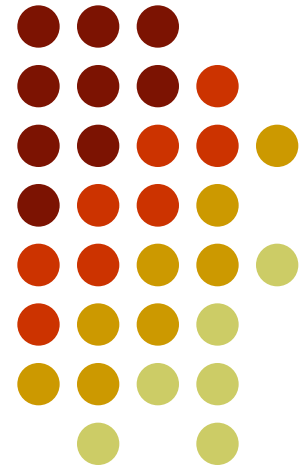


Futures Markets

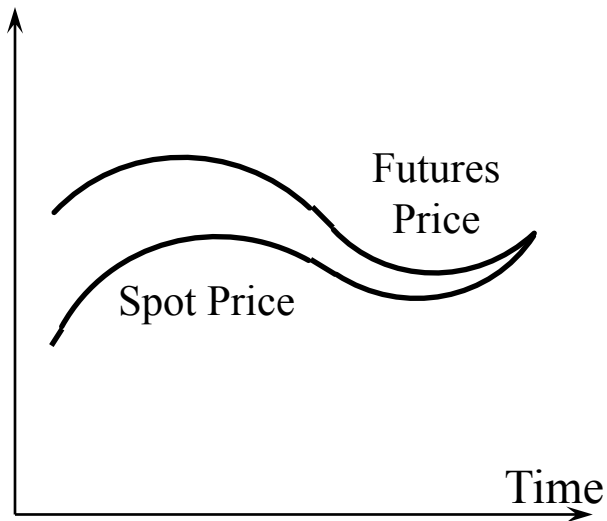


Futures Contracts

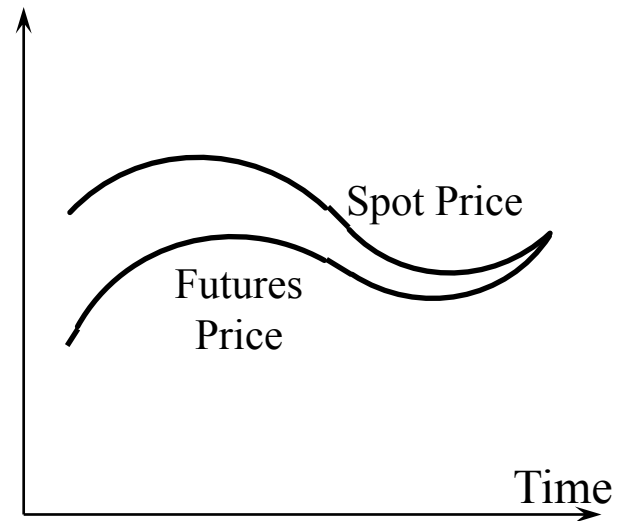


- Available on a wide range of underlyings
- Exchange traded
- Specifications need to be defined:
 - What can be delivered,
 - Where it can be delivered, &
 - When it can be delivered
- Settled daily

Convergence of Futures to Spot



(a)



(b)

Margin



- A margin is cash or marketable securities deposited by an investor with his or her broker
- The balance in the margin account is adjusted to reflect daily settlement
- Margin minimizes the possibility of a loss through a default on a contract



Example of a Futures Trade

- An investor takes a long position in 2 December gold futures contracts on June 5
 - contract size is 100 oz.
 - futures price is US\$1650
 - initial margin requirement is US\$6,000/contract (US\$12,000 in total)
 - maintenance margin is US\$4,500/contract (US\$9,000 in total)



