

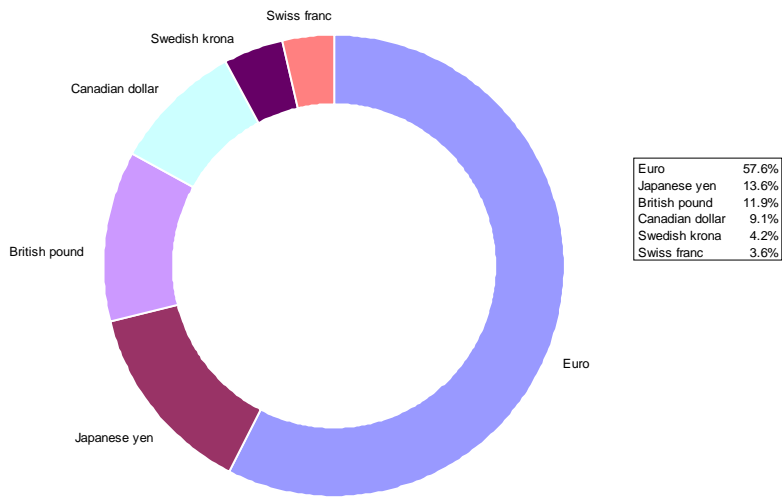
## Update To USDX Brochure

The USDX is quite unique among currency indices in its fixed composition. It has changed once since its 1973 introduction, and that was when the euro was launched in January 1999, replacing a number of European currencies. The net representation of the European legacy currencies in the USDX remained fixed at 57.6%.

By contrast, the Federal Reserve's trade-weighted dollar index changes annually to reflect prior-year developments. Because the Federal Reserve is not in the business of licensing economic indicators for commercial purposes, this after-the-fact index is unsuitable for trading purposes. The relative weights of the two indices are shown on the next page.

Yet for all of the differences in weighting and composition, the ICE USDX futures contract and cash index matches the Federal Reserve's trade-weighted index of major currencies very closely. Its  $r^2$ , or percentage of variance explained, is .933 with the deviations occurring in four distinct periods. The first, 1978-1981, was a period when the dollar was especially weak against the major currencies. The next two, 1984-1985 and 2000-2002, occurred when the dollar was especially strong against the major currencies. The fourth divergence began as Europe's sovereign credit problems moved to the fore in 2009 and continued throughout calendar 2011. The Federal Reserve's broad trade-weighted index, which includes minor currencies, is displayed for reference purposes.

Weights Of ICE Futures U.S. Dollar Index (USDX)



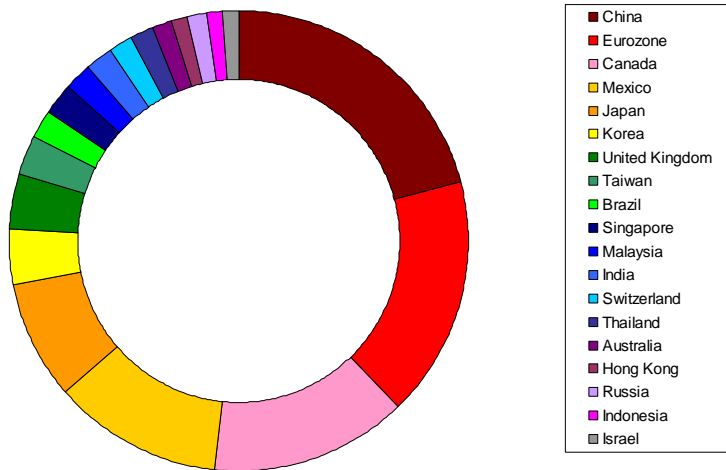
Source: ICE Futures U.S.

**Commented [hls1]:** The current Web PDF has the dollar index mis-sourced as the Federal Reserve; this was not the case in my original. It is ICE Futures.

The text was rewritten to include the European sovereign debt problems of 2009-2011; this is the "fourth episode."

