

An Introduction to CME Foreign Exchange Products



What Are Futures and Options?

Futures contracts are standardized, legally binding agreements to buy or sell a specific product or financial instrument in the future. The buyer and seller of a futures contract agree on a price today for a product to be delivered or settled in cash at a future date. Each contract specifies the quantity, quality and the time and location of delivery and payment.

The value of a futures contract is derived from an underlying financial measure or market, such as foreign exchange rates, equity index levels, interest rates or commodity prices – hence the term *derivatives*. As the value of the underlying measure or market changes, the value of the futures contract based on that measure or market also changes. Institutions and individuals that face financial risk based on the movement of the underlying measure or market can buy or sell futures that will change in value to offset that financial risk. Such transactions are known as *hedging*. Institutions and individuals also buy and sell futures hoping to profit from price changes. These transactions are considered *speculation*.

CME also offers investors options on futures. Options can be thought of as insurance policies. The option buyer pays a price for the right – but not the obligation – to buy or sell a futures contract within a stated period of time at a predetermined price. The combination of options and futures – both risk-management tools – can give market participants the leverage of futures and the more limited risk of options. Options provide the opportunity to limit losses while maintaining the possibility of profiting from favorable changes in the futures price.



Global Leadership in the Financial Marketplace

CME is the largest and most diverse financial exchange in the world for trading futures and options – handling nearly 800 million contracts worth more than \$460 trillion in a single year. Founded in 1898, we serve the risk-management needs of customers around the globe by offering the widest range of benchmark financial products available on any exchange, traded via our CME Globex electronic trading platform and on our trading floors.

Our innovative products cover major market segments – including foreign exchange, interest rates, equities, commodities and alternative investment products – and improve the way these markets work for customers everywhere. In addition, our clearing house matches and settles all trades and guarantees the creditworthiness of every transaction that takes place in our markets.



Overview of CME Foreign Exchange (FX) Products

Providing large and small companies with a tool to hedge foreign currency risk, CME Foreign Exchange (FX) futures products help facilitate cross-border trade and commerce without undue risks to profitability. A company, for example, could see its profits from global commerce evaporate or even become losses due to swings in currency exchange rates. Similarly, portfolios with investments in international stocks or hard assets, such as factories or real estate, face risks related to currency fluctuations in the countries where the assets are based. Companies can employ currency overlay managers who use a variety of hedging strategies to minimize the impact of a drop in currency values that would affect the overall value of the portfolio. CME FX futures enable users to gain a means of protection from currency risks in multinational transactions of all types.

CME created FX futures, the first ever financial futures contracts, in 1972, under the leadership of Leo Melamed, CME Chairman Emeritus. This innovation capitalized on the U.S. abandonment of the Bretton Woods agreement, which had fixed world exchange rates to a gold standard after World War II. As a result, currency values were allowed to float, increasing the risk of doing business. By creating another type of market in which futures could be traded, CME currency futures extended the reach of risk management beyond commodities. The concept of currency futures was revolutionary, gaining credibility through the endorsement of Nobel-prize-winning economist Milton Friedman.

Today, CME offers 36 individual FX futures and 23 options on futures products, all of which trade electronically on the exchange's CME Globex platform. It is the largest regulated marketplace for foreign exchange (FX) trading. With a daily notional trading value of approximately \$45 billion, CME FX trading accounts for about 7 percent of the overall \$680 billion spot (cash) market. More than 51 million FX contracts, representing \$6.2 trillion in notional value, traded at CME in 2004. For a complete list of CME FX products, see page 8.

The FX market is unique in that there are no bear markets. Currencies are constantly traded, regardless of prices of stocks or bonds, for purposes of commerce and speculation. A CME FX trader's profit or loss stems only from changes in the relative value of the currencies being traded, not the value of stocks, bonds or other commodities.

Why Use CME Foreign Exchange Products?

