TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE OPERATIONS

January – March 2023

During the first quarter of 2023, the U.S. dollar, as measured by the Federal Reserve Board's broad trade-weighted dollar index, depreciated 1.6 percent. Emerging market currencies accounted for most of the broad dollar move, led by the Mexican peso, which appreciated 8.1 percent against the dollar. Overall, the dollar was mixed against both advanced and emerging market currencies. The dollar was driven by evolving market expectations about policy paths across advanced economy central banks, economic data releases, and broader market volatility associated with banking sector stresses in the U.S. and Europe. Despite a brief period of dollar appreciation in February driven by economic data that refocused market attention on upside risks to U.S. policy rates, dollar depreciation over the quarter was consistent with the narrowing of interest rate differentials as U.S. rates declined more than those of other advanced foreign economies. However, the magnitude of the net depreciation over the quarter was limited by increased dollar demand amid risk aversion related to the banking sector stresses in March. The Federal Reserve and U.S. Treasury did not intervene in foreign exchange markets during the quarter.

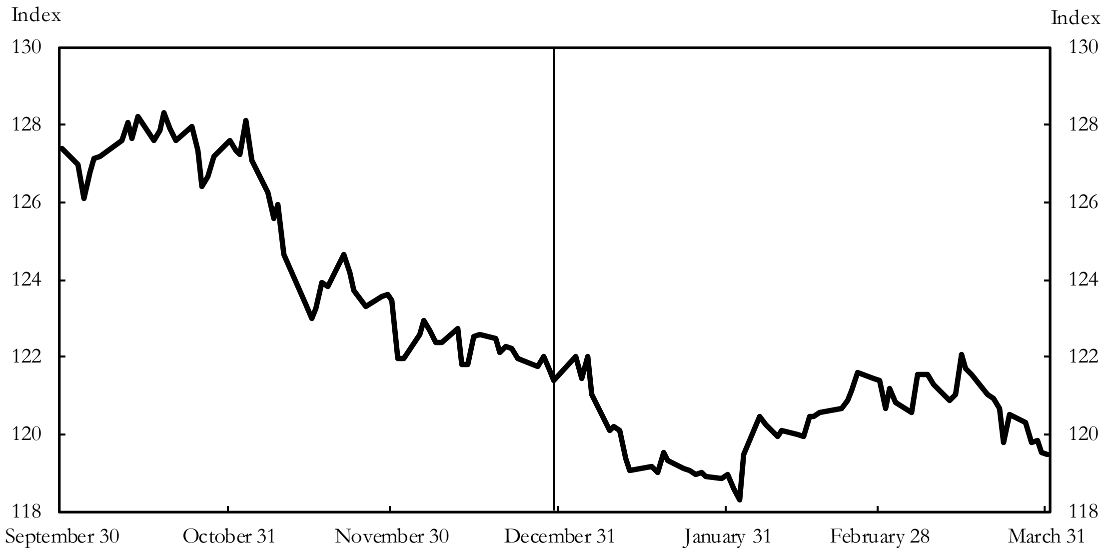
Foreign exchange swap markets were generally stable at the beginning of the year amid abundant liquidity in U.S. dollar funding markets but experienced a period of elevated price volatility in mid-March amid the emergence of banking sector stresses. Short-term foreign exchange swap basis spreads across all major currency pairs widened, notably in the U.S. dollar–Swiss franc pair, before largely narrowing back to levels observed earlier in the quarter. To help ease strains in global U.S. dollar funding markets, the Federal Reserve and other standing swap line central banks undertook coordinated action to enhance the provision of U.S. dollar liquidity via daily standing U.S. dollar liquidity swap line operations in mid-March.[1]

This report, presented by Roberto Perli, 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 January through March 2023. Martin Prusinowski was primarily responsible for preparation of the report.

[1] For details, see the press release announcing the swap lines at https://www.federalreserve.gov/newsevents/pressreleases/monetary20230319a.htm.

