

# Cocoa

Intercontinental Exchange® (ICE®) became the center of global trading in “soft” commodities with its acquisition of the New York Board of Trade (NYBOT) in 2007. Now known as ICE Futures U.S.®, the exchange offers futures and options on futures on soft commodities including cotton, coffee, frozen concentrated orange juice, sugar and cocoa.

Cocoa futures have traded in New York since 1925, first on the New York Cocoa Exchange (later part of the Coffee, Cocoa and Sugar Exchange), then on the New York Board of Trade and now on ICE Futures U.S. Options on cocoa futures were introduced in 1986. Futures and options on futures are used by both the domestic and global cocoa and confectionery industries to price and hedge transactions. The ICE Futures U.S. Cocoa contract is the benchmark for world cocoa prices. The contract’s depth, liquidity and volatility, along with its diversifying properties vis-à-vis other commonly traded futures, have made it a preferred instrument among commodity trading advisors and hedge funds.

## A BRIEF HISTORY OF COCOA

Cocoa was part of what has been called the Columbian Exchange, the transfer of various foodstuffs between the Old and New Worlds following Columbus’s voyages. The Maya, Olmec, Toltec and Aztec peoples of Mexico and Central America used the beans found in the fleshy pods of the *Theobroma cacao*, or “Fruit of the Gods” tree, as both a currency and as the base for a bitter drink. The drink contained the bitter cocoa beans and red chili peppers. (It was an acquired taste.) Cocoa arrived in Europe with the Spanish, and then was transplanted to the Dutch East Indies, the Philippines and later into various European colonies in the Caribbean. The crop was introduced to present-day Ghana in 1879 and the Ivory Coast in 1905, and West Africa today is its principal source of production.

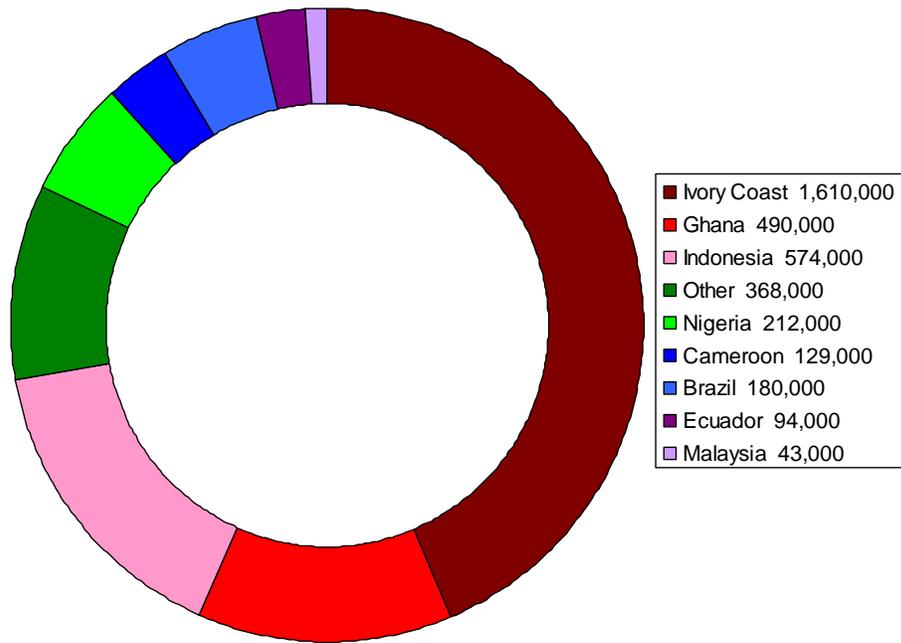
Cocoa remained a drink until the mid-19th century, when a Dutch chemist developed a process for extracting cocoa butter from roasted beans. The development of mass-produced chocolate candy followed in England in 1847. Milk chocolate candy was developed in Switzerland in 1879.

## COCOA AND INTERNATIONAL TRADE

Cocoa is a critical export, especially for West African nations such as Ghana and the Ivory Coast. The crop’s importance to the eight countries that supply the world is sufficient to keep cocoa a central topic for global agricultural trade forums.

