
TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE OPERATIONS

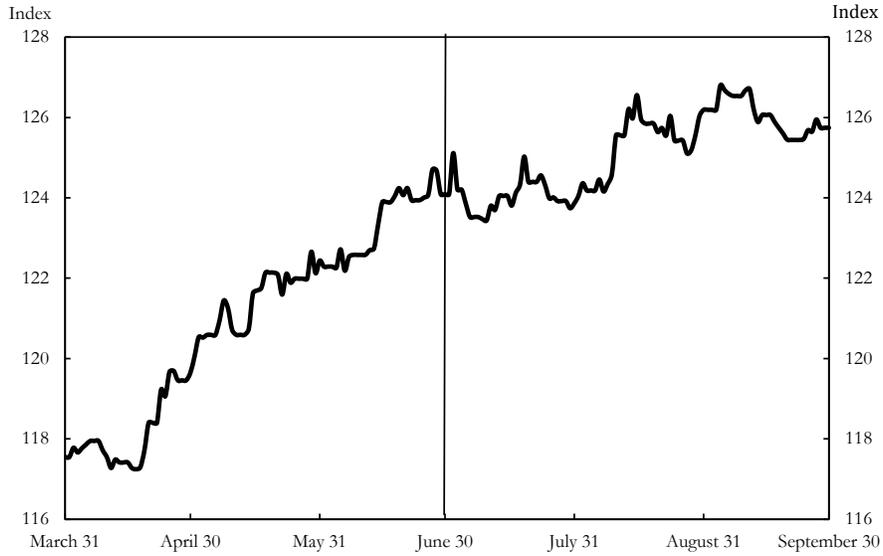
July – September 2018

The U.S. dollar, as measured by the Federal Reserve Board’s broad trade-weighted dollar index, appreciated 1.3 percent in the third quarter of 2018. The dollar’s modest appreciation was driven by multiple factors, including an increase in financial market stress in multiple emerging markets, a perceived escalation of global trade tensions, and political developments in the United Kingdom and Italy, supported by a further modest widening of U.S. interest rate differentials compared with other major economies amid expectations for continued U.S. monetary policy normalization. Among major currencies, the dollar appreciated 2.7 percent against the Japanese yen and 0.7 percent against the euro, while depreciating 1.7 percent against the Canadian dollar. The dollar appreciated notably against most emerging market currencies, and precipitously against the Argentine peso and Turkish lira—by 42.8 percent and 31.9 percent, respectively—amid idiosyncratic developments in those countries. Finally, the dollar appreciated 3.7 percent against the Chinese renminbi, reflecting concerns about Chinese growth amid a perceived escalation in trade tensions with the United States. The Federal Reserve and U.S. Treasury did not intervene in 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 July through September 2018. Veronica Zapasnik was primarily responsible for preparation of the report.

