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“Estimating the Cost of Providing Liquidity for an Options Automated Market Maker”

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Abstract

Options automated market makers (AMMs) such as Lyra rely on different pricing mechanisms than traditional constant function market makers (CFMMs) which trade the base asset. However, it has been noted that an option AMM relying on a Black-Scholes curve parametrized by volatility has several connections to CFMMs. In this thesis, we first give a thorough review of the options theory relevant to AMMs and the main results regarding CFMMs before moving onto options AMMs. Then, as a novel contribution, we first describe that Lyra (with a minor modification) belongs to a broader class of AMMs, known as tethered CFMMs with time-varying bonding functions. Finally, we propose a method to approximate loss-versus-rebalancing for these AMMs as a measure of the cost of providing liquidity.