

Lect 3
Elementary
Strategies on
options



CALLS	Long	Short
PUTS	Long	Short

⇒ 4 Elementary trading Strategies

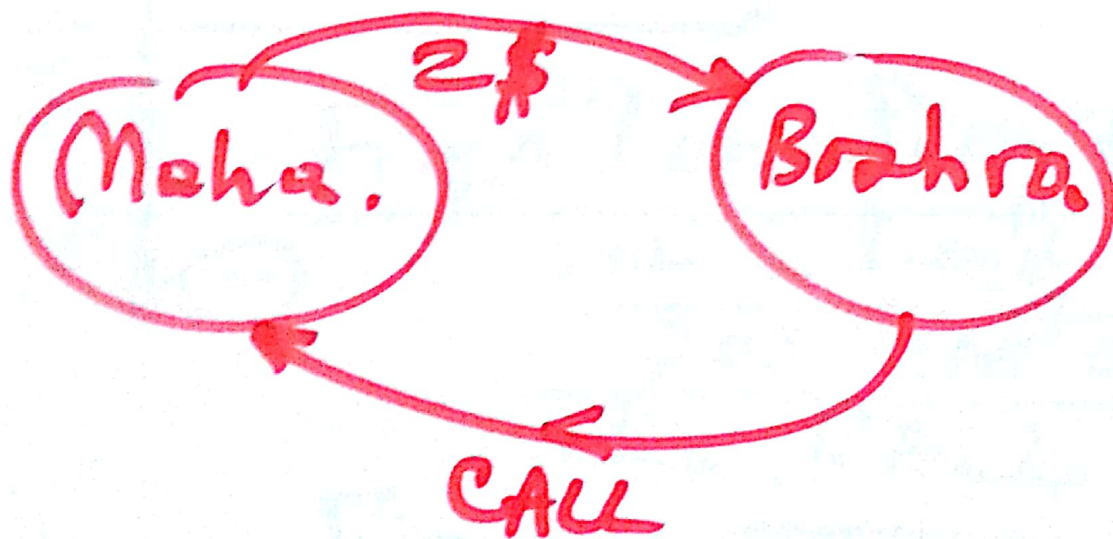
Long position on the CALL

$$S_0 = 50 \$$$

$$K = 55 \$$$

premium: $c = 2 \$ / \text{CALL}$

$T = 1 \text{ month.}$



The right to buy is with Maha.

→ she paid $2 \$ / \text{CALL}$ to Bushra. (27)

Loss-Profit payout:

