TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE OPERATIONS

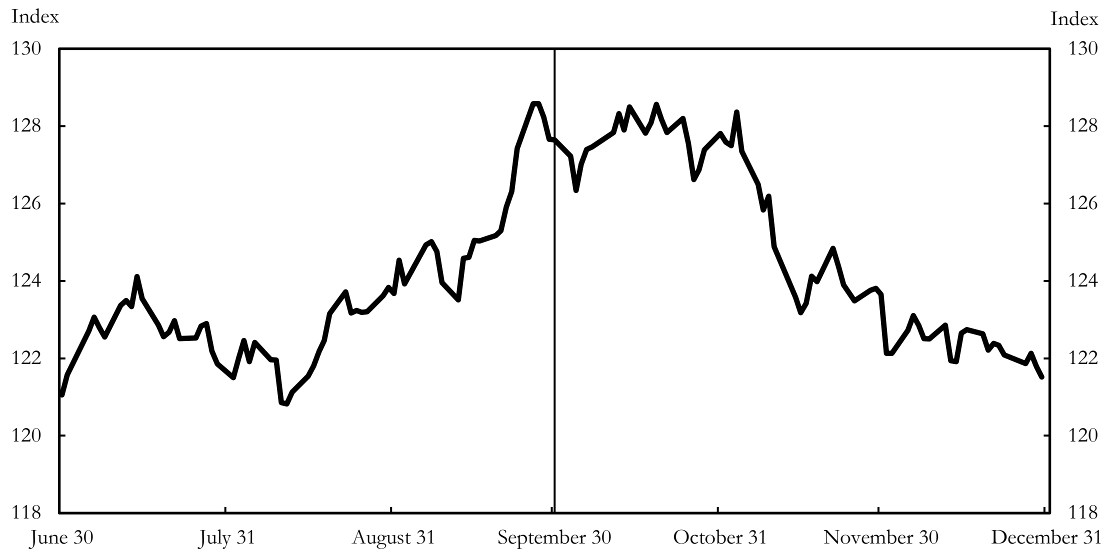
October – December 2022

During the fourth quarter of 2022, the U.S. dollar, as measured by the Federal Reserve Board's broad trade-weighted dollar index, depreciated 4.7 percent. The move marked a reversal of the trend seen earlier in the year, when the dollar appreciated 10.5 percent in the first three quarters. The depreciation was largely attributed to growing expectations for the Federal Reserve to pursue a slower pace of policy tightening amid decelerating U.S. inflation, an improving global growth outlook that helped support financial market risk sentiment, and narrowing U.S.–advanced economy interest rate differentials in favor of advanced foreign economies concurrent with a relatively greater increase in foreign yields. The dollar depreciated against all G10 and most major emerging market currencies, including by 9.4 percent against the Japanese yen, 8.4 percent against the euro, 7.6 percent against the British pound, and 3.1 percent against the Chinese renminbi. The Federal Reserve and U.S. Treasury did not intervene in foreign exchange markets during the quarter.

This report, presented by Patricia Zobel, Senior Vice President, Federal Reserve Bank of New York, System Open Market Account Manager pro tem, 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 2022. Veronica Zapasnik was primarily responsible for preparation of the report.

