

THE IMPACT ON COMMODITIES

Course: Impact of COVID-19 to
financial markets

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- ▶ “A generic, largely unprocessed, good that can be processed and resold.”
- ▶ Usually think of a “commodity” as something homogeneous, standardized, easily defined
- ▶ In reality, this isn’t the case—commodities are often very heterogeneous, hard to standardize, hard to define

WHAT IS A COMMODITY?



- ▶ Quality
- ▶ Quantity
- ▶ Location
- ▶ Time

COMMODITY ATTRIBUTES



- ▶ Many commodities differ widely by quality
- ▶ Wheat—you may look at a bushel of wheat, or wheat standing in a field, and think “it all looks the same to me”
- ▶ But it ain’t
- ▶ Wheat has many potential quality attributes, including protein content, hardness, foreign matter, toxins
- ▶ Similarly, “oil” is a very heterogeneous “commodity”
- ▶ A “commodity” is a social construct (not to go all PoMo on you)

QUALITY ATTRIBUTES

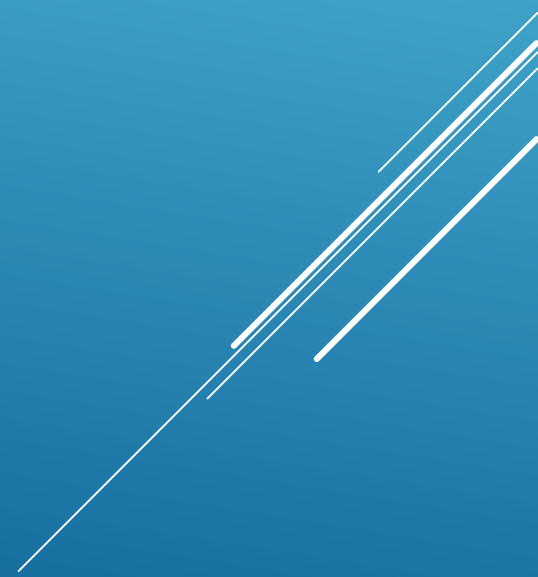
- ▶ Trading something typically requires some sort of measurement of quantity and quality
- ▶ Measurement is costly
- ▶ Who measures? Who verifies?
- ▶ Many commodity markets have faced daunting challenges to create measurement systems

THE CHALLENGES OF MEASUREMENT



- ▶ Early grain exchanges developed modern, liquid markets only after they had confronted and addressed quality measurement problems
- ▶ Indeed, many early grain markets, such as the Chicago Board of Trade or the Liverpool Grain Exchange, began not as futures markets, but as private organizations of market participants charged with the task of solving measurement problems

MEASUREMENT SYSTEMS IN GRAIN



- ▶ Defining and enforcing quality attributes presented huge problems to exchanges
- ▶ Even simple tasks as defining what a “bushel” is proved extremely complicated and divisive
- ▶ Private mechanisms proved vulnerable to opportunistic rent seeking and enforcement difficulties
- ▶ Major Constitutional case with important implications for government regulatory powers (Munn v. Illinois) grew out of disputes over commodity measurement

EARLY HISTORY

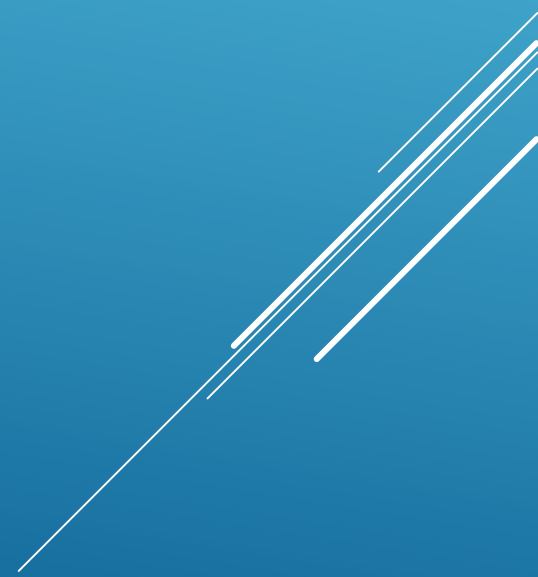
- ▶ Standardization of terms facilitates trade
- ▶ If all terms standardized, buyer and seller only have to negotiate price and quantity
- ▶ However, standardization is not easy (as shown above)
- ▶ Moreover, standardization involves costs—the “one size fits all” problem
- ▶ How do you reconcile the benefits of standardization with the inherent heterogeneity of commodities, and differing preferences over commodity attributes among heterogeneous buyers and sellers?

