TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE OPERATIONS

October–December 2008

During the fourth quarter of 2008, the dollar's trade-weighted exchange value appreciated 4.3 percent, as measured by the Federal Reserve Board's major currencies index. The dollar appreciated 0.9 percent against the euro, but depreciated 14.6 percent against the yen. These exchange rate movements reflected a sharp downturn in global economic activity and continued deterioration in investor risk appetite owing to sustained financial and credit market tensions. Exchange rates were exceptionally volatile during the quarter, influenced by heightened uncertainty and poor liquidity conditions. The U.S. monetary authorities did not intervene in the foreign exchange markets during the quarter.

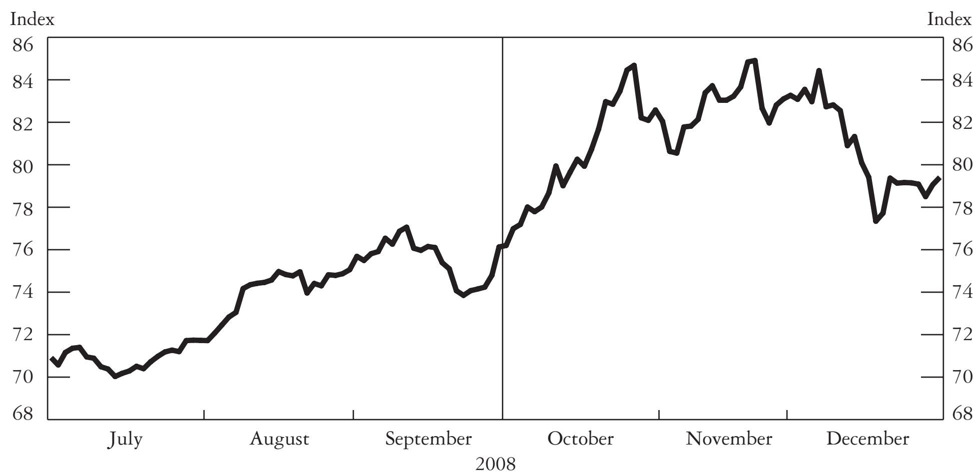
During the quarter, movements in the dollar's trade-weighted exchange rate reflected three distinct periods. In October, the trade-weighted dollar appreciated, as historically low investor risk appetite and sharply waning expectations for overseas growth prompted continued demand for U.S. assets. From the end of October through the end of November, the trade-weighted dollar was range-bound, as market participants adjusted to a series of actions undertaken by global policymakers to mitigate economic risks and improve market functioning. During the remainder of the quarter, the trade-weighted dollar depreciated amid renewed concerns over the U.S. economic outlook.

This report, presented by Patricia Mosser, Senior Vice President, Federal Reserve Bank of New York, and Acting Manager of the System Open Market Account, describes the foreign exchange operations of the U.S. Department of the Treasury and the Federal Reserve System for the period from October through December 2008. Alex Cohen was primarily responsible for preparation of the report.

Reacting to historically elevated demand for dollar funding, the Federal Open Market Committee (FOMC) announced during the quarter that the temporary reciprocal currency arrangements with the European Central Bank (ECB), the Swiss National Bank (SNB), the Bank of England (BoE), and the Bank of Japan (BoJ) would be increased to an unlimited size. The FOMC also authorized new facilities with the Reserve Bank of New Zealand (RBNZ),[1] Banco Central do Brasil, Banco de México, the Bank of Korea, and the Monetary Authority of Singapore.[2]

Chart 1

TRADE-WEIGHTED U.S. DOLLAR



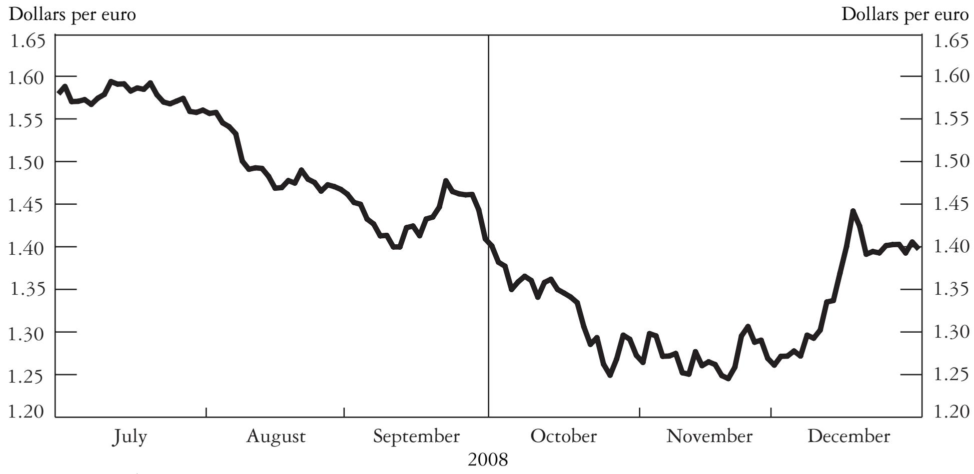
Source: Bloomberg L.P.

[1] See <http://www.federalreserve.gov/newsevents/press/monetary/20081028a.htm>.

[2] See <http://www.federalreserve.gov/newsevents/press/monetary/20081029b.htm>.

Chart 2

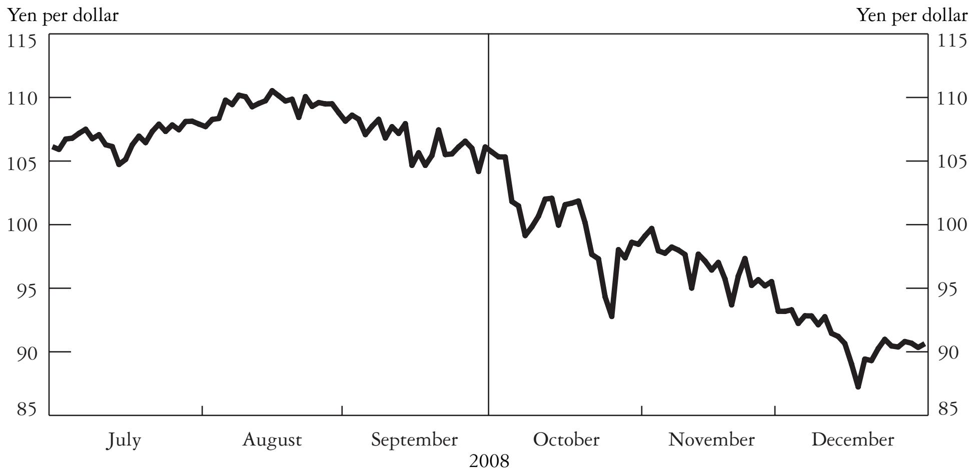
EURO–U.S. DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

Chart 3

U.S. DOLLAR–YEN EXCHANGE RATE



Source: Bloomberg L.P.

DOLLAR AND YEN CONTINUE TO APPRECIATE IN VOLATILE FINANCIAL MARKETS

During the beginning of the quarter, the dollar outperformed most major currencies—the exception being the Japanese yen—amid deteriorating investor confidence in the global financial sector and economic outlook. From the start of the quarter to the last week of October, the dollar appreciated 12.8 percent against the euro, but depreciated 12.6 percent against the yen. These exchange rate movements were largely driven by themes similar to those that prevailed at the end of the third quarter. Specifically, the sharp deterioration in the global growth outlook led many U.S. and Japanese investors to scale back their foreign investments and repatriate their capital. In addition, some analysts suggested that the yen benefited from sentiment among global investors that the Japanese financial sector was relatively less exposed to the global credit market crisis. In contrast, the currencies of economies thought to be sensitive to global growth conditions—including many emerging markets as well as economies with greater reliance on external financing—depreciated significantly.

Indeed, the dollar and yen benefited from concerns that financial sector stress in Europe was intensifying. Many analysts suggested that sentiment toward the euro and British pound deteriorated at this time, as concerns over the United Kingdom and euro-area financial sectors increased. These concerns were evidenced by the British government's decision in mid-October to recapitalize three of Britain's largest banks with approximately £37 billion of capital.

During October, global policymakers implemented a number of initiatives in response to the severe strains in the global financial sector and the deteriorating economic outlook. On October 3, the U.S. Congress passed the Emergency Economic Stabilization Act to provide additional authority to the U.S. Treasury to support the financial sector. On October 8, the FOMC, ECB, SNB, BoE, Bank of Canada (BoC), and Sveriges Riksbank simultaneously announced a coordinated 50-basis-point policy rate cut in response to the weakening economic outlook. This action was seen by analysts as signaling a shift toward a more unified strategy for addressing the effects of the ongoing credit crisis. Other central banks, including the Reserve Bank of Australia (RBA), the RBNZ, and many emerging market central banks, also responded with policy rate cuts.

The October 9 meeting of the Group of Seven (G-7) finance ministers underscored the commitment of policymakers to unfreeze credit and money markets, ensure financial institutions' access to capital, and reassure depositors. Nonetheless, trading conditions deteriorated to historic levels during October, as evidenced by the rapid rise in implied volatility across all currency pairs.

Market participants welcomed the FOMC's approval of unlimited dollar swap facilities with the ECB, SNB, BoE, and BoJ. Many reported that the expanded swap facilities contributed to improved term funding conditions during the quarter. Indeed, from the time of the facilities' expansion through the end of the quarter, spreads in one-month dollar LIBOR to overnight index swap rates narrowed approximately 310 basis points, to 25 basis points. However, market participants noted that other policy initiatives implemented around this time, including the Federal Deposit Insurance Corporation's (FDIC) Temporary Liquidity Guarantee Program (TLGP) and the Federal Reserve's Commercial Paper Funding Facility, also contributed to the improved term funding conditions by reducing counterparty credit and liquidity risks in the financial sector.

DOLLAR APPRECIATION SUBSIDES AS INVESTORS ASSESS THE EFFECT OF GLOBAL POLICY ACTIONS ON GROWTH

From the last week of October through the beginning of December, the dollar was relatively range-bound against most major currencies, trading within the approximate range of $1.25 to $1.30 per euro and ¥93 to ¥100 per dollar. This period was characterized by a moderation of the "capital repatriation flows" that had prevailed since late September, in part as market participants' concerns about near-term liquidity risks in the global financial system lessened following the implementation of a wide variety of global policy measures. The more contained movements in major currencies at this time reflected a lack of confidence among many investors in forecasting the outlook for relative growth prospects in major economies, given the historic tensions in the global financial system.

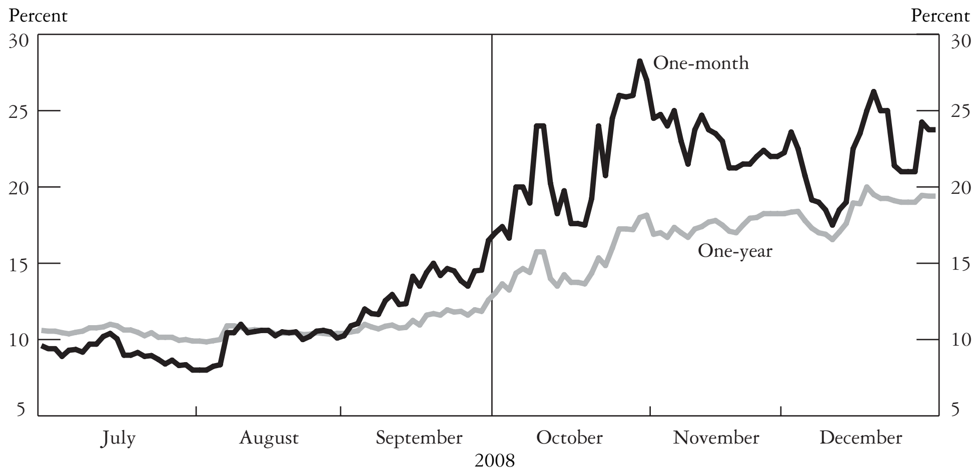
During this period, growth data continued to reflect a marked slowdown in global economic activity. In particular, annualized GDP data for several major industrialized economies, including the United States, euro area, United Kingdom, and Japan, all showed a third-quarter contraction. Moreover, business and consumer confidence measures indicated that global economic activity was slowing sharply. In response to the deteriorating economic outlook, several central banks in industrialized and emerging market economies continued to lower their respective policy rates. On October 29, the FOMC reduced the federal funds target rate by 50 basis points, to 1.00 percent. The move was followed by rate cuts by several central banks. During the remainder of October and the beginning of November, the ECB, BoE, BoJ, and RBA all announced further cuts in policy rates.

Also during the period, governments and central banks around the world continued to adopt various policy measures designed to stem the ongoing stress on the financial system and deterioration in the global economic outlook. Fiscal stimulus packages to support economic growth were announced in several countries, including China, Korea, and the United Kingdom. In the United States, nontraditional measures were used, as evidenced by the decision of the U.S. Treasury, the Federal Reserve, and the FDIC to provide capital and backstop funding to Citigroup, as well as the FDIC's amending of the TLGP to include the backing of the full faith and credit of the U.S. government. In addition, the Federal Reserve announced at the end of November its program to purchase Fannie Mae, Freddie Mac, and Federal Home Loan Bank debt, as well as agency mortgage-backed securities, and to provide funding secured by asset-backed securities through the Term Asset-Backed Securities Loan Facility. These measures helped provide increased stability to global asset and credit markets and moderate strains in funding markets. Nonetheless, market participants expressed significant uncertainty about the effect of these measures on the relative outlook for economic growth and financial stability, as well as exchange rates, across both industrialized and emerging market economies. As a result, many investors were reluctant to take on sizable currency positions, a factor that contributed to the relatively contained price action.

Despite the range-bound trading during this period, dealers reported that liquidity conditions in foreign exchange markets showed signs of deterioration. In particular, bid-ask spreads on industrialized and emerging market currencies widened notably, risk taking among key market participants declined, and trading volumes reportedly fell from levels observed earlier in the year. These developments were reflected in the level of actual and implied volatility, which remained historically high. Many market participants suggested that poor liquidity conditions and reduced risk appetite among key foreign exchange market participants likely exacerbated the sharp and volatile appreciation of the yen toward the end of October. The October 27 G-7 statement was interpreted as indicating uneasiness among policymakers concerning the continued heightened volatility, particularly in yen-denominated currency pairs.

Chart 4

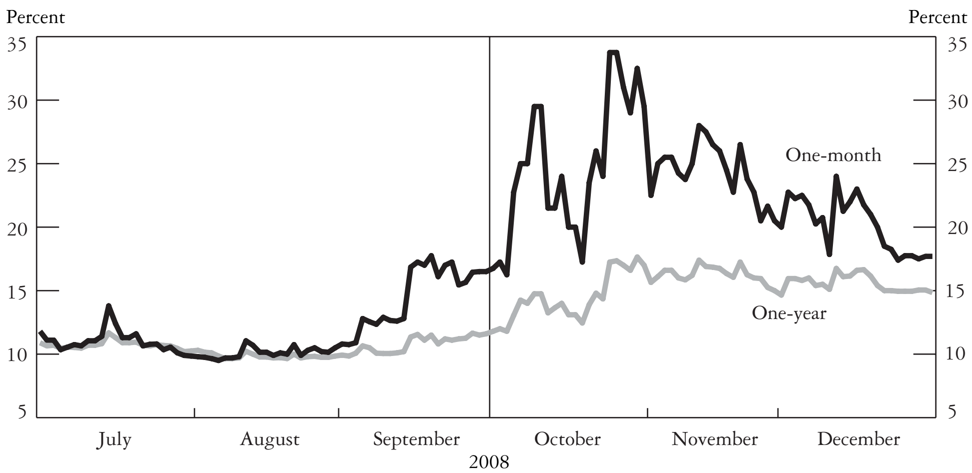
ONE-MONTH AND ONE-YEAR EURO–U.S. DOLLAR IMPLIED VOLATILITY



Source: Bloomberg L.P.

Chart 5

ONE-MONTH AND ONE-YEAR U.S. DOLLAR–YEN IMPLIED VOLATILITY



Source: Bloomberg L.P.

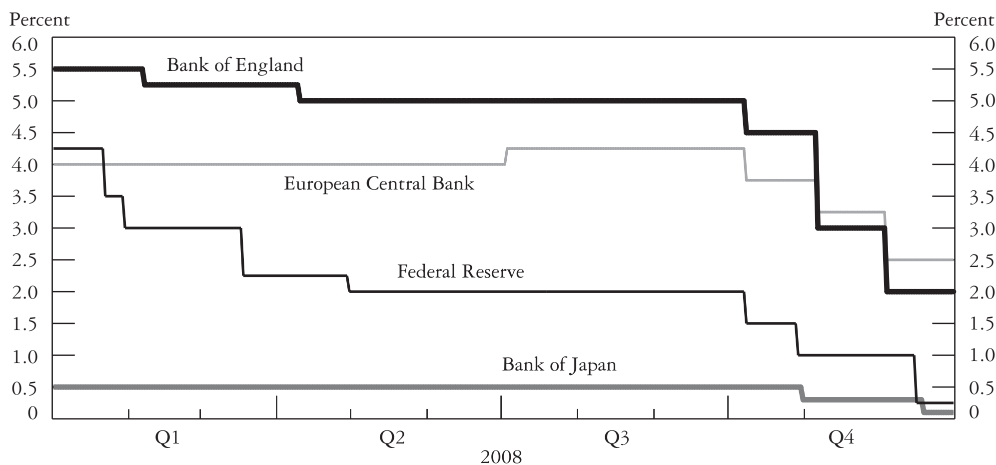
DOLLAR DEPRECIATES INTO YEAR-END AMID DETERIORATING LIQUIDITY CONDITIONS

Throughout December, the dollar underperformed most currencies, depreciating 9.2 percent against the euro and 5.1 percent against the yen. Market participants attributed the sharp movements to a variety of factors, including the apparent divergence in the monetary policy stances of the Federal Reserve and the ECB, mounting concerns over the impact of solvency risk in the U.S. automotive sector on the broader U.S. financial and economic outlook, and rebalancing-related demand for the euro by real money managers ahead of year-end. Of note, price action throughout this period was observed against the backdrop of continued deteriorating liquidity conditions in foreign exchange markets, a development that likely accentuated price action.

On December 16, the FOMC reduced the federal funds target rate from 1.00 percent to a target range of 0.00 to 0.25 percent. The accompanying statement by the FOMC indicated that the federal funds rate would likely remain at an exceptionally low level for some time. In contrast, comments by ECB President Jean-Claude Trichet suggested that the ECB aimed to avoid nominal rates that were "too low." These comments reinforced earlier remarks by ECB Governing Council member Axel Weber, who hinted at a potential pause at the January ECB meeting. While the divergence in expected policy rates between the United States and the euro area provided short-term support to the euro, many investors suggested that relatively tighter financial conditions in the euro area could weigh more heavily on the area's growth prospects in the medium term.

Chart 6

GLOBAL POLICY RATES



Source: Bloomberg L.P.

During the quarter, market participants increasingly expressed concern about the solvency of major U.S. automakers, a factor that weighed on dollar sentiment. Many expressed concern that the failure of one or more of the three large U.S. automakers could add to liquidity risk in the already strained U.S. financial sector as well as weigh heavily on U.S. economic activity. However, this concern moderated toward the end of December, after the U.S. Congress approved $13.4 billion of support to two U.S. automakers.

Also during this time, the yen continued its broad appreciation against the dollar, albeit at a slower pace than earlier in the quarter. As implied volatility retraced from the extreme levels reached in October, the yen continued to be supported by its perceived status as a "safe-haven" currency. In addition, the convergence of many central banks' interest rates toward the Bank of Japan's policy rate encouraged many Japanese institutional investors to scale back their foreign investment holdings, a factor that also supported the yen.

Finally, given the sharp dollar appreciation during the end of the second quarter and beginning of the third quarter, many investors were prompted to rebalance their currency positions going into year-end. During this time, dealers reported increased demand for the euro from reserve managers of foreign central banks. Additionally, corporate demand for the euro was reportedly elevated, as U.S. importers and European exporters sought to adjust their hedging strategies. This activity occurred amid relatively illiquid trading conditions, particularly as many large market participants had significantly wound down their trading activity—a factor that led to greater volatility in exchange rates during the last two weeks of the year.

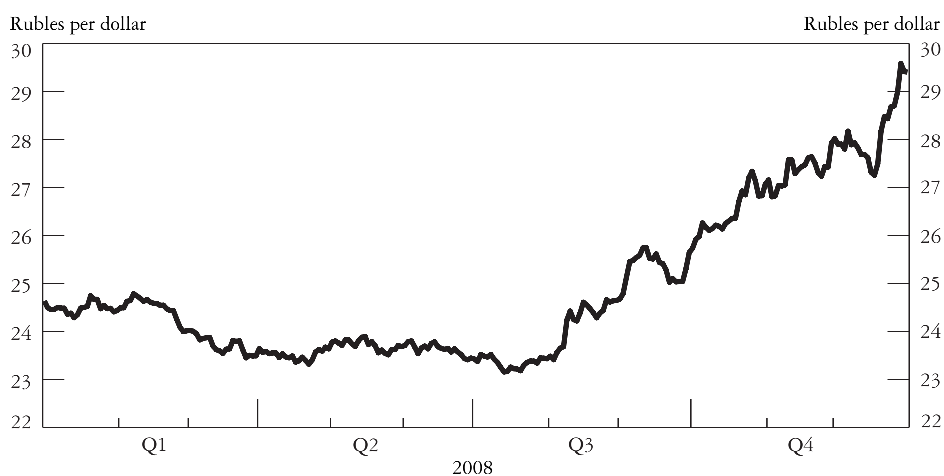
EMERGING MARKET CURRENCIES DEPRECIATE BROADLY THROUGHOUT THE QUARTER

During the fourth quarter, the broad-based depreciation of emerging market currencies reflected the deteriorating global growth outlook and associated risk reduction among investors. Over this period, the dollar appreciated between 12 and 20 percent against many eastern European and Latin American currencies. In particular, analysts noted the 12.8 percent depreciation of the Russian ruble against the dollar during the quarter as indicative of the uncertainty faced by many emerging market economies.