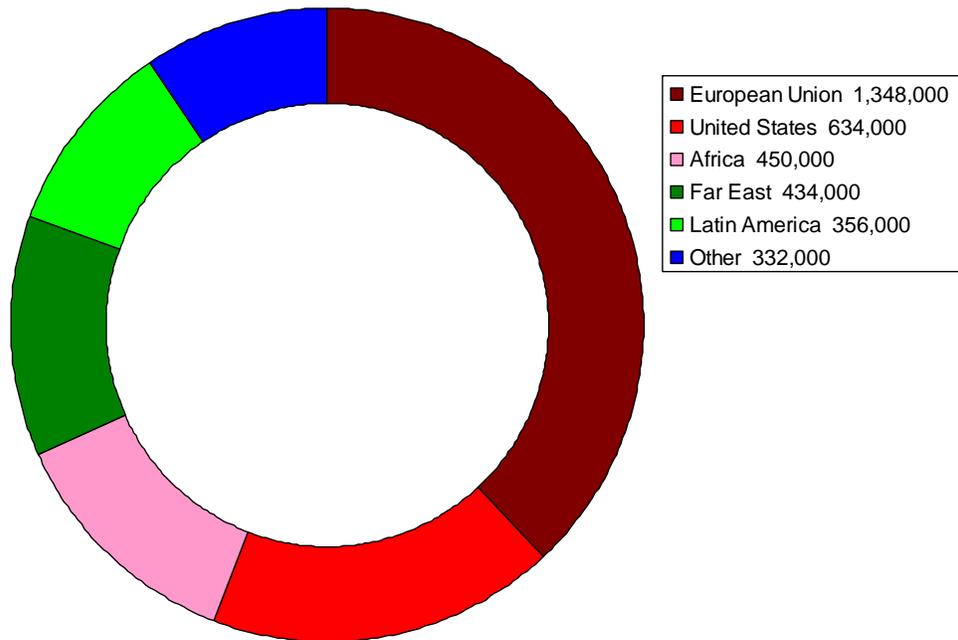
Almost no cocoa is grown in or exported from Organization for Economic Cooperation and Development (OECD) countries, and these countries dominate the import picture. Unlike other soft commodities such as sugar, cotton and frozen concentrated orange juice, the issue of subsidization of cocoa production and exports is absent from international trade forums. This makes the global cocoa trade and the stabilization of global cocoa prices one of the most enduring issues in international economics. A United Nations Food & Agriculture Organization (FAO) analysis of cocoa production and consumption is shown below. The income and wealth disparities between cocoa importing nations and exporting nations are substantial.

**UN Food & Agriculture Organization Estimates of 2010 Cocoa Production**  
Metric Tons



Source: FAO

**UN Food & Agriculture Organization Estimates of 2010 Cocoa Consumption**  
Metric Tons

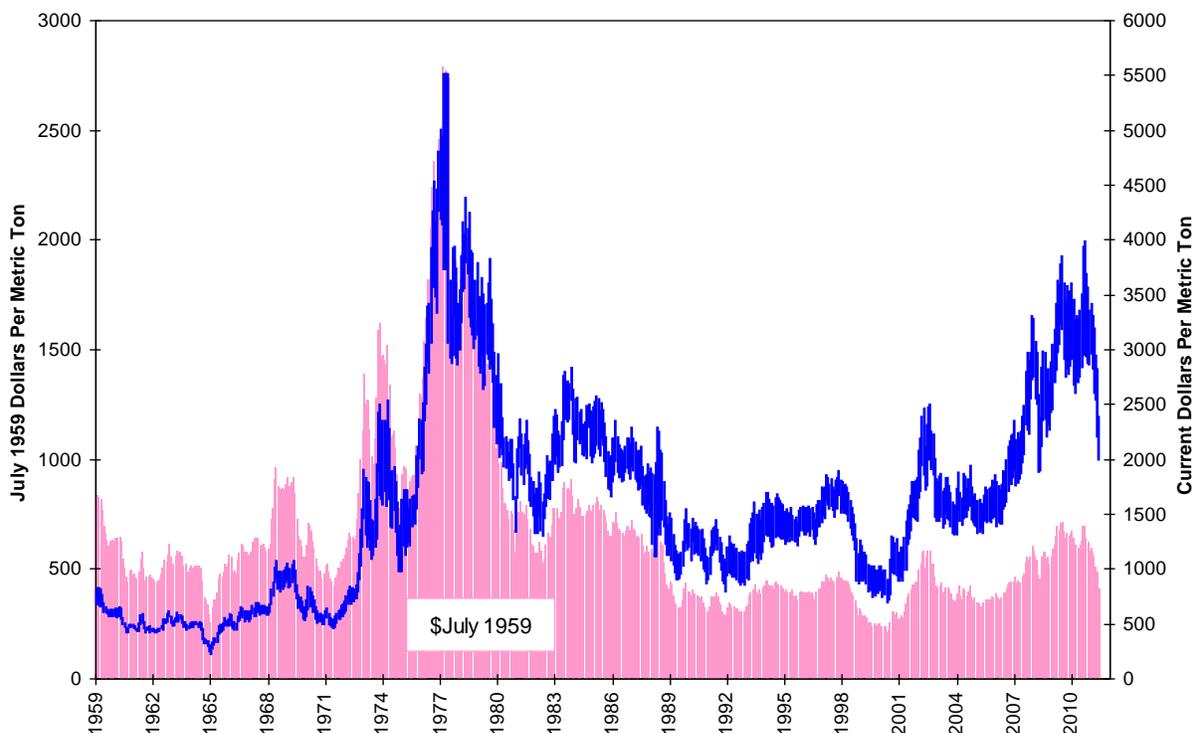


Source: FAO

While cocoa imports and prices are a minor matter for large cocoa consuming countries, they can be a critical for cocoa exporters. Recognition of this imbalance of interests, along with a number of Cold War political considerations, prompted the formation of the International Cocoa Organization (ICCO) in 1973. The organization works to promote a sustainable world cocoa economy. ICCO member countries represent approximately 85% of world cocoa production and 60% of world cocoa consumption.