Chart 1

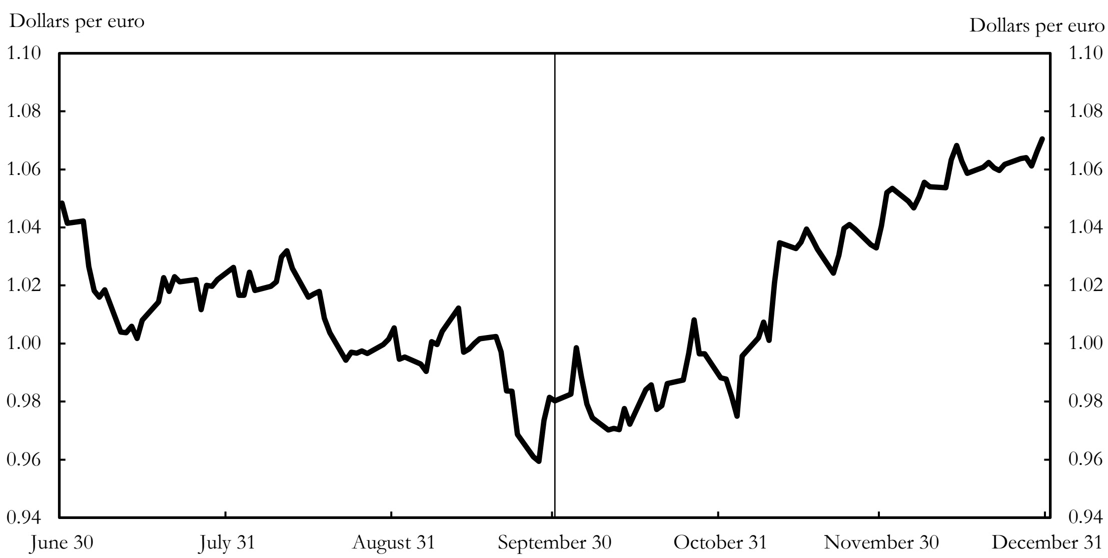
BROAD TRADE-WEIGHTED U.S. DOLLAR INDEX



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

Chart 2

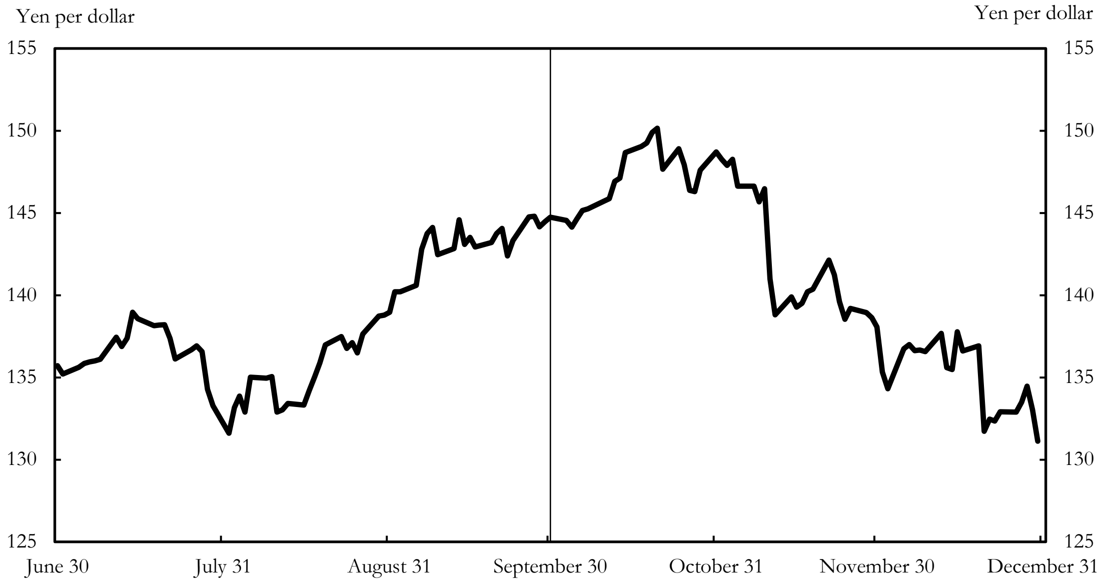
EURO−U.S. DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

