assets, Palgrave Macmillan.

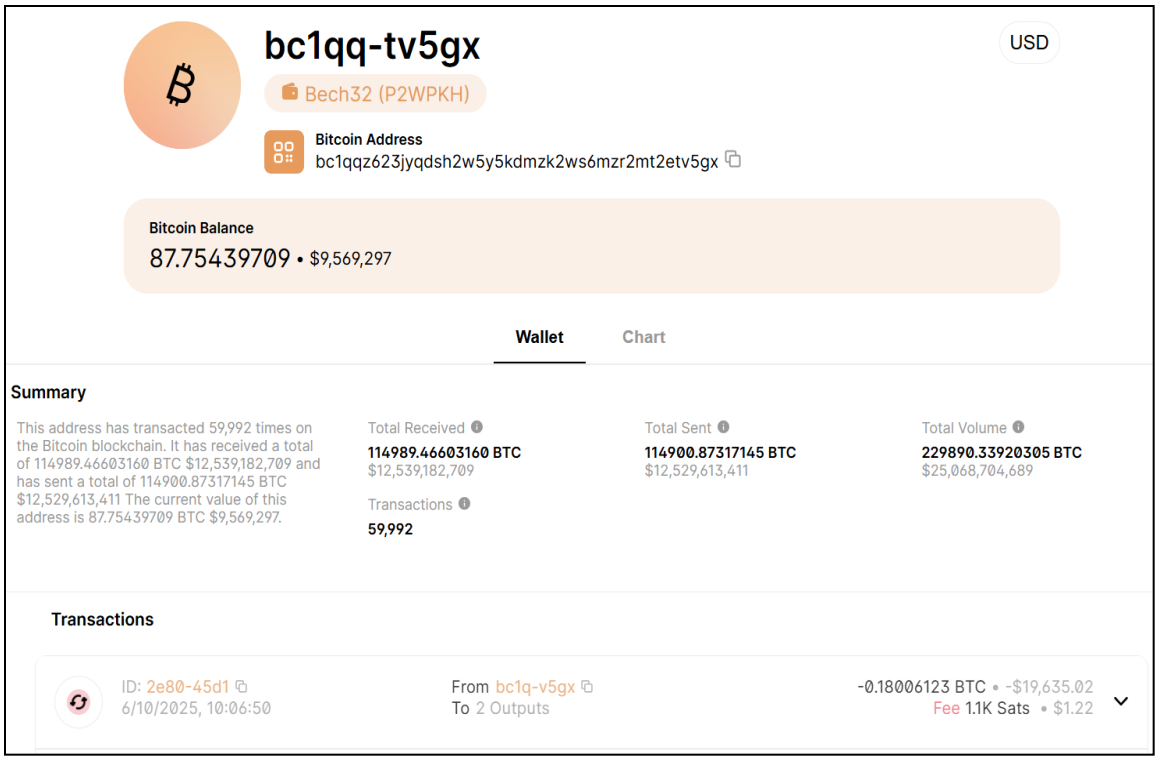
Box 1.3. Data from Blockchains

Data for on-chain crypto activity are available directly from blockchains, such as Bitcoin blockchain. While the data on balance of crypto assets under the given public address as well as transactions history of a given address is publicly available, there is no direct way to link the blockchain address with the real identity of holders. This feature of public blockchains is often referred to as pseudonymity.

As an example, the Bitcoin blockchain provides various types of data on on-chain crypto activity (see the snapshot below), among them:

1. Public addresses activity:
    - Current balance associated with a specific address,
    - A record for all incoming and outgoing transactions (with the addresses of sender and receiver)
2. Individual transaction details:
    - Transaction unique identifier (transaction ID),
    - Sender's and receiver's pseudonymous addresses,
    - Crypto assets amount transferred and transaction fees,
    - Timestamp (date and time when the transaction was processed),
3. Block data (transactions are validated and added to the block which is the element of blockchain):
    - Block hash (unique identifier for each block),
    - Block height (block number in order from the beginning of the network i.e., position of the block in the blockchain),
    - Miner information i.e., address of the miner who mined the block,
    - Number and list of transactions included in the block,
    - Timestamp i.e., date and time when the block was mined,
    - Size of the block in bytes.
    - Nonce (number used once in the mining process to obtain a valid block hash)
4. Network data:
    - Total number of network nodes (computers that participate in the network and maintain the copy of the blockchain),
    - Total number of transactions processed during a period of time,
    - Hash rate - a measure of the computational power being used by miners to process and validate transactions by adding a block to the blockchain.

Box 1.3. Data from Blockchains (concluded)



1.14 A consensus mechanism is a protocol that ensures all participants in a decentralized network agree on the validity of transactions and the current state of the blockchain. It is crucial for maintaining the security and integrity of the blockchain, preventing issues like double spending. Currently, the most important consensus mechanisms in the public blockchains are proof-of-work (PoW) and proof-of-stake (PoS). **Box 1.4** provides further details on these consensus mechanisms, and additionally a few remarks on consensus mechanisms used in private blockchains.

Box 1.4. Consensus Mechanisms in Public and Private Blockchains

Proof-of-Work (PoW) is a consensus mechanism where participants, known as miners, solve complex mathematical puzzles to validate transactions and add new blocks to the blockchain. This process involves miners competing to solve a cryptographic puzzle, and the first one to solve it gets the opportunity to add the next block to the blockchain, receiving crypto assets as a reward. PoW ensures the security of the network by making it computationally difficult and resource-intensive to alter the blockchain, thereby deterring malicious attacks. However, PoW is known for its high energy consumption due to the intensive computational work required. Prominent examples of crypto assets that use PoW include Bitcoin and Ether (before its transition to PoS).

On the other hand, Proof-of-Stake (PoS) is a consensus mechanism where validators are chosen based on the number of coins they hold and are willing to lock up "stake" as to help validate transactions and maintain the network's integrity. In PoS, validators are selected to create new blocks and validate transactions based on their stake, meaning the more coins a validator holds, the higher their chances of being chosen. Selected validators verify transactions, including the digital signature of the sender, compliance with the blockchain protocol rules, and the absence of double spending. A proposed block is then broadcast to the network and validated by other participants, typically through a consensus or voting mechanism. PoS aims to secure the network by aligning the interests of validators with the network's health, as validators risk losing their staked coins if they act maliciously. One of the key advantages of PoS is its energy efficiency, as validators are selected to validate transactions based on the amount of crypto assets they have locked up, which eliminates the need for large-scale computational power. Examples of crypto assets that use PoS include Ether (after its transition to PoS) and Cardano.

Private blockchains operate within a controlled environment where network participants are verified and trusted. Consensus mechanisms in these blockchains focus on efficiency, speed, and reducing computational power needs. Nodes reveal their identity and stake their reputation, rather than relying on financial or computational consensus mechanisms like PoS and PoW. This type of validation is known as Proof of Authority (PoA). Consensus mechanisms in private blockchains can vary significantly and be tailored to the specific features and needs of the blockchain. Practical Byzantine Fault Tolerance (PBFT) is a well-known mechanism designed to prioritize security, requiring a minimum of two-thirds of the nodes to agree on changes in the blockchain. PBFT is suitable for small networks and provides strong security guarantees. VeChain and Xodex are blockchain platforms that use the PoA, while those utilizing PBFT include Binance Smart Chain and Ripple.

b. Miners and Validators of Crypto Assets

1.15 Miners and validators are crucial components of the crypto assets ecosystem. As explained in **Box 1.4**, in PoW-based blockchains, such as Bitcoin, miners are entities that use computational power to solve complex mathematical puzzles.[6] Once a puzzle is solved, the miner gets the opportunity to verify[7] a

[6] At the time of drafting this *Guide*, examples of large Bitcoin mining companies include Marathon Digital Holdings, Riot Platforms, CleanSpark, Hut 8 Mining (see Largest Bitcoin miners by market capitalization).

[7] Opportunity to verify means that once a miner solves the puzzle, they earn the right to validate pending transactions and propose the next block to be added to the blockchain.

set of transactions, add a new block to the blockchain, and receive explicit transaction fee and a reward in the form of newly minted crypto assets. In PoS blockchains, like Ethereum, transactions are verified by validators. Validators are selected based on the number of tokens they hold and are willing to "stake" as collateral. These validators receive staking rewards and transaction fees for their role in maintaining the network.[8] (see paragraphs 2.11 and 2.15 for further discussion on these issues).

c. Issuers of Stablecoins

1.16 Stablecoin issuers are entities other than monetary authorities or government that create, issue, and manage crypto assets with a corresponding liability designed to act as a general medium of exchange . Stablecoins may be issued by deposit-taking corporations (e.g., commercial banks such as JPMorgan's JPM Coin) or by nonbank issuers such as Tether Limited and Circle. Stablecoins issuers are responsible for ensuring that stablecoin maintains a stable value relative to specified asset or a pool or basket of assets, usually by being backed by the assets of the issuer [9] or by using algorithms to control supply (so called algorithmic stablecoins), and sometimes through a combination of both. Stablecoin issuers may support different use cases, including trading, remittances and other transfers, or serving as a general medium of exchange. Examples: Tether (USDT): pegged to USD, the largest global stablecoin by market capitalization issued by Tether limited, USD Coin (USDC): pegged to USD, issued by Circle and Coinbase, and Binance USD (BUSD): issued by Binance in partnership with Paxos, also pegged to USD.

d. Issuers of Nonfungible Tokens

1.17 Issuers of Nonfungible Tokens (NFTs) are individuals, organizations, or platforms that create and distribute NFTs, typically representing digital or physical assets such as art, music, collectibles, virtual real estate, or in-game items. These issuers can range from independent artists and musicians to large corporations and gaming companies. They play a crucial role in the growing NFT ecosystem, providing unique digital experiences and assets to collectors and enthusiasts. Examples of some NFTs and their products include Yuga Labs (issuer of Bored Ape Yacht Club—a collection of hand-drawn ape NFTs that grant owners exclusive community benefits); Nike (issues virtual sneakers and digital wearables as NFTs, used in metaverse applications); Decentraland (Issues virtual land NFTs, allowing users to buy, sell, and build on parcels of digital real estate in its metaverse).

1.18 Each NFT needs to have a unique identifier that distinguishes this particular token from the others. The identifier often refers to information on the asset, such as its name, description, and the creator/author of the asset. Creation (minting) of the token is usually through execution of the smart contract,[10] which generates a unique token and records it on the blockchain, for example Ethereum,

---

[8] At the time of drafting this *Guide*, examples of platforms that provide staking services for Ethereum's PoS include Coinbase, Kraken, and Lido (see Best ETH Staking Platforms in 2026: Coinbase vs Kraken vs Lido vs Rocket Pool).

[9] These assets are commonly referred to as reserves and are usually held in liquid financial instruments—such as cash, deposits, and short-term securities—but may also, in some cases, include nonfinancial assets (e.g., crypto assets or precious metals).

[10] Refers to self-executing computer programs stored on a blockchain that automatically enforce and execute predefined rules or transactions once specified conditions are satisfied.

which maintains a transparent and immutable ledger that keeps track of NFT ownership. Each time the NFT is bought, sold, or transferred, the transaction is recorded on the blockchain, updating the ownership information. The ownership history of the NFT is publicly accessible through the blockchain, allowing anyone to verify the current and past owners of the token.

e. Crypto Exchanges, Custodians, and Wallet Providers

1.19 Crypto exchanges act as key intermediaries in the crypto assets ecosystem. They are digital platforms where users can buy and sell different types of crypto assets including nonfungible tokens. These exchanges may offer custody, transactional and wallet services as well as crypto lending and borrowing facilities (see Section F, Chapter 2 for a detailed discussion on the lending/borrowing of crypto assets). **Box 1.5** provides further details on crypto exchanges and the on-chain and off-chain transactions undertaken by them.

1.20 In the context of crypto assets, custody primarily refers to the secure storage and management of private keys (see Box 2 for further details on private keys), which are essential for accessing and controlling these assets. Custodians are entities that provide these security services ensuring that private keys are protected from theft, loss, or unauthorized access. They often use a combination of hot and cold storage[11] solutions to balance accessibility and security. Several financial corporations and banks provide custodial services without operating as crypto exchanges. Examples include Fidelity Digital Assets and Bank of New York Mellon.

1.21 Crypto wallets are digital tools that allow users to store, manage, and transact with their crypto assets securely. Wallets can be either hot wallets, which are connected to the internet and provide quick access to funds, or cold wallets, which are offline and offer enhanced security for long-term storage. Wallet providers are companies or platforms that offer these wallet services, ensuring the safety and usability of crypto assets. Examples include Ledger, Trezor, and MetaMask, which are categorized as non-custodial (or self-custody) wallets as the user retains full control over the private keys.

1.22 There is significant overlap between crypto exchanges, custodians, and wallet providers, as many entities offer multiple services to enhance user convenience and security. For instance, Coinbase operates as a crypto exchange, at the time of writing this Guide, where users can buy and sell crypto assets, while also providing custodial services to securely store these assets. Additionally, Coinbase offers a wallet service, allowing users to manage their private keys and interact with other market participants, including wallets under the custody of crypto exchanges as well as decentralized applications.

[11] Hot storage of crypto assets refers to wallets that are connected to the internet, making them convenient for quick transactions but more vulnerable to hacks. On the other hand, cold storage involves offline custody of private keys. This provides enhanced security by keeping assets disconnected from the internet, making them less vulnerable to cyber-attacks.

Box 1.5. Crypto Exchanges and On-Chain/Off-Chain Transactions

Crypto exchanges are digital platforms where users can buy and sell various types of crypto assets, including NFTs. These exchanges may also offer crypto lending/borrowing facilities, custodial and wallet services. There are two main types: i) centralized exchanges (CEX), which are mostly custodial; and ii) decentralized exchanges (DEX), which are non-custodial.

CEXs are currently the most important service providers and trusted third parties[12] in the crypto assets' ecosystem. They are built around a centralized order book system that helps to match supply and demand and consequently facilitate trades. They are mostly custodial, meaning the exchange holds private keys in custody on behalf of crypto assets holders. CEXs typically offer trading in a wide range of crypto assets, often providing user friendly interfaces and customer support. Further, they are usually subject to regulatory oversight, including *know your customer* (KYC) requirements, in various economies. Examples of CEXs include Binance, Coinbase, and Kraken.

DEXs, which are examples of Decentralized Finance (DeFi) platforms (see below), allow crypto buyers and sellers to trade directly with one another. These exchanges leverage smart contracts to facilitate transactions. They are non-custodial, meaning investors/transacting parties keep and protect their private keys and funds themselves. Private keys in DEX-serviced transactions are never held by any third party and recording of the transactions takes place on the blockchain (on-chain crypto activity). Examples of DEXs include Uniswap, SushiSwap, and PancakeSwap. **Table 1.1** below summarizes the main features of CEXs and DEXs.

Crypto asset transactions can be broadly categorized into on-chain and off-chain transactions. On-chain transactions occur directly on the blockchain and are recorded on the distributed ledger, ensuring transparency and immutability. These transactions are immutable[13] and transparent, but potentially slower and characterized by higher operational cost (includes transaction fees paid to miners or validators) in comparison to off-chain transactions. Examples of on-chain transactions include activities such as transferring Bitcoins from one address to another. On-chain transactions are commonly associated with DEXs.

Off-chain transactions occur outside the blockchain and are not immediately recorded on the distributed ledger. These transactions can offer faster processing times and lower fees since they do not require consensus of network participants nor the validation process on the blockchain. They are not publicly visible, offering greater privacy. Examples of off-chain transactions include transactions within CEX and certain payment channels.

[12] Refers to entities or institutions that act as intermediaries between two parties (such as buyers and sellers) and are trusted to facilitate transactions, ensure security, and handle assets.

[13] Refers to the characteristic that once a transaction is confirmed and recorded on the blockchain, it cannot be altered, reversed, or deleted.

Box 1.5. Crypto Exchanges and On-Chain/Off-Chain Transactions (concluded)

Table 1.1 CEX and DEX: Comparison of the Main Features

Feature	CEX	DEX
Custody	Custodial	Non-Custodial
Transaction Type	Off-Chain and On-Chain	On-Chain
Transparency	Lower	Higher (but limited by public blockchains pseudonymity)
Regulation	Subject to regulation in some jurisdictions, in particular often KYC requirements	Less regulated
User Experience	User-friendly	Varies

Each type of transaction and exchange offers unique advantages and challenges, contributing to the diverse and dynamic nature of the crypto ecosystem. Understanding the distinctions between on-chain and off-chain transactions, as well as the roles of CEX and DEX, is essential for compiling accurate statistics about the crypto assets space.

f. Decentralized Finance (DeFi)

1.23 Decentralized Finance (DeFi) encompasses a range of services within the crypto assets ecosystem, aiming to replicate traditional financial services. DeFi business models focus on developing and enhancing investment opportunities in the crypto space. Their direct impact on financing traditional, real-world businesses or households is still limited. DeFi operates on blockchains like Ethereum, which support smart contracts. Examples of DeFi platforms include crypto lending/borrowing platforms like Aave and Compound; DEXs such as Uniswap and SushiSwap that enable users to trade crypto assets directly with one another; insurance platforms like Nexus Mutual that offer coverage for smart contract failures and other risks.

g. Crypto Payment Processors

1.24 Crypto payment processors are service providers that enable businesses to accept payments in crypto assets like Bitcoin, Ether, and stablecoins. They function similarly to traditional payment processors but are tailored for crypto assets, offering benefits such as lower transaction fees, faster cross-border payments, and enhanced security. These processors are crucial for the growth of the crypto assets ecosystem as they facilitate the integration of crypto assets into mainstream commerce, thereby promoting wider adoption and usability of crypto assets. Examples of such business models include companies like BitPay and CoinPayments.

C. OVERVIEW OF THE REGULATORY AND LEGAL FRAMEWORKS

1.25 The regulatory frameworks for crypto assets vary significantly around the world, with some jurisdictions freely embracing crypto assets and leaving them unregulated, others imposing or still

developing comprehensive regulatory schemes for them, which often implies restrictions on the crypto assets market, even banning the use of cryptos in some cases. Examples of economies working on and implementing comprehensive regulatory approaches to the crypto assets market are Japan, Singapore, South Korea, and Switzerland. The European Union legal act - Markets in Crypto Assets Regulation (MiCAR) aims to create a harmonized framework for crypto asset regulation across EU member states with specific rules and requirements for stablecoins. In the USA, a federal law enacted in July 2025—Guiding and Establishing National Innovation for U.S. Stablecoin Act (the GENIUS Act)—provides a comprehensive regulatory framework for payment stablecoins.[14] In India, the work on regulations is on-going, while China has taken a restrictive approach and banned private crypto assets trading.

1.26 The survey conducted as part of Recommendation 11 of DGI-3 in February-March 2024 has shed some light on the differences in the crypto assets regulatory frameworks across economies. The survey was addressed to G20 and FSB economies that participate in the DGI-3 and covered inter alia questions on crypto assets.

1.27 The analysis of the results shows that regulations on stablecoins and other crypto assets exist (or are under implementation) in around 30 percent of G20/FSB participating economies. Additionally, several economies reported the existence of regulations that ban or significantly limit the use of private crypto assets, especially crypto assets without a corresponding liability designed to act as a medium of exchange. In those economies, private crypto assets are either forbidden or cannot be used as means of payments. There are also limitations on engagement of regulated and supervised intermediaries, mostly banks, in the crypto ecosystem.

1.28 Several economies indicated the existence of regulatory obligations imposed on players in the crypto ecosystem, in particular CEXs, crypto digital wallet providers and other custodians. Existing regulations in the economies refer often to AML/CFT procedures as a minimum requirement, while comprehensive financial regulations for the crypto assets' ecosystem are still to be developed and implemented in most economies. More complex regulatory schemes cover – in addition to AML/CFT and market integrity - issues such as risk management, individual investor protection, and informational disclosure requirements.

D. ORGANIZATION OF THE COMPILATION GUIDE

1.29 The remainder of the Guide is organized as follows. Chapter 2 presents the methodological framework for recording crypto assets in line with the *2025 SNA/BPM7*, covering the classification and typology of fungible crypto assets; the treatment of mining, validation, staking, and lending activities; and the recording of transactions, revaluations, and other changes in volume, including NFTs, as well as guidance on institutional sectoring, the output of crypto exchanges and platforms, and cross-border recording issues. Chapter 3 focuses on data sources and compilation methods, reviewing administrative and supervisory data, financial statements of crypto-related entities, commercial data sources, and NFT-specific data, while highlighting the role of international data sharing and providing practical compilation tools through extensive annexes, including model survey questionnaires and mappings to

[14] Refer to the following webpage for complete details: https://www.congress.gov/bill/119th-congress/senate-bill/394/text.

SNA and BPM classifications. Chapter 4 complements this guidance by presenting country experiences and international initiatives, illustrating how statistical systems are addressing crypto assets in practice and showcasing collaborative efforts led by international organizations. The *Guide* concludes with a glossary of terms and definitions related to crypto assets to support consistent interpretation and ease of use by compilers.

CHAPTER 2. METHODOLOGICAL FRAMEWORK FOR THE RECORDING OF CRYPTO ASSETS

A. INTRODUCTION

2.1 As explained in Section B, Chapter 1, crypto assets are classified into two categories: fungible crypto assets and nonfungible crypto assets or tokens (NFTs). aa

- Fungible crypto assets are divisible and not unique. Each unit of a fungible asset is identical in value and properties to any other unit of the same asset (e.g., one Bitcoin is equal to any other Bitcoin and can be divided into equal pieces of similar value).

- NFTs are unique and nondivisible (e.g., an NFT giving rights with regards to a digital piece of art is different from a NFT related to another digital artwork). Unlike fungible crypto assets such as Bitcoin or Ether, which can be divided into smaller units, NFTs cannot be divided. One either owns the entire NFT or does not own it at all.

2.2 The rest of this chapter is organized as follows. Section B introduces the typology and classification of fungible crypto assets. Section C discusses crypto mining and validation, staking, polled and cloud mining services. Section D elaborates on the issues relating to other changes in crypto assets/liabilities. Institutional sectors/sub-sectors and output of crypto exchanges/platforms are discussed in Section E. Section F explains the concept of crypto lending and borrowing, and related recording. Different types of nonfungible tokens and their recording in the national accounts and balance of payments is discussed in Section G. In addition, Annex 2.1 provides a summary of the *2025 SNA*/*BPM7* recommendations on crypto assets.

B. TYPOLOGY AND CLASSIFICATION OF FUNGIBLE CRYPTO ASSETS

2.3 All fungible crypto assets meet the asset boundary because the institutional units holding them have ownership rights, they act as a store of value (albeit being volatile at times), can be exchanged for goods and services (even if with restrictions in some jurisdictions), and provide economic benefits and risks to the holder.

2.4 Fungible crypto assets are classified into three broad categories following the *2025 SNA/BPM7*: i) crypto assets designed to act as a general medium of exchange; ii) crypto assets that only act as a medium of exchange within a platform or network; and iii) security crypto assets.

2.5 Further, fungible crypto assets with a corresponding liability should be recorded as financial assets in the following way:

- Crypto assets designed to act as a general medium of exchange, with a corresponding liability:
    - issued by a monetary authority (e.g., central bank digital currencies (CBDCs) that qualify as crypto assets)—currency under “currency and deposits” (AF21).

- not issued or authorized by monetary authorities or government (e.g., stablecoins with a claim on the issuer)—classified as a separate category under "currency and deposits" (AF22).[1] [2] [3]

- Crypto assets that only act as a medium of exchange within a platform or network (i.e., payment tokens):
    - with a corresponding liability—separate subcategory under "debt securities" (AF33—short-term and AF34—long-term) in national accounts.[4]

- Security crypto assets (which always have a counterpart liability)
    - Debt security crypto assets—"debt securities" (AF3),

      Utility tokens that provide the holders future access to goods or services such as those for file storage, social messaging, and trading—separate category under "debt securities" in the 2025 SNA; and included under "debt securities" in the BPM7, without a separate category (AF35).
    - Equity crypto assets—included under "equity" (AF51).
    - Derivative crypto assets—included under "financial derivatives" (AF71)

2.6 Crypto assets without a corresponding liability designed to act as a general medium of exchange (CAWLM) and crypto assets without a corresponding liability designed to act as a medium of exchange within a platform or network (CAWLP)[5] are classified as nonproduced nonfinancial assets and recorded as a separate category in the capital account of BPM7 and in the capital account and balance sheet of

[1] It was considered more pragmatic to include stablecoins under currency and deposits (instead of introducing a new financial instrument), as many countries find it challenging to populate this item at this stage. Additionally, it was felt that creating a new first-level category—alongside existing instruments like loans, debt securities, and equity—could undermine the consistency of the financial asset hierarchy. Thus, this type of crypto assets may be shown as a supplementary "of which" item under currency and deposits (F22O/AF22O) in the Annex 14 of *BPM7* without a further breakdown by institutional sector.

[2] While they are recorded under "currency and deposits," unlike fiat currencies, their deposit with a custodian (or in a custodial wallet of an exchange) do not constitute a financial claim on the custodian and no transactions are recorded. On the contrary, their lending is recorded along the lines of cash lending under "loans" (see paragraph 2.31 and Box 2.8).