Prior to a spate of supply disruptions in 2009-2011, the long-term constant dollar price of cocoa since the end of the 1950 had been stable except for another period of supply disruption in the late 1970s. However, traders do not trade the long-term constant dollar price, but rather the short-term current-dollar price. While cocoa prices do not exhibit the volatility of, say, coffee prices, they do provide traders with significant trend-following opportunities.

**Real Price of Cocoa Reflects Increased Productivity**



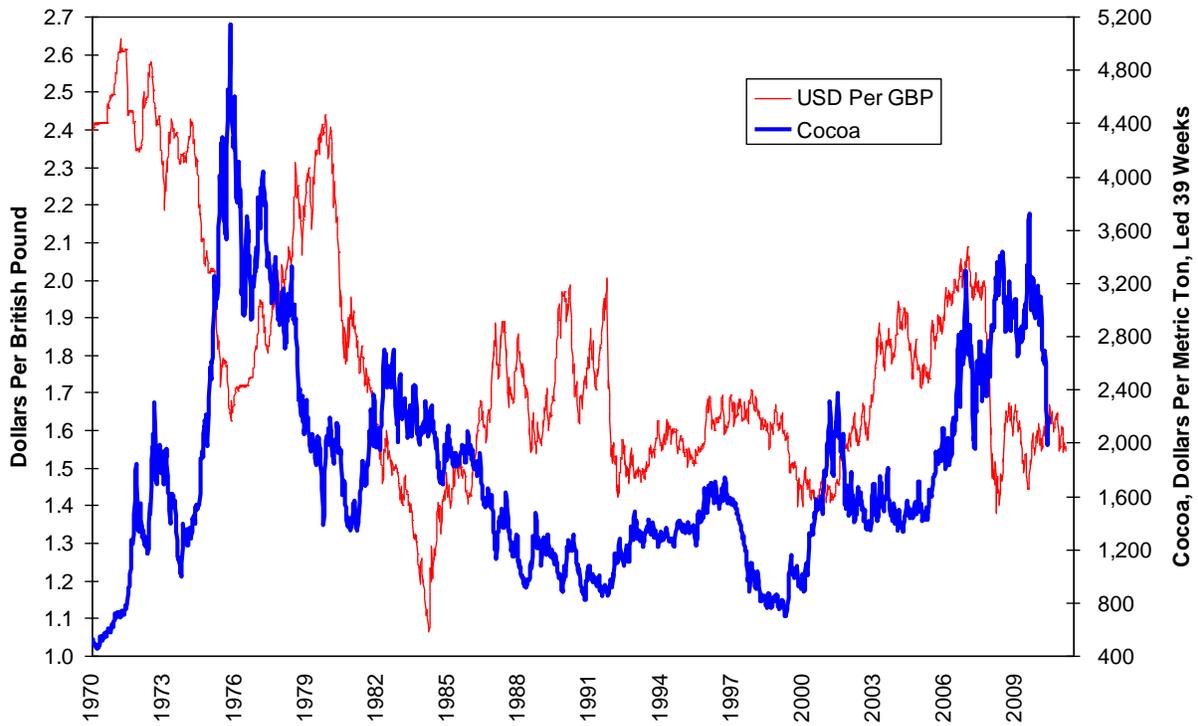
Source: CRB-Infotech CD-ROM

#### CURRENCY CONNECTIONS AND INTERMARKET ARBITRAGE

Cocoa is unique among soft commodities in its relationship to currencies. Because of Britain's historical domination of the West African cocoa industry and a British pound-denominated futures contract traded on the New York Stock Exchange-London International Financial Futures (LIFFE) exchange, cocoa's currency correlation is stronger with the British pound (GBP) than with the ICE U.S. Dollar Index<sup>®</sup> (USD<sup>X</sup><sub>0</sub>). The GBP leads the price of cocoa by thirty-nine weeks, or three calendar quarters, on average.