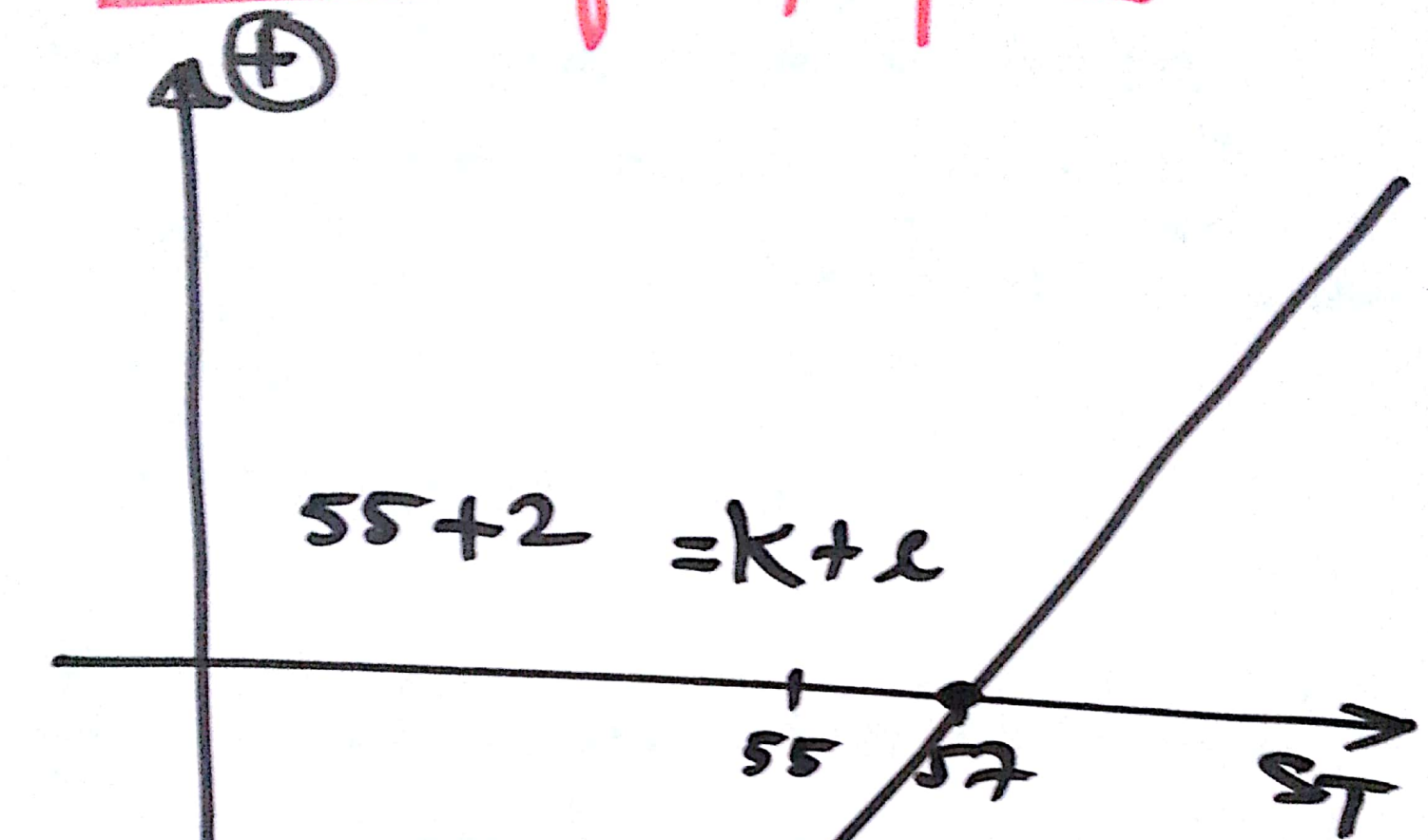


Fig. 1. Loss-Profit payout
for a long
position on
the CALL
[Strategy 1]

Comment:

(28)

① Long on the call \rightarrow
~~the~~ we expect price
increase. (make)
However, Brothru has
different expectation
(price decrease).