[3] *BPM7*/*2025 SNA* do not provide explicit guidance on the sector classification of stablecoin issuers. A clarification note on this issue is being prepared for discussion at the October/November 2026 meetings of the AEG/BOPCOM and the Monetary and Financial Statistics Advisory Committee (MFSAC). The Guide will be updated based on the recommendations from these bodies.

[4] Payment tokens with a corresponding liability are reported as part of debt securities in external accounts (without any sub-category), given that cross-border transactions/positions in such assets may not be significant. This is in line with Annex 14, *BPM7*.

[5] These crypto assets are also known as fungible crypto assets without a corresponding liability or non-liability crypto assets.

Box 2.1. Medium of Exchange and Means of Payment

Medium of exchange is a means for acquiring goods, services, or assets without resorting to barter. Acting as a medium of exchange is one of the basic functions of money, which takes the form of various types of financial instruments. Fiat money (government-issued currency not backed by a physical commodity) serves as the predominant medium of exchange in most economies.

Means of payment refers to the instruments used to make the payment, such as cash, check, debit/credit card, stablecoins, or crypto assets without corresponding liability (e.g., Bitcoins).

Crypto assets such as Bitcoin are *designed* to act as a general medium of exchange, in practice however, they are not treated as such. Due to their limited supply, expected appreciation, and high volatility, such crypto assets are mostly held as a long-term store of value investment rather than a medium of exchange. On the other hand, when such crypto assets are used for payments against goods or services, they become a means of payment. Such assets may be treated as a means of payment in certain economies if governments legally mandate their acceptance by merchants, including for the payment of taxes (while they are still not considered a medium of exchange).

2025 SNA (NF22).[6] Figure 2.1 provides a snapshot of the typology and classification of fungible crypto assets and Box 2.1 explains the difference between medium of exchange and means of payment.

2.7 With regards to equity crypto assets, their classification as listed shares (F511), unlisted shares (F512), or other equity and equity in international organizations (F519) should be primarily based on their own characteristics (and not on the basis of the underlying assets) if the issuer records the underlying assets on its balance sheet. Implying that the underlying asset may be unlisted, but token representing it could be listed and therefore, classified as F511 or vice-versa.

1. ARE FUNGIBLE CRYPTO ASSETS CONSIDERED RESERVE ASSETS?

2.8 *BPM7* recommends that crypto assets without corresponding liabilities designed to act as a general medium of exchange (e.g., Bitcoin, Ether) should not be included in reserve assets as they are nonproduced nonfinancial assets. Instead, any holdings of these assets by a monetary authority should be recorded in the balance sheet under a separate category under nonproduced nonfinancial assets.

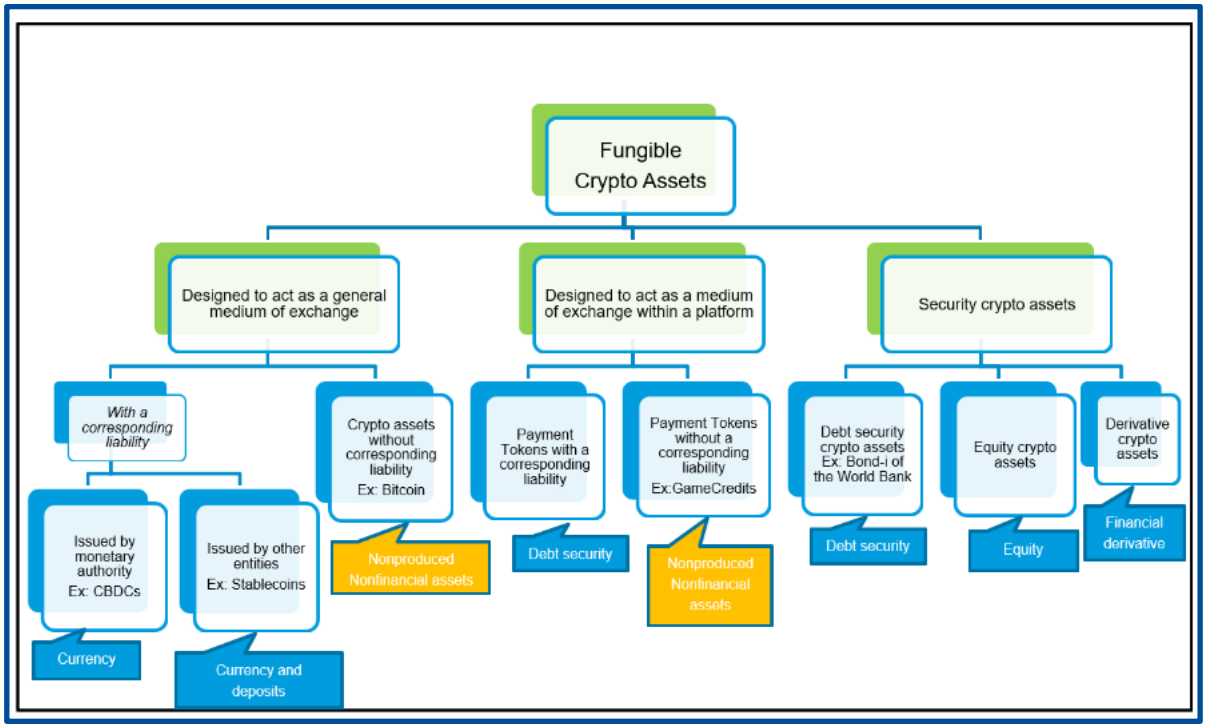
2.9 For crypto assets that are treated as financial assets—including stablecoins and security crypto assets—to qualify as reserve assets, they must satisfy the criteria outlined in paragraphs 6.69–6.80, *BPM7*.[7] These criteria include: being readily available to and under the effective control of the monetary authorities in the most unconditional form to meet balance of payments financing needs; representing

[6] Stablecoins that are backed by an algorithm (i.e., without a corresponding liability) such as Djed and ETHx are also classified as nonproduced nonfinancial assets.

[7] Investment funds (including ETFs) that directly invest in nonfinancial assets, such as some crypto assets, gold and other valuable metals, or high-end wines and whiskies, are classified as non-MMF investment funds (see paragraph 5.162, *2025 SNA*), implying that they are financial assets. Therefore, their treatment as reserve assets depend on the criteria outlined in paragraph 2.9.

actual, high-quality external claims on nonresidents; and being denominated and settled in convertible foreign currency. While most stablecoins currently appear not to meet these requirements—particularly with respect to constituting high-quality external assets—a case-by-case assessment against these criteria is necessary to determine whether a specific stablecoin may qualify as a reserve asset. If a monetary authority holds stablecoins that represent claims on nonresidents but do not qualify as reserve assets, they should be recorded under other investment, specifically under currency and deposits.

Figure 2.1. Typology and Classification of Fungible Crypto Assets



Source: GN F.18 and IMF Staff

C. HOW FUNGIBLE CRYPTO ASSETS COME INTO EXISTENCE/CIRCULATION?

2.10 As explained in paragraph 1.15 and Box 1.4, miners validating transactions in crypto assets without a corresponding liability such as Bitcoins receive explicit validation fees and implicit fees (block rewards in terms of new crypto assets). Non-mineable crypto assets without a corresponding liability enter circulation in two different ways. They may be released via an explicit sale and/or as payment to validators that validate transactions in different ways than via proof-of-work (e.g., via proof of stake or proof of authority—see Box 1.4, Chapter 1 for details).

1. CRYPTO MINING AND VALIDATION SERVICES

2.11 The activities related to the emergence of new crypto assets without a corresponding liability are regarded as production activities, as the operation of miners and validators require the input of intermediate goods and services, including labor and capital. The services of miners/validators should be measured as the sum of both explicit validation fees and implicit fees (newly released crypto assets). Most producers of these services are likely to be crypto-mining companies and are therefore classified in

the nonfinancial corporations sector. When households engage in this activity, they are treated as household unincorporated enterprises providing computer services and are included in the nonfinancial corporations sector, in accordance with the criteria outlined in the SNA/BPM (where the institutional unit can provide balance sheet information). Otherwise, they remain in the household sector.

2.12 The explicit fee in crypto assets is paid by the party initiating the transaction. The implicit fee is assumed to be collectively paid and consumed by the existing holders of units of that crypto asset (these concern multiple institutional units that may be spread across a wide range of countries). The implicit fee is typically recorded, by convention, as a cross-border transaction in crypto assets payable by the owners of the existing crypto assets to the producer of the services, with the new crypto assets, diluting the value of existing crypto assets.[8] [9]

2.13 While the economy responsible for paying the explicit fee can be identified with some effort, it is difficult in practice to identify the holders of existing crypto assets. In the absence of this information, any recording by the economies considered to be importing (consuming) validation services, may lead to asymmetries at global level with regards to those services.

[8] This convention is recommended in *BPM7/2025 SNA* to promote consistent recording across countries, in light of the practical difficulties in identifying the holders of existing crypto assets. Paragraph A11.29 of BPM7 recognizes that partner economy attribution is challenging and difficult to implement in practice. Nevertheless, where information on the holders of existing crypto assets is available, including a resident–nonresident breakdown, the implicit fees may be allocated accordingly, and the basis for the allocation should be documented in the ESS/NA metadata. Overall, recording of implicit fees results in global asymmetries in the measurement of validation services (see paragraph 2.13).

[9] The time of recording of imports of validation services should follow the guidance in Chapter 3 of BPM7 on services, namely when the services are provided, which in practice aligns with the timing of the receipt of the fee in crypto assets by the miners.

Box 2.2. Numerical Example on the Recording of Crypto Mining/Validation Services

A crypto mining company in Economy A is providing validation services of transactions in crypto assets without a corresponding liability for transactions originated in Economy B. The Economy B institutional units pay a transaction fee of 5 in crypto assets. In addition, the Economy A mining company receives 20 units of crypto assets as implicit fee. Further, the mining company incurs 18 crypto units on electricity and other intermediate inputs. It is noted that the market value of each crypto asset is USD 1,000.

The following entries are recorded in the national accounts and balance of payments of Economy A.

Economy A BOP (in USD)

Current account		25,000
	Credit/Revenue	Debit/Expenditure
Services		
Computer services (explicit fee—from Economy B)	5,000	
Computer services (implicit fee—from rest of the world)	20,000	
Capital account		-25,000
	Credit/Revenue	Debit/Expenditure
Acquisition/disposal of non-produced nonfinancial assets		
Crypto assets without corresponding liabilities designed to act as a medium of exchange (from Economy B and rest of the world)		25,000 (5,000+20,000)

The implicit fee is recorded as payable by the owners of the existing crypto assets. In an ideal world the implicit fee of 20 units should be distributed to economies holding the crypto assets based on the allocation of crypto assets. However, as it is practically not realistic to collect information about these allocations, the counterpart will be the whole crypto community which is always considered nonresident, by convention. Further, crypto assets received through implicit fee (from Economy B) and explicit fee (from the rest of the world) are also recorded in the capital account of Economy A.

Economy A National Accounts (in USD)

Production account		
	Expenditure	Revenue
Output (explicit fee + implicit fee)		25,000
Intermediate consumption (electricity and other inputs)	18,000	
Gross value added	7,000	
Capital account		

	Change in assets	Change in liabilities and net worth
Acquisition/disposal of non-produced nonfinancial assets		
Crypto assets without corresponding liabilities designed to act as a medium of exchange (from Economy B and rest of the world)	25,000 (5,000+20,000	
Balance sheet		
	Assets	Liabilities
Non-produced nonfinancial assets (excluding natural resources)		
Crypto assets without corresponding liabilities designed to act as a medium of exchange	25,000	

2. CRYPTO STAKING, POOLED AND CLOUD MINING

a. Crypto Staking

2.14 Crypto staking is a process where users (i.e., the holders of crypto assets) 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 PoS mechanism. As explained in **Box 1.4, Chapter 1**, PoS relies on validators who are chosen to create new blocks and validate transactions based on the amount of crypto assets they hold and are willing to "stake" or commit to the network. Staking provides means for crypto assets holders to earn rewards while contributing to the network's security and decentralization.

2.15 Crypto assets holders can participate in staking directly through the blockchain network (known as active staking) or through crypto exchanges (CEX/DEX)—known as passive staking. In the case of active staking, accrued revenue for stakers (i.e., block rewards (implicit fee) and explicit transaction fees) should be treated as the output of validation services and recorded as computer services in the balance of payments.[10] In the case of passive staking, the staking revenue recorded on a gross basis, with any fees imposed by the platforms (known as validators) recorded as intermediate consumption for the provision of staking as-a-service[11], and classified as computer services for practical reasons. **Box 2.3** provides a numerical example on the recording of staking related transactions in balance of payments.

[10] The implicit fee is assumed to be payable by the owners of the existing crypto assets to the producer of the services, with the new crypto assets, diluting the value of existing crypto assets (similar to the treatment of implicit fee in the case of PoW consensus mechanism as explained in paragraph 2.12).

[11] Users who stake through a CEX delegate the staking process to the exchange, which manages the technical aspects of staking on their behalf. Staking more cryptos usually means doing more work to help run the blockchain, which earns more rewards.

Box 2.3. Numerical Example on the Recording of Crypto Staking

Institutional unit A from Economy A places 1000 units of a stablecoin called Stabex (a stablecoin with a corresponding liability issued by Economy C and one Stabex=1 USD) with a CEX called Cryptostake in Economy B for (passive) staking. Cryptostake performs validation of Stabex transactions (i.e, undertakes passive staking on behalf of clients from Economy A) and earns staking revenue of 150 units in Stabex. It retains 30 units as fee and pays the remaining 120 units to Institutional Unit A. Further, Cryptostake pays 5 units of Stabex on electricity and other intermediate inputs to domestic institutional units, in relation to staking. All payments are made in USD.[12]

For Economy A, the following entries are recorded in the BOP (from the point of view of passive staker—Institutional Unit A):

Current account balance		**120**
	Credit/Revenue	Debit/Expenditure
Services		
Computer services (staking revenue)	150	30
Financial account (Net)		**120**
	NAFA*	NIL*
Other investment		
Currency and deposits (vis-à-vis Economy C)	120	

For Economy B, the following entries are recorded in the BOP (from the point of view of validator—Cryptostake):

Current account balance		**30**
	Credit/Revenue	Debit/Expenditure
Services		
Computer services (validation)	30	
Financial account (Net)		**30**
	NAFA*	NIL*
Other investment		
Currency and deposits	30	

For Economy A, the following entries are recorded in the national accounts.

Production account	

[12] These payments are typically made in the relevant stablecoin, but the example uses USD for convenience of presenting the accounts.

	Expenditure	Revenue
Output (passive staking rewards)		150
Intermediate consumption (fee to Economy B for services)	30	
Gross value added	120	
Financial account		**120**
	NAFA*	NIL*
Currency and deposits	120	

For Economy B, the following entries are recorded in the national accounts.

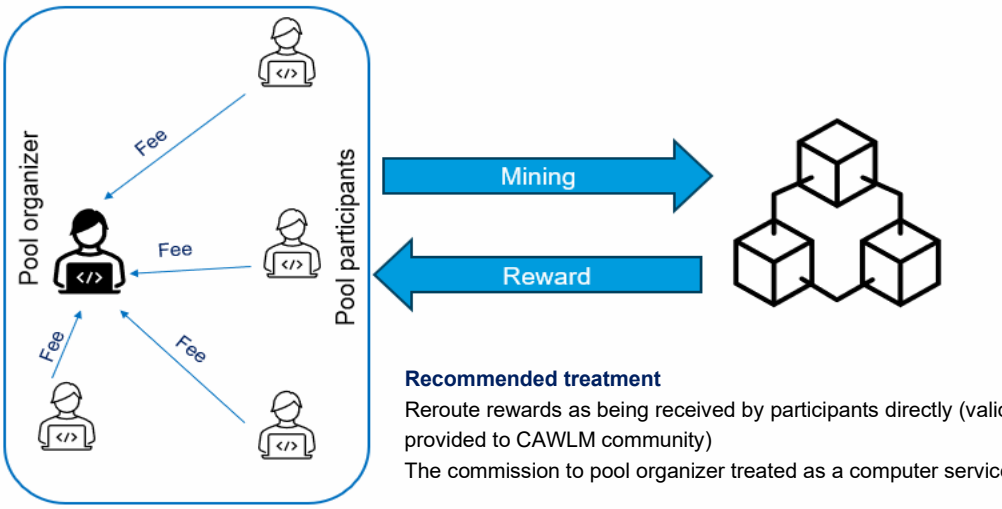
Production account		
	Expenditure	Revenue
Output (fee from Economy A)		30
Intermediate consumption	5	
Gross value added	25	
Financial account		**25**
	NAFA*	NIL*
Currency and deposits	25	

* NAFA – Net acquisition of financial assets, NIL – Net incurrence of liabilities

b. Pooled Mining

2.16 Pool mining is a method of mining crypto assets 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/crypto assets. As a rule, the earned rewards are then divided among the pool members according to the amount of computing power each miner has contributed (the calculation schemes may vary).

Figure 2.2. Pooled Mining



Recommended treatment

Reroute rewards as being received by participants directly (validation service provided to CAWLM community)

The commission to pool organizer treated as a computer service.

Source: IMF staff

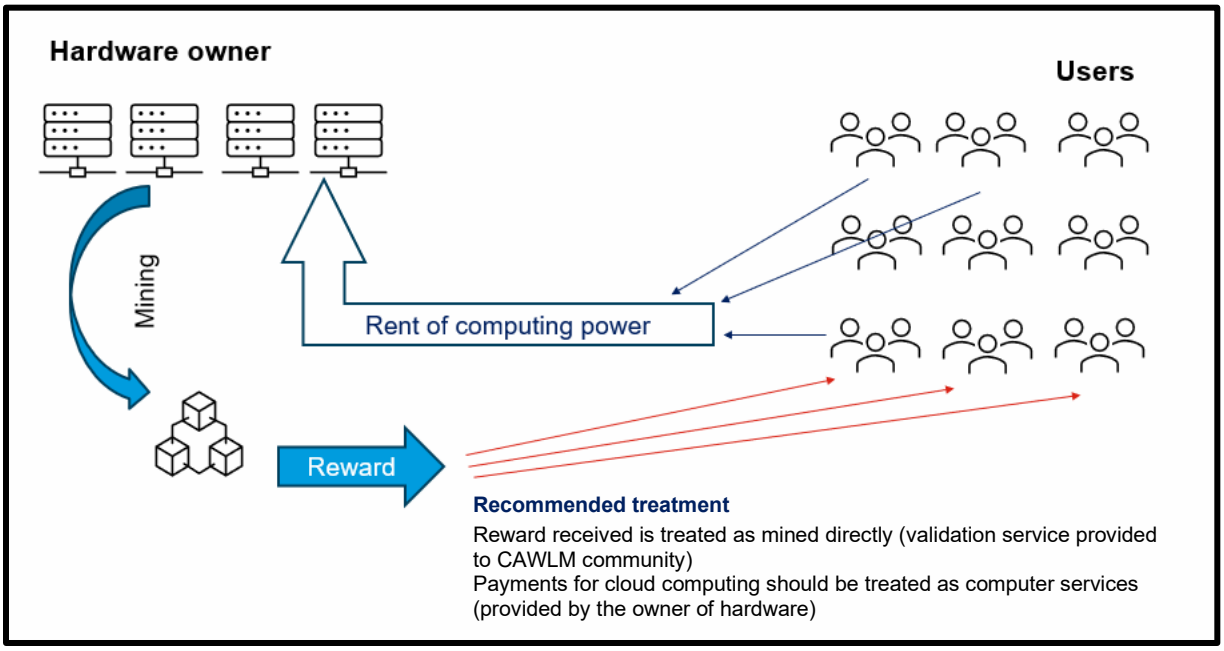
2.17 Two types of revenue/expenses are associated with pool mining: i) payout to miners (rewards); and ii) fee charged by the pool organizer to pool participants. Payouts are directly connected to the rewards received for validation services. Since the rewards are technically received by a single participant—most likely the pool organizer—they should be attributed to the pool participants as if earned directly and classified as computer services. 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.

c. Cloud Mining (contract mining)

2.18 Cloud mining is an arrangement that allows for crypto mining by renting computing power from large companies specialized in providing such resources. Institutional units that do not have their own computing resources can obtain "hashing power"[13] from a mining company in exchange for a fee and receive a portion of the rewards from successful validation services (mining) proportional to the computing power obtained. Such arrangement can take the form of either leasing mining machines hosted in a remote facility or renting computing power (hashing power). Technically, the reward is initially received by the lessor company (provider of the cloud computing resources for mining), which later distributes the reward according to the agreements. However, these rewards belong to the institutional units renting the computing resources and should be rerouted as being received directly by them.

[13] Hashing power refers to the computational capacity required to perform cryptographic calculations for blockchain transaction validation, which cloud mining participants access by renting computing resources.

Figure 2.3. Cloud Mining



Source: IMF staff

2.19 Two types of revenue/expenses are associated with cloud mining: (i) payouts for computing power; and (ii) rewards to institutional units. Payouts for renting of computing power should be classified under computer services. Further, rewards received by the institutional units are also treated as computer services. The company providing cloud mining resources should only record the own portion net of payouts to institutional units, though technically it may receive the full amount of the rewards.

Box 2.4. Numerical Example on the Recording of Pooled Mining

A crypto mining company Topminer in Economy A organizes a pool to mine CAWLM, with pool members from Economy B. It received total 35 units of CAWLM in implicit fee (newly released crypto assets) and explicit fee. As per the financial statement of the Topminer, it transferred 27 units of CAWLM to pool participants after retaining 5 units as its own share of mining and 3 units as the charges associated with organizing the pool. Further, it spends 2 units of CAWLM on electricity and other intermediate inputs. It is noted that the market value of each crypto asset is USD 1,000

For Economy A, the following entries are recorded in the BOP and national accounts (From the point of view of pool organizing mining company—Topminer) (in USD)

Current account balance		**8,000**
	Credit/Revenue	Debit/Expenditure
Services		
Computer services (mining/validation) to the rest of the world	5,000	
Computer services (pool organizing charges—from Economy B participants)	3,000	

Capital account balance		**-8,000**
	Credit/Revenue	Debit/Expenditure
Acquisition/disposal of non-produced nonfinancial assets		
Crypto assets without corresponding liabilities designed to act as a medium of exchange		8,000 (5,000+3,000)

In the national accounts of Economy A, 8 units of CAWLM is recorded as the output and 2 units of CAWLM as intermediate consumption in the production account. 6 units of CAWLM is recorded in the capital account (change in assets/ non-produced nonfinancial assets/CAWLM) and in the balance sheet (assets/ non-produced nonfinancial assets/CAWLM).

Economy A national accounts (in USD)

Production account		
	Expenditure	Revenue
Output		8,000 (5,000+3,000)
Intermediate consumption	2,000	
Gross value added	6,000	
Capital account		
	Change in assets	Change in liabilities and net worth
Acquisition/disposal of non-produced nonfinancial assets		
Crypto assets without corresponding liabilities designed to act as a medium of exchange	6,000 (8,000-2,000)	

For Economy B, the following entries are recorded in the BOP and national accounts (from the point of view of pool participants) (in USD)

Current account balance		**27,000**
	Credit/ Revenue	Debit/ Expenditure
Services		
Computer services ((mining/validation) to the rest of the world	30,000	
Computer services (payments to pool organizer from Economy A)		3,000
Capital account balance		-27,000
	Credit/Revenue	Debit/Expenditure
Acquisition/disposal of non-produced nonfinancial assets		
Crypto assets without corresponding liabilities designed to act as a medium of exchange	3,000	30,000

In the national accounts of Economy B, 30 units are recorded as the output and 3 units of CAWLM as intermediate consumption in the production account. 27 units of CAWLM is recorded in the capital

account (change in assets/ non-produced nonfinancial assets/CAWLM) and in the balance sheet (assets/ non-produced nonfinancial assets/CAWLM).

Economy B national accounts (in USD)

Production account		
	Expenditure	Revenue
Output		30,000
Intermediate consumption	3,000	
Gross value added	27,000	
Capital account		
	Change in assets	Change in liabilities and net worth
Acquisition/disposal of non-produced nonfinancial assets		
Crypto assets without corresponding liabilities designed to act as a medium of exchange	27,000 (30,000-3,000)	

D. OTHER CHANGES IN ASSETS AND LIABILITIES OF CRYPTO ASSETS

2.20 Both fungible and nonfungible crypto assets (NFTs)[14] can be affected by other changes in the assets and liabilities consisting of i) revaluations (holding gains or losses) in the value of crypto assets; and ii) other changes in the volume of crypto assets. While other changes in assets and liabilities account is relevant for all types of cryptos assets in the integrated framework of national accounts, in the case of external accounts, other changes account is applicable only for crypto assets that are treated as financial assets (i.e., crypto assets with a corresponding liability) as they are recorded in the international investment position (IIP).

2.21 Revaluations (holding gains or losses): These arise from the changes in the monetary value of crypto assets (or liability—relevant in the case of crypto assets with a corresponding liability) due to changes in the level of prices. As the market price of crypto assets may be denominated in foreign currency (mostly quoted in USD)[15], their values fluctuate with exchange rate changes.[16]

2.22 Other changes in volume: In the context of crypto assets, changes in the stocks/positions can result from events like the permanent loss of access (e.g., lost private keys), technological obsolescence

[14] Relevant for NFTs of second type which are treated as nonproduced nonfinancial assets.