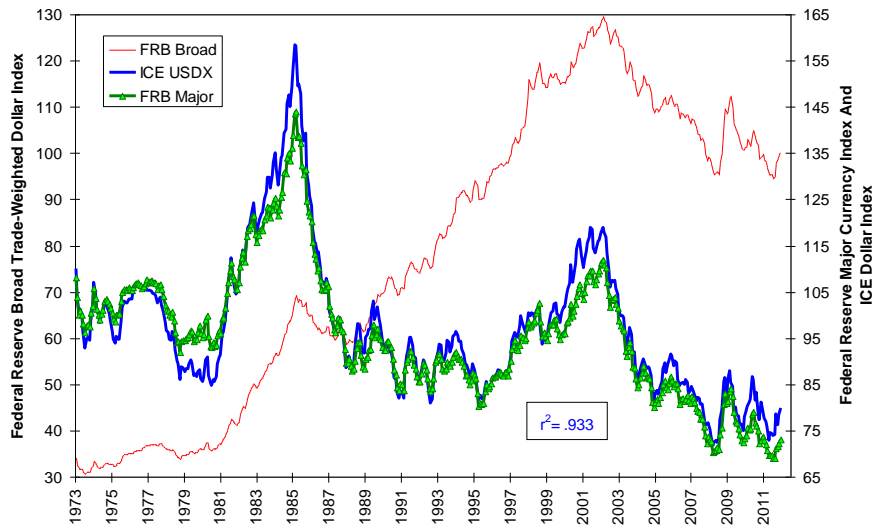
I had used pie charts originally; the current Web PDF uses doughnut charts in indistinguishable shades of green. I use a doughnut here and a muted color scheme. Also, I restricted the Federal Reserve charts to 1% minimum weights.

**Federal Reserve 2011 Trade Weights  
(One Percent Minimum)**



Source: Federal Reserve

**The USDX Matches The Federal Reserve's Major Currency Index Closely**



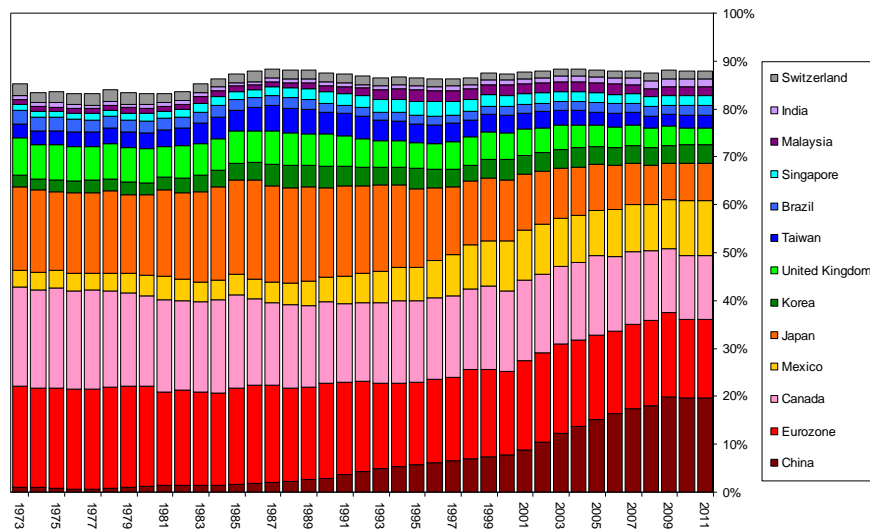
Source: Bloomberg

The value of the ICE USDX is underscored by its stability in the face of changing trade weights over time. The Federal Reserve has indices for total trade weights and for import and export weights. The post-1973

history of the total trade weight series is dominated by the rise of Mexico and especially China as trading partners of the U.S., at the expense of Japan and Canada.

**Commented [hls2]:** I added a reference to Canada's slowly shrinking weight

**Total Trade Weights For U.S. Dollar  
(2011 Weight Greater Than 1.5%)**

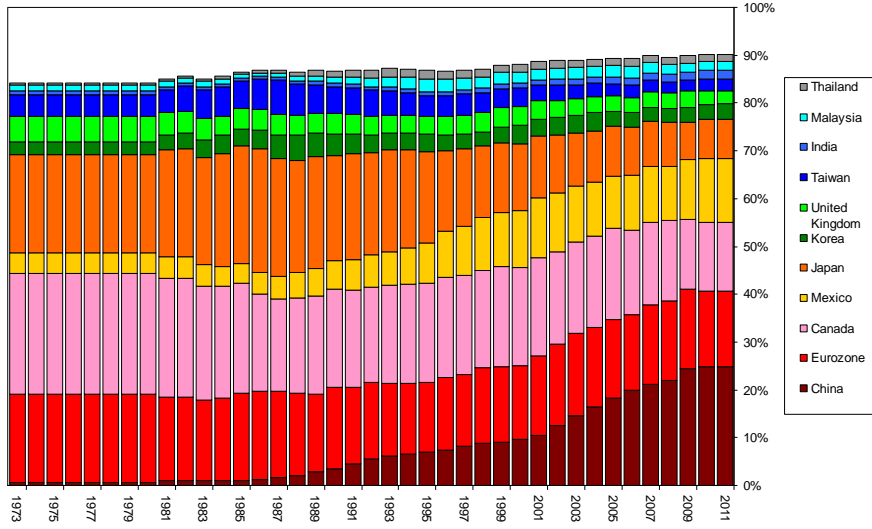


Source: Federal Reserve

If we divide total weights into import and export weights, the increasing role of China and Mexico become even more apparent on the import side, as has the role of Mexico vis-à-vis Japan on the export side. China is becoming increasingly important as a customer for U.S. exports as well. Currencies are only a partial explanation for changes in trade weights. Other factors such as labor costs, resource endowments and changes in national economic growth rates following changes in internal political systems can be far more important than currencies in determining a nation's trade patterns.

