TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE OPERATIONS

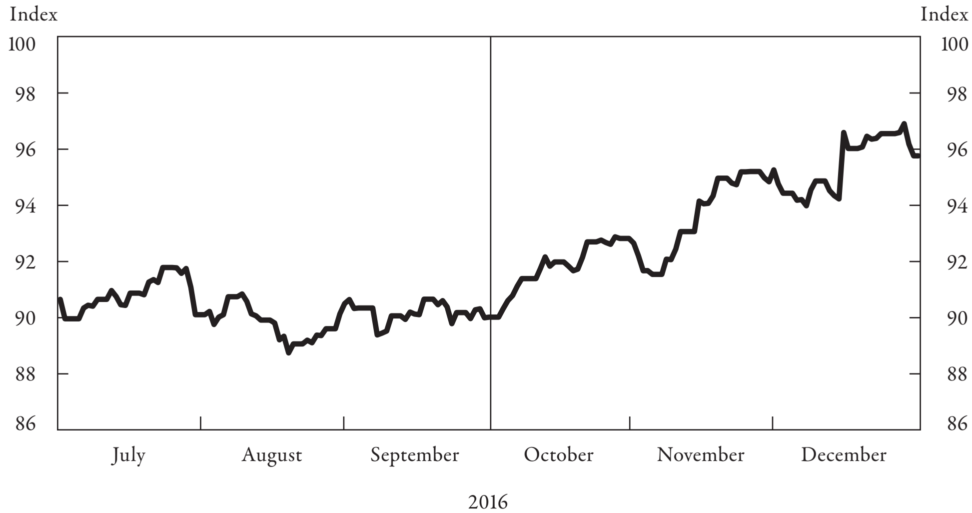
October–December 2016

In the fourth quarter of 2016, the dollar appreciated against all major currencies, with the Federal Reserve Board's trade-weighted major currency dollar index rising by 6.4 percent, reaching its highest level since 2003. The appreciation of the dollar was primarily driven by the notable rise in U.S. Treasury rates and increased market expectations for additional rate increases by the Federal Open Market Committee (FOMC). Most of this price action occurred after the U.S. election and was attributable to widespread expectations for a shift toward more expansionary fiscal policy by the incoming U.S. administration. The dollar appreciated against the euro by 6.8 percent and the Japanese yen by 15.4 percent, mostly driven by widening interest rate differentials and adjustments to investor positioning. The dollar also broadly appreciated against emerging market currencies. Of particular relevance for the trade-weighted dollar were depreciation of the Mexican peso and Chinese renminbi, against which the dollar appreciated 6.9 and 4.1 percent, respectively. 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 October through December 2016. Michael Hendley was primarily responsible for preparation of the report. Updated on May 11, 2017.

Chart 1

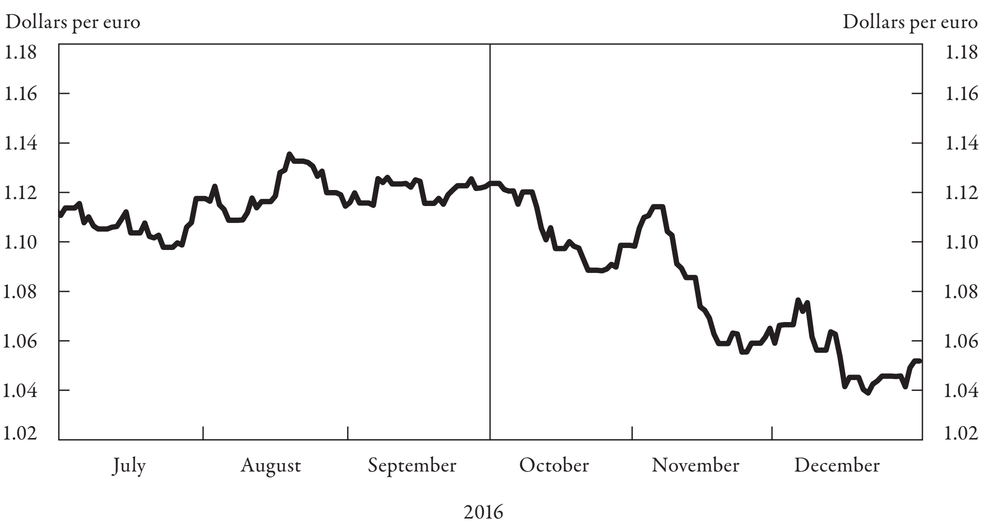
MAJOR CURRENCY TRADE-WEIGHTED U.S. DOLLAR



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

Chart 2

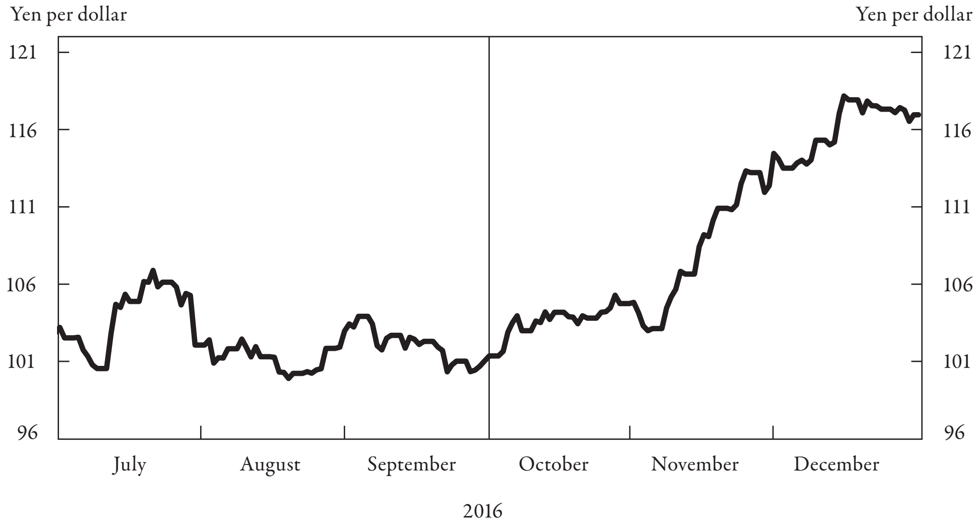
EURO–U.S. DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

Chart 3

U.S. DOLLAR–YEN EXCHANGE RATE

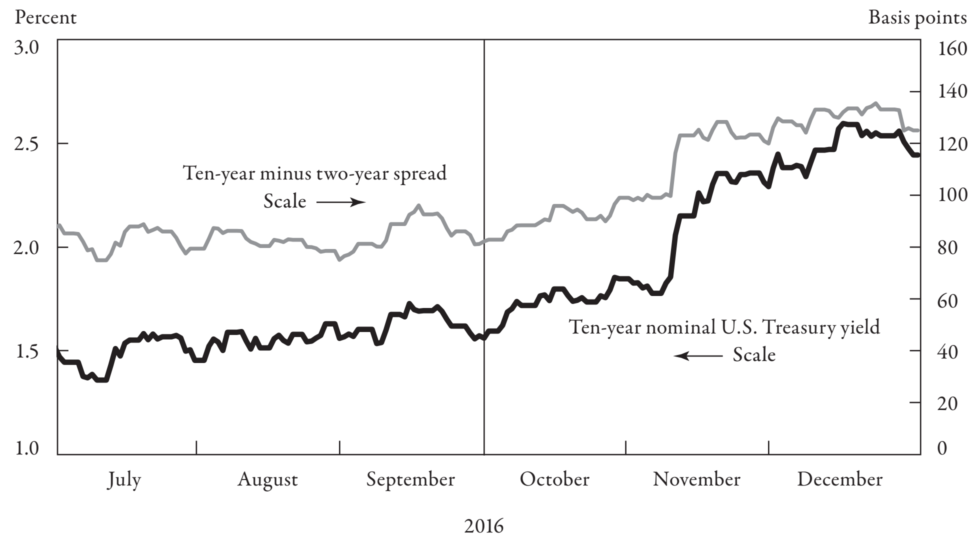


Source: Bloomberg L.P.

U.S. DOLLAR APPRECIATES BROADLY ON RISING U.S. INTEREST RATES, EXPECTATIONS FOR MONETARY POLICY TIGHTENING

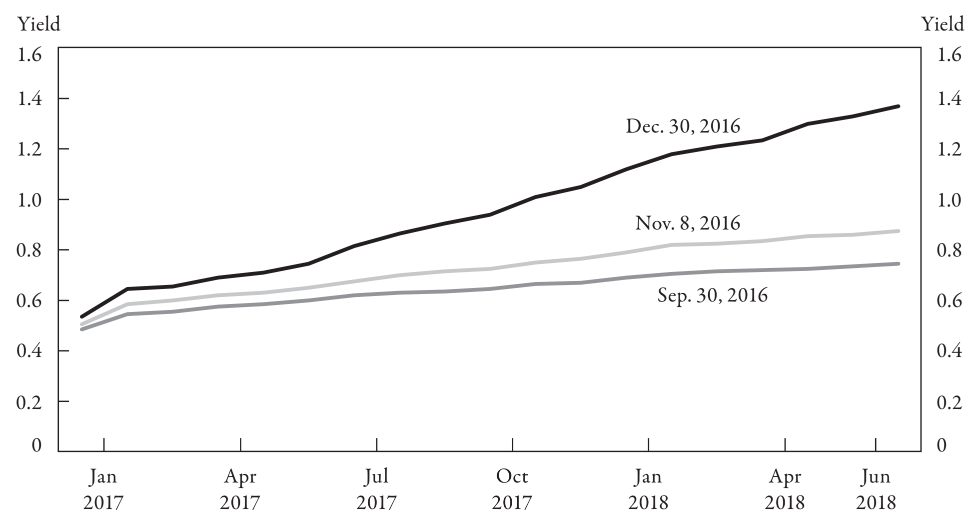
During the fourth quarter of 2016, the U.S. dollar appreciated against all developed market and most emerging market currencies. The trade-weighted U.S. dollar appreciated 6.4 percent against major currencies, with the dollar index 1.6 percent stronger on the year. Broad dollar appreciation began in October and accelerated sharply following the outcome of the U.S. presidential election, a time frame over which rising long-term U.S. yields led to a notable steepening of the U.S. Treasury curve. Market participants attributed the rise in yields to expectations of more expansionary U.S. fiscal policy and additional rate increases by the FOMC, as evidenced by the steepening in the market-implied path of U.S. policy rates. Fiscal policy expectations also drove the rise in longer-term rates and a steeper yield curve. The rise in U.S. rates led to wider interest rate differentials against other major markets, supporting dollar appreciation.

Chart 4
U.S. RATES



Source: Bloomberg L.P.

Chart 5
MARKET-IMPLIED RATES ON FEDERAL FUNDS FUTURES



Source: Bloomberg L.P.

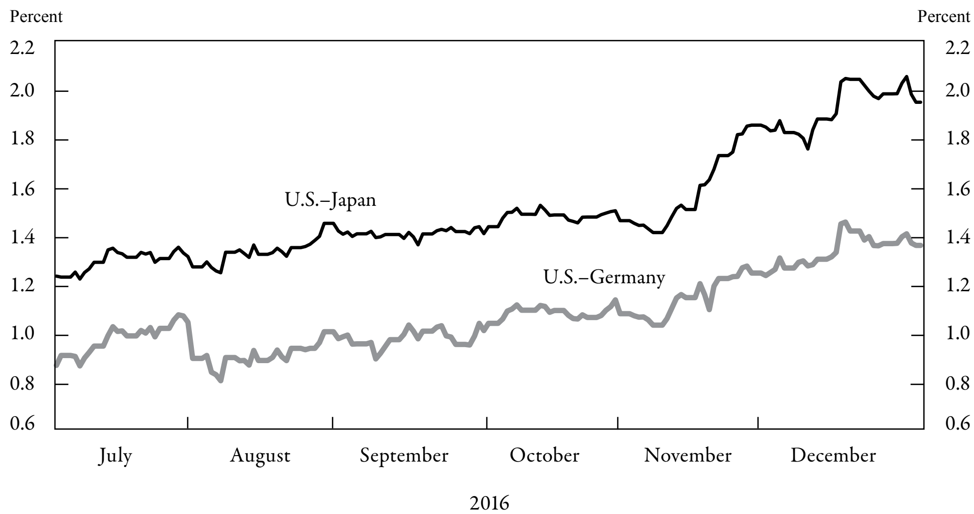
At its December meeting, the FOMC voted to raise the target federal funds range by 25 basis points to 0.5 to 0.75 percent. In the accompanying statement, the FOMC indicated that the stance of monetary policy remains accommodative and supportive of further strengthening in labor market conditions and a return to 2 percent inflation. While the decision was largely expected, the dollar appreciated modestly against most currencies on the day, driven by an increase in the median of FOMC participants' rate projections in the Summary of Economic Projections, which implies three rate hikes by year-end 2017.

Domestic data were also cited as a driver for dollar strength throughout the quarter. In particular, manufacturing and non-manufacturing survey data were generally above consensus expectations. Labor market data were broadly in line with expectations, with average hourly earnings growth accelerating and the unemployment rate declining marginally.

WIDENING RATE DIFFERENTIALS DRIVE DOLLAR APPRECIATION AGAINST EURO

The dollar appreciated 6.8 percent against the euro over the quarter. Following three quarters of relative stability, the notable widening in U.S.–German interest rate differentials was the primary driver for euro depreciation against the dollar, with the nominal spread between two-year U.S. and German sovereign bonds widening by 51 basis points, a widening that, in turn, was driven by monetary policy divergence. At its December 8 policy meeting, the European Central Bank (ECB) announced the extension of its Asset Purchase Program by nine months to December 2017, and also stated that the monthly volume of purchases will decline by EUR 20 billion to EUR 60 billion from April 2017. Contacts interpreted the decision as somewhat more accommodative than expected, driving subsequent moderate depreciation of the euro.

Chart 6
TWO-YEAR NOMINAL RATE DIFFERENTIALS



Source: Bloomberg L.P.

JAPANESE YEN DEPRECIATES SHARPLY OWING TO GLOBAL RATE MOVES AND DOMESTIC FACTORS

The dollar appreciated 15.4 percent against the Japanese yen during the quarter, which was the largest move among major currencies and offset much of the significant yen appreciation seen earlier in the year. The depreciation of the yen against the dollar was consistent with the widening of U.S. and Japanese interest rate differentials. Market participants noted that the increase in global yields following the U.S. election as well as a potential sharp shift in investor positioning also likely contributed to the underperformance of the yen compared with other developed market currencies. Data from the Chicago Mercantile Exchange show that noncommercial investors shifted from net long to net short positions on the yen.

BRITISH POUND WEAKENS ON POLITICAL DEVELOPMENTS, EXPERIENCES FLASH EVENT

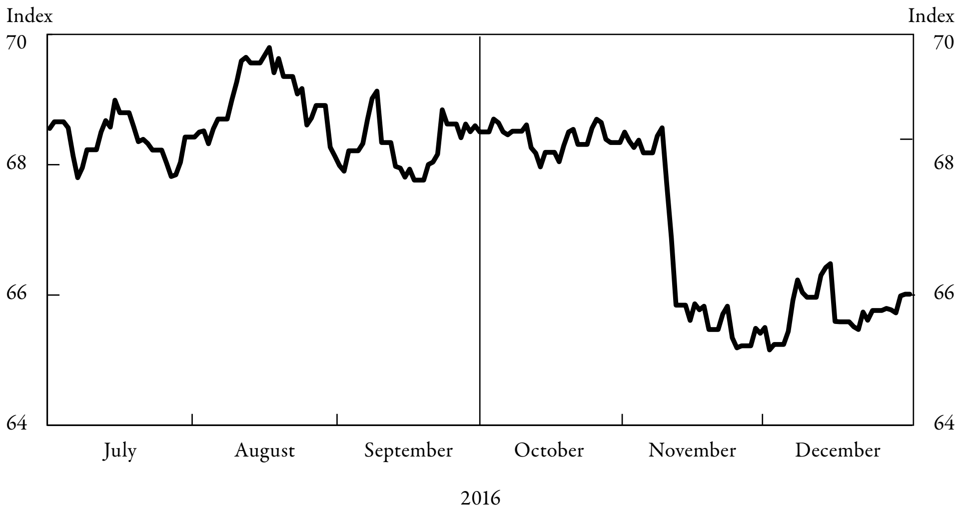
Among other major currencies, the British pound experienced some volatility over the period and ended the quarter 4.9 percent weaker against the dollar. The pound depreciated in early October following comments from British government officials that emphasized the prioritization of immigration controls, which European officials hold to be incompatible with continued single market membership. Some contacts also attributed pound depreciation to the British government's announced intention to trigger Article 50 of the Lisbon Treaty in early 2017, which would mark the start of formal negotiations on the United Kingdom's exit from the European Union. Of note, on October 7, the pound depreciated abruptly in early Asian trading hours, falling roughly 9 percent against the dollar before retracing much of the decline within the next hour. Market participants did not point to any single trigger for the move, and generally attributed the pound's temporary sharp depreciation to various factors, including stop-loss related hedging of options positions as the pound–dollar currency pair traded through key levels, as well as the thin liquidity conditions prevailing during that particular time of day.

EMERGING MARKET CURRENCIES DEPRECIATE AMID SHIFT IN INVESTOR SENTIMENT

Emerging market currencies depreciated notably against the dollar in the fourth quarter, with the JP Morgan Emerging Markets Currency Index declining 3.6 percent. Higher U.S. rates, a stronger dollar, and potential shifts in U.S. trade policies were all viewed by market participants as putting pressure on emerging market economies. Within the Federal Reserve Board's trade-weighted dollar index, declines were led by the Mexican peso and Chinese renminbi, against which the dollar appreciated 6.9 percent and 4.1 percent, respectively. Aside from the general negative shift in investor sentiment toward emerging market assets driven by rising U.S. yields, market participants also attributed the Mexican peso's decline to uncertainty regarding potential changes in U.S. trade policy. The depreciation of the Chinese renminbi was driven by continued resident capital outflows, with contacts noting that moves in the currency were generally consistent with the People's Bank of China's stated policy of relative stability against a trade-weighted basket of currencies. Of note, the renminbi was officially included in the International Monetary Fund's Special Drawing Rights basket of currencies on October 1.

Chart 7

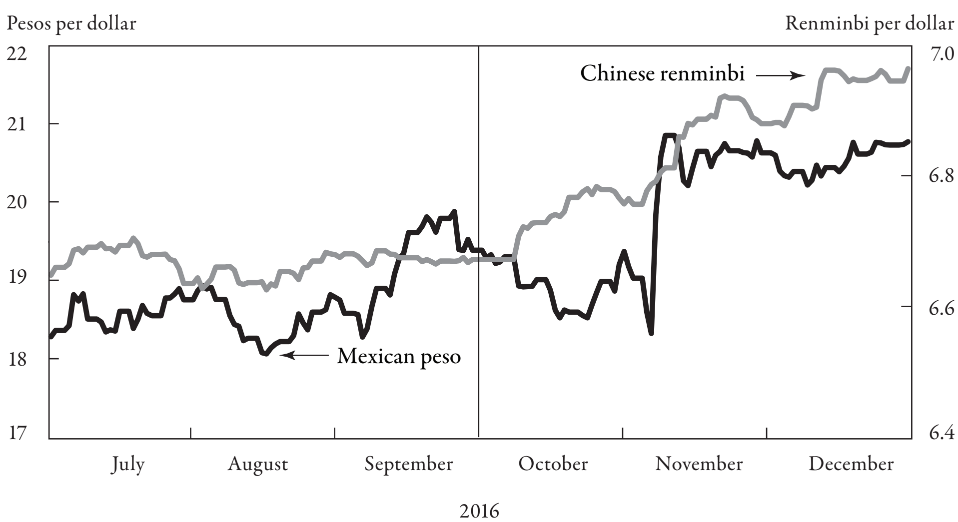
JP MORGAN EMERGING MARKETS CURRENCY INDEX



Source: Bloomberg L.P.

Chart 8

MEXICAN PESO AND CHINESE RENMINBI



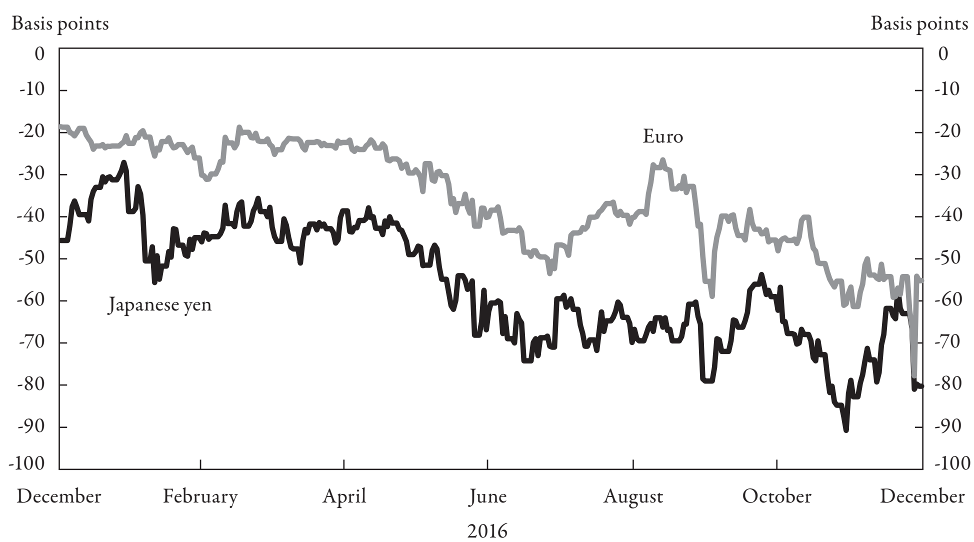
Source: Bloomberg L.P.

FOREIGN EXCHANGE SWAP BASIS WIDENS OVER QUARTER

Focus remained on the continued widening in the foreign exchange (FX) swap basis of U.S. dollar currency pairs over the fourth quarter. The FX swap basis represents the premium to borrow dollars in the foreign exchange swap market relative to the London Interbank Offered Rate. Demand for U.S. dollar funding from non-U.S. banks and nonbank investors has risen notably amid divergent monetary policy trajectories, while the supply of dollar funding has remained limited by bank balance sheet constraints and regulatory developments, including the implementation on October 14 of U.S. money market reform that affects the capacity of non-U.S. banks to obtain dollar funding from U.S. money markets.[1] These factors have contributed to the widening of the FX swap basis of major U.S. dollar currency pairs, particularly at period ends when the supply of dollars decreases given those dates' importance for bank reporting purposes and for strict balance sheet risk management. Despite these elevated levels, contacts reported no signs that market participants were unable to obtain dollar funding in offshore markets.

Chart 9

THREE-MONTH FX SWAP-IMPLIED BASIS SPREADS



Source: Bloomberg L.P.

[1] The reforms, which among other things require prime institutional money market funds to utilize a floating net asset value and allow all prime funds to impose withdrawal gates and fees under certain conditions, have resulted in large outflows from prime funds into government money market funds, which now must keep 99.5 percent of assets in cash and government-related securities. Given the large role prime funds play in U.S. dollar funding markets, this has decreased the supply of available short-term lending, resulting in an increased premium for dollar funding.

TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE HOLDINGS

The U.S. monetary authorities did not undertake any intervention operations during the quarter. As of December 31, the value of the U.S. Treasury's Exchange Stabilization Fund foreign-currency-denominated assets totaled $19.5 billion, comprised of euro and yen holdings. The Federal Reserve System Open Market Account holdings of foreign-currency-denominated assets totaled $19.5 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.

The Open Market Trading Desk of the Federal Reserve Bank of New York (the Desk) recently concluded the implementation of a new investment framework for the U.S. foreign currency reserves designed to enhance the management of the foreign currency assets. The framework involves a routine affirmation of objectives and constraints from policymakers. The Desk then utilizes an investment approach designed to meet those objectives to maximize return subject to maintaining sufficient liquidity and a high degree of safety.