STANDARDIZATION



- ▶ The NYMEX crude oil contract gives an idea of the complexity of defining and standardizing a commodity
- ▶ It also illustrates the costs of standardization
- ▶ This is particularly evident in current market conditions
- ▶ The “standard” commodity is not necessarily representative of what buyers and sellers actually trade

AN EXAMPLE OF STANDARDIZATION: OIL



- ▶ Market participants often have an incentive to avoid performing on transactions they agree to
- ▶ Some may want to perform, but are unable (bankruptcy; force majeure)
- ▶ Therefore, every market mechanism requires some sort of enforcement mechanism
- ▶ Third party enforcement through a court is often expensive
- ▶ Market participants have often created private mechanisms for enforcing contracts

ENFORCEMENT



- ▶ Diamond trade
- ▶ Commodity markets, including grains, energy, metals
- ▶ These usually rely on arbitration systems
- ▶ Typically, the ultimate punishment that these mechanisms rely on is exclusion from the trading body that enforces the rules
- ▶ But . . . What if exclusion is not a sufficient punishment? (E.g., Chicago grain warehousemen)

PRIVATE ENFORCEMENT MECHANISMS



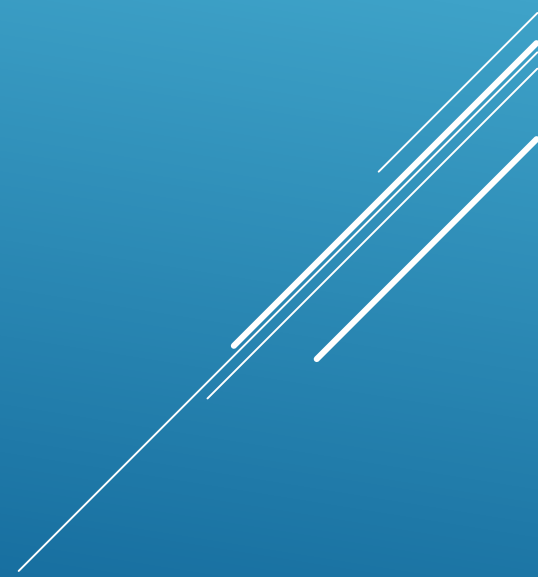
- ▶ There are a variety of basic types of instruments traded in commodity marketplaces
- ▶ “Spot” contracts
- ▶ “Cash market” contracts
- ▶ Forward contracts
- ▶ Futures contracts
- ▶ Options

TRADING INSTRUMENTS



- ▶ The term “spot” refers to a transaction for immediate delivery
- ▶ That is, delivery “on the spot”
- ▶ This involves the prompt exchange of good for money
- ▶ Note that spot trades almost always involve actual delivery of the good specified in the contract
- ▶ All “spot” trades are generally “cash” trades

SPOT TRADES



- ▶ The term “cash” trade or “cash” market is often ambiguous and confusing
- ▶ It suggests the immediate exchange of cash for a good, but sometimes “cash market” trades are actually trades for future delivery
- ▶ Usually, though a “cash” trade is a principal-to-principal trade that does not take place on an organized exchange
- ▶ That is “cash market” is to be understood as distinct from the “futures market”