CME FX futures are standardized, exchange-traded contracts to buy or sell a currency at a specific price some time in the future, commonly three months or more.

As an essential tool to manage the risks associated with changing currency valuations, CME FX futures essentially allow market participants to lock in a currency rate for a specific time period. At the same time, CME FX futures offer a means of potential profits for those who wish to speculate on currency fluctuations, and in so doing accept the risk that businesses and financial institutions wish to offset.

Banks, governments, companies and individuals buy and sell currencies to pay for products and services bought in other countries and to convert payments into local currencies on goods sold to other countries.

For example, a company expecting a shipment of automobiles from Germany may use CME FX futures to hedge against the possibility of a decline in the value of the U.S. dollar versus the euro. That company will receive a bill in euros but pay in dollars. If dollars are worth less at the time of payment than they were when the company placed the order, the company will need to spend more dollars to meet its debt in euros.



Who Trades CME FX Products?

Traders of CME FX futures are a diverse group that includes commercial banks, investment banks, multinational corporations, hedge funds, commodity trading advisors (CTAs), financial managers, proprietary trading firms, currency overlay managers and individual investors. They trade in order to transact business, hedge against unfavorable changes in currency rates, or to speculate on rate fluctuations. For example:

- » A U.S. bank has an outstanding loan to a European customer of 100 million euros due in 30 days. At current exchange rates, this loan has a U.S. dollar value of \$121.75 million. To protect itself from a decline in the euro, the bank sells 800 CME Euro FX futures contracts, representing 100 million euros in notional value, at 1.2175. Thirty days later the contract is trading at 1.2000 and the bank receives 100 million euros, now with a dollar value of \$120 million, from its customer. On the same day, the bank buys back 800 CME Euro FX contracts at 1.2000, resulting in a profit of \$1.75 million. By hedging its euro exposure with CME Euro FX futures, the bank was able to exactly offset the decline of the euro.
- » A trader at a macro hedge fund wants to buy 100 million euros. She is concerned that if the market knows her fund wants to make that purchase, it could drive up the price of euros. The trader instead decides to execute a trade using 800 CME Euro FX contracts (100 million euros). Because all trades at CME are anonymous, she is able to complete the entire transaction, in less than a second, without moving the market.
- » A proprietary trading group, which trades for its own accounts, has been successful in using a special model it has developed to trade the stocks in the S&P 500 index against the CME S&P 500 futures contract. Seeing opportunity in the FX market, the prop shop wants to trade FX as an asset class. It modifies its model to utilize currency and other information to trade currency futures. The prop shop is hoping to profit from differentials between the FX spot (cash) market and the CME FX futures market in the same way that it has from trading equities.

Futures Terms

Futures prices are listed in daily newspapers and other media. These are the terms you will typically see.

Expiration month: The month and year in which a futures or options contract will expire and be settled.

Open: The average price at which the first bids and offers were made or the first transactions were completed during the trading period.

High: Top bid or top price at which a contract was traded during the trading period.

Low: Lowest offer or the lowest price at which a contract was traded during the trading period.

Settlement price: The official daily closing price, typically set at the midpoint of the closing range.

Net change: The amount of increase or decrease from the previous trading period's settlement price.

Yield settlement: The interest rate implied by the settlement price.

Volume: The number of contracts traded (one side of each trade only) for each delivery month during the trading period.

Open interest: The accumulated total of all currently outstanding contracts (one side only). Refers to unliquidated purchases and sales.

