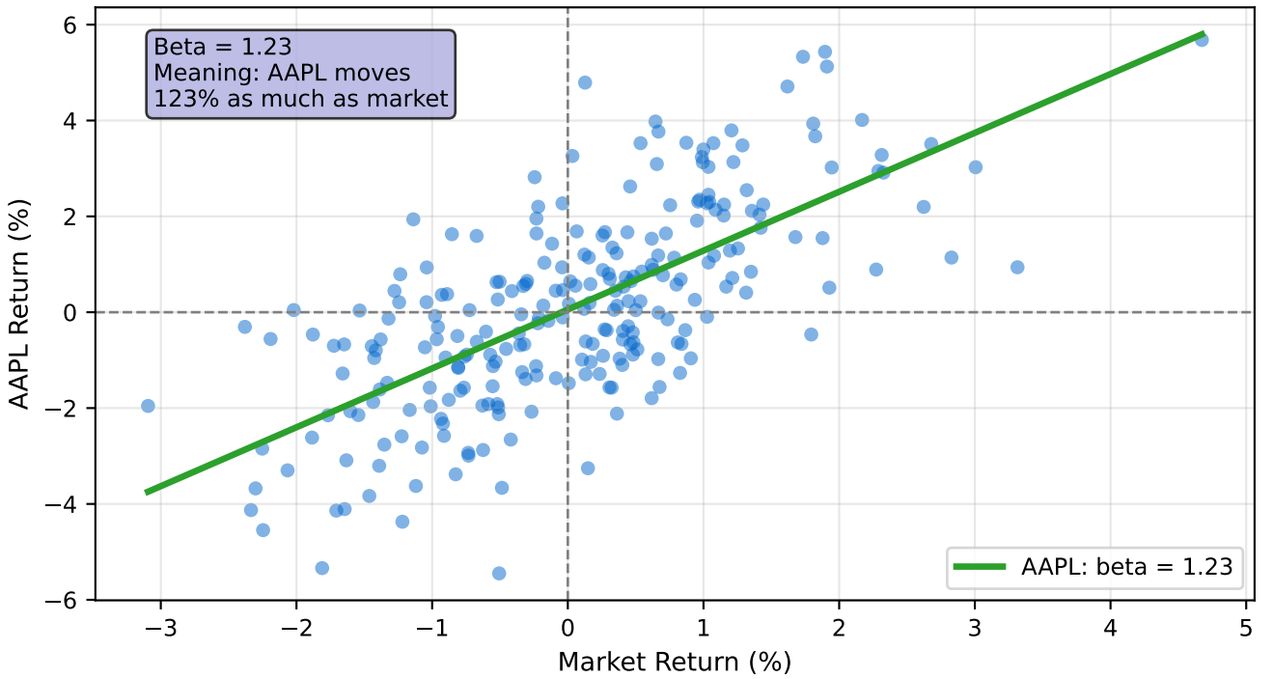
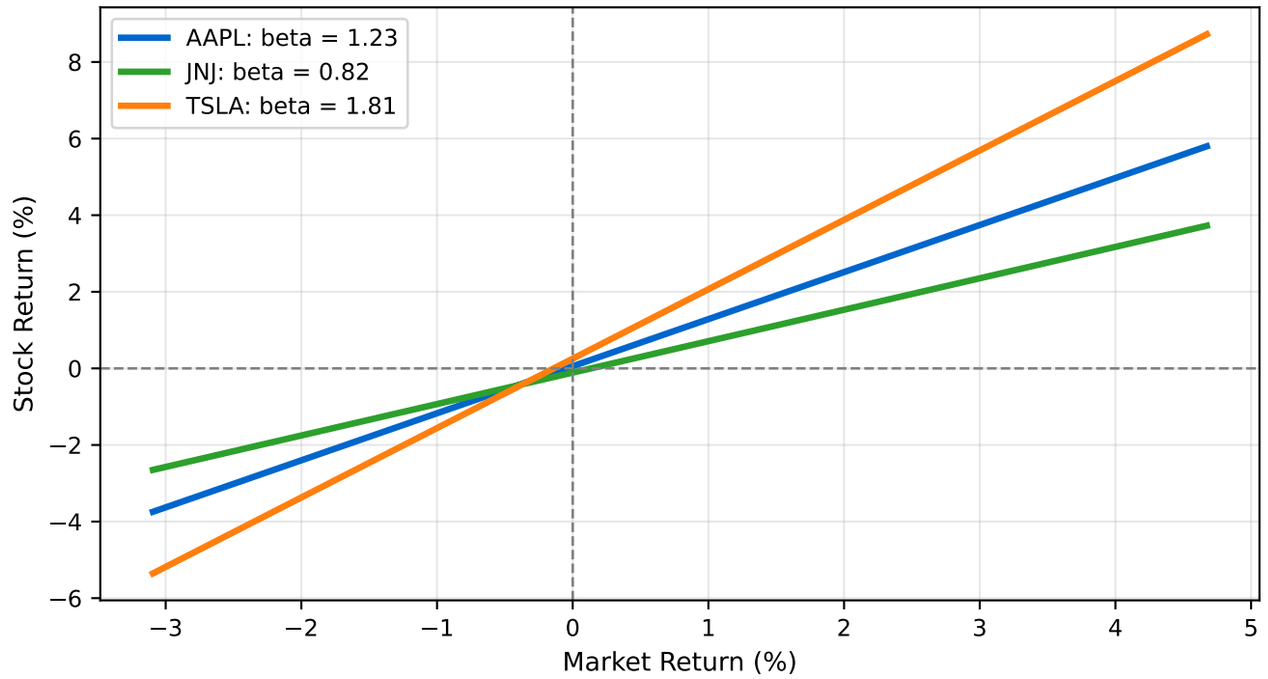
CAPM Beta Estimation Using Linear Regression

