BUCHAREST STOCK EXCHANGE

Bursa e pentru oameni

Short selling in investment strategies Introduction

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Agenda

- Overview:
  - what is short sale?
  - who uses short sale and why?
  - why short sale is important for the market?
- Main things to consider by short sellers
- Examples of using short sale in investment strategies:
  - directional trades
  - relative value trades
  - using of short sale in managing a portfolio
- Q&As and discussion

Opening remarks

- We present general models; as it is introductory we cannot avoid simplifications
- Trader needs disciplined trading with a trading plan
  - when/how to enter position
  - when/how to exit position
  - Building trading plan
- Practice makes a master - real trading provides the experience
- Need to understand the market you trade and its mechanics - homework has to be done as success likes preparation)
  - Agreement with broker
  - Trading rules on the market
  - Settlement rules
  - Costs
  - Trading application
- Markets are interconnected
- (In)efficiency of markets

Short sale

1. Sale of securities/shares not owned by the seller

2. Tool to be used in various investment strategies

3. Mechanics of short sale

- need to borrow shares to deliver on settlement day
- need to put collateral in place and maintain it in order to secure future obligations
- equivalent of dividends/other payments resulting from corporate actions is to be paid by borrower to the lender. Therefore it is needed to track dividends, corporate actions, and collateral for the loan

Potential effects of short selling on he market

- Increased liquidity
- Better price formation (market can react earlier in case of price bubbles),
- Better symmetry of the market. Short sale constraints can lead to extreme overpricing
- Short sale is needed for efficient pricing of derivatives markets (lack of functional short selling will effect in futures prices being undervalued)

Short sale users

Short sellers/Borrowers of stock:

- **Hedge fund (most often target absolute return approach)**
  - **Long/short**
  - **Arbitrage (price, statistical, risk, convertible,…)**
  - **Short only**
- **Market makers**
- **Proprietary traders**
- **Speculator's**
- **HFT**
- **Structured products issuers**

Lenders (provide stock loans to short sellers) : usually funds/asset managers

- **Additional income from long term portfolios**
- **Lending revenue may offset custodial and clearing fees for institutional investors**
- **lending via custodians, third party agents or direct**
- **Risks of borrowers: Reinvestment of collateral, Counterparty, Operational**

Usage of short sale

1. Directional strategies – short selling of the security in anticipation of decline in prices

2. Relative value trades – buying a security that is to outperform and short selling security which is to underperform. The potential profit can be realized irrespective of if the whole market goes up or down or stays unchanged.

3. Enhancing expected retun vs risk characteristics of portfolio

Getting short exposure

Several ways of taking exposure on falling prices

- Short sale
- Short futures
- Long put/Short call
- Combination of the above

However:

1. Without short sale derivatives tend too be mispriced: futures undervalued, puts overvalued, call undervalued. As a consequence hedging may become risky activity
2. Also not all underlyings will have derivatives based on them

Therefore:

Functioning short sale increases the quality of derivatives market

Pay-off for short sale (before costs)

Investor anticipates price decline and decides to sell short

- Day D SELL short @ 100
- Day D +n After n days investor closes position by buying back shares

	Scenario 1	Scenario 2	Scenario 3
Initial short SALE price on Day D	100	100	100
Price of closing buying on D+n	90	100	105
Profit (before costs)	100 -90 = =10	100-100 = 0	100-105 = -5

Pay-off for short sale (before costs)

Mechanism of short sale – need to borrow shares

- Short sale is a sale of securities/shares **not owned by the seller**
- As seller has to deliver share sold to the buyer, he/she has to borrow shares before the settlement of the trade in Depository for securities (2 working days after the trade date).
- short sale transaction will have corresponding borrowing/lending transaction in place (unless it is closed on the same day)
- Lender of shares will charge a fee (usually in percentages/basis points per annum often subject to minimum fixed fee)
- Transaction costs (selling commission, buying commission), borrowing costs, any transfer costs have to be taken into account when calculating net profit from transaction
- Please note that lender may call back shares at any time, need to arrange another borrowing and may ha close the position if another borrowing is not available

Mechanism of short sale – initial margin

Margining - mechanism is needed to make sure that short seller will have sufficient cash to be able to buy shares sold short

Day 1 – Stock sold short at 100

Day 2 – Price of the stock goes to 115.

Position (paper) loss of short seller equals to 15

Proceeds from short sale were 100 only (*minus transaction costs*) and short seller doesn't have enough money to buy back share.