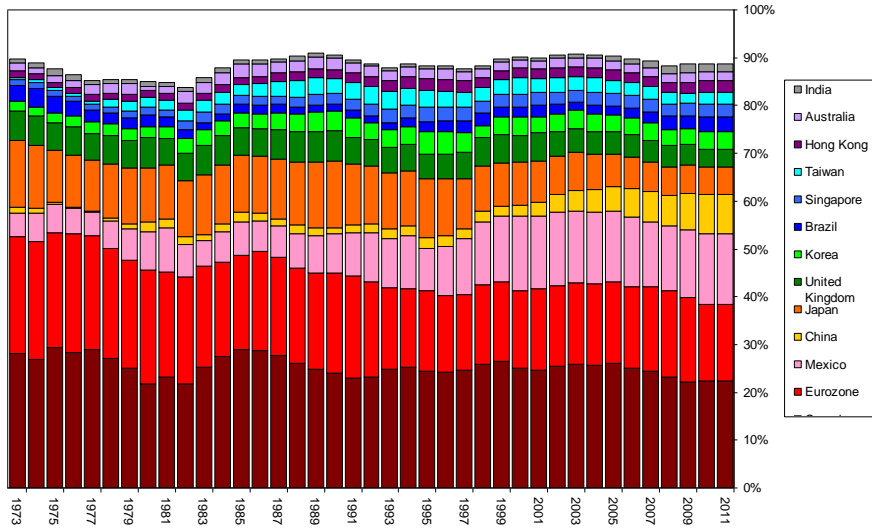
**Commented [hls3]:** The deleted statement is no longer true.

**Total Import Weights For U.S. Dollar  
(2011 Weight Greater Than 1.5%)**



Source: Federal Reserve

**Total Export Weights For U.S. Dollar  
(2011 Weight Greater Than 1.5%)**

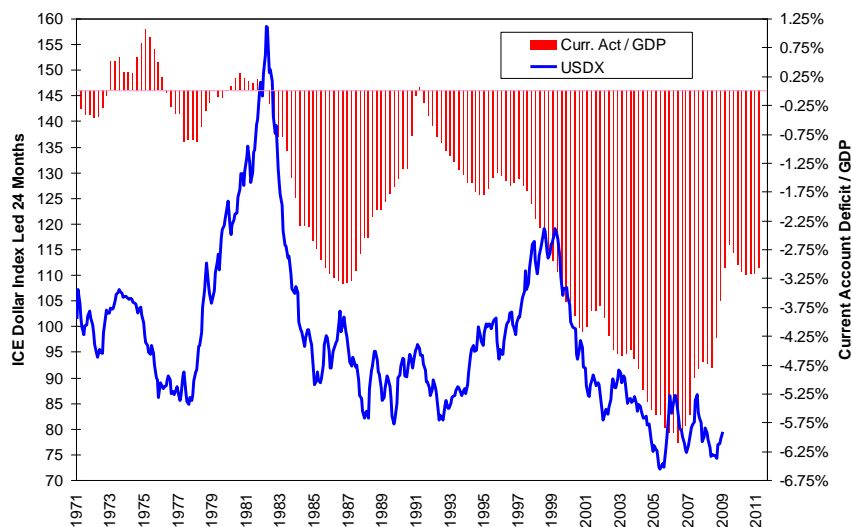


Source: Federal Reserve

**THE TWIN DEFICITS**

If trade flows do not drive the ICE USD<sub>X</sub> or vice-versa, do the U.S. federal and current account deficits, the so-called twin deficits? Not as much as the dollar's many detractors would like to believe. The current account deficit as a percentage of GDP expanded in two great episodes, the first half of the 1980s and 1998-2006. Both expansions led the decline of the ICE USD<sub>X</sub> by 24 months. However, the narrowing of the current account deficit between 1988 and 1991 produced no rally in the ICE USD<sub>X</sub>, and the huge rally in the ICE USD<sub>X</sub> between 1980 and 1985 occurred independently of the current account deficit. A relationship should work both ways for it to be causal.

