



Mechanics of the Futures Market

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Who uses futures or forwards?

- Speculators – seeking to beat the system
- Hedgers – seeking to protect a position
- Futures allow investors to lock into prevailing prices



Risk

Investment = risk

- ☐ Market risk
- ☐ Company specific risk

Futures markets are exchange traded

- Provides an actively traded venue where long and short risk can be allayed
- Mitigates counterparty risk



Underlying products and futures contracts

- ❑ Cash or spot prices exist all year round –
But crops only grow once a year
- ❑ The **basis** represents the difference between spot and the forward price of a future
- ❑ Future prices can help a farmer determine selection of next year's crop
- ❑ Futures allow market participants around the globe to see current price of a product not yet produced



Forward prices, Contango & Backwardation

- ❑ Futures contracts allow speedy and efficient entry and exit without ever owning the underlying
- ❑ Investor bears no production costs
- ❑ Contango – when forward prices are higher than spot
 - Expected to decline towards spot price over time
- ❑ Backwardation – when forward prices are lower than spot
 - Expected to rise towards spot price over time



Where are derivatives traded?

- ☐ Trading typically involve two counterparties
- ☐ Bank-to-bank or bank-to-customer = Over-the-Counter
 - Exposes counterparty risk
- ☐ Regulated exchange reduces counterparty risk and
- ☐ Creates transparency



Futures transaction bring focus to investors and producers

- ☐ Creates contract at a price set today but due at a later date
- ☐ Details of legal contract are standardized
- ☐ Exchange organization draws a global crowd together
 - Producers
 - End-users
 - Speculators
- ☐ Transparent pricing and improved liquidity

Futures contracts have become commoditized

- ❑ All buyers and sellers deal in standardized agreement
- ❑ Exchanges list contract quantity and quality of a contract
- ❑ Example – Nymex Crude Oil contract controls:
 - 1,000 barrels (42,000 gallons)
 - Grade = light, sweet as defined by refiners
 - Expiration dates are defined
 - Physical settlement at predetermined destinations
- ❑ Non-physical instruments are cash-settled by payment at expiration to reflect the difference between the execution and settlement prices.



Futures trading requires margin

- ☐ Exchange monitors price swings over time
- ☐ This governs size of margin required
- ☐ Margin is a good-faith deposit by investors to help assure that investors abide by the exchange rules
- ☐ Margin must be held and may increase should the price move adversely against investor



Futures options (FOPs)

- ☐ Many futures contracts allow trading in options contracts based on the same underlying.
- ☐ Futures may serve in many cases as the underlying benchmark off of which options are traded and settled
- ☐ The options may be used for:
 - Speculation
 - Hedging
- ☐ Certain options are cash settled; others may be settled into the futures contract



The role of the exchange

- ☐ Maintains orderly venue for trade
- ☐ Determines membership
- ☐ Enforces good financial standing of members
- ☐ Devises rules
- ☐ Monitors liquidity and member participation
- ☐ Creates position limits
- ☐ Guarantees performance of its members & protects members against failure of others
- ☐ Provides clearing house where trades are processed and margins are collected



What happens on an exchange?

- ☐ Exchanges are evolving from open outcry to electronic
- ☐ Professional, qualified traders gather in a “pit” where trading takes place face-to-face
- ☐ Members may trade for their own account or on behalf of customers
- ☐ Open outcry typically runs parallel with electronic trading
- ☐ Increasing amounts of information are available to traders as depth-of-book shows bid and offers above and below prevailing price

What types of futures products can be traded?

☐ Grains

- Corn – Soybeans – Wheat
- Rice – Soybean Oil – Soybean Meal

☐ Energy

- Crude Oil – Gasoline – Heating Oil – Natural Gas

☐ Financials

- Interest rates – Currencies – Equity Indices

☐ Softs

- Coffee – Cocoa – Sugar – Frozen Concentrated Orange Juice – Sugar


☐ Metals

- Gold – Silver – Copper – Nickel – Lead – Platinum – Rhodium – Palladium – Tin



Trading on margin

- ☐ Futures trades are undertaken using a margin account
- ☐ Exchange provides a minimum margin that broker must charge its client
- ☐ Margin is a good faith deposit required from the investor to guarantee the investment in the event that the contract price moves against the investor.