Chart 1

BROAD TRADE-WEIGHTED U.S. DOLLAR INDEX



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

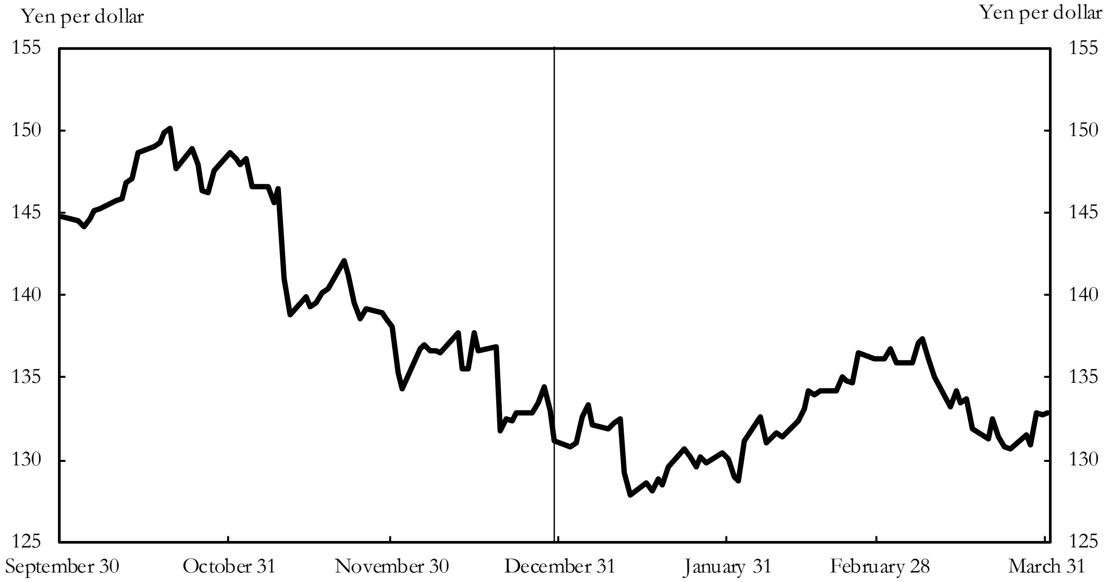
Chart 2

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

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

Chart 3

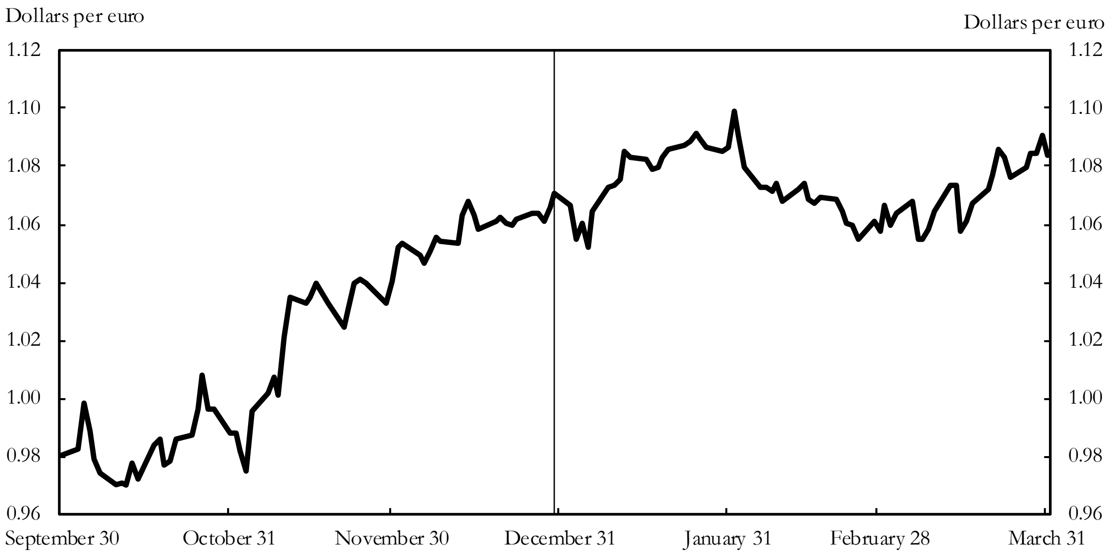
U.S. DOLLAR–YEN EXCHANGE RATE



Source: Bloomberg L.P.