② Profits are unlimited.
we start making profits
when $S_T \geq k + c$

Profits $\uparrow\uparrow$ if $S_T \uparrow\uparrow \geq \underline{k+c}$

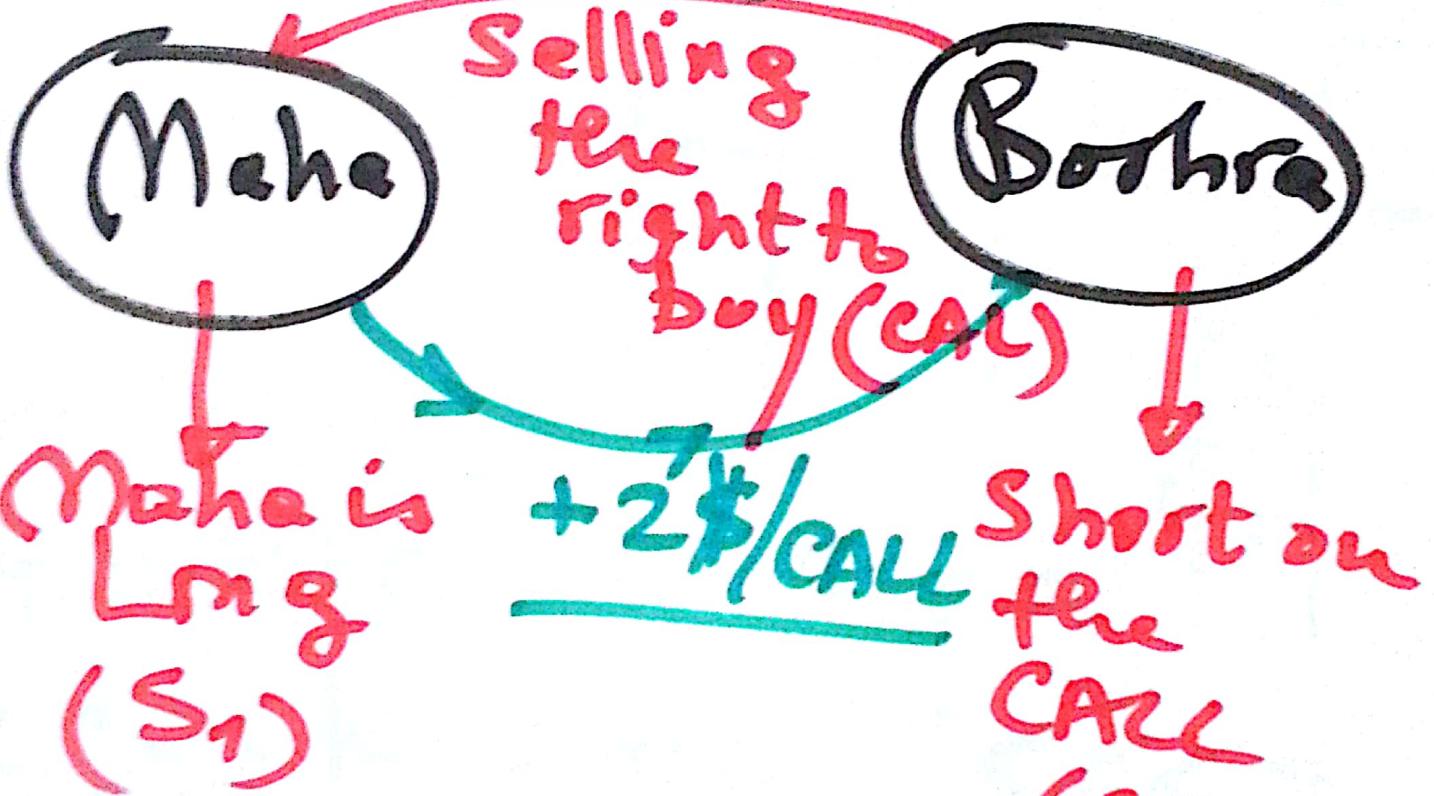
③ For $S_T = k + c \Rightarrow \pi = 0$

④ Losses are limited to the premium that has paid (2\$/CALL)

⑤ "Correct" expectation
(price ↑↑) → Profit.
"incorrect" expectations.
(price ↓↓) → Losses
Losses are limited to
the premium.

③

$C (S_0 = 50, K = 55 \$, \sigma = 2 \$/c$
 $T = 1 \text{ Month})$



Boshra is Selling her right to buy \rightarrow She has decrease expectatins

(31)

	10	20	30	50	55	57	60	80
Bushra								
π	+2	+2	+2	+2	+2	-2	-3	-23
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
						=0		
							+3	+5

For Bushra

$$S_T = k + c \Rightarrow \pi = 0$$

$$S_T \gg k + c \Rightarrow \pi \ll \ll$$

Losses are unlimited.

$$S_T \ll \ll k + c \Rightarrow \pi = +2$$

received
premium

(32)

