Financial Market

A financial market is a market where people trade financial products. Typical financial markets are the fixed income and interest rate market, the currency market, the equity market, the commodity market and the credit market.

One of the central tenets of financial economics is the necessity of some tradeoff between risk and expected return. This presentation gives an overview of financial market basics

1. Financial return

- Financial return is the measure of profit or loss on an investment.
- Return is more important than value itself.
- Return types
  - Absolute return: $R_A = V_t - V_{t-1}$
  - Relative return: $R_R = \frac{V_t}{V_{t-1}} - 1$
  - Log return: $R_L = \ln\left(\frac{V_t}{V_{t-1}}\right)$
- Return attributes
  - Log return is similar to continuous compounding.
  - Log return is additive, i.e., $R_{02} = R_{01} + R_{12}$.
  - For a short horizon, $R_R \approx R_L$
  - Returns are nearly independent and similar to a random walk.
  - Returns in future are unpredictable.

2. Price Determination

- Actual market price determination
  - Determined by supply and demand
  - Gauged in the real-world measure
  - Supply side determination factors
    - Transaction costs

    - Liquidity
    - Risk/reward preferences of suppliers
    - Capital availability
    - Tax rules
    - Differential information
  - Demand side determination factors
    - Transaction costs
    - Liquidity
    - Accounting
    - Tax rules
- Model price determination
  - Determined by model and calibration
  - Gauged in the risk neutral measure
  - If a trade has the market price, then
    - Model is mainly used to compute risk, such as sensitivities.
    - Model price needs to be calibrated to the market price.
  - If a trade doesn't have a market price
    - Model price is used for transaction.
    - Model should be calibrated to price Vanilla products correctly.

Reference:

https://finpricing.com/lib/EqBarrier.html