[15] As the USD is the most liquid, widely accepted, and globally recognized pricing benchmark—serving as the default unit for valuation, exchange, and reporting across centralized and decentralized platforms. Many crypto trades are executed using USD-backed stablecoins (e.g., Tether (USDT), USD Coin (USDC)). Moreover, leading global exchanges (e.g., Coinbase, Binance, Kraken, Bitfinex) list crypto prices primarily in USD or USD-pegged stablecoins (e.g., USDT, USDC).

[16] Revaluation due to an exchange rate will specifically apply to foreign currency denominated crypto assets (e.g., USDT, USDC are foreign currency denominated instruments for non-US investors).

(e.g., smart contract failure or network shutdown), or involuntary events such as theft or uncompensated seizure. These changes affect both fungible crypto assets (like Bitcoin) and NFTs.

- For example, if an institutional unit loses the private keys of its Bitcoin holdings due to hacking, the crypto asset becomes inaccessible and is removed from the balance sheet of that unit. Seizure of crypto assets by a government[17] from an institutional unit constitutes an uncompensated seizure and is recorded in the other changes in the volume of assets account. Similarly, if an NFT platform shuts down and its assets lose functionality or economic value, this is treated as a disappearance of value due to technological obsolescence.

2.23 In line with recording crypto assets without a corresponding liability designed to act as a medium of exchange separately in the capital account/balance sheet, the *2025 SNA* also recommends recording them separately in the revaluation and other changes in volume of assets accounts.

Box 2.5. Numerical Example on the Recording of Other Changes in Volume of Crypto Assets

An institutional unit in Economy A (a resident nonfinancial corporation) holds 100 units of Bitcoin at the beginning of the year. The market value is USD 3 million (i.e., each Bitcoin market value= USD 30000). During the year:

- In **Q2**, 40 units of Bitcoin (worth USD 1.2 million) are lost due to hacking (private keys are irrecoverably lost).
- In Q4, another 20 units (worth USD 600,000) are seized by the government of Economy A without compensation, as part of a legal enforcement action.

The institutional unit also holds **10,000 USD Coins** (a type of stablecoin, assumed to be redeemable in USD. I USD coin= $1 and backed by nonresident issuers). Due to a cyberattack, all 10,000 coins (valued at **USD 10,000**) are **permanently lost** (private keys destroyed).

Further, another institutional unit in Economy A (asset backed stablecoin issuer) issued 2 million stablecoins known as Stabex which can be redeemed @ 1 Stabex = $1. All the Stabex are held by residents of Economy C. During Q3, the Stabex platform was shut down for unknown reasons, resulting in the asset losing its value and functionality.

The following entries are recorded in the national accounts of Economy A (in USD).

Opening Balance Sheet (start of Year 1)	Nonfinancial Corporations	General Government	Rest of the World
Non-financial assets/non-produced			
Bitcoins*	3,000,000		
Financial assets/currency and deposits			

[17] For example, the US Government Agencies seized more than $1 Billion in crypto assets in 2020 (see the relevant details here).

USD coins**	10,000		
Financial liabilities/currency and deposits			
Stabex**			2,000,000
Other Changes in the Volume of Assets Account (during Year 1)			
Non-financial assets/non-produced			
Bitcoins (lost due to hacking +seizure)	-1,800,000	600,000	
Financial assets/currency and deposits			
USD coins (lost due to hacking)	-10,000		
Financial liabilities/currency and deposits			
Stabex (platform shuts down)			-2,000,000
Closing Balance Sheet (end of Year 1)			
Non-financial assets/non-produced			
Bitcoins	1,200,000	600,000	
Financial assets/currency and deposits			
USD coins	0		
Financial liabilities/currency and deposits			
Stabex			0

***** Crypto assets without a corresponding liability designed to act as a general medium of exchange

** Crypto assets with a corresponding liability designed to act as a general medium of exchange—not issued or authorized by monetary authorities or government (Stablecoins with a claim on the issuer)

Box 2.6. Numerical Example on the Recording of Revaluation of Crypto Assets

At the beginning of Year 1, an institutional unit in country A held 1,000 units of a stablecoin called Fether issued in France and valued in EUR (one Fether =1 EUR), and 5 Bitcoins. At the end of year 1, the holdings increased to 1,200 Fether and 6 Bitcoins from new purchases. During the year, the initial price of Bitcoins decreased from 40,000 to 32,000, and the EUR/USD exchange rate increased from 1.1 to 1.2. Average exchange rate is 1.15 (i.e., (1.1+1.2)/2). The data are compiled in USD.

The following entries are recorded in the Integrated IIP statement for Economy A:

			Revaluation		Other changes	
	Beginning position	Transactions	Exchange rate changes	Price changes		Closing position
Assets						
Other investment/Currency and deposits (Fether)	1,100 (1,000x1.1)	230 (200*1.15)	110 (1,440-1,100)-230)			1,440 (1,200x1.2)

There is no recording of Bitcoins in the IIP as they are treated as nonproduced nonfinancial assets. However, Bitcoins are recorded in the balance sheet of Economy A in national accounts.

Opening Balance Sheet (start of Year 1)	**Nonfinancial corporations**
Non-financial assets/non-produced	
Bitcoins	200,000 (5x40,000)
Financial assets/currency and deposits	
Fether	1,100 (1,000x1.1)

Transactions during Year 1	
Non-financial assets/non-produced	
Bitcoins	36,000
Financial assets/currency and deposits	
Fether	230
Revaluation Account (during Year 1)	
Non-financial assets/non-produced	
Bitcoins	-44,000
Financial assets/currency and deposits	
Fether	110
Closing Balance Sheet (end of Year 1)	
Non-financial assets/non-produced	
Bitcoins	192,000 (6x32,000)
Financial assets/currency and deposits	
Fether	1,440 (1,200x1.2)

E. CRYPTO EXCHANGES/PLATFORMS: INSTITUTIONAL SECTOR/SUB-SECTOR CLASSIFICATION AND OUTPUT

2.24 As explained in Box 1.5, Chapter 1, two types of crypto exchanges/platforms including lending platforms are distinguished: CEX and DEX. The exchanges/platforms are classified as financial corporations (financial auxiliaries) or nonfinancial corporations (nonfinancial intermediaries) depending upon the crypto assets mainly facilitated by them.

2.25 An exchange/platform mainly involved in intermediation and/or custody[18] of a) crypto assets without a corresponding liability (e.g., Bitcoin, Ether) should be classified as a nonfinancial corporation (nonfinancial intermediary); and b) crypto assets with corresponding liabilities (e.g., Tether) should be classified as a financial auxiliary. This treatment is consistent with the Standard Industrial Classification of All Economic Activities, Revision 5 (ISIC Rev.5) which recommends classifying:

- Exchanges/platforms that are mainly engaged in trade and brokerage of crypto assets with corresponding liabilities to the group "6612 security and commodity contracts brokerage"; and

- Exchanges/platforms that are mainly engaged in transactions related to crypto assets without corresponding liabilities to "8299 Other business support service activities n.e.c.".

2.26 Therefore, if the crypto exchange/platform is mainly engaged in the intermediation of CAWLM, then their output should be included under other business support services (nonfinancial intermediation services in the external accounts). However, if the exchange/platform mainly intermediates in crypto assets with a corresponding liability, then their output should be included under other auxiliary financial services (financial services in the external accounts) (see Box 2.7).

2.27 The output of the exchanges/platforms (including those offering lending and borrowing facilities) is measured as the sum of explicit and implicit fees. The explicit fee covers fees such as trading fee (e.g., 0.1 percent of the trade), withdrawal or transferring fees. Additionally, the platforms collect implicit fees which are similar to the commissions/intermediation fees earned by brokers (e.g., difference between the buy and sell price of crypto assets; difference between interest rates on borrowing and lending).

Box 2.7. Numerical Example. Crypto Exchanges/Platforms—Output and Sectorization

A centralized exchange, Bitex, facilitated a) 100 trades in crypto assets with a corresponding liability (e.g., Tether), each of $1,000 in value; and b) 50 trades in Bitcoin, each worth $2,000

The exchange charges an explicit fee of 0.1 percent of the total trade value (both types). In addition, it earns through the buy-sell spread, which averages 0.5 percent of the trade value of Tether and 1 percent for Bitcoin trade.

The output of Bitex is $1700.

of which: explicit fee = 0.1%*total trade value = (0.1%*100*1000) + (0.1%*50*2,000)= $100 + $100 = $200

implicit fee = 0.5%*trade value of Tether + 1%*trade value of Bitcoins = (0.5*100*1,000) + (1%*50*2,000) = $500 + $1,000 = $1,500

[18] Paragraph 11.72, *BPM7* recommends treating custody of financial assets including crypto assets with a corresponding liability under financial services.

Bitex is classified as a nonfinancial corporation (nonfinancial intermediary) as the fee from intermediation of Bitcoins ($100+$1,000=$1,100) is higher (making it the dominant activity) than the fee from intermediation related to Tether ($100+$500=$600).

Following the above explanation, $1100 is recorded under nonfinancial intermediation services and $600 under financial services (margins on buying and selling transactions)—if such services are provided to nonresident institutional units.

F. LENDING AND BORROWING OF FUNGIBLE CRYPTO ASSETS

2.28 Crypto 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. The borrower can use the borrowed assets 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., some stablecoins) and those without a corresponding liability (e.g., Bitcoins, Ether).

2.29 Mostly, crypto lending and borrowing is channeled through crypto exchanges/platforms both centralized and decentralized, specialized in this business. 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. The lending and borrowing through centralized (e.g., Nexo) and decentralized (e.g., Aave) platforms[19] is also generally known as off-chain and on-chain lending, respectively.

2.30 Fees payable to the owners of crypto assets without a corresponding liability designed to act as a general medium of exchange used for crypto lending should be recorded as interest, by convention, on the lines of fees for securities lending and (monetary and nonmonetary) gold loans, which are treated as interest (see paragraph 12.92, *BPM7*). Institutional units that lend these assets remain the economic owner (as is the case with units lending securities) implying that no transaction in those crypto assets is recorded in the capital account and no changes are made to the balance sheets of the parties involved. Further, the institutional units that borrow these assets (e.g., crypto exchanges/platforms) can on-lend those assets to other institutional units as they are the legal owners of the borrowed assets.

2.31 Lending of crypto assets with a corresponding liability is straightforward to record as they are treated as financial instruments. For security crypto assets, the treatment for traditional securities lending would apply implying that no transactions are to be recorded in the financial account, as the institutional units that lend these assets remain the economic owners.[20] The lending in stablecoins (i.e., crypto assets with a corresponding liability designed to act as a general medium of exchange—not issued or authorized

[19] In addition to crypto lending/borrowing accounts, these platforms typically offer a broad range of services centered around crypto assets such as crypto trading (in some cases including NFTs), crypto wallet, staking, tokens of their platform and loyalty programs (see Chapter 1 for additional details on these platforms).

[20] For additional details on the recording of securities lending related transactions, refer to Annex 7, *BPM7*.

by monetary authorities or government) and Central Bank Digital Currency (CBDCs) on the blockchain should be recorded along the lines of cash lending and therefore, the associated lending revenue/payment is recorded as interest. **Box 2.8** provides a numerical example on the recording of crypto lending related transactions in balance of payments and national accounts.

Box 2.8. Numerical Example on the Recording of Crypto Lending

Institutional unit A from Economy A lends 100 Bitcoins to Institutional unit B in Economy B and receives the principal amount along with 5 Bitcoins as revenue after one year. It also lends 10,000 units of Tether (which is a stablecoin) to a unit in Economy C and receives 500 Tether as interest payment for one year. The prices of Bitcoin and Tether are: one Bitcoin = 1,000 USD; and one Tether = 1 USD.

For Economy A, the following entries are recorded in the BOP:

Economy A BOP (USD)—first transaction

Current account		5,000
	Credit/Revenue	Debit/Expenditure
Earned Income		
Interest	5,000	
Capital account		-5,000
	Credit/Revenue	Debit/Expenditure
Acquisitions/disposals of nonproduced nonfinancial assets		
Crypto assets without a corresponding liability designed to act as a medium of exchange		5,000

In the national accounts for Economy A, the following entries are recorded (USD)—first transaction

	Expenditure	Revenue
Allocation of Earned Income Account		
Interest		5,000
Capital account		
	Change in assets	Change in liabilities and net worth
Acquisitions/disposals of nonproduced nonfinancial assets		
Crypto assets without a corresponding liability designed to act as a medium of exchange	5,000	

Economy A BOP (USD)—second transaction

Current account		500
	Credit/Revenue	Debit/Expenditure
Earned Income		
Interest	500	
Financial account		500
	NAFA*	NIL*
Other investment		
Currency and deposits (Tether)	-10,000	
Currency and deposits (Tether)	500	
Loans (Tether)	10,000	

Economy A national accounts—second transaction

	Expenditure	Revenue
Allocation of Earned Income Account		
Interest		500
Financial account		
	Change in assets	Change in liabilities and net worth
Currency and deposits (Tether)	-9,500 (-10,000+500)	
Loans (Tether)	10,000	

* NAFA – Net acquisition of financial assets, NIL – Net incurrence of liabilities

G. NONFUNGIBLE TOKENS

2.32 *Nonfungible tokens (NFTs) are digital records hosted on a blockchain that are associated with a digital or physical asset or product but that are distinct from that asset or product.* NFTs certify rights to use and benefit from the asset and may also serve to certify the asset's authenticity.

2.33 Each NFT has a distinct identifier that makes it different from any other NFT. This identifier is typically stored on the blockchain and includes metadata such as the creator's information, creation date, and other attributes that define the digital asset. Because of this unique metadata and identifier, no two NFTs are exactly the same. Unlike fungible crypto assets such as Bitcoin or Ether, which can be divided into smaller units, NFTs cannot be divided. One either owns the entire NFT or does not own it at all. Payments for NFTs usually must be made in the fungible crypto asset native to the blockchain on which the NFT is hosted.

2.34 While three types of NFTs (AN214) are distinguished in the *2025 SNA*/*BPM7,* all NFT issuers are classified as nonfinancial corporations

- NFTs that convey no ownership rights and only allow for personal use of a specified asset or product (first type of NFTs)
- NFTs that convey limited ownership rights, beyond personal use for a specified asset or product (second type of NFTs); and
- NFTs that convey full ownership rights for a specified asset or product (third type of NFTs).

2.35 **NFTs of the first type** only allow for personal use of a specified asset or product (e.g., the right to display a video clip of a scoring play in a sporting event or of a piece of digital art for noncommercial purposes). Their acquisition should be recorded as final consumption expenditure. However, in rare cases, they may transform to a valuable at a later stage, similar to the purchases of, for example, objects of art, the purchases of which are initially recorded as final consumption expenditure. Cross-border transactions in this type of NFTs should be recorded under the relevant service category (computer services, audiovisual and related services, or information services) depending on the content of related asset.

2.36 **NFTs of the second type** convey limited ownership rights, beyond personal use for a specified asset or product. They are treated as nonproduced nonfinancial assets (included in the asset class "contracts, leases and licenses") and recorded in the capital account, if they confer economic benefits that the holder can realize in practice.

2.37 **NFTs of the third type** convey full ownership rights for a specified asset or product. An NFT that conveys full ownership is a digital recording of ownership similar to a property title, not a separate asset. The underlying asset should already be recorded in the integrated framework of national accounts. Purchasing an NFT in this category is therefore a way of purchasing the underlying asset. Assets that can be associated with NFTs already have established treatments in the SNA. Cross-border transactions in this type of NFTs should be recorded as computer services, audiovisual and related services, or information services, if the underlying asset is digital. Box 2.9 presents a decision tree to determine the appropriate classification of an NFT.

Box 2.9. Decision Tree for the Statistical Treatment of NFTs

1. Is the NFT limited to personal, non-commercial use of specified content, without ownership or income-generating rights?

- Yes → Type 1 NFT (Personal use)
  Record as final consumption expenditure in national accounts.
  Record under relevant services category (computer; audiovisual and related; or information services) in balance of payments.
- No → Proceed to Step 2

2. Does the NFT confer limited ownership rights beyond personal use for a specified asset or product?

- Yes → Type 2 NFT (Limited ownership rights)
  Record as nonproduced nonfinancial asset (contracts, leases, and licenses) in national accounts/balance of payments.

• No → Proceed to Step 3
3. Is the NFT merely a digital certificate or record of ownership of an underlying asset already within the SNA asset boundary?
• Yes → Type 3 NFT (Full ownership) NFT is not a separate asset. Record transactions as acquisition/disposal of the underlying asset following the existing guidance.

2.38 For additional details on NFTs classification refer to paragraphs 16.34–16.38, *BPM7*/paragraphs 22.38–22.42, *2025 SNA*. Table 2.1 provides examples of the above three types of NFTs including the underlying asset/product and rights conferred and Box 2.10 provides a numerical example on the recording of NFTs.

Table 2.1. Examples of NFTs by Type

NFT Type	Example	Underlying Asset/Product	Rights conferred
First type	NBA Top Shot "Moments"	Short video clips and stats of NBA players	Personal use and display rights
Second type	CryptoPunks	Pixel-art digital characters	Ownership of the NFT and display rights
Third type	Florida, USA house sold via NFT (Feb 2022)	Real estate property	Ownership via transfer of the NFT

Box 2.10. Numerical Example on the Recording of NFTs

A resident of Economy A sells CryptoPunk #4567 to a resident of Economy B (both of them are part of the household sector of the respective economies), via the official CryptoPunks marketplace operated by Yuga Labs located in Economy C. The NFT is valued at USD 300,000. The seller pays a fee of 0.5% to marketplace. There is no direct fee charged to buyers for purchases made on the official marketplace. The payment is made in Ether.

The following entries are recorded in the BOP of Economy A (USD)

Current account		-1,500
	Credit/Revenue	Debit/Expenditure
Services		
Nonfinancial intermediation services (payments to marketplace in Economy C)		0.5%*300,000 =1,500
Capital account		1,500
Acquisitions/disposals of nonproduced nonfinancial assets		
Contracts, leases, and licenses (NFTs-second type) vis-à-vis Economy B	300,000	
Crypto assets without a corresponding liability designed to act as a medium of exchange (Ether) vis-à-vis Economies B (300,000) and C (1,500)	1,500	300,000

- Seller from Economy A receives $298,500 after paying the fee of $1,500 to the platform (Yuga Labs) in Economy C.

- The fee ($1,500) charged by Yuga Labs is treated as import of nonfinancial intermediation services from Economy C.

In the national accounts of Economy A, similar entries are recorded in the capital account. Import of nonfinancial intermediation services ($1,500) from Economy C are recorded as final consumption expenditure in the use of disposable income account.

	Expenditure	Revenue
Disposable Income Account		
Final consumption expenditure (payment for nonfinancial intermediation services to Economy C)	1,500	
Capital account		
	Change in assets	Change in liabilities and net worth

Acquisitions/disposals of nonproduced nonfinancial assets	
Contracts, leases, and licenses (NFTs-second type) vis-à-vis Economy B	-300,000
Crypto assets without a corresponding liability designed to act as a medium of exchange (Ether) vis-à-vis Economies B (300,000) and C (1500)	300,000-1500=298,500

Annex 2.1. Crypto Assets: Summary of *2025 SNA/BPM7* Recommendations

Item	*2025 SNA* recording	*BPM7* recording
Fungible crypto assets		
Crypto assets with a corresponding liability designed to act as a general medium of exchange that are issued by a monetary authority (AF21) (see paragraph 2.5/first bullet) Examples: DCash of ECCB, eNaira, e-Krona	Currency under "currency and deposits"	• Currency under "currency and deposits" • Possible functional categories—other investment/reserve assets
Crypto assets with a corresponding liability designed to act as a general medium of exchange that are not issued or authorized by monetary authorities or government (AF22) Examples: USD coin, Tether	Separate category under "currency and deposits"	• Separate category under "currency and deposits" (supplementary item) • Possible functional categories—direct investment/other investment/reserve assets
Crypto assets with a corresponding liability designed to act as a medium of exchange within a platform (payment tokens), short-term (AF33) and long-term (AF34)[21]	Separate category under "debt securities"	• Included under debt securities—no separate category • Possible functional categories—direct investment/portfolio investment/reserve assets
Utility tokens (AF35) Examples: Filecoin (provides decentralized cloud storage service that will take advantage of unused computer hard drive space), Siacoin (provides access to cloud storage)	Separate category under "debt securities"	• Included under debt securities—no separate category • Possible functional categories—direct investment/portfolio investment/reserve assets
Debt security crypto assets (debt tokens) (AF3) Examples: Bond-i from the World Bank, Ethereum based digital bonds from the European Investment Bank	Included under debt securities—no separate category	• Included under debt securities—no separate category • Possible functional categories—direct investment/portfolio investment/reserve assets
Equity crypto assets (AF51) Examples: Equity from Overstock.com, Exodus Inc, INX Limited	Included under equity securities—no separate category	• Included under equity securities—no separate category • Possible functional categories—direct investment/portfolio investment/reserve assets

[21] Short term vs long-term of debt instruments should be distinguished following the guidance in paragraph 5.115, *BPM7*.

Derivative crypto assets (AF71) Examples: Goldman Sachs / ISDA interest rate swaps, EquiLedger interest rate swaps, ING & AXA FX and interest swaps	Included under financial derivatives—no separate category	• Included under financial derivatives —no separate category • Functional category—financial derivatives
Crypto assets without a corresponding liability designed to act as a medium of exchange (AN22) Examples: Bitcoin, Ether, and stablecoins without a claim on the issuer such as Djed, ETHx	Separate category under "nonproduced nonfinancial assets"—capital account/balance sheet	Separate category under "nonproduced nonfinancial assets"—capital account
Crypto exchanges/platforms (including those offering lending and borrowing facilities)		
Sector/sub-sector	Classified as financial corporations (financial auxiliaries) or nonfinancial corporations (nonfinancial intermediaries) depending upon the dominant activity undertaken by them. • Mainly involved in brokerage of crypto assets without a corresponding liability (e.g., Bitcoin, Ether)—nonfinancial intermediary • Mainly involved in intermediation of crypto assets with corresponding liabilities (e.g., Tether)—financial auxiliary	
Output	Measured as the sum of explicit and implicit fee	Record the output as nonfinancial intermediation services/financial services (as applicable)
Crypto assets mining and staking		
Crypto mining and validation services	Output of miners (validating transactions in crypto assets such as Bitcoins) = Explicit validation fee + implicit fee (i.e., newly released crypto assets)	Record the output as computer services
Staking services	Output of stakers (i.e., provision of validation services) = block rewards and/or transaction fee	Record the output as computer services
Pool mining services	Output of pool mining = block rewards + transaction fee Output of pool organizer = fee charged to participating miners	Record the output as computer services (in both cases)
Cloud mining services	Output of cloud mining units = block rewards + transaction fee Output of cloud service provider = fee charged to cloud miners	Record the output as computer services (in both cases)

Crypto lending/borrowing		
Lending of crypto assets without a corresponding liability designed to act as a general medium of exchange	• Fee payable to the owners of crypto assets used for lending should be recorded as interest • Crypto assets on lent remain on the balance sheet of owner—as there is no change in economic ownership	• Fee payable to the owners of crypto assets used for lending should be recorded as interest • Crypto assets on lent remain on the domestic balance sheet of owner—as there is no change in economic ownership
Lending of crypto assets with a corresponding liability—security crypto assets	• Lending fee should be recorded as interest • Crypto assets on lent remain on the balance sheet of owner	• Lending fee should be recorded as interest • Crypto assets on lent remain on the balance sheet (IIP—provided they are external assets) of owner
Lending of crypto assets with a corresponding liability—CBDCs on blockchain and stablecoins	• Should be recorded on the lines of cash lending in the financial account/balance sheet • Lending fee should be recorded as interest	• Should be recorded on the lines of cash lending in the financial account/IIP (provided they are external assets) • Lending fee should be recorded as interest
Nonfungible tokens (NFTs) (AN214)		
First type: convey no ownership rights and only allow for personal use of a specified asset or product. Example: NBA Top Shot "Moments"	• Final consumption expenditure. In rare cases, they may transform to a valuable at a later stage	• Relevant service category (computer services, audiovisual and related services, or information services) depending on the content of related asset
Second type: convey limited ownership rights, beyond personal use for a specified asset or product (AN214). Example: CryptoPunks	• Contracts, leases and licenses under Nonproduced nonfinancial assets (in the capital account/balance sheet)—separate sub-category	• Contracts, leases and licenses under Nonproduced nonfinancial assets (in the capital account)—no separate sub-category
Third type: convey full ownership rights for a specified asset or product. Example: Florida, USA house sold via NFT (Feb 2022)	• Digital recording of ownership similar to a property title, not a separate asset—underlying asset should already be recorded in the integrated framework of national accounts	• Computer services, audiovisual and related services, or information services, if the underlying asset is digital (transactions in the underlying asset should already be recorded in the balance of payments)

CHAPTER 3. DATA SOURCES AND COMPILATION METHODS

A. INTRODUCTION

3.1 This chapter presents the range of data sources available for compiling crypto asset statistics, reflecting the diverse and complex nature of crypto-related activities. While crypto assets pose novel challenges to statistical compilation because they are based on decentralized and often pseudonymous design, the crypto ecosystem in practice exhibits a meaningful degree of functional and institutional centralization that can be leveraged for statistical purposes. Key activities—such as trading, custody, issuance, validation, and intermediation—are frequently concentrated in identifiable entities, many of which are subject to regulatory, supervisory, tax, or accounting requirements. Accordingly, this chapter covers administrative and supervisory data, financial statements of entities such as mining companies and crypto exchanges, alternative commercial and blockchain-based data, and possibilities for international data sharing. By exploring these data sources and their respective strengths and limitations, compilers may select the most suitable approaches to produce consistent and reliable statistics on crypto assets following the *2025 SNA/BPM7* methodological framework explained in Chapter 2 and considering the institutional and legal frameworks for statistical reporting in their countries.