As oil prices declined further and several Russian banks failed, capital flight and speculative flows weighed heavily on the ruble. As such, the Central Bank of Russia (CBR) intervened heavily in support of the ruble in an attempt to stabilize the currency against the CBR's basket of euros and U.S. dollars. As reported by the CBR, this activity caused Russian gross foreign exchange reserves to decline by approximately $125.4 billion during the quarter. By mid-November, the CBR began a series of numerous stepwise ruble devaluations, typically in 1 percent increments.

Chart 7

U.S. DOLLAR–RUSSIAN RUBLE EXCHANGE RATE



Source: Bloomberg L.P.

TEMPORARY RECIPROCAL CURRENCY ARRANGEMENTS EXPANDED WITH OTHER CENTRAL BANKS

To address pressures in funding markets further, throughout the quarter the FOMC authorized sizable increases in existing temporary reciprocal currency arrangements (swap lines). Reciprocal currency arrangements with the ECB, SNB, BoE, and BoJ were adjusted to unlimited amounts, and new swap lines were extended to the RBNZ, Banco Central do Brasil, Banco de México, the Bank of Korea, and the Monetary Authority of Singapore.

Market participants suggested that the announcement of new swap lines contributed to a modest improvement in sentiment toward emerging market assets and currencies, which had depreciated sharply in the beginning of the quarter. In particular, implied volatilities in the associated

currencies retraced noticeably following the announcement, while sovereign credit default swap spreads retraced from historically wide levels. However, despite the stabilization, overall sentiment toward emerging markets remained weak, given the broader global economic concerns.

Table 1

TEMPORARY RECIPROCAL CURRENCY ARRANGEMENTS

Billions of U.S. Dollars

Central Bank	Authorized Swap Line
European Central Bank	Unlimited*
Swiss National Bank	Unlimited*
Bank of England	Unlimited*
Bank of Japan	Unlimited**
Bank of Canada	30
Reserve Bank of Australia	30
Sveriges Riksbank	30
Norges Bank	15
Danmarks Nationalbank	15
Reserve Bank of New Zealand	15+
Banco Central do Brasil	30++
Banco de México	30++
Bank of Korea	30++
Monetary Authority of Singapore	30++

*Reflects the October 13, 2008, announcement by the Federal Open Market Committee.

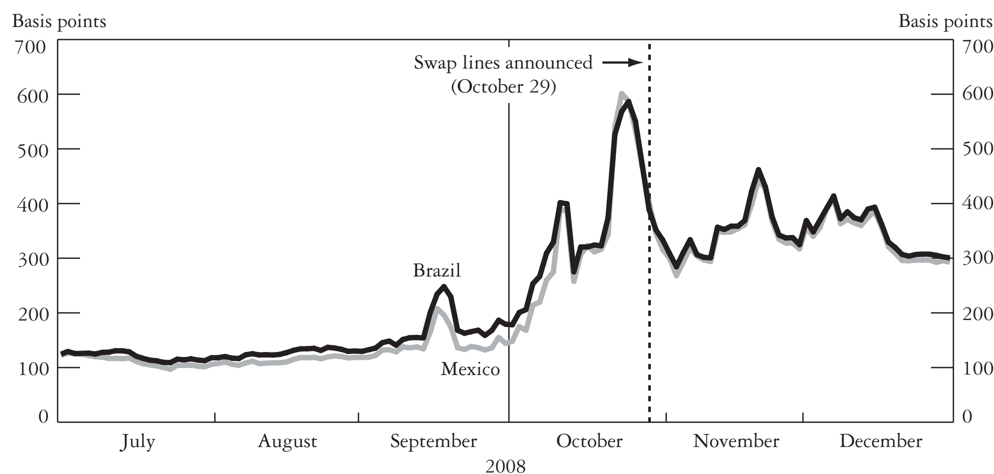
**Reflects the October 14, 2008, announcement by the Federal Open Market Committee.

+Established October 28, 2008.

++Established October 29, 2008.

Chart 8

BRAZIL AND MEXICO SOVEREIGN FIVE-YEAR CREDIT DEFAULT SWAP SPREADS



Source: Bloomberg L.P.

TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE RESERVES

The U.S. monetary authorities did not undertake any intervention operations during the quarter. The Federal Reserve's System Open Market Account holdings totaled $604.6 billion—consisting of $24.8 billion of foreign exchange reserve portfolio investments and $579.8 billion carrying value of outstanding swaps with the ECB, the SNB, the BoE, the BoJ, the RBA, Danmarks Nationalbank, Norges Bank, Sveriges Riksbank, and the Bank of Korea. The current value of the U.S. Treasury's Exchange Stabilization Fund totaled $24.8 billion, comprised of euro and yen holdings.

To facilitate the functioning of financial markets and provide liquidity in U.S. dollars abroad, on December 12, 2007, the FOMC authorized temporary reciprocal currency arrangements with the ECB and the SNB. Subsequently, the FOMC extended new swap lines to various central banks. As of October 29, 2008, the authorized swap line amounts were $30 billion for the BoC, the RBA, Sveriges Riksbank, Banco Central do Brazil, Banco de México, the Bank of Korea, and the Monetary Authority of Singapore; and $15 billion for Norges Bank, Danmarks Nationalbank, and the RBNZ. The ECB, SNB, BoE, and BoJ had unlimited swap line amounts.

As of December 31, all reciprocal currency arrangements had been authorized through April 30, 2009.[3] At the end of the quarter, the ECB had drawn down $291.4 billion, the SNB had drawn down $25.2 billion, the BoE had drawn down $33.1 billion, the BoJ had drawn down $122.7 billion, the RBA had drawn down $22.8 billion, Sveriges Riksbank had drawn down $25 billion, Norges Bank had drawn down $8.2 billion, Danmarks Nationalbank had drawn down $15 billion, and the Bank of Korea had drawn down $10.4 billion. The BoC, the RBNZ, Banco Central do Brasil, Banco de México, and the Monetary Authority of Singapore had not drawn down on their swap lines.

The U.S. monetary authorities invest their foreign currency reserves in a variety of instruments that yield market-related rates of return and have a high degree of liquidity and credit quality. To the greatest extent practicable, the investments are split evenly between the System Open Market Account and the Exchange Stabilization Fund. A significant portion of the U.S. monetary authorities' foreign exchange reserves is invested in European and Japanese government securities. On an outright basis, the U.S. monetary authorities hold German, French, and Japanese

[3] On February 3, 2009, the FOMC announced the extension of the reciprocal currency arrangements to October 30, 2009.

government securities. Under euro-denominated repurchase agreements, the U.S. monetary authorities accept sovereign debt backed by the full faith and credit of the following governments: Belgium, France, Germany, Italy, the Netherlands, and Spain. Foreign currency reserves are also invested at the Bank for International Settlements and in facilities at other official institutions. As of December 31, direct holdings of foreign government securities totaled $23.4 billion, split evenly between the System Open Market Account and the Exchange Stabilization Fund. Foreign government securities held under repurchase agreements totaled $8.2 billion at the end of the quarter and were also split evenly between the two authorities.

Table 2

FOREIGN CURRENCY HOLDINGS OF U.S. MONETARY AUTHORITIES BASED ON CURRENT EXCHANGE RATES

Millions of U.S. Dollars

	Carrying Value, September 30, 2008[a]	Change in Balances by Source				Carrying Value, December 31, 2008[a]
		Net Purchases and Sales[b]	Investment Earnings[c]	Realized Gains/Losses on Sale[d]	Unrealized Gains/ Losses on Foreign Currency Revaluation[e]	
Federal Reserve System						
Open Market Account (SOMA)						
Euro	14,294	0	111	0	(157)[f]	14,248
Japanese yen	9,030	0	17	0	1,508[f]	10,555
Total	23,325	0	128	0	1,351	24,804
Reciprocal currency arrangements						
Euro	170,094	116,610	1,325	0	18,150[f,g]	306,180
Swiss franc	28,338	(3,725)	135	0	2,863[f,g]	27,612
Japanese yen	29,533	93,094	527	0	7,163[f,g]	130,316
British pound	38,919	(6,919)	297	0	(607)[f,g]	31,690
Danish krone	4,822	10,000	63	0	1,447[f,g]	16,332
Australian dollar	9,464	12,830	142	0	1,569[f,g]	24,006
Swedish krone	0	25,000	86	0	(982)[f,g]	24,104
Norwegian krone	0	8,225	28	0	(240)[f,g]	8,013
Korean won	0	10,350	33	0	1,122[f,g]	11,505
Total	281,170	265,465	2,636	0	30,485	579,757
U.S. Treasury Exchange Stabilization Fund (ESF)						
Euro	14,270	0	111	0	(157)	14,225
Japanese yen	9,030	0	17	0	1,508	10,555
Total	23,301	0	128	0	1,351	24,780

Note: Figures may not sum to totals because of rounding.