Chart 1

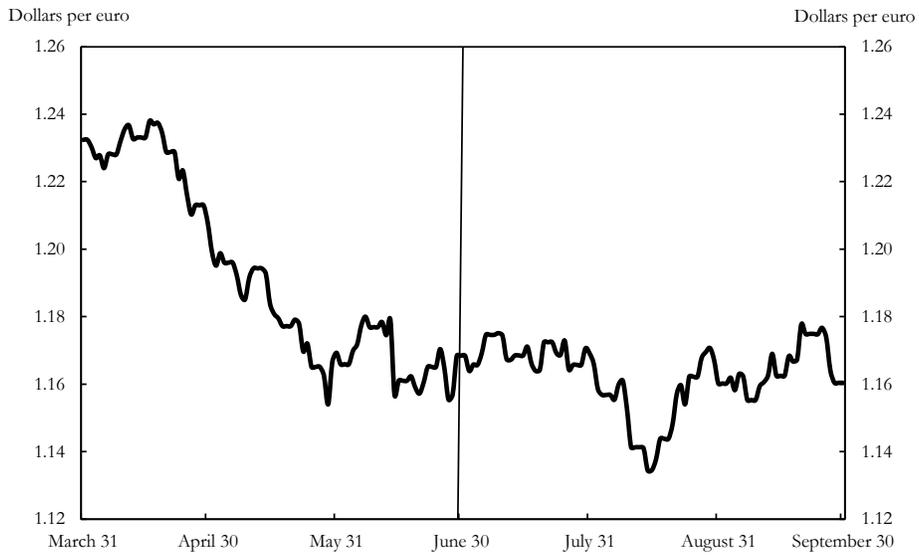
BROAD TRADE-WEIGHTED U.S. DOLLAR



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

Chart 2

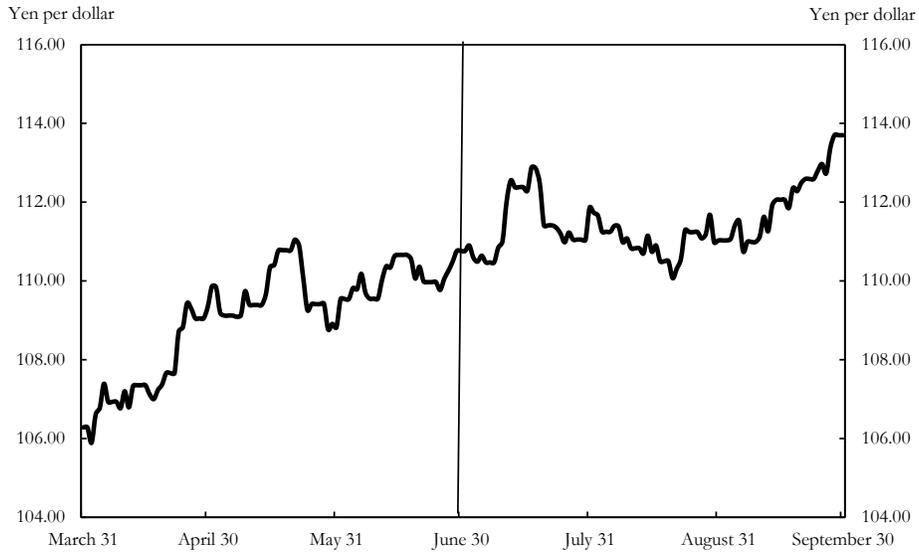
EURO-U.S. DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

Chart 3

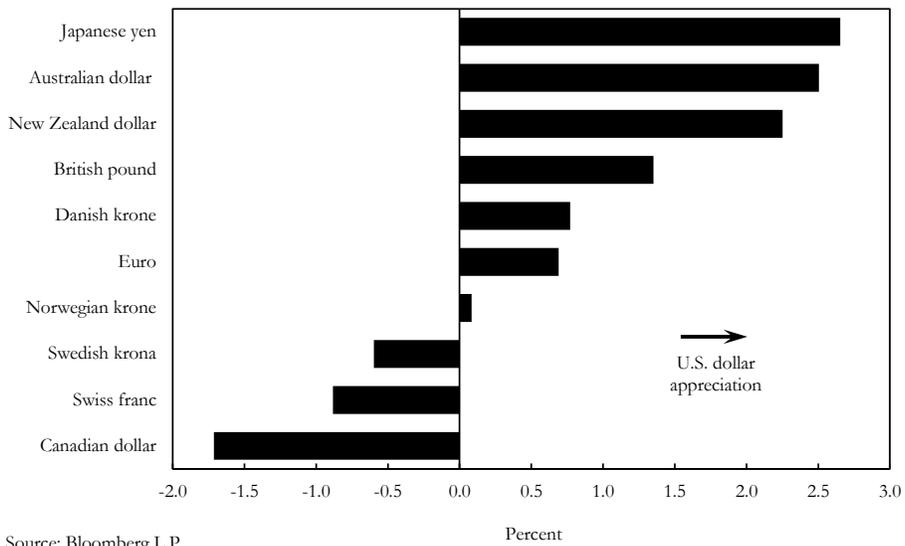
U.S. DOLLAR–JAPANESE YEN EXCHANGE RATE



Source: Bloomberg L.P.

Chart 4

U.S. DOLLAR PERFORMANCE AGAINST G-10 CURRENCIES DURING THE THIRD QUARTER



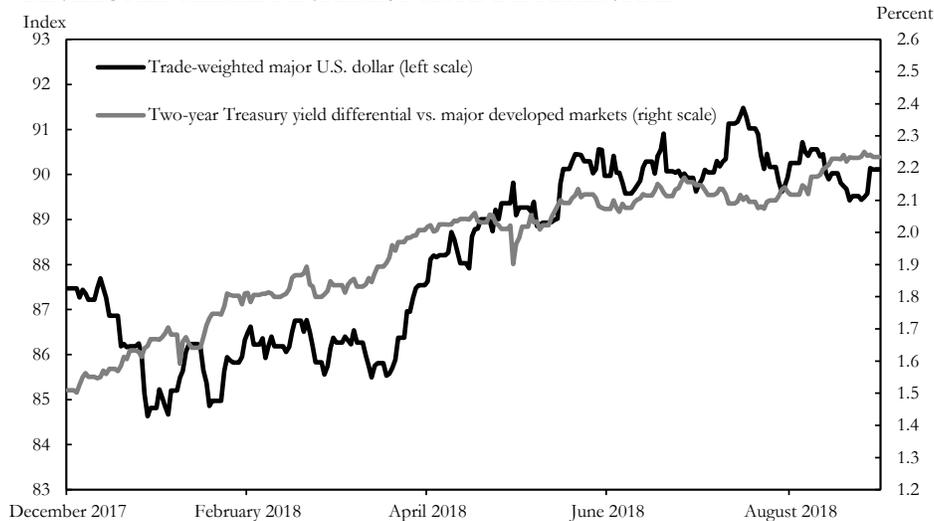
Source: Bloomberg L.P.