3.2 The remainder of this chapter is organized as follows. Section B describes the main administrative data sources, including those derived from regulatory, tax, and international transactions reporting systems (ITRS). Section C outlines the use of financial statements of mining companies, stablecoin issuers, and crypto exchanges for measuring flows and stocks of crypto assets. Section D discusses the use of alternative (commercial) data sources, and Section E focuses on data sources related to Nonfungible tokens (NFTs). Section F presents data sources and compilation approaches relevant to the Data Gaps Initiative 3 (DGI-3) Recommendation 11 Task Team templates on stablecoins and other crypto assets. Section G discusses the importance of international data sharing to enhance consistency, including coverage of crypto asset statistics. In addition, annexes provide model survey questionnaires for mining companies (Annex 3.2), stablecoin issuers (Annex 3.4), crypto exchanges[1] (Annex 3.6), and creators of NFTs (Annex 3.9); questions on fungible crypto assets and NFTs for household and enterprise surveys (Annex 3.8); mapping of key financial statements items on crypto assets to *BPM7*/*2025 SNA* classifications (Annex 3.7); compilation methods for estimating crypto holdings by USA/non-USA residents and resident institutional sectors (Annex 3.5); and deriving transactions and revaluations from positions data (Annex 3.3).

B. ADMINISTRATIVE DATA SOURCES

3.3 This section covers sources of data on crypto assets collected by government institutions, including as a by-product of their core functions. Examples include data from tax authorities, financial regulators, the International Transactions Reporting System (ITRS), and government records on crypto asset losses, thefts, and seizures.

[1] Although these entities mostly function as crypto exchanges, custodians, and wallet providers, they are referred to as crypto exchanges in this *Guide* for simplicity.

3.4 The sources described in this section may be used to compile various external sector and national accounts statistics items on crypto assets in accordance with the *BPM7*/2025 SNA framework. They can also supplement data from financial reports or targeted surveys and may be used to validate information collected from other sources.

1. CRYPTO ASSET SERVICE PROVIDERS

3.5 Crypto asset service providers (CASPs) are institutional units that provide crypto-asset-related services such as custody of crypto assets, exchange services for buying or selling crypto assets, digital wallet operations, or payment processing.[2] In several countries, they are required to register with a designated agency, such as the central bank, financial regulator (other than the central bank), securities regulator, or ministry of finance, and provide necessary operational details. Typically, a unit may register to provide one or more of those services. Regulatory agencies generally publish lists of CASPs on a regular basis. These lists typically cover both domestically headquartered exchanges and local branches or subsidiaries of foreign-owned platforms. For example, in the United States, crypto exchanges register with the Financial Crimes Enforcement Network (FinCEN) as money services businesses and comply with ongoing anti-money laundering (AML/CFT) obligations, including suspicious activity reports. Some CASPs may also fall under the jurisdiction of the Securities and Exchange Commission (SEC) or the Commodity Futures Trading Commission (CFTC), depending on their activities, and could face additional disclosure obligations. National statistical offices and central banks should coordinate with the relevant agencies to compile the list of CASPs for potential inclusion in business registers.

2. REGULATORY DATA ON CRYPTO ASSETS

3.6 Regulatory reporting by CASPs offers a practical starting point for compiling crypto asset data under *BPM7* and *2025 SNA* frameworks, especially if such reporting is tailored to cover the needs of statistical reporting. Unlike traditional financial filings, regulatory reporting encompasses a wide array of disclosures—including transaction-level data, AML reports, operational metrics, licensing and compliance documentation, and financial statements. While these reports are primarily designed to support investor protection, market oversight, and compliance enforcement, they also offer valuable insights into the structure, usage, and cross-border flows of crypto assets, which can be harnessed and tailored for statistical purposes.

3.7 These regulatory datasets mostly provide details on crypto asset issuance, transfers, holdings, and counterparty relationships, making them highly relevant for macroeconomic analysis. They can be used to track cross-border flows, classify crypto entities within financial accounts, and assess financial interconnectedness and systemic risk. However, regulatory filings often do not explicitly distinguish

[2] According to the Financial Action Task Force (FATF) definition, CASPs include crypto exchanges, custodians, wallet providers, crypto Payment processors, and Issuers of crypto assets. CASPs are subject to regulatory oversight in many jurisdictions, especially for anti-money laundering (AML), counter-terrorism financing (CTF), and tax compliance purposes.

between crypto assets with and without corresponding liabilities.[3] Further, they may not provide sector and residency of the crypto asset holders and/or details of the entities involved in crypto transactions.

3.8 Despite its potential, leveraging regulatory data for statistical purposes presents some challenges. Coverage gaps persist due to the exclusion of unlicensed or decentralized entities. More importantly, specific details may be excluded from regulatory filings to protect confidentiality. These restrictions can limit access to detailed transaction-level data. Jurisdictional differences in reporting standards hinder harmonization and comparability within the economy and internationally. Timeliness is also a concern, as many reports are periodic and may lag market developments. Moreover, regulatory approaches vary widely, resulting in inconsistencies in scope, definitions, and data availability.

3.9 **Section B.2, Chapter 4** explains the experience of Eesti Pank in compiling the data on crypto assets based on the reports from CASPs.

3. TAX DATA ON CRYPTO ASSETS

3.10 As crypto assets gain traction globally, countries are developing tax frameworks to regulate and monitor digital asset transactions more closely. These frameworks not only serve for revenue collection purposes but also provide insights into crypto asset transactions and income, particularly from resident households and corporations — sectors that are often difficult to survey. When anonymized and aggregated, such data can support:

- Assessing Adoption and Market Activity
  The number of taxpayers reporting crypto activity serves as a proxy for adoption levels. Reported transaction volumes offer a baseline for estimating market turnover, while declared asset values may hold importance for assessing net worth.

- Estimating Household Income, Consumption, and Savings
  Reported income from crypto-related activities (e.g., mining, staking) can refine estimates of household income, consumption, and savings. This enhances the measurement of savings and use of income in the domestic economy.

- Tracking Cross-Border Financial Flows
  Taxpayer disclosures of foreign-held crypto assets or transactions with nonresidents provide a partial but critical view of cross-border flows, supporting compilation of the financial account in the BOP.

3.11 While the tax regimes generate records of crypto-related income and transactions, the ability to derive comprehensive crypto flows and stocks held by households or businesses may be constrained. For example, the U.S. tax data captures the flow of transactions and realized gains but does not provide information on wallet balances or total crypto holdings. In Canada, taxpayers must report investment income from crypto trades, but there is no standalone requirement to disclose total holdings unless triggered by foreign asset rules. Similarly, in India, although income tax data provides disposals and

[3] Recognition of a liability by the issuer on its balance sheet serves as an important indicator for distinguishing crypto assets with corresponding liabilities from those without corresponding liabilities.

related gains, there is no direct requirement for households or businesses to declare total crypto balances held domestically.

3.12 Using tax data for macroeconomic statistics purposes has certain limitations. Tax data provide a flow of income or realized gains/losses, but not the flow of the asset transactions itself, which is required for the financial account (for crypto assets classified as financial assets) or capital account (for crypto assets classified as nonfinancial assets). Further, tax data may not capture peer-to-peer transfers, transactions on decentralized exchanges, and other non-custodial activities.[4] The data also provides no information on total stock (holdings) of crypto assets and the concept of residence may differ from that of the statistical definition, which is critical for compiling sectoral balance sheets and the international investment positions (IIP). Moreover, the data lack frequency and timeliness, as income tax reporting occurs annually. Its scope and underlying methodology can vary significantly across countries, due to different rules, unharmonized tax laws, and divergent compliance levels. Initiatives that aim at standardizing and cross-border sharing of tax information such as OECD's Crypto-Asset Reporting Framework (CARF) and eighth amendment to the Directive on Administrative Cooperation in Direct Taxation (DAC8) in the EU may, in the future, enhance the usefulness of tax data for macroeconomic statistics compilation.[5] **Box 3.1** outlines how CARF can be utilized in the compilation of macroeconomic statistics.

Box 3.1. Leveraging OECD Crypto-Asset Reporting Framework (CARF) for Macroeconomic Statistics

The OECD's Crypto-Asset Reporting Framework (CARF) is an international standard designed to enhance tax transparency for crypto assets. It mandates standardized reporting of crypto transactions by service providers, enabling tax authorities to access detailed data on acquisitions, disposals, and transfers. While the primary objective is tax compliance, CARF data can also be leveraged to support macroeconomic statistics. It could serve as a complementary source for compiling *BPM7* and *2025 SNA*-based statistics on crypto assets. Aggregated CARF data may allow monitoring trends in crypto adoption and integration into the statistical frameworks. Further, it could enhance the ability of statistical agencies to cross-check surveys and other source data for improved accuracy.

Key Features

CARF requires Reporting Crypto-Asset Service Providers (RCASPs) to report:

- Acquisitions and disposals of crypto assets
- Exchange transactions (crypto-to-crypto, crypto-to-fiat)
- Transfers to and from wallets

[4] Access to tax data varies across different economies and depends on the MOUs between the tax authorities and the NSOs/Central Banks.

[5] DAC8 provides for automatic exchange of information on crypto-assets between EU countries (for further details visit: https://taxation-customs.ec.europa.eu/taxation/tax-transparency-cooperation/administrative-co-operation-and-mutual-assistance/directive-administrative-cooperation-dac/dac8_en)

- Valuation and timestamps of each transaction
- Identification of users and wallet addresses

Challenges in Using CARF Data

- Data Privacy: Access may be limited due to confidentiality rules, requiring anonymization or aggregation.
- Coverage Gaps: Not all crypto transactions are captured, particularly on non-compliant or decentralized platforms.
- Valuation Issues: Prices are volatile and differ across exchanges, complicating consistent measurement.
- Classification Complexity: Distinguishing between financial and non-financial crypto assets can be challenging.
- Timeliness: Delays in reporting or international data exchange can affect the credibility and usability of statistics.
- Standardization Across Jurisdictions: Different implementation timelines and interpretations may affect comparability.

Source: OECD Crypto Assets Reporting Framework with authors' elaboration and interpretation for macroeconomic statistics purposes.

4. INTERNATIONAL TRANSACTIONS REPORTING SYSTEM (ITRS)

3.13 Where available, the International Transactions Reporting System (ITRS), can serve as a useful source for capturing cross-border transactions in crypto assets within the framework of *BPM7*. Originally designed to record cross-border financial flows, including investment income, remittances, and transfers, this system has been enhanced to capture crypto assets related transactions in some countries.

3.14 When a resident purchases crypto assets from, or sells crypto assets to, nonresidents and the associated cross-border payments are processed through the domestic banking system, ITRS can provide information on the value, currency, date, and counterparty country of transactions involving crypto assets. For example, purchases of Bitcoin from abroad by resident entities may be recorded as inflows, while sales to nonresidents can be captured as outflows. When appropriate codes are included for these items in ITRS, such data can support the classification of crypto transactions in accordance with the methodological standards of *BPM7* and *2025 SNA*.

3.15 Some countries have already taken steps to incorporate crypto-related categories into their ITRS frameworks (e.g., Brazil and El Salvador). Dedicated reporting codes have been introduced for the purchase and sale of crypto assets, as well as for crypto-related services. These developments demonstrate the adaptability of existing systems to reflect the increasing significance of crypto assets in cross-border activities.

3.16 Nevertheless, important limitations remain. First, ITRS records only those transactions intermediated by domestic banks, excluded are peer-to-peer trades and those conducted through accounts in overseas crypto exchanges. Second, ITRS captures payment flows but not asset positions,

as a result, they need to be complemented by other sources to measure the crypto holdings of residents. Third, data quality depends heavily on the accuracy of coding and reporting by banks, which may not always distinguish between different types of crypto assets, especially between those with liabilities (such as stablecoins with a claim on the issuer) and those without (such as Bitcoin or Ether). Finally, transactions through corporate accounts held abroad often bypass the domestic banking system and thus fall outside ITRS coverage.

3.17 While ITRS alone cannot provide a complete picture of cross-border crypto asset transactions, it offers a structured and timely dataset that can be leveraged for compiling *BPM7* compliant statistics. When integrated with complementary data sources, ITRS contributes meaningfully to the development of a robust and holistic measurement of cross-border transactions in crypto assets.

3.18 Section B.1, Chapter 4 explains the experience of Central Bank of Brazil in compiling the data on cross-border transactions in crypto assets based on the ITRS.

5. CRYPTO ASSETS LOSS, THEFT, AND SEIZURES[6]

3.19 Crypto asset seizures have become increasingly common as law enforcement agencies around the world enhance their capabilities to combat illicit financial activities. Several high-profile cases have been reported across jurisdictions, reflecting the growing importance of digital asset enforcement. While the United States has led many high-profile seizures of crypto assets, numerous other countries have also undertaken significant seizures. **Annex 3.1** provides data on prominent seizures for selected countries gathered from different news reports at the time of drafting this chapter. Apart from these reports, data on seizures are not systematically available for incorporating in the national accounts and balance of payments.

3.20 Data on hacking/theft/loss are generally not maintained in a centralized government database. Instead, it is primarily compiled and analyzed by private blockchain analytics firms like Chainalysis. Such companies use sophisticated tools to trace the flow of stolen funds on the blockchain, providing the most comprehensive and detailed information available. Law enforcement agencies, such as the U.S. Federal Bureau of Investigation (FBI), also maintain internal records for criminal cases, while academic researchers and journalists often aggregate publicly available information on major events.

3.21 Data on hacking, theft, and seizure of crypto assets may be collected from law enforcement agencies, financial intelligence units, customs authorities, judicial institutions, and blockchain analytics firms. Interagency protocols for data sharing are essential to ensure that these activities, especially those with cross-border implications are systematically captured and appropriately classified.

3.22 Section E, Chapter 2 (including Box 2.5) explains that loss, theft, hacking, and seizures of crypto assets are not considered transactions because they lack mutual consent and are therefore treated as other changes in volume in balance of payments/national accounts.

[6] This is included as part of the administrative data sources, as most of the sources on this item are based on the reports of government agencies at this stage.

C. FINANCIAL REPORTS

3.23 Publicly available financial reports of entities engaged in crypto-related activities—such as mining, stablecoin issuers, crypto exchanges, and corporates holding crypto assets—provide important data on flows and stocks of crypto assets as well as associated income and expenses. Although typically prepared on a consolidated group basis**,** these statements are a valuable source for assessing the domestic and cross-border activities related to crypto assets.

1. CRYPTO MINING COMPANIES

3.24 This sub-section presents guidance on the compilation of output, flows and stocks of crypto assets of mining companies based on publicly available financial statements of large multinational enterprises (MNEs) engaged in mining. These financial statements offer insights into mining and other activities, the financial flows, and positions including the flows/stocks of crypto assets. These MNEs operate through subsidiaries in different countries, and their financial statements provide a consolidated perspective for the group as a whole.

a. Output and Intermediate Consumption

3.25 Crypto mining companies (e.g., Bitfury, Bitdeer, ClearSpark) typically earn revenues from two sources: block rewards (newly mined crypto assets) and transaction fees. In some cases, data on these components are available separately by subsidiary, which allows a geographical distribution of revenues (mining activity). However, distinctions between resident and nonresident sources of transaction fees are often missing, and no systematic allocation of newly mined Bitcoins to specific countries is available. In addition to self-mining, most of these companies also provide hosting and mining services for other entities. This includes offering access to their custom mining hardware and data center solutions. While details on these additional revenues are available, in some cases, the information is not sufficiently granular at the subsidiary level, making it impossible to assign production accurately to the economy. Importantly, a breakdown of revenue from residents and nonresidents is generally not provided. While the output from mining/validation services and related activities are recorded as the primary output of these companies, production of machinery and equipment or software solutions for mining should be recognized as part of their secondary outputs.

3.26 The main input into mining is electricity, which accounts for a substantial share of intermediate consumption. Some financial statements provide revenue and expenses by product lines (e.g., self-mining, cloud hosting, general hosting) with the split of expenses into electricity, depreciation, and other costs. Others present details on expenses such as rent, wages, sales and general administration costs, without separate data on electricity consumption. Proxy approaches may be needed to derive electricity usage in such cases. The estimates based on the data from similar mining companies could be the best proxy. For example, data from Bitdeer shows that electricity consumption accounts for 25 percent of the total expenditure for each business line including mining. Operational metrics such as hash rate, number of machines, and energy efficiency indicators can also be useful, but such data may not be readily available in practice. Compilers must carefully distinguish between expenses that represent intermediate consumption, such as electricity and those that should be excluded, such as wages and salaries or provisions for impairments, holding gains/losses, etc. Overall, details at the subsidiary level are required to derive accurate estimates of intermediate consumption.

b. Flows and Stocks

3.27 Generally, financial statements do not contain all the information needed to derive transactions and other flows. The Cash flow statement provides some information as do the accompanying notes, however compilers still need to rely on changes between opening and closing stocks and apply certain methodologies to derive revaluations and other volume changes from the stock differences. See Section E and Box 2.6, Chapter 2 for discussion on the recording of other changes in assets/liabilities of crypto assets and numerical example on the recording of revaluation of crypto assets.

3.28 On the balance sheet, crypto assets appear under categories such as "Digital Valuables," covering Bitcoin and other crypto assets held as well as lending denominated in Bitcoins. Liabilities can include borrowings denominated in Bitcoin, with disclosure of outstanding amounts and principal. Limited information is usually available on the revaluations of Bitcoin holdings.

3.29 In addition, some companies provide Bitcoin movement statements, which tracks receipts and payments denominated in both monetary units and Bitcoins. Examples of receipts include Bitcoins received through mining-related rewards and fees, hardware and software sales, proceeds from joint ventures, and shareholder loans received in Bitcoin. Payments in Bitcoins typically include consulting expenses, salaries, and shareholder loans paid in Bitcoin. However, breakup of receipts/payments by residents and nonresidents as well as by subsidiaries are not available.

3.30 Regarding Bitcoin lending/borrowing, compilers should follow the recording guidance provided in Section G, Chapter 2, irrespective of the recording in the balance sheets of mining companies mentioned above. Implying that for crypto assets on lent/borrowed (in this case, Bitcoins), the only item that should be recorded in the national accounts/balance of payments is the interest income receivable/payable in Bitcoins, as explained in **Box 2.8**. No transaction in those crypto assets is recorded in the capital account and no changes are made to the balance sheets of the parties involved.

3.31 Although financial statements of crypto mining entities are helpful in measuring their output, intermediate consumption, and assets/liabilities in crypto assets, they often lack the granularity needed for direct incorporation into the national accounts and external sector statistics of the countries involved. However, these statements may help compilers identify potential crypto asset activity, prompting further investigation. If the activity is believed to occur within the economy, additional sources such as tax data may provide valuable support in confirming and quantifying the activity.

- In the short term, compilers (that have access to no other data sources except the group level financial statements) are advised to apply proxy allocation methods to generate country-level estimates from consolidated reports, while documenting the assumptions used. Collaboration with international organizations can help to harmonize approaches, ensuring greater comparability across countries.

- In the medium-term, efforts should be made to collect data from the units engaged in crypto mining using standardized templates through targeted surveys. Such templates should request country level data from the local subsidiaries on output, input costs, and crypto asset flows/stocks as well as a resident/nonresident breakdown of revenues. **See Annex 3.2 for a model survey questionnaire for collecting data from crypto mining companies.** National statistical offices and central banks may

need to work closely with regulators, accounting bodies, and companies themselves to encourage improved disclosure practices and appropriate reporting to the targeted surveys.

2. STABLECOIN ISSUERS

3.32 This sub-section provides guidance on the compilation of financial flows and stocks as well as income and expenses of stablecoin issuers (i.e., issuers of stablecoins which are included under currency and deposits—see paragraph 2.5) based on the publicly available financial statements of large issuers (such as Tether and Circle[7]). Financial statements are generally available for the group as a whole including the subsidiary that issues stablecoins. In the case of Tether, Tether International Limited and Tether Limited are the companies which issue Tether tokens; data on both are included in the consolidated group report.

a. Assets and Liabilities

3.33 Financial statements typically include information on assets and liabilities for the group including the reserves backing stablecoins and liabilities on account of stablecoins in circulation. Issuers such as Tether and Circle publish periodic reports showing the composition of their reserves,[8] which include U.S. Treasury bills, other sovereign securities, corporate bonds, repos, money market funds, and cash. In addition, Bitcoins and precious metals are included in their assets. As these are not financial assets in BPM/SNA, they should be recorded as part of the nonfinancial balance sheet (and should not be recorded in the IIP). These disclosures, though not always granular, allow compilers to classify assets into appropriate instruments. However, their classification into functional categories (i.e. direct/portfolio/other investments) requires certain assumptions. On the liabilities side, the outstanding supply of stablecoins is reported, often broken down by type of coin (e.g., USDT, EURT).

3.34 Information on equity, changes in equity, and sometimes dividend distributions are also available, supporting the compilation of direct investment positions where the stablecoin issuing company is owned by nonresidents. However, important gaps remain. The residence of counterparties on the asset side is rarely disclosed—for example, repos and money market fund investments are reported without identifying the domicile of issuers. On the liability side, the residence of stablecoin holders is unknown, creating the same challenge that arises with the holders of debt securities. The residency of holders of stablecoins may be approximated using mirror data from major exchanges and custodians, or, as in the case of Tether now headquartered in El Salvador, by assuming that the overwhelming share of liabilities is held abroad. This is a plausible assumption given the magnitude of the liabilities and the economy's income/wealth.

b. Financial Flows

3.35 Financial statements provide information on changes in the levels of assets and liabilities across reporting periods. However, they do not separate transactions from revaluations effects, nor do they report transactions and other flows by instrument, maturity, or residency. For example, an increase in

[7] U.S. financial technology company that issues and manages the USD Coin (USDC) stablecoin in partnership with Coinbase.

[8] Reserves mainly back the issuance of stablecoins rather than other liabilities.

reported U.S. Treasury bill holdings could reflect either new purchases (transactions) or price appreciation (revaluations). In such cases, compilers can derive transactions indirectly from positions by adjusting for revaluation effects using observable market indices, such as the U.S. Treasury bill or corporate bond indices (**Annex 3.3** provides indicative steps for deriving transactions and price changes from the positions data using the financial statements data for Tether). Similarly, changes in the circulating supply of stablecoins can be used to estimate issuance and redemption flows, adjusted where necessary for valuation changes (see Box 2.6 for a numerical example on the recording of revaluation of crypto assets).

c. Income and Expenses

3.36 For output and earned income from stablecoins, the available information is even more limited. The financial statement does not include an income statement, only financial results are reported. Stablecoin issuers publish aggregate financial results—net profits or losses—and sometimes the dividends declared. This allows compilers to identify reinvested earnings by reconciling net profit with dividends and deduce undistributed earnings. However, no detail is provided on the allocation of income by instrument, currency, or counterparty, nor are operating expenses disclosed to record under services. In the absence of detailed data, compilers may apply benchmark yields to the reported composition of reserves—for instance, using prevailing yields on short-term U.S. Treasury bills to estimate interest income on reported holdings. Aggregate income can also be proportionally allocated across instruments according to their reported shares and observable yields.

3.37 In sum, financial statements of stablecoin issuers are a valuable starting point but cannot by themselves deliver all the data needed for compiling comprehensive national accounts and external sector statistics relating to them.

- In the short term, compilers will need to combine available disclosures with proxy methods: deriving transactions from positions using market indices and exchange rates, applying benchmark yields to estimate income, and using mirror or survey data to allocate liabilities by residency.
- In the medium term, however, progress depends on the development of standardized reporting templates for stablecoin issuers that would require disclosure of assets and liabilities by instrument, currency, maturity, and residency, as well as income flows and operating expenses. **See Annex 3.4 for a model questionnaire for collecting data from stablecoin issuers.** Such templates could be linked to regulatory initiatives such as the Guiding and Establishing National Innovation for U.S. Stablecoins of 2025 (GENIUS Act of 2025), ensuring consistency between supervisory and statistical data requirements. Closer cooperation with regulators, supervisors, and major exchanges would also strengthen the reliability of residency and sectoral allocation of stablecoin holdings.

