



**Course II:**

# **DeFi Primitives**

## **3. Swaps and Loans**

### **(iii) Flash Loans**

# Flash loans

## *Traditional finance*

- A financial primitive that uniquely exists in DeFi and dramatically broadens certain types of financial access is a *flash loan*.
- In traditional finance, a lender is compensated for providing the capital and bearing the risk of default by the interest amount charged over the life of the loan.
- The interest rate is typically higher the longer the duration of the loan, because the longer time to repay exposes the lender to greater risk that the borrower may default.

# Flash loans

## *Zero-duration loans*

- Reversing the concept leads to the conclusion that shorter-term loans should be less risky and therefore require less compensation for the lender.
- A flash loan is an instantaneous loan paid back within the same transaction.
- A flash loan is similar to an overnight loan in traditional finance, but with a crucial difference—repayment is required within the transaction and enforced by the smart contract.

# Flash loans

## *Risk of flash loans*

- A thorough understanding of an Ethereum transaction is important for understanding how flash loans work.
- One clause in the transaction is vital: if the loan is not repaid with required interest by the end of the transaction, the whole process reverts to the state before any money ever left the lender's account.
- In other words, either the user successfully employs the loan for the desired use case and completely repays it in the transaction or the transaction fails and everything resets as if the user had not borrowed any money.

# Flash loans

## *Risk of flash loans*

- Flash loans essentially have zero counterparty risk or duration risk.
- They allow a user to take advantage of arbitrage opportunities or refinance loans without pledging collateral.
- This capability allows anyone in the world to have access to opportunities that typically require very large amounts of capital investment.
- This type of innovations that cannot exist in the world of traditional finance.
- However, these are not “risk free” because of smart contract risk.

# I. DeFi Infrastructure

## Modules

1. Mechanics
2. Supply and Ownership
3. Swaps and Loans
4. **Joining the World of DeFi**
  - i. MetaMask
  - ii. Blockchain Tech Big Picture