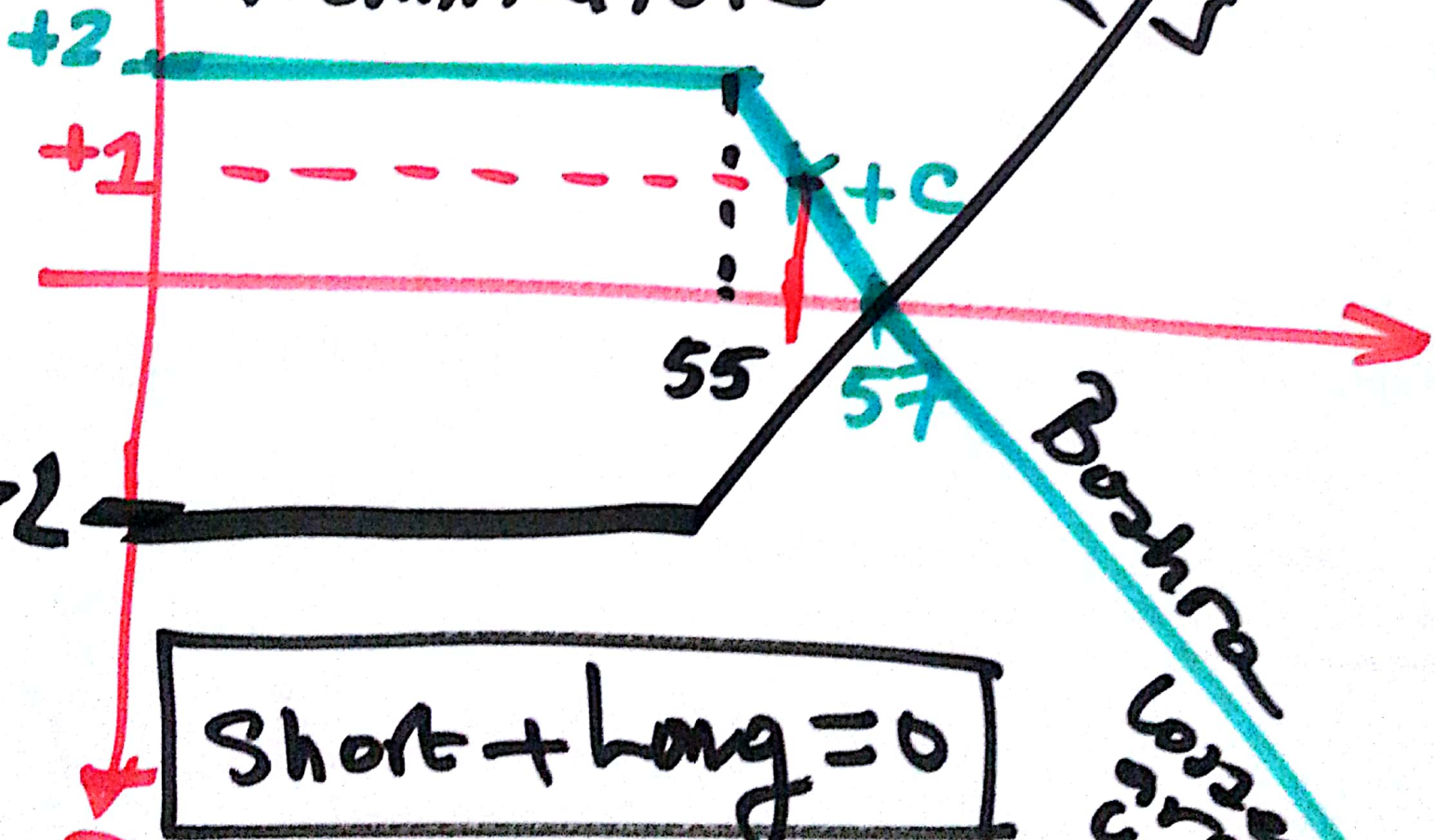
Short on the CALL

⊕

$S_T = 56 \rightarrow \pi = +1$
(Borhna), 1

— Short
— Long

π limited to +2



Short + Long = 0

Str.

Trading Strategy 3

Long on the
PUT

We are buying the right to sell the underlying asset at K , for T .