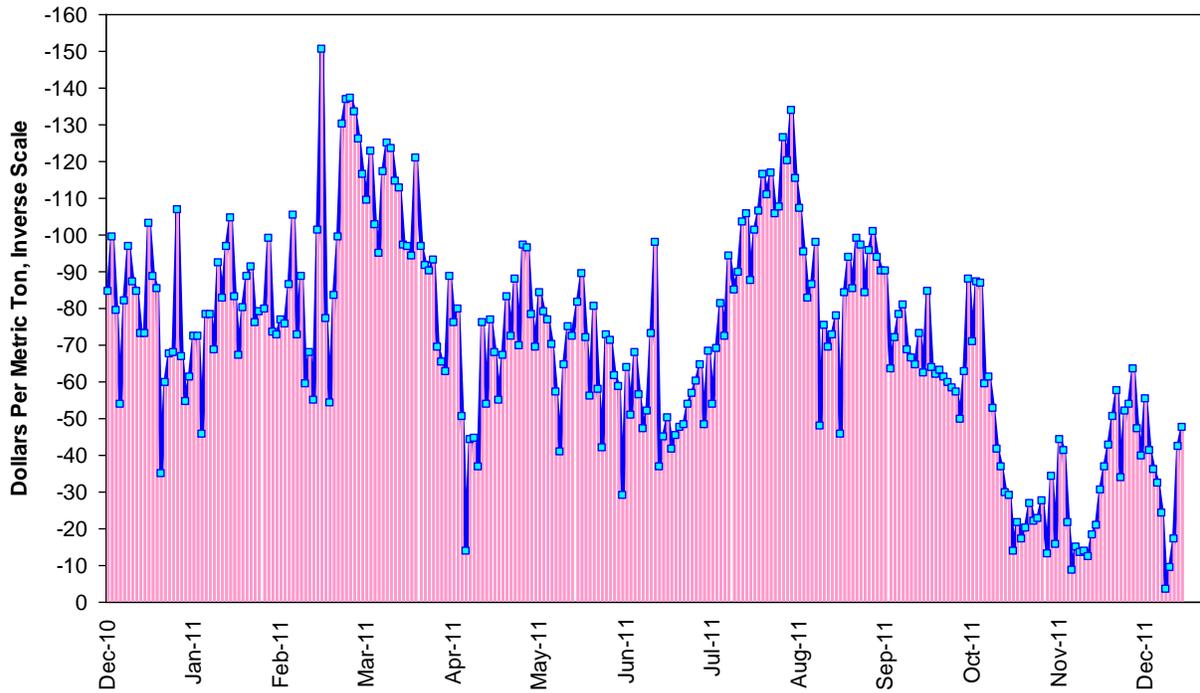
This presents an active arbitrage trade between the cocoa contracts trading in New York and London. While the long-term relationship is shown, experienced traders see the effect intraday when the British pound has a large movement during the period when New York and London trading overlaps.