U.S. DOLLAR APPRECIATES ON A BROAD TRADE-WEIGHTED BASIS

The major currency trade-weighted dollar was little changed in the third quarter, while the broad trade-weighted U.S. dollar—which includes a broader set of currencies of important U.S. trading partners, including emerging markets—appreciated 1.3 percent, reflecting the greater role emerging markets played in U.S. dollar developments in the quarter.¹ The broad dollar movement reflected financial market pressures in more vulnerable emerging markets, a perceived escalation of global trade tensions, continued U.S. monetary policy normalization and policy divergence with most other major global economies, and increased perception of political risks in the United Kingdom and Italy. The dollar’s appreciation against most emerging market currencies was viewed by market participants as driven primarily by increasing investor concerns about emerging markets with large external funding needs, as well as the perceived escalation of global trade tensions and a deceleration in Chinese economic growth, which underpinned the dollar’s strength against the Chinese renminbi in particular.

Chart 5

TRADE-WEIGHTED MAJOR U.S. DOLLAR AND WEIGHTED DEVELOPED MARKET INTEREST RATE DIFFERENTIAL



Sources: Bloomberg L.P.; Board of Governors of the Federal Reserve System; New York Fed staff calculations.

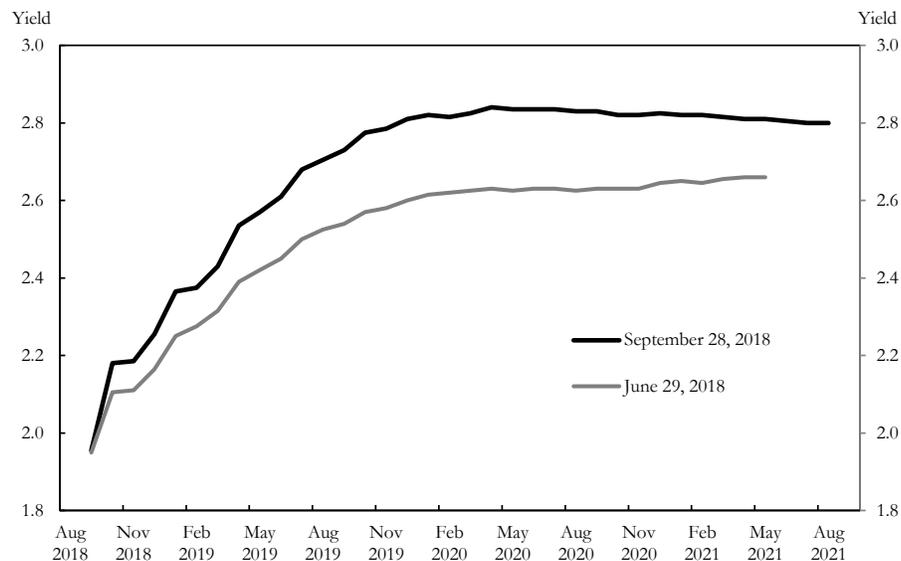
The U.S. dollar remained supported against most developed market currencies by a modest widening of interest rate differentials between the United States and other major economies amid

¹ The major currency trade-weighted dollar index includes seven widely traded developed market currencies. The broad trade-weighted dollar index includes twenty-six currencies, including both major developed market currencies as well as currencies of other important trading partners of the United States, including emerging markets.

expectations for continued U.S. monetary policy normalization. Two-year interest rate differentials between the United States and its advanced economy peers rose to multiyear highs, as the Federal Reserve continued to gradually raise its policy rate while other advanced economies—including the euro area, the United Kingdom, and Japan—are still viewed as pursuing accommodative policies or being in the early stages of policy normalization. The Federal Open Market Committee (FOMC) raised the target range for the federal funds rate by 25 basis points at its September meeting; the FOMC meeting elicited limited market reaction, since it was viewed as consistent with existing expectations for continued gradual rate increases.

As measured by the implied rates on federal funds futures, the market-implied path of policy steepened moderately over the quarter. Some of the increase followed incremental spoken communications from Federal Reserve officials and some came in response to U.S. economic data that surpassed consensus expectations, particularly the August Employment Situation report and its higher-than-expected wage growth component. The economic growth differential between the United States and other advanced economies continued to widen in the quarter, with momentum decelerating outside the United States. Forward-looking economic forecasts, with upward revisions to U.S. growth forecasts amid downward revisions abroad, also supported the U.S. dollar in the quarter. In addition, the perception of heightened political risks in both the United Kingdom and euro area supported dollar strength against the currencies of those economies.

Chart 6
MARKET-IMPLIED RATES ON FEDERAL FUNDS FUTURES



Source: Bloomberg L.P.

Based on Commodity Futures Trading Commission data, aggregate noncommercial positioning in U.S. dollar futures and options continued to rise in the third quarter, reaching its net longest level since January 2017, possibly reflecting ongoing expectations for near-term broad dollar appreciation.