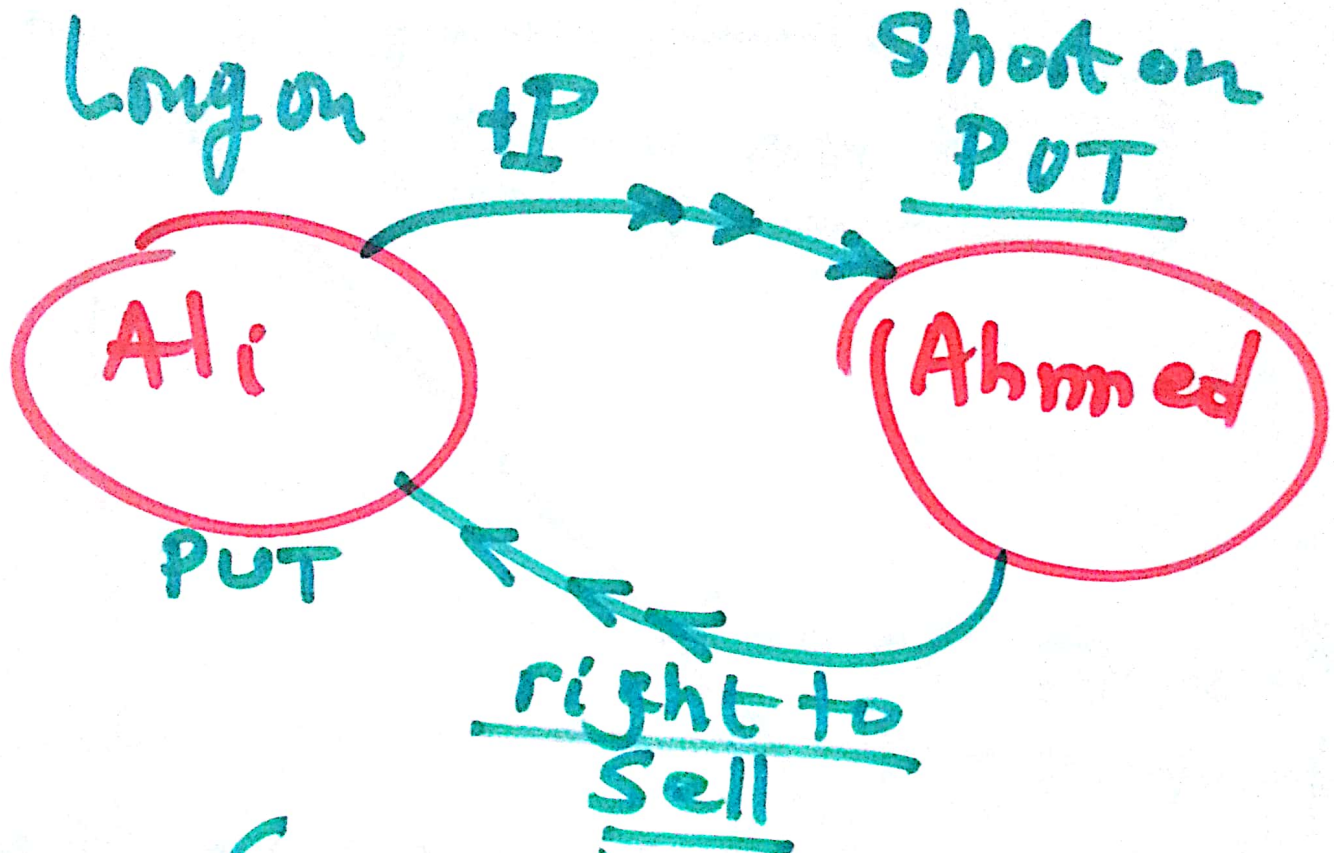
Hedging against risk

Risk = price decrease

We Expect price

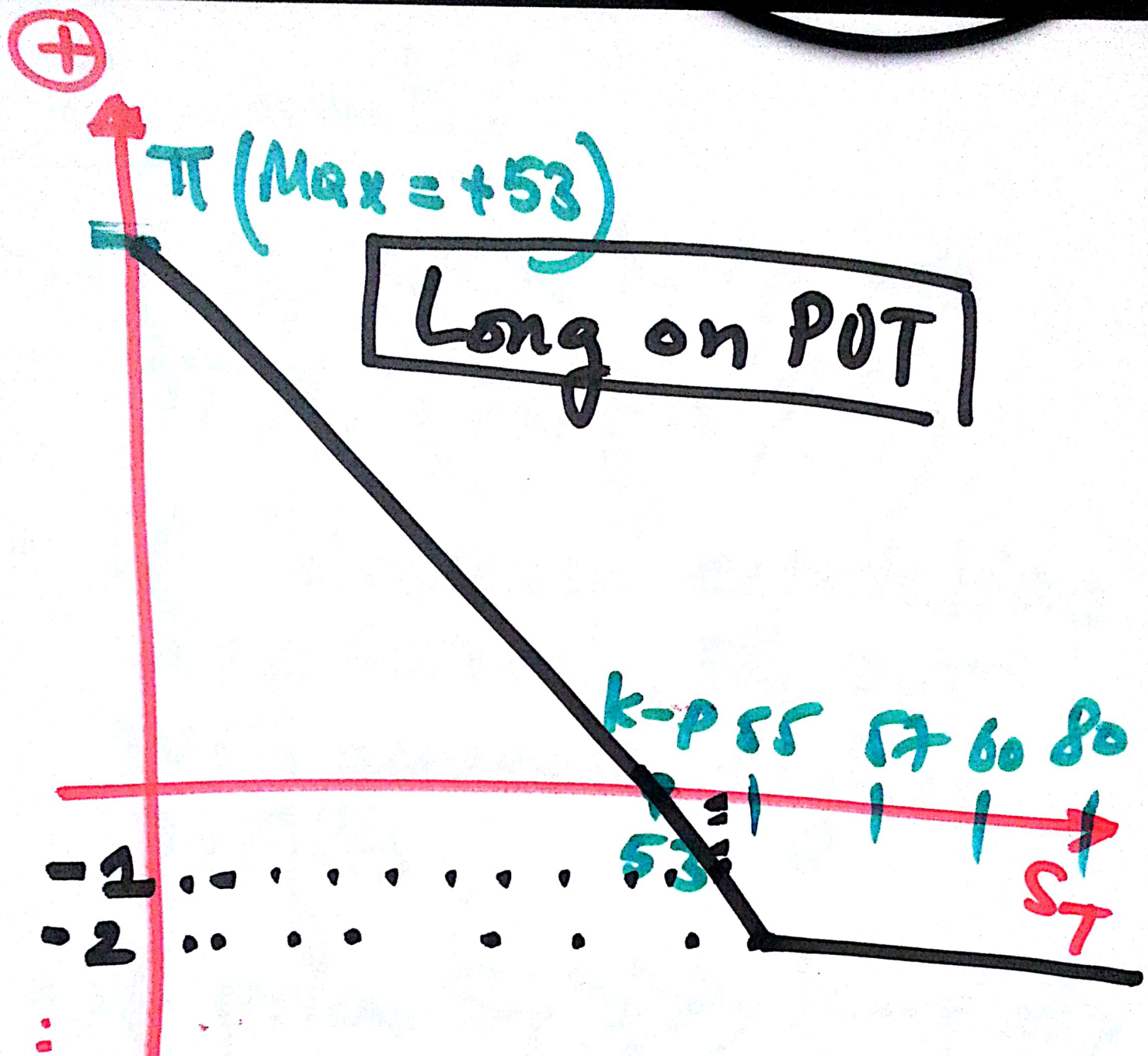
decrease

Long PUT



PUT $(S_0 = 50\$, K = 55\$, p = 2, T = 1 \text{ month})$

	10	20	30	50	55	57	60	80
Ali	+43	+33	+23	+3	-2	-2	-2	-2
$= K - p$	43	33	23	3	-2	-2	-2	-2
$S_T = 53 \Rightarrow$				$\Pi = 0$				
$S_T = 54 \Rightarrow$				35	$\Pi = -1$			



$S_T = 54 \Rightarrow \pi = -1$

Strategy 3

