



富士山
江戸
日本橋

Nihonbashi Bridge, Edo Hokusai (ca 1830) <http://www.fujiarts.com/japanese-prints/r3/12r3f.jpg>

Commodity Markets

Beer Street
Hogarth (1751)

[http://www.wikiwak.com/image/
William+Hogarth+-+Beer+Street.jpg](http://www.wikiwak.com/image/William+Hogarth+-+Beer+Street.jpg)



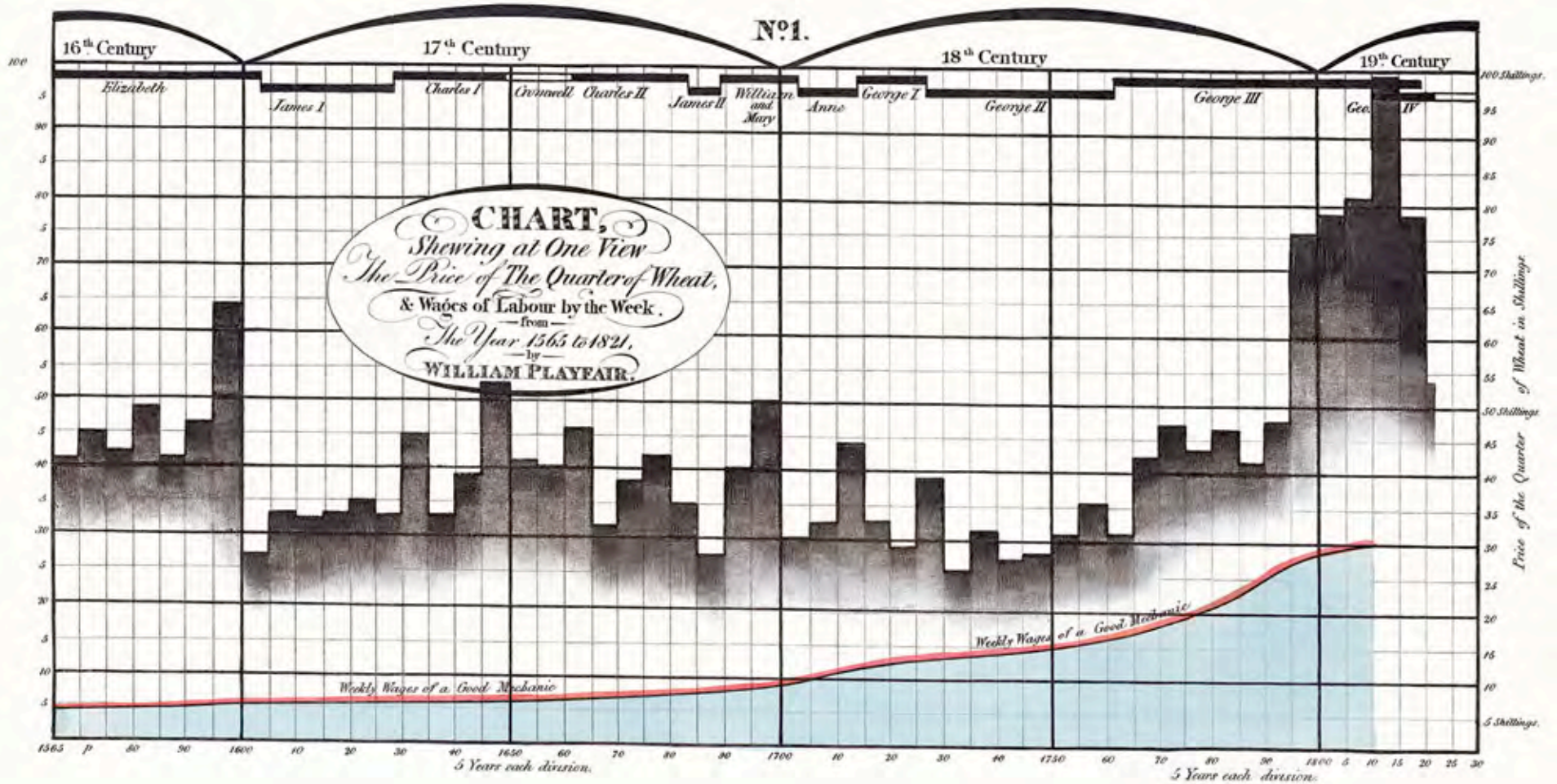


The Great Fish Market Bruegel the Elder (1603)

http://www.purepaintings.nl/upload/paintings/bruegelJtE_Great_Fish_Market.jpg_original.jpg



The Harvesters Bruegel the Elder (1565) [http://wahooart.com/A55A04/w.nsf/OPRA/BRUE-7YUDHH/\\$File/G.jpg](http://wahooart.com/A55A04/w.nsf/OPRA/BRUE-7YUDHH/$File/G.jpg)



Weekly Wages and The Price of Wheat 1565 to 1850

<http://www.economist.com/images/20071222/5107CR1B.jpg>



April 18, 1935 Stratford, Texas
George E. Marsh

John Cary reported European futures trading of brandy in 1695.

