Chapter 8 - Owning and Trading Equities

8-1:

The market order should be executed at the open.

When the price rose from $88 to $90 it triggered the limit order, which we will assume was executed at $90, although it need not have traded at exactly $90. The limit order ensured that JQ took some profit, but he would have made greater profits if he had held on to his shares a bit longer.

When the limit order is executed JQ must be sure to cancel the stop loss order since he has already sold the shares. Had the price gone down, the stop loss order would have limited JQ's losses to $8 per share.

<table>
<thead>
<tr>
<th>Transaction Type</th>
<th>Shares</th>
<th>Price</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buy (market order)</td>
<td>2,000 DVC</td>
<td>$88.00</td>
<td>-$176,000.00</td>
</tr>
<tr>
<td>Sell (limit order)</td>
<td>2,000 DVC</td>
<td>$90.00</td>
<td>+$180,000.00</td>
</tr>
<tr>
<td>PROFIT (before commissions)</td>
<td></td>
<td></td>
<td>+$4,000.00</td>
</tr>
</tbody>
</table>

8-2:

John’s stop sell at $70 will trigger a sell if DVC falls below $70 per share.

Joe’s MIT sell will trigger a sell if DVC rises to $90.

Kevin’s limit sell will execute if DVC rises to $90 and stays there long enough to execute at $90 or above.

8-3:

<table>
<thead>
<tr>
<th>Date</th>
<th>Transaction</th>
<th>Shares</th>
<th>Price</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 10</td>
<td>purchase</td>
<td>10,000</td>
<td>@ $80.00</td>
<td>-$800,000.00</td>
</tr>
<tr>
<td>January 11</td>
<td>accrued dividend</td>
<td>10,000</td>
<td>@ $0.50</td>
<td>+$5,000.00</td>
</tr>
<tr>
<td>January 11</td>
<td>sale</td>
<td>4,000</td>
<td>@ $79.50</td>
<td>+$318,000.00</td>
</tr>
<tr>
<td>January 17</td>
<td>sale</td>
<td>6,000</td>
<td>@ $82.00</td>
<td>+$492,000.00</td>
</tr>
<tr>
<td>February 12</td>
<td>dividend paid</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A. On February 12 we receive 50¢ per share dividends on the 10,000 shares we owned on the opening bell January 11: $5,000.

B. We generated a total of $815,000 from an initial investment of $800,000 so the holding period return is 1.875%.

\[ R = \frac{815,000}{800,000} = 1.01875 = 1 + 1.875\% \]
8-4:
A. $46,800.00 The total position is $78,000. You must pay to your broker 60% or $46,800 and borrow $31,200

B. The graph shows three relationships. The Value line is the value of the total long position on 1000 shares. At a stock price of $78 the value of the position is $78,000. But the value to the investor is $46,800. The remaining $31,200 is the value to the broker from whom we took the loan. The profit is $0

At $91 the value of the position is $91,000: $59,800 to the investor and $31,200 to the broker. The profit is $13,000 to the investor. The leverage to the investor comes from the difference in the amount invested.

\[
\frac{r_{\text{Value}}}{\text{Value line}} = \frac{13,000}{78,000} = 16.67\% \\
\frac{r_{\text{Leverage}}}{\text{Leverage}} = \frac{13,000}{46,800} = 27.78\% \\
\text{Leverage} = \frac{13,000}{46,800} = \frac{78,000}{46,800} = 1.6
\]

Note that there is no profit line to the broker. He gets his $31,200 (plus interest that depends on the terms of the loan not on the price of the stock).
8-5:

Suppose you buy 1,000 shares of Discovery Café at $50 ($50,000). 25% margin allows you to pay $12,500 and borrow $37,500 with your shares as collateral.

- If Discovery Café increases 40% to $70 then, after you repay your broker the $37,500, you have $32,500: a return of 160%, which is four times the 40% return on Discovery Café.

- If Discovery Café decreases 20% to $40 then, after you repay your broker the $37,500, you have $2,500: a return of -80%, which is four times the -20% return on Discovery Café.