Fig 3 Loss - Profit
 payout for
 Long PUT
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Comments:

- if $S_T \ll k - p \Rightarrow \Pi \uparrow \uparrow$ (Profits $\uparrow \uparrow$).
- if "decrease" expectations are correct, the PUT will generate higher profits.
- if prices $S_T \gg k - p \Rightarrow$ losses are limited to the premium.
- Optim (PUT) is very interesting if we have good Expect.

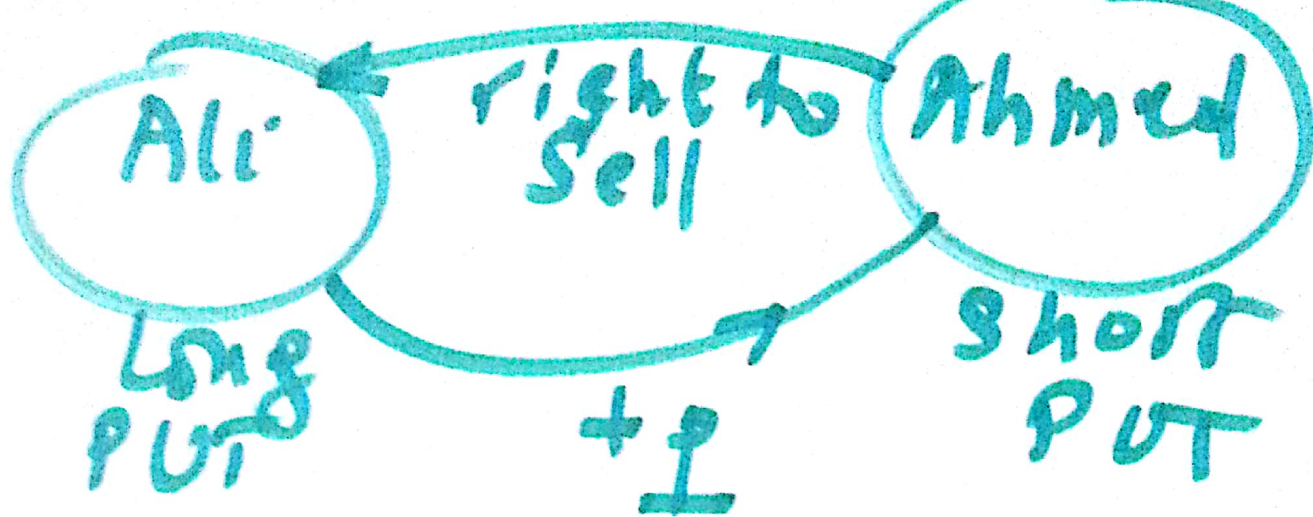
(37)