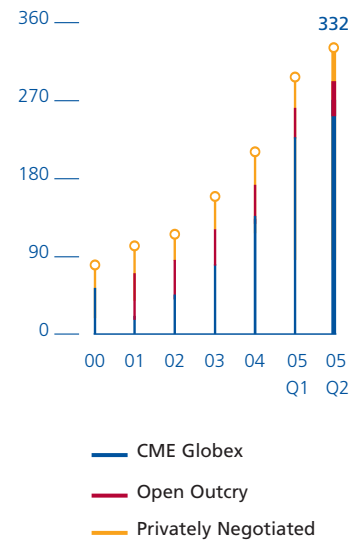


Advantages of CME FX Markets

CME FX products are part of a broad currency market, which also includes an OTC market. As the largest regulated marketplace for FX trading, CME's exchange traded FX products offer significant advantages, such as:

- » **Concentrated liquidity** – More than \$40 billion of notional FX volume trades in CME FX markets each day. This deep liquidity enables spreads in CME markets to be consistently tight.
- » **Price transparency/equal access** – At CME, trading transactions take place in an open, fair and anonymous trading environment. CME market prices are universally available in real time. All market participants have equal access to the same FX markets and prices. Electronic trading participants can see the top five bids and offers and the prices at which trades are executed at all times.
- » **Market integrity** – By serving as the counterparty to every trade, the CME Clearing House virtually eliminates the risk of credit default and protects the financial integrity of CME markets. CME's centralized clearing function also enables any market participant to close or modify positions independent of the other party or parties in the original trade.
- » **Regulatory assurance** – The quality and strength of CME's regulatory capabilities ensure the financial security of our markets. Our integrated compliance and market surveillance functions assure market participants of the highest trading standards and supervision. CME markets are monitored by the Commodity Futures Trading Commission (CFTC), an independent federal regulatory agency.

CME Foreign Exchange Products
(Average daily volume, round turns in thousands)





Pricing of CME FX Futures Contracts

The main difference between FX spot prices and FX futures prices is that the futures prices reflect the interest rate differential of the respective countries, since the futures contracts cover time periods over which interest would be paid or earned. A spot trade involves an exchange of one currency for another, where the exchange of currency usually takes place two days following the initial transaction.

In contrast, CME FX futures, in most cases, settle/expire on a quarterly cycle, generally on set dates in March, June, September and December. In order to derive futures rates for these specific expirations, traders use a combination of spot (cash rates) plus or minus forward points to obtain the futures rate. Forward points are simply points that represent the interest rate differential between the two countries.

Cash rate +/- forward points = futures rate

These forward points combine the interest rate benefit or disadvantage for holding a specific currency for a specific period of time. There are forward points for each time period in the future. In order to adjust a spot rate to a futures price, traders use the interest rate differential as expressed in the forward points identified for each expiration date.

Price Quotes for CME FX Trades

The quote conventions for some prices in the FX spot market and CME FX markets may be different. CME FX products are quoted in terms of U.S. dollars per unit of the other currency being traded. For example, quotes would be given in U.S. dollars per euro or U.S. dollars per Japanese yen.

The FX spot market uses direct quotes in some instances – with euros, British pounds, Australian dollars and others – but more commonly uses an indirect quote convention. Indirect quotes are given in terms of a foreign currency per U.S. dollar, such as Japanese yen per U.S. dollar. To make it easy for FX spot traders to compare prices in the CME FX market, CME developed a free, Web-based application called CME E-equivalents. This unique tool shows CME FX prices in FX spot terms. In addition, it includes forward points and provides the top five bids and offers on all CME FX products. A screen shot of E-equivalents appears on page 6.

Calculating Profits and Losses in Trading

In determining profits and losses in CME FX futures trading, it is essential to know both the contract size (the number of currency units being traded) and also what the tick value is. A tick is the minimum trading increment or price differential at which traders are able to enter bids and offers. Tick values vary among different CME FX futures contracts. For the CME Euro FX contract, for example, one tick or “point” equals .0001. To demonstrate how a move of one tick affects the price of a CME Euro FX contract, imagine that a trader buys a contract at a rate (price) of 1.2960. (In other words, the trader is buying euros for \$1.2960 each.) One CME Euro FX contract involves trading the value of 125,000 euros.

1.2960	Purchase price
+ .0001	Prices increases by one tick
1.2961 =	New price of CME Euro FX contract trading one tick or point higher.