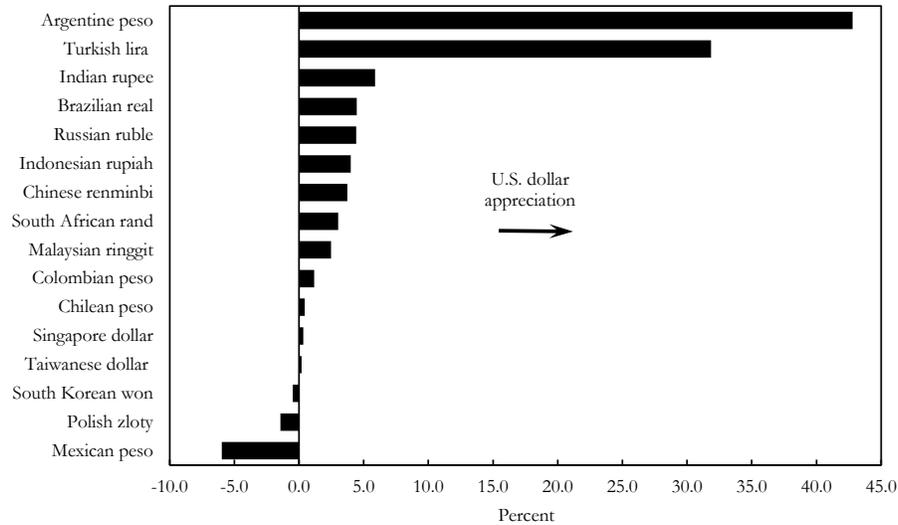
DOLLAR APPRECIATES AGAINST MOST EMERGING MARKET CURRENCIES AMID HEIGHTENED FOCUS ON VULNERABILITIES

The U.S. dollar appreciated against most emerging market currencies in the third quarter, as the JP Morgan Emerging Markets Currency Index declined 3.7 percent.² Emerging market currencies began depreciating in the second quarter of 2018, with the trend accelerating in the third quarter. Market participants identified rising U.S. interest rates and broad U.S. dollar strength as catalyzing renewed focus on emerging markets with large external funding needs, leading to volatility across multiple emerging market assets. Similar to the “taper tantrum” episode in 2013, underperformance was concentrated in countries with larger current account deficits, relatively low levels of foreign exchange reserves, elevated inflation, and, in some cases, political uncertainty. In the third quarter, the most significant strains emerged in Turkey and Argentina, resulting in sharp appreciation of the dollar against the currencies of both countries—31.9 percent against the Turkish lira and 42.8 percent against the Argentine peso.

² The JP Morgan Emerging Markets Currency Index’s weighting consists of ten currencies. The Turkish lira, Russian ruble, Hungarian forint, and South African rand each have a weighting of 8.3 percent in the index, while the Brazilian real, Mexican peso, Chilean peso, Chinese renminbi, Indian rupee, and Singapore dollar each have a weighting of 11.1 percent.

Chart 7

U.S. DOLLAR PERFORMANCE AGAINST EMERGING MARKET CURRENCIES DURING THE THIRD QUARTER



Source: Bloomberg L.P.

The Turkish lira, which had been under pressure for most of the year amid ongoing market concerns about Turkey’s significant external financing needs, high and increasing inflation, and perceived political uncertainty, depreciated precipitously in the third quarter. Market participants identified two proximate triggers for the movement: intensifying post-election investor concerns about Turkey’s economic policy framework and an escalation of geopolitical tensions. Deteriorating liquidity conditions were seen as amplifying the speed and scale of the currency’s decline. Similarly, the U.S. dollar appreciated 42.8 percent against the Argentine peso, whose sharp depreciation was driven in part by ongoing market participant concerns over the country’s large external imbalances, accelerating inflation, and perceived policy challenges. The Argentine peso’s depreciation accelerated after the announcement that Argentine officials requested an early disbursement of the country’s \$50 billion stand-by arrangement with the International Monetary Fund.

Most other major emerging market currencies also depreciated in the third quarter (though to a lesser extent than the Turkish lira and Argentine peso), with the Indian rupee, Brazilian real, Indonesian rupiah, and South African rand depreciating between 3.0 and 5.6 percent. Market participants primarily attributed the decline in broader emerging market currencies to some spillover from the sharp sell-off in Turkish assets—which triggered some investor concern about countries with similar economic challenges. Additionally, market participants noted that a perceived escalation of U.S.—China trade tensions and a Chinese growth slowdown had increased downside risks to the

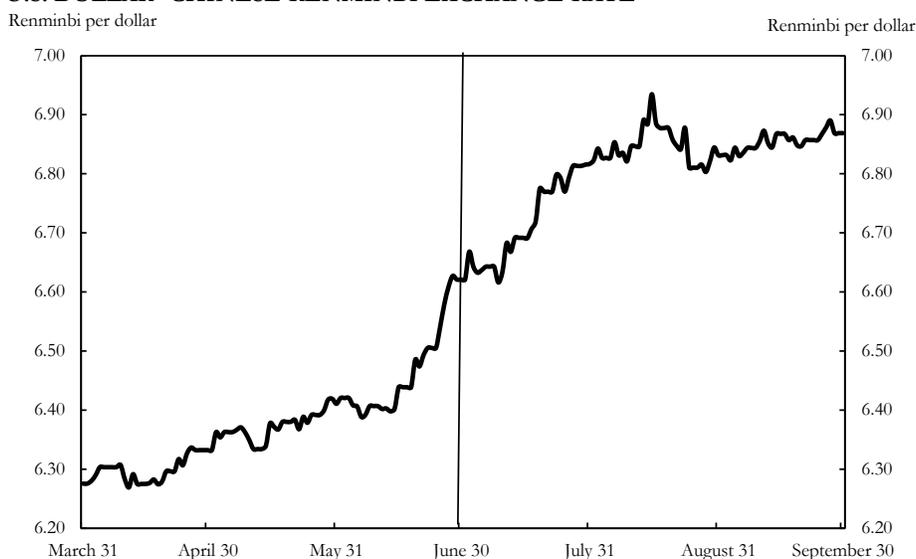
global growth outlook. Moreover, the Indian rupee and Indonesian rupiah were negatively affected by the 4.1 percent rise in oil prices during the quarter, given the countries' reliance on oil imports, while the Brazilian real was also affected by uncertainty ahead of the country's presidential elections.