Initial margin (per contract)

- ☐ Following an opening trade investor's cash account has initial margin deducted by broker
- ☐ Often known as a Performance Bond
- ☐ Cash or a liquid instrument backing a trade that might move against investor

☐ Initial Margin Requirement

- Gold = \$4,500
- Cocoa = \$3,750
- 10-year U.S. Note = \$2,430

Futures margin requirements are determined by each exchange and can change frequently. All margin requirements are expressed in the currency of the traded product.



Maintenance margin

☐ Initial Margin Requirement

- Gold = \$4,500
- Cocoa = \$3,750
- 10-year U.S. Note = \$2,430

☐ Maintenance Margin Requirement

- Gold = \$3,333
- Cocoa = \$3,000
- 10-year U.S. Note = \$1,800



Daily limits

- ☐ Exchanges may set daily price limits intended to prevent disorderly markets
- ☐ A market may be halted should prices reach limit
- ☐ The limit may coincide with value of maintenance margin
- ☐ Aim is to protect all parties from unwarranted losses in times of market disorder

What exactly am I buying when I buy a futures contract?

☐ Example – NYBOT Cocoa future

- Contract for 10 metric tons
- Contract Code = CJ
- Cash Settled
- Settlement months = March, May, July September & December

☐ See [Interactive Brokers](https://www.interactivebrokers.com) website:


- Trading
 - Contract & Securities Search



Contract search

Specifications

Underlying Information	
Description/Name	COCOA NYBOT (CC@NYBOT)

Contract Information	
Description/Name	COCOA NYBOT
Symbol	CC
Exchange	NYBOT
Contract Type	Futures
Country/Region	 United States
Closing Price	3011
Currency	U.S. Dollar (USD)

Contract Identifiers	
Conid	46539826

Futures Features	
Futures Type	Softs (Cocoa, Coffee, Cotton, Orange Juice, Sugar)
First Notice Date?	18/08/2009
First Position Date?	18/08/2009
Last Trading Date	15/09/2009
Expiration Date	16/09/2009
Multiplier	10

Margin Requirements?	
Intraday Initial Margin	1,820
Intraday Maintenance Margin	1,300
Overnight Initial Margin	1,820
Overnight Maintenance Margin	1,300

IntercontinentalExchange - NYBOT Division (NYBOT) Top																				
Local Name	CCU9																			
Local Class	CC																			
Exchange Website	http://www.theice.com																			
Trading Hours	<table><tr><th>Sun</th><th>Mon</th><th>Tue</th><th>Wed</th><th>Thu</th><th>Fri</th><th>Sat</th></tr><tr><td>Closed</td><td>0400-1400</td><td>0400-1400</td><td>0400-1400</td><td>0400-1400</td><td>0400-1400</td><td>Closed</td></tr></table>						Sun	Mon	Tue	Wed	Thu	Fri	Sat	Closed	0400-1400	0400-1400	0400-1400	0400-1400	0400-1400	Closed
Sun	Mon	Tue	Wed	Thu	Fri	Sat														
Closed	0400-1400	0400-1400	0400-1400	0400-1400	0400-1400	Closed														
Price Parameters	<table><tr><th>Range</th><th>Increment</th></tr><tr><td>price > 0</td><td>1</td></tr></table>						Range	Increment	price > 0	1										
Range	Increment																			
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Size Parameters	<table><tr><th>Range</th><th>Increment</th></tr><tr><td>price > 1</td><td>1</td></tr></table>						Range	Increment	price > 1	1										
Range	Increment																			
price > 1	1																			



Contract information

Defines:

- Exchange
- Exchange and IB trading symbol
- Previous day's closing price
- Category (softs, energy etc)
- Last trading day
- Expiration date


IntercontinentalExchange - NYBOT Division (NYBOT) Top	
Local Name	CCU9
Local Class	CC
Exchange Website	http://www.theice.com

Minimum tick size and multiplier

- ❑ Multiplier explains the dollar value of a single tick change in the price of the future

Multiplier	10						
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Local Class	CC						
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	Closed	0400-1400	0400-1400	0400-1400	0400-1400	0400-1400	Closed
Price Parameters	Range			Increment			
	price > 0			1			
Size Parameters	Range			Increment			
	price > 1			1			

eMini S&P future – tick value

Contract Information	
Description/Name	E-MINI S&P 500
Symbol	ES
Exchange	GLOBEX , GLOBEX IND
Contract Type	Futures
Country/Region	 United States
Closing Price	1047.9
Currency	U.S. Dollar (USD)