3. CRYPTO EXCHANGES AND CUSTODIANS

3.38 As explained in Chapter 1, centralized crypto exchanges such as Coinbase facilitate buying/selling of crypto assets, and provide custody and wallet services. In their role as custodians, they are an important data source for holdings of crypto assets of different institutional sectors. This sub-section provides guidance on the compilation of crypto assets under custody (i.e., holdings of their clients), financial flows/stocks, and income/expenses of crypto exchanges based on the publicly available

financial statements of major exchanges (e.g., Coinbase). [9] [10] Financial statements are generally available for the group as a whole covering global operations across different product lines and subsidiaries (e.g., custody, buying/selling of crypto assets, staking, lending/borrowing).

a. Crypto Assets Under Custody, Staking, and Related Revenue

3.39 Financial statements of crypto exchanges such as Coinbase provide relatively detailed information on assets on platform (meaning crypto assets under custody)[11] at the global level, with breakdown into the following crypto asset types: Bitcoin, Ether, Solana, USDC, and other crypto assets. This custodial model makes Coinbase distinct from other exchanges, which provides public disclosure of holdings to ensure transparency about their scale of holdings. On the other hand, exchanges such as Robinhood operate as a multi-asset brokerage, offering stocks, ETFs, options, and a limited set of services related to crypto assets, but separate details on cryptos under custody are not provided.

3.40 Assets under custody were also noted as including those held for institutional clients such as exchange-traded funds, with custodial fee revenues tied directly to the volume of assets under custody. The report also provides details on crypto assets placed with the exchange for staking by institutional and retail investors.[12]

3.41 The report also provides revenue from custody and other services with a broad breakdown of revenue from United States and others classified as “international”. The important items of revenue in addition to custodial fee are transaction revenue, blockchain rewards (staking revenue), and stablecoin revenue. The important expenditure items for which the report provides details include blockchain rewards (staking rewards), blockchain transaction fee, and USDC rewards (these items are further explained in the model questionnaire on crypto exchanges—see Annex 3.6).

3.42 Several elements required for national accounts and external sector statistics compilation are not available. National compilers can use global data to understand the scale and growth of crypto assets

[9] In contrast, prominent global crypto exchanges such as Binance, Kraken, and Gemini, which operate primarily as private entities, do not file public reports. This lack of public reporting means the revenue of specific verticals (like institutional custody), and consolidated revenue across their different countries of operation remain largely unavailable to the compilers of macroeconomic statistics.

[10] The scope of this section is limited to crypto assets data based on the financial statements of centralized crypto exchanges such as Coinbase. The same type of detailed information on crypto assets cannot be obtained from decentralized exchanges (DEXs). As explained in Chapter 1, DEXs are protocols operated through smart contracts on public blockchains. They do not issue audited financial statements or standardized income statements and balance sheets comparable to CEXs. Although their activity—such as fee revenue (including lending-related fees) and trading volume—can be observed on-chain and may be compiled using data from specialized blockchain analytics firms, the absence of standardized reporting frameworks makes systematic statistical compilation more challenging.

[11] Coinbase defines assets on platform (AOP) as the total United States dollar equivalent value of USDC and crypto assets held or managed on behalf of customers in digital wallets on the platform, including custody services but excluding assets for which the customer holds full or partial keys, calculated based on the market price on the date of measurement. For simplicity, we call AOP as assets under custody in this *Guide*.

[12] As mentioned in Chapter 2, the staking rewards received by the holders of crypto assets are treated as revenue for the provision of computer services and the crypto assets placed for staking should remain on the balance sheet of the original holder.

and flows but cannot directly incorporate these figures into their own country's national accounts or BOP. For example, Coinbase does not report the residency of customers (i.e., holders of crypto assets), and while 83 percent of revenues from custody services are linked to U.S. clients, this cannot be directly equated with the residency of asset holders. There is also no country-level breakdown of non-U.S. activity, preventing bilateral or directional analysis of cross-border flows. In addition, there is no sectoral allocation of clients (i.e., holders placing their assets under custody). Flow data are not separated into transactions and revaluations, which is a critical omission given the volatility of crypto asset prices, where changes in holdings may reflect mostly revaluations. However, if the information is available by type of asset, market prices of those assets could be used to estimate revaluations.

3.43 Financial statements of crypto exchanges, nonetheless, are a useful starting point for measuring the holdings of crypto assets and other items, but they need to be supplemented by other sources and estimations for their use in national accounts and external sector statistics.

- In the short-term, compilers may apply proxies to measure residency and sectoral breakdown of holders of crypto assets. Custodial revenue provides a proxy for geographic allocation. Further, the trading volume split between institutional and retail clients could be used as a proxy for sectoral allocation of assets (see footnote 50, Annex 3.5). It is also emphasized that the accuracy of any proxies/estimates need to be periodically reassessed. **Annex 3.5 provides** estimated holdings of different crypto assets for residents (USA)/ nonresident customers and by sectors following the above proxies at the end of 2024. For deriving transactions and revaluations from the positions data (holdings of crypto assets), compilers may refer to the numerical example in **Box 2.6.**
- In the medium-term, closer collaboration with custodians and regulators will be essential to ensure that crypto assets are properly integrated into national accounts, balance of payments, and IIP statistics in line with the *BPM7/2025 SNA* framework. This could be achieved through standardized survey questionnaires for collecting data from crypto exchanges on the assets under custody by residence and by institutional sector, as well as flows separated into transactions, revaluations, and other changes in volume. **See Annex 3.6 for a model survey questionnaire for collecting data from crypto exchanges.**

3.44 **Annex 3.7** provides mapping of key items from the financial statements of mining companies, stablecoins issuers, and crypto exchanges into *2025 SNA/BPM7* categories to help in using the financial statements in the measurement of crypto assets in national accounts and external sector statistics.

D. CRYPTO ASSETS HELD BY CORPORATE AND HOUSEHOLD SECTORS AND RELATED SURVEYS

3.45 The growing prominence of crypto assets—particularly Bitcoin, Ether, and stablecoins—has led to increased adoption by corporations including the crypto exchange-traded funds (ETFs) across countries. While crypto-native firms such as mining companies and crypto exchanges dominate in terms of volume, nonfinancial and financial corporations (e.g., Tesla, MicroStrategy) have disclosed crypto holdings in their

financial statements.[13] Crypto assets are frequently presented in the financial statements under the item "digital assets".

3.46 Crypto ETFs have become significant institutional holders of Bitcoin and other crypto-assets in recent years.[14] ETFs provide a high degree of transparency, with disclosure of holdings in Bitcoins and other crypto assets, in regulatory filings and issuer reports. Most funds explicitly state that crypto-assets are held in regulated cold storage arrangements with institutional custodians such as Coinbase Custody or Fidelity Digital Assets, ensuring secure segregation and auditability of underlying holdings.

3.47 A number of challenges arise in using publicly available corporate financial statements as a source for compiling crypto-related statistics, which compilers should be aware of:

- Disclosure practices remain inconsistent. Many firms report crypto holdings only when they are material or strategically relevant, and even then, the formats vary considerably. For instance, MicroStrategy provides detailed quarterly updates, while firms such as NEXON and Monex Group limit disclosures to minimal references.
- Instrument classification also poses difficulties, as crypto assets are frequently reported as a single line item without distinguishing among different types, such as Bitcoin versus stablecoins. A typical example is when firms record "digital assets" without clarifying whether they represent non-produced assets or financial instruments.
- Under IFRS, digital assets are commonly valued at cost less impairment, with fair values only disclosed in the notes, while US GAAP requires fair value reporting at the end of the reporting period.[15]
- Financial statements often lack counterparties and geographic detail. This makes it difficult to assess cross-border positions in balance of payments or international investment position statistics. A U.S. firm, for example, may hold stablecoins issued by a Cayman-based entity, but this information is rarely evident in published accounts.

3.48 In sum, while corporate financial reports can provide useful insights into crypto holdings and activities, compilers should use their data complemented by other data sources to ensure more comprehensive coverage of crypto-related activities.

[13] As of December 31, 2024, MicroStrategy and Tesla reported digital asset holdings (primarily Bitcoins) valued at $23.9 billion and $1.076 billion, respectively (for additional details see the balance sheets of MicroStrategy and Tesla available from SEC filings 10-k). They provide additional details like holdings in Bitcoins in units and value.

[14] Particularly following the launch of spot Bitcoin ETFs in the United States in early 2024 and similar exchange-traded products (ETPs) in Europe. In the United States, funds such as BlackRock iShares Bitcoin Trust, Fidelity Wise Origin Bitcoin Fund, and Grayscale Bitcoin Trust collectively hold large volumes of Bitcoin—together amounting to over one million BTC equivalent by end-2025, according to publicly disclosed ETF reports and SEC filings. In Europe, crypto ETPs issued by providers such as CoinShares and 21Shares also hold substantial Bitcoin and Ether positions, though on a smaller scale.

[15] Under the latest US accounting standards, US companies must now report their crypto assets, like Bitcoin, at fair value on the balance sheet and recognize all unrealized gains and losses from remeasurement directly in net income.

3.49 In addition to the data from financial reports of companies, it is also important to incorporate targeted questions on crypto assets in the enterprises surveys to capture comprehensive information on their flows/stocks, revenue, and expenditures.

3.50 Unlike the corporate sector—where financial statements, regulatory filings, or supervisory data may provide partial information on crypto-related positions and, in some cases, flows—the household sector generally lacks comparable administrative or accounting records. As a result, targeted household surveys are often the only direct source of information on households' holdings and transactions in fungible crypto assets and NFTs. **Annex 3.8** provides model questions for inclusion in household and enterprise surveys, covering flows and stocks.

E. ALTERNATIVE (COMMERCIAL) DATA SOURCES

3.51 Commercial blockchain analytics firms such as Chainalysis, Elliptic, and Glassnode offer rich datasets and insights into crypto asset transactions, holdings (positions), and user behavior. These corporations collect data from public blockchains like Bitcoin and Ethereum, and apply proprietary attribution techniques to identify wallet clusters (i.e., groups of blockchain wallets that are controlled by a single entity), categorize user types (e.g., exchanges, miners), and estimate transactions and other flows of crypto assets between entities and geographies.

3.52 The core data products from on-chain analytics companies include:

- Market capitalization and market prices of different crypto assets.
- On-chain transaction data, including volume, direction (inflows/outflows), and timing.
- Geographic estimates of crypto activity include main counterpart economies of inflows/outflows
- Entity-level, often heuristics and model-based classification (e.g., exchanges, illicit actors, DeFi protocols).
- Wallet balances, historical and current, across major blockchains.
- Market intelligence dashboards with cross-border movement estimates and risk scores.

3.53 While these data are valuable for understanding crypto activity, they face several important limitations for compiling crypto asset flows and stocks in the *BPM7/2025 SNA* frameworks. See Box 3.3 for the key limitations in using the commercial data sources for compiling data on crypto assets in macroeconomic statistics.

Box 3.3. Key Limitations of Commercial Data for Macroeconomic Statistics

Commercial datasets on crypto activity are typically based on blockchain transactions (so-called *on-chain* data), but these capture only part of the crypto ecosystem. A substantial portion of activity takes place *off-chain*—for example, through centralized crypto exchanges (CEXs) or custodial service providers—where investors may hold and transact crypto assets without directly interacting with

blockchains. Consequently, on-chain data alone provide incomplete coverage of total crypto transactions, particularly in economies where CEXs are widely used.

Blockchain data record movements between addresses, not between ultimate beneficial owners. As a result, on-chain flows may include internal transfers within the same institutional unit (e.g., between an entity's hot and cold wallets), rather than transactions that involve a change in economic ownership across borders. This limits their usefulness for compiling macroeconomic statistics.

Databases derived from blockchain analysis rely on assumptions and approximations, which may not always meet the methodological requirements of *BPM7/2025 SNA*. In particular, approximating the residency of institutional units involved in crypto transactions remains challenging. Three main approaches have been used to infer residency:

- Geographical location of the crypto exchange registration (after matching the blockchain addresses with exchanges), instead of looking for proxy of holders' residency;
- The location of web visitors to the crypto exchange website and the geographic distribution of app usage of the respective crypto exchanges; and
- Entry and exit fiat currency as a proxy of residency of units engaged in transactions in crypto assets.

Developing on-chain analytics also requires specialized IT and machine-learning capabilities. National statistical offices and central banks may build such capacity in-house or rely on commercial providers. Both approaches entail additional costs, and commercial data methodologies are often only partially disclosed, making it difficult to assess their consistency with international statistical standards.

3.54 Nevertheless, commercial data could be useful to track macroeconomic trends that may be attributed to crypto flows. For example, large increases in errors and omissions (statistical discrepancy) in the balance of payments in economies that are ranked high in crypto adoption may be attributed to unrecorded cross-border crypto transactions as highlighted in the 2025 IMF's Article IV Report of Vietnam (Report). Based on the data from Chainalysis,[16] the Report noted that the large increase in Vietnam's statistical discrepancy in the BOP may be partly related to the rise in unrecorded crypto transactions, with statistical discrepancy increasing from less than US$10 billion before 2022 to averaging US$28 billion during 2022–24.[17]

F. DATA SOURCES ON NFTs

3.55 This section outlines potential data sources for compiling NFT flows and stocks in national accounts and external sector statistics.

3.56 **Tax data and financial reports**: Tax data can be a valuable source for estimating NFT flows and holdings by residents because holders are required to report the related holding gains. For example, in

[16] At the time of drafting the chapter (June 2026), Chainalysis covers about 90% of daily market volume across 120 digital assets including seven crypto assets: Bitcoin (BTC), Bitcoin Cash (BCH), Ether (ETH), Litecoin (LTC), Tether (USDT), TrueUSD (TUSD), USD Coin (USDC). Chainakysis monitors transactions of 800 exchanges to capture crypto activity of thousands of businesses, fund flows on the blockchain linking it to real-world entities.

[17] For additional details, refer to the IMF Article IV Report for Vietnam (Annex VII: Crypto Assets in Vietnam).

the United States, tax filings capture realized gains and losses from NFT sales, allowing compilers to estimate the total value of NFT transactions conducted by residents over a given period. While tax forms primarily capture realized transactions, the reporting of holdings (e.g., for capital gains purposes) provide partial information on resident ownership of NFTs, especially when combined with survey data. Further, unlike mining companies or stablecoin issuers, the financial reports of large NFT creators—such as Yuga Labs, the creator of the Bored Ape Yacht Club—are not publicly available, making them difficult to use as a source. While the total value of NFTs sold in a given year can be observed through marketplaces or blockchain data, the buyers are largely anonymous, and information on intermediate costs or operational expenditures is unavailable. Although crypto exchanges such as Coinbase reports "assets on platform" for fungible crypto assets such as Bitcoin, Ether, and stablecoins like USDC, NFTs are generally excluded or aggregated without differentiation.

3.57 **Data from crypto exchanges and custodians**: Crypto exchanges such as Coinbase represent an important potential source of data on NFT holdings, particularly for estimating stocks by resident sectors. These entities offer institutional and retail clients secure custody of NFTs and often maintain detailed internal records of each customer's holdings, including the residency and other KYC details. If accessible, such data could allow statistical agencies to estimate the total stock of NFTs held by different institutional sectors, See **Section 6, annex 3.6** for the sample questions on NFTs for collecting the related flows and stocks from crypto exchanges.

3.58 **Surveys of creators[18] and potential holders**: Targeted surveys of companies creating NFTs can capture the output, intermediate consumption, and export share of created NFTs. Further, adding questions on NFTs to the existing surveys of households and enterprises can help in capturing the data on flows/stocks of those sectors. **See Annex 3.9 for a model survey questionnaire for collecting data from NFT creators. Further, Annex 3.8 (Section 2)** for the sample questions on NFTs for possible incorporation in the household and enterprise surveys.

3.59 **Blockchain and marketplace data**: All NFT transactions and holdings are recorded publicly on blockchains, offering near-complete visibility of market activity. For example, collections such as *CryptoPunks* have fully traceable transaction histories, including details on token transfers, prices, and wallet addresses including all the owners of CryptoPunks. Blockchain and marketplace data—accessible through analytics firms like Chainalysis or platforms such as OpenSea—provide extensive information on transaction volumes and timestamps. While these datasets allow compilers to observe total market turnover and broad transaction patterns, tracing blockchain wallet addresses to specific countries or institutional units remains nearly impossible. Consequently, despite their transparency, blockchain records alone are not sufficient for compiling NFT-related flows and stocks consistent with national accounts and external sector statistics frameworks.

3.60 All in all, while the above data sources provide a useful starting point, comprehensive data categorized by the three types of NFTs, as envisaged in *BPM7* and the *2025 SNA*, may be achievable in

[18] NFT creators are economic units—typically individuals, digital artists, gaming studios, or specialized firms—that produce original digital content and "mint" it on a blockchain as unique, non-fungible tokens. They generally belong to the household or nonfinancial corporations sectors and generate revenue by selling NFTs or earning royalties from secondary sales.

the medium term, with continued coordination among relevant stakeholders including the creators, statistical agencies, regulators, tax authorities, and custodians.

G. DGI-3 RECOMMENDATION 11 DATA COLLECTION TEMPLATES: DATA SOURCES

3.61 Recommendation 11 establishes a data collection framework covering central bank digital currencies (CBDCs), stablecoins, and other types of crypto assets used as a means of payments. The task team on Recommendation 11 (Rec. 11 TT) agreed on the following data collection templates, which can be accessed on the G20 DGI Recommendations website.[19]

- Template for Central Bank Digital Currency (CBDC): Data on issuance of CBDCs by central banks and monetary authorities and the holdings of the CBDCs.
- Template for Stablecoins Issuers: Data on issuance of stablecoins by resident entities and the holdings of stablecoins.
- Template for Holdings and Flows of Crypto Assets: Data on crypto assets and stablecoins held by the customers of resident crypto exchanges and custodians.

3.62 This sub-section assesses the data sources and compilation methods relevant for **core data in the templates** (marked in orange) on stablecoin issuers and holdings and flows of crypto assets, considering their relationship to the BPM7/2025 SNA crypto assets framework.

a. Template for Stablecoin Issuers

3.63 The template aims to capture stablecoins issuance by resident entities and their holders. For resident holders, data are required by following institutional sectors: households, central bank, deposit-taking corporations, other financial corporations, money market funds, general government, nonfinancial corporations (NFCs) with further split into private and public NFCs. For nonresident holders, data are required by countries as well as broad institutional sectors in total and each country.

3.64 As the template focuses on reporting of liabilities on account of stablecoins issued, compilers should use the guidance in section C.2 for compiling these data from the financial reports of stablecoin issuers. However, as mentioned in section C.2, the residence of stablecoin holders is unknown from the financial reports. The residency of holders of stablecoins may be approximated using mirror data from major exchanges and custodians or, as in the case of Tether now headquartered in El Salvador, by assuming that the overwhelming share of liabilities is held abroad. For example, Coinbase financial report provides the holdings of different stablecoins (e.g., USDC, Tether) by US residents on its platform. Financial reports of corporations and regulatory data can also provide further insights on stablecoin holdings of resident sectors of the compiling economy.

3.65 In the medium term, **model survey questionnaire for collecting data from stablecoin issuers (Annex 3.4)** will be helpful in collecting the information required for reporting the template.

[19] Rec 11. TT conducted test data collection using these templates from all G20 and FSB participating economies during July 15 to December 15, 2025.

b. Template for Holdings and Flows of Crypto Assets

3.66 This template aims to capture data from crypto exchanges and custodians on crypto assets held by customers. The template is structured in two parts: (a) Data by broad categories of crypto assets; and (b) Data on crypto-by-crypto.[20]

3.67 The template on data by broad categories of crypto assets requires reporting of flows and positions (opening position, inflows/outflows, other changes, and closing position) of crypto assets (total, and breakdown into stablecoins and unbacked crypto assets[21]) that are under the custody of resident custodians and belong to resident and nonresident holders. For resident holders, data are required by institutional sectors as in the case of stablecoin issuers mentioned above.

3.68 The template on crypto-by-crypto requires reporting of holdings in seven crypto assets (Bitcoins, Ether, Tether, BNB, SOL, USDC, and XRP) that are under the custody of resident custodians and belong to resident and nonresident holders.

3.69 As the templates focus on holdings and flows of crypto assets based on data collection from custodians, compilers should use the guidance in section C.3 for compiling these data from the financial reports of crypto exchanges and custodians, in the short-term. For example, Coinbase financial report provides data on assets under custody (i.e., holdings of customers) with breakdown by major crypto asset types (e.g., Bitcoin, Ether, Solana, USDC, and other crypto assets). This section (and Annex 3.5) further explains the procedure for compiling holdings of different crypto assets by (a) resident and nonresident customers; and (b) resident institutional sectors. Given that data on flows are not available from financial reports, those data should be estimated based on Annex 3.3. This should also take into consideration the data on crypto assets loss, theft, and seizures, if relevant for the compiling economy.

3.70 In addition to the financial reports of custodians, financial reports of crypto mining companies and financial reports of corporations (e.g., MicroStrategy and Tesla in the case of USA), regulatory data, and tax data (mainly flows) are good sources for collecting the data on holdings of resident institutional sectors, as explained in section C.3. With regards to cross-border inflows and outflows, ITRS could be an important source for those economies where it is operational (e.g., Brazil).

3.71 To achieve comprehensive reporting of these templates (especially with regards to positions) in the medium-term, compilers should collect data from custodians— domestically headquartered exchanges and local branches or subsidiaries of foreign-owned platforms—using the standardized survey

[20] These templates translate into reporting data on crypto assets—(i) crypto assets without a corresponding liability designed to function as a medium of exchange (AN22), and (ii) crypto assets with a corresponding liability designed to serve as a general medium of exchange but not issued or authorized by monetary authorities or government (AF22)—by SNA institutional sectors. The key distinction is that while the templates focus on crypto holdings/flows of resident institutional sectors with resident custodians, the institutional sector accounts encompass holdings/flows of resident sectors with both resident and nonresident custodians.

[21] Crypto assets without a corresponding liability designed to act as a medium of exchange.

questionnaire (see Annex 3.6). This questionnaire is designed to meet the specific requirements of the templates but may be modified further to accommodate the needs of the compiling economy.

H. DATA SHARING ON CRYPTO ASSETS ACROSS ECONOMIES

3.72 Based on the discussion in the previous sections it is evident that compiling accurate statistics on crypto assets positions and flows requires recognizing the highly international and cross-border nature of the crypto ecosystem. Relying solely on national data sources—such as administrative records or surveys of CASPs and households—may be insufficient, as residents often transact with or hold assets through service providers abroad. For example, a household survey in Country A may understate holdings if many of them don't report their holdings with nonresident exchanges and custodians, while tax filings may not capture crypto assets kept in custodial wallets outside the country.

3.73 A major challenge lies in the fact that crypto asset activity is concentrated among a small number of global players, such as large exchanges, major stablecoin issuers, and custodians. These entities typically operate from a few economies but provide services globally. Residents in Kenya, Brazil, or Indonesia, for instance, may hold assets on an exchange headquartered in the United States, such as Coinbase. Similarly, residents in Germany may use a stablecoin issued in Hong Kong or Singapore for cross-border payments. Without access to information from these foreign providers, national compilers may underestimate residents' holdings, cross-border flows, and related income.

3.74 As explained in Chapter 1, unlike traditional financial instruments, crypto assets introduce new features—such as decentralized issuance, pseudonymity, and digital custody—that complicate measurement. These characteristics mean that conventional data sources and collection mechanisms cannot fully capture the scope of activities.

3.75 Effective data collection arrangements can be developed with major actors in the crypto ecosystem—stablecoin issuers, large exchanges, and mining companies. International organizations are well positioned to facilitate and coordinate such cooperation by creating frameworks for standardized reporting and enabling the exchange of data on positions, holders, and residency. Such an approach should acknowledge legal constraints but still promote workable arrangements that strengthen global statistical coverage and the quality of macroeconomic statistics. **Figure 3.1** illustrates the above discussion.

3.76 Further, internationally coordinated databases or data-sharing agreements, like the models used in the Coordinated Portfolio Investment Survey (CPIS) or Coordinated Direct Investment Survey (CDIS), could provide countries with reliable information on crypto asset holdings and flows relevant to their residents, even when the service providers are abroad.

Figure 3.1. Need for International Data Sharing on Crypto Assets

Annex 3.1. Selected Seizures of Crypto Assets

(arranged by the value of assets seized)

Country	Asset Type	Value	Context
USA	Bitcoin	$3.6 billion	Bitfinex Hack (2022). Department of Justice seized funds laundered from 2016 Bitfinex hack
USA	Bitcoin	$3.36 billion	Silk Road (2021). Seizure of Bitcoin stolen from Silk Road darknet marketplace
United Kingdom	Bitcoin	$3 billion	Money laundering operation
Germany	Bitcoin	$2.55 billion	Piracy website and laundering after Bybit hack
USA	Crypto assets	$225.3 million	Crypto Investment Scams (2025)—Largest seizure in U.S. Secret Service history; linked to fraud and laundering
Spain	Crypto assets	EUR 27 million	Transnational criminal organization
Albania	Crypto assets	$10 million	Organized crime group
Netherlands	Crypto assets	$7.6 million	Illicit exchanges shut down
Australia	Bitcoin	$2.6 million	Stolen from French crypto exchange
Israel	Crypto assets	$1.7 million	Linked to Hezbollah and Iran's Quds Force
Serbia	Crypto wallets	$1 million	Fake crypto investment schemes

Annex 3.2. Model Survey Questionnaire of Crypto Mining Companies

This survey questionnaire provides a template for collecting data from crypto mining companies to help in estimating their output, value added, and financial flows/stocks in line with the *BPM7* and *2025 SNA*. As explained in **Chapter 2,** the services of miners should be measured as the sum of both explicit validation fees and implicit fees (newly released crypto assets)—see **Box 2.2 for additional details.**

General Guidance

- Report all values in USD or domestic currency, considering the compilation requirements.
- Use the price on the day of the transaction when reporting the value of Bitcoins mined or received.
- If a question does not apply to your company, please indicate "Not Applicable (N/A)".
- If exact figures are not available, provide your best estimates and indicate that they are estimates.
- Ensure consistency across reported figures (e.g., mined Bitcoins should match usage and holdings.