Margining system:

- created to make sure that short seller has enough cash to buy back stock at any moment.
- When opening short position short seller has to put **initial margin** to **make sure he is able to buy stock even if the price goes against (goes up)**

Therefore:

Day 1 – putting to margin account own cash 30 and selling short sold short at 100

Cash available on margin account equals to 130 (proceeds from short sale + cash paid)

Day 2 – Price of the stock goes to 115 - short seller has enough cash to buy back shares if needed

Mechanism of short sale – maintenance margin

Day 1 – putting up initial margin (for example) 30 and selling short sold short at 100
Cash available on margin account equals to 130 (proceeds from short sale + initial margin)
Day 2 – Price of the stock goes to 115 - short seller has enough cash to buy back shares
Day 3- Price of stock goes to 125. cash on margin account 130

Observations:

1. As of now cash on margin account exceed price of the stock → short seller can cover position
2. However another move up of more than 4% (from 125 to above 130) will make it impossible to cover short position

Solution:

1. Minimum level of cash on margin account to be maintained – **maintenance margin** is defined
2. Level of cash on margin account is monitored constantly versus maintenance margin and marked to market daily (or more often in extreme situations)
3. If cash on margin account is below the level maintenance margin short seller is call to put up additional margin to margin account (or he/she can close short position) – **margin call**

Mechanism of short sale – margin call

We assume:

1) initial cash on margin account of 130% of market price (30 of own cash plus 100 of proceeds of short sale)
2) Maintenance margin of 110% of market price

Day 1 – putting up own cash for initial margin of 30 and selling short at 100

Cash available on margin account equals to 130 vs maintenance margin of 110%*100=110

Day 2 – Price of the stock goes to 115 - short seller has enough cash to buy back shares.

Maintenance margin =110%*115= 126.5 < 130 (on margin account)

Day 3- Price of stock goes to 125

maintenance margin 110%*125 = 137.5 >130 of cash on margin account

Short seller will not have enough cash in case of further move up. Therefore margin call is received by short seller

Choices of short seller:

1) Closing of position – buying back at 125 and taking loss

2) Putting up additional cash to margin account – usually to the level of initial margin. (Here) 130% * 125 = 162.5 → additional 32.5 is needed

In case short seller does none of the above his position will **be force closed** by the broker not to bring danger to the market

Mechanism of short sale – dividend equivalents

equivalent of dividends/other payments resulting from corporate actions paid by borrower to the lender → need to track dividends, corporate actions, and collateral for the loan

Short Sale Consideration

- You need to have borrowing/lending agreement
- You need to borrow shares to deliver them on settlement day
- You need put margin to secure your obligation
- Margin calls
- Your potential loss may exceed margin put upfront (potentially unlimited losses)
- Borrowing costs have to be taken into consideration
- Call to give back securities borrowed
- Position can be closed by the broker if margin call is not met
- Dividend equivalent to be paid to the lenders
- Short squeeze (as opposite to sell-offs) stop-losses activated around some technical levels
- Timing is important. Even if short seller is right in the long term about price level it may not be possible to keep position if market moves against him/her

Usage of short sale - examples

Taking position

- Directional trade
- Trend following
- ….

Usage of short sale - examples

Relative value trades

- Pairs trading
- Index rebalancing
- Constructing of market neutral portfolio
- Portfolio (cross) hedging
- Price arbitrage of multiple listed securities
- Price arbitrage futures vs. underlying in case of futures trading below theoretical value
- Convertible arbitrage
- Risk/takeover arbitrage
- ………

Are markets efficient?

- Costs of trading
  - Explicit (commissions)
  - Implicit (spread, depth of the order book)
- Stock borrowing/lending vs. cash borrowing/lending
- Different time horizons of investors
- Different motives for trading (speculators, hedging, arbitrage)
- Different types of investors
- Psychology
- Algorithms used for trading
- Time distribution of trading volumes
- Volume distribution of trading volumes
- Multiple listed instruments in different currencies

Consequences for trading:

There is possibility to find mispricing to be exploited in various areas of the markets by various groups of investors

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Models used for trading

- Keep it simple but not too simple (Einstein)
- Adjust strategy to your risk profile – find out who you really are
- Hope for the best but prepare for the worst
- Understand market you trade
- Be aware of model risk
- Data verification
- Back-testing and stress testing of the strategy (including costs)
- Clearly defined exits (trailing stop losses and profit taking)
- Position and risk limits (intra day, over night, leverage)
- Clearly defined execution strategy (be careful with market orders)
- On-line monitoring profit & loss (inc. costs)
- Risk adjusted performance measurement (after costs)
- Risk management including operational (i.e. trading system not available)
- Financial liquidity management
- Broker, trading system capacity, latencies

Never trade a pattern with negative expected outcome