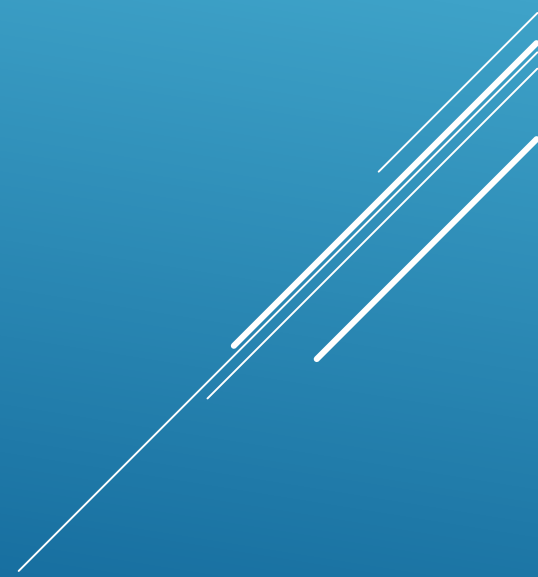
CASH TRADES

- ▶ A “forward contract” is one that specifies the transfer of ownership of a commodity at a future date in time
- ▶ “Today” the buyer and the seller agree on all contract terms, including price, quantity, quality, location, and the expiration/performance/delivery date
- ▶ No cash changes hands today (except, perhaps, for a performance bond)
- ▶ Contract is performed on the expiration date by the exchange of the good for cash
- ▶ Forward contracts not *necessarily* standardized—consenting adults can choose whatever terms they want

FORWARD MARKETS

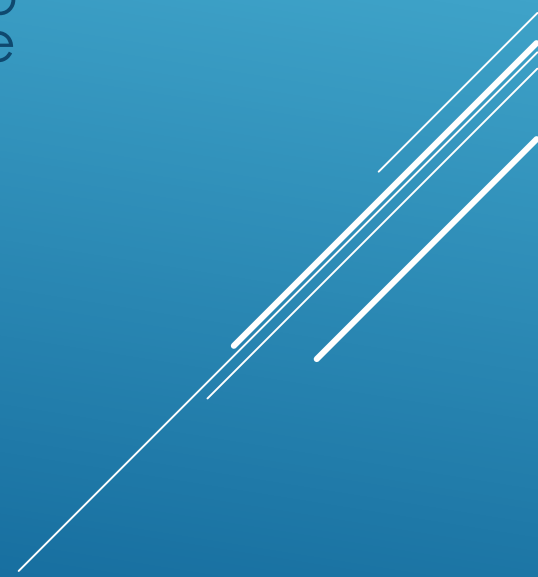
- ▶ Futures contracts are a specific type of forward contract
- ▶ Futures contracts are traded on organized exchanges, such as the InterContinental Exchange (ICE)
- ▶ The exchange standardizes all contract terms
- ▶ Standardization facilitates centralized trading and market liquidity

FUTURES CONTRACTS



- ▶ Forward, futures, and spot contracts create binding obligations on the parties
- ▶ In contrast, as the name suggest, an option extends a choice to one of the contract participants
- ▶ Call—option to buy
- ▶ Put—option to sell
- ▶ If I buy an option, I buy the right
- ▶ If I sell an option, I give somebody else the right to make me do something
- ▶ Options are beneficial to the buyer, costly to the seller—hence they sell at a positive price

OPTIONS



- ▶ Futures and Forward contracts can be used to transfer ownership of a commodity
- ▶ These contracts can also be used to speculate
- ▶ They can also be used to manage risk—i.e., to hedge
- ▶ Hedging and speculation are the yin and yang of futures/forward contracts

THE USES OF CONTRACTS



- ▶ Futures and forward contracts can be settled at delivery at expiration
- ▶ Alternatively, buyer and seller can agree to settle in cash at expiration
- ▶ Example: NYMEX HSC contracts
- ▶ Speculative and hedging uses of contracts only requires that settlement price at expiration reflects underlying value of the commodity.
- ▶ Main reason for settlement mechanism is to ensure that this “convergence” occurs
- ▶ Even futures contracts that contemplate physical delivery are usually closed prior to expiration

CASH SETTLEMENT VS. DELIVERY SETTLEMENT

- ▶ Organized Exchanges—centralized trading of standardized instruments
- ▶ Centralized trading can occur via face-to-face “open outcry” or computerized markets
- ▶ Computerized markets now dominate
- ▶ “Over-the-Counter” (or “cash”) markets—decentralized, principal-to-principal markets