Section 1: General Information

1.1 Legal name of the reporting entity

1.2 Country of incorporation and registration

1.3 Contact person (name, title, email, phone)

1.4 Reporting period (start and end dates)

1.5 Does this enterprise have a nonresident owner? Yes/No.

1.6 If the answer is Yes, does the nonresident owner hold 10 percent or more equity? Yes/No

If the answer is Yes, provide further details in Section 2 (as the Stablecoin issuer is a direct investment enterprise)

Section 2: Shareholding Structure of the Enterprise (Equity liabilities of the mining company)

Name and country of residence of shareholder (please also report total value for residents)	Opening position (end of year t-1 in $) /Percentage of total	Financial transactions during year t		Other changes during year t	Closing position (end of year t in $) /Percentage of total
		Acquisitions	Disposals		
1.					
2.					
3.					
Total					

Section 3. Details on mining, financial flows/stocks, and use of crypto assets

Item		**Year t**
1. Number of Bitcoins mined during the period	Units	
2. Value of Bitcoins mined or implicit fee (at price of the day of the transaction)	USD	
3. Explicit Fee received for validating the transactions (in Bitcoins) Value of Bitcoin received in explicit fee	Units USD	
4. Input costs related to mining/validation services	USD	
a) Electricity expense/consumed Electricity in units	USD MWH	
b) Maintenance of equipment and other services (e.g., IT and related) of which non-resident service fees	USD USD	
c) Remuneration of employees of which non-resident Remuneration of employees	USD USD	
d) Other input costs	USD	

5.Selected Balance Sheet Items for Bitcoin Mining		
Assets		
a) Currency and deposits	USD	
b) Other financial assets (specify)	USD	
c) Gross Capital Formation for Bitcoin Mining	USD	
) Intellectual property products	USD	
f) Bitcoin	USD	
Liabilities incurred to Finance Bitcoin Mining		
a) Loans	USD	
b) Debt securities	USD	
c) Equity	USD	
d) other liabilities (specify)	USD	
6. Revaluations and other changes in volume of Bitcoin Assets		
a). Revaluation of Bitcoin assets	USD	
b) Other changes in volume (e.g., theft, loss, seizures) of Bitcoin assets	USD	
7. Use of Bitcoins		
a) sold to resident exchanges § Number (could be a fraction) § Value	 Units USD	
b) sold to nonresident exchanges § Number § Value	 Units USD	
c) transferred to head office/others		

§ Number § Value	Units USD	
d) Payments for purchase of goods and services § Number § Value	 Units USD	
e) Other uses	USD	

Annex 3.3. Deriving Transactions and Price Changes from Positions Data

For deriving transactions from positions, the following indicative steps can be undertaken to compile the integrated IIP statement for El Salvador, where the headquarters of Tether is located. The calculations are based on the dynamics of US treasury bills and the corporate bonds index. Compilers can use different methods and assumptions if they can result in better outcomes. The general assumption is that all investments are made outside of El Salvador. Compilers in the countries where the stablecoin issuers are located are advised to collect data on holdings of domestic assets to adjust the calculation models.

Tether publishes positions data in transparency reports. In addition, it provides very detailed information about valuation prices of different assets (precious metals, Bitcoins).

Table 1. Tether: Composition of Assets

Asset Category	Amount (USD)	
	As of Dec 31, 2024	As of March 31, 2025
1. Cash & Cash Equivalent & Other Short-Term Deposits:	118,335,279,417	121,647,076,498
- U.S. Treasury Bills	94,471,651,607	98,523,657,338
- Overnight Reverse Repurchase Agreements	14,101,623,321	15,093,981,718
- Term Reverse Repurchase Agreements	3,077,452,467	1,613,610,695
- Money Market Funds	6,506,444,067	6,285,638,008
- Cash & Bank Deposits	108,844,601	64,302,555
- Non-U.S. Treasury Bills	69,263,354	65,886,184
2. Corporate Bonds	14,270,773	14,354,777
3. Precious Metals	5,318,875,241	6,663,205,657
4. Bitcoin	7,857,529,277	7,662,210,442
5. Other Investments	3,984,793,433	4,462,144,209
6. Secured Loans	8,194,007,406	8,825,524,405
Total (1+2+3+4+5+6)	**143,704,755,547**	**149,274,515,988**

Source: I*ndependent auditors' report on the financials figures and reserves of Tether International, S.A. DE C.V.*

The price of the US treasury bills increased by 3 percent during the quarter; the index would be 103 for end-March against 100 at the end of December 2025. Applying the adjusted value for the end-March data, the transactions are estimated at USD 1,200 million. The following table shows the transaction volume to be recorded in the BOP for each item of the financial statements. Compilers may include estimates of non-USD currencies for adjustments.

Table 2. Calculation of Components Needed for Compilation of the Integrated IIP of El Salvador

Asset Category	Opening positions as of Dec 31, 2024 (as reported)	Transactions (derived)	Price changes (derived, residual)	Closing positions as of March 31, 2025 (as reported)
1. Cash & Cash Equivalent & Other Short-Term Deposits:	118,335	1,377	1,934	121,647
- U.S. Treasury Bills	94,472	1,200	2,852	98,524
- Overnight Reverse Repurchase Agreements	14,102	992	-	15,094
- Term Reverse Repurchase Agreements	3,077	(1,464)	-	1,614
- Money Market Funds	6,506	(410)	189	6,286
- Cash & Bank Deposits	109	(45)	-	64
- Non-U.S. Treasury Bills	69	(5)	2	66
2. Corporate Bonds	14	(0)	0	14
5. Other Investments	3,985	477	-	4,462
6. Secured Loans	8,194	632	-	8,826

A similar calculation needs to be done for Bitcoins. The price of Bitcoins (the financial reports indicate the price used to value Bitcoin holdings) decreased from $93,812 at end-December 2024 to $82,704 at the end of March 2025; the average price would be $88,258.

In bitcoins, the holdings increased from 83,758 BTC (calculated as USD 7,856 million ÷ $93,812 per BTC) to 92,646 BTC (calculated as USD 7,662 million ÷ $82,704 per BTC), meaning that Tether increased its investment in BTC by:

92,646−83,758=8,888 BTC

Multiplying this increase in BTC units by the average price:

8,888×88,258≈784 million USD

This amount represents the purchase of Bitcoins, while the positions will be reflected in the nonfinancial balance sheet in national accounts (and not reflected in the IIP).

Annex 3.4. Model Survey Questionnaire of Stablecoin Issuers

This survey questionnaire helps in collecting data from the resident stablecoin issuers[22] to support the compilation of items related to their issued stablecoins following the *BPM7* and *2025 SNA* frameworks.

Section 1: General Information

1.2 Legal name of the reporting entity

1.2 Country of incorporation and registration

1.3 Contact person (name, title, email, phone)

1.4 Reporting period (start and end dates)

1.5 Does this enterprise have a nonresident owner? Yes/No.

1.6 If the answer is Yes, does the nonresident owner hold 10 percent or more equity? Yes/No

If the answer is Yes, provide further details in Section 2 (as the Stablecoin issuer is a direct investment enterprise)

Section 2: Shareholding Structure of the Enterprise (Equity liabilities of the Stablecoin Issuer)[23]

Name and country of residence of shareholder (please also report total value for residents)	Opening position (end of year t-1 in $) /Percentage of total	Financial transactions during year t		Other changes during year t	Closing position (end of year t in $) /Percentage of total
		Acquisitions	Disposals		
1.					
2.					
3.					
Total					

[22] Domestically headquartered issuers or subsidiaries of foreign-owned companies.

[23] Given the focus on crypto assets, we haven't added a block on DI assets in the questionnaire. However, compilers may update this questionnaire to capture DI assets (based on the model survey form 18 from the *BPM6 Compilation Guide*).

Section 3: Assets/Liabilities and related transactions and other changes (USD)

Section / Item	Opening position (as at the end of Year t-1)	Changes during Year t			Closing position (as at the end of Year t)
		Net Financial Transactions (acquisitions minus disposals)	Revaluations	Other changes in volume	
3A. Liabilities – mainly relates to the issuance of stablecoins					
3.1 Total value of stablecoins issued (by currency)					
3.2 Total value of stablecoins (outstanding)					
3.3 Breakdown of stablecoin holders by residency (domestic vs. non-resident)—provide the estimated breakup (e.g., 80 and 20 percent)					
3.4 for resident holders, breakdown by domestic sectors—provide the estimated breakup					
3.5 Other liabilities (specify by instrument)					
3B. Assets of the Stablecoin Issuer (reserves backing the fiat denominated stablecoins) (USD) Breakdowns by domestic/external assets should be provided. For each financial asset, report the claims on nonresidents as an “of which” item (similar to currency and deposits) and identify the relevant functional category.					

Financial assets					
3.6 Currency and deposits					
Of which claims on nonresidents					
3.6.1 Stablecoins					
Of which claims on nonresidents					
3.7 Debt securities (e.g., US Treasuries)					
3.8 Loans					
3.9 Equity					
3.10 Money Market Funds					
3.11 Reverse repurchase agreements (reverse Repos)*					
3.12 Repurchase agreements (Repos)**					
3.13 Other financial assets (please specify)					
Nonfinancial assets					
3.14 Crypto assets without a corresponding liability (e.g., Bitcoins)***					
3.15 Gold (and other precious metals)					

* Stablecoin issuer acting as a purchaser of securities. ** Stablecoin issuer acting as a seller of securities. These two items are separately shown in the Genius Act as part of the backing assets; reverse repurchase agreements are also shown as part of Tether backing assets. The compiler should classify these items as loans or deposits.

*** Included as Bitcoins and other crypto assets without a corresponding liability are part of the assets of some stablecoin issuers.

Section 4: Revenues and Expenditures (Year t) (USD) For each item, report the revenue/expenditure from/to nonresidents as an “of which” item (similar to interest income from assets). Identify the relevant functional category for earned income items.	
Revenues	
4.1 Interest	
Of which from nonresidents	
4.2 Dividends	
4.3 Other revenue – fees and commissions	
4.4 Staking rewards	
4.5 Other items (specify)	
Expenditures	
4.6 Operating expenses (e.g., rental, legal, IT)	
4.7 Remuneration of employees	
4.8 Payments for services to crypto exchanges and other institutions	
4.9 Distributed dividends	
4.10 Other items (specify)	

Section 5: Additional Information	

General Guidelines

- Report all monetary values in USD or domestic currency, considering the compilation requirements.
- Use end-of-period market values for positions and transaction values for flows.
- If exact figures are unavailable, provide best estimates and indicate that they are estimated.
- Clearly distinguish between resident and nonresident counterparties.
- Ensure consistency between assets and liability positions and flows.
- If data are estimated, indicate the method used.

Annex 3.5. Estimated Crypto Holdings: USA/non-USA Residents and Resident Institutional Sectors (December 31, 2024)

Estimated Crypto Holdings by USA and non-USA residents (with Coinbase)[24]

Crypto Asset Type	Assets Under Custody ($bn)	US Residents (83%) ($bn)	Non-US (17%) ($bn)
Bitcoin	235.4	195.4	40.0
Ether	54.2	45.0	9.2
Solana	21.3	17.7	3.6
Other	87.1	72.3	14.8
USDC	6.1	5.1	1.0
Total	**404.0**	**335.3**	**68.7**

Estimated Crypto Holdings by Resident Institutional Sectors (with Coinbase)[25]

Asset Type	Total AUC ($bn)	Financial Corporations (80%)	Households (20%)
Bitcoin	195.4	156.3	39.1
Ether	45.0	36	9
Solana	17.7	14.1	3.5
Other Crypto	72.3	57.8	14.5
USDC	5.1	4.1	1
Total	**335.3**	268.4	67.1

Note: These are illustrative calculations and subject to limitations. For example, some financial corporations may hold assets with Coinbase that belong to their clients.

[24] Custodial revenue provides a proxy for geographic allocation: 83 percent of assets under custody are attributed to U.S. residents and 17 percent to nonresidents.

[25] The trading volume split between institutional and retail clients could be used as a proxy for sectoral allocation of assets. With institutional clients accounting for about 81 percent of trading volume, 80 percent of assets could be mapped to financial corporations and 20 percent to households. The report describes institutional clients as businesses that include market makers, asset managers, hedge funds, banks, wealth platforms, registered investment advisors, payment platforms, etc. A small share of institutional holdings may belong to non-financial corporations, but in the absence of more detail, the bulk would be assigned to the financial sector.

Annex 3.6. Model Survey Questionnaire for Crypto Exchanges

This survey questionnaire helps in collecting data from the resident crypto exchanges/custodians[26] to support the compilation of items related to them (including the crypto holdings of their customers) following the *BPM7* and *2025 SNA* frameworks.

Section 1: General Information

1.3 Legal name of the reporting entity
1.2 Country of incorporation and registration
1.3 Contact person (name, title, email, phone)
1.4 Reporting period (start and end dates)
1.5 Does this enterprise have a nonresident owner? Yes/No.
1.6 If the answer is Yes, does the nonresident owner hold 10 percent or more equity? Yes/No
If the answer is Yes, provide further details in Section 2 (as the Stablecoin issuer is a direct investment enterprise)

Section 2: Shareholding Structure of the Enterprise (Equity liabilities of the crypto exchange)

Name and country of residence of shareholder	Opening position (end of year t-1 in $) /Percentage of total	Financial transactions during year t		Other changes during year t	Closing position (end of year t in $) /Percentage of total
		Acquisitions	Disposals		
1.					
2.					
3.					
Total					

[26] Domestically headquartered exchanges and local branches or subsidiaries of foreign-owned exchanges.

Section 3: Assets/Liabilities and related transactions and other changes (USD)

Section / Item	Opening position (as at the end of Year t-1)	Changes during Year t			Closing position (as at the end of Year t)
		Net Financial Transactions (acquisitions minus disposals)	Revaluations	Other changes in volume	
3A. Assets of the Exchanges (USD) For each financial asset, report the claims on nonresidents as an "of which" item (similar to currency and deposits) and identify the relevant functional category.					
Financial assets					
3.1 Currency and deposits					
Of which claims on nonresidents					
3.1.1 Stablecoins[1]					
3.1.2 Customer custodial funds[2]					
3.2 Accounts receivable					
3.3 Other financial assets (please specify)					
Nonfinancial assets					
3.4 Crypto assets without a corresponding liability (e.g., Bitcoins)[3]					
3.5 other nonfinancial assets (specify)					
3B. Liabilities of the Exchanges (USD) For each liability item, report payable to nonresidents as an "of which" item (similar to currency and deposits) and identify the relevant functional category.					
3.6 Currency and deposits					
Of which payable to nonresidents					
3.6.1 Customer custodial fund liabilities[4]					

3.7 Other accounts payable					
3.8 Other liabilities (please specify)					

Section 4: Revenues and Expenditures (Year t) (USD) For each item, report the revenue/expenditure from/to nonresidents as an “of which” item (similar to transaction revenue). Identify the relevant functional category for earned income categories.	
Revenues	
4.1 Transaction revenue[5]	
Of which from nonresidents	
4.2 Blockchain rewards (staking revenue)	
4.3 Custodial fee	
4.4 Stablecoin revenue[6]	
4.5 Other subscription and services revenue	
4.6 Interest	
4.6.1 Interest from crypto lending	
4.7 Dividends	
4.8 Other items (specify)	
Expenditures	
4.9 Blockchain rewards (staking rewards)[7]	
4.10 Blockchain transaction fee[8]	
4.11 USDC reward[9]	
4.12 Other expenses (e.g., rental, legal, IT,	

marketing, payment processing)	
4.13 Remuneration of employees	
4.14 Interest	
4.14.1 Interest on crypto borrowing	
4.8 Distributed dividends	
4.10 Other items (specify)	

Notes:

1 Stablecoins may be reported by type, if relevant. For example, Coinbase provides the holdings of USDC separately.

2 Customer custodial funds represent restricted cash and cash equivalents maintained in segregated accounts of the Company at financial institutions and asset managers that are held for the exclusive benefit of customers and deposits in transit from payment processors and financial institutions.

3 Included as Bitcoins and other crypto assets without a corresponding liability are generally part of the assets of exchanges.

4 Customer custodial fund liabilities represent the obligation to return cash deposits held by customers in their fiat wallets and unsettled fiat deposits and withdrawals.

5 Transaction revenue is the fee/commission earned for facilitating a buy, sell, or convert transaction for a customer. Both the explicit fee and the profit from that spread are generally included in the transaction revenue. Transaction revenue is generally available by crypto assets.

6 Stablecoin revenue is specifically relevant for Coinbase. It refers to Coinbase's share of income derived from its partnership with Circle for the promotion and distribution of the USDC stablecoin. It was agreed with the AEG and BOPCOM at the October 2025 meetings that a clarification note on the recording of stablecoin revenue and USDC rewards in macroeconomic statistics should be prepared.

7 Represents the amount of staking rewards distributed to customers who have staked their crypto assets through exchanges.

8 Blockchain transaction fees are network fees paid to miners or validators when Coinbase (on behalf of its users) sends transactions on a blockchain.

9 This expense is specific to Coinbase and represents the portion of stablecoin revenue paid out to users.

Section 5: Assets under custody-fungible crypto assets (USD)

For each type of crypto asset, report the assets that belong to nonresidents (similar to Bitcoins) kept in the custody of exchange/custodian surveyed. Further, for the assets belong to residents, provide the breakdown by institutional sectors.

5.1 Bitcoins					

Of which belong to nonresidents					
5.2 Ether					
5.3 Tether					
5.4 BNB					
5.5 SOL					
5.6 USDC					
5.7 XRP					
5.8 Other stablecoins					
Total 1 (Crypto assets without a corresponding liability): 5.1+5.2					
Of which belong to nonresidents					
Total 2 (Crypto assets without a corresponding liability): 5.3+…+5.8					
Of which belong to nonresidents					
Total (Total 1 +Total 2)					
Of which belong to nonresidents					
Section 6: Assets under custody-NFTs (USD) For each type of NFT, report the assets that belong to nonresidents (similar to crypto punks) kept in custody of exchange/custodian surveyed. Further, for the assets belong to residents, provide the breakdown by institutional sectors. Top 5 NFT collections by market cap are included.					
6.1 Crypto Punks					
Of which belong to nonresidents					
6.2 Bored Ape Yacht Club					

6.3 Mutant Ape Yacht Club					
6.4 Pudgy Penguins					
6.5 Autoglyphs					
Total: 61+…+6.5					
Of which belong to nonresidents					

Section 6: Additional Information	

General Guidelines

- Report all monetary values in USD or domestic currency considering the compilation requirements.
- Use end-of-period market values for positions and transaction values for flows.
- If exact figures are unavailable, provide best estimates and indicate that they are estimated.
- Clearly distinguish between resident and nonresident counterparties.
- Ensure consistency between assets and liability positions and flows.
- If data are estimated, indicate the method used.
- At this initial stage, collecting data with a resident/nonresident breakdown may be sufficient. Nevertheless, compilers may include information on main counterparties if they have the capacity to collect such details.

Annex 3.7. Key Financial Statement Items Related to Crypto Assets: Mapping to *BPM7/2025 SNA* Classification

Sl. No.	Financial statement item	*BPM7* classification	*2025 SNA* classification
1.	Bitcoin received as mining reward (implicit fee)	Current account → Services → Computer services (credit) + Capital account → Acquisition of nonproduced nonfinancial assets (debit)	Production account (output of mining); Capital account (acquisition less disposals of non-produced nonfinancial assets: crypto w/o corresponding liability)
2.	Bitcoin received as transaction fees (explicit fee, including from staking)	Services (credit) + Capital account → Acquisition of nonproduced nonfinancial assets assets (debit)	As in #1
3.	Bitcoin receipts from hardware/software sales	Goods/Services (credit) + Capital account → Acquisition of nonproduced nonfinancial assets assets (debit)	Goods/Services output + Capital account (acquisition less disposal)
4.	Bitcoins realized for cash (sold for fiat)	Capital account → Disposal of nonproduced nonfinancial assets assets (credit) + Financial account → Other investment → Currency & deposits (NAFA ↑)	Capital account (acquisition less disposal) + Financial account (cash ↑)
5.	Bitcoins used to pay nonresident consultants/for any other services	Services (debit) + Capital account → Disposal of nonproduced nonfinancial assets assets (credit)	Intermediate consumption/imports of services + Capital account (acquisition less disposal)
6.	Bitcoins used to pay compensation to nonresident staff	Earned income → Remuneration of employees (debit) + Capital account → Disposal of nonproduced nonfinancial assets assets (credit)	Earned income account (compensation) + Capital account (disposal)

7.	Interest on Bitcoin-denominated loans paid in Bitcoins	Earned income → Investment income → Interest (debit) + Capital account → Disposal of nonproduced nonfinancial assets assets (credit)	Earned income account + Capital account (disposal)
8.	Dividends paid in Bitcoins to nonresident owners	Earned income → Direct investment income → Distributed income of corporations (debit) + Capital account → Disposal of nonproduced nonfinancial assets assets (credit)	Earned income of corporations/property income/dividends + Capital account (acquisition less disposal)
9.	Bitcoins/Ether (or other crypto assets without corresponding liability) loans/borrowings received	No IIP liability and no recording in financial accounts (similar to security lending); Earned income → interest (debit) for periodic fees payable + Capital account → Disposal of nonproduced nonfinancial assets assets (credit)	Earned income account/Property income → interest
10.	Bitcoin/Ether (or other crypto assets without corresponding liability) loans/borrowings granted	No IIP liability and no recording in financial accounts (similar to security lending); Earned income → interest (credit) for periodic fees receivable + Capital account → Disposal of nonproduced nonfinancial assets assets (debit)	Earned income account/Property income → interest
11.	Bitcoin loans received from direct investors/provided to subsidiaries	As in #10, no financial positions; Earned income → Direct investments (credit or debit)	Earned income account/Property income → interest
12.	Loans denominated in USD but received in Bitcoins	Other investment → Loans, NIL↑ + Capital account → Disposal of nonproduced nonfinancial assets assets (debit);	Financial account →Loans; Capital account for BTC movements

13.	Bitcoin accounts in crypto exchange custody	No position in IIP; the original holder remains the economic owner.	The original holder remains the economic owner. Nonfinancial balance sheet of owner→ crypto assets without a corresponding liability designed to act as a general medium of exchange
14.	Bitcoin payables/receivables for cross-border trade settled in Bitcoins	Other investment → Other accounts payable/receivable – Trade credits; settlement via Capital account (disposal/acquisition of Bitcoins)	Financial account → Other accounts payable/receivable; Capital account for BTC settlement
15.	Loans in stablecoins to be settled in stablecoins	Other investment → Loans (transactions); settlement via Other investment → Currency and deposits	Financial account → Loans; Settlement Financial account → Loans + Financial account (Currency and Deposits ↑)
16.	Crypto assets on platform (AOP)—see paragraph 3.39/footnote 13	Bitcoins: no position in IIP; Stablecoins with a claim on the issuer: IIP/other investment assets of owner→ Currency and deposits (provided they are external assets of the owner or original holder)	Bitcoins: Nonfinancial balance sheet of owner→ crypto assets without a corresponding liability designed to act as a general medium of exchange Stablecoins with a claim on the issuer: Financial balance sheet of the owner or original holder → assets→ Currency and deposits

Annex 3.8. Questions on Fungible Crypto Assets and NFTs for Enterprise and Household Surveys[27]

SECTION 1. Fungible crypto assets (Flows/stocks, revenue, and expenditure)

1. Opening stock of crypto assets by type (units and value in USD)
   Stablecoins (AF22)
   crypto assets without a corresponding liability designed to function as a medium of exchange (AN22)
2. Crypto assets purchased during year t (type, units and value in USD)

   Of which purchased from nonresident exchanges (USD)

3. Closing Stocks of crypto assets by type (at the end of Year t in USD)
4. Crypto assets lost due to theft/hacking/seizures (type, units and value in USD)
5. Revenue from lending of crypto assets (USD)
   Of which from nonresidents
6. Revenue from staking crypto assets (USD)
   Of which from nonresident exchanges
7. Income from mining (for households)—provide number and value of crypto assets mined plus transaction fee received (USD)
   Of which sold to nonresident exchanges (USD)
8. Expenditure related to mining—electricity and other expenditures (USD)
   Of which paid to nonresidents
9. Expenditure on borrowing of crypto assets—interest payment (USD)
   Of which paid to nonresidents
10. Additional information

SECTION 2. NFTs (Flows and Stocks)

1. Opening Stocks of NFTs by type (at the beginning of Year t in USD)

2. NFTs purchased during year t (type, units and value in USD)

   Of which purchased from nonresident marketplaces/creators (USD)

3. Closing Stocks of NFTs by type (at the end of Year t in USD)

[27] The survey scope encompasses the total stock and flows of crypto assets of enterprises and households, including assets held in self-hosted and cold wallets.