CHINESE RENMINBI DEPRECIATES AMID GROWTH SLOWDOWN AND PERCEIVED ESCALATION IN GLOBAL TRADE TENSIONS

The Chinese renminbi depreciated 3.6 percent against the U.S. dollar and was the largest contributor to the broad trade-weighted dollar's appreciation in the third quarter, reflecting its relatively large weighting in the broad dollar index. The renminbi's depreciation occurred amid market participants' concerns about the perceived escalation of U.S.–China trade tensions, an ongoing slowdown in Chinese economic growth, and monetary policy easing by the central bank. The perceived escalation in trade tensions drove a sharp sell-off in the renminbi in mid-June that continued into July as Chinese domestic investor sentiment was seen as deteriorating further. During the quarter, the United States implemented a previously announced 25 percent tariff on \$50 billion of Chinese imports, and China announced tariffs on an equivalent amount of its U.S. imports. The United States' subsequent proposal in July that it would pursue a 10 percent tariff on an additional \$200 billion in Chinese goods, which will increase to 25 percent at the start of 2019—and to a lesser extent its formal announcement of the plan in September—in particular weighed on the renminbi.

Chart 8

U.S. DOLLAR–CHINESE RENMINBI EXCHANGE RATE



Source: Bloomberg L.P.

These heightened trade tensions occurred amid growing investor concern over China’s domestic growth slowdown. Indeed, economic data releases—including industrial production, fixed asset investment, and manufacturing purchasing manager indexes—largely printed below median consensus forecasts during the quarter. Against this backdrop, Chinese authorities pursued additional monetary and fiscal easing measures. Specifically, the People’s Bank of China (PBoC) implemented a 50 basis point reduction to banks’ reserve requirement ratio in July, a move that market participants interpreted as an effort to prevent an excessive slowdown in growth following a domestic deleveraging campaign over the prior year as well as to offset the expected drag on growth from U.S. tariffs. The resulting increase in liquidity put downward pressure on domestic interest rates and drove a further narrowing of China’s interest rate differential with the United States.

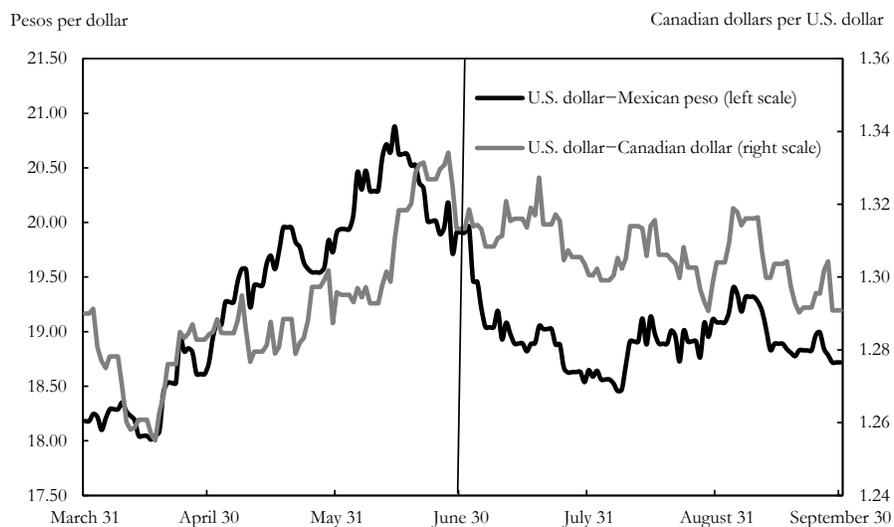
The renminbi was relatively stable in the second half of the quarter, which market participants attributed to the PBoC taking several policy steps to limit the pace of the currency’s depreciation. Specifically, these measures included the PBoC’s increase in the reserve requirement on forward purchases of the dollar against the renminbi, from zero to 20 percent, as well as communications designed to shore up domestic residents’ confidence in the currency. Additionally, the PBoC reintroduced a “countercyclical adjustment factor” in its mechanism for setting the renminbi’s central parity rate in the daily trading band against the U.S. dollar, a move that was viewed as signaling the central bank’s preference for slowing the pace of currency depreciation.