Chart 4

EURO–U.S. DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

U.S. DOLLAR DEPRECIATES ON SHIFTING EXPECTATIONS FOR FEDERAL RESERVE POLICY AND NARROWING INTEREST RATE DIFFERENTIALS

During the first quarter of 2023, the U.S. dollar, as measured by the Federal Reserve Board's broad trade-weighted dollar index, depreciated 1.6 percent on net amid some volatility during the period. The dollar was mixed against both advanced and emerging market currencies. The Mexican peso, which appreciated 8.1 percent against the dollar, accounted for most of the broad dollar move. The dollar traded in three distinct periods during the quarter. In the first period, the dollar depreciated as market participants began to price in a lower path of Federal Reserve policy in response to signs of decelerating inflation. In the second period, incoming U.S. economic data and subsequent communications from Federal Reserve officials refocused market attention on upside risks to U.S. inflation and policy rates, which supported dollar appreciation. In the third period, developments with regional U.S. banks and some European banks led to a narrowing of U.S.–advanced foreign economy interest rate differentials, which weighed on the dollar.

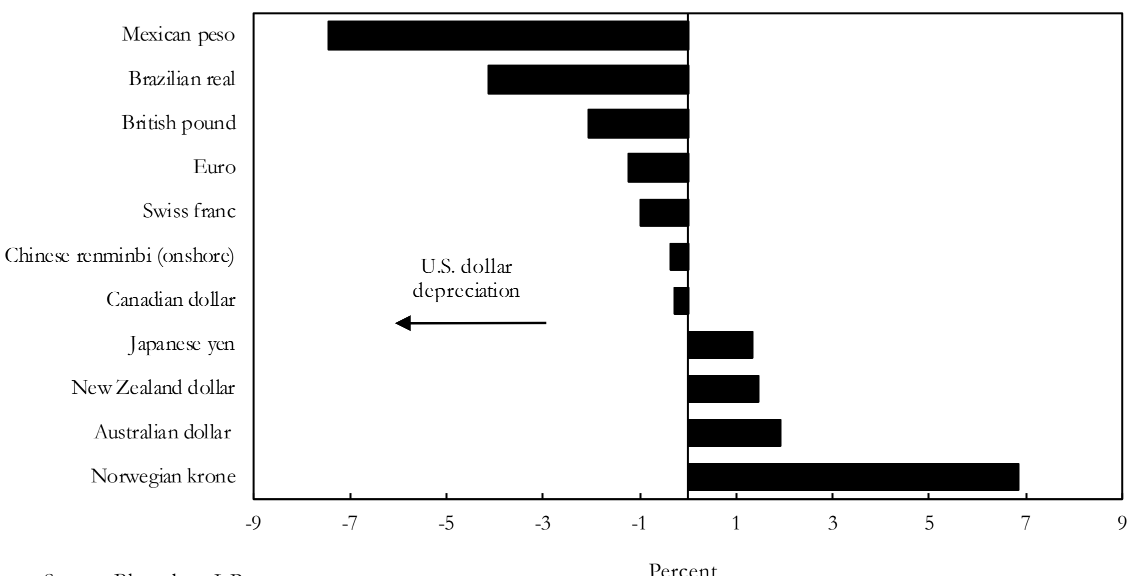
At the start of the quarter the dollar depreciated broadly, largely reflecting further improvement in the global growth outlook and market risk sentiment amid optimism related to China's economic reopening and further signs of decelerating U.S. inflation. While market-implied measures of the peak U.S. policy rate and interest rate differentials with other advanced foreign economies did not change significantly early in the quarter, the improvement in market risk sentiment was viewed as reducing dollar demand. Some market participants also viewed dollar depreciation during this period as reflecting growing expectations for the Federal Reserve to begin lowering policy rates next year, with Secured Overnight Financing Rate (SOFR) futures contracts implying an additional 50 basis points in policy rate cuts by year-end 2024. In addition, contacts viewed the tone of Federal Reserve communications during the start of the quarter, including remarks at the Federal Open Market Committee's (FOMC) February 1 meeting press conference, as reinforcing market expectations for a slower pace of policy tightening, with particular focus on the progress that had been made on reducing inflationary pressures.