Chart 3

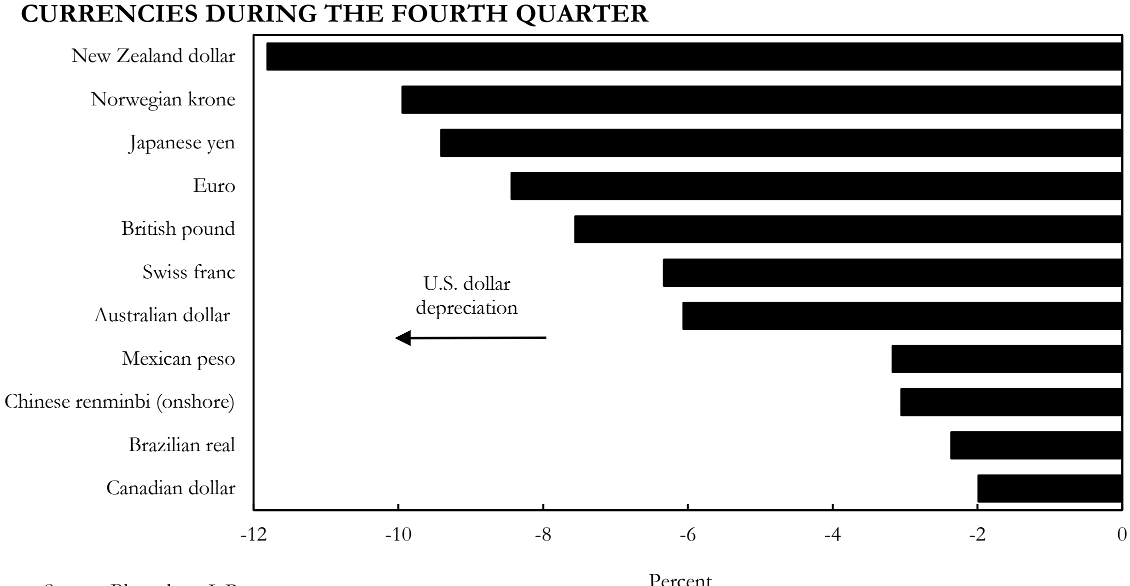
U.S. DOLLAR−YEN EXCHANGE RATE



Source: Bloomberg L.P.

Chart 4

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



Source: Bloomberg L.P.

U.S. DOLLAR DEPRECIATES BROADLY ON SHIFTING EXPECTATIONS FOR FEDERAL RESERVE POLICY AMID DECELERATING U.S. INFLATION

During the fourth quarter of 2022, the U.S. dollar, as measured by the Federal Reserve Board's broad trade-weighted dollar index, depreciated 4.7 percent. The dollar's notable depreciation against all G10 and major emerging market currencies marked a reversal of the appreciation trend seen over the year.[1] The dollar's depreciation was attributed primarily to growing market expectations for a slower pace of Federal Reserve policy tightening amid signs of decelerating U.S. inflationary pressures, and to an improving global growth outlook that helped support risk sentiment. The improved global growth outlook was underpinned by China's move toward economic reopening, better-than-expected euro area economic data, and lower European natural gas prices, among other factors. Additionally, growing expectations for tighter monetary policy ahead in some advanced economies—such as the euro area and Japan—led foreign yields to increase relative to U.S. yields, contributing to a narrowing of U.S.–foreign interest rate differentials and appreciation of those currencies against the dollar.

During the fourth quarter, market expectations that U.S. inflation would continue to decelerate were reaffirmed by the release of the October and November inflation data. Below-consensus headline and core October U.S. inflation data, though still elevated at 7.7 percent and 6.3 percent, respectively, led to a 3.2 percent depreciation in the broad trade-weighted dollar in November. Market participants noted that the below-consensus surprise in both measures and deceleration in the pace of core inflation might indicate a peak in U.S. inflation, increasing investor conviction that the Federal Reserve might pursue a slower path of policy rate increases.

Communications by Federal Reserve officials during the quarter were interpreted by contacts as reinforcing market expectations for a slower pace of policy tightening while focusing on the level of peak rates. In particular, market participants were attuned to elements of the November Federal Open Market Committee (FOMC) meeting minutes and Chair Powell's remarks in late November as reinforcing their expectations for a slower pace of policy tightening. Over the quarter, implied rates on Secured Overnight Financing Rate (SOFR) futures contracts for year-end 2024 and year-end 2025 declined by 34 and 36 basis points, respectively, while the market-implied peak policy rate rose somewhat, to nearly 5 percent, for mid-2023. Market participants largely attributed the decrease in the market-implied pace of tightening to their view that cuts to the policy rate may be warranted given the economic and inflation outlook in 2023-24.

Meanwhile, growing expectations for tighter policy ahead in the euro area than was previously anticipated, as well as changes to the Bank of Japan's (BOJ) operating framework and expectations for future monetary policy adjustments in Japan, were reflected in a steepening of the market-implied paths of policy in those jurisdictions. These shifts led to relatively larger increases in euro area and Japanese sovereign yields versus U.S. yields over the quarter. Against this backdrop, the dollar faced depreciation pressure from narrowing U.S.–foreign interest rate differentials in favor of the euro and yen.