MEXICAN PESO AND CANADIAN DOLLAR APPRECIATE AGAINST U.S. DOLLAR HEADING INTO NEW TRADE AGREEMENT

In contrast to the perceived increase in trade concerns involving China, trade concerns among the North American Free Trade Agreement (NAFTA) countries were viewed by market contacts as easing during the third quarter. Investors largely attributed the Mexican peso's 6.4 percent appreciation against the U.S. dollar to increased optimism that Mexico's negotiations with the United States regarding NAFTA would culminate in a new agreement rather than termination of NAFTA. In the end, the United States and Mexico reached a preliminary bilateral trade agreement on August 27, ahead of the announcement of the U.S.–Mexico–Canada Agreement (USMCA) on September 30. Also supporting the Mexican peso was the conclusion of Mexico's presidential election in early July and the initial interpretation of the president-elect's economic and trade policies.

Chart 9

U.S. DOLLAR EXCHANGE RATE AGAINST MEXICAN PESO AND CANADIAN DOLLAR



Source: Bloomberg L.P.

At the same time, the Canadian dollar appreciated 1.7 percent against the U.S. dollar. However, given that the USMCA was not finalized among all three counterparties until the end of the quarter, the Canadian dollar's appreciation was only partly attributed to optimism around trade negotiations. Instead, market participants placed greater weight on the Bank of Canada's decision to raise its target overnight rate by 25 basis points to 1.5 percent—the second policy rate increase this year—as well as the 4.1 percent increase in crude oil prices.

EURO DEPRECIATES AMID EUROPEAN EXPOSURE TO EMERGING MARKET RISKS, PERCEPTION OF POLITICAL RISKS, AND ACCOMMODATIVE MONETARY POLICY

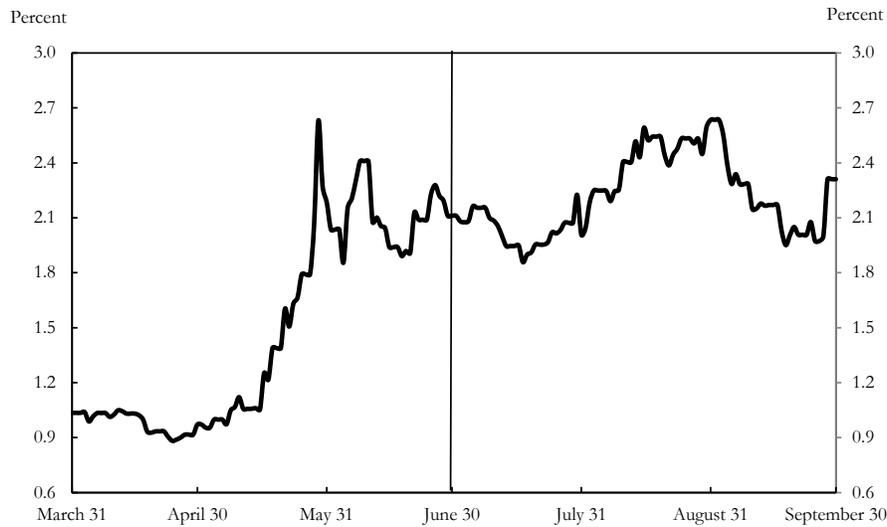
The euro depreciated 0.7 percent against the dollar, which market participants largely attributed to concerns about the euro area's exposure to emerging market risks and a perceived increase in political risks in Italy, amid a backdrop of continued monetary policy divergence with the United States. Specifically, the euro and core euro area sovereign yields declined in August amid concerns about the exposure of the euro area's banking sector to heightened financial market volatility in emerging markets, especially in Turkey, and to global trade tensions. The euro's depreciation during this initial period largely retraced when emerging market asset volatility subsided in September.

The euro's decline earlier in the quarter also reflected sensitivity to political developments in Italy, in particular related to concerns around budget negotiations with the European Union. Reflecting these concerns, Italian sovereign bond spreads to German equivalents remained elevated at multiyear highs during the quarter.

The dollar's appreciation against the euro occurred amid a continued gradual widening in the differential between U.S. sovereign yields and their German equivalents. Indeed, the two-year U.S.–German interest rate differential reached its highest level since the data series began in 1990, driven by a relatively greater increase in the U.S. Treasury yield vis-à-vis its German counterpart. Contributing to this widening was a divergence in economic growth expectations between the United States and the euro area, with consensus forecasts for 2019 euro area growth declining during the quarter while U.S. forecasts modestly increased. European Central Bank (ECB) developments were not seen as playing a concrete role in driving the euro in the third quarter, although the ECB's policy stance reinforced continued monetary policy divergence with the United States. The ECB left its target policy rates unchanged at its July and September meetings and was viewed as likely to maintain its accommodative policy stance, with no policy rate increases expected until the second half of 2019.

Chart 10

**SPREAD BETWEEN 10-YEAR ITALIAN AND GERMAN
GOVERNMENT BOND YIELDS**



Source: Bloomberg L.P.

**JAPANESE YEN DEPRECIATES AMID JAPAN'S MONETARY POLICY DIVERGENCE
WITH THE UNITED STATES**

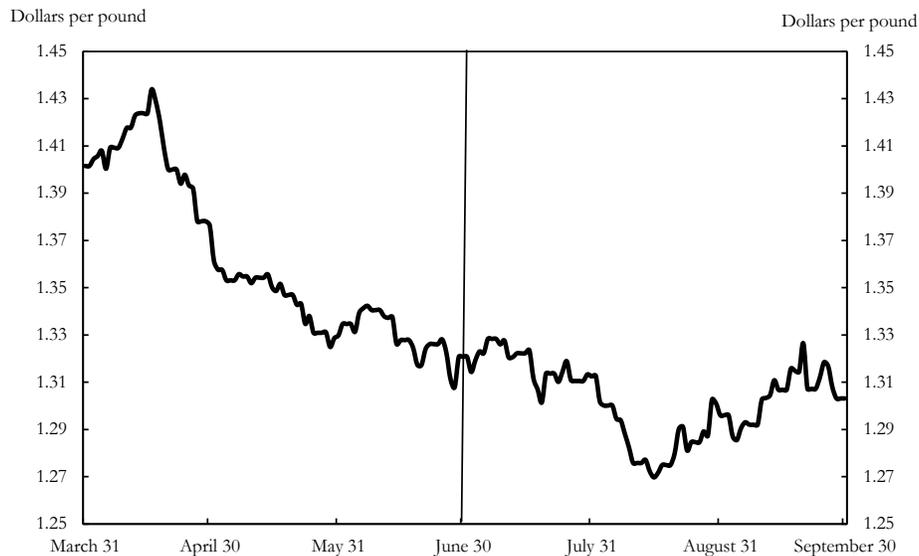
The Japanese yen depreciated 2.6 percent against the dollar in the third quarter. The yen's depreciation at the start of the quarter was initially attributed to broad dollar strength and a widening differential between U.S. government bond yields and their Japanese equivalents, amid ongoing monetary policy divergence between the Federal Reserve and the Bank of Japan (BoJ). At its July monetary policy meeting, the BoJ left its policy rate, ten-year Japanese government bond yield target, and asset purchase targets unchanged, as expected, while introducing new forward guidance to reinforce its commitment to maintain its current highly accommodative policy stance. Correspondingly, the third quarter saw a strengthening of consensus expectations for the path of BoJ policy—that the bank will maintain the current low level of yen interest rates for an extended period—according to survey measures and commentary by market participants. Additionally, some market participants linked the yen's depreciation against the dollar to increased U.S. equity purchases by Japanese pension funds and cross-border mergers-and-acquisitions activity by Japanese corporates.

BRITISH POUND REMAINS SENSITIVE TO BREXIT NEGOTIATIONS

The British pound exhibited some volatility in the third quarter, depreciating 1.3 percent on net against the dollar. Market participants viewed the currency as weighed down by domestic political risks as well as news reports related to the ongoing negotiations between the United Kingdom and the European Union regarding U.K. withdrawal from the EU.

Chart 11

BRITISH POUND–U.S. DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

While most continue to expect an agreement between the United Kingdom and the European Union to be struck later in the year, the third quarter saw market participants assign a greater probability to the prospect of a no-deal scenario. They attributed this increase to two main developments. First, Prime Minister May’s proposal that would allow for the establishment of a free trade area for goods between the United Kingdom and the European Union was followed by several ministerial resignations, which were perceived as increasing uncertainty about both the United Kingdom’s domestic political environment and the outlook for ongoing negotiations, weighing on the pound. Second, the currency depreciated further after the European Union rejected the U.K. government’s latest proposal at the European Union summit in September.

In monetary policy developments, the Bank of England’s (BoE) Monetary Policy Committee raised its Bank Rate 25 basis points to 0.75 percent at its August meeting, the second increase in twelve months. The market-implied path of the policy rate remained relatively flat, however, and the BoE continued to describe future increases in the Bank Rate as likely to proceed “at a gradual pace

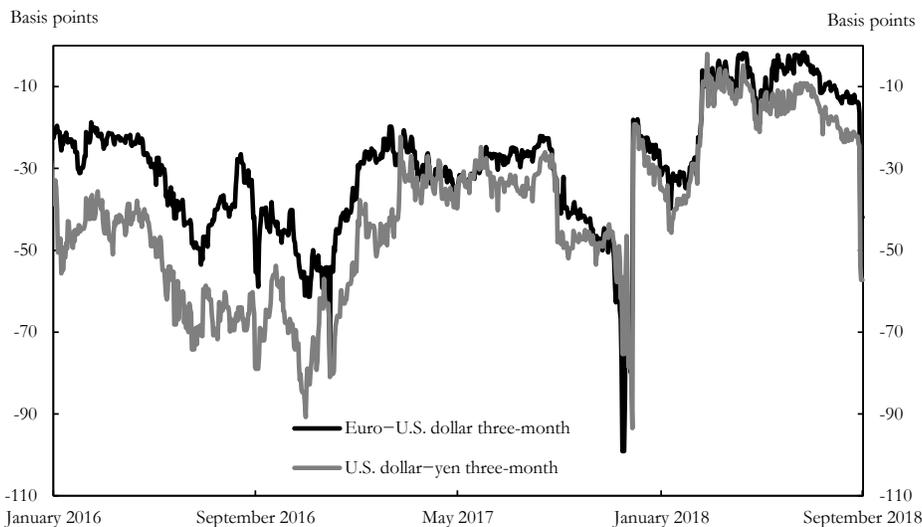
and to a limited extent.” Market participants were particularly attentive to BoE Governor Carney’s press conference remarks that estimates of the long-run neutral interest rate should not be used as a direct guide for setting monetary policy, as well as comments that were viewed as suggesting the policy rate should rise slowly. Although the BoE events were a secondary driver, taken together, they were seen as further supportive of pound depreciation over the quarter.