A Possible Outcome

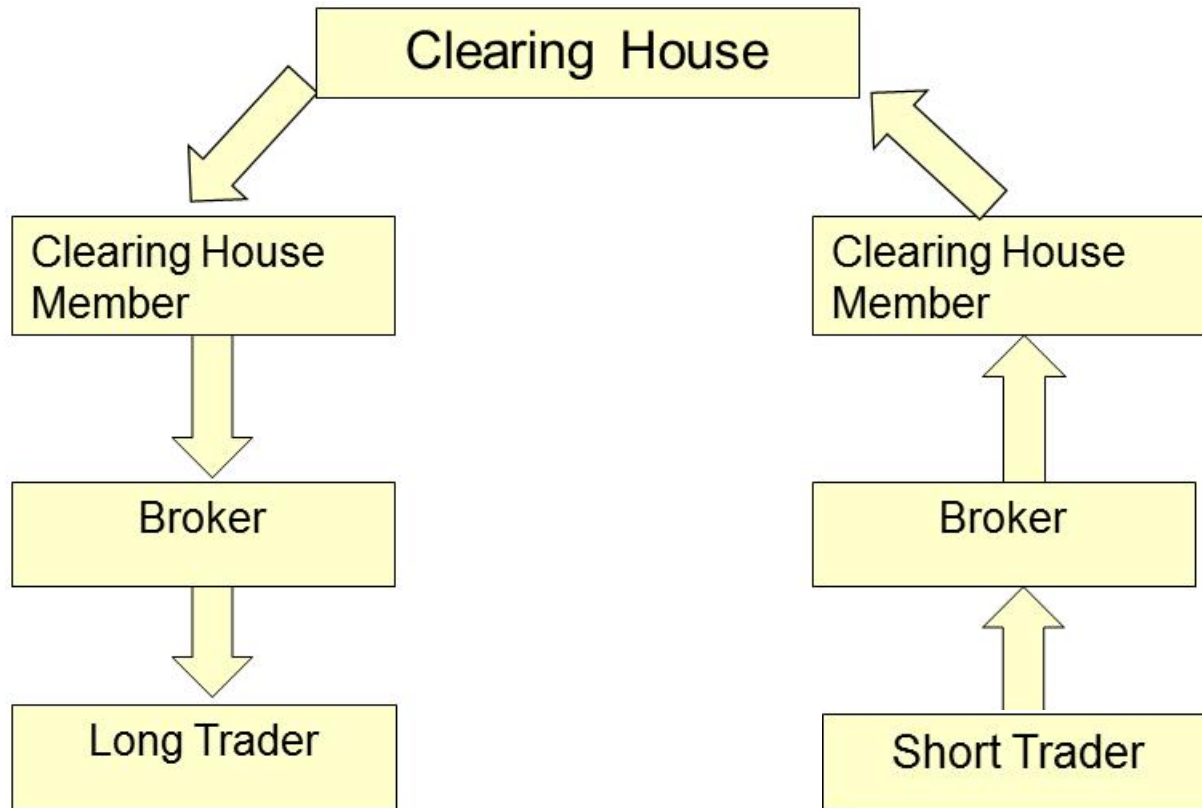
Day	Trade Price (\$)	Settle Price (\$)	Daily Gain (\$)	Cumul. Gain (\$)	Margin Balance (\$)	Margin Call (\$)
1	1,650.00				12,000	
1		1,641.00	-1,800	- 1,800	10,200	
2		1,638.30	-540	-2,340	9,660	
.....						
6		1,636.20	-780	-2,760	9,240	
7		1,629.90	-1,260	-4,020	7,980	4,020
8		1,630.80	180	-3,840	12,180	
.....						
16	1,626.90		780	-4,620	15,180	

