TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE OPERATIONS

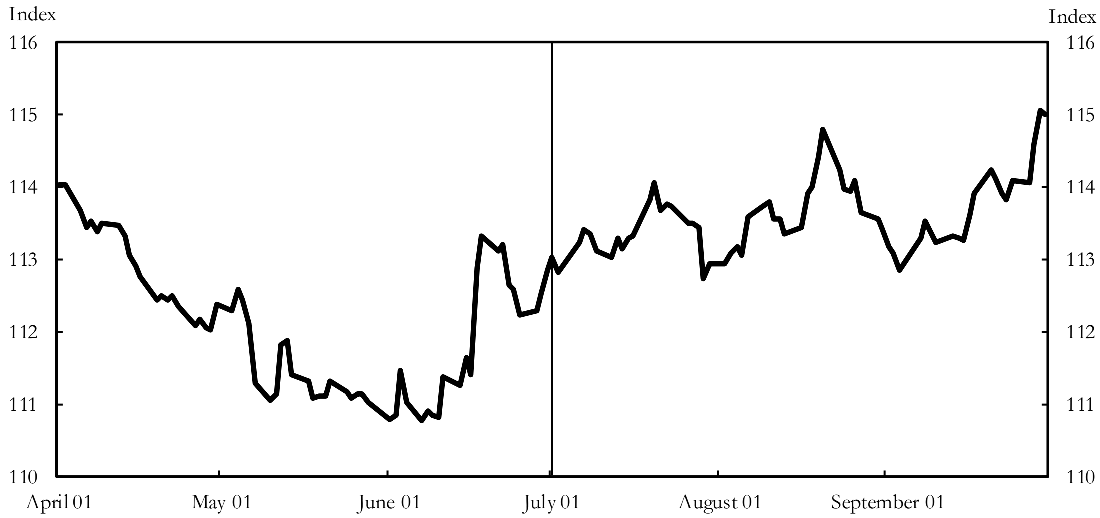
July – September 2021

During the third quarter of 2021, the U.S. dollar, as measured by the Federal Reserve Board's broad trade-weighted dollar index, appreciated 1.9 percent, reflecting the widening of real interest rate differentials (IRDs) between the United States and its trading partners, the Federal Reserve's signaling of a faster-than-anticipated pace of policy normalization, and markdowns to the global growth outlook, which highlighted the dollar's countercyclical attributes. On a bilateral basis, the U.S. dollar appreciated 3.8 percent against the Australian dollar, 3.5 percent against the Mexican peso, 2.7 percent against the British pound, and 2.4 percent against the euro in the third quarter. Meanwhile, the U.S. dollar was little changed against the Japanese yen and Chinese renminbi. The Federal Reserve and U.S. Treasury did not intervene in foreign exchange markets during the quarter.

This report, presented by Lorie Logan, Executive Vice President, Federal Reserve Bank of New York, System Open Market Account Manager, 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 2021. Veronica Zapasnik was primarily responsible for preparation of the report.