### The British Pound Leads The Price Of Cocoa



Sources: CRB-Infotech CD-ROM, Bloomberg

### The New York - London Arbitrage (Long ICE Mar. 2012, Short LIFFE May 2012)

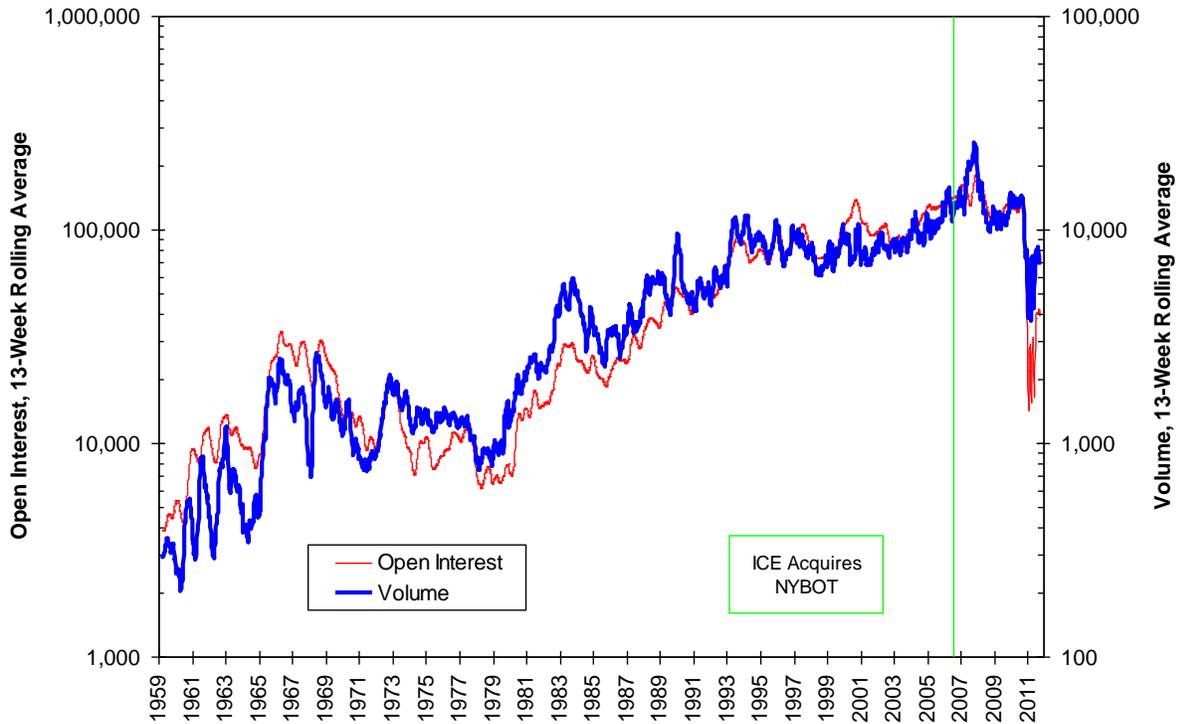


Source: Bloomberg

## COCOA TRADING AT ICE FUTURES U.S.

Cocoa's appeal as a trading vehicle for commodity trading advisors and commodity-linked hedge funds, along with the risk management needs of cocoa exporters and producers, has created a highly successful futures contract, as its volume history demonstrates.

### Long-Term Success Of Cocoa Contract



Source: CRB-Infotech CD-ROM

### ICE FUTURES U.S. CONTRACT

The ICE Futures U.S. cocoa futures contract is for the physical delivery of cocoa beans complying with U.S. Food & Drug Administration standards for importation. The key specifications are:

## ICE Futures U.S. Cocoa Futures Specifications

Hours	0400 Eastern Standard Time to 1400 Eastern Standard Time Trading platform available from 2000 EST the prior day for order entry
Symbol	CC
Size	10 metric tons
Quotation	Dollars per metric ton
Contract Cycle	Mar - May - Jul - Sep - Dec
Minimum Fluctuation ("tick")	\$1 per metric ton; \$10 per contract Spreads may always trade and be quoted in \$1 per MT increments
Settlement	Physical delivery to licensed warehouses at ports of New York, Delaware River, Hampton Roads, Albany or Baltimore
Grade	Growths of any country or clime, including new or yet unknown growths; growths are divided into three classifications: Group A - Ghana, Lome Nigeria, Ivory Coast and Sierra Leone, premium of \$160/MT Group B - Bahia, Arriba, Venezuela, Sanchez amongst others, premium of \$80/MT Group C - Haiti, Malaysia and all others, deliverable at par
Daily Price Limit	None
First/Last Notice Day	Ten business days before the first business day of the delivery month / Ten business days prior to the last business day of the delivery month
Last Trading Day	One business day prior to last notice day Last notice day is twelve business days from end of spot month

A complete list of contract specifications including fees, margins and delivery standards is available at:

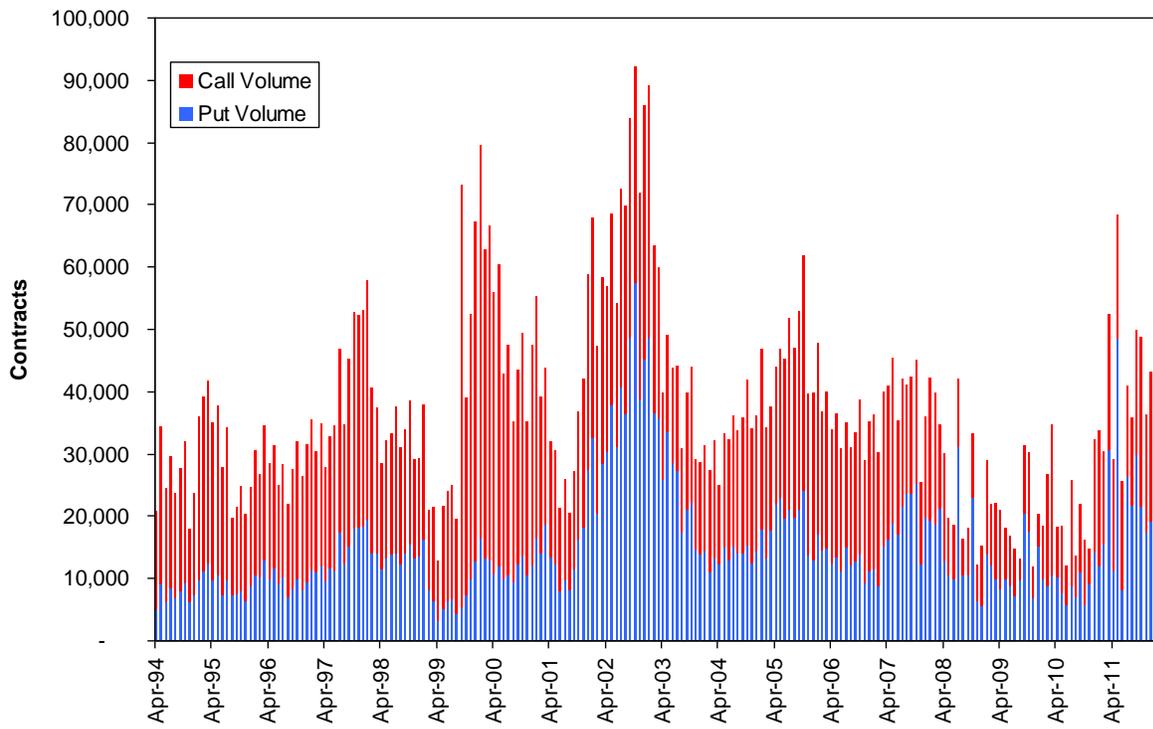
<https://www.theice.com/productguide/ProductDetails.shtml?specId=7>