TRADING MECHANISMS



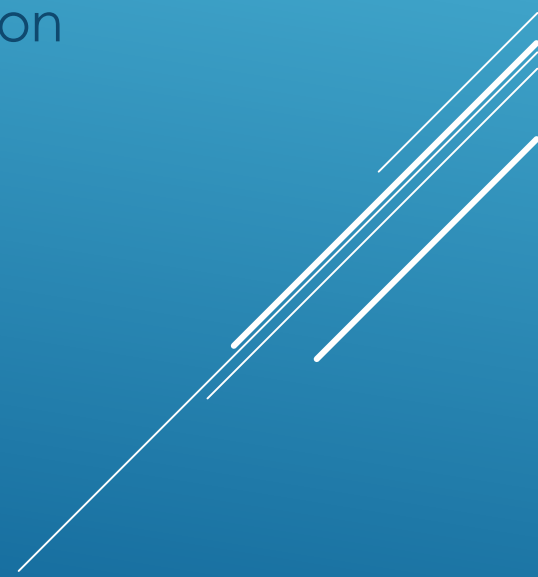
- ▶ Price discovery
- ▶ Resource allocation
- ▶ Risk transfer
- ▶ Contract enforcement

THE FUNCTIONS OF MARKETS



- ▶ Information about commodity value is highly dispersed, and private
- ▶ By buying and selling on the basis of their information, market participants affect prices, and as a result, market prices reflect and aggregate the information of potentially millions of individuals
- ▶ In this way, markets “discover” prices—more accurately, they facilitate the discovery and dissemination of dispersed information
- ▶ Prices as a “sufficient statistic”—only need to know the price, not all the quanta of information

PRICE DISCOVERY



- ▶ By discovering prices, markets facilitate the efficient allocation of resources
- ▶ That is, markets facilitate the flow of a good to those who value it most highly
- ▶ Centralized markets can reduce transactions costs, thereby reducing the “frictions” that impede this flow

RESOURCE ALLOCATION



- ▶ The prices of commodities (and financial instruments) fluctuate randomly, thereby imposing price risks on market participants
- ▶ Those who handle a commodity most efficiently (e.g., producers and consumers) are not necessarily the most efficient bearers of this price risk
- ▶ Futures and other derivatives markets permit the unbundling of price risks—those who bear price risks most efficiently can bear them, and those who handle the commodity most efficiently can perform that function

RISK TRANSFER



- ▶ Any forward/futures trade poses risks of non-performance
- ▶ As prices change, either the buyer or the seller loses money—and hence has an incentive to avoid performance
- ▶ Even if one party wants to perform, s/he may be financially unable to do so
- ▶ Therefore, EVERY trading mechanism must have some means of enforcing contract performance

CONTRACT PERFORMANCE

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- ▶ There are many means of imposing costs on non-performers, thereby giving them an incentive to perform
- ▶ Reputational costs
- ▶ Exclusion from trading mechanism
- ▶ Performance bonds
- ▶ Legal penalties

CONTRACT ENFORCEMENT

A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, set against a blue background.

- ▶ OTC markets typically rely on bilateral and reputational mechanisms
- ▶ OTC market participants evaluate the creditworthiness of their counterparties, and limit their dealings based on these evaluations
- ▶ Performance bonds (“margins”) are also widely employed
- ▶ In the event of a default on a contract, some OTC counterparties have (effectively) priority claims on (some of) the defaulter’s assets in bankruptcy (netting, ability to seize collateral)

CONTRACT ENFORCEMENT IN OTC MARKETS



- ▶ Modern futures markets typically rely on a centralized contract enforcement mechanism—the clearinghouse
- ▶ The CH is a “central counterparty” (“CCP”) who becomes the buyer to every seller and the seller to every buyer
- ▶ CH collects margins
- ▶ Members of the CH (usually large financial firms) share default costs, with the intent of keeping “customers” whole

CONTRACT ENFORCEMENT IN FUTURES MARKETS



- ▶ “Losers” have an incentive to find, exploit, and perhaps create legal loopholes to escape their contractual commitments
- ▶ Virtually every new commodity market has had to overcome such legal risks
- ▶ “Contracting dialectic”—market forms, begins to grow, somebody exploits a legal loophole to escape obligations, contracts and market mechanisms revised to close this loophole

LEGAL RISKS IN TRADING MARKETS



- ▶ Use of non-enforceability of wagers to escape obligations under futures contracts
- ▶ Claim that losing party did not have the legal authority to enter into the agreement (e.g., interest rate swaps & UK local councils—Hammersmith & Fulham)
- ▶ Disputes over whether contingency specified in contract occurred (credit derivatives—Russian default?)

EXAMPLES OF THE DIALECTIC IN ACTION

▶ References

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