Beginning in early February, incoming U.S. economic data and subsequent communications from Federal Reserve officials refocused market attention on upside risks to U.S. inflation and policy rates, driving dollar appreciation. Most notably, front-end nominal U.S. Treasury yields rose sharply after January employment data came in significantly above consensus market expectations. Further data releases in February, including retail sales and inflation data, contributed to market expectations that the Federal Reserve would keep its policy rate at an elevated level for an extended period. Indeed, communications from Federal Reserve officials during this period were broadly interpreted as favoring a higher level of the peak policy rate and a faster pace of policy rate increases, which supported the dollar. Nominal two-year U.S. yields rose by almost 100 basis points to 5.1 percent between early February and early March, while the market-implied peak policy rate rose to 5.7 percent. The increase in U.S. yields led to a widening of interest rate differentials in favor of the dollar, particularly against the Japanese yen, driving dollar appreciation during this period.

Later in the quarter, growing concerns related to the financial health of U.S. regional banks and some European banks led to a rapid narrowing of U.S.–advanced foreign economy interest rate differentials, which drove dollar depreciation. These developments led to large declines in advanced economy yields as concerns emerged that a contraction of credit availability as well as general risk aversion could impact the growth outlook for the U.S. and, to a lesser extent, Europe. The U.S. market-implied peak policy rate fell from 5.7 percent in early March to around 5.0 percent at the end of the quarter, which weighed on the dollar during this period. Additionally, market participants began to anticipate that the Federal Reserve would start to lower its policy rate later in the year, with SOFR futures contracts for year-end 2023 declining by around 120 basis points to 4.3 percent by the end of March. Nevertheless, some market participants noted that the broad repricing of policy paths across several major central banks as well as elevated market risk aversion limited the extent of dollar depreciation and contributed to less extreme volatility in foreign exchange relative to other asset classes. Indeed, measures of implied volatility for major currency pairs rose only modestly amid the banking sector developments when compared with interest rate or equity market implied volatility measures.

Chart 5

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



Source: Bloomberg L.P.

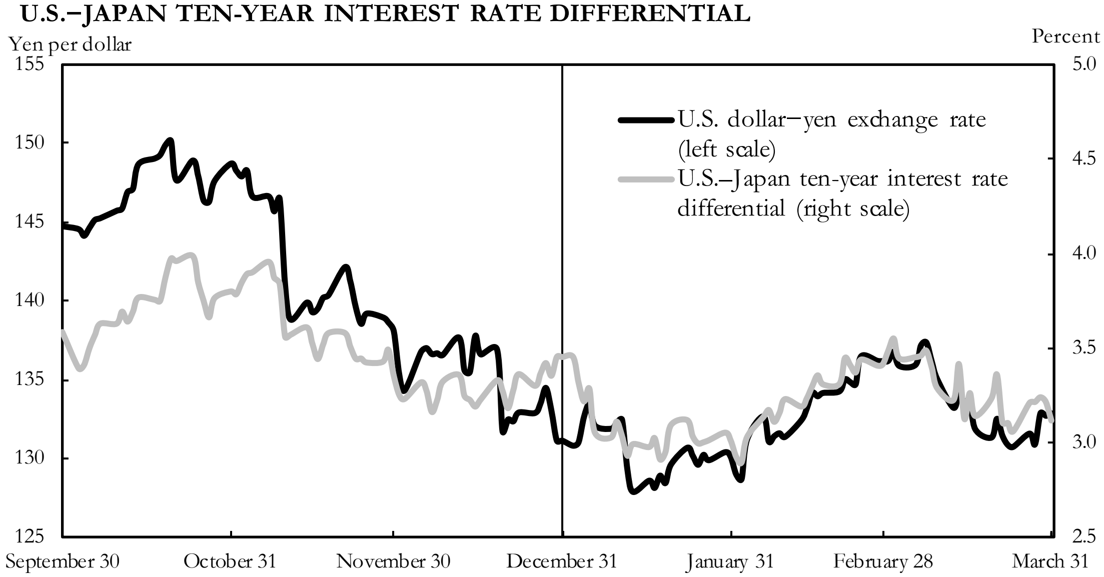
JAPANESE YEN DEPRECIATES AMID EVOLVING EXPECTATIONS FOR BOJ POLICY

The dollar appreciated 1.3 percent against the Japanese yen in the first quarter amid evolving market expectations for changes to the Bank of Japan's (BOJ) yield curve control (YCC) policy. Although the dollar's move against the yen was modest on net, the currency pair traded in a fairly wide range throughout the quarter, driven by fluctuations in U.S.–Japanese interest rate differentials.