Options on cocoa futures contracts are also available. Each futures contract has options that settle into that contract, along with serial options for the months between the delivery month and the previous delivery month. For example, December futures underlie option contracts expiring in October and November as well as December. Option strikes are spaced \$50 apart. The last trading day for regular options is the first Friday of the calendar month preceding the option contract month. A complete list of option specifications is available at:

<https://www.theice.com/productguide/ProductDetails.shtml?specId=8>

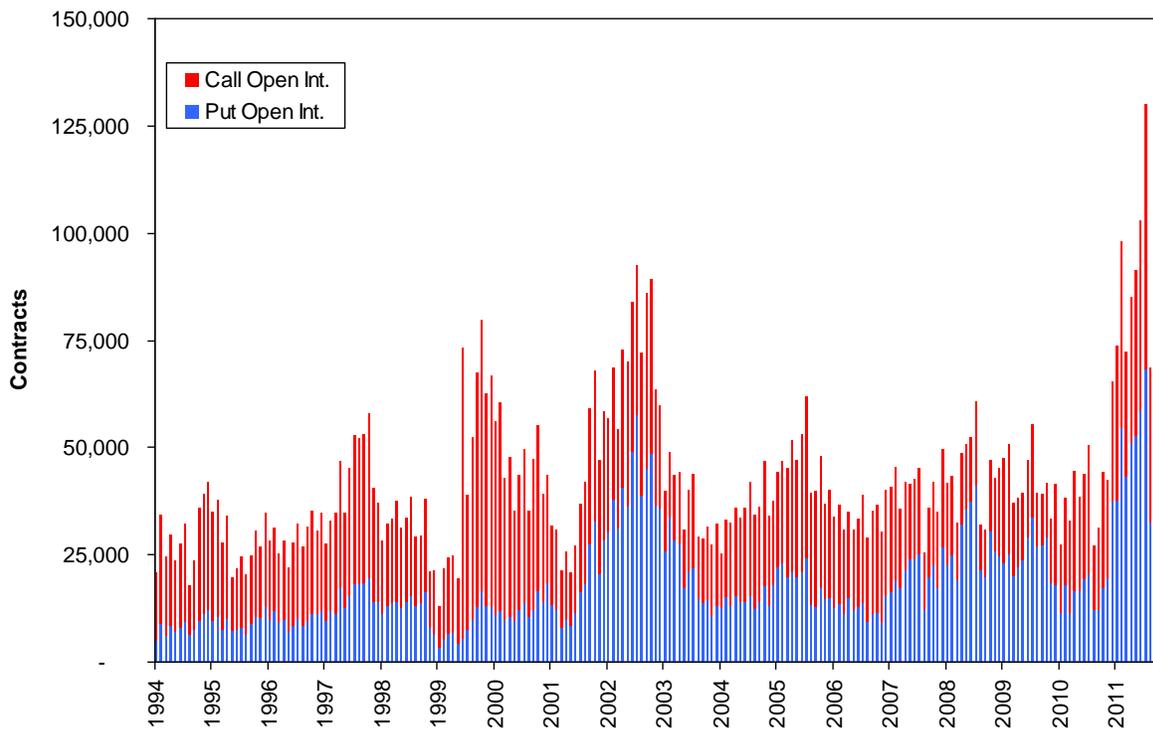
Options trading volume on the ICE Cocoa futures contract has been consistently strong. Options tend to be used by two groups of sophisticated traders. The first is commercial participants hedging their physical positions. The second is experienced speculative traders. The steady and stable use of these markets by both groups is an important indicator of the ICE Cocoa futures contract's success and of options themselves meeting users' needs.

Average Trading Volume By Month: Cocoa Options



Source: ICE Futures U.S.

Average Monthly Open Interest: Cocoa Options



Source: ICE Futures U.S.

## TRADING ICE FUTURES U.S. COCOA FUTURES AND OPTIONS

Futures markets exist for the purposes of price discovery and risk transfer. Price discovery requires buyers and sellers to meet in a competitive marketplace; prices resulting from each transaction signal to other traders what a given commodity might be worth.

Anyone approved by a clearing member or futures commission merchant can participate in the price discovery process, irrespective of their participation in the cocoa business. A market participant who is not in the cocoa or confectionery business will be classified as a non-commercial or speculative trader. A market participant active in the cocoa or confectionery business will be classified as a commercial trader or hedging trader. For speculators, the price discovery trade is straightforward; if you believe the price of cocoa will rise, you “go long” a futures contract; if you believe the price of cocoa will fall, you “go short” a futures contract.