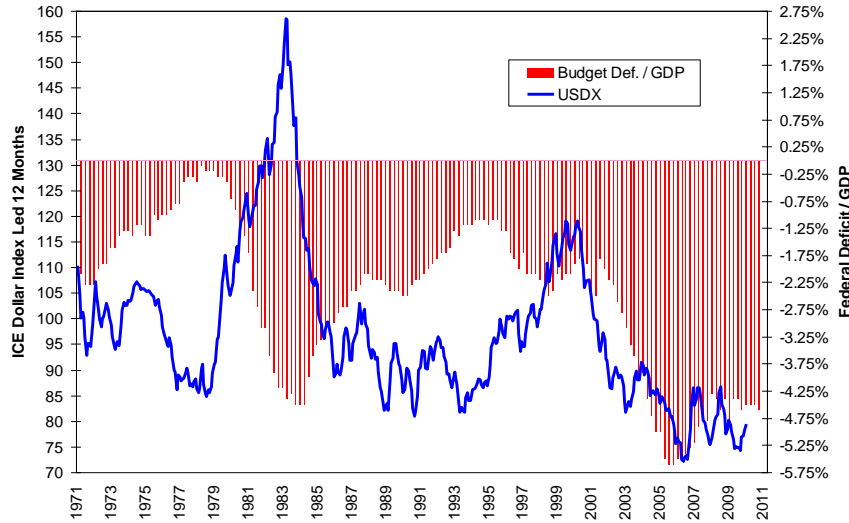
**The USD<sub>X</sub> And The Current Account Deficit**



Sources: Bloomberg, U.S. Department of Commerce

The analysis breaks down for the federal budget as a percentage of GDP, too. The federal deficit has led the ICE USD<sub>X</sub> by 12 months since the early 1990s, but the relationship was precisely the opposite in the early 1980s. As economic relationships are not allowed to reverse if they are in fact causal, we have to look elsewhere. Nobel laureate Robert Mundell would offer a simple explanation: The combination of fiscal stimulus and monetary discipline in the early 1980s propelled the ICE USD<sub>X</sub> higher, while lax monetary policies after 2001 and especially after the 2008 financial crisis pushed the ICE USD<sub>X</sub> lower.

The USDX And The Federal Deficit



Sources: Bloomberg, U.S. Department of Commerce

**INTEREST RATE EXPECTATIONS**

The primary driver of all currency movements is differential interest rate expectations. While many traders can get by on a day-to-day basis thinking they are buying a currency with a long position in a currency future, they really are borrowing the dollar to lend in another currency. The process of covered interest arbitrage involves, in the case of the euro:

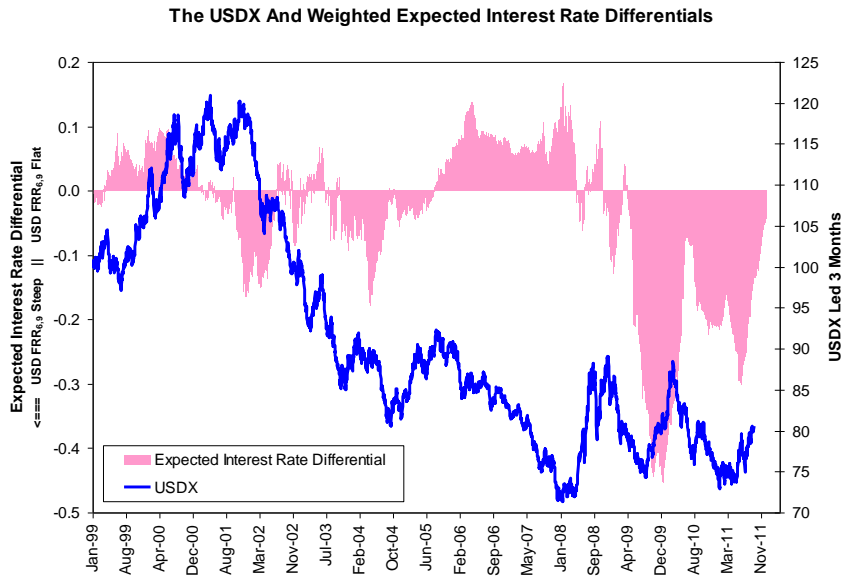
1. Borrow USD
2. Sell USD and buy EUR at prevailing spot rate
3. Lend EUR
4. Unwind the trade in the forward market

As the principal instrument in the currency market is a three-month non-deliverable forward, the key forward-looking interest rate differential at the trade's unwind is the forward rate between six and nine months. This forward rate divided by the nine-month rate produces a forward rate ratio ( $FRR_{6,9}$ ) that is greater than 1.00 when the LIBOR curve is positively sloped and below 1.00 when it is inverted. The difference between two  $FRR_{6,9}$  numbers tends to lead the spot currency rate by irregular intervals centering on three months when the currencies are allowed to trade freely. These lead-times became erratic following the 2008 financial crisis and the widespread adoption of near-0% interest rates and quantitative easing in key countries.

