Jacob Wyngaard

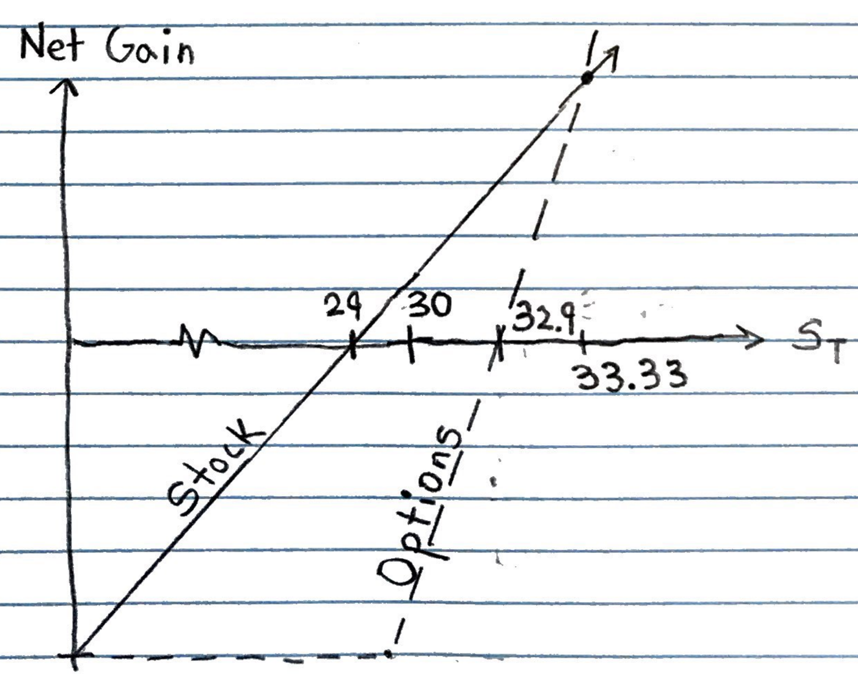
MA 528 HW 1

1.7 You have committed yourself to buying 100 shares for \$40 a share in 3 months if the other party uses the option. You could gain \$0 if the share price remains above \$40 (and the option isn't used) or you could lose \$4000 if the stock became worthless during those 3 months.

1.9 Option 1: Buy \$5,800 in stock.
Option 2: Buy \$5,800 in call options.
The call options reach maturity after 3 months, have a strike price of \$30, and cost \$2.90.

Let S_T be the price of the stock after 3 months. Current price is \$29.

	Buy Stock	Buy Options
Net Gain	$200(S_T - 29)$	$2000 \operatorname{Max}(S_T - 30, 0) - 5800$



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1.21 That, since the total amount of money is conserved in options and futures trading, someone's financial gain through options and futures trading must correspond with someone else's financial loss, so that the overall sum of financial gain is zero.

1.25 USD/Sterling

Spot	1.5580
90 Day Forward	1.5556
180 Day forward	1.5518

a) 180-day European call option to buy £1 for \$1.52, costs \$.02
b) 90-day European put option to sell £1 for \$1.59, costs \$.02

Option a) is open to an arbitrageur who enters into a 180 day forward contract to sell sterling for \$1.5518 per sterling while buying option a) so they get sterling for \$1.54 apiece. The profit is \$.0118 per sterling sold.

Option b) is open to an arbitrageur who enters into a 90 day forward to buy sterling for \$1.5556 apiece while buy option b) so they can sell the sterling for \$1.57 apiece after the fee is accounted for. The profit is \$.0144 per sterling sold.

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2.3 Initial Margin − Maintainence Margin: \$1000
Size of Contract: 5000

If the price of the futures contract increases by \$.20 (to \$17.40 ounce of silver), there will be a margin call.

If I do not meet the margin call, the broker will close my account by entering me into a long futures contract to buy July silver.

2.8 These options decrease the value of the futures contract as they provide more opportunities for seller profit. For example, providing the party with a short position in a futures contract the choice of different delivery options allows them to, in the event of a delivery, evaluate which delivery option is the most affordable and choose that, rather than just following a specified delivery method. Thus, the shorting party can afford to sell the futures contract for less.

2.11 Initial Margin − Maintainence Margin: \$1,500 per contract
Size of Contract: 15,000 pounds

A price change of −\$.10 (down to \$1.50 per pound of July frozen OJ concentrate) would lead to a margin call.

If the price of a pound of July frozen OJ concentrate increased \$.066... to \$1.666... \$2,000 could be withdrawn from the margin account

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2.23 Total Profit = \$ 1,160

a) If the company is a hedger, it is taxed in 2019 for a profit of \$ 1,160.

b) If the company is a speculator, it is taxed in 2018 for a profit of \$960 and taxed in 2019 for a profit of \$200.