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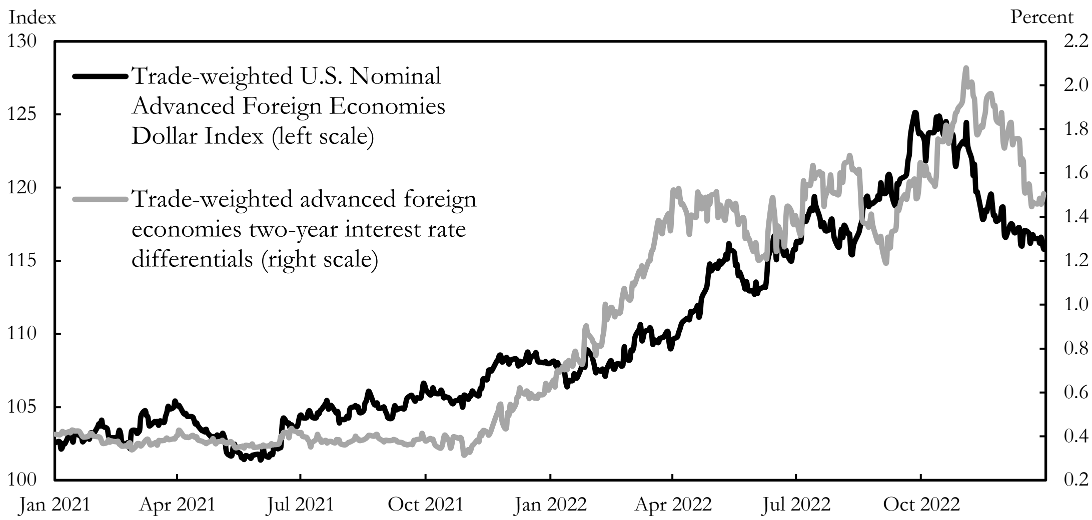
[1] The Federal Reserve's broad trade-weighted dollar index is based on twenty-six currencies, including major advanced market currencies and currencies of other important trading partners of the United States, including emerging markets.

An improvement in the global growth outlook underpinned improved market risk sentiment and reduced dollar demand in the fourth quarter. The improved global growth outlook was driven by China's shift away from its zero-COVID policy toward economic reopening, better-than-expected euro area economic data, and lower European natural gas prices. In November, media reports raised market expectations that China would shift away from its zero-COVID policy and more broadly reopen its economy, a development that ultimately materialized in late December. Meanwhile, a warmer-than-expected winter in Europe contributed to lower natural gas prices and was seen as improving the outlook for trade balances and reducing recession risks in the euro area. The increase in the price of global risk assets in the quarter occurred alongside a reduction in foreign exchange implied volatility, which returned to its one-year average after peaking in September at its highest level since March 2020.

Chart 5

U.S TRADE-WEIGHTED ADVANCED FOREIGN ECONOMIES DOLLAR INDEX AND TWO-YEAR INTEREST RATE DIFFERENTIALS



Sources: Bloomberg L.P.; New York Fed staff calculations.

JAPANESE YEN APPRECIATES NOTABLY AMID NARROWING INTEREST RATE DIFFERENTIALS WITH THE U.S., FOREIGN EXCHANGE INTERVENTION, AND SURPRISE BOJ POLICY ADJUSTMENT

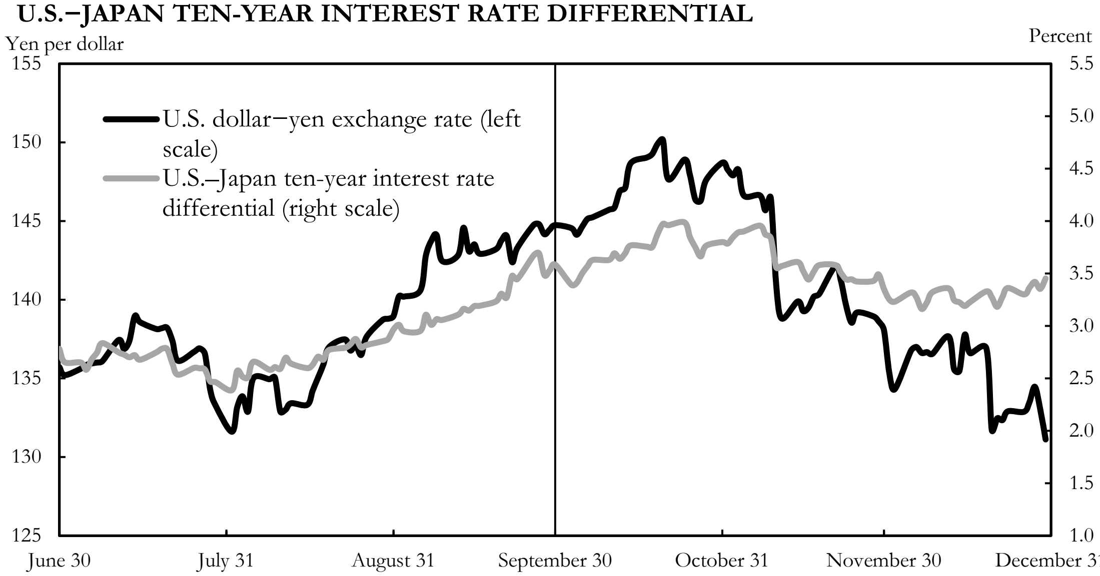
The Japanese yen appreciated 10.4 percent against the dollar in the fourth quarter, a notable reversal from the third quarter, when it reached its weakest level against the dollar since 1998. Yen appreciation was largely attributed to narrowing U.S.–Japanese interest rate differentials in favor of the yen, foreign exchange intervention by Japanese authorities, and the BOJ's surprise adjustment to its yield curve control (YCC) policy in December, which raised some expectations for a potentially less accommodative BOJ policy path ahead. A decline in global energy prices also helped support the yen, improving the country's terms of trade as a net energy importer.