The expected interest rate differential between the U.S. dollar and the weighted sum of the USDX' six  $FRR_{6,9}$  moved to an unnaturally steep discount during and after the 2008 financial crisis as few believed the U.S. would keep its short-term interest rates so low for such a long period of time.

**Commented [hls4]:** The deletion and insertion are necessary changes. In addition, please retain the subscript for the FRR annotation.

**Commented [hls5]:** The next chart replaces the euro chart on page 4 of the existing PDF

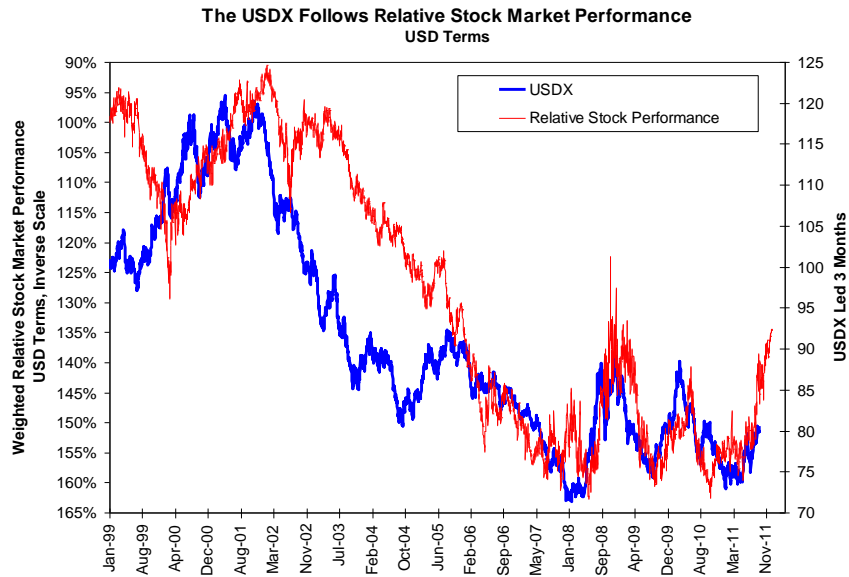


Source: Bloomberg

**RELATIVE ASSET RETURNS**

A third component of currency movements is relative returns on assets. Money is attracted to capital markets offering better forward-looking returns. The weighted performance of the six dollar index component national stock markets relative to the U.S. leads the USDX, inversely, by three months on average. As the six national stock markets advance(decline) relative to the U.S., the USDX falls(rises) with a three-month lag.

**Commented [hls6]:** Once again I restructured this comment and the accompanying chart to reflect the entire dollar index rather than just the euro.



Source: Bloomberg

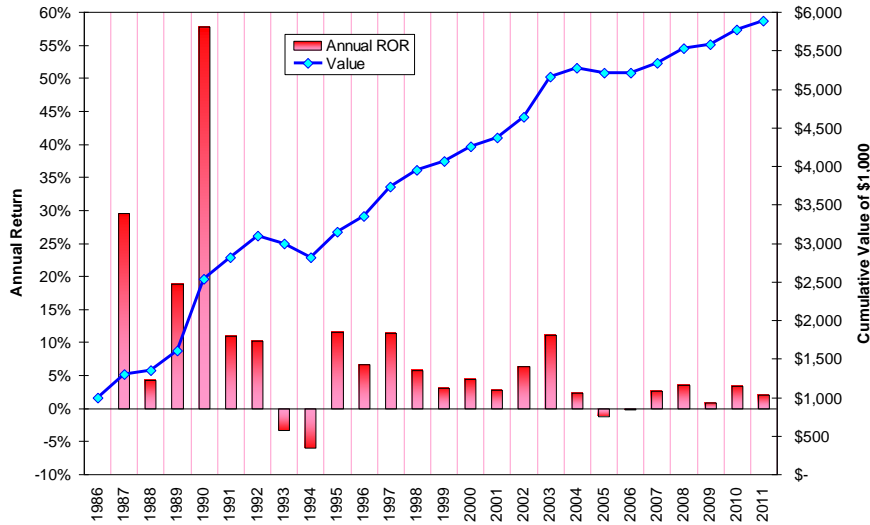
#### INVESTMENT FLOWS AND ICE USDX-BASED HEDGES

Global portfolio managers continuously face a decision about whether to hedge currency risks. Managers who decide to hedge risks face with the decision of which currency, or combination of currencies, they should use.

While there are many currency overlay programs managed by some of the best minds in the financial world, caution is advised for those entering the world of active currency management. The Barclay Currency Traders index of actively managed currency trading advisors, which began in December 1986, has a Sharpe Ratio of .28 and an annual average return of 7.06%. That average return should be taken with a large degree of skepticism, because it includes some very large returns in 1987-1990 and, like all such performance indices has a very large survivor bias. If we restrict the sample to 1991 going forward, the average annual return collapses to 3.59% and the Sharpe Ratio turns negative at -.440, reflecting currency traders' collective inability to generate returns in excess of Treasury bills.



