

- FACTORS**
- **COMMODITIES TYPES**
 - Energy
 - Industrial grains
 - Livestock
 - Precious Metals
 - Softs (include oil)
 - Announcement
 - Component Analysis eg: Forecast demand of derived products
 - Timing Issues ... - D/S, Normality
 - Macro.

Basis = $S - F \rightarrow$ tends to 0 at maturity.

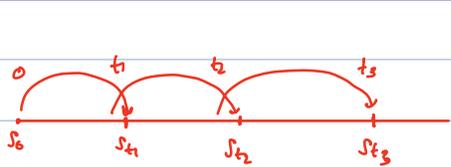
$$F = S(1+R_f)^T + S_t - B.$$



$$F = S + \boxed{\text{Int} + S_t - \text{Benefit}}_{\text{CoC.}}$$

Net CoC

$F > S$	Cost > Benefit	Net CoC +ve	<u>Contango</u> \rightarrow -ve roll yield
$F < S$	Cost < Benefit	Net CoC -ve	<u>Backwardation</u> \rightarrow +ve roll yield.



$F > E(S_t)$ \therefore too many consumers \therefore F is done by speculators at higher price. Normal Contango

$F < E(S_t)$ \therefore too many producers. \therefore F is more demand. Normal Backwardation

\therefore $F < E(S_t) \Rightarrow$ speculation does F^+

CASES

① $F > S \rightarrow$ rolling into more expensive futures.

CONTANGO
 $F^- \rightarrow$ cheaper } \therefore -ve Roll yield
 $F^+ \rightarrow$ expensive

② $F < S \rightarrow$ rolling into cheaper futures

BACKWARDATION
 $F^- \rightarrow$ expensive } \therefore +ve ROLL YIELD
 $F^+ \rightarrow$ cheaper

CALENDAR SPREAD

$$C^+ B^+ = r^+ S^+$$

cheaper C^- \leftarrow short term
 C^+ \rightarrow more exp. long term



$$F = S + \text{Int} + S_t - \text{Benefits}$$



NORMAL BACKWARDATION

Insurance Theory \rightarrow Producers hedge $\rightarrow F^- \rightarrow$ speculator $\rightarrow F^+$ \rightarrow Markets are not in backwardation.

Hedging Pressure Hypothesis \rightarrow Producers \rightarrow NORMAL BACKWARDATION } Criticism \rightarrow more concentrated price
 \rightarrow Consumer \rightarrow " CONTANGO } \rightarrow P.P.C can be speculators as well

Theory of Storage \rightarrow Net Cost of Carry \rightarrow +ve \rightarrow CONTANGO
 \rightarrow -ve \rightarrow BACKWARDATION.

\therefore we cannot test that, it is the cause of backwardation and contango.

Total Commodity RETURN =

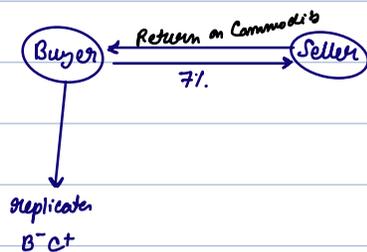
Collateral Return + Price Return + Roll Return
 • when future is fully collateralized
 Collateral = Notional value
 ∴ T-bill → return = collat. return.
 • current price - previous price / previous price
 Spot price as provided by near month futures
 +ve → Backwardation
 -ve → Contango

$$\frac{\text{old } F^- - \text{new } F^+}{\text{old } F^+}$$

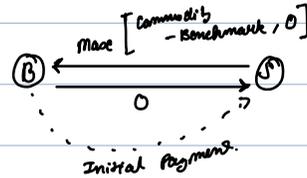
 No. of Contracts = $\frac{\text{Total Exposure Desired}}{\text{Price of Futures/contract}}$

SWAPS

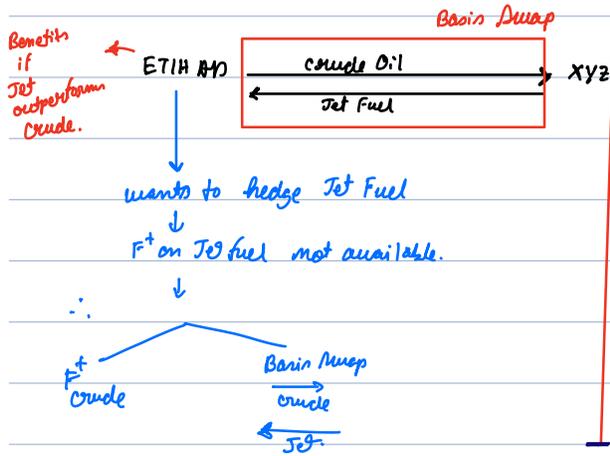
Total Return Swaps



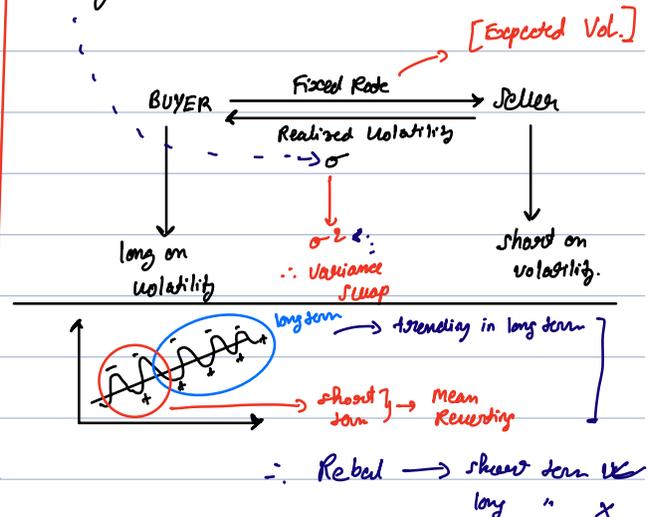
Excess Return Swap



Basis Swap



Volatility Swap



MARKETS