Evolving expectations for BOJ policy were a significant driver of the yen over the quarter amid speculation that the BOJ might further adjust or fully abandon YCC, given contacts' growing concerns about Japanese government bond market functioning. However, later in the quarter, newly nominated BOJ Governor Ueda noted that the BOJ should maintain its current policy stance, which pushed out market participants' expectations for a YCC adjustment to later in the year and led to yen depreciation. Rising concerns over the global growth outlook driven by banking sector developments in the U.S. and Europe also contributed to a moderation in market participants' expectations for further adjustments to the BOJ's YCC policy. However, this moderation in expectations was viewed as offset by the deteriorating market risk sentiment and the narrowing of interest rate differentials relative to the U.S. given the significant decline in U.S. yields, which increased demand for the yen during this period. Japanese data releases, including an acceleration in core inflation measures and the announcement of higher-than-expected wage increases following annual wage negotiations, supported expectations that the BOJ could implement less accommodative monetary policy later in the year, which was viewed as limiting yen depreciation against the dollar on net over the quarter.

Chart 6

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



Source: Bloomberg L.P.

EURO APPRECIATES ON RESILIENT ECONOMIC DATA AND EXPECTATIONS FOR MORE RESTRICTIVE ECB POLICY

The euro appreciated 1.3 percent against the dollar, driven by better-than-expected euro area economic data that led to a narrowing yield differential between the euro area and the U.S. in favor of the euro. Data releases throughout the quarter generally exceeded consensus expectations and led market participants to revise euro area growth expectations upward. Unseasonably warm winter temperatures led to continued declines in natural gas prices in Europe and reversed much of the deterioration in euro area trade balances that had previously weighed on the euro in 2022. Market participants viewed these developments as contributing to the European Central Bank's (ECB) decision to raise policy rates by 50 basis points at both the February and March policy meetings, which contributed to euro appreciation. In addition, market participants broadly noted that the euro area's continued high core inflation measures contributed to market expectations for further policy rate increases and led to a narrowing of U.S.–euro area interest rate differentials in favor of the euro.

In March, the emerging focus on the financial health of U.S. regional banks and some European banks led to growing concerns regarding the global growth outlook and a sharp downward repricing of the ECB's policy path, which drove notable euro volatility. Amid these developments, two-year German yields decreased almost 50 basis points on net in March. Nevertheless, the concurrent repricing of policy paths in the U.S. muted the volatility of the euro–dollar exchange rate. Despite expectations by some market participants for a pause in further increases to euro area policy rates due to concerns regarding some European banks, the ECB increased its policy rate by 50 basis points to 3 percent at its March policy meeting, a move that was seen as supporting the euro in the final weeks of the quarter. Market participants cited ECB President Lagarde's comments highlighting that there was "no trade-off" between financial stability and efforts to bring down inflation as contributing to expectations that the ECB would raise its policy rate further at upcoming meetings. The subsequent easing of some banking sector concerns later in the quarter contributed to an improvement in market risk sentiment and euro appreciation.