### Active Currency Management: The Barclay Currency Traders Index



Source: Barclay Trading Group

If managers decided to hedge dollar risk, the ICE USDX futures and options are an effective means of doing so. The six components of the ICE USDX index have a surprisingly low correlation of returns with each other, as shown in the table below. This makes the ICE USDX an effective broad hedge as opposed to, say, simply trading the euro or the yen. The cells highlighted in red are the only currency pairs related closely enough to each other to constitute a bona fide hedge under FAS 133.

**Commented [h1s7]:** As long as I'm referencing the red cells, let's keep the format in the table.

	USDX	EUR	JPY	GBP	CAD	CHF	SEK
Dollar Index	1.000						
Euro	-0.930	1.000					
Yen	-0.391	0.257	1.000				
Pound	-0.703	0.653	0.153	1.000			
Can. Dollar	-0.480	0.449	-0.052	0.426	1.000		
Sw. Franc	-0.810	0.819	0.378	0.537	0.290	1.000	
Sw. Krona	-0.796	0.833	0.145	0.602	0.519	0.645	1.000

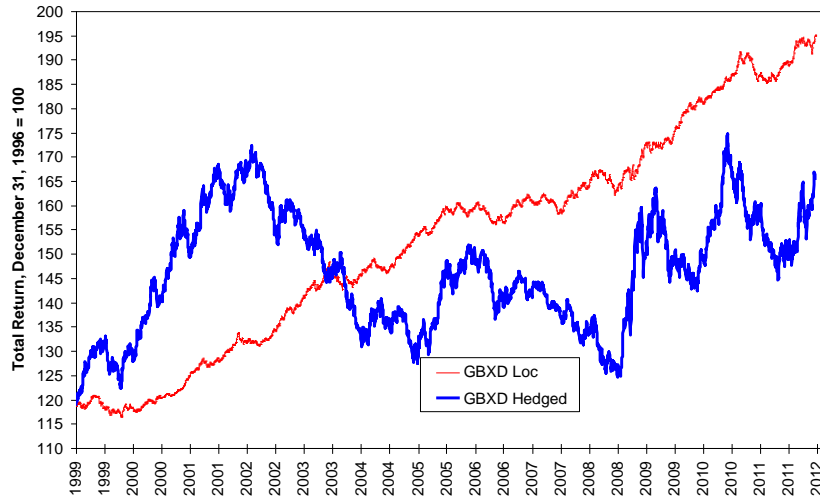
Source: Bloomberg

The effectiveness of ICE USDX futures as a hedging instrument is easy to demonstrate. We can compare the total returns of the Merrill Lynch Global Broad Market ex-U.S. dollar index in local currency terms and hedged with a continuous position in ICE USDX futures. We can do the same for the Morgan Stanley Capital International World Ex-U.S. index.

Because hedging decisions are made ex-ante, the only question to be asked is whether the total return differential on a ICE USDX-hedged position offset changes in the unhedged portfolio. Between January 1999 and December 2011, the average annual total return on ICE USDX futures was -1.66%. The average annual returns on the unhedged and hedged global bond portfolios were 3.82% and 2.55%, respectively, a difference of 1.17% per annum. As the return differential on the two bond portfolios was less than the decline on the hedge instrument, we must conclude the ICE USDX futures were a very effective hedge

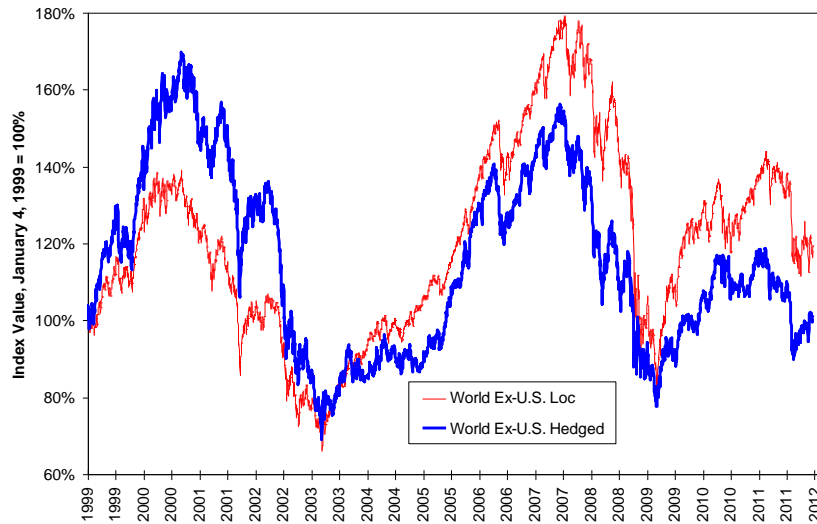
instrument. We can reach the same conclusion for the MSCI equity portfolios. Here the average annual returns for the unhedged and hedged portfolios were 2.98% and 1.39%, respectively, a difference of 1.59% per annum.