Japanese rice markets reported to trade future contracts In 17th century.

Gin Lane
Hogarth (1751)

<http://cockroach1.files.wordpress.com/2009/10/williamhogarth-ginlane.jpg>



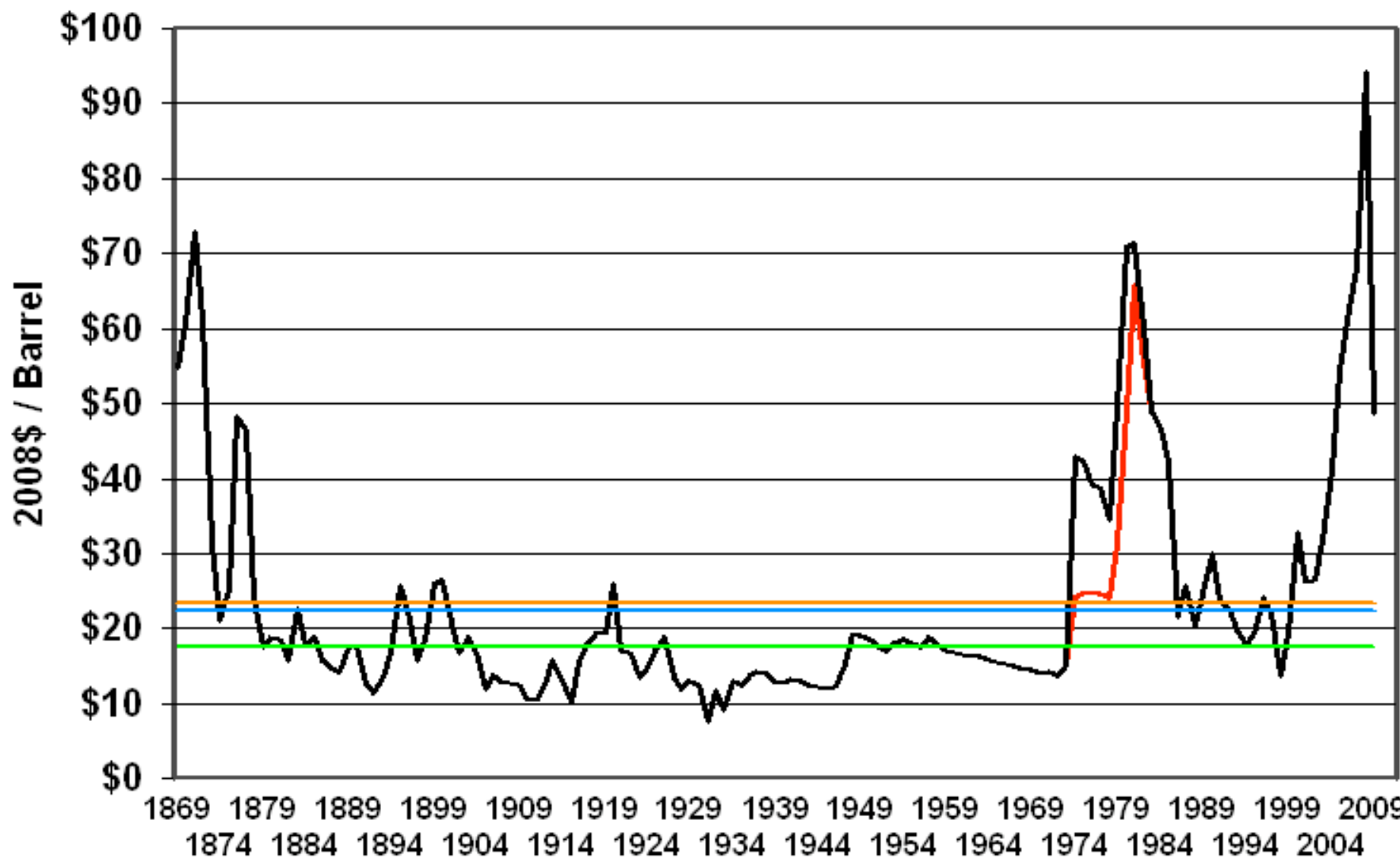
Gold Price, London PM fix, \$/oz.