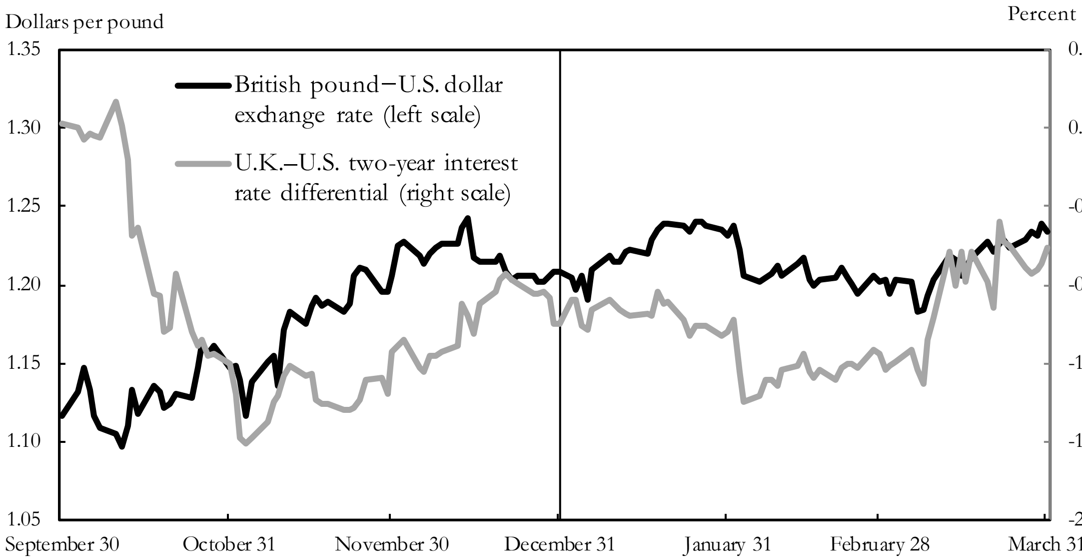
BRITISH POUND APPRECIATES ON ECONOMIC DATA RELEASES AND SUPPORTIVE INTEREST RATE DIFFERENTIALS

The British pound appreciated 2.1 percent against the dollar during the first quarter. Throughout the quarter, the pound appreciated on U.K. economic data releases that exceeded consensus estimates (particularly during the latter half of the quarter) and U.S.–U.K. interest rate differentials that narrowed in favor of the pound as U.S. yields declined more than U.K. yields.

Better-than-anticipated data releases led to reduced expectations among market participants for a recession in the U.K. In addition, core measures of inflation remained elevated, even as headline inflation showed signs of moderation over the quarter. These data releases contributed to market expectations for further monetary policy tightening in the U.K., which was viewed as supporting the pound. Indeed, the Bank of England (BoE) raised its policy rate by 50 basis points in February and 25 basis points in March, in line with market expectations. Expectations for further rate increases were pared back following the banking sector developments that emerged in March, but less so than in the U.S. As market risk sentiment improved once concerns over banking sector developments began to subside, the pound appreciated against the dollar through the end of the quarter. Positive sentiment following the agreement between the EU and U.K. over the Northern Ireland Protocol of the Brexit Treaty also supported the pound, as market participants noted that the agreement decreased the likelihood of possible trade disputes in the future.

Chart 7

BRITISH POUND–U.S. DOLLAR EXCHANGE RATE AND U.K.–U.S. TWO-YEAR INTEREST RATE DIFFERENTIAL



Source: Bloomberg L.P.

EMERGING MARKET CURRENCIES APPRECIATE AMID RESTRICTIVE POLICY STANCES BY SOME EMERGING MARKET CENTRAL BANKS

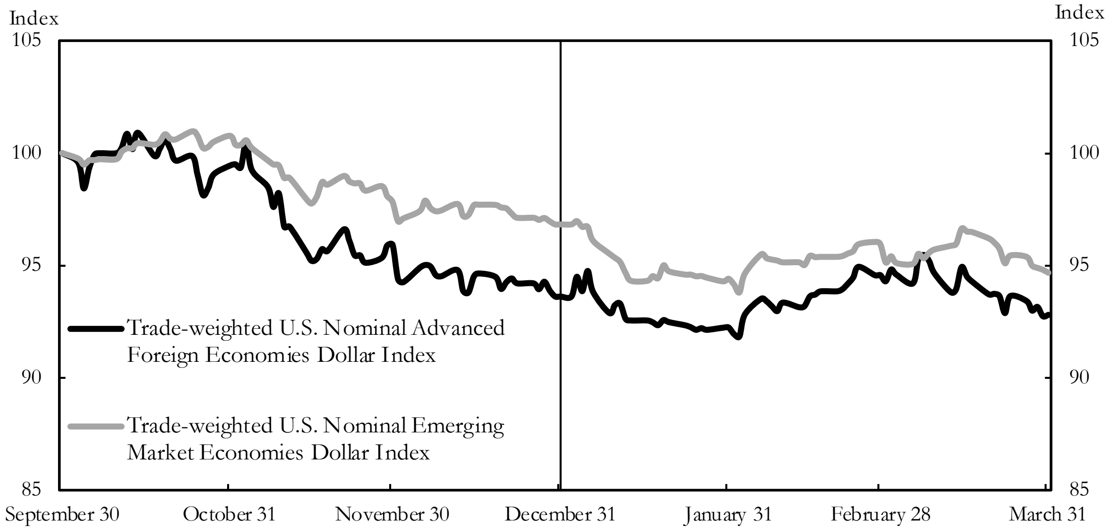
The dollar depreciated 2.2 percent against emerging market currencies during the first quarter, as measured by the Federal Reserve's trade-weighted Emerging Market Economies Dollar Index. Higher-yielding currencies such as the Mexican peso and Brazilian real generally appreciated over the quarter. Other emerging market currencies were broadly mixed against the dollar.

