Automated market makers

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A decentralised exchange of the traditional kind would need an order book and a matching engine. Automated market makers (AMMs) dispense with both. Uniswap, the leading example since 2018, holds pairs of tokens in liquidity pools and sets the exchange rate by a formula, in the simplest version by keeping the product of the two reserves constant.[1] A trader who wants ETH for USDC sends USDC to the pool and receives ETH at the formula price, which moves against her in proportion to the size of her trade. Liquidity providers deposit both tokens into the pool, receive LP tokens in return, and earn a share of the trading fees.

Who is the counterparty to the trade? Technically, the pool. The trader contracts with a smart contract that holds assets deposited by hundreds of liquidity providers. The liquidity providers did not agree to trade with her and may not know she exists. The protocol's developers wrote the code and may hold a governance token but do not hold the pool's assets. Under Swiss contract law the author's analysis is that the trader's interaction with the pool is a legal act whose counterparty must be a person. The only candidates are the liquidity providers collectively. If they are treated as the counterparties, each trade is a sale of tokens by a group of pseudonymous sellers who have authorised the contract to sell on their behalf at a formula price. That is a workable analysis under Art. 32 ff. CO on agency, if one is prepared to treat the

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deposit into the pool as an authorisation.[2] The alternative, that the trade is a legal act with no counterparty, is not an analysis Swiss law can accept for a transfer of value.

Singapore law reaches the same difficulty through the law of contract and property. The trader has transferred USDC and received ETH. If no contract exists, the transfers are gifts or mistaken payments, which no one intends. Singapore courts have so far addressed DeFi only incidentally, in asset-recovery cases where stolen tokens passed through AMMs on their way to exchanges, and have treated the AMM as a conduit without analysing the contractual position.[3]

For regulatory purposes the question is whether anyone is operating a trading venue or dealing in DPTs. The Federal Council's 2022 report and MAS's statements both answer that the protocol itself is not a regulated person, but that the people who operate the front-end website through which most users access it, or who hold governance power over it, may be. That answer is developed below.

Notes

1. Hayden Adams, Noah Zinsmeister and Dan Robinson, Uniswap v2 Core, March 2020 (the constant-product formula x·y = k), and Uniswap v3 Core, March 2021 (concentrated liquidity). ↩
2. Code of Obligations, SR 220, Arts 32–40 (representation). The agency analysis of AMM trades is the author's own and has not been tested in a Swiss court; Part D, Chapter V discusses the alternatives. ↩
3. See CLM v CLN [2022] SGHC 46 and the tracing analysis in Part N, Chapter III; the author is aware of no Singapore decision analysing the contractual position of an AMM trade as of 30 June 2026. ↩

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