Chart 1

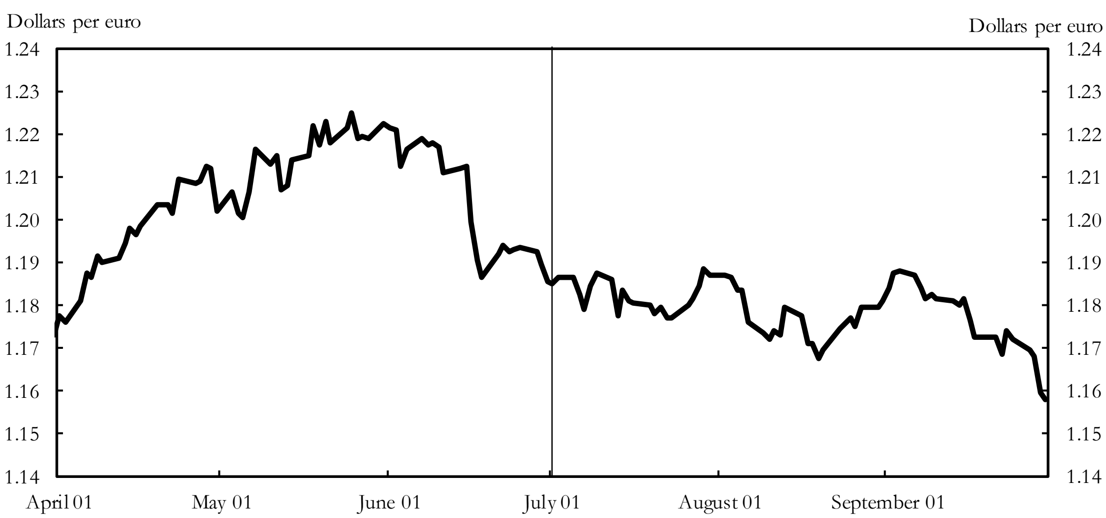
BROAD TRADE-WEIGHTED U.S. DOLLAR INDEX



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

Chart 2

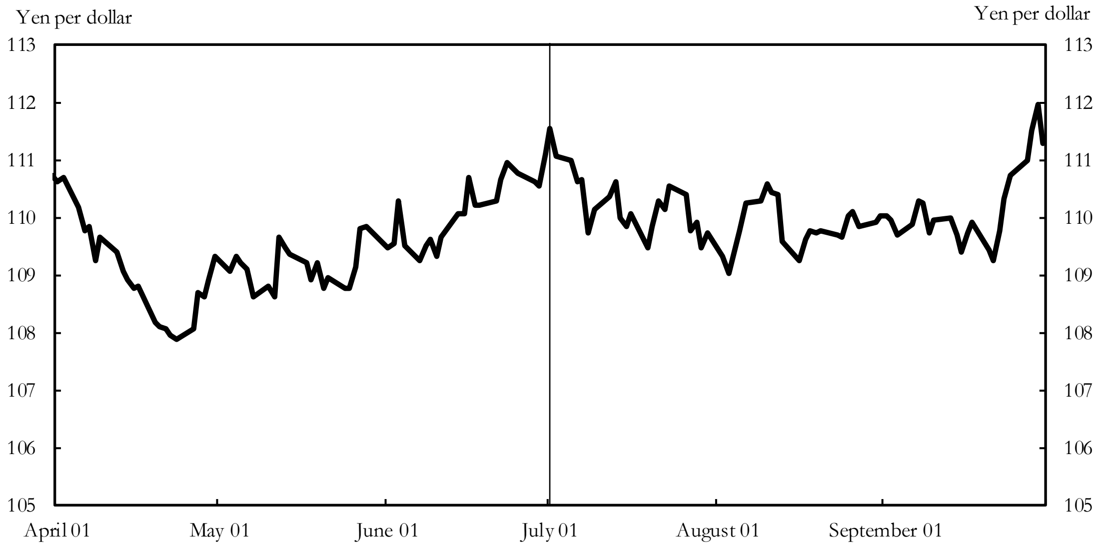
EURO–U.S. DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

Chart 3

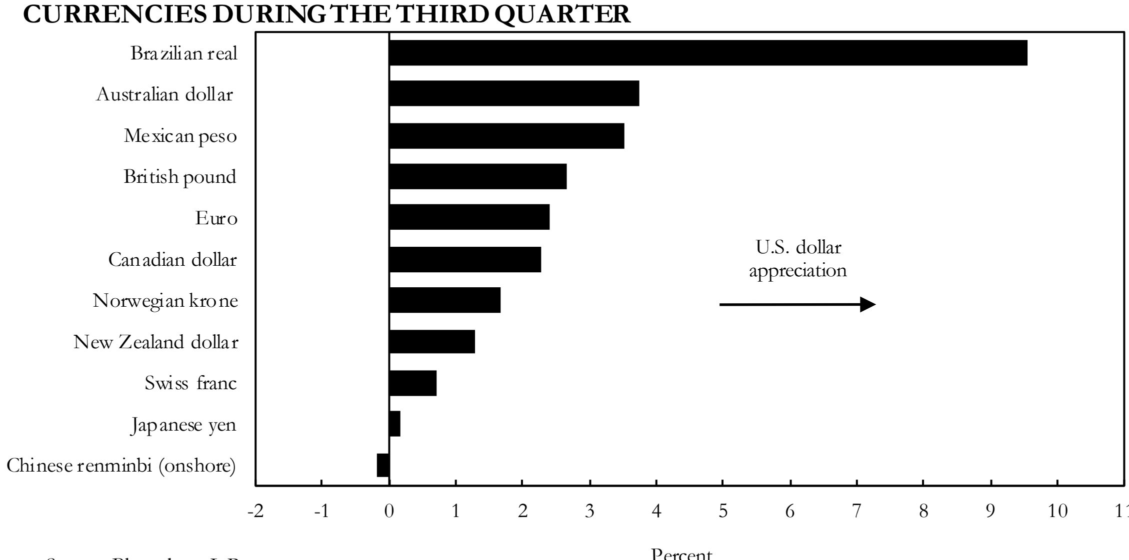
U.S. DOLLAR–YEN EXCHANGE RATE



Source: Bloomberg L.P.

Chart 4

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



Source: Bloomberg L.P.

U.S. DOLLAR APPRECIATES ON RISING U.S. YIELDS AMID SHIFTING U.S. MONETARY POLICY EXPECTATIONS AND INFLATIONARY UNCERTAINTY