These same market views can be expressed in options as well. If you believe prices will rise, you can buy a call option, sell a put option or engage in a large number of spread trades tailored to your specific price view and risk acceptance. If you believe prices will fall, you can buy a put option, sell a call option or engage in a different set of spread trades. A long call (put) option is the right, but not the obligation, to go long (short) the underlying future at the strike price at or by expiration. A short call (put) option is the obligation to deliver (take delivery) of the underlying future at or by the expiration if that option is exercised. Hedgers may use ICE cocoa options frequently. Producers can set a floor beneath a selling price with long put options, and buyers can establish a ceiling over costs with long call options, among other strategies. In a futures trade, you and the counterparty to your trade will post initial or original margin with your futures commission merchant or clearing member. Minimum margins are set by ICE Futures U.S., and your futures commission merchant may require additional funds.

The margin schedule for ICE Futures U.S. is available at:

[www.theice.com/margins.jhtml](http://www.theice.com/margins.jhtml)

There are no margin requirements for long option positions. Margin requirements for short option positions vary according to the relationship between the option strike price and the futures price. If the market moves in your favor — higher for a long position (or commitment to take delivery of cocoa or to offset the contract by selling it prior to delivery), or lower for a short position (or commitment to deliver cocoa or to offset the contract by buying it prior to delivery) — the equity in your account will increase. You may withdraw these funds down to the “maintenance margin” level, depending on your account agreement. If the market moves adversely — lower for a long position or higher for a short position — your futures commission merchant will require you to post additional funds, called variation margin, to sustain your maintenance margin level. These “margin calls” assure both your futures commission merchant and ICE Clear U.S.<sup>®</sup>, the exchange clearinghouse, that you can perform according to your contractual commitment. All futures accounts are marked-to-market daily, and participants deficient in margin obligations may have positions liquidated involuntarily.

As the designated clearinghouse, ICE Clear U.S. serves as the counterparty to every futures contract traded on ICE Futures U.S. As a AAA-rated entity, the clearinghouse clears trades matched by ICE Futures U.S. and guarantees performance in delivery even if a trader defaults. The financial integrity and anonymity provided by ICE Clear U.S. are increasingly important in the financial system. What do financial flows look like in a futures trade? Let’s say a five-contract futures position is initiated at \$2,890 per metric ton and the market rises to \$2,935 per metric ton on the following trading day.

- For the long position, the gain is:  
 $5 \text{ contracts} \times [2,935 - 2,890] / \text{contract} \times \$10 \text{ per } \$1 =$   
\$2,250
- For the short position, the loss is equal and opposite:  
 $5 \text{ contracts} \times [2,890 - 2,935] / \text{contract} \times \$10 \text{ per } \$1 =$   
-\$2,250

If we reverse the price path, we reverse the gains and losses. Let’s change the starting price to \$2,975 per metric ton and have the market decline to \$2,920 per metric ton the next day.

- For the long position, the loss is:  
 $5 \text{ contracts} \times [2,920 - 2,975] / \text{contract} \times \$10 \text{ per } \$1 =$   
-\$2,750
- For the short position, the gain is equal and opposite

5 contracts x [2,975 – 2,920] / contract x \$10 per \$1 =  
\$2,750

Options traders see the same directional profit and loss profiles relative to price, but the actual profit and loss is subject to a range of additional factors, including market volatility, time to contract expiration, interest rates and the relationship between the current futures price and the option's strike price.

## RISK TRANSFER

Risk transfer is the second purpose of a futures market. Any party with price risk exposure to cocoa can seek protection in the futures markets. An originating seller or marketer of cocoa, a holder of cocoa inventories, or any party at risk to a lower price of cocoa is long the market. These participants can offset risk by going short a futures contract. Any grinder, confectioner or cocoa user at risk of increasing prices is short the market and can offset risk by going long a futures contract. The mechanics and financial flows are identical to those outlined above. A cocoa seller at risk to prices falling can acquire a financial asset, the short futures position, which will rise in value as the market declines. The opposite is true for a cocoa grinder or confectioner at risk to prices rising; there a long futures position will rise in value as the market rises. While the financial flows should offset the economic gains and losses of the physical cocoa position, there are two important things to remember.

First, even though futures prices converge to cash prices at expiration, the convergence process is subject to what is called "basis risk," or differences resulting from changes in hedging demand, location of the cocoa or grade differentials.

Second, while the economic gains on, for example, a warehouse full of cocoa are real, they are not realized until the cocoa is sold. If this inventory is hedged with a short futures position and the market rises, the beneficial owner of the cocoa will have to keep posting additional funds in the margin account.