Annex 3.9. Model Survey Questionnaires for NFT Creators

This survey questionnaire helps in collecting data from the resident NFT creators (mainly nonfinancial corporations) to support the compilation of items related to them (output, exports, and intermediate consumption) following the *BPM7* and *2025 SNA* frameworks.

Section 1: General Information

1.4 Legal name of the reporting entity 1.2 Country of incorporation and registration 1.3 Contact person (name, title, email, phone) 1.4 Reporting period (start and end dates)

Section 2: Output and Intermediate Consumption of NFT Creators

Type 1: Provide personal use and display rights (Examples: NBA Top Shot Moments, Digital collectible soccer cards with player NFTs such as Sorare, NFL All Day—Official NFT collectibles from NFL, Formula 1 Delata Time

Type 2: Provide ownership of the NFT and display rights (Examples: CryptoPunks, Bored Ape Yacht Club, Meebits)

Type 3: Provide ownership via transfer of the NFT (Examples: RealT Properties, Propy Real Estate NFTs)

Item		Year t
2.1 Number of NFTs minted during the period	Units	
2.2 Type of NFT (Type 1/2/3) • Type 1 • Type 2 • Type 3		
2.2 Number of NFTs sold during the period (units and value)	Units USD	
Of which sold to nonresidents (units and value)	Units USD	
2.3 Royalties from secondary sales (charges for use of intellectual property n.i.e.) Of which from nonresidents	USD	

2.4 Other income (specify) Of which from nonresidents	USD	
2.5 Input costs related to minting of NFTs	USD	
2.5.1 Remuneration of employees Of which paid to nonresidents	USD	
2.5.2 Blockchain transaction fee Of which paid to nonresidents	USD	
2.5.3 IT, admin, and other expenses Of which paid to nonresidents	USD	
2.5.4 Interest Of which paid to nonresidents	USD	
2.5.5 Other expenses Of which paid to nonresidents	USD	

CHAPTER 4. COUNTRY EXPERIENCES AND INTERNATIONAL INITIATIVES

A. INTRODUCTION

4.1 The chapter presents the experiences of selected countries in the collection and compilation of crypto assets statistics, as well as initiatives by international organizations to develop such statistics at the global level. It is organized into two main sections in addition to the introduction. Section B presents case studies from Brazil, Estonia, Germany, Georgia, and Switzerland. Section C highlights collaborative projects such as Project Atlas and Project Pyxtrial, led by international organizations like the Bank for International Settlements (BIS).

B. COUNTRY EXPERIENCES[1]

4.2 Each country's experience presented in this section is discussed in terms of its data collection frameworks, reporting systems, regulatory developments, and the challenges faced in compiling statistics on crypto assets. For example, Brazil's approach centers on the International Transactions Reporting System (ITRS), Estonia's on integrated reporting for virtual asset service providers, and Germany's on direct reporting.

1. BRAZIL

a. Data Collection Framework

4.3 The Central Bank of Brazil (BCB) compiles crypto assets statistics with data sourced from foreign exchange transaction contracts settlements (i.e., an ITRS). The ITRS is the source for compiling statistics of most of the balance of payments components in Brazil. In BCB's ITRS, financial institutions conducting foreign exchange settlements register the purchase and sale transactions of foreign currency based on information provided by the resident counterparty of the foreign exchange transaction. Among the information provided is the description of the nature of the transaction, based on a list with approximately 100 foreign exchange codes; the transaction value; and the identification of the resident and nonresident parties of the transaction. Among the foreign exchange codes, there are two for recording transactions with crypto assets. The recorded information also includes a free-text field "Other Specifications" where additional details about the foreign exchange transaction can be included. See **Annex 4.1** for a sample foreign exchange contract.

4.4 The BCB requests financial institutions to identify the names of the crypto assets in the "Other Specifications" text field for foreign exchange transactions (e.g., USDT or BTC). This identification is essential to determine the type of crypto asset being purchased or sold and where it should be classified in the balance of payments (if the crypto asset has no corresponding liability, e.g., Bitcoin, it is classified in the capital account; if it has a corresponding liability, e.g., stablecoin or CBDC, it is classified in the financial account) and, if applicable, in the IIP. In the case of Brazil, based on the ITRS data, purchases of crypto assets significantly outweigh sales. In 2025, for example, total purchases were US$ 18.3 billion,

[1] The country experiences, including data collection and compilation methods, are based on materials shared by the national compilers and should not be viewed as endorsed by the IMF Statistics Department.

and sales were US$ 0.8 billion. From these totals, crypto assets with corresponding liability comprised purchases of US$ 17.3 billion and sales of US$ 0.4 billion, representing 97 percent of the net purchases in 2025.

b. Compilation of BOP Transactions in Crypto Assets

4.5 Transactions recorded in foreign exchange contracts are transmitted to BCB by financial institutions in XML files each month, which are processed and stored in a database. The records are loaded into a balance of payments data warehouse (DW). During the upload process, the records are allocated to specific balance of payments accounts based on predefined rules, according to the type of transaction (purchase/sale), the foreign exchange code, and the resident's institutional sector. During the compilation process, the data is validated and, if necessary, can be altered so that the classification in the balance of payments more adequately reflects the economic nature of the transaction.

4.6 Foreign exchange contacts related to crypto assets are extracted by a text reading and processing algorithm, which identifies the specified crypto assets and the value associated with each crypto asset. The crypto asset is compared to a reference list, as shown in Table 4.1, and then the transaction value is categorized as with or without corresponding liability. If the crypto asset is not yet found in the list, verification is made to determine which category it fits, and it is then added to the list. The verification of the category of each crypto asset is conducted through internet searches to determine whether they have corresponding liability or not.

Table 4.1. Example of the Reference List of Crypto Assets

Code	Name	With or without corresponding liability
USDC	USD Coin	With corresponding liability
BTC	Bitcoin	Without corresponding liability
USDT	Tether	With corresponding liability
ETH	Ether	Without corresponding liability

4.7 In the last quarter of 2025, the names of the currencies had been recorded in approximately 80 percent of the crypto asset purchase records and 67 percent of the sale records. This proportion has progressively increased. BCB’s goal is, through monitoring activities of the records, to reach 100% for both purchase and sale.

4.8 The BCB seeks to identify other official sources of information to complement and/or assist in validating the current existing information. The Federal Revenue of Brazil publishes data on transactions with crypto assets declared by residents, but without determining whether the transaction is domestic or between a resident and a nonresident. Although it does not constitute a direct data source, it allows verifying which types of currencies are being transacted, and the evolution of crypto asset use in Brazil.

c. Challenges and the Way Forward

4.9 New data reporting procedures for resident Virtual Asset Service Providers (VASPs) are expected to be received by BCB as of June 2026. In November 2025 BCB started to regulate crypto assets market in Brazil and this new entity, VASP, in part of the framework. The reporting procedures for the resident VASPs establish that cross-border transactions – from customers and on their own - involving payments, transfers, or exchanges of crypto assets should be reported to the BCB. These transactions should be reported with details identical to the ITRS, including information on related parties, type of crypto asset, and nature of the transaction, filling the gap in which crypto assets are used as means of payment. Data should be reported on transaction-by-transaction basis, without a threshold, and included in the balance of payments on a monthly basis. After this first data collection, there are plans including additional procedures for VASPs to report crypto asset positions by type of asset.

2. ESTONIA

a. Background

4.10 Since 2018, Estonia's crypto sector has expanded rapidly, driven in part by limited restrictions—such as a low threshold for due diligence obligations and the absence of a clear legal basis for the Financial Intelligence Unit (FIU) to deny license applications. The sector reached its peak in 2019, when more than 1,200 virtual asset service providers (VASPs) were operating in the country. However, this trend reversed after the Parliament adopted significant amendments to the *Money Laundering and Terrorist Financing Prevention Act* at the end of 2019. These amendments tightened the regulatory standards for virtual currency service providers, introducing stricter requirements related to physical presence, payment accounts, minimum share capital, and customer identity verification. Further amendments, which came into force in 2022, imposed additional obligations, including higher capital requirements, mandatory external audits, and stricter conditions for board members.[2] In 2023, the Ministry of Finance introduced new regulations requiring VASPs operating in Estonia to submit regular reports on their activities, effective from January 1, 2024. By the end of 2023, as a result of the above-mentioned regulatory amendments, the number of licensed service providers had declined to around 50.

b. Data Items Collected

4.11 VASPs reports stipulated by the Ministry of Finance are integrated reports[3] used both for supervisory purposes by the Financial Intelligence Unit and for the compilation of official statistics by Eesti Pank. Data are collected quarterly through the following reports.

4.12 **The Report on General Activity** provides information on the location, websites, brands, acceptance of cash payments, number of crypto ATMs, number of customers, and number of customers subject to due diligence measures. The websites of service providers offer an overview of their service

[2] Estonian Financial Intelligence Unit Yearbook 2021, https://fiu.ee/sites/default/files/documents/2022-07/RAB_aastaraamat_ENG_veebi.pdf

[3] Integrated reporting is a data collection needed by several stakeholders for different purposes including balance of payments. In the data collection, reporting agents are aware of what purposes the data are used for. Data are collected only once and shared with the appropriate stakeholders. Integrated reporting reduces the reporting burden and ensures a better consistency of data.

packages and can help identify potential sources of income. While most providers limit their services to the purchase and sale of crypto assets, around ten offer a wider range of activities, including copy trading, auto-investment services, crypto loans, off-chain staking, transfers, crypto payment solutions, and the issuance of virtual and physical cards.

4.13 **Balance sheet items** in these reports are disaggregated by residency—distinguishing between residents and nonresidents—while **income statement** items are generally presented without a residency breakdown, except for *sales revenue* and *goods, raw materials, and services*, for which nonresident totals are separately reported.

4.14 **The Report on Customers' Assets** contains quarterly information on customers' asset holdings, disaggregated by type of asset, type of customer, and residency. Assets are classified as follows: fiat currency; major crypto assets among the global top ten by market capitalization, namely Bitcoin, Ether, BNB, Cardano, and Tether (the most widely used stablecoin); privacy-enhancing crypto assets such as Monero, Zcash, and Dash; crypto assets issued by the service providers themselves; and other crypto assets. Both resident and nonresident customers are classified into one of the following categories: banks, other financial institutions, other legal entities, natural persons, and politically exposed persons.

4.15 **The Report on Virtual Asset Services Provided** presents quarterly turnover data by type of service, type of customer and residency, type of ultimate beneficiary, number of customers, number of transactions, and value of transactions. The services are classified as follows:

- exchange between fiat currency and crypto assets (and vice versa);
- exchange between different crypto assets;
- services related to organizing offers or sales and related financial services;
- transfer services; and wallet services

Ultimate beneficiaries are classified as residents, nonresidents, or mixed (involving both). Turnover data cannot be disaggregated by type of asset.

c. Challenges and the Way Forward

4.16 In December 2024, the EU regulation on markets in crypto-assets (MiCA) came into force. Whereas previously VASPs operated under the law of the respective Member State, the EU established uniform rules for market participants. As a result, applications for an authorizaion to provide virtual currency service were moved to the Financial Supervision Authority. This in turn has initiated further changes to the reporting.

4.17 Overall, the integrated framework for data collection provides a very good starting point for compiling the flows and stocks of crypto assets in the national accounts and external sector statistics, in line with the *BPM7* and *2025 SNA* frameworks. However, to obtain a more comprehensive picture, it is important to emphasize the need for information on customers' holdings with service providers registered in other countries—that is, the participation of residents in cross-border crypto markets from a macroeconomic statistical perspective. Moreover, the coverage of crypto assets that interact directly with the blockchain remains an open issue, as crypto assets transferred to customers' own wallets fall outside the scope of existing reporting systems. Box 4.1 provides key observations based on 2024 crypto assets data.

Box 4.1. Estonia: Key Observations Based on 2024 Crypto Assets Data

The number of service providers' customers varied between 1.4 and 1.6 million, and out of 45-50 service providers, only 3-5 companies had more than 100,000 customers.

Crypto assets of customers are more than 2 billion euros of which around 98 percent belonged to nonresident customers. Over 90 percent market share was formed by four companies, with nonresident customers from specific regions. Over 85 percent of customers are natural persons while 10–15 percent are other legal persons. The highest share of crypto holdings are Bitcoin and Ether, which represent one-third and 15 percent of customers total assets, respectively. Stablecoin Tether forms around four percent and is used mainly by companies from off-shore countries. Both privacy-enhanced crypto assets and assets issued by the service providers have very small share. Other crypto assets have shares between 35-40 percent which indicates an importance to have more detailed look on them, in order to distinguish centrally issued stablecoins and security crypto assets from other crypto assets.

Services of providing crypto assets against fiat currency have higher proportion in comparison to other types of services where fiat currencies are provided against crypto assets or crypto assets are exchanged to other crypto assets. However, high turnovers of transfers and wallet services in comparison with net figures from the crypto buying and selling including the positions of customers assets may indicate the flow of cryptos to their customers non-custodial wallets that falls outside the scope of the surveys. In addition, the majority of the actual beneficiaries for turnover by Estonian resident companies are nonresidents (i.e., natural persons who ultimately own or control a legal person through direct or indirect ownership).

Figures from report of services should be carefully interpreted due to the fact that types of services can be double-recorded and do not always show the direction. For example, wallet services and transfers may be mixed if customers transfer funds from their wallets to other customers' wallets. In addition, revenue from staking can be recorded under wallet services and other services. Concrete direction is not detectable (e.g., from staking activities including main amounts, and crypto borrowing).

3. GERMANY

a. Direct Reporting System for Transactions

4.18 In Germany, a direct reporting mechanism that generally mandates all domestic sectors to report their international transactions is used as one of the main sources for the compilation of the balance of payments. The threshold for reporting starts at payments of more than €50,000. This filters out smaller transactions and reduces the reporting burden on entities while at the same time not significantly impacting the overall economic statistics. The German reporting system is governed by the Foreign Trade and Payments Act (Außenwirtschaftsgesetz - AWG), the Foreign Trade and Payments Regulation (Außenwirtschaftsverordnung - AWV). It also adheres to relevant EU regulations and international trade agreements and since 2025 explicitly includes transactions involving crypto assets.

4.19 Reporting agents in Germany are obligated to provide detailed information for each transaction containing crypto assets. This includes the value of the transaction, the direction of payment — indicating

whether it is an inflow or outflow of cryptos — and the purpose[4] of the transaction. Additionally, any other relevant information that may assist in the accurate classification and analysis of the transaction should also be included.

4.20 Furthermore, the mining of crypto assets, such as Bitcoin, is reported under computer services.[5] Beyond the transactions, the reporting system also takes swaps[6] of crypto assets into account. In these cases, reporting agents are asked to report both sides of the transaction.

4.21 Four new codes have been established under the direct reporting system for transactions. This differentiation is necessary to assign reported transactions to the appropriate sub-accounts (e.g., the capital account for nonfinancial non-produced crypto assets).

I. The first pertains to crypto assets that do not have a corresponding liability, categorizing them as nonfinancial assets.
II. The second addresses foreign crypto assets that are associated with corresponding liabilities, categorizing them as financial assets.
III. The third focuses on domestic crypto assets that also have corresponding liabilities, categorizing them as financial assets as well.
IV. The fourth is dedicated to nonfungible tokens (NFTs), which are classified as nonfinancial assets.

4.22 Currently, positions in crypto assets, relevant for the international investment position (IIP), do not have to be reported directly. For nonfinancial crypto assets this remains without consequence, since they are not part of the IIP. For financial crypto assets, the respective positions are calculated by cumulating transactions. While this method is certainly not an accurate one for assets with volatile market prices, it is for now regarded as acceptable by the Bundesbank. In Germany, the current volume of transactions in financial crypto assets is quite low – especially compared to the overall IIP – and financial crypto assets (e.g., certain stablecoins) are often less volatile making the cumulation of transactions less inaccurate.

4.23 Data quality management methods for reported transactions in crypto assets include, among others, plausibility checks of the reports. For instance, the plausibility of the reported amounts or description is assessed in combination with the direction of the transaction or any other issue[7] during those quality checks. In general, cases can also be solved by communicating with the reporting agent, although – for efficiency reasons – this is only done for transactions above a certain threshold.

[4] This typically involves specifying the name of the crypto asset involved as well as indicating if it is an acquisition or a sale.

[5] The activities of miners/validators are considered as the provision of validation services in *BPM7*. This includes the implicit (i.e., the block reward) and explicit fee.

[6] The term "swaps" refers in this case to the exchange of one type of crypto asset for another, distinguishing it from transactions that involve the exchange of a crypto asset for a classical financial asset, such as money.

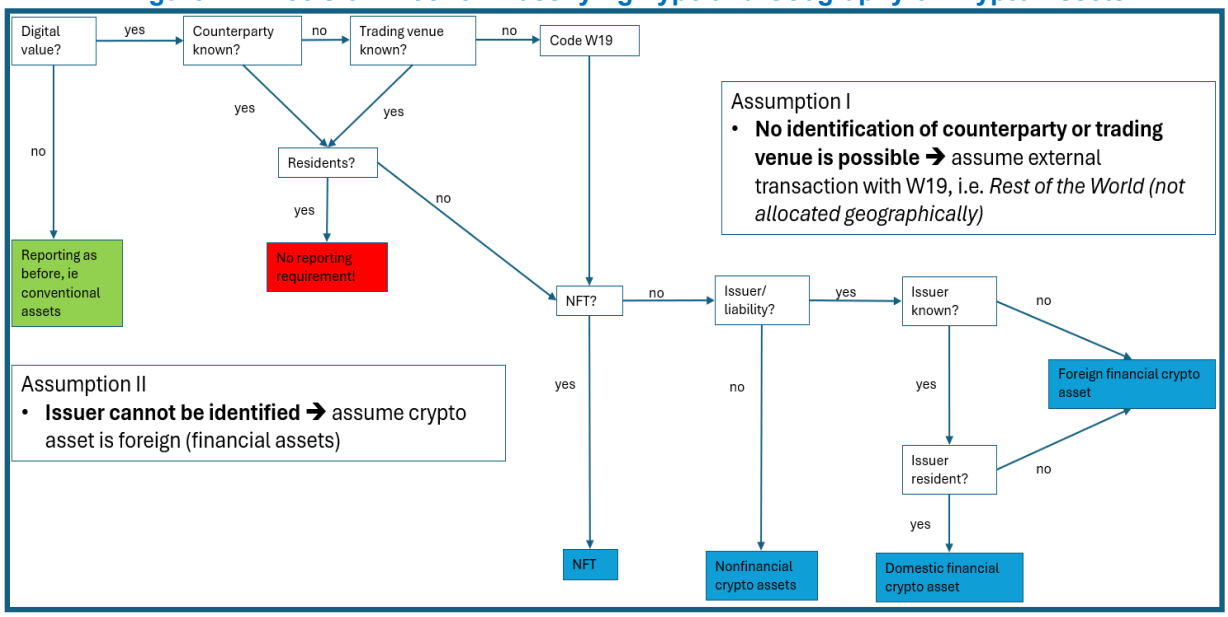
[7] For example, reporting an ISIN could indicate that the reporting agent is using the wrong reporting code and meant to report a transaction in securities.

b. Reporting and Compilation Practices

4.24 The classification of crypto assets with respect to the different types and geographical counterparts is described by a decision tree, see **Figure 4.1**. It is based on two important assumptions and can be applied in the following way.

4.25 The first step – besides ensuring that the transaction is indeed containing a digital asset, and the decision tree is therefore applicable – is the identification of the geographical location of the counterpart. Preferably, the reporting agent is able to identify the counterpart or at least the country of residence of the counterpart. If this is not the case and the reporting agent does not know who the counterpart of the transaction is, the country of residence of the trading venue can be used as a second-best solution. In case the country of residence of the counterparty is then assessed to be domestic, the transaction is no external transaction and no reporting is required. If the reporting agent is unable to either identify the location of the counterpart or the location of the trading venue, then the reporting agent should assume that the counterpart to the transaction is located abroad without further specification (Assumption I) and use the country code of W19 (not allocated geographically).

Figure 4.1. Decision Tree for Classifying Type and Geography of Crypto Assets



4.26 The second step is to determine the type of crypto asset. The decision tree checks for the four different types of crypto assets identified by the codes described in paragraph 4.21. The first check is to determine whether the respective asset is an NFT. If it is not an NFT, the second step is to check if the asset has a corresponding liability. In this context, checking if the asset has an issuer may serve as an indicator. If no corresponding liability exists, the reporting code for the nonfinancial crypto assets should be used. If a corresponding liability exists, the asset is a financial crypto asset, and it is necessary to identify if the asset is a domestic or foreign asset. In case it is not possible to identify the location of the issuer, it should be assumed that the crypto asset is foreign (Assumption II). Based on the outcome, reporting agents should be able to use the code for foreign or domestic financial crypto assets.

c. Challenges and Way Forward

4.27 There are several challenges with reporting and compilation of crypto assets. These challenges can be caused by the general characteristics of crypto assets or the properties of the German reporting system.

4.28 In general, the crypto asset market is very dynamic leading to rapid appearances and disappearances of business models, crypto assets, sudden changes in counterparties' information on (crypto) trading platforms[8], as well as other issues. Additionally, crypto assets are often deliberately designed to be (pseudo-)anonymous making it difficult or even impossible for reporting agents to determine the respective counterparty and/or country of the counterparty. This can also be seen in the mining of crypto assets leading to overall higher amounts in W19. Additionally, the implementation of a reporting system of crypto assets requires the training of compilers and the provision of comprehensive information about the reporting requirements for the (potential) reporting agents.

4.29 More specific to the German reporting system are issues regarding the recording of the use of crypto assets for the payment of goods or services, which is not always possible. Furthermore, the current reporting system in Germany does not facilitate the precise identification of the type of crypto asset[9] being traded. As mentioned above, there is currently no direct collection of stocks of crypto asset, although this is only relevant for financial crypto assets. Finally, there are two more caveats: 1.) the German reporting system does not allow to separately identify digital versions of conventional financial assets, although they are generally being collected and 2.) the different types of NFTs cannot be distinguished, i.e. all NFTs are treated as NFTs[10] with limited ownership rights to a specified asset or commodity that go beyond personal use.

4.30 Looking ahead, some adjustments are planned for the collection and compilation of crypto assets in Germany. In the medium term, it is intended to implement a coding system that allows the identification of the specific type of crypto asset within a transaction. For example, the Digital Token Identifier[11] could be used for this. A second idea is to change the compilation system by getting the data on transactions and positions directly from big players in the market, like crypto exchanges or crypto asset service providers. This approach could lessen the reporting burden by limiting the current reporting obligation for the entire reporting population to just a few reporting entities. In the long term it is envisioned to differentiate digital versions of conventional financial assets in separate "of which" positions in the respective functional categories (e.g. crypto bonds, crypto derivatives, etc.).

[8] For instance, in 2025 some crypto market providers changed their operating counterparty unit for German customers from a German to a foreign counterpart.

[9] Beyond the four different general types of crypto assets indicated by the reporting codes given in paragraph 4.21.

[10] NFTs are described in more detail in BPM7 chapter 16.

[11] See dtif.org

4. B.4. GEORGIA

a. Virtual Assets[12] Mining

4.31 Georgia has emerged as a prominent hub for virtual asset mining, gaining international recognition for its favorable operating conditions. This attractiveness is largely driven by low electricity costs, enabled by access to hydroelectric power, and the presence of Free Industrial Zones with minimal regulatory burdens. However, the rapid growth of mining activities has introduced regulatory and infrastructure challenges.

4.32 Between 2017 and 2021, the surge in electricity demand, primarily linked to virtual asset mining, transformed Georgia from a net exporter to a net importer of electricity. Moreover, Georgia lacked formal regulations governing virtual asset mining and trading, allowing individuals and entities to operate with minimal oversight. Individual miners and traders were exempt from taxation, while businesses engaged in virtual asset-related activities were generally subject to a 15% corporate income tax and 18% value-added tax.

4.33 Georgia also offered a conducive environment for establishing legal and tax residency, facilitating the conversion of virtual assets into fiat directly through bank accounts. Additionally, both residents and non-residents had the option to purchase real estate using virtual assets, further enhancing the country's appeal as a crypto-friendly jurisdiction.

b. Survey Module on Mining

4.34 Despite Georgia's global standing in virtual asset mining, there remains a notable lack of comprehensive data on the sector. The National Statistics Office of Georgia (Geostat) has making continuous efforts to identify and survey entities involved in virtual asset-related activities, including analyzing GPU importers and businesses operating in mountainous regions known for mining. An ad-hoc module with questions (see Table 4.2) on virtual asset mining activity was incorporated into the broader External Economic Activities of Enterprises survey.

[12] Virtual Asset — the term used in Georgian legislation as the functional equivalent of "Crypto" or "Crypto Asset." Whilst might not be exact equivalent, it covers the similar characteristics.

