UTXO and account models

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Bitcoin tracks value as unspent transaction outputs (UTXOs). Each output is a discrete lump of value locked to a condition, usually a public key. Spending consumes whole outputs and creates new ones, so paying 0.3 BTC out of a 1 BTC output returns 0.7 BTC in a new output to a change address. Ethereum and most later networks use an account model. Each address has a balance that increases and decreases, in the way a bank account does.

The difference has legal weight in three places. First, tracing. In a UTXO system each coin has a traceable lineage, which has let common-law courts apply the first-in-first-out and pro-rata tracing rules to Bitcoin with some comfort. In an account system funds mingle in a single balance and the tracing exercise needs an allocation rule chosen by the court. Singapore judges have accepted blockchain forensic evidence under both models but have been more cautious about the inferences drawn from account-based networks.[1] Second, taxation. Swiss cantonal tax offices applying the private-wealth exemption need an acquisition cost per unit sold, which a UTXO chain can supply directly and an account chain only through a chosen inventory method. Third, segregation. A custodian who holds client coins as distinct UTXOs can in principle attribute each to a client. A custodian who pools client ETH in one account balance can attribute only by reference to its own books. The Swiss

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segregation provisions in Art. 242a of the Debt Enforcement and Bankruptcy Act (DEBA; SchKG) were written with both models in mind and use the phrase "readily attributable" to cover the second.[2]

Notes

1. See CLM v CLN [2022] SGHC 46 at [41]–[48] on the admissibility and weight of forensic tracing reports, and Part N, Chapter III on practice since. ↩
2. Debt Enforcement and Bankruptcy Act, SR 281.1, Art. 242a para. 2 (crypto-based assets held either individually for the client or collectively for several clients with the client's share readily attributable). Analysed in Part D, Chapter IV. ↩

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