Thus leverage = 4

If you answered this question by stating that \( \frac{1}{0.25} = 4 \) then you have developed formulae dependency: calculating the leverage without demonstrating what it means. But don’t worry, it’s curable.
8-6:

A. $24,550.

\[ \frac{50\% \left( 1000 \text{ shares} \times \frac{49.10}{\text{share}} \right) }{\text{share}} = \$24,550 \]

B. -98.778%

\[ R = \frac{0.60}{49.10} = 0.012219959 = 1 - 98.778\% \]

C. 2

\[ \text{Leverage} = \frac{1}{50\%} = \frac{1}{0.50} = 2 \]

D. JQ lost his entire investment of $24,550 plus an additional $23,950 to repay his brokers loan for a rate of return of -197.556%

\[ R = \frac{(1000 \times 0.60) - 24,550}{24,550} = \frac{-23,950}{24,550} = -0.97556 = 1 - 1.97556 = 1 - 197.556\% \]

JQ leveraged his investment to a factor of 2. Thus when Enron lost 98.778% JQ lost twice that amount 197.556%. This is the same as when, in the CAPM, we borrowed money to take on twice the market risk.

8-7:

A. $245,500.

The short sale generated $491,000. Regulation T requires 150% margin so the $491,000 generated by the short sale plus another $245,500 from Susan’s pocket is deposited to the margin account for a total of $736,500.

B. Susan makes a profit of $485,000 earning 197.556%

\[ r = \frac{485,000}{245,500} = 1.97556 = 197.556\% \]

More accurately, Susan covers at $0.60 paying $6,000. The $736,500 in her margin account less $6,000 is returned to Susan. Thus Susan generated $730,500 on an initial investment of $245,500; again a return of 197.556%

\[ R = \frac{730,500}{245,500} = 2.97556 = 1 + 1.97556 = 1 + 197.556\% \]
A. **$187,500**
   Regulation T requires that John deposit 150% of the transaction value: $375,000 * 150% = $562,500. He may use the $375,000 generated by the sale of the stock so that John need only deposit $187,500. JQ’s broker must deposit the total amount of $562,500 to JQ’s margin account.

B. **$73.73**
   A dividend of $2.50 per annum works out to a quarterly dividend of 62.5¢. If we assume that ex-dates of March 28, June 28, September 28, and December 28, then JQ can anticipate the following: (We set it up like a simple algebraic equation with the break-even price equal to p)

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2, 2003</td>
<td>Short Sale of 5,000 shares IBM at $75.</td>
<td>+ $375,000.</td>
</tr>
<tr>
<td></td>
<td>Deposit to margin account</td>
<td>- $562,500.</td>
</tr>
<tr>
<td></td>
<td>Borrowing fee for January to June</td>
<td>- $100.</td>
</tr>
<tr>
<td>March 28, 2003</td>
<td>Dividends</td>
<td>- $3,125.</td>
</tr>
<tr>
<td>June 28, 2003</td>
<td>Dividends</td>
<td>- $3,125.</td>
</tr>
<tr>
<td>July 1, 2003</td>
<td>Purchase 5,000 shares to cover short sale at price p</td>
<td>- $5,000 p.</td>
</tr>
<tr>
<td>Withdraw from margin account</td>
<td></td>
<td>+ $562,500.</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$368,650 - $5,000 p.</td>
</tr>
</tbody>
</table>

   In order to break even the price of IBM must fall to $73.73 (Note that we have neglected to account for brokerage commissions).

C. Note that the breakeven price is $73.73
Olteten & Waspi 2012

D. $17,300

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<td>+ $375,000. - $562,500. - $100.</td>
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<tr>
<td>July 2</td>
<td>Borrowing fee for July to December</td>
<td>- $100.</td>
</tr>
<tr>
<td>September 28</td>
<td>Dividends</td>
<td>- $3,125.</td>
</tr>
<tr>
<td>December 28</td>
<td>Dividends</td>
<td>- $3,125.</td>
</tr>
<tr>
<td>January 2, 2004</td>
<td>Purchase 5,000 shares at $69 Transfer from margin account</td>
<td>- $345,000. + $562,500.</td>
</tr>
</tbody>
</table>

Total Profit (before commission) $17,300.

E. If JQ has paid the dividend equivalent and borrowing fees ($12,700) out of pocket then JQ withdraws a total of $217,500 = ($562,500 - $345,000). This is the initial investment plus gross profit on the short sale ($187,500 + $30,000). However, if he has been paying the dividend equivalent out of his account then he withdraws a total of $204,800 = ($217,500 - $12,700) = ($187,500 + $17,300).

F. The value of the position remains the same (as in C) but the profit line moves down every time there is a cost in connection with maintaining the position. The original profit line shows a breakeven price at $75.

In order to maintain the short position JQ must pay the borrowing fee of $100 and two dividend equivalents of $3,125 so that by July 1 the profit line has decreased by $6,350. Thus at a stock price of $75, rather than breaking even, JQ will show a loss of $6,350. The breakeven price is now $73.73

In order to maintain the short position to January 2 JQ must pay two more dividend equivalents, thus decreasing the profit line by a further $6250. The breakeven price is now $72.46

G. 8.64% or 9.23% depending on assumptions
8-9:

(A) The client wants to protect himself against falling prices. If he puts in a stop sell order at 150.01 then this would already have passed the trigger price. By putting a stop loss order in at $149 the sell is triggered if the stock moves down to $149.

8-10:

(D) Mr. Gates wants to protect himself against rising prices. The buy stop order converts to a market buy if the price of Apple rises to 14.50. The buy limit at $14 would cover his short position at $14 or less but if the price continues to decrease then Mr. Gates would be better off waiting. Only the buy stop protects him against an increase in price without triggering a premature covering of the short position.

8-11:

(C) Of course this order would only make sense if Apple was trading below $14 at the time the order was placed.

8-12:

(D) If all your client's holdings were converted to cash at current market prices he would have a credit balance of $720,000 ($500,000 + $220,000) out of which he could cover his short position ($270,000) and pay off his brokers loan ($120,000). He would then have $330,000 left over. This is his equity.
8-13:

A. 400 shares

\[
\frac{10,000 \times \frac{1}{0.50}}{50} = \frac{20,000 \times \frac{\text{share}}{\$50}}{\text{share}} = 400 \text{ shares}
\]

B. $2,000

\[
2 = 400 \text{ shares} \times \frac{55.00 - 50.00}{\text{share}} = 2,000.00
\]

C. 20.0%

JQ's initial investment is $10,000. From the portfolio of 400 shares he must reserve $10,000 to repay the brokers loan on his initial purchase.

\[
R = \left( \frac{400 \times 55.00}{10,000} - \frac{10,000}{10,000} \right) = \frac{12,000}{10,000} = 1.20 = 1 + 20.0\%
\]

D. 2

With an initial margin of 50% leverage is 2. We can calculate this two ways:

\[
L = \frac{1}{\text{margin}} = \frac{1}{50\%} = 2 \quad L = \frac{\text{Investor return}}{\text{return on underlying stock}} = \frac{20.0\%}{10.0\%} = 2
\]
8-14:

First printing:

It is Thursday February 7, 2013. The Microsoft Board of Directors have just declared a special dividend of $5.00 per share, payable Wednesday March 6, 2013 to shareholders of record, Wednesday, February 27. The only market holiday in February is Presidents’ Day, Monday February 18.

A. The Declaration Date is Thursday, February 7, 2013
B. The Pay Date is Wednesday, March 6, 2013
C. The ex-date is Friday, February 22, 2013. The following trading day is Tuesday February 25, and the record date is the following trading day Wednesday February 26.
D. You must buy shares on or before Thursday February 21.
E. $0.
   You buy 100 shares of Microsoft on Tuesday, February 27, 2013. You do not receive a dividend.

Second printing:

It is Thursday February 2, 2006. The Microsoft Board of Directors have just declared a special dividend of $5.00 per share, payable Wednesday March 1, 2006 to shareholders of record, Wednesday, February 22. The only market holiday in February is Presidents’ Day, Monday February 20.

A. The Declaration Date is Thursday, February 2, 2006
B. The Pay Date is Wednesday, March 1, 2006
C. The ex-date is Friday, February 17, 2006. The following trading day is Tuesday February 21, and the record date is the following trading day Wednesday February 22.
D. You must buy shares on or before Thursday February 16.
E. $500.00
   You buy 100 shares of Microsoft on Thursday, February 2, 2006. Since you own the shares on the opening bell Friday February 17, 2006 you receive the dividend.