TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE OPERATIONS

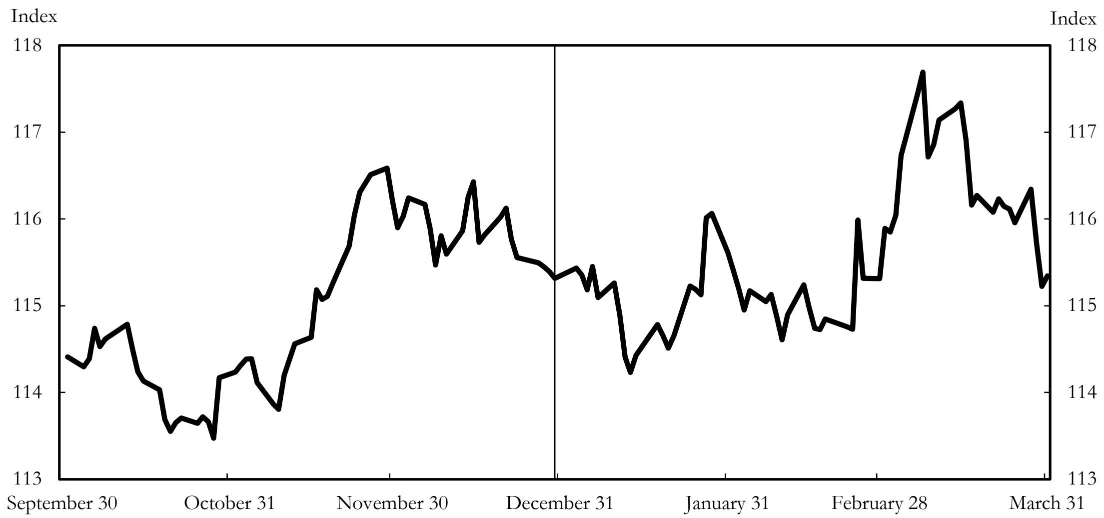
January – March 2022

Despite notable volatility, the U.S. dollar, as measured by the Federal Reserve Board's broad trade-weighted dollar index, was little changed on net during the first quarter of 2022. The dollar appreciated in late February and early March as negative risk sentiment related to Russia's invasion of Ukraine increased demand for the dollar as a safe haven currency and interest rates widened further in favor of the United States following communications by Federal Reserve policymakers that signaled a more rapid-than-expected pace of policy rate increases. However, an improvement in risk sentiment amid optimism regarding a potential reduction in geopolitical tensions led the dollar to retrace in late March, leaving it little changed over the quarter on net. While the dollar appreciated against low-yielding advanced economy currencies, it generally depreciated against the currencies of commodity-exporting countries. On a bilateral basis, the dollar appreciated 2.7 percent against the euro, 5.8 percent against the Japanese yen, and 3.0 percent against the British pound. Meanwhile, the U.S. dollar depreciated 3.2 percent against the Mexican peso, 2.9 percent against the Australian dollar, and 1.0 percent against the Canadian dollar. 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 January through March 2022. Patrick Douglass was primarily responsible for preparation of the report.

Chart 1

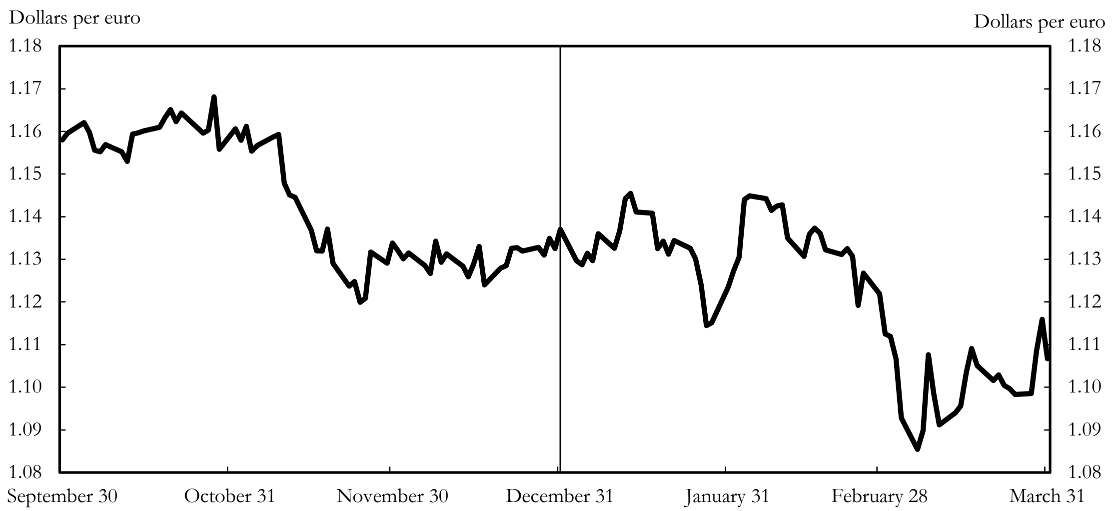
BROAD TRADE-WEIGHTED U.S. DOLLAR INDEX



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

Chart 2

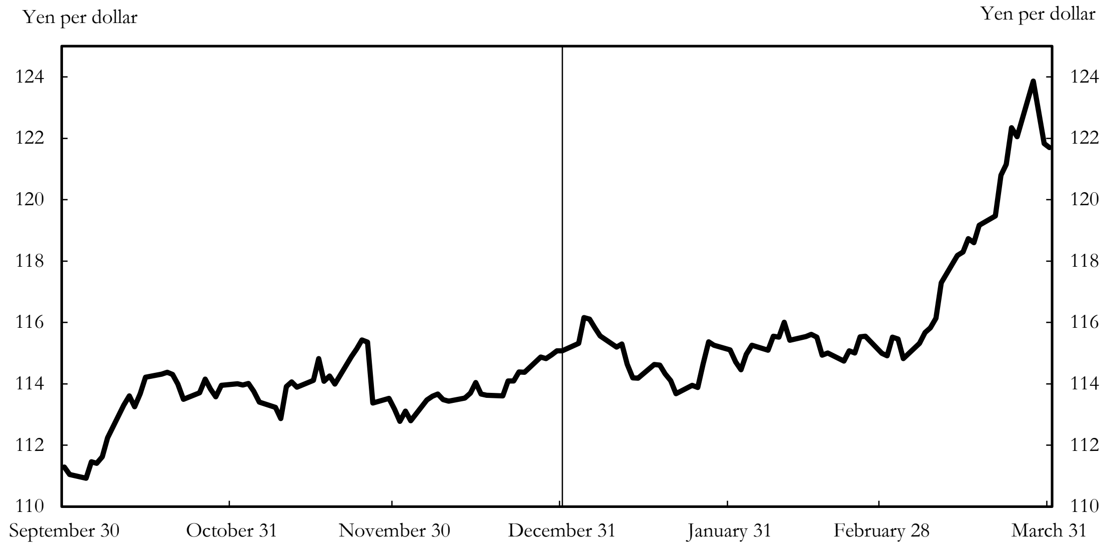
EURO−U.S. DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

Chart 3

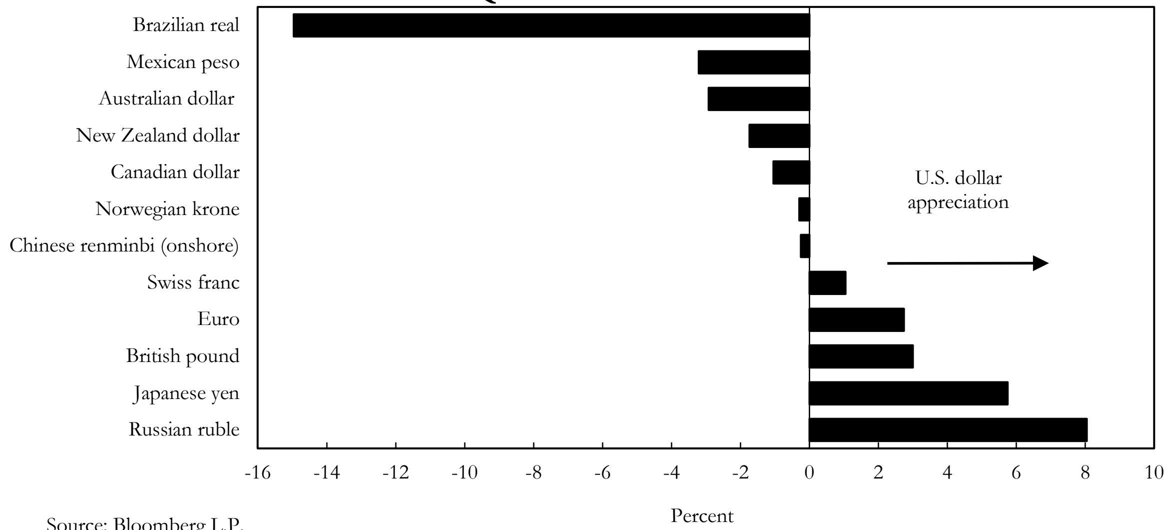
U.S. DOLLAR−YEN EXCHANGE RATE



Source: Bloomberg L.P.

Chart 4

U.S. DOLLAR PERFORMANCE AGAINST DEVELOPED AND EMERGING MARKET CURRENCIES DURING THE FIRST QUARTER OF 2022



Source: Bloomberg L.P.

U.S. DOLLAR APPRECIATES ON GEOPOLITICAL TENSIONS AND HIGHER U.S. YIELDS BEFORE LATE-QUARTER RETRACEMENT

During the first quarter of 2022, the U.S. dollar, as measured by the Federal Reserve Board's broad trade-weighted dollar index, was little changed on net, despite intraquarter volatility.[1] The dollar appreciated notably in late February and early March as negative risk sentiment related to Russia's invasion of Ukraine increased demand for the dollar as a safe haven currency and as interest rates continued to widen in favor of the United States following communications by Federal Reserve policymakers that signaled a more rapid-than-expected pace of policy rate increases. Nevertheless, a notable improvement in risk sentiment late in the quarter amid some optimism regarding a potential reduction in geopolitical tensions led the dollar to retrace toward the end of March, leaving it little changed on net. The dollar's performance was mixed on a bilateral basis, appreciating against lower-yielding currencies—such as the euro and Japanese yen—but depreciating against the currencies of commodity-exporting countries—such as the Brazilian real and Australian dollar.

Russia's invasion of Ukraine was seen as driving dollar appreciation through several channels. First, heightened geopolitical tensions drove a deterioration in risk sentiment and increased demand for the dollar as a relatively high-yielding safe haven currency. Indeed, in the days following Russia's invasion of Ukraine in late February, the broad dollar index rose more than 2.5 percent and measures of implied volatility for most major currencies rose to their highest levels since the start of the COVID-19 pandemic in March 2020. The dollar appreciated particularly sharply against the euro and other European currencies, as these economies experienced sharp markdowns to their growth outlooks due to their proximity to the conflict, negative real income shocks from higher inflation, and perceