TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE OPERATIONS

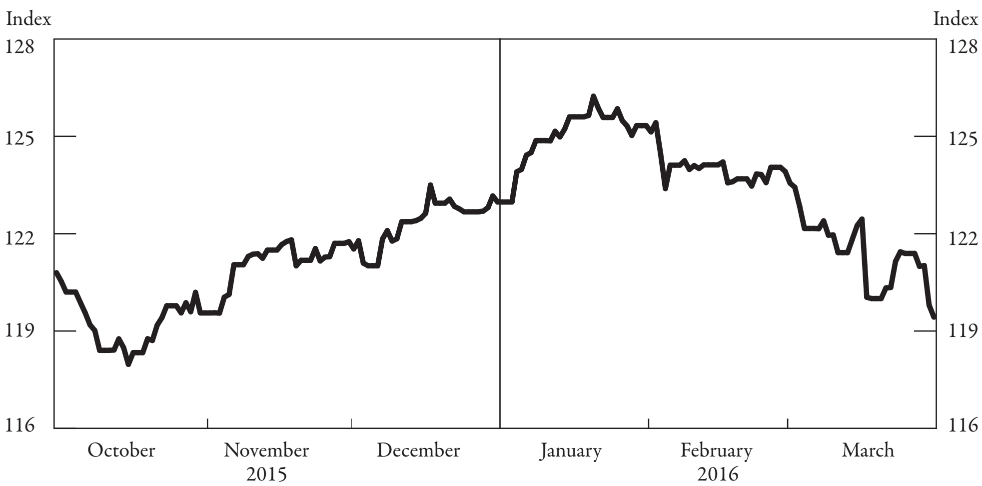
January – March 2016

During the first quarter of 2016, the U.S. dollar depreciated roughly 2.9 percent as measured by the Federal Reserve Board's broad trade-weighted index. At the start of the year, the dollar was supported by safe-haven flows owing to global growth uncertainty, commodity price declines, and shifts in the Chinese exchange rate regime that led to a sharp decline in risk asset prices into early February. Later in the quarter, the dollar depreciated as some of these concerns moderated and markets priced in a slower pace of U.S. monetary policy tightening. On net over the course of the quarter, the dollar depreciated against almost all major and emerging market currencies. The euro and yen appreciated against the dollar amid the shift in expectations on U.S. monetary policy, despite the introduction of additional policy accommodation measures by both the European Central Bank and the Bank of Japan. The Chinese renminbi was relatively unchanged on net against the dollar over the quarter, while most other emerging market currencies strengthened alongside the shift in expectations for U.S. monetary policy, higher commodity prices, and improved risk sentiment in global equity markets. The U.S. monetary authorities did not intervene in the foreign exchange markets during the quarter.

This report, presented by Simon Potter, Executive Vice President, Federal Reserve Bank of New York, and 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 January through March 2016. Michael Hendley was primarily responsible for preparation of the report.

Chart 1

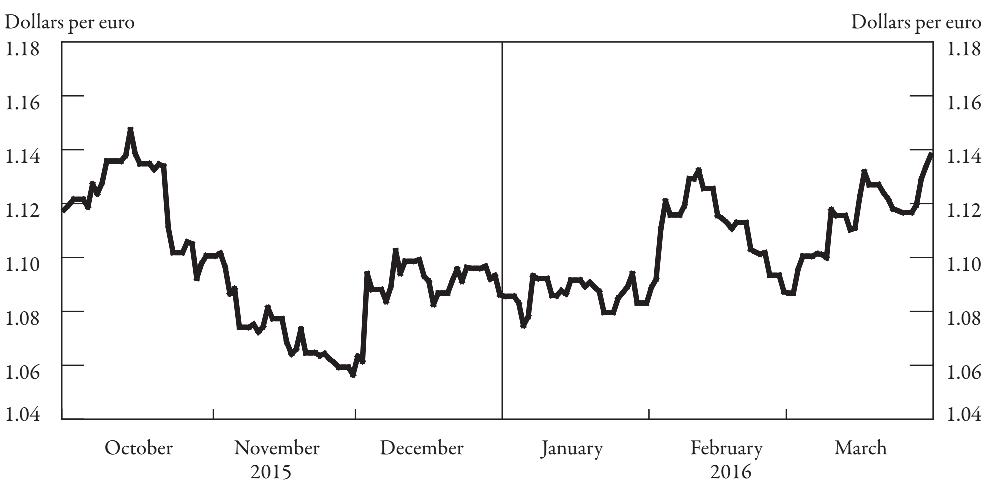
BROAD TRADE-WEIGHTED U.S. DOLLAR INDEX



Sources: Board of Governors of the Federal Reserve System; Bloomberg L.P.

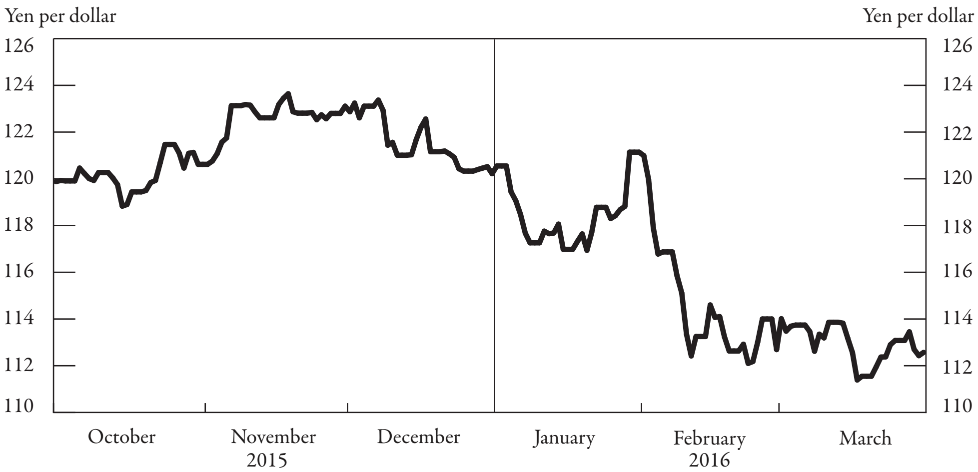
Chart 2

EURO–U.S. DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

Chart 3
U.S. DOLLAR–YEN EXCHANGE RATE



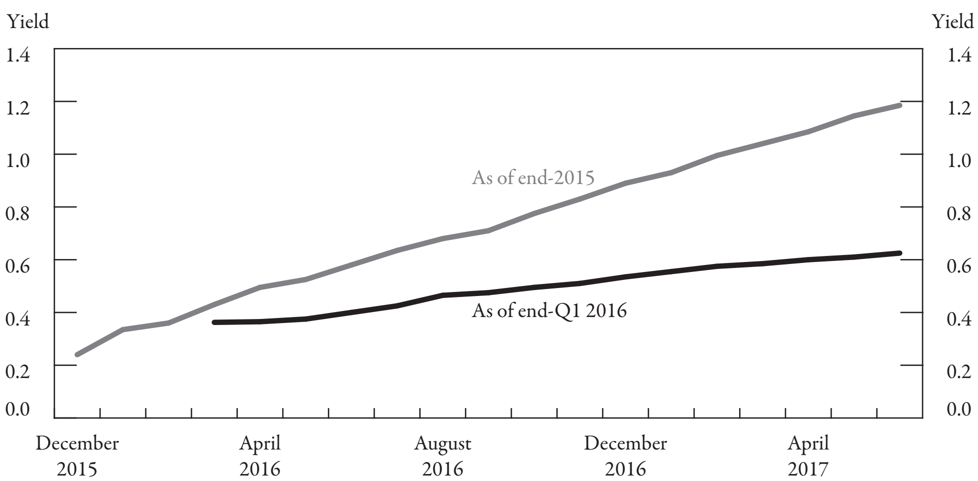
Source: Bloomberg L.P.

U.S. DOLLAR DEPRECIATES BROADLY FOLLOWING PERCEPTIONS OF SLOWER PACE OF MONETARY POLICY TIGHTENING

During the first quarter of 2016, the trade-weighted U.S. dollar depreciated 2.9 percent, representing a partial reversal of the 10.5 percent appreciation observed during 2015. The year began with heightened market volatility owing to concerns about the objectives and efficacy of the Chinese exchange rate regime, sharp declines in crude oil prices, and slowing global growth more generally, which led to initial dollar appreciation amid weakness in commodity-linked currencies. However, beginning in February, market expectations of fewer rate hikes by the Federal Reserve in the near term contributed to dollar weakness against the euro and yen, while greater stability in global financial markets contributed to gradual dollar depreciation. In particular, the statements following the January and March Federal Open Market Committee (FOMC) meetings were interpreted as implying a slower path for additional rate hikes, resulting in a notable flattening of the market-implied policy rate curve relative to end-2015 levels. The dollar depreciated notably following the March FOMC communications. In addition to the larger-than-expected declines in the median of FOMC participants' target rate projections, market contacts broadly interpreted the statement as highlighting downside risks to the domestic economic outlook posed by persistent global economic and financial headwinds, as well as ongoing caution toward the inflation outlook.

The flattening in the market-implied path of the U.S. policy rate prompted investors to partially unwind long-dollar positions, which were established over the past year on the premise of tighter U.S. monetary policy amid continued easing by the European Central Bank (ECB) and the Bank of Japan (Bo J). This reaction was reflected in a decline in net long U.S. dollar futures and options positioning by noncommercial investors on the Chicago Mercantile Exchange (CME), which reached its lowest level since 2014.

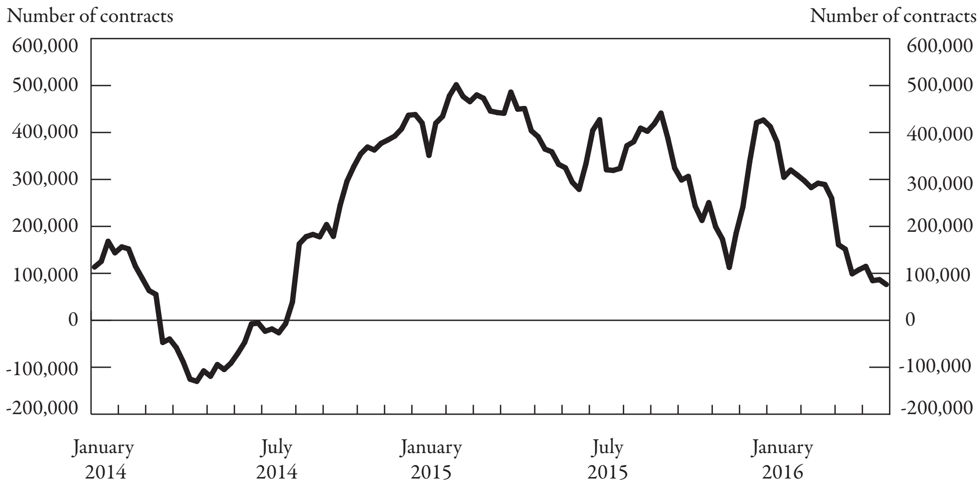
Chart 4
MARKET-IMPLIED RATES ON FEDERAL FUNDS FUTURES



Source: Bloomberg L.P.

Chart 5

NET LONG U.S. DOLLAR FUTURES AND OPTIONS OUTSTANDING



Source: Bloomberg L.P.

Note: A negative number indicates net short positioning.

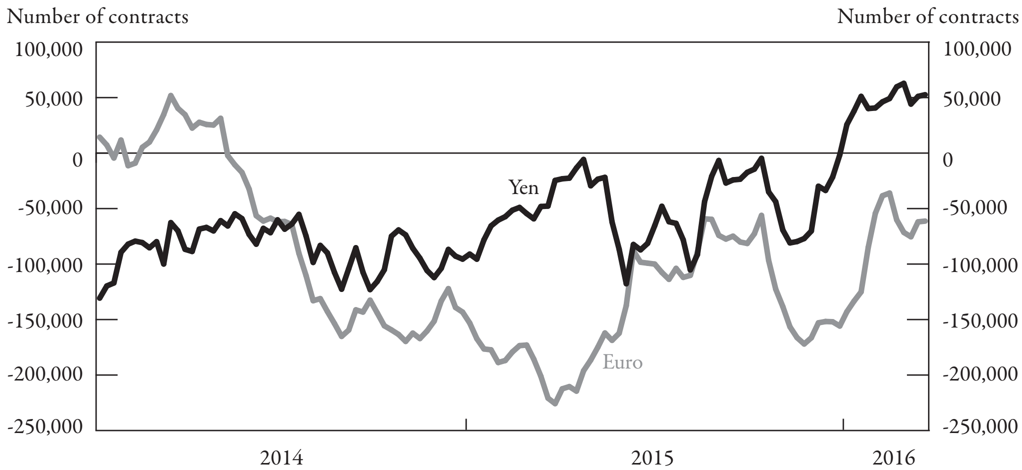
DOLLAR DEPRECIATES AGAINST EURO AND YEN DESPITE ADDITIONAL ECB AND BOJ POLICY EASING

The reassessment of U.S. monetary policy expectations was a key driver of the dollar during the quarter, but developments in foreign markets also played a role in the broader price action. The U.S. dollar depreciated 6.4 percent against the Japanese yen during the quarter, with the currency pair reaching levels last observed in October 2014. The BoJ surprised the market with the introduction of a negative interest rate regime on January 29 in order to combat persistent disinflationary pressures. The yen depreciated immediately following the announcement, but appreciated on net over the remainder of the quarter, driven by factors including safe-haven flows amid broad market volatility and hedging activity by local corporates early in the quarter. In addition, dealers also cited adjustments to currency-hedged yen equity positions by foreign investors as adding incremental support to the yen as Japanese equities declined. Finally, contacts also attributed yen strength to investor views on future capital outflow dynamics, which are expected to be hedged more so than in the past owing to Japan's current account surplus and the sustained strength of the yen. Accordingly, net long yen positioning against the dollar among noncommercial investors on the CME reached its highest observed level since 2008.

The U.S. dollar also depreciated 4.6 percent against the euro during the quarter despite additional monetary policy easing by the ECB. At its March 10 meeting, the ECB cut its deposit facility rate from -0.3 percent to -0.4 percent, citing deterioration in the euro-area inflation outlook. The ECB also expanded its asset purchase program by €20 billion a month to €80 billion, included certain types of

Chart 6

NET LONG YEN AND EURO FUTURES AND OPTIONS CONTRACTS



Source: Bloomberg L.P.

Note: A negative number indicates net short positioning.

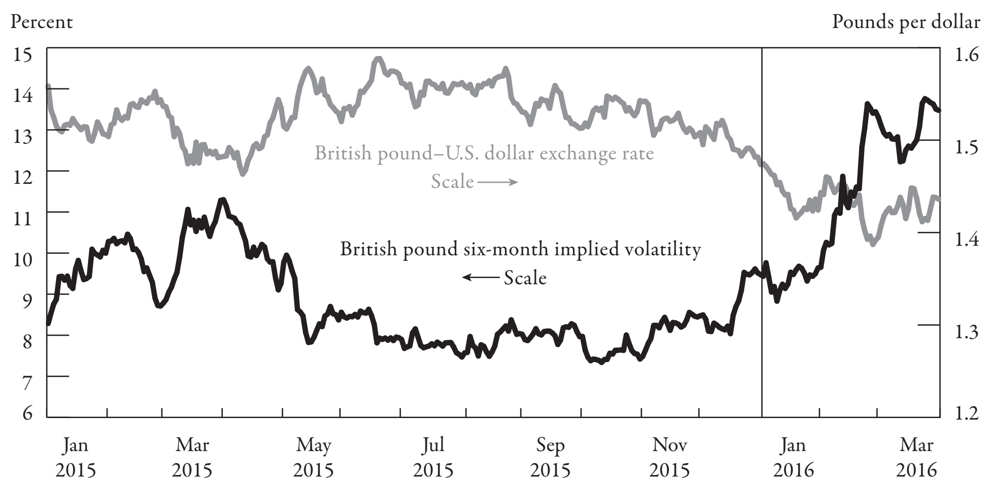
corporate debt in the program, and introduced a new series of Targeted Longer-Term Refinancing Operations (TLTROs), all of which were aimed at easing financial conditions in order to achieve the central bank's inflation objective. The introduction of new TLTROs, which provide four-year liquidity to euro-area banks at zero or even negative rates, along with subsequent commentary by ECB officials, were perceived as shifting the ECB's policy easing focus from the rate channel to the credit channel.

BRITISH POUND DEPRECIATES AHEAD OF EU REFERENDUM

In contrast to its moves against the euro and yen, the U.S. dollar appreciated 2.6 percent against the British pound in the first quarter. Market participants attributed most of the pound's depreciation to the upcoming referendum in the United Kingdom (U.K.) regarding the U.K.'s European Union (EU) membership. The risk of an exit from the EU is viewed as having the potential to create significant uncertainties for the U.K. economy, including the outlook for trade and the financial sector. In addition to the broad depreciation of the pound, measures of implied volatility on the pound–dollar exchange rate for tenors covering the June 23 referendum date rose markedly over the quarter. Market contacts also pointed to reduced expectations for monetary policy tightening and weaker-than-expected economic data as driving pound weakness.

Chart 7

BRITISH POUND–U.S. DOLLAR OPTION-IMPLIED VOLATILILTY AND EXCHANGE RATE



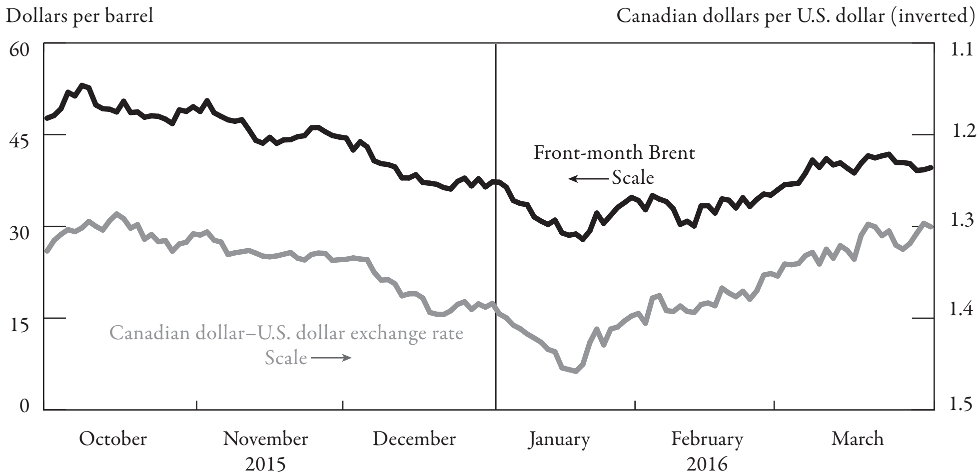
Source: Bloomberg L.P.

INCREASE IN CRUDE OIL PRICES DRIVES APPRECIATION IN COMMODITY-LINKED CURRENCIES

The U.S. dollar depreciated against all major advanced economy commodity-linked currencies over the first quarter, during which time front-month dated Brent crude oil futures rose 6.2 percent on net. Brent crude futures closed the quarter at $39.60 per barrel, after reaching a twelve-year low of $27.88 in January. Market contacts attributed the midquarter rise in oil prices in part to increased speculation about a possible production agreement between Organization of the Petroleum Exporting Countries (OPEC) and non-OPEC oil producers. Other commodity prices such as coal, iron ore, and gold also rose throughout the quarter. As such, commodity-linked currencies appreciated notably against the dollar, including the Norwegian krone (6.5 percent), the Canadian dollar (6 percent), and the Australian dollar (4.8 percent). The move in the Canadian dollar was also supported by better-than-expected Canadian GDP, retail sales, and trade data.

Chart 8

OIL PRICES AND U.S. DOLLAR–CANADIAN DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

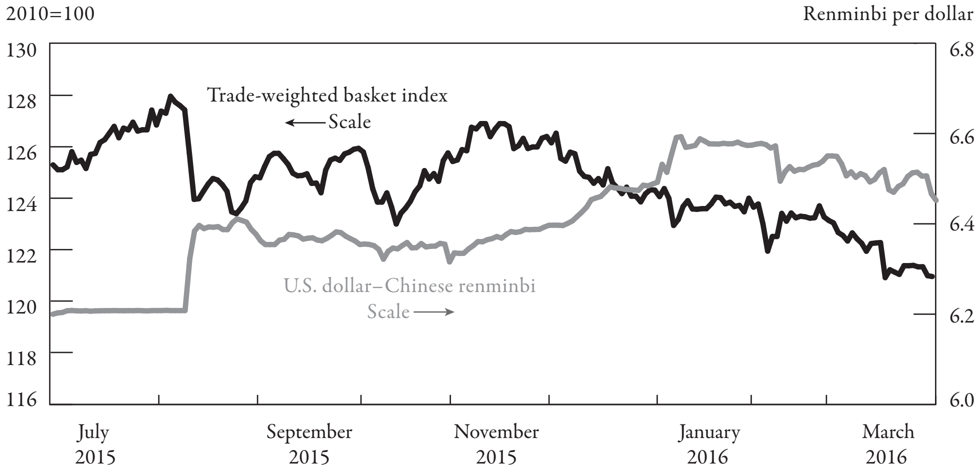
EMERGING MARKET CURRENCIES APPRECIATE AGAINST THE DOLLAR

Although most emerging market currencies initially depreciated in January, they appreciated against the U.S. dollar on net over the quarter, reversing some of the significant depreciation trend that had persisted since mid-2014. Market contacts attributed emerging market currency appreciation after late January to the broader increase in risk appetite amid higher commodity and global equity prices, reduced concern surrounding earlier volatility in the Chinese renminbi, and more accommodative-than-expected monetary policy communications from advanced economy central banks.

The onshore Chinese renminbi appreciated 0.7 percent on net against the dollar, following more rapid depreciation in the fourth quarter and early in the first quarter. However, against a trade-weighted basket of currencies, the renminbi depreciated on net over the quarter owing to appreciation by the currencies of other major trading partners, including the euro and the Japanese yen. During the quarter, official commentary by Chinese policymakers stressed a desire for relative stability against a broader currency basket, and this commentary was cited as contributing to the price action against the dollar in the latter part of the quarter. As such, near-term expectations for possible sharp depreciation receded, providing support for the renminbi against the dollar. Consistently, the spread between the onshore and offshore renminbi exchange rates narrowed to almost zero, while 25-delta risk reversals on dollar–renminbi pairs, a measure of the relative cost of hedging against further renminbi depreciation, fell significantly after January.

Chart 9

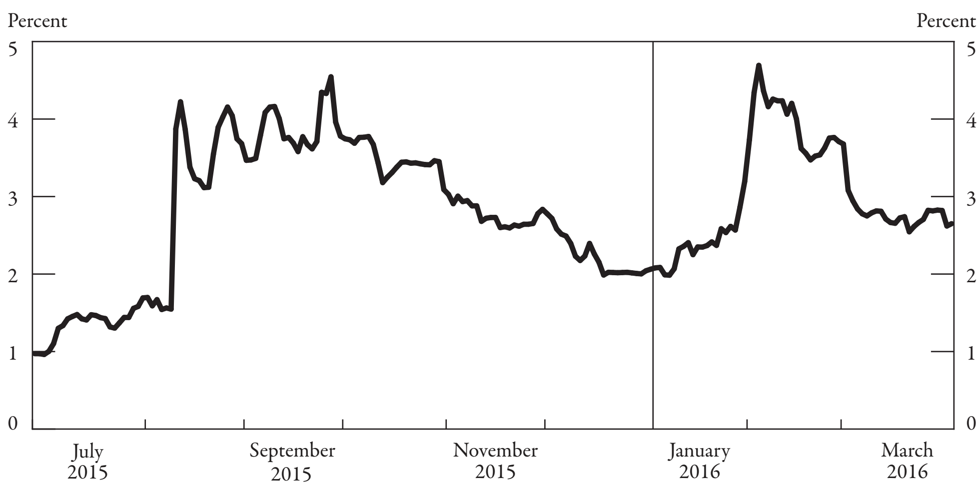
U.S. DOLLAR–CHINESE RENMINBI EXCHANGE RATE AND RENMINBI TRADE-WEIGHTED EXCHANGE RATE



Sources: Bloomberg L.P.; staff calculations.

Chart 10

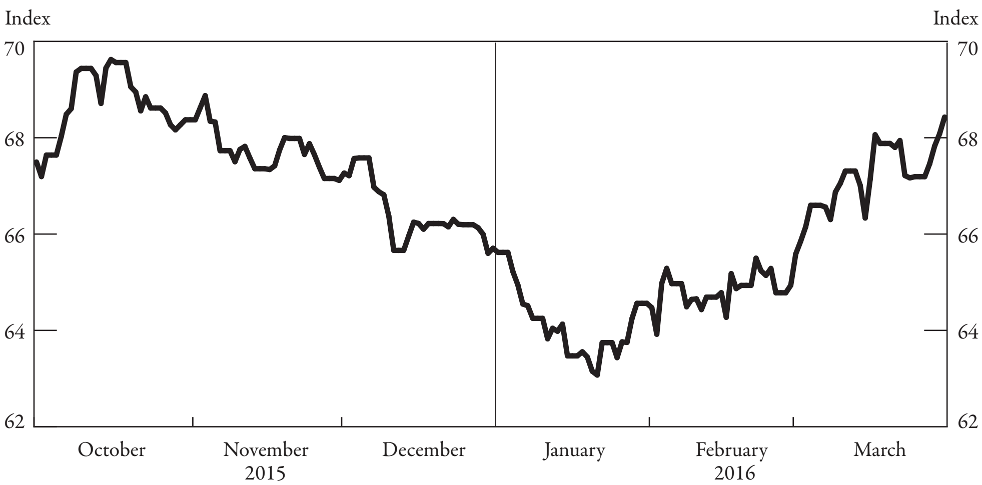
U.S. DOLLAR–CHINESE RENMINBI THREE-MONTH 25-DELTA RISK REVERSAL



Source: Bloomberg L.P.

Among other emerging markets currencies, those of net commodity-exporting countries saw the largest gains owing to the commodity price rebound, including the Brazilian real (9.3 percent), Malaysian ringgit (9.2 percent), and Russian ruble (7.8 percent). Emerging markets also experienced notable increases in portfolio inflows in the first quarter, following net outflows in 2015. One exception to the appreciation trend was the Mexican peso, which depreciated 0.4 percent against the dollar. Of note, as a result of significant peso depreciation in January and February, on February 17 the Central Bank of Mexico surprised the market with a 50 basis point policy rate hike and a shift in its foreign exchange intervention policy to offset pressure on the peso, reportedly selling approximately $2 billion during the week of the announcement. The peso appreciated roughly 8 percent against the dollar between the February 17 policy changes and the end of the quarter.

Chart 11
JP MORGAN EMERGING MARKET CURRENCY INDEX



Sources: Bloomberg L.P.

TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE HOLDINGS

The U.S. monetary authorities did not undertake any intervention operations during the quarter. As of March 31, the value of the U.S. Treasury's Exchange Stabilization Fund foreign-currency-denominated assets totaled $20.7 billion, comprised of euro and yen holdings. The Federal Reserve System Open Market Account holdings of foreign-currency-denominated assets totaled $20.8 billion, also comprised of euro and yen holdings.

Foreign Exchange Reserve Holdings

The U.S. monetary authorities invest their foreign currency reserves, which are held in the System Open Market Account (SOMA) and the Exchange Stabilization Fund (ESF), in a variety of instruments that yield market rates of return in their respective currencies and have a high degree of liquidity and credit quality. The Authorization for Foreign Currency Operations defines the permitted investments for the SOMA foreign currency portfolio.

A significant portion of the U.S. monetary authorities' foreign exchange reserves is typically invested on an outright basis in German, French, and Japanese government securities. A smaller portion of the reserves is typically invested in euro-denominated repurchase agreements. The securities accepted in repurchase agreements are typically consistent with the investments made on an outright basis. Foreign currency reserves may also be invested at the Bank for International Settlements and in facilities at other official institutions such as the Deutsche Bundesbank, the Banque de France, and the BoJ. To the greatest extent practicable, the investments are split evenly between the SOMA and the ESF.