5 Year Copper Spot



CRUDE OIL PRICES 2008 DOLLARS



1869 1879 1889 1899 1909 1919 1929 1939 1949 1959 1969 1979 1989 1999 2009
1874 1884 1894 1904 1914 1924 1934 1944 1954 1964 1974 1984 1994 2004

1869 - August, 2009 WTRG Economics ©1998-2009

www.wtrg.com

(479) 293-4081

— U.S. FIRST PURCHASE (Wellhead) — World Price*

— Avg U.S. \$22.52 — Avg World \$23.42 — Median U.S. & World \$17.65

Price of metals and fuel commodities changes rapidly (volatile market)

- Price changes driven by supply and demand factors
 - Excess supply drives prices down
 - Changes in government policy

Price of metals and fuel commodities changes rapidly (volatile market)

- Changes in government policy
 - Catalytic converters and platinum prices
 - Deregulation of power markets
 - Clean air regulations applied to fossil fuel power plants
 - Agreements among producers or consumers eg OPEC

Commodity futures markets help minimize impact of short-term price fluctuations

- Allows buyers and sellers to establish future prices for a commodity

Forward Contracts 1

- agreement to buy or sell an asset at a certain time in the future for a certain price
 - buy 5,000 oz of gold @ US \$400/oz in 1 year
- The price of the contract is chosen to have initial value of \$0
 - No money changes hands when first negotiated
 - Contract is settled at maturity

Forward Contracts 2

- The forward price is the delivery price applicable to that contract today
- The forward price may be different for contracts of different maturity date
- The party that agreed to BUY has a LONG position
- The party that agree to SELL has a SHORT position
 - Buy 5,000 oz of gold for the market price today (US \$1406/oz on 28 Jan 11)

A Simplified Forward Contract Price

- $F = S - (D * (e^{** -r (T - t) }))$
 - F is forward price when contract is written
 - S is today's spot price for the asset
 - D is delivery price at expiration
 - r is the risk-free interest rate
 - T is the expiration date
 - t is today's date

NB. The cost of storage is not considered in this formula

A Simplified Forward Contract Price

- $F = S - (D * (e^{-r(T-t)}))$
 - If S increases, then F increases
 - If interest rate r increases, then F increases
 - As the expiration date approaches, F converges with S

Future Contracts 1

- Similar to a forward contract: buy and sell an asset at defined time for a defined price
- However: futures contracts are traded an exchange and settled daily
 - Chicago Board of Trade
 - New York Mercantile Exchange
 - London Metal Exchange

Future Contracts 2

- Traders
 - Hedgers who produce or consume a commodity
 - Speculators who do not produce or consume
 - Gather market intelligence
 - Provide a ready market for the hedgers
 - Arbitrageurs who trade in different market locations

Future Contracts 3

- Contract Specifications
 - What will be delivered
 - Where it will be delivered
 - When it will be delivered

Future Contracts 4

- Other aspects
 - Accounts are settled daily
 - Closing a futures contract involves entering an offsetting contract
 - Most contracts are closed out before maturity

Future Contracts 5

- Normal Market: price of a future contract increases with increasing time to expiry
- Inverted Market: price of a future contract decreases with increasing time to expiry
- Mixed Market: price of a future contract may be up or down in a series of contracts with increasing time to expiry.

Future Contracts 6

- **Contango** is when the futures price is above the expected future spot price. Because the futures price must converge on the expected future spot price, contango implies that futures prices are falling over time as new information brings them into line with the expected future spot price.
- **Normal backwardation** is when the futures price is below the expected future spot price. This is desirable for speculators who are "net long" in their positions: they want the futures price to increase. So, normal backwardation is when the futures prices are increasing.

Options 1

- CALL Option: the right to BUY an asset by a certain time for a certain price
- PUT Option: the right to SELL an asset by a certain time for a certain price
- Strike Price: price defined by option contract
- Expiration Date: date defined by option contract

Options 2

- American Options can be exercised at any time before the expiration date
- European Options can be exercised only on the expiration date
- A person writing or selling an option is SHORT, and receives the option price up front
- A person buying an option is LONG, and pays the option price up front
- The person buying an option is not obliged to receive the contract

Options 3

- Options are traded on exchanges which monitor the market to insure efficient markets.
- Exchanges can force traders to close out contracts

For a more detailed reviews go to

<http://www.duke.edu/~charvey/>

Classes/ba350_1997/futures/lectur
e.htm



The King is Drinking Teniers (1640)

http://www.kipar.org/period-galleries/paintings/dutch/teniers_kings_1640.jpg