Notably, the Mexican peso appreciated 8.1 percent against the dollar, supported by the Banco de México's continued increases in policy rates in response to inflation data, including a higher-than-expected 50 basis point policy rate increase in February. The peso exhibited significant volatility over the quarter as banking sector developments in the U.S. contributed to risk aversion among market participants that caused a rapid unwinding of peso carry trades. However, the peso subsequently rebounded as market risk sentiment improved toward the end of the quarter. Market participants also broadly viewed the outperformance of the peso and the real as supported by relatively favorable external and fiscal dynamics as well as growing foreign direct investment.

The Chinese renminbi was little changed against the dollar, as market participants remained focused on data releases to gauge the strength of China's economy following the economic reopening in the previous quarter. Views on the near-term economic outlook for China were mixed, as retail sales showed limited evidence of a significant recovery and industrial production improved only modestly, while property sector data indicated some stabilization and infrastructure investment remained strong.

Chart 8

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



Source: Bloomberg L.P.

Note: Values indexed to September 30, 2022.

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

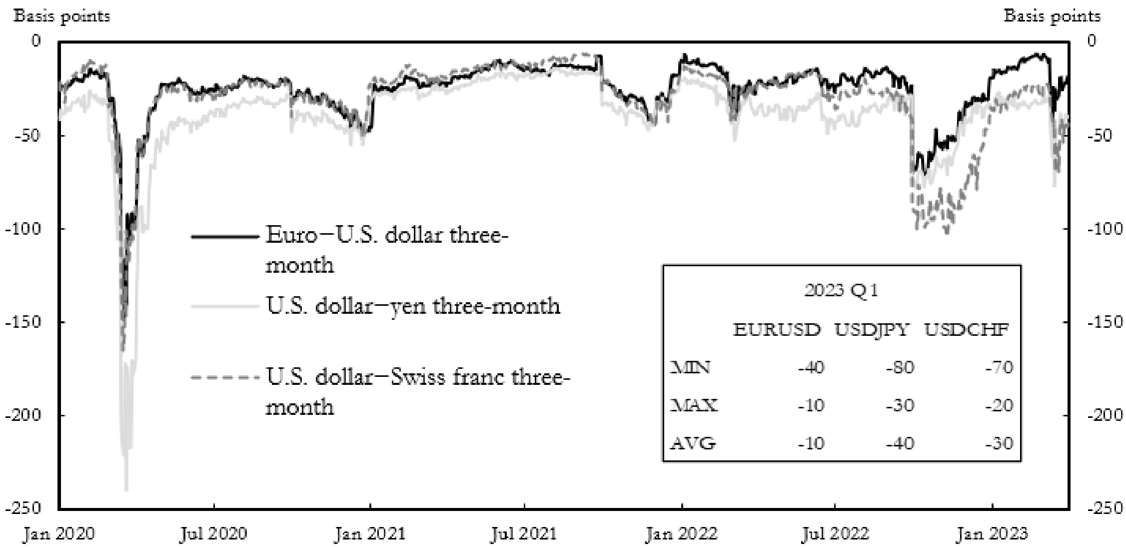
Foreign exchange swap market conditions were generally stable at the beginning of the year amid abundant liquidity in U.S. dollar funding markets; however, some price volatility was observed in mid-March due to U.S. and European banking sector stresses. Short-term foreign exchange swap basis spreads across major currency pairs widened, most notably in the U.S. dollar–Swiss franc pair, before returning to levels observed earlier in the quarter. Market participants reported some decline in liquidity and wider bid-ask spreads when compared with historical averages, but also noted that trading conditions remained functional throughout March. The March 19 coordinated announcement from the Federal Reserve and other standing swap line central banks to enhance the provision of liquidity via daily standing U.S. dollar liquidity swap line operations was generally viewed as a positive preemptive measure among market participants.