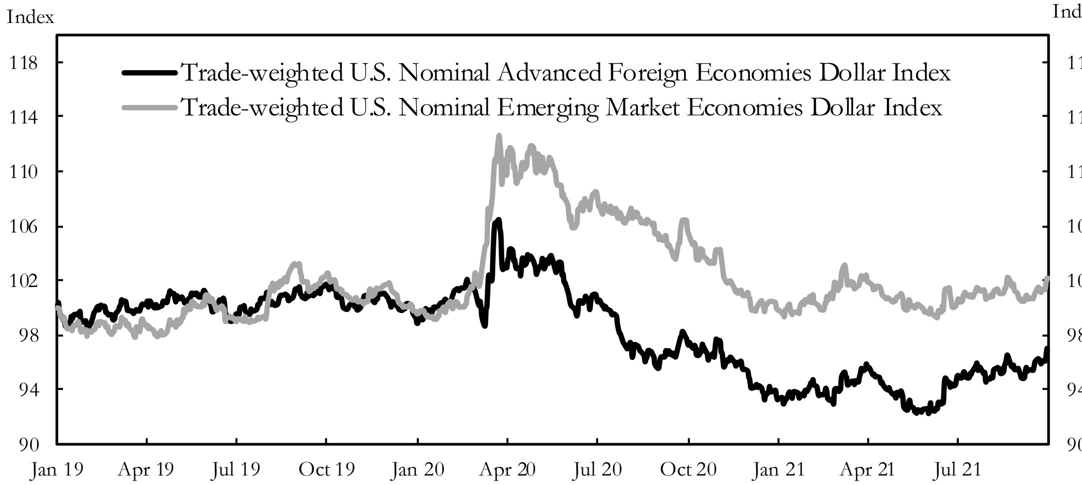
During the third quarter of 2021, the U.S. dollar, as measured by the Federal Reserve Board's broad trade-weighted dollar index, appreciated 1.9 percent, reflecting the widening of real interest rate differentials between the United States and its trading partners, the Federal Reserve's signaling of a faster-than-anticipated pace of policy normalization, and markdowns to the global growth outlook, which highlighted the dollar's countercyclical attributes.[1] The dollar's appreciation over the third quarter was broad-based, with advanced economy and emerging market currencies each accounting for roughly half of the change in the broad dollar index.

The dollar's appreciation was viewed as broadly consistent with the widening of real yield differentials in favor of the United States during much of the third quarter, as inflation-driven real yield declines were less pronounced in the United States than they were abroad. Market participants noted that the broad dollar has tracked much better with real yield differentials than with nominal yield differentials since the start of the COVID-19 pandemic, as investors increasingly focus on the extent to which expected policy rate increases will be offset by rising inflation. Indeed, on a trade-weighted basis, and with a few exceptions across major currency pairs, nominal yield differentials were essentially unchanged on net over the quarter.

[1] The Federal Reserve's broad trade-weighted dollar index is based on twenty-six currencies, including major advanced market currencies and currencies of other important trading partners of the United States, including emerging markets.

Chart 5

U.S TRADE-WEIGHTED DOLLAR PERFORMANCE VERSUS ADVANCED FOREIGN AND EMERGING MARKET ECONOMIES

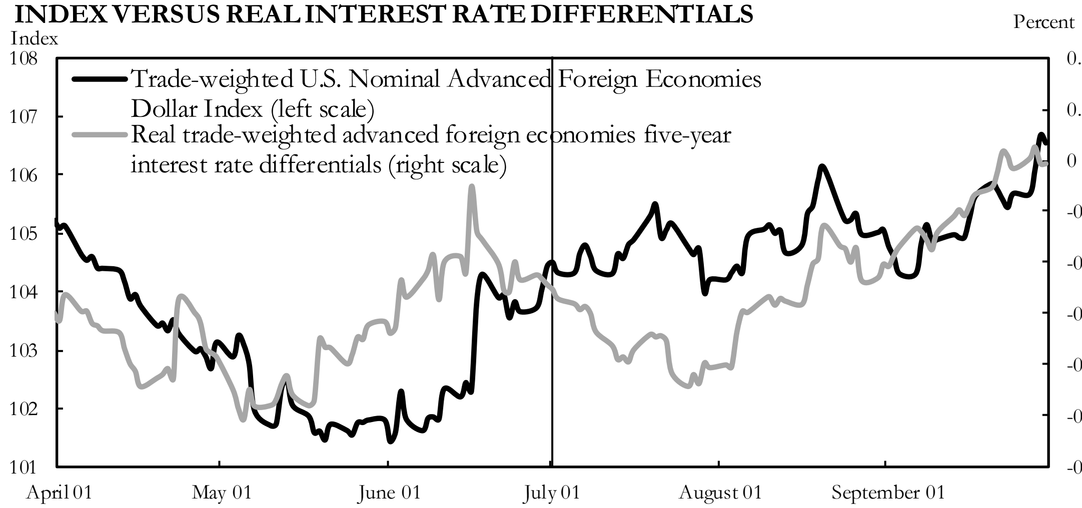


Source: Bloomberg L.P.

Note: Values indexed to January 1, 2019.

Chart 6

U.S TRADE-WEIGHTED ADVANCED FOREIGN ECONOMIES DOLLAR INDEX VERSUS REAL INTEREST RATE DIFFERENTIALS



Sources: Bloomberg L.P.; staff calculations.

