Derivatives Notes 10/9.

Options.

cost premium $$

- can be OTC between counterpty like banks.
- need liquidity. so we need standarization
- what can have options? really anything including swaps and futures.
- some OTC derivatives have options embedded in them. Swap with a note saying that you can get out if the market rates is much higher than the yield rate.

optionality is a huge part in derivatives world.

- pricing
- Sensitivity
- risk.

Specifying an Option contract.

- Put or Call
- underlying asset
- notional amount.
- exercise price.
- maturity date / expiration date.
- style (American or European?)
  or Bermuda.
- Settlement (cash or physical).

* American can exercise earlier.
  European must exercise only at maturity.
* Physical settlement means you have the stock.

SPY Dec. 120 call.

notional amount 100 shares.

American style

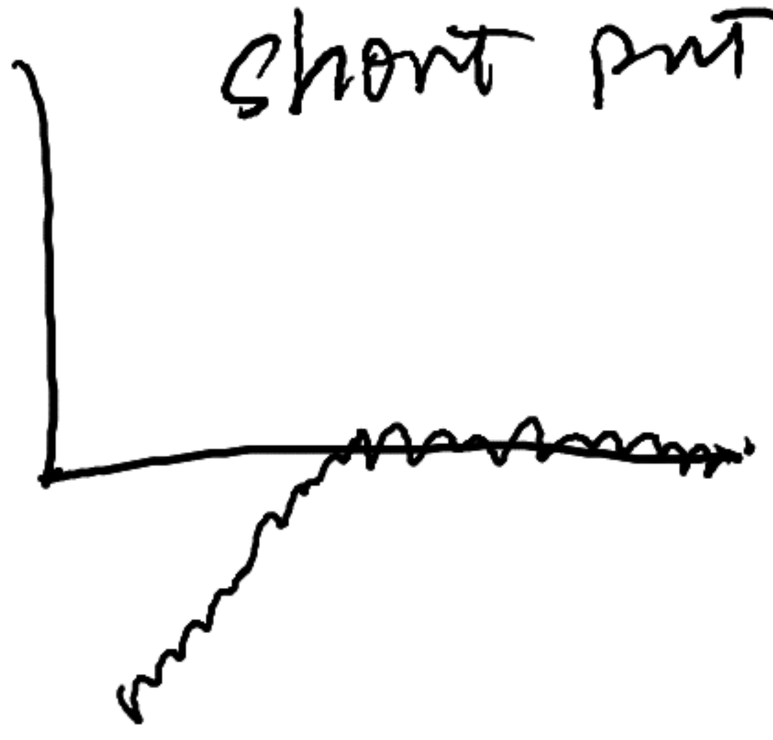
$120 exercise price.

Expiration Date:

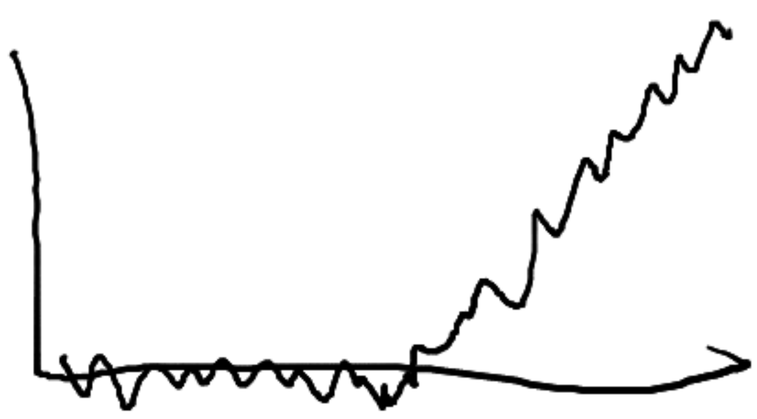
Friday, Dec. 16th 2011

120 day USD/JPY 85. Put. OTC.
no central clearing

Basic positions & payoff diagrams.



¥ payoff! not profit

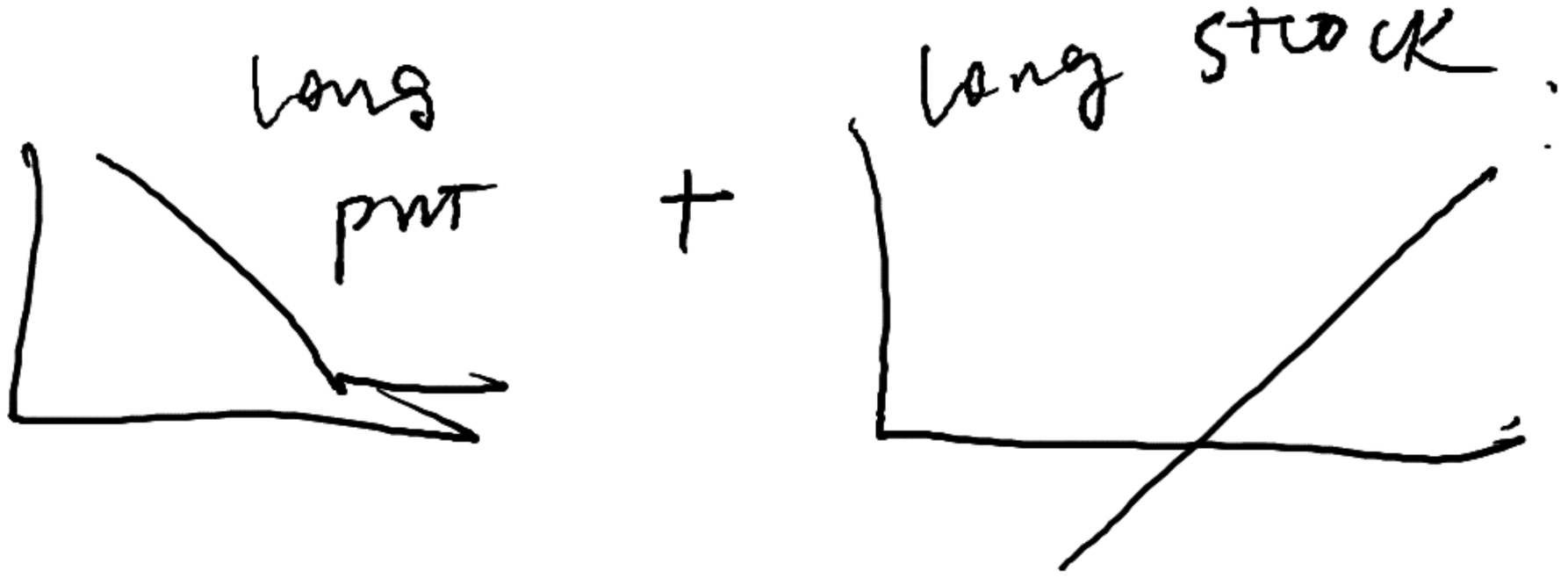


call payoff.

Payoff $= \max(S - K, 0)$.

If $S_0 < K$, the option is out of the money

If $S_0 > K$, the option is in the money



long put + long forward.

= long call

★. Call - Put Parity.

$$Call(K,T) - Put(K,T) = PV(F_T - K)$$

If $K = F_T \iff Call(F_T, T) = Put(F_T, T)$

USD/JPY can be interpret as

either put in USD or call in JPY.

Single stock futures

only one American exchange.

"One Chicago"

How do you short a stock?

There are people who is willing to borrow you the stock.

They borrow the stock for some premium.