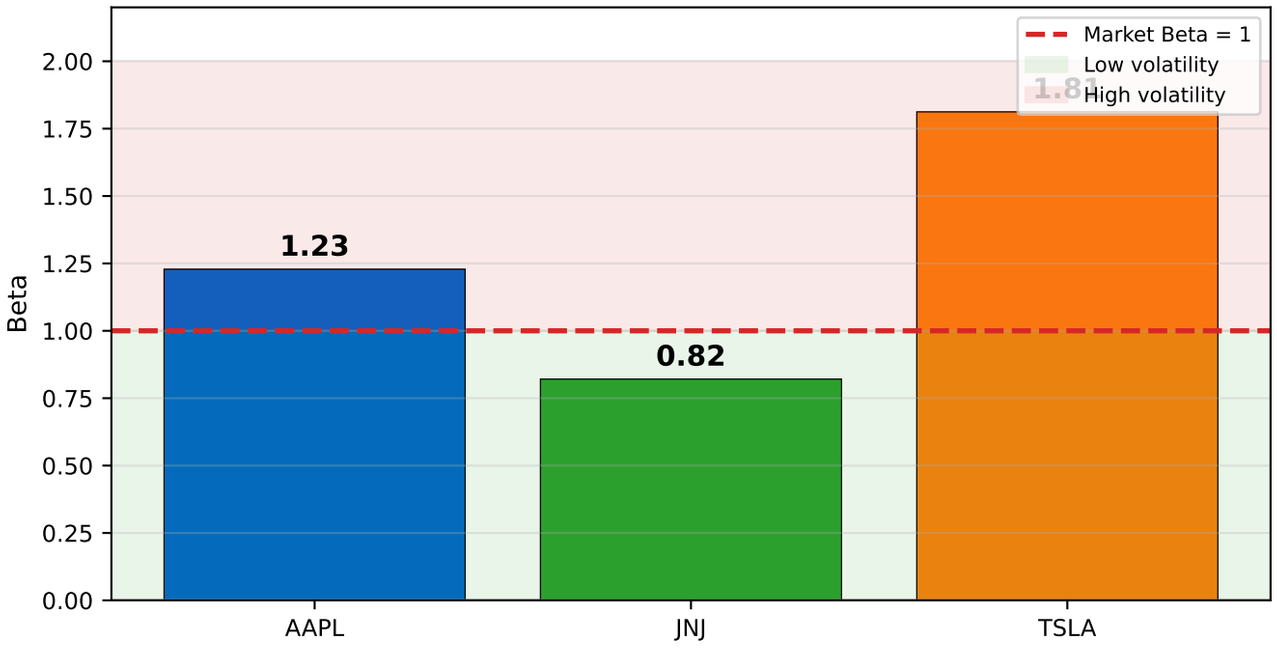
AAPL vs Market Returns



Multiple Stocks: Different Betas



Beta Comparison



CAPM Formula & Interpretation

```
CAPM REGRESSION

Model: R_stock = alpha + beta * R_market + epsilon

Where:
- R_stock: Stock excess return (above risk-free)
- R_market: Market excess return
- alpha: Stock-specific return (skill)
- beta: Systematic risk exposure
- epsilon: Random error

BETA INTERPRETATION:

beta > 1: Aggressive stock
  - Amplifies market moves
  - Higher risk, higher potential return
  - Example: TSLA (beta = 1.8)

beta = 1: Market-tracking
  - Moves with market
  - Example: Index funds

beta < 1: Defensive stock
  - Dampens market moves
  - Lower risk, lower return
  - Example: JNJ (beta = 0.7)

beta < 0: Hedge (rare)
  - Moves opposite to market
  - Example: Gold, VIX

ALPHA INTERPRETATION:
- alpha > 0: Outperforms (after risk adjustment)
- alpha = 0: Fair priced
- alpha < 0: Underperforms
```