Another driver of the dollar's appreciation was signaling by the Federal Reserve at the September Federal Open Market Committee (FOMC) meeting, which market participants perceived as indicating a faster-than-anticipated pace of policy normalization. Specifically, in the FOMC's Summary of

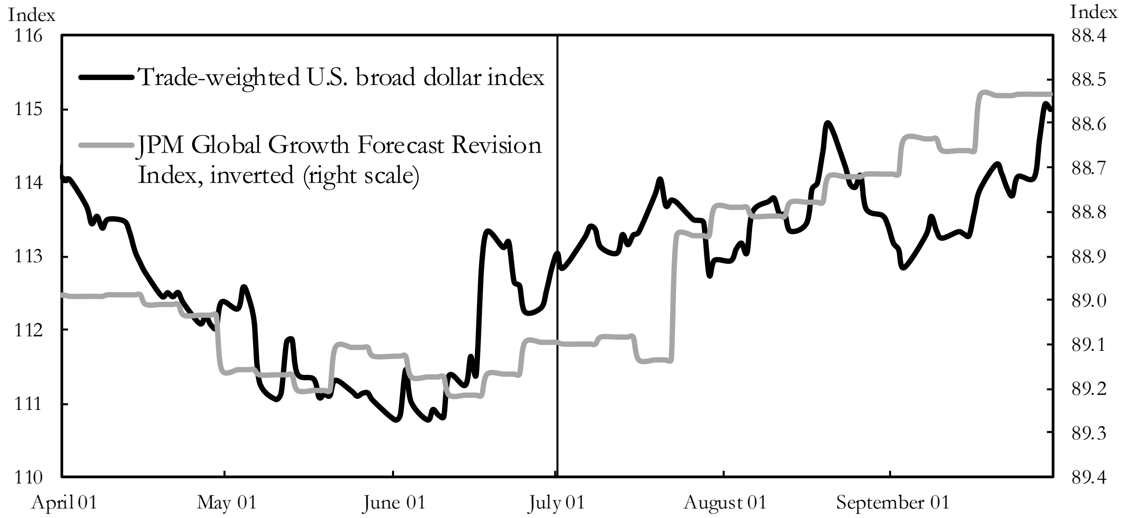
Economic Projections (SEP) released at the close of the meeting, the median projection for the federal funds rate increased to 0.25 percent for year-end 2022 and showed three additional rate increases by year-end 2023, above previous SEP projections and market expectations. In addition, Chair Powell's comments during the post-meeting press conference suggested that conditions for beginning to taper asset purchases had nearly been met and that tapering could conclude as soon as the middle of 2022. While movement in yields on the day of the FOMC meeting was limited, market participants attributed some of the subsequent increases in U.S. yields and appreciation of the dollar to these communications surrounding the September FOMC meeting.

The September FOMC events occurred amid a backdrop of market attention to the degree of persistence in inflationary pressures. U.S. CPI data printed above 5 percent year-over-year throughout the quarter, amid continued supply chain bottlenecks and higher energy prices. The release of the June CPI data in July, at 5.4 percent and higher than consensus forecasts, led to a discrete and broad appreciation of the U.S. dollar. While the remaining CPI prints for the quarter were close to median consensus forecasts and did not discretely drive the dollar, they were viewed as elevated relative to the Federal Reserve's target and served to raise some investor debate about whether higher inflation may be more persistent than previously expected.

Lastly, market participants viewed the dollar as supported by its countercyclical attributes amid analysts' markdowns to global growth forecasts throughout the quarter. Downward revisions to global growth forecasts were most pronounced early in the quarter amid elevated concerns regarding the impact of the COVID-19 Delta variant on global growth and the perception that the economic recovery had likely surpassed its peak growth rate. Later in the quarter, concerns about global inflationary pressures and, to a lesser extent, a growth slowdown in China supported further downward revisions to global growth forecasts.

Chart 7

U.S. TRADE-WEIGHTED NOMINAL BROAD DOLLAR INDEX AND GLOBAL GROWTH REVISIONS



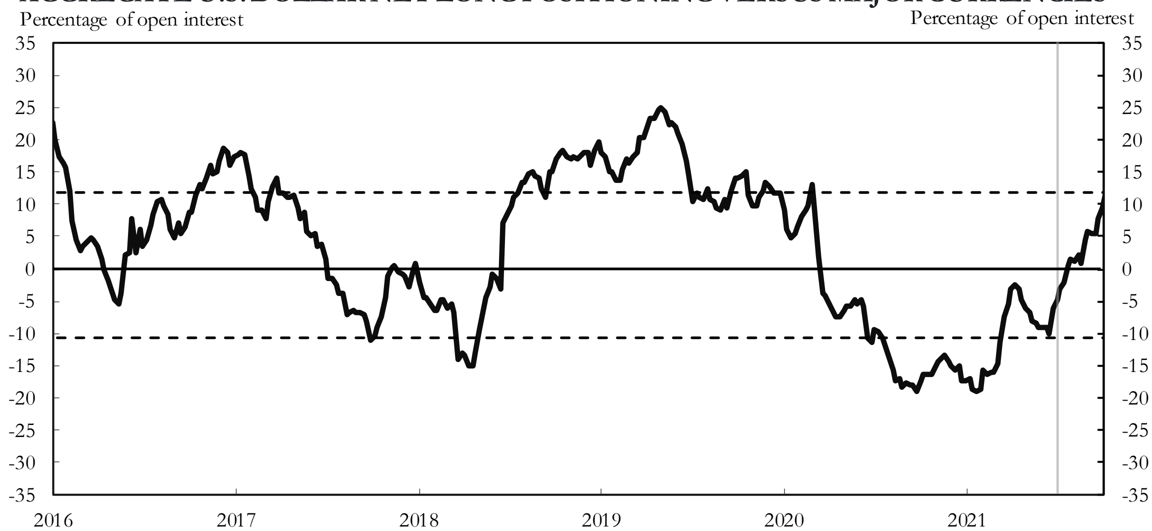
Source: Bloomberg L.P.