1.2960	Purchase price
- .0001	Prices decreases by one tick
1.2959 =	New price of CME Euro FX contract trading one tick or point lower.

If the trader bought one contract at 1.2960 and sold one contract at 1.2961, the profit would be one point (.0001), which according to the contract specifications equals \$12.50.

1.2961	
- 1.2960	
.0001 =	1 tick profit = \$12.50

Correspondingly, if the price declined by a point the loss would be \$12.50.

If the trader buys five contracts at 1.2960 and then sells five contracts at 1.2965, the trader has made a profit. To figure out the amount of profit on this trade, he would do as follows:

Step 1:	1.2965 – 1.2960 = 5 points
Step 2:	Multiply 5 points x number of contracts (5) = 25 (points)
Step 3:	Multiply 25 points x \$12.50/per point = \$312.50 profit

Of course, if the contracts had lost five points, the loss would have been \$312.50.

Please note: These examples do not include transaction fees (brokerage fees and other fees) which would need to be part of a complete analysis of hedging FX risk.



Electronic Trading Around the Clock, Around the World

As a leader in electronically traded derivatives products, CME enables customers to access the widest array of benchmark futures and options contracts available on any exchange, via our CME Globex electronic trading platform. Trading on CME Globex is available on a single platform, virtually 24 hours a day – more than any other exchange in the world. Our customers can access the CME Globex trading platform through 740 direct connections in 27 countries around the world, as well as through telecommunications hubs – located in London, Amsterdam, Dublin, Frankfurt, Gibraltar, Milan, Paris and Singapore – that provide reduced connectivity costs, increased accessibility, and fast, efficient trading of CME products.

The platform's open architecture enables customers to access CME Globex using their own proprietary trading applications or

the systems provided by futures brokers and independent software vendors, as well as a CME-provided trading application. In conjunction with the security of the CME Clearing House guarantee, the CME Globex trading platform offers speed of execution, transparency, anonymity and market integrity. Traders are able to see the top prices and other data right on their screen and transactions are executed in less than a second. The advanced capabilities of the CME Globex platform allow traders to execute all of the traditional (outright) transactions in futures as well as a variety of spread trades, including highly complex options spreads.

The CME Globex platform was named “the best electronic FX futures platform” by *FX Week* in 2004 and 2005.

CME E-equivalents

CME E-equivalents		CME European Style eFX Options		eFX Futures	
Total eFX Volume: 147,828 Total eFX Notional: 26,094M					
Futures Bid					
156	12218	High 12238	EuroFX	86 US	Volume 76,479
142	12289	Low 12005			Notional 9,950M
188	12288	Last 12210			Contract Size 125,000
87	12287	156	12218	12212	157
36	12286	19,500	1.2178	1.2180	20,875
149	12285	Forward Points =	-31.50	-31.65	Submit
Futures Ask					
2	9068	High 9073	Japanese Yen	61 US	Volume 22,545
271	9061	Low 9004			Notional 2,533M
183	9062	Last 9060			Contract Size 10,000,000
94	9063	2	9060	9059	83
37	9064	0.225	111.11	111.12	9,859
147	90617	Forward Points =	73.65	73.45	Submit
Futures Bid					
48	17663	High 17665	British Pound	86 US	Volume 13,870
67	17662	Low 17515			Notional 967M
49	17661	Last 17654			Contract Size 62,500
228	17660	48	17663	17665	40
11	17658	3,000	1.7700	1.7702	5,500
185	176607	Forward Points =	37.10	35.80	Submit
Futures Ask					
9089	80				
9088	251				
9087	75				
9086	134				
9085	25				

- Total number of electronically traded contracts so far on that day's trading session
- Total notional – cash – value of electronically traded contracts so far on that day's trading session
- Forward points (interest rate differentials)
- Top five bids and offers
- Best bid in spot equivalent terms
- Best offer in spot equivalent terms



Fully Integrated Clearing

At CME, we operate our own clearing house that matches and settles all trades and guarantees the creditworthiness of every transaction that takes place in our markets. Our integrated clearing function ensures the safety and soundness of our markets and helps differentiate us from our competitors.