As of March 31, the euro reserves held by both the SOMA and ESF totaled $24.9 billion. Cash held in euro-denominated deposits at official institutions increased to $13 billion from $12.4 billion, while direct holdings of euro-denominated government securities increased to $11.9 billion from $11.3 billion. These increases resulted from translation effects as the dollar depreciated against the euro. Foreign government securities held under repurchase agreements remained at zero. The amount of yen-denominated deposits and government securities increased to $16.6 billion at quarter-end from $15.5 billion, which is also attributable to depreciation of the dollar against the yen.

Liquidity Swap Arrangements with Foreign Central Banks

As of March 31, the BoJ had $101 million and the ECB had $45 million of swaps in seven-day transactions outstanding. The Bank of Canada, Bank of England, and Swiss National Bank (SNB) did not have any dollar swaps outstanding at the end of the quarter.

Table 1

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

Millions of U.S. Dollars

		Changes in Balances by Source				
	Carrying Value, December 31, 2015[a]	Net Purchases and Sales[b]	Investment Earnings[c]	Realized Gains/Losses on Sales[d]	Unrealized Gains/ Losses on Foreign Currency Revaluation[e]	Carrying Value, March 31, 2016[a]
Federal Reserve System Open Market Account (SOMA)						
Euro	11,866	0	1	0	580	12,447
Japanese yen	7,764	0	1	0	542	8,308
Total	19,630	0	2	0	1,122	20,755

		Changes in Balances by Source				
	Carrying Value, December 31, 2015[a]	Net Purchases and Sales[b]	Investment Earnings[c]	Realized Gains/Losses on Sales[d]	Unrealized Gains/ Losses on Foreign Currency Revaluation[e]	Carrying Value, March 31, 2016[a]
U.S. Treasury Exchange Stabilization Fund (ESF)						
Euro	11,848	0	1	0	579	12,428
Japanese yen	7,764	0	1	0	542	8,308
Total	19,612	0	2	0	1,122	20,735

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, repayments, and warehousing.

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

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

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

Table 2

BREAKDOWN OF FOREIGN RESERVE ASSETS HELD

Carrying Value in Millions of U.S. Dollars, as of March 31, 2016

	U.S. Treasury Exchange Stabilization Fund (ESF)[a]	Federal Reserve System Open Market Account (SOMA)[a]
Euro-denominated assets	**12,427.5**	**12,447.0**
Cash held on deposit at official institutions	6,497.8	6,517.2
Marketable securities held under repurchase agreements[b]	0.0	0.0
Marketable securities held outright	5,929.7	5,929.7
German government securities	2,398.3	2,398.3
French government securities	3,531.4	3,531.4
Japanese-yen–denominated assets	**8,307.9**	**8,307.8**
Cash held on deposit at official institutions	3,127.2	3,127.2
Marketable securities held outright	5,180.7	5,180.7
Reciprocal currency arrangements		
European Central Bank[c]		45
Bank of Japan[c]		101
Swiss National Bank[c]		0
Bank of Canada[c]		0
Bank of England[c]		0
Banco de México[c]		0

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

[a] As of March 31, the euro SOMA and ESF portfolios had Macaulay durations of 13.8 and 13.9 months, respectively; the yen SOMA and ESF portfolios both had Macaulay durations of 12.7 months.

[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, and Banco de México.

Table 3

RECIPROCAL CURRENCY ARRANGEMENTS

Millions of U.S. Dollars

Institution	Amount of Facility	Outstanding as of March 31, 2016
	Federal Reserve System Open Market Account (SOMA)	
Reciprocal currency arrangement		
Bank of Canada	2,000	0
Banco de México	3,000	0
Standing dollar liquidity swap arrangement		
European Central Bank	No preset limit	45
Swiss National Bank	No preset limit	0
Bank of Japan	No preset limit	101
Bank of Canada	No preset limit	0
Bank of England	No preset limit	0
	No preset limit	146
Standing foreign currency liquidity swap arrangement		
European Central Bank	No preset limit	0
Swiss National Bank	No preset limit	0
Bank of Japan	No preset limit	0
Bank of Canada	No preset limit	0
Bank of England	No preset limit	0
	No preset limit	0
	U.S. Treasury Exchange Stabilization Fund (ESF)	
Banco de México	3,000	0
	3,000	0