Other data on U.S. economic activity were mixed and not seen as materially altering the path of Federal Reserve policy, and implications for the dollar were viewed as limited. After stronger-than-expected nonfarm payroll reports covering June and July, the August payroll report, released in September, printed well below expectations. The dollar response was quite muted, however, as details of the report, such as average hourly earnings and the unemployment rate, came in better than expected.

Amid broad U.S. dollar appreciation, net speculative U.S. dollar positioning as a share of open interest moved from net short in the second quarter to net long in the third quarter—the first time positioning became net long since the onset of the COVID-19 pandemic in the first quarter of 2020.

Chart 8

AGGREGATE U.S. DOLLAR NET LONG POSITIONING VERSUS MAJOR CURRENCIES



Sources: Commodity Futures Trading Commission; Bloomberg L.P.

Notes: Aggregate includes U.S. dollar positioning relative to the euro, the Japanese yen, the British pound, the Swiss franc, the Canadian dollar, the Australian dollar, and the New Zealand dollar. Net long positioning is calculated as the difference between noncommercial long and short positioning, divided by total open interest. Dotted lines represent the 25th and 75th percentiles for historic dollar positioning.

EURO DEPRECIATES ON MONETARY POLICY DIVERGENCE

The euro depreciated 2.3 percent against the dollar in the third quarter amid expectations for the European Central Bank (ECB) to maintain a more accommodative monetary policy stance relative to the Federal Reserve. With the ECB's accommodative stance remaining essentially unchanged during the quarter, the euro depreciated notably against the dollar late in the quarter following the Federal Reserve's signaling of a faster-than-anticipated pace of policy normalization at the September FOMC meeting, which contributed to a widening of real and nominal rate differentials in favor of the United States. Indeed, roughly half of the euro's depreciation in the third quarter came the week after the September FOMC meeting.

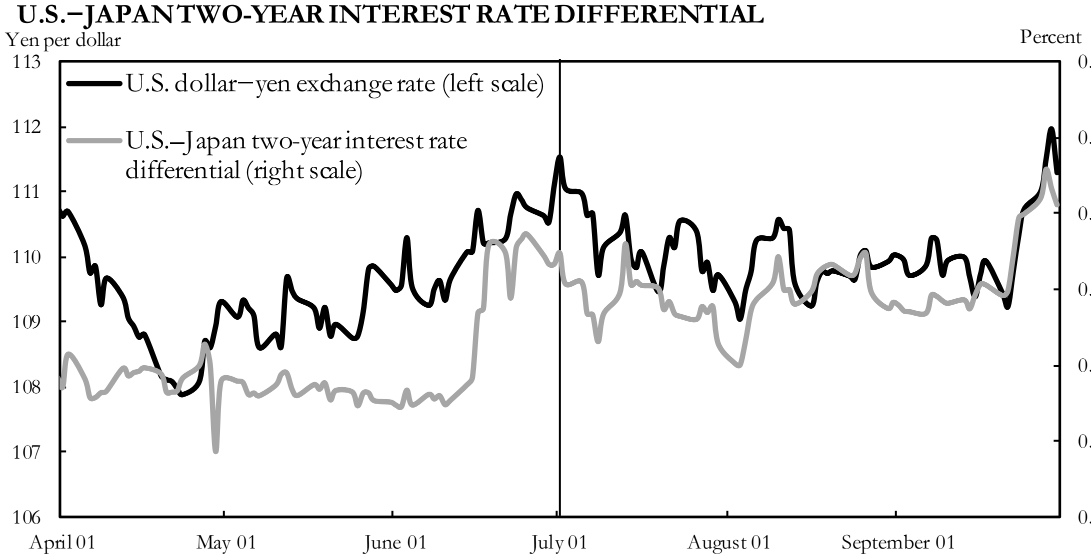
The euro was little changed against the dollar in response to the ECB's monetary policy adjustments during the quarter. At its September policy meeting, the ECB announced a decision to slow the pace of asset purchases under its Pandemic Emergency Purchase Program (PEPP). While the slowing in the purchase pace was widely expected, it was less than some in the market had anticipated and was not seen as signaling an end to the PEPP. The ECB emphasized that reducing the PEPP monthly purchases was a "recalibration" of the ECB's pandemic stimulus rather than a tapering of policy accommodation. Some investors characterized the meeting as slightly more accommodative than expected, as the meeting communications were seen as reducing the tail risks of early policy tightening. In addition, some investors noted that dollar appreciation against the euro was driven by a deterioration in risk sentiment amid downgrades to the global growth outlook described above.