Key Points About Futures

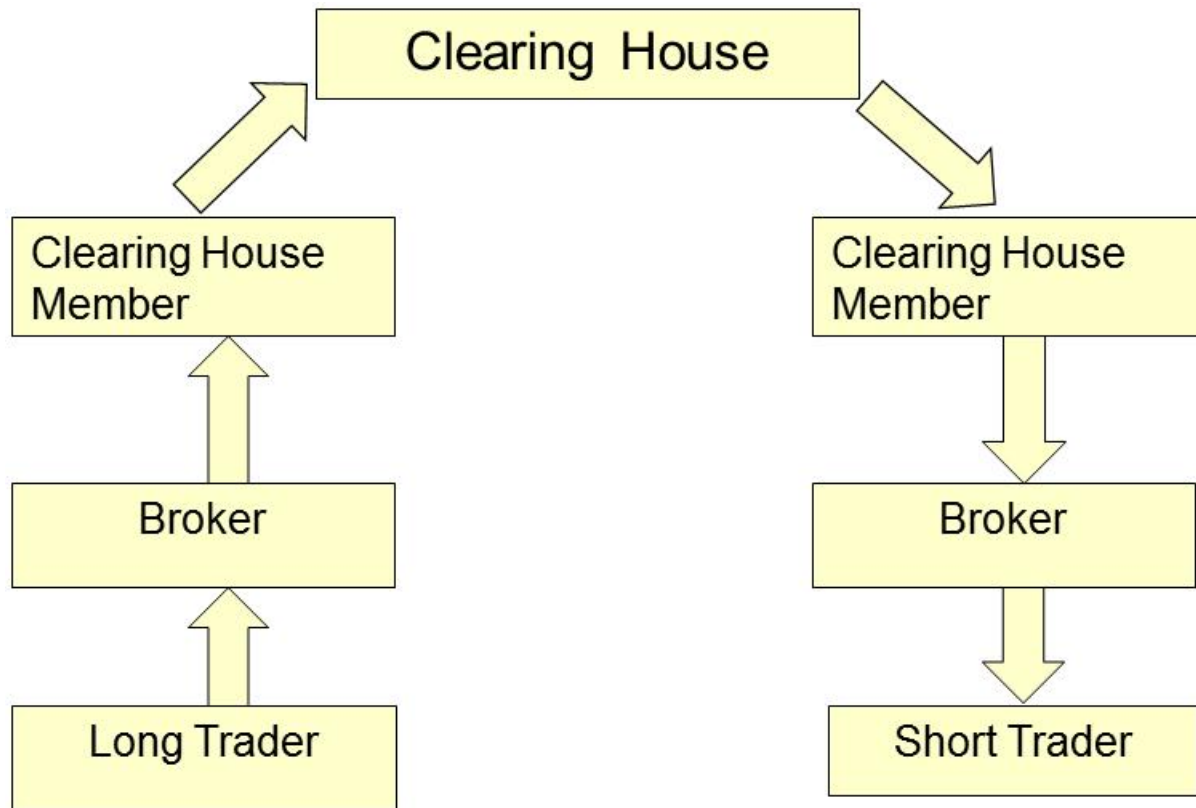


- They are settled daily
- Closing out a futures position involves entering into an offsetting trade
- Most contracts are closed out before maturity

Margin Cash Flows When Futures Price Increases



Margin Cash Flows When Futures Price Decreases



Collateralization in OTC Markets



- It is becoming increasingly common for transactions to be collateralized in OTC markets
- Consider transactions between companies A and B
- These might be governed by an ISDA Master agreement with a credit support annex (CSA)
- The CSA might require A to post collateral with B equal to the value to B of its outstanding transactions with B when this value is positive.

Collateralization in OTC Markets

continued



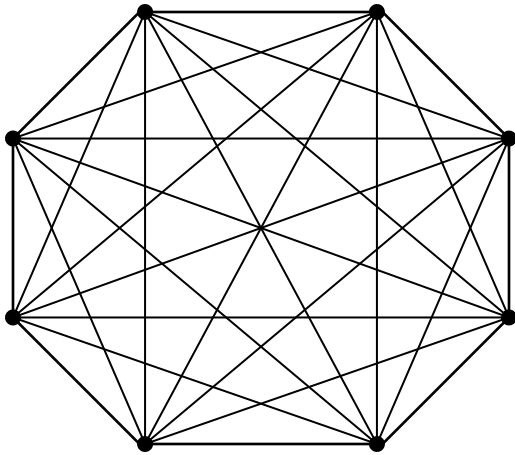
- If A defaults, B is entitled to take possession of the collateral
- The transactions are not settled daily and interest is paid on cash collateral
- See Business Snapshot 2.2 for how collateralization affected Long Term Capital Management when there was a “flight to quality” in 2008.

Clearing Houses and OTC Markets

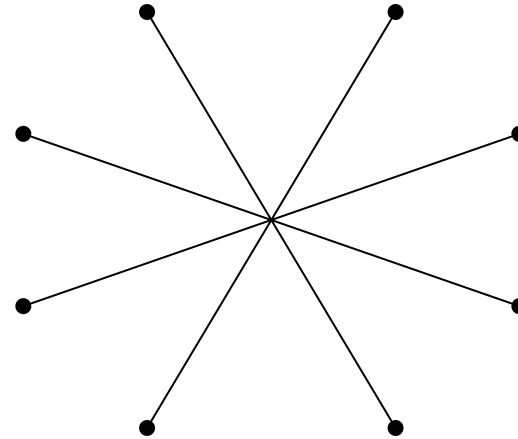


- Traditionally transactions have been cleared bilaterally in OTC markets
- Following the 2007-2009 crisis, there has been a requirement for most standardized OTC derivatives transactions to be cleared centrally through clearing houses.

