Carry Trade, CIP, UIP

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Agenda

- 1. Introduction to Carry Trades
- 2. Numerical Example (JPY/BRL)
- 3. New Example (AUD/INR)
- 4. Covered Interest Parity (CIP)
- 5. Uncovered Interest Parity (UIP)
- 6. UIP Puzzle
- 7. Risks in Carry Trades
- 8. Summary & Quiz

What is a Carry Trade?

- A carry trade borrows in a low-interest-rate currency and invests in a high-interest-rate currency.

- Profit depends on:
- • Interest rate differential
- • Future exchange rate
- • Whether parity conditions hold

Example: AUD → INR Carry Trade

- Given:
- iAUD = 4%
- iINR = 8%
- S0 = 55 INR/AUD

- Carry Steps:
- 1. Borrow AUD 1000 → repay 1040
- 2. Convert → 55,000 INR
- 3. Earn interest → 59,400 INR

AUD Carry Trade Profit Table

ST = 50 → Profit +148 AUD

ST = 55 → Profit +40 AUD

ST = 57 → Profit +2 AUD

ST = 60 → Profit -50 AUD

Covered Interest Parity (CIP)

- CIP with a forward contract:

- $(1 + i_{home}) = (1 + i_{foreign}) \times F0 / S0$

- CIP implies:
- • No arbitrage
- • FX risk is hedged
- • Forward prices eliminate carry trade profits

CIP Applied to AUD/INR

- $F0 = S0 \times (1+iAUD)/(1+iINR)$
- $= 55 \times 1.04/1.08$
- $= 52.96$ INR/AUD

- If market forward equals 52.96 → no arbitrage.
- If not → covered arbitrage possible.

Uncovered Interest Parity (UIP)

- UIP (no forward hedge):

- $E[S_T] = S_0 \times (1+i_{foreign})/(1+i_{home})$

- Prediction:
- • High-interest currency should depreciate
- • Carry trade should yield zero profit

The UIP Puzzle

- Empirically:
- • High interest currencies often APPRECIATE, not depreciate.
- • Carry trades produce positive returns.
- • UIP fails systematically.

- This is the UIP Puzzle.

Risks in Carry Trades

- • Exchange rate risk (largest)
- • Funding liquidity risk
- • Sudden unwinding (risk-off events)
- • Volatility spikes
- • Emerging market macro instability

Summary

- • Carry trade exploits interest differentials
- • CIP uses forward contracts → no FX risk
- • UIP predicts depreciation of high-rate currency
- • UIP fails empirically → carry remains profitable
- • Risk management is essential

Quiz

- 1. When does a carry trade make profit?
- 2. State the CIP formula.
- 3. Why does UIP fail empirically?
- 4. What exchange rate movement benefits a carry trade?
- 5. Why is FX risk the main danger?