JAPANESE YEN LITTLE CHANGED AMID CROSSCURRENTS FROM RISK SENTIMENT AND MONETARY POLICY DIVERGENCE

The Japanese yen depreciated 0.2 percent against the dollar on net during the third quarter amid crosscurrents from deteriorating risk sentiment and monetary policy divergence with the United States. The yen, traditionally viewed as a safe haven currency that appreciates during periods of deteriorating risk sentiment, initially appreciated roughly 1.8 percent against the dollar during much of the quarter leading up to the September FOMC meeting, in part due to concerns about the COVID-19 Delta variant's impact on global growth expectations. However, this appreciation fully retraced in the last month of the quarter, as Delta-related concerns and associated lockdowns eased, and as market attention shifted to the potential removal of policy accommodation in the United States and the widening U.S.–Japanese IRDs late in the quarter. According to some market participants, yen depreciation late in the quarter was exacerbated by the sharp rise in global energy prices, which was seen as having adverse implications for Japan's trade balance due to the country's status as a large net oil importer.

Chart 9

U.S. DOLLAR−YEN EXCHANGE RATE AND U.S.−JAPAN TWO-YEAR INTEREST RATE DIFFERENTIAL



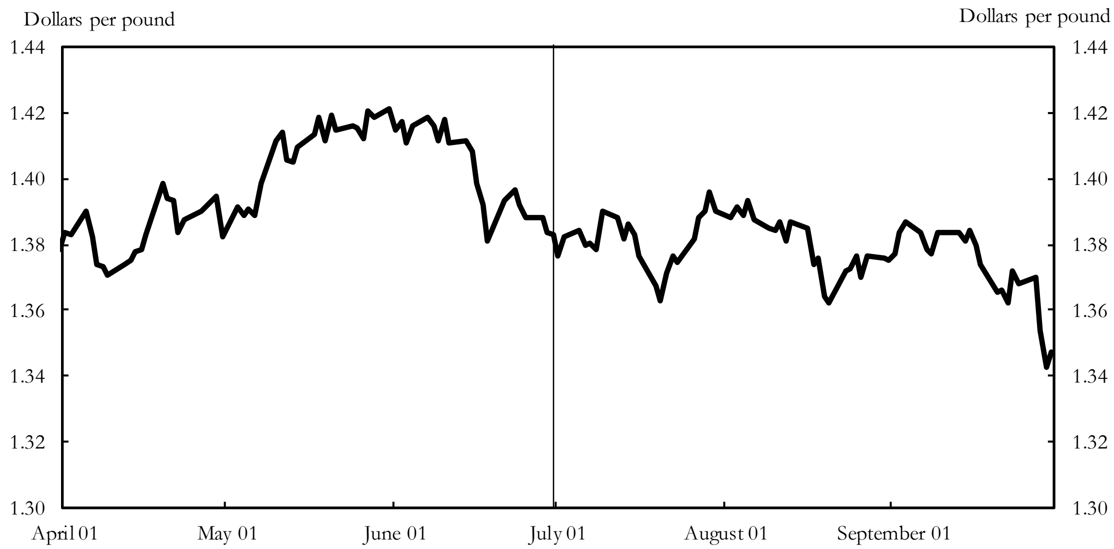
Sources: Bloomberg L.P.; staff calculations.

BRITISH POUND DEPRECIATES DESPITE HIGHER YIELDS AMID GROWTH CONCERNS

The British pound depreciated 2.6 percent against the dollar over the third quarter amid concerns that potentially higher policy rates would further weigh on the U.K. growth outlook. The pound generally traded within a range over the first two months of the quarter but weakened notably in September, even as U.K. yields rose notably during this period. The move higher in gilt yields was largely linked to the Bank of England's (BoE) late-September meeting, where it signaled a potential policy rate increase before year-end if medium-term inflation expectations continued to increase. The pound initially appreciated following the meeting, in line with rising yields. However, over subsequent days, U.K. yields rose but the British pound depreciated sharply against the dollar, including a 1.2 percent decline on September 28. Market participants widely attributed this decoupling of rates and foreign exchange to concerns that higher U.K. policy rates would weigh on the U.K. growth outlook, after the economy had seen some weaker-than-expected data releases and negative sentiment around the impact of energy shortages.

Chart 10

BRITISH POUND–U.S. DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

EMERGING MARKET CURRENCIES DEPRECIATE AMID PERCEPTIONS OF A LESS ACCOMODATIVE FED AND REDUCED GROWTH EXPECTATIONS

The U.S. dollar appreciated 1.8 percent against emerging market currencies in the third quarter, as measured by the Federal Reserve's trade-weighted Emerging Market Economies Dollar Index.[2] Emerging market currency depreciation was viewed by market participants as primarily driven by the perception of a less accommodative monetary policy stance by the Federal Reserve and the deterioration in global growth expectations amid concerns about the COVID-19 Delta variant and rising inflation and a growth slowdown in China. Lastly, idiosyncratic fiscal and political risks weighed on some Latin American currencies.