[a] Carrying value of the reserve asset position includes interest accrued on foreign currency, which is based on the "day of" accrual method.

[b] Net purchases and sales include foreign currency purchases related to official activity, swap drawings and repayments, and warehousing.

[c] Investment earnings include accrued interest and amortization on outright and swap-related holdings.

[d] Gains and losses on sales are calculated using average cost.

[e] Reserve asset balances are revalued daily at the noon buying rates.

[f] Valuation adjustments on swap-related holdings do not affect profit and loss because the impact is offset by the unwinding of the forward contract at the repayment date.

[g] Figures represent the exchange translation liability on reciprocal currency arrangements.

Table 3

BREAKDOWN OF FOREIGN RESERVE ASSETS HELD

Carrying Value in Millions of U.S. Dollars, as of December 31, 2008

	U.S. Treasury Exchange Stabilization Fund (ESF)[a]	Federal Reserve System Open Market Account (SOMA)[a]
Euro-denominated assets:	14,224.5	14,248.2
Cash held on deposit at official institutions	5,539.3	5,562.9
Marketable securities held under repurchase agreements[b]	4,076.4	4,076.4
Marketable securities held outright	4,608.8	4,608.8
German government securities	1,923.9	1,923.9
French government securities	2,685.0	2,685.0
Yen-denominated assets:	10,555.5	10,555.4
Cash held on deposit at official institutions	3,483.0	3,483.0
Marketable securities held outright	7,072.5	7,072.5
Reciprocal currency arrangements		
Euro–denominated assets		306,180.1
Other assets[c]		306,180.1
Yen–denominated assets		130,316.1
Other assets[c]		130,316.1
Swiss-franc–denominated assets		27,611.6
Other assets[c]		27,611.6
Canadian-dollar–denominated assets		0.0
Other assets[c]		0.0
British-pound–denominated assets		31,690.2
Other assets[c]		31,690.2
Danish-krone–denominated assets		16,331.5
Other assets[c]		16,331.5
Australian-dollar–denominated assets		24,005.6
Other assets[c]		24,005.6
Swedish-krone–denominated assets		24,104.1
Other assets[c]		24,104.1
Norwegian-krone–denominated assets		8,012.7
Other assets[c]		8,012.7
Korean-won–denominated assets		11,505.1
Other assets[c]		11,505.1

Note: Figures may not sum to totals because of rounding.

[a] As of December 31, the euro and yen portfolios had Macaulay durations of 9.4 months and 11.9 months, respectively, for both the ESF and SOMA portfolios.

[b] Sovereign debt obligations of Belgium, France, Germany, Italy, the Netherlands, and Spain are currently eligible collateral for reverse repo transactions.

[c] Carrying value of outstanding reciprocal currency swaps with the European Central Bank, the Swiss National Bank, the Bank of Japan, the Bank of Canada, the Bank of England, Danmarks Nationalbank, the Reserve Bank of Australia, Sveriges Riksbank, Norges Bank, the Reserve Bank of New Zealand, the Bank of Korea, Banco Central do Brasil, Banco de México, and the Monetary Authority of Singapore.

Table 4

RECIPROCAL CURRENCY ARRANGEMENTS

Millions of U.S. Dollars

Institution	Amount of Facility	Outstanding as of December 31, 2008
	Federal Reserve System Open Market Account (SOMA)	
Bank of Canada	2,000	0
Banco de México	3,000	0
European Central Bank[a]	Unlimited	291,352
Swiss National Bank[a]	Unlimited	25,175
Bank of Japan[a]	Unlimited	122,716
Bank of Canada[a]	30,000	0
Bank of England[a]	Unlimited	33,080
Danmarks Nationalbank[a]	15,000	15,000
Reserve Bank of Australia[a]	30,000	22,830
Sveriges Riksbank[a]	30,000	25,000
Norges Bank[a]	15,000	8,225
Reserve Bank of New Zealand[a]	15,000	0
Bank of Korea[a]	30,000	10,350
Banco Central do Brasil[a]	30,000	0
Banco de México[a]	30,000	0
Monetary Authority of Singapore[a]	30,000	0
Total	Unlimited	553,728
	U.S. Treasury Exchange Stabilization Fund (ESF)	
Banco de México	3,000	0
Total	3,000	0

[a] Temporary swap arrangement.