Bilateral Clearing vs Central Clearing House



Bilateral clearing



Central clearing

Some Terminology



- Open interest: the total number of contracts outstanding
 - equal to number of long positions or number of short positions
- Settlement price: the price just before the final bell each day
 - used for the daily settlement process
- Volume of trading: the number of trades in one day

Crude Oil Trading (July 13, 2012)



	Open	High	Low	Prior settle	Last trade	Change	Volume
Aug 2012	85.86	87.61	85.58	86.08	87.28	+1.20	223,698
Sept 2012	86.33	88.00	85.95	86.46	87.68	+1.22	87,931
Dec 2012	87.45	89.21	87.39	87.73	88.94	+1.21	31,701
Dec 2013	88.85	90.15	88.78	88.92	89.95	+1.03	11,128
Dec 2014	87.20	87.74	87.20	86.98	87.74	+0.76	2,388

Delivery



- If a futures contract is not closed out before maturity, it is usually settled by delivering the assets underlying the contract. When there are alternatives about what is delivered, where it is delivered, and when it is delivered, the party with the short position chooses.
- A few contracts (for example, those on stock indices and Eurodollars) are settled in cash
- When there is cash settlement contracts are traded until a predetermined time. All are then declared to be closed out.



Futures Price Patterns

- Futures prices can be
 - an increasing function of maturity: normal market
 - a decreasing function of maturity: inverted market
 - partly normal, partly inverted

Questions



- When a new trade is completed what are the possible effects on the open interest?
- Can the volume of trading in a day be greater than the open interest?



Types of Orders

- Limit
- Stop-loss
- Stop-limit
- Market-if touched
- Discretionary
- Time of day
- Open
- Fill or kill

Regulation of Futures



- Regulation is designed to protect the public interest
- Regulators try to prevent questionable trading practices by either individuals on the floor of the exchange or outside groups

Accounting & Tax



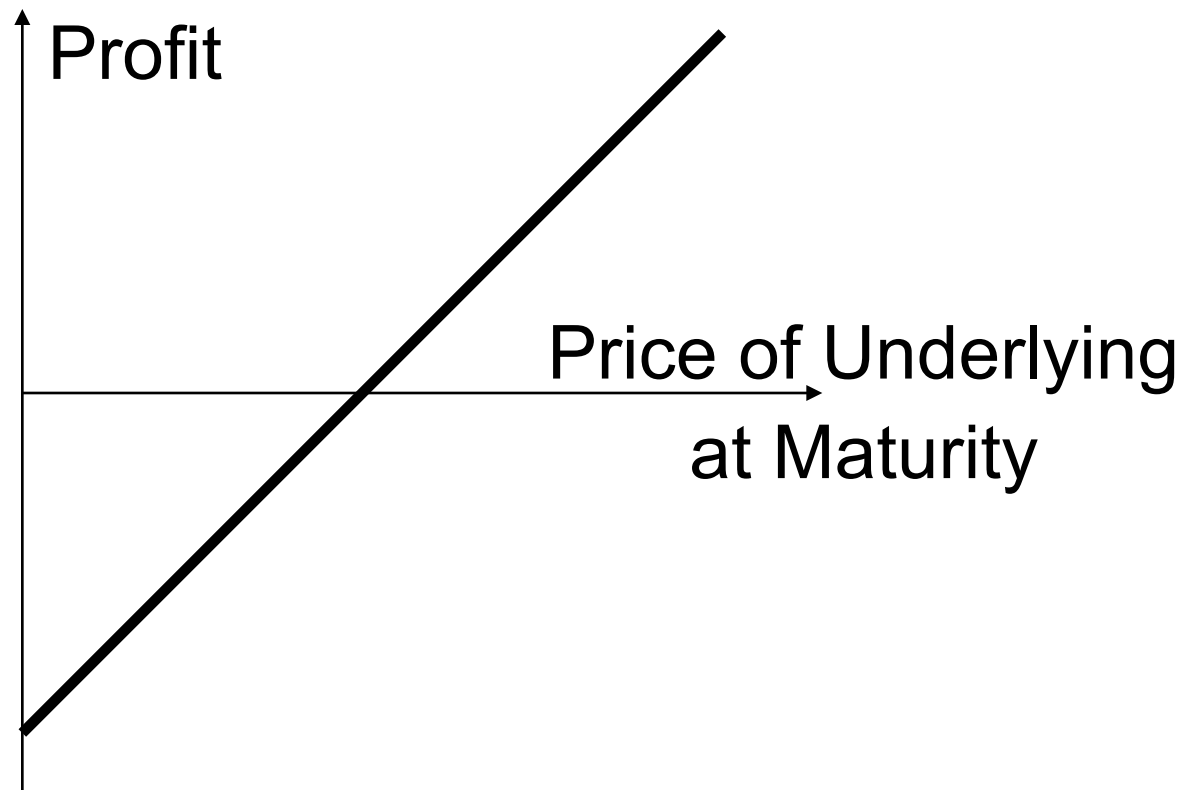
- It is logical to recognize hedging profits (losses) at the same time as the losses (profits) on the item being hedged
- It is logical to recognize profits and losses from speculation as they are incurred
- Roughly speaking, this is what the accounting and tax treatment of futures in the U.S. and many other countries attempts to achieve

Forward Contracts

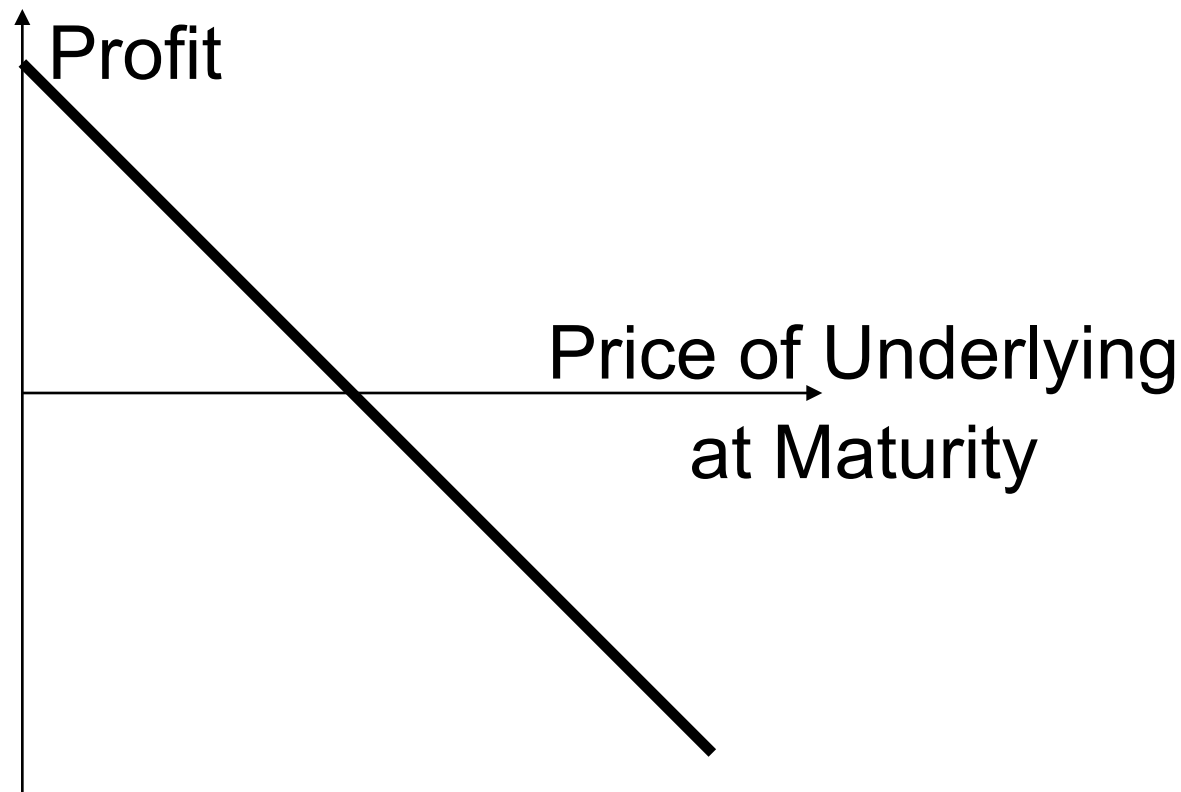


- A forward contract is an OTC agreement to buy or sell an asset at a certain time in the future for a certain price
- There is no daily settlement (but collateral may have to be posted). At the end of the life of the contract one party buys the asset for the agreed price from the other party

Profit from a Long Forward or Futures Position



Profit from a Short Forward or Futures Position



Forward Contracts vs Futures Contracts



<i>Forward</i>	<i>Futures</i>
Private contract between two parties	Traded on an exchange
Not standardized	Standardized
Usually one specified delivery date	Range of delivery dates
Settled at end of contract	Settled daily
Delivery or final settlement usual	Usually closed out prior to maturity
Some credit risk	Virtually no credit risk

Foreign Exchange Quotes



- Futures exchange rates are quoted as the number of USD per unit of the foreign currency
- Forward exchange rates are quoted in the same way as spot exchange rates. This means that GBP, EUR, AUD, and NZD are USD per unit of foreign currency. Other currencies (e.g., CAD and JPY) are quoted as units of the foreign currency per USD.