### Global Bond Index Hedged And Unhedged



Source: Bloomberg, CRB-Infotech CD-ROM

### The World Ex-U.S. Index Hedged And Unhedged



Source: Bloomberg, CRB-Infotech CD-ROM

### ICE U.S. DOLLAR INDEX FUTURES

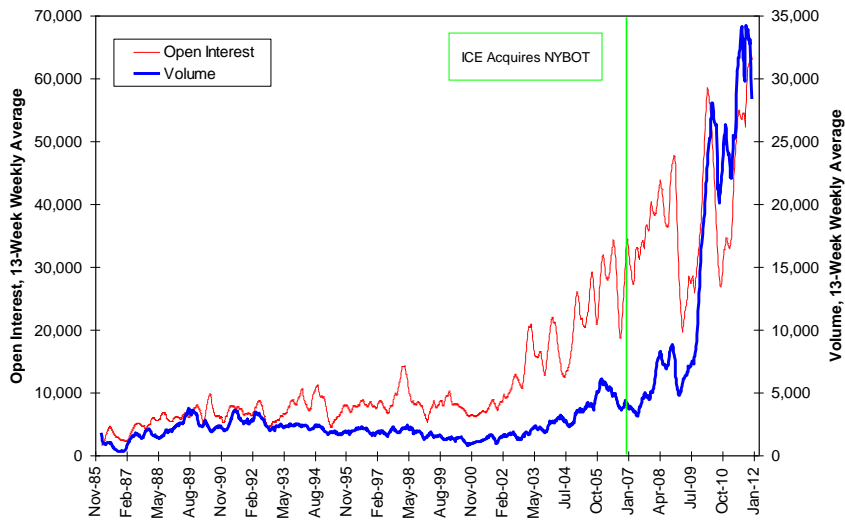
The principal trading advantage of ICE USDX futures (in addition to their intrinsic economic characteristics), is their low cost, liquidity and transparency. Instead of paying bid-ask spreads on six separate currencies, an investor can go long or short the global FX market using ICE USDX futures. ICE USDX futures are settled physically in the component currencies. Contract specifications are:

#### ICE Futures U.S. U.S. Dollar Index Futures Specifications

Hours	2000 Eastern Standard Time to 1800 Next Day. Settlement at 1500
Symbol	DX
Size	\$1,000 * Index Value
Quotation	USDX points calculated to three decimal points
Contract Cycle	Mar-Jun-Sep-Dec quarterly expiration cycle
Minimum Fluctuation ("tick")	0.005 = \$5
Daily Settlement	Volume-weighted average in closing session, 1459-1500 EST
Final Settlement	Physical delivery of six component currencies in their respective weights on third Wednesday of the expiration month
Daily Price Limit	None

A complete list of specifications, including trading fees is available at: [www.theice.com/usdx](http://www.theice.com/usdx). The volume and open interest of the ICE US Dollar Index futures contract has been growing rapidly in recent years. Much of this is attributable to the world currency market being dominated by dollar movements more than by cross-rates. In addition, the adoption of electronic trading, which is far faster and more efficient than open outcry, has propelled trading activity higher.

#### Volume And Open Interest For ICE FINEX Dollar Index Futures



Source: CRB-Infotech CD-ROM

ICE USDX options have proven popular with speculative traders and commercial hedgers alike. Their specifications are:

### **ICE Futures U.S. U.S. Dollar Index Options Specifications**

Hours	0800 Eastern Standard Time to 1500 (Closing period 1459-1500)
Symbol	DX
Exercise	American; may be exercised until 1700 EST on the last trading day
Quotation	USD $\times$ points calculated to three decimal points
Contract Listings	Mar-June-Sep-Dec quarterly plus first two non-quarterly months
Minimum Fluctuation ("tick")	0.005 = \$5
Strike Intervals	One USD $\times$ index point
Final Settlement	Physical delivery of six component currencies in their respective weights on third Wednesday of the expiration month
Daily Price Limit	None
Last Trading Day	Two Fridays before third Wednesday of expiring contract month

A complete list of specifications, including trading fees is available at: [www.theice.com/usdx\\_options](http://www.theice.com/usdx_options).