Table 4.2. Questions on Virtual Assets Mining Activity

(Annex to the Survey Questionnaire on External Economic Activities of Enterprises)

Crypto currency		**Total**	**Q1**	**Q2**	**Q3**	**Q4**
A	B	C	C1	C2	C3	C4
Number of Bitcoins mined during the reported period	Units					
Value of Bitcoins mined (at price of the day of the transaction)	Currency					
Fees received for validating the transactions	Currency					
Number of Bitcoins sold to nonresidents	Units					
Of which through the domestic intermediary (e.g., E-Money)	Units					
Funds received from parent company						
Other than loans and funds in equity	Currency					
Fixed assets (e.g., computers, servers, etc.)	Currency					
Intellectual property	Currency					

c. Virtual Asset Service Providers

4.35 In September 2022, the Parliament of Georgia passed the amendments in several laws introducing legislative framework for Virtual Assets (VAs), Virtual Asset Services (VAS) and Virtual Asset Service Providers (VASPs) which became effective on January 1, 2023. Among others, the amendments covered the Organic Law of Georgia "On the National Bank of Georgia" and the Law of Georgia "On Facilitating the Prevention of Money Laundering and the Financing of Terrorism". In accordance with the legislative framework, the National Bank of Georgia (NBG) has the authority to supervise VASPs that includes mandatory registration regime of VASPs (that includes but not limited to requirements on Head office, systems, Fit and Proper Checks, Anti-Money Laundering/Countering the Financing of Terrorism (AML/CFT) Policy Procedures) and AML/CFT supervision. Further, VASPs are obliged to comply with the Travel Rule[13] requirement by the end 2026.

4.36 VASP is an institutional unit that provides virtual asset service for the benefit of another unit. In addition to VASPs, the following representatives of the financial sector are authorized to provide virtual asset services: commercial banks, micro-banks, microfinance organizations, and brokerage companies. Table 4.3 provides details on the list of the VAS as defined by the law and specifies whether provision is

[13] The travel rule requires VASPs to transmit specific identifying information about the sender (name, account number/wallet address, physical address, national ID, etc.) and receiver (name, account number/wallet address) of a virtual asset transfer along with the transaction, much like how banks share such information in wire transfers.

reserved for VASPs or also permitted for financial sector representatives. At the time of preparation of this section (October 2025), there are 28 VASPs registered.[14]

Table 4.3. Institutional Units Providing Virtual Asset Services

Virtual Asset Service	VASP	Commercial Bank	Micro - Bank	Microfinance Organisation	Brokerage Company
Exchange (including via kiosks) between convertible virtual asset and fiat currencies (national or foreign) between one or more forms of virtual assets, between convertible virtual asset and financial instrument	X	X	X	X	X
Transfer of convertible virtual asset	X	X	X	X	X
Safekeeping and/or administration of convertible virtual asset or of the instrument enabling control over virtual asset	X	X	X	X	X
Portfolio management of convertible virtual assets (excluding collective portfolio management)	X				
Administration of the trading platform of the convertible virtual assets	X				
Lending of convertible virtual asset (to legal entities only)	X				
Initial Coin Offering of convertible virtual asset and/or service related to initial coin offering	X				

d. Challenges and Way Forward

4.37 The mining entities have largely been uncooperative, limiting the effectiveness of data collection efforts and leaving significant gaps in understanding the scale and impact of mining operations. While high electricity consumption has offered indirect insights into virtual asset production, such indicators remain incomplete and imprecise. Overall, measuring the activities of virtual asset mining companies has proven difficult, contributing to persistent data gaps.

4.38 With regards to VASPs, the National Bank of Georgia is in the process of developing a remote supervisory framework—commonly referred to as off-site monitoring—under which VASPs registered in Georgia will be required to report information related to their customers, transactions, products, services, counterparties, and delivery channels. This framework is expected to enhance supervisory visibility, including over potential cross-border transactions, thereby contributing to improved oversight and alignment with international compliance standards.

[14] See the official website of the National Bank of Georgia for the register: https://nbg.gov.ge/en/page/virtual-asset-service-providers-vasps

5. SWITZERLAND

a. Background

4.39 Switzerland's financial-market regulation is designed to be technology-neutral: The Swiss Financial Market Authority (FINMA) applies existing financial-market laws to crypto-related services and, where needed to meet supervisory objectives, issues targeted guidance and pursues focused legal extensions rather than creating a separate crypto statute. Since 2014 this has included supervisory guidance and key updates: ICO Guidelines (2018) categorizing tokens by economic function (payment, utility, asset, hybrids), and the DLT framework (2021) introducing ledger-based securities in the Code of Obligations, segregation rules for digital assets in bankruptcy law, and new infrastructures or licensing options (e.g., DLT trading facility, fintech company license). FINMA operationalizes its guidance via surveys. Given early uncertainties, closely accompanying institutions during implementation was essential.

b. Crypto Assets Reporting

4.40 FINMA's crypto asset reporting is grounded in the DLT framework and the powers introduced by Article 4 of the Banking Act (BA), under which FINMA may set institution-specific maximum holdings of crypto-based custodial assets where warranted by risk. The reporting provides consistent, standardized evidence based on institutions' crypto-related activities and exposures to inform potential thresholds under Article 4 BA and supports FINMA's broader, risk-based supervision. The survey covers banks and securities houses licensed by FINMA that have notified the authorities of crypto activities (e.g. following changes to organizational rules); once notified, reporting is mandatory. Data collection began in September 2023, on a quarterly basis, with reporting required at both the solo (entity) and consolidated (group) level.

4.41 Data are collected along two complementary dimensions:

- Institution-level business areas and volumes. The first part of the survey collects information on active crypto-related business activities, including custody, client trading, own-account trading, transfers to and from external wallets, operation of an organized trading facility, issuance of crypto-based products, crypto-collateralized lending, tokenization, and staking.[15] In addition, institutions report, where applicable, volumes of tokens and crypto-asset-related funds on the balance sheet, receivables denominated in tokens, tokens used as collateral for credit-risk mitigation, structured products, linear and non-linear derivatives, as well as other crypto-related activities.
- Per-token details: The second part of the survey requires granular, token-by-token reporting and is structured separately by functional token class (payment, utility, and security tokens). For each token, reported information includes the token name and symbol, the underlying DLT or network, total token holdings and prices, and custody breakdowns (nostro holdings; individualized versus pooled client custody; fiduciary arrangements). The custody and staking module further distinguishes between self-custody and third-party custody, client segments, insurance coverage, and the network of service providers and sub-custodians.

[15] Note that this list is updated if new relevant business activities emerge.

c. Challenges and Way Forward

4.42 Implementation and coverage**:** Preparatory work to implement *BPM7*, *2025 SNA*, and the update of *ESA 2010* has begun, but adapting and extending statistical source data is a multi-year process that requires careful sequencing, especially given today's limited coverage of crypto-asset activities. To meet growing requirements, regulator-driven data collections (such as FINMA's crypto-asset reporting) are being reviewed for targeted expansion, adding residency/sector/counterparty-country attributes and transactions vs. valuation split, and exploring issuer-side modules where needed. These steps are designed to align intermediary-based evidence with *BPM/SNA/ESA* concepts and the DGI-3 Recommendation 11 templates.

4.43 Measurement challenges**:** Technology and business models evolve quickly, while statistical frameworks prioritize consistency over time and reliability. Switzerland's statistical production relies heavily on institutional reporters, yet early crypto-asset activity was deliberately organized outside regulated (and thus surveyed) intermediaries. This creates coverage gaps and practical identification issues. Pseudonymity and world-wide decentralization make it difficult to reach relevant survey subjects and to attribute residency, sector, and geography to ultimate holders.

4.44 Outlook: As crypto activities continue to (re)institutionalize—with assets increasingly held via supervised platforms and traditional intermediaries entering the market—data availability and quality are expected to improve. In this context, ongoing regulatory developments, including the current consultation on amendments to the Financial Institutions Act (FINIG), which governs the licensing and supervision of financial institutions in Switzerland, related to crypto assets and stablecoins, may further affect reporting obligations and, over time, the availability of relevant data. In parallel, complementary sources (administrative/market data) and, where appropriate, blockchain analytics may be assessed to support interim attribution and plausibility checks, coupled with transparent metadata on methods and limitations. This pragmatic, staged approach should progressively close the most material gaps for *BPM/SNA/ESA* and DGI-3 reporting while preserving coherence with the broader statistical system.

6. REFLECTIONS ON THE COUNTRY EXPERIENCES

4.45 Overall, the experiences presented in this section show that countries are at different stages of developing data on crypto assets, reflecting variations in scope, data sources, and institutional arrangements. In many cases, current efforts are partial, focusing on specific components of the national accounts or external sector statistics, or on flows and stocks derived from a single data source, such as regulatory reports. Notwithstanding the challenges faced, these county experiences represent an important step aimed at incorporating crypto assets within the BPM7/2025 SNA statistical frameworks. With the notable example of Brazil, which has integrated crypto assets into its balance of payments, most other country experiences currently relate to data collection initiatives that lay the foundation for more comprehensive compilation in the future.

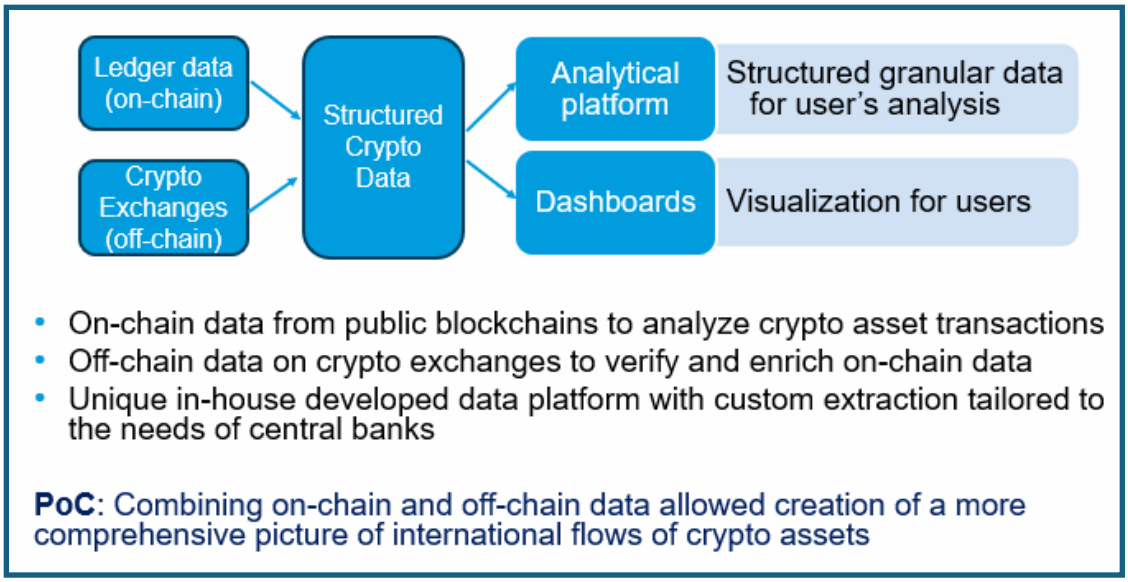
C. INTERNATIONAL INITIATIVES

4.46 The initiatives presented in this section focus on bridging data gaps, integrating on-chain and off-chain data, and enhancing supervisory capabilities for crypto assets and stablecoins.

1. PROJECT ATLAS

4.47 Project Atlas is an international initiative led by the Bank for International Settlements (BIS) Innovation Hub Eurosystem Centre in collaboration with De Nederlandsche Bank and the Deutsche Bundesbank, aimed at addressing data gaps in crypto assets and decentralized finance (DeFi).[16] This project works to establish a robust data platform that integrates the data procured from crypto exchanges (off-chain data) with granular data derived from public blockchains (on-chain data)—see Figure 4.2. The emphasis of the project is on facilitating the macroeconomic analysis of the crypto and DeFi markets. Currently, the project is in the proof-of-concept (POC) phase and is open for other central banks to join (subject to approval of other existing members). The project will result in two products: structured granular data for user analysis, and a dashboard with visualizations for users.

Figure 4.2. BIS IH Project Atlas – The Platform



4.48 The initial focus of the project has been on mapping significant international flows between crypto exchanges. Cross-country analysis has been done based on the location of crypto exchanges. It is important to note that transactions are classified as cross-country based on the residence of crypto exchanges. As discussed in Chapter 3, assets held in custody by crypto exchanges should not be treated as assets of the exchanges or custodians, as they remain the assets of the original holders (i.e., the customers of the exchanges). Consequently, the cross-border flows tracked by the Atlas project should be assessed from the perspective of the exchanges' customers to estimate the actual cross-border components.

4.49 Despite its limitations, the data from this project can be useful for understanding trends in cross-border crypto flows, thereby improving the measurement of the balance of payments and international investment position data. At the same time, compilers need to remain mindful of the data limitations and challenges, such as residency attribution, ownership versus custody (particularly in the case of exchanges), counterparty sector identification, and uncertainty about the purpose of transactions. These

[16] For additional details, refer to the report *Project Atlas: Mapping the World of Decentralized Finance*.

limitations imply that while Project Atlas can significantly enhance the understanding and analysis of crypto-related activity, its datasets require careful interpretation and methodological adaptation before integration into official macroeconomic statistical frameworks.

2. PROJECT PYXTRIAL

4.50 Project Pyxtrial is an innovative supervisory technology (suptech) initiative developed jointly by the BIS Innovation Hub and the Bank of England.[17] The project's core objective is to enable regulators to verify that stablecoin liabilities recorded on blockchains are fully backed by segregated assets held off-chain by issuers. To achieve this, Pyxtrial integrates granular on-chain data—collected hourly from multiple blockchains covering five leading stablecoins—with off-chain asset data submitted by stablecoin issuers via application programming interfaces (APIs).

4.51 Project Pyxtrial helps regulators keep track of stablecoin issuers' balance sheets in near real-time by combining different data sources. It uses a flexible system built around a detailed data model that organizes assets, valuation methods, and token information. While the project does not independently assess the quality or value of assets, it helps spot mismatches between assets and liabilities and highlights potential data problems quickly. The system is designed to adapt to changing rules and can be expanded to include more types of crypto assets and different countries. It also uses advanced data management to keep historical records important for supervision. A user-friendly dashboard allows supervisors to see the data clearly and check its quality. Some challenges remain, such as the need for more consistent and frequent reporting of off-chain assets, valuing assets correctly, tracking assets across multiple blockchains, and protecting data privacy when working internationally. Despite these issues, project Pyxtrial is an important step forward in improving how stablecoins are supervised in the crypto financial world.

4.52 While the data from this project are not primarily intended for macroeconomic statistics, information on the assets and liabilities of stablecoins can serve as a useful supplementary source for compiling such statistics.

[17] For additional details, refer to the report *Monitoring the Backing of Stablecoins*.

Annex 4.1. Brazil. Sample Foreign Exchange Contract

Foreign Exchange Contract
Type of foreign exchange contract ( ) purchase ( ) sale
Foreign exchange contract number:
Institution authorized to operate in the foreign exchange market Name: Resident identification number: Address:
City, State
Name of forex settling party: Resident identification number /Foreign ID: Address:
City State Country
Intermediary institution Name: Resident identification number /Foreign ID: Address:
Transaction data Currency of transaction: Value in foreign currency: Value in domestic currency: FX rate: Contract date: Settlement date:
Nature of the operation Code:

Process number: Registration number:
Payment/receipt abroad Correspondent bank abroad: Correspondent bank code abroad: Full name and address of the payer/receiver abroad:
Other specifications
Contractual clauses

GLOSSARY OF TERMS AND DEFINITIONS RELATED TO CRYPTO ASSETS

Consensus mechanism	Protocol that ensures all participants in a decentralized network agree on the validity of transactions and the current state of the blockchain. Currently, the most important consensus mechanisms in the public blockchains are proof-of-work (PoW) and proof-of-stake (PoS).
Crypto assets (fungible and non-fungible)	Digital representations of value that use cryptography and distributed ledger technology, such as blockchains, to enable parties to transact directly with each other without the need for a trusted intermediary. Two types of crypto assets are distinguished: fungible and non-fungible. Fungible crypto assets are divisible and not unique, and non-fungible crypto assets (most commonly known as non-fungible tokens or NFTs) are unique and non-divisible. Examples of fungible crypto assets include Bitcoin, Ether, and stablecoins such as the USD Coin and Tether, while NFTs include Bored Ape Yacht Club, CryptoPunks, and NBA Top Shot.
Crypto assets (native and non-native)	Native crypto assets originate on their own blockchain and exist only on that ledger. They do not represent, nor derive their value from any assets. Examples: Bitcoin and Ether. Non-native crypto assets represent assets external to the blockchain. These assets function as digital representations of underlying financial or real-world assets, with their value directly linked to those assets. Crypto securities are a notable example of non-native crypto assets.
Crypto asset transactions (on-chain and off-chain)	Crypto asset transactions are broadly categorized into on-chain and off-chain transactions. On-chain transactions are executed and recorded directly on a blockchain's distributed ledger. They are transparent and immutable but often slower and subject to network transaction fees and commonly associated with DEXs. Off-chain transactions are conducted outside the blockchain. They are not immediately recorded on the distributed ledger, typically allowing faster processing and lower fees, and often used within CEX.
Crypto assets with a corresponding liability designed to act as a medium of exchange within a platform	Fungible crypto assets that act as a medium of exchange within a platform. They are classified as a separate subcategory under debt securities.

Crypto assets without a corresponding liability designed to act as a medium of exchange	Fungible crypto assets for which there is no claim on the issuer. They may be designed to act as a general medium of exchange or designed to act as a medium of exchange within a platform only. Example: Bitcoin
Crypto custodian	An entity that provides secure storage and management of private keys on behalf of crypto-asset holders, enabling access to and control of their assets. Custodians typically use a combination of hot and cold storage solutions to balance accessibility and security. Examples include Coinbase (which is also a CEX), Fidelity Digital Assets, and Bank of New York Mellon.
Crypto exchanges (centralized and decentralized)	Digital platforms where users can buy and sell various types of crypto assets, including NFTs. They may also offer crypto lending/borrowing facilities, custodial and wallet services. Centralized exchanges (CEX) are platforms that match buyers and sellers of crypto assets through centralized order books and often provide custodial services by holding users' private keys. Examples: Binance, Coinbase, and Kraken. Decentralized exchanges (DEX) are platforms within the decentralized finance (DeFi) ecosystem that enable users to trade crypto assets directly through smart contracts without intermediaries. They are non-custodial, meaning users retain control of their private keys and transactions are recorded on the blockchain. Examples: Uniswap, SushiSwap, and PancakeSwap.
Crypto Payment Processors	Service providers that enable businesses to accept payments in crypto assets like Bitcoin, Ether, and stablecoins. They function similarly to traditional payment processors but are tailored for crypto assets. Examples: BitPay and CoinPayments.
Crypto wallets	Digital tools that allow users to store, manage, and transact with their crypto assets securely. They can be either hot wallets, which are connected to the internet and provide quick access to funds, or cold wallets, which are offline and offer enhanced security for long-term storage.
Crypto wallet providers	Companies or platforms that offer wallet services. Examples: Ledger, Trezor, and MetaMask
Decentralized Finance (DeFi)	Range of services within the crypto assets' ecosystem, aiming to replicate traditional financial services.

	DeFi business models focus on developing and enhancing investment opportunities in the crypto space. DeFi operates on blockchains like Ether, which support smart contracts.
Digital assets (designed to act as a medium of exchange or financial instrument)	Digital representations of value recorded on a cryptographically secured distributed ledger or using a similar technology or issued by a central bank as CBDC.
Distributed Ledger Technology (DLT) and Blockchain	Refers to recording data or information (for example on transactions and balances of crypto assets) in multiple places at the same time, ensuring that system/network participants have consistent access to the same data. Blockchain is a type of DLT that has a specific set of features, organizing its data in a chain of blocks. Each block contains data that has been verified, validated, and then “chained”. Blockchains can be categorized into public and private.
Hot and cold storage of crypto assets	Hot storage of crypto assets refers to wallets that are connected to the internet, making them convenient for quick transactions but more vulnerable to hacks. On the other hand, cold storage involves offline custody of private keys.
Means of payment	Refers to the instruments used to make the payment, such as cash, check, debit/credit card, stablecoins, or crypto assets without corresponding liability (e.g., Bitcoins).
Medium of exchange	A means for acquiring goods, services, or assets without resorting to barter. Acting as a medium of exchange is one of the basic functions of money, which takes the form of various types of financial instruments.
Miners and validators	Miners are entities that use computational power to solve complex mathematical puzzles in PoW-based blockchains, such as Bitcoin. Once a puzzle is solved, the miner gets the opportunity to verify a set of transactions, add a new block to the blockchain, and receive a reward in the form of newly minted crypto assets. Validators are entities that stake their crypto assets to participate in the transaction verification of PoS-based blockchains, like Ethereum. These entities earn rewards for contributing to the network's security and decentralization.
NFT issuers	Individuals, organizations, or platforms that create and distribute NFTs, typically representing digital or physical assets such as art,

	music, collectibles, virtual real estate, or in-game items. These issuers can range from independent artists and musicians to large corporations and gaming companies.
Private and public keys	Private key is a secret cryptographic key that is used to sign transactions and provide proof of ownership of crypto assets. They allow the owner to access and manage their crypto assets. It grants the holder complete control over the crypto assets associated with the corresponding public key and address. A Bitcoin private key is an alphanumeric string, typically 64 characters long. Public key is a cryptographic key that can be shared with anyone. It is used to encrypt information or to verify a digital signature. The public key can be shared with anyone, allowing them to send encrypted messages or verify transactions signed by the corresponding private key.
Proof-of-Stake (PoS)	Consensus mechanism where validators are chosen based on the number of coins they hold and are willing to lock up "stake" to help validate transactions and maintain the network’s integrity. Examples of crypto assets that use PoS include Ether (after its transition to PoS) and Cardano.
Proof-of-Work (PoW)	Consensus mechanism where participants, known as miners, solve complex mathematical puzzles to validate transactions and add new blocks to the blockchain. This process involves miners competing to solve a cryptographic puzzle, and the first one to solve it gets the opportunity to add the next block to the blockchain, receiving crypto assets as a reward. Prominent examples of crypto assets that use PoW include Bitcoin and Ether (before its transition to PoS).
Public address	A unique code derived from a public key, used to receive crypto assets. It is in more user-friendly format than public key, shorter than public key, which makes it more practical for sharing. It is the address that users share with others to receive funds in crypto asses such as Bitcoins.
Pseudonymity	A privacy feature of many public blockchains where users transact with public addresses rather than real-world names, providing partial anonymity. All transactions on a public blockchain like Bitcoin or Ethereum are openly visible, but the participants are identified only by their alphanumeric blockchain addresses and there is no direct way to link theses addresses with real-life identities of holders.

Security tokens	Crypto assets that represent debt or equity claims on the issuer or derivative contracts that can be exchanged peer-to-peer even if the underlying asset is not a crypto asset.
Smart contract	Refers to self-executing computer programs stored on a blockchain that automatically enforce and execute predefined rules or transactions once specified conditions are satisfied.
Stablecoins	A crypto asset that aims to maintain a stable value relative to a specified asset or a pool or basket of assets, usually by being backed by the assets of the issuer or by using algorithms to control supply (so called algorithmic stablecoins—without a claim on the issuer), and sometimes through a combination of both. Examples of i) stablecoins with a claim on the issuer are Tether (USDT) and USD Coin; and ii) algorithmic stablecoins—without a claim on the issuer are Djed, ETHx.
Stablecoin issuers	Entities other than monetary authorities or government that create, issue, and manage crypto assets with a corresponding liability designed to act as a general medium of exchange
Tokenization	Refers to the process of issuing a digital token on a blockchain that represents a financial or tangible asset. In principle, almost any asset can be tokenized—including financial instruments (such as equities or bonds) and physical assets (such as real estate or gold).
Utility tokens	Fungible crypto assets that provide the holders with future access to goods or services. They are classified as a separate subcategory under debt securities.

REFERENCES [to be updated]

Circle Internet Group, Inc., 2025, Annual Report for the fiscal year ended December 31, 2025 (https://www.sec.gov/ix?doc=/Archives/edgar/data/0001876042/000187604226000062/crcl-20251231.htm)

Coinbase, 2025, Annual Report for the fiscal year ended December 31, 2025 (https://s27.q4cdn.com/397450999/files/doc_financials/2025/q4/Form-10K-2025.pdf)

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

International Monetary Fund, *Integrated Balance of Payments and International Investment Position Manual, seventh edition* (*BPM7*): white cover pre-edited version (2025). Washington (DC) (https://www.imf.org/-/media/Files/Data/Statistics/BPM6/draft-bpm7-wcv.ashx)

International Monetary Fund, 2025, Vietnam, Article IV Consultation—Press Release; Staff Report; and Statement by the Executive Director for Vietnam (https://www.imf.org/-/media/files/publications/cr/2025/english/1vnmea2025001-source-pdf.pdf)

Issue Note: Recording of Crypto Lending/Borrowing in Macroeconomic Statistics

Tether International (2025). Financial Figures & Reserves Report (https://assets.ctfassets.net/vyse88cgwfbl/20d2BoOAd28ZfkiQPYPjGN/4ed12f5939e1e06ee5aceccad4effbe4/ISAE_3000R_-_Opinion_Tether_International_Financial_Figure_31-12-2025.pdf)

United Nations, *System of National Accounts 2025*: white cover pre-edited version (2025). New York: United Nations Statistics Division (https://unstats.un.org/unsd/nationalaccount/docs/2025_SNA_Pre-edit.pdf)