FOREIGN EXCHANGE SWAP MARKET GENERALLY STABLE; BASIS SPREADS WIDEN AHEAD OF YEAR-END

During the third quarter, foreign exchange swap basis spreads of key U.S. dollar currency pairs remained close to zero as foreign demand for U.S. dollar assets continued to decline. Continued flattening of the U.S. Treasury yield curve reduced the relative return of U.S. dollar assets, resulting in lower demand for dollar funding and hedging. Consistent with this stability, trading conditions in foreign exchange swap markets at September quarter-end were said to be orderly and similar to the prior quarter-end. However, consistent with previous years, three-month foreign exchange swap basis spreads of major currency pairs widened in late September as these contracts began to capture funding demand at year end.

Chart 12

FOREIGN EXCHANGE SWAP-IMPLIED BASIS SPREADS



Source: Bloomberg L.P.

TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE HOLDINGS

The Federal Reserve and U.S. Treasury did not undertake any intervention operations during the quarter. As of September 30, the value of the U.S. Treasury's Exchange Stabilization Fund (ESF) foreign-currency-denominated assets totaled \$20.9 billion, comprised of euro and yen holdings. The Federal Reserve System Open Market Account (SOMA) holdings of foreign-currency-denominated assets also totaled \$20.9 billion, comprised of euro and yen holdings.

Foreign Exchange Reserve Holdings

The Federal Reserve and U.S. Treasury invest their foreign currency reserves, which are held in the SOMA and the 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) utilizes an investment framework for 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.

In terms of the composition of foreign currency reserves, a significant portion of the Federal Reserve and U.S. Treasury's foreign exchange reserves remained invested on an outright basis in German, French, Dutch, and Japanese government securities. Foreign currency reserves may also be invested at the Bank for International Settlements and in instruments at other official institutions, such as the Deutsche Bundesbank, the Banque de France, and the Bank of Japan. To the greatest extent practicable, the investments are split evenly between the SOMA and the ESF.

As of September 30, the euro reserves held by both the SOMA and the ESF totaled \$25.3 billion, a decrease from \$25.4 billion, owing to foreign exchange translation effects as the dollar appreciated against the euro. Cash held in euro-denominated deposits at official institutions decreased to \$13.7 billion from \$13.8 billion, while direct holdings of euro-denominated government securities decreased to \$11.5 billion from \$11.6 billion. The amount of yen-denominated deposits and government securities held by the SOMA and the ESF fell to \$16.5 billion from \$16.9 billion at quarter-end, which was mostly attributable to the depreciation of the yen against the dollar.

Consistent with the current Authorization for Foreign Currency Operations, the Desk conducts small-value exercises for the foreign currency reserves as a matter of prudent advance planning. No inference about policy should be drawn from these exercises. In the third quarter, the Desk entered into a euro-denominated repurchase agreement.

Liquidity Swap Arrangements with Foreign Central Banks

As of September 30, the European Central Bank had \$74 million of swaps outstanding. The Bank of Japan, 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

	Changes in Balances by Source					Carrying Value, September 30, 2018 ^a
	Carrying Value, June 30, 2018 ^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	12,715	0	(9)	0	(60)	12,646
Japanese yen	8,442	0	0	0	(206)	8,236
Total	21,157	0	(8)	0	(266)	20,882
U.S. Treasury Exchange Stabilization Fund (ESF)						
Euro	12,695	0	(8)	0	(60)	12,627
Japanese yen	8,442	0	0	0	(206)	8,236
Total	21,137	0	(8)	0	(266)	20,863

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 September 30, 2018

	U.S. Treasury Exchange Stabilization Fund (ESF) ^a	Federal Reserve System Open Market Account (SOMA) ^a
Euro-denominated assets	12,626.6	12,646.2
Cash held on deposit at official institutions	6,863.3	6,882.8
Marketable securities held under repurchase agreements ^b	0.0	0.0
Marketable securities held outright	5,763.4	5,763.4
German government securities	1,546.2	1,546.2
French government securities	2,664.3	2,664.3
Dutch government securities	1,552.8	1,552.8
Japanese yen-denominated assets	8,236.2	8,236.2
Cash held on deposit at official institutions	6,971.0	6,971.0
Marketable securities held outright	1,265.2	1,265.2
Reciprocal currency arrangements		
European Central Bank ^c		74
Bank of Japan ^c		0
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 September 30, the SOMA and the ESF euro portfolios had Macaulay durations of 20.46 and 20.50 months, respectively; both the SOMA and ESF yen portfolios had Macaulay durations of 2.86 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 September 30, 2018
<u>Federal Reserve System Open Market Account (SOMA)</u>		
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	74
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	74
Standing foreign currency liquidity swap arrangements		
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>U.S. Treasury Exchange Stabilization Fund (ESF)</u>		
Banco de México	3,000	0
	3,000	0