$$\underline{\Pi = 0} \Rightarrow \underline{S_T^* = K - p.}$$

Strategy 4
Short on the
PUT

Selling the right to
sell at K for

↓
Increase Price
expectations



	10	20	30	50	53	55	57	60
Ahmed Short	-43	-33	-23	-3	0	+2	+2	+2

⇒ Max loss = -53 if $S_T = 0$

⇒ Profits limited to the premium.

⇒ if $S_T \ll K - p \Rightarrow \underline{\underline{\text{Losses}}}$

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-53: Max loss

Short PUT

Strategy 4

$S_3 = K - P$
 $S_4 = S_3$
 S_T

The premium

π limited to

+2
+1

$S_T = 54 \Rightarrow \pi = +1$

Loss-Payoff Payment
Short PUT

FIG. 4

Options

European Option

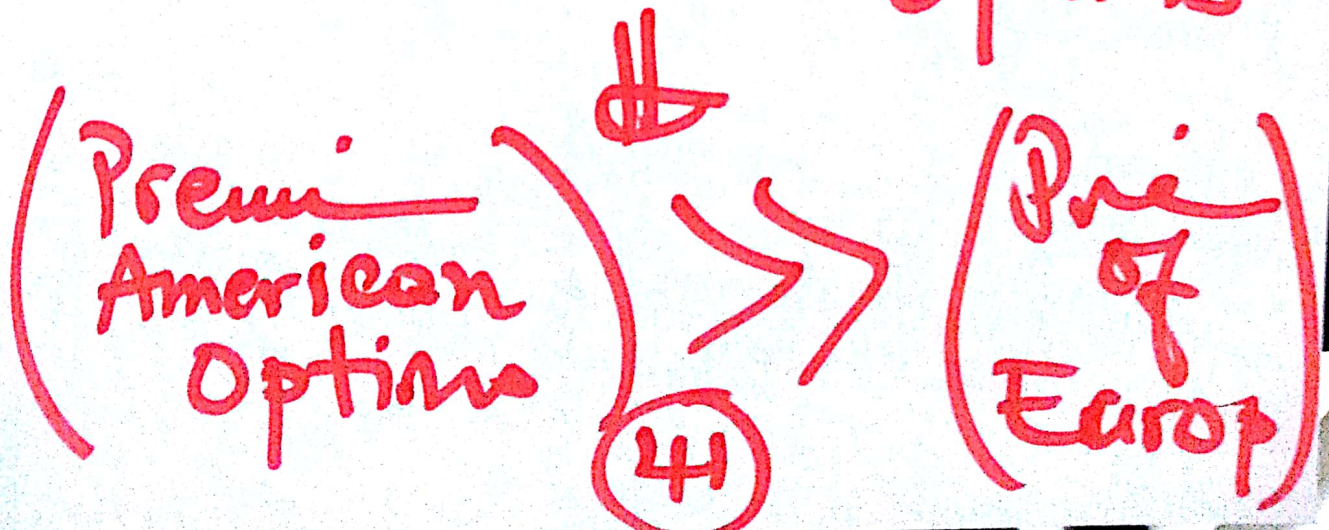
it gives the right to ~~sell~~ or to ~~buy~~ to exercise the ~~option only~~ ~~at the~~ ~~maturity~~

American Options

it give the right to exercise the option at ~~any~~ ~~moment between~~ ~~to~~ and the Maturity date.

American Options are
more useful for Traders,
Portfolio Managers,
Speculators \implies
right to use the option
at any Moment

Probability to
make Π is
more important for
American Options



$C=C$
 $P=P$

any time before T



$C > C$
 $P > P$

$t=0$

American
Option
 C, P

call put

T

(42)

European
Option

C, P
call put