

Limit Order Book: $LOB_t = \{(p_i, v_i, d_i) \mid i = 1, 2, \dots, N\}$

Best Bid Price: $B = \max\{p_i \mid d_i = +1\}$

Best Ask Price: $A = \min\{p_i \mid d_i = -1\}$

Midpoint Price: $M = \frac{A + B}{2}$

Spread: $S = A - B$

Volume Imbalance: $VI = \frac{V_B - V_A}{V_B + V_A}$

Price-Weighted Volume Imbalance: $PWVI = \frac{\sum_i p_i v_i d_i}{\sum_i v_i}$

Momentum: $\mu_t = P_t - P_{t-\Delta t}$

Volatility: $\sigma = \sqrt{\frac{1}{N} \sum_{i=1}^N (r_i - \bar{r})^2}$

Market Depth: $D_N = \sum_{i=1}^N v_i$