However, several factors were viewed as limiting the depreciation of emerging market currencies against the U.S. dollar during the quarter. First, against a backdrop of heightened inflationary pressures, a significant number of emerging market central banks—including those in Brazil, Colombia, Chile, the Czech Republic, Mexico, Peru, Poland, and Hungary—all raised their policy rates, which mitigated the impact of rising U.S. rates on local currencies. Second, market participants noted that emerging market economies generally had lower current account deficits than in previous periods of sharp increases in U.S. rates, which reduced their external financing needs. Lastly, the currencies of commodity exporters saw either a modest appreciation against the dollar—as in the case of the Russian ruble and Indonesian rupiah—or a limited extent of depreciation—as in the case of the Mexican peso.

Elsewhere, the Chinese renminbi was little changed against the dollar, despite some investor concerns late in the third quarter about credit risks stemming from developments in China's property sector.

FOREIGN EXCHANGE SWAP MARKETS REMAIN STABLE AMID ABUNDANT U.S. DOLLAR LIQUIDITY

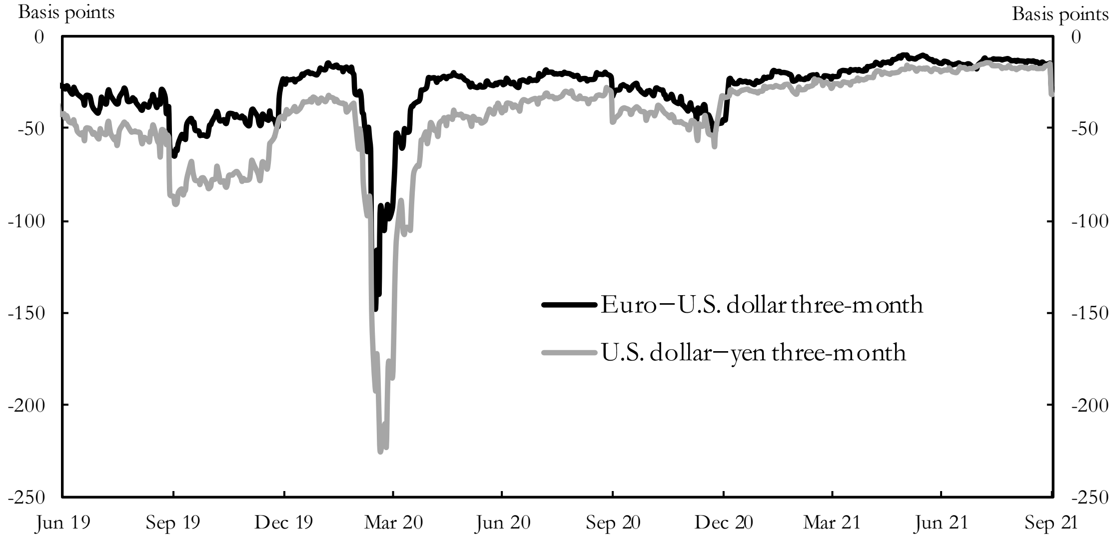
Foreign exchange swap market pricing and trading conditions remained stable in the third quarter due to abundant U.S. dollar liquidity, with foreign exchange swap-implied rates remaining near pre-pandemic levels. Three-month foreign exchange swap basis spreads of key U.S. dollar currency pairs remained stable at narrow levels throughout the third quarter, although these spreads widened in

[2] The Federal Reserve's Emerging Market Economies Dollar Index, formerly known as the other important trading partners (OITP) index, is a weighted average of the foreign exchange value of the U.S. dollar against a subset of emerging market currencies. For more information on the index, see Revisions to the Federal Reserve Dollar Indexes.

late September as contracts began to capture funding demand at year-end, consistent with a pattern seen in previous years.

Chart 11

FOREIGN EXCHANGE SWAP-IMPLIED BASIS SPREADS



Source: Bloomberg L.P.

U.S. DOLLAR LIQUIDITY SWAP ARRANGEMENTS WITH FOREIGN CENTRAL BANKS

Aggregate swaps outstanding of the standing and temporary dollar liquidity swap arrangements with foreign central banks declined to roughly $0.3 billion by the end of the third quarter of 2021, compared to $0.6 billion at the end of the second quarter of 2021 and a peak of nearly $450 billion in late May 2020. Market participants noted that the further decline in swaps outstanding reflected continued stabilization of trading conditions in offshore dollar funding markets amid abundant U.S. dollar liquidity.[3]

[3] Consistent with the current Authorization for Foreign Currency Operations, the Desk conducts small-value exercises for the standing liquidity swap arrangements as a matter of prudent advance planning. No inference about policy should be drawn from these exercises.