With the CME Clearing House serving as counterparty to every trade – e.g., in the clearing process it becomes the buyer to each seller of a futures contract and the seller to each buyer – credit risk is virtually eliminated. Performance bond (collateral) deposits are required at each level in the clearing process – customer to broker, broker to clearing firm, clearing firm to clearing house. The performance bond is a good-faith deposit that represents the minimum amount of protection against potential losses.

The CME Clearing House handles more than 90 percent of all futures and options contracts traded in the U.S. This requires management of the substantial exposure that results from transferring more than \$460 trillion of risk and guaranteeing the performance of each of nearly 800 million contracts annually. On a daily basis, we hold nearly \$45 billion of collateral deposits to support the transactions that are being made in CME markets. Twice daily, we move between \$1.5 billion and \$6 billion of funds to and from market participants.

Getting Started in CME FX Futures

Today's greater need for risk management and hedging tools has required investors to become increasingly sophisticated about futures and options on futures products.

With customers around the world; a diverse product line; deep, liquid markets; around-the-clock electronic trading on a single platform and strategic alliances with other exchanges, CME is truly a global marketplace. Why not make it yours?

For additional information to help you get started trading CME FX products, please visit our Web site at www.cme.com/trading/prd/fx. You will be able to access a number of other brochures and online seminars as well as marketing and education materials that can answer your questions or help you to begin trading these products. Additionally, if you would like to talk to a CME representative, please call our Customer Service Line, 1-800-331-3332.



CME Foreign Exchange Products

CME Foreign Exchange Products: Traded Against the U.S. Dollar

CME offers FX futures on sixteen currencies, including major world currencies such as the euro and yen, as well as the currencies of countries with emerging markets, such as Mexico and the Czech Republic. These products are all available for trading electronically on the CME Globex platform. In addition, two of the contracts listed below are CME E-mini products – CME E-mini Euro FX and CME E-mini Japanese Yen. These smaller versions of the regular-sized contracts are attractive to individual traders.

- CME Australian Dollar
- CME British Pound
- CME Czech Koruna
- CME E-mini Japanese Yen
- CME Hungarian Forint
- CME Mexican Peso
- CME Norwegian Krone
- CME Russian Ruble
- CME Swedish Krona
- CME Brazilian Real
- CME Canadian Dollar
- CME E-mini Euro FX
- CME Euro FX
- CME Japanese Yen
- CME New Zealand Dollar
- CME Polish Zloty
- CME South African Rand
- CME Swiss Franc

CME Foreign Exchange Products: Non-U.S. Dollar Currency Pairs

CME also lists 17 cross-rate foreign exchange products that are non-U.S.-dollar pairs. These products include 10 contracts involving euros, three with British pounds, three with Swiss francs, three with Canadian dollars and four with Australian dollars.

- CME Euro FX/Australian Dollar
- CME Euro FX/Canadian Dollar
- CME Euro FX/Hungarian Forint
- CME Euro FX/Norwegian Krone
- CME Euro FX/Swedish Krona
- CME Australian Dollar/Canadian Dollar
- CME Australian Dollar/Japanese Yen
- CME British Pound/Japanese Yen
- CME Swiss Franc/Japanese Yen
- CME Euro FX/British Pound
- CME Euro FX/Czech Koruna
- CME Euro FX/Japanese Yen
- CME Euro FX/Polish Zloty
- CME Euro FX/Swiss Franc
- CME Australian Dollar/New Zealand Dollar
- CME British Pound/Swiss Franc
- CME Canadian Dollar/Japanese Yen

CME also offers futures on the CME\$Index, a weighted index of major currencies.

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