Given continued depreciation of the yen early in the quarter, Japan's Ministry of Finance (MOF) conducted additional foreign exchange intervention to support the yen in October, following on its intervention activity in the third quarter. Monthly data on foreign exchange intervention operations states that the MOF intervened to support the currency by 6.3 trillion yen in October.

The yen began to appreciate against the dollar in November after the October U.S. consumer price index (CPI) print led to a reassessment of the Federal Reserve's policy path and a sharp narrowing in ten-year U.S.–Japanese interest rate differentials. In December, the yen's appreciation was reinforced, and U.S.–Japanese interest rate differentials narrowed further, after the BOJ unexpectedly announced a change to its YCC framework. The BOJ widened the ten-year Japanese government bond yield band from plus or minus 25 basis points to plus or minus 50 basis points, while maintaining its ten-year Japanese government bond yield target of around 0 percent. This action raised expectations among some market participants that the BOJ's move was an initial step toward less accommodative monetary policy ahead.

Chart 6

U.S. DOLLAR–YEN EXCHANGE RATE AND U.S.–JAPAN TEN-YEAR INTEREST RATE DIFFERENTIAL



Source: Bloomberg L.P.

EURO APPRECIATES ON IMPROVED RISK SENTIMENT, UPSIDE EURO AREA DATA SURPRISES, AND EXPECTATIONS FOR MORE RESTRICTIVE ECB POLICY

The euro appreciated 9.2 percent against the dollar over the quarter, after depreciating 13.5 percent in the first three quarters of 2022. The appreciation reflected upwardly revised euro area growth estimates, an improved global growth outlook and risk sentiment, and European Central Bank (ECB) communications that were perceived as favoring a faster pace of policy tightening.

An improved global economic outlook, including expectations for economic reopening in China, helped support the euro in the fourth quarter, as did upside surprises to euro area economic activity data and upward market revisions to European growth estimates. The faster-than-expected end to China's zero-COVID policy led market participants to expect that an improvement in Chinese growth prospects would benefit the euro area to a relatively greater extent than the United States. The economic outlook was further supported by a decline in European natural gas prices stemming from warmer weather and some tempering of perceived risks emanating from the Ukraine–Russia conflict. Front-month European natural gas futures prices declined nearly 60 percent over the quarter, while the euro area's earlier accumulation of gas inventories heading into winter resulted in gas storage levels near maximum capacity. These developments improved the prospects for the euro area's trade balance as a net energy importer and its overall growth outlook.

Narrower U.S.–euro area interest rate differentials also supported euro appreciation over the quarter. The narrowing of rate differentials reflected market expectations for a more restrictive ECB monetary policy stance than had been expected. In the fourth quarter, the market-implied ECB policy path steepened, with much of the move occurring after the December ECB meeting. The market-implied terminal rate, expected to be reached around mid-2023, increased by roughly 60 basis points to 3.49 percent over the fourth quarter. At the December meeting, the ECB raised its policy rate by 50 basis points, as expected. In addition, President Lagarde's press conference remarks suggesting multiple future 50-basis-point increases were perceived by market participants as suggesting a steeper and faster pace of policy tightening than expected. Subsequent ECB communications were viewed as reinforcing a similar stance, continuing to focus on upside risks to inflation amid resilient economic conditions.

BRITISH POUND APPRECIATES AMID REDUCED EXTERNAL AND FISCAL BALANCE CONCERNS

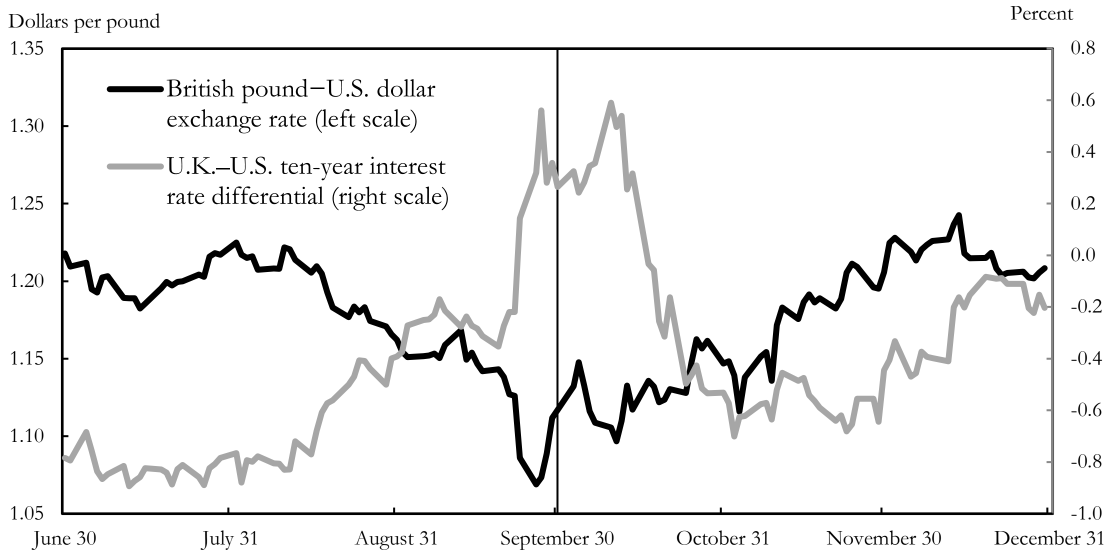
The British pound appreciated 8.2 percent against the dollar during the fourth quarter, nearly erasing the pound's depreciation in the prior quarter. In addition to more favorable market sentiment, the currency was supported by an abatement of concerns regarding U.K. fiscal policy and, to a lesser extent, better-than-expected domestic economic data and the decline in European natural gas prices, which supported the U.K. outlook similarly to that of the euro area.

The pound appreciated notably following the October reversal of expansive government tax measures proposed by the prior prime minister in September, which had raised concerns among market participants about the trajectory of U.K. inflation and of the country's fiscal and external balances. The subsequent appointment of a new prime minister in October also supported the pound's appreciation. This appreciation occurred despite a narrowing in U.K.–U.S. interest rate differentials over the quarter, as U.K. gilt yields declined amid a reduction in risk premia and a perceived easing of concerns about the country's long-term fiscal sustainability.

The pound was also supported by better-than-expected domestic economic data, as preliminary third-quarter year-over-year GDP growth printed higher than expected in November, as did some purchasing managers index readings through the fourth quarter. However, the pound depreciated following the November and December Bank of England (BOE) meetings even as the BOE continued to raise its policy rate. At the November meeting, the BOE issued forward guidance that was perceived as less restrictive than expected, and in December, market participants interpreted the split committee decision as reflective of a potentially less restrictive stance of policy. Investors noted that, taken together, the outcomes of the BOE meetings moderated the pace of the pound's net appreciation over the course of the quarter.

Chart 7

BRITISH POUND−U.S. DOLLAR EXCHANGE RATE AND U.K.−U.S. TEN-YEAR INTEREST RATE DIFFERENTIAL



Source: Bloomberg L.P.

EMERGING MARKET CURRENCIES APPRECIATE AMID IMPROVING RISK SENTIMENT AND EXPECTATIONS FOR CHINA TO END ZERO-COVID POLICY

The dollar depreciated 3.2 percent against emerging market currencies during the fourth quarter, as measured by the Federal Reserve's trade-weighted Emerging Market Economies Dollar Index.[2] Emerging market currency appreciation was viewed by market participants as primarily driven by improved risk sentiment amid expectations for a slowing in the pace of Federal Reserve policy rate increases and an improved global growth outlook. Additionally, expectations for external balances to improve in some emerging market economies supported appreciation of associated currencies, as the improved global demand outlook helped support sentiment toward export-oriented emerging market economies.

During the quarter, emerging market currencies appreciated less relative to those of advanced economies, given emerging markets' generally more advanced policy tightening cycle heading into the quarter and expectations that, in many emerging markets, inflation was nearing its peak, implying less future tightening. However, the currencies of countries with strong ties to China—either via tourism (such as South Korea and Thailand) or via commodity exports (such as Chile)—also outperformed other emerging market currencies given China's move toward economic reopening in the fourth quarter.

The Chinese renminbi appreciated 3.2 percent against the dollar in the fourth quarter amid broad dollar depreciation following the release of October U.S. CPI data and a series of developments related to the easing of China's COVID restrictions. In November, media reports raised market expectations that China would shift away from its zero-COVID policy and reopen its economy, a move that ultimately materialized in late December. The renminbi's appreciation over the quarter was seen by market participants as limited in magnitude owing to the uncertainty around the public health impact of the zero-COVID policy change, lower-than-expected economic activity data in December, and policy signals favoring financial market stability ahead of the country's Party Congress earlier in the quarter.

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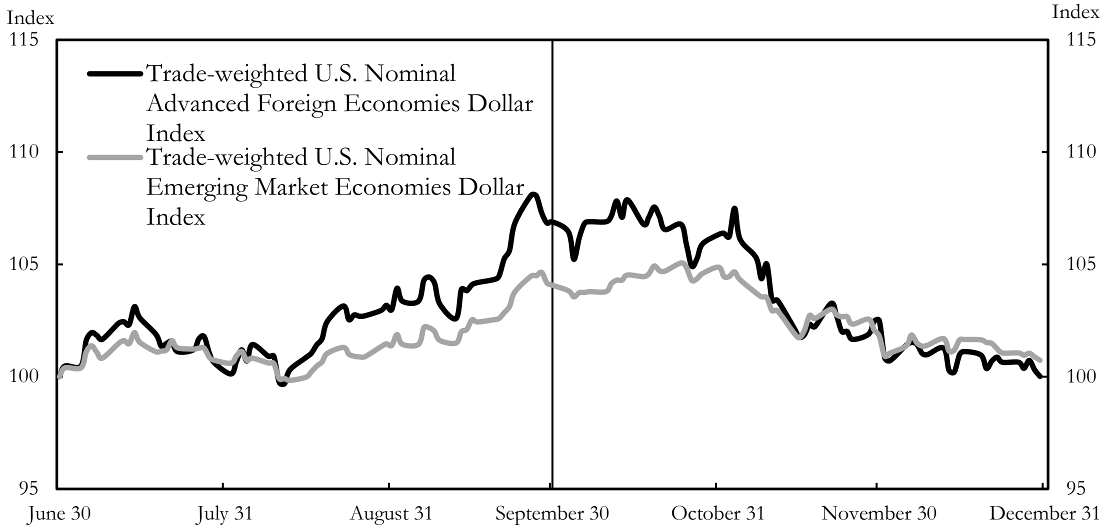
[2] The Federal Reserve's Emerging Market Economies Dollar Index, formerly known as the Other Important Trading Partners (OITP) index, is a weighted average of the foreign exchange value of the U.S. dollar against a subset of emerging market currencies. For more information on the index, see Revisions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

Chart 8

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



Source: Bloomberg L.P.

Note: Values indexed to June 30, 2022.