With respect to the *standing dollar liquidity swap arrangements*, the Federal Reserve had a total of $0.2 billion of swaps outstanding as of September 30, wholly comprised of outstanding dollar swaps with the ECB. The BoJ, Bank of Canada, BoE, and Swiss National Bank did not have any dollar swaps outstanding at the end of the quarter.

With respect to the *temporary swap lines* with nine additional central banks, the Federal Reserve had a total of $0.1 billion of swaps outstanding as of September 30, all of which was attributed to Banco de México. The Monetary Authority of Singapore, Danmarks Nationalbank, Bank of Korea, Norges Bank, Sveriges Riksbank, Reserve Bank of Australia, Reserve Bank of New Zealand, and Banco Central do Brasil did not have any dollar swaps outstanding at the end of quarter.

The Federal Reserve's temporary U.S. dollar liquidity swaps are currently set to expire on December 31, 2021, as announced by the Fed on June 16, 2021.

TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE HOLDINGS

The Federal Reserve and U.S. Treasury did not undertake any foreign exchange 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 $20.8 billion, comprised of euro and yen holdings. The Federal Reserve System Open Market Account (SOMA) holdings of foreign-currency-denominated assets 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.[4]

In terms of investment eligibility, the Federal Reserve and U.S. Treasury's foreign exchange reserves can be invested in German, French, Dutch, and Japanese government obligations and in instruments at official institutions, such as the Bank for International Settlements and foreign central banks. To the greatest extent practicable, the investments are split evenly between the SOMA and the ESF.

As of September 30, the U.S. dollar value of euro-denominated deposits and government securities held by the SOMA and the ESF decreased to $24.9 billion from $25.6 billion on June 30. The U.S. dollar value of yen-denominated deposits and government securities was essentially unchanged from the prior quarter at $16.8 billion. These changes are largely driven by foreign exchange translation effects.

[4] 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.

Table 1

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

Millions of U.S. Dollars

	Carrying Value, June 30, 2021[a]	Changes in Balances by Source: Net Purchases and Sales[b]	Investment Earnings[c]	Realized Gains/Losses on Sales[d]	Unrealized Gains/Losses on Foreign Currency Revaluation[e]	Carrying Value, September 30, 2021[a]
Federal Reserve System Open Market Account (SOMA)						
Euro	12,785	0	(12)	0	(292)	12,481
Japanese yen	8,417	0	(0)	0	(34)	8,383
Total	21,202	0	(12)	0	(326)	20,864

	Carrying Value, June 30, 2021[a]	Changes in Balances by Source: Net Purchases and Sales[b]	Investment Earnings[c]	Realized Gains/Losses on Sales[d]	Unrealized Gains/Losses on Foreign Currency Revaluation[e]	Carrying Value, September 30, 2021[a]
U.S. Treasury Exchange Stabilization Fund (ESF)						
Euro	12,766	0	(12)	0	(292)	12,462
Japanese yen	8,417	0	(0)	0	(34)	8,383
Total	21,183	0	(12)	0	(326)	20,845

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, 2021

	U.S. Treasury Exchange Stabilization Fund (ESF)[a]	Federal Reserve System Open Market Account (SOMA)[a]
Euro-denominated assets	**12,462.2**	**12,481.3**
Cash held on deposit at official institutions	7,292.2	7,311.4
Marketable securities held under repurchase agreements[b]	0.0	0.0
Marketable securities held outright	5,169.9	5,169.9
German government securities	968.7	968.7
French government securities	2,367.0	2,367.0
Dutch government securities	1,834.2	1,834.2
Yen-denominated assets	**8,383.2**	**8,383.2**
Cash held on deposit at official institutions	8,376.9	8,376.9
Marketable securities held outright	6.3	6.3

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 19.29 and 19.32 months, respectively; both the SOMA and ESF yen portfolios had Macaulay durations of 0.01 months.

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

Table 3

RECIPROCAL CURRENCY ARRANGEMENTS

Millions of U.S. Dollars

Institution	Amount of Facility	Outstanding as of September 30, 2021
	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	Unlimited	228
Swiss National Bank	Unlimited	0
Bank of Japan	Unlimited	0
Bank of Canada	Unlimited	0
Bank of England	Unlimited	0
		228
Temporary dollar liquidity swap arrangements		
Banco Central do Brasil	60,000	0
Banco de México	60,000	100
Bank of Korea	60,000	0
Danmarks Nationalbank	30,000	0
Monetary Authority of Singapore	60,000	0
Norges Bank	30,000	0
Reserve Bank of Australia	60,000	0
Reserve Bank of New Zealand	30,000	0
Sveriges Riksbank	60,000	0
		100
Standing foreign currency liquidity swap arrangements		
European Central Bank	Unlimited	0
Swiss National Bank	Unlimited	0
Bank of Japan	Unlimited	0
Bank of Canada	Unlimited	0
Bank of England	Unlimited	0
		0
	U.S. Treasury Exchange Stabilization Fund (ESF)	
Banco de México	9,000	0
	9,000	0