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 remained relatively unchanged, rising from $0.4 billion at the end of the fourth quarter of 2022 to $0.6 billion at the end of the first quarter of 2023. 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 March were with the ECB, while the Swiss National Bank, the BoE, and the BoJ had minimal use of the U.S. dollar swaps during the quarter. The Bank of Canada had no U.S. dollar swaps outstanding.

Chart 9

FOREIGN EXCHANGE THREE-MONTH 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 March 31, 2023, the value of the Federal Reserve System Open Market Account (SOMA) foreign-currency-denominated assets totaled $18.8 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 $18.8 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.[2]

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; purchases of obligations of European sovereign issuers eligible to be held outright under agreements for repurchase of such securities; 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 March 31, 2023, the U.S. dollar value of euro-denominated deposits and government securities held by the SOMA and the ESF increased to $23.5 billion from $23.0 billion on December 31, 2022, and the U.S. dollar value of yen-denominated deposits and government securities decreased to $14.1 billion from $14.2 billion on December 31, 2022. These changes were largely driven by foreign exchange translation effects.

[2] 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

		Changes in Balances by Source				
	Carrying Value, December 31, 2022[a]	Net Purchases and Sales[b]	Investment Earnings[c]	Realized Gains / Losses on Sales[d]	Unrealized Gains/Losses on Foreign Currency Revaluation[e]	Carrying Value, March 31, 2023[a]
Federal Reserve System Open Market Account (SOMA)						
Euro	11,522	0	41	0	188	11,751
Japanese yen	7,091	0	0	0	(50)	7,040
Total	18,613	0	41	0	137	18,792

		Changes in Balances by Source				
	Carrying Value, December 31, 2022[a]	Net Purchases and Sales[b]	Investment Earnings[c]	Realized Gains / Losses on Sales[d]	Unrealized Gains/Losses on Foreign Currency Revaluation[e]	Carrying Value, March 31, 2023[a]
U.S. Treasury Exchange Stabilization Fund (ESF)						
Euro	11,505	0	41	0	187	11,733
Japanese yen	7,091	0	0	0	(50)	7,040
Total	18,596	0	41	0	137	18,774

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 March 31, 2023

	U.S. Treasury Exchange Stabilization Fund (ESF)[a]	Federal Reserve System Open Market Account (SOMA)[a]
Euro-denominated assets	**11,733.2**	**11,751.2**
Cash held on deposits at official institutions	7,320.8	7,338.8
Marketable securities held under repurchase agreements[b]	0.0	0.0
Marketable securities held outright	4,412.4	4,412.4
German government securities	699.4	699.4
French government securities	2,660.1	2,660.1
Dutch government securities	1,052.9	1,052.9
Yen-denominated assets	**7,040.4**	**7,040.3**
Cash held on deposit at official institutions	7,037.7	7,037.7
Marketable securities held outright	2.6	2.6

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

[a]As of March 31st, the SOMA and the ESF euro portfolios had Macaulay durations of 16.04 and 16.07 months, respectively; both the SOMA and ESF yen portfolios had Macaulay durations of 0.01 months.

[b]Debt obligations of the sovereign issuers eligible to be held outright in the foreign currency reserves are eligible collateral for reverse repo transactions.

Table 3

RECIPROCAL CURRENCY ARRANGEMENTS

Millions of U.S. Dollars

Institution	Amount of Facility	Outstanding as of March 31, 2023
	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	488
Swiss National Bank	Unlimited	100
Bank of Japan	Unlimited	0
Bank of Canada	Unlimited	0
Bank of England	Unlimited	0
		588
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