Margin Requirements?	
Intraday Initial Margin	2,813
Intraday Maintenance Margin	2,250
Overnight Initial Margin	5,625
Overnight Maintenance Margin	4,500
Multiplier	50

Price Parameters	Range	Increment
	price > 0	.25

Size Parameters	Range	Increment
	price > 1	1



eMini S&P future – tick value

- ❑ Buy 1 contract @1012.75
- ❑ Sell 1 Contract @1017.25
- ❑ Change in price = 4.50 points
- ❑ Times by \$50 multiplier = **+\$225**



Trading example – long future

- ❑ Cocoa Contract
- ❑ Bought one contract March 2010 Nymex cocoa future @ 2,500
- ❑ Sold one contract March 2010 Nymex cocoa future @ 3,000
- ❑ Difference = 500
- ❑ Multiplier = 10
- ❑ Dollar Gain $500 * 10 =$ \$5,000

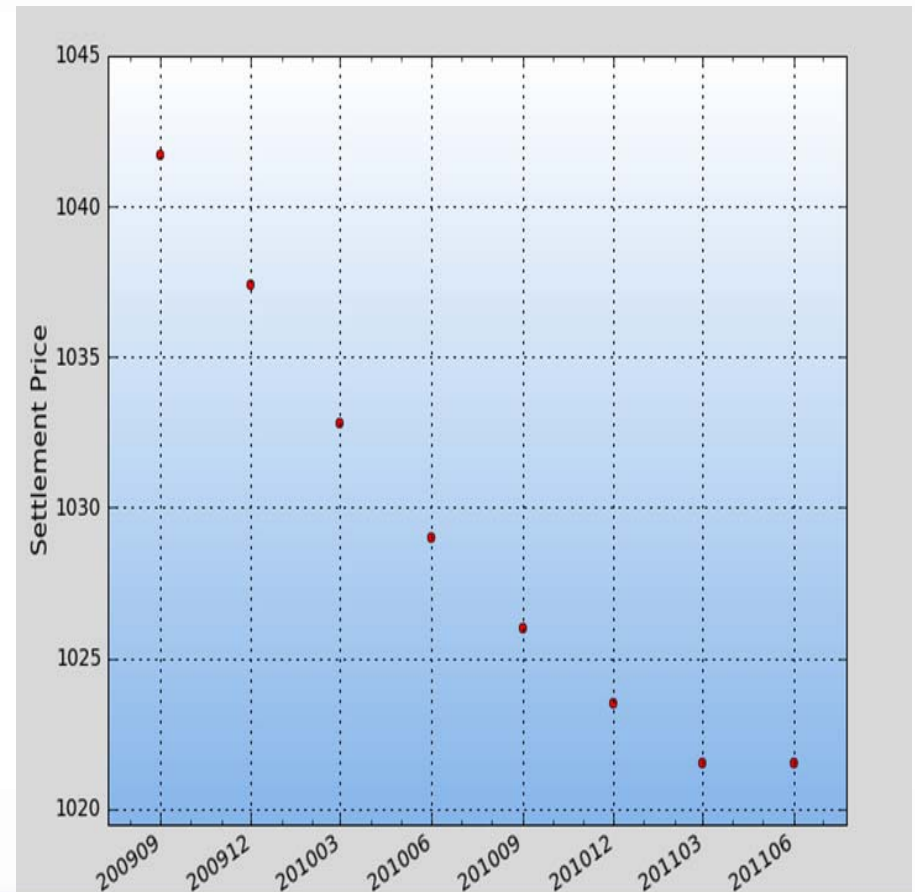


Selling futures short (at a loss)

- ❑ Crude Oil contract
- ❑ Sold one contract March 2010 crude oil future @ 72.45
- ❑ Bought one contract March 2010 crude oil future @ 79.45
- ❑ Difference = (7.00)
- ❑ Multiplier = 1,000
- ❑ Dollar Gain (7.00)*1000= (\$7,000)

Futures cost of carry

- ☐ Cash market is real time
- ☐ Forward markets are adjusted by “fair value” concept
- ☐ Need to adjust for
 - Dividends
 - Cost of capital
- ☐ Possible arbitrage





Conclusions & Questions

- ☐ Futures are extremely efficient and low cost investment opportunities
- ☐ Provide hedging and speculation without ever owning the underlying
- ☐ Ongoing transformation to electronic markets continues to lower trading costs