The new investment framework also includes revisions to the various documents governing SOMA foreign currency operations in order to simplify and clarify guidance provided to the Desk on the management of the SOMA foreign currency reserves. These revised documents, the Authorization for Foreign Currency Operations and the Foreign Currency Directive, were approved by the FOMC on September 20, 2016.

In terms of the composition of foreign currency reserves, a significant portion of the U.S. monetary authorities' foreign exchange reserves remained invested on an outright basis in German, French, and Japanese government securities. As a result of the new investment framework, the Desk began investing in Dutch government securities in the fourth quarter. 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 Bank of Japan (BoJ). To the greatest extent practicable, the investments are split evenly between the SOMA and the ESF.

As of December 31, the euro reserves held by both the SOMA and ESF totaled $23 billion, a decline from $24.5 billion owing to translation effects as the dollar appreciated against the euro. Cash held in euro-denominated deposits at official institutions declined to $8.4 billion from $14.1 billion, while direct holdings of euro-denominated government securities increased to $14.6 billion from $10.4 billion. The decline in euro-denominated deposits at official institutions and increase in euro-denominated securities was primarily the result of the implementation of the new target asset allocation. The amount of yen-denominated deposits and government securities held by the SOMA and ESF decreased to $16 billion at quarter-end from $18.5 billion, which was mostly attributable to appreciation of the dollar against the yen.

Liquidity Swap Arrangements with Foreign Central Banks

As of December 31, the ECB had $4.3 billion of swaps in a twenty-one-day transaction and the BoJ had $1.2 billion of swaps in a seven-day transaction outstanding. The Bank of Canada, Bank of England, and Swiss National Bank 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

	Carrying Value, September 30, 2016[a]	Changes in Balances by Source				Carrying Value, December 31, 2016[a]
		Net Purchases and Sales[b]	Investment Earnings[c]	Realized Gains/Losses on Sales[d]	Unrealized Gains/Losses on Foreign Currency Revaluation[e]	
Federal Reserve System Open Market Account (SOMA)						
Euro	12,273	0	(4)	0	(749)	11,520
Japanese yen	9,230	0	1	0	(1,231)	8,000
Total	21,504	0	(3)	0	(1,980)	19,520

	Carrying Value, September 30, 2016[a]	Changes in Balances by Source				Carrying Value, December 31, 2016[a]
		Net Purchases and Sales[b]	Investment Earnings[c]	Realized Gains/Losses on Sales[d]	Unrealized Gains/Losses on Foreign Currency Revaluation[e]	
U.S. Treasury Exchange Stabilization Fund (ESF)						
Euro	12,254	0	(4)	0	(748)	11,502
Japanese yen	9,230	0	1	0	(1,231)	8,000
Total	21,484	0	(3)	0	(1,979)	19,503

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, as well as 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 December 31, 2016

	U.S. Treasury Exchange Stabilization Fund (ESF)[a]	Federal Reserve System Open Market Account (SOMA)[a]
Euro-denominated assets	**11,502.2**	**11,520.2**
Cash held on deposit at official institutions	4,185.6	4,203.5
Marketable securities held under repurchase agreements[b]	0.0	0.0
Marketable securities held outright	7,316.6	7,316.6
German government securities	1,902.1	1,902.1
French government securities	3,936.2	3,936.2
Dutch government securities	1,478.3	1,478.3
Japanese-yen–denominated assets	**8,000.3**	**8,000.3**
Cash held on deposit at official institutions	4,668.4	4,668.3
Marketable securities held outright	3,331.9	3,331.9
Reciprocal currency arrangements		
European Central Bank[c]		4,340
Bank of Japan[c]		1,223
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 December 31, the euro SOMA and ESF portfolios had Macaulay durations of 28.17 and 28.21 months, respectively; the yen SOMA and ESF portfolios both had Macaulay durations of 7.91 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 December 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	4,340
Swiss National Bank	No preset limit	0
Bank of Japan	No preset limit	1,223
Bank of Canada	No preset limit	0
Bank of England	No preset limit	0
	No preset limit	5,563
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