Nothing in the above discussion of hedging tells you when or at what price to hedge. This is one of the reasons options are valuable to hedgers. While the cocoa owner or seller may wish to have downside protection, or a price floor, that same grower probably wants to participate in any future price increases. The owner or seller concerned about a decline in the value of cocoa between now and the time he expects to be able to sell his cash crop at harvest in the fourth quarter could buy a December \$2,850 put option, which is the right, but not the obligation, to receive a short position in a December future at \$2,850 for a premium of \$196, or \$1,960 per option contract. The purchased put guarantees the marketer the right to sell the December future for an effective price of \$2,654 per metric ton (the \$2,850 strike price less the premium paid of \$196). This right gives him protection if cocoa prices have fallen by the expiry of the December option, but at the same time preserves his ability to profit should the price of cocoa move higher over the period.

The cocoa grinder or confectioner wishing to cap the price of cocoa, but not be exposed to margin calls if the price continues to rise, can do an opposite trade and buy a December \$2,900 call option, which is the right, but not the obligation, to receive a long position in a December future at \$2,900 for a premium of \$206, or \$2,060 per option contract. The purchased call gives the cocoa grinder or confectioner the right to buy the December future at an effective price of \$3,106 per metric ton (again, the strike price of \$2,900 cents plus the premium paid of \$206), offering protection against an unfavorable rise in the price of cocoa, while preserving the ability to take advantage if prices decline.

It should be noted that the risk profile for sellers of options is dramatically different than for buyers of options. For buyers, the risk of an option is limited to the premium or purchase price paid to buy the option. For sellers, the risk profile is unknown and can be potentially quite large.

Options can become complex very quickly, with trading influenced by variables including time remaining to contract expiration, underlying commodity volatility, short-term interest rates and a range of expected movements collectively called "the Greeks."

## ABOUT ICE

In addition to agricultural commodities, ICE operates existing futures and options markets for crude oil, refined products, natural gas, power, emissions, and foreign currency and equity index futures and options.

ICE conducts its energy futures markets through ICE Futures Europe<sup>®</sup>, its U.K. regulated London-based subsidiary, which offers the world's leading oil benchmarks and trades nearly half of the world's global crude oil futures. ICE conducts its soft commodity, foreign exchange and index markets through its U.S. regulated subsidiary, ICE Futures

U.S., which provides global futures and options markets, as well as clearing services through ICE Clear U.S., its wholly owned clearinghouse. ICE's state-of-the-art electronic trading platform brings market access and transparency to participants in more than 50 countries.

ICE was added to the Russell 1000® Index in June 2006. Headquartered in Atlanta, ICE also has offices in Calgary, Chicago, Houston, London, New York and Singapore. ICE also conducts futures and options trading in canola oil, milling wheat, durum, barley and western barley through ICE Futures Canada™, a regulated market in Manitoba, Canada.

#### LEADING ELECTRONIC TRADING PLATFORM

ICE's electronic trading platforms provide rapid trade execution and are among the world's most flexible, efficient and secure commodities trading systems. Accessible via direct connections, telecom hubs, the Internet or through a number of front-end providers, ICE offers a 3 millisecond transaction time in its futures markets, the fastest in the industry. ICE's platform is scalable and flexible – which means new products and functionality can be added without market disruption.

ICE offers numerous APIs for accessing futures and OTC markets, including a FIX API.

#### INTEGRATED ACCESS TO GLOBAL DERIVATIVES MARKETS

ICE's integrated futures and OTC markets offer cleared and bilateral products on a widely-distributed electronic platform, with quick response times to participants' needs, changing market conditions and evolving market trends.

#### TRANSPARENCY

Price transparency is vital for efficient and equitable operation of markets. ICE offers unprecedented price transparency and ensures that full depth-of-market is shown. Trades are executed on a first-in/first-out basis, ensuring fair execution priority. ICE also displays a live ticker of all deal terms, and maintains an electronic file of all transactions conducted in its markets.

#### ICE FUTURES U.S. REGULATION

ICE Futures U.S., Inc. is a designated contract market pursuant to the Commodity Exchange Act, as amended, and is regulated by the Commodity Futures Trading Commission. For well over a century, the Exchange has provided reliability, integrity and security in the global marketplace.

#### GETTING INVOLVED

A list of ICE education programs is available at: [www.theice.com/education](http://www.theice.com/education); an overview of ICE capabilities is available at: [www.nxtbook.com/nxtbooks/ice/overview/#/0](http://www.nxtbook.com/nxtbooks/ice/overview/#/0). In addition to our other education offerings, ICE provides contract specific webinar presentations. A list of these presentations can be found at: [www.theice.com/webinars](http://www.theice.com/webinars).

The ICE website: [www.theice.com](http://www.theice.com) should be your first place to start. The home page for Cocoa is: <http://www.theice.com/productguide/ProductDetails.shtml?specId=7>. The link: [www.theice.com/clear\\_us](http://www.theice.com/clear_us) provides you with the technical details on exchange rules, margins and fees and delivery and expiration.

To contact ICE Futures U.S., visit: [www.theice.com/contact](http://www.theice.com/contact)