#### **TRADING ICE FUTURES U.S. DOLLAR INDEX 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, regardless of their participation in the currency trading business. A market participant who is not in the currency trading business will be classified as a non-commercial or speculative trader. A market participant active in the business will be classified as a commercial trader or hedging trader. For a speculator, the price discovery trade is simple and straightforward; if you believe the ICE USD $\times$  will rise, you "go long" a futures contract; if you believe the ICE USD $\times$  will fall, you "go short" a futures contract.

These same market views can be expressed in options as well. If you believe the ICE USD $\times$  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 the ICE USD $\times$  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. 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](http://www.theice.com/margins).

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 the ICE USD $\times$ 's components or to offset the contract by selling it prior to delivery), or lower for a short position (or commitment to deliver the ICE USD $\times$ ' components 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., the exchange clearinghouse, 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 the financial flows look like in a futures trade? Let's say a five-contract December futures position is initiated at 75.00 and the market rises to 75.50 on the following trading day.

- For the long position, the gain is:  $5 \text{ contracts} \times [75.50 - 75.00] / \text{contract} \times \$10 \text{ per } .01 \text{ ICE USDX point} = \$2,500$

- For the short position, the loss is equal and opposite:  
 $5 \text{ contracts} \times [75.00 - 75.50] / \text{contract} \times \$10 \text{ per } .01 \text{ ICE USDX point} = -\$2,500$

If we reverse the price path, we reverse the gains and losses. Let's change the starting price to 76.75 and have the market decline to 75.35 the next day.

- For the long position, the loss is:  
 $5 \text{ contracts} \times [75.35 - 76.75] / \text{contract} \times \$10 \text{ per } .01 \text{ ICE USDX point} = -\$7,000$

- For the short position, the gain is equal and opposite:  
 $5 \text{ contracts} \times [76.75 - 75.35] / \text{contract} \times \$10 \text{ per } .01 \text{ ICE USDX point} = \$7,000$

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 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 holder of dollar-denominated assets or receiver of future dollar payments can seek protection in the futures markets. These participants are long the market and can offset risk by going short a futures contract. Any dollar-domiciled holder of foreign currency assets, or any party liable for future dollar payments, 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. An importer at risk to the dollar falling can acquire a financial asset, the short futures position, which will rise in value as the market declines. The opposite is true for an exporter at risk to the dollar rising; a long futures position will rise in value as the market rises.

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 importer may wish to have downside protection or a price floor, that same importer probably wants to participate in any future increases in the exchange value of the dollar. The exporter concerned about a decline in the dollar between now and the time he expects to be able to receive payment in early December could buy a December 75.00 put option, which is the right, but not the obligation, to receive a short position in a December future at 75.00 for 0.405, or \$405. The purchased put guarantees the importer the right to sell the December future for an effective price of 74.595 (the 75.00 strike price less the premium paid of 0.405). This right gives him protection if the ICE USDX weakens by the expiry of the December option, but at the same time preserves his ability to profit should the ICE USDX strengthen over the period.

The exporter wishing to cap the rate of foreign currency payments but not be exposed to margin calls if the price continues to rise can do an opposite trade and buy a December call option, which is the right, but not the obligation, to receive a long position in a December future at 75.00 for 2.175 or approximately \$2,175. The purchased call gives the exporter the right to buy the December future at 77.175 (again, the strike price

of 75 plus the 2.175 points paid), offering protection against an unfavorable firming of the dollar while preserving the ability to take advantage if the dollar weakens.

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 expiration, the volatility of the commodity, short-term interest rates and a host 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®, 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, feed wheat and western barley through ICE Futures Canada TM, a regulated market in Manitoba, Canada.

#### **LEADING ELECTRONIC TRADING PLATFORM**

ICE’s electronic trading platform provides rapid trade execution and is one of 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/nxtbooks/ice/icecapbrochure](http://www.nxtbook/nxtbooks/ice/icecapbrochure). 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 ICE U.S. Dollar Index is: [www.theice.com/usdx](http://www.theice.com/usdx). 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)

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This brochure serves as an overview of the U.S. Dollar Index futures and options markets of ICE Futures U.S. Examples and descriptions are designed to foster a better understanding of the U.S. Dollar Index futures and options market. The examples and descriptions are not intended to serve as investment advice and cannot be the basis for any claim. While every effort has been made to ensure accuracy of the content, ICE Futures U.S. does not guarantee its accuracy, or completeness or that any particular trading result can be achieved. ICE Futures U.S. cannot be held liable for errors or omissions in the content of the brochure. Futures and options trading involves risk and is not suitable for everyone. Trading on ICE Futures U.S. is governed by specific rules and regulations set forth by the Exchange. These rules are subject to change. For more detailed information and specifications on any of the products traded on ICE Futures U.S., contact ICE Futures U.S. or a licensed broker.

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