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

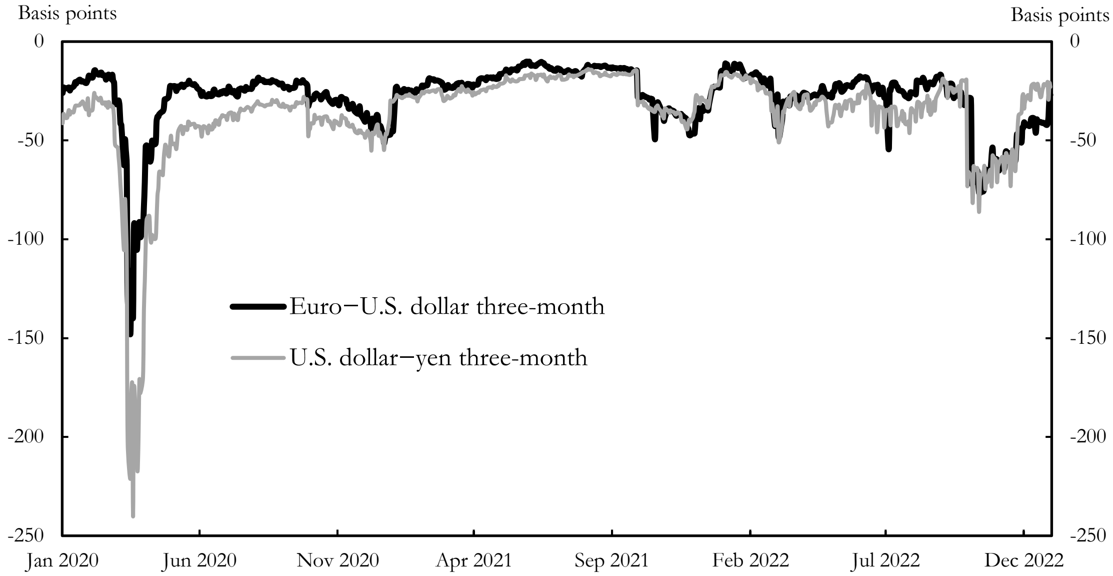
Foreign exchange swap market conditions were generally stable during the quarter amid abundant liquidity in dollar funding markets. Market participants reported that conditions remained orderly over the year-end turn amid lighter trading volumes and wider bid-ask spreads, typical for the final trading days of the year. In the weeks leading up to the year-end turn, short-term foreign exchange swap basis spreads for the euro–U.S. dollar and U.S. dollar–Japanese yen pairs gradually narrowed toward levels in line with those observed during similar periods in prior years.

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

Aggregate swaps outstanding of the U.S. dollar liquidity swap arrangements with foreign central banks increased slightly, from a modest $0.3 billion at the end of the third quarter of 2022 to $0.4 billion at the end of the fourth quarter of 2022. This compares with a total of $3.3 billion outstanding at the end of the fourth quarter of 2021 and a peak of nearly $450 billion in late May 2020. Most outstanding central bank liquidity swaps at the end of December were with the ECB, while the BOE had minimal U.S. dollar swaps outstanding. The BOJ, Swiss National Bank, and Bank of Canada had no U.S. dollar swaps outstanding.

Chart 9

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 foreign exchange intervention operations during the quarter. As of December 31, the value of the Federal Reserve System Open Market Account (SOMA) foreign-currency-denominated assets totaled $18.6 billion, comprised of euro- and yen-denominated holdings. The value of the U.S. Treasury's Exchange Stabilization Fund (ESF) foreign-currency-denominated assets totaled $18.6 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.[3]

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 December 31, the U.S. dollar value of euro-denominated deposits and government securities held by the SOMA and the ESF increased to $23.0 billion from $21.0 billion on September 30, 2022, and the U.S. dollar value of yen-denominated deposits and government securities increased to $14.2 billion from $12.9 billion on September 30, 2022. These changes were largely driven by foreign exchange translation effects.

[3] 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, September 30, 2022[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, December 31, 2022[a]
Federal Reserve System Open Market Account (SOMA)						
Euro	10,517	0	21	0	984	11,522
Japanese yen	6,459	0	0	0	632	7,091
Total	16,976	0	21	0	1,616	18,613

	Carrying Value, September 30, 2022[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, December 31, 2022[a]
U.S. Treasury Exchange Stabilization Fund (ESF)						
Euro	10,501	0	21	0	983	11,505
Japanese yen	6,459	0	0	0	632	7,091
Total	16,960	0	21	0	1,615	18,596

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 "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 December 31, 2022

	U.S. Treasury Exchange Stabilization Fund (ESF)[a]	**Federal Reserve System Open Market Account (SOMA)[a]**
Euro-denominated assets	**11,504.6**	**11,522.2**
Cash held on deposits at official institutions	7,075.3	7,092.9
Marketable securities held under repurchase agreements[b]	0.0	0.0
Marketable securities held outright	4,429.3	4,429.3
German government securities	703.9	703.9
French government securities	2,615.6	2,615.6
Dutch government securities	1,109.8	1,109.8
Yen-denominated assets	**7,090.7**	**7,090.7**
Cash held on deposit at official institutions	7,088.1	7,088.1
Marketable securities held outright	2.7	2.7

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

[a]As of December 31, the SOMA and the ESF euro portfolios had Macaulay durations of 16.59 and 16.62 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, 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 December 31, 2022
	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	412
Swiss National Bank	Unlimited	0
Bank of Japan	Unlimited	0
Bank of Canada	Unlimited	0
Bank of England	Unlimited	0
		412
Standing foreign currency liquidity swap arrangement		
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