Equity

Market Organization and Structure

Intro and Exam Focus

Background content

- Financial system
- Assets and markets
- Participants
- Institutions
- Regulations

Detail

- Positions—margin trades
- Orders and execution

Short Selling

- Long positions (bullish)
  - Unlimited gains if asset rises in price
- Short positions (bearish)
  - Position gains if asset falls in price
  - Unlimited losses if stock rises
  - Investor borrows asset and sells it
  - Later, the investor repurchases the asset and returns it to lender
  - Security lending agreements ensure lenders receive dividends

Leveraged Positions

- Buying securities partly using borrowed funds with aim of boosting returns

Key term	Definition
Margin loan	Borrowed funds (from broker)
Initial margin requirement	Minimum fraction of stock purchase price that investor funds ("equity")
Call money rate	Interest rate on margin loan
Maintenance margin	Minimum investor's equity
Margin call	Investor required to deposit extra funds
Leverage ratio	Ratio of value of position to value of equity that supports it

Features of a Margin Trade: Example

An investor buys a share for $10, initial margin is 40%, and maintenance margin is 25%. What is the return on the investor's equity if the stock:

1. Rises to $12?
2. Falls to $8?

Below what share price would there be a margin call?

Share Value	Investor's Equity	Margin Loan	Return on Equity
$10	$4	$6	
$12			
$8			

Leverage ratio =

-5

Features of a Margin Trade: Solution

An investor buys a share for $10, initial margin is 40%, and maintenance margin is 25%.

At what share price would there be a margin call?

$$P = P_0 \times \frac{(1 - \text{initial margin})}{(1 - \text{maint' margin})}$$

P = =

Equity position = =

-2

Margin Trade: Example

An investor buys 10,000 shares on margin and holds them for one year. During this time, the stock pays a dividend. Assume both the dividend and interest on the loan are paid at year-end.

Purchase price	€50
Sale price	€37.50
Initial margin	40%
Call money rate	5%
Dividend per share	€0.25
Commission	€0.05 per share (applied to purchase and sale)

What is the return on the investor's equity?

Margin Trade: Solution

Initial Investment	€
Equity	
Commission	500
Ending Investment	**€**
Proceeds from sale	
Commission	
Dividends received	
Interest paid	
Pay off the loan	

Percentage return:

—— −1

=

-10

Limit Order Books and Execution Instructions: Example

An exchange shows the following orders on its central limit order book:

Bid Size	Limit Price	Offer Size
50	12.1	
15	12.2	
20	12.3	
	12.4	9
	12.5	25
	12.6	40

A new order is received, specifying:
"Buy 50 shares, limit 12.5, GTC"

1. How would this order be executed?
   The trader would purchase 9 @ 12.4 and 25 @ 12.5. The remaining unfilled limit order would "make a new market" with a bid size of 16 and limit price 12.5 until the specified cancel date.
2. How would specifying "IOC, 100% min. volume" change the outcome?
   "IOC" is immediate or cancel. The order would not be executed as 100% min. cannot be met.

-2

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A new order is received, specifying:
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3. How might the trader use an "iceberg order"?

   Iceberg orders only display a limited amount, the rest being hidden from public view. This prevents the market taking advantage of a large order. "Peaks" are revealed as each order is matched.

4. What would be the outcome of a market order to buy 50 shares?

   The trader would buy 9 @ 12.4, 25 @ 12.5, and the remaining 16 @ 12.6, taking the market price.

-2

Other Terms to Be Aware Of

- Primary vs. secondary markets
- Quote-driven vs. order-driven markets vs. brokered markets
- Call markets vs. continuous markets
- Brokers vs. dealers
- Arbitrageurs
- Stop-loss orders
- Order precedence hierarchy
- ETFs

Solutions

Features of a Margin Trade: Example

An investor buys a share for $10, initial margin is 40%, and maintenance margin is 25%. What is the return on the investor's equity if the stock:

1. Rises to $12?
2. Falls to $8?

$$\frac{\$12-6}{\$4}-1=+50\%$$

$$\frac{\$8-6}{\$4}-1=-50\%$$

Below what share price would there be a margin call?

Share Value	Investor's Equity	Margin Loan	Return On Equity
$10	$4	$6	
$12	$6	$6	+50%
$8	$2	$6	–50%

Leverage ratio = $\frac{1}{\text{initial margin}}$

$= \frac{1}{0.4} = \times 2.5$

-5

Features of a Margin Trade: Solution

An investor buys a share for $10, initial margin is 40%, and maintenance margin is 25%.

At what share price would there be a margin call?

$$P = P_0 \times \frac{(1 - \text{initial margin})}{(1 - \text{maint' margin})}$$

$$P = \$10 \times \frac{(1 - 0.4)}{(1 - 0.25)} = \$8$$

$$\text{Equity position} = \frac{\$2}{\$8} = 0.25$$

-2

Margin Trade: Solution

Initial Investment		€
Equity	40% × €50 × 10,000	200,000
Commission	€0.05 × 10,000	500
		200,500
Ending Investment		**€**
Proceeds from sale	€37.50 × 10,000	375,000
Commission	€0.05 × 10,000	(500)
Dividends received	€0.25 × 10,000	2,500
Interest paid	5% × 0.6 × €50 × 10,000	(15,000)
Pay off the loan	0.6 × €50 × 10,000	(300,000)
		62,000

Percentage return:

$$\frac{€62{,}000}{€200{,}500} - 1$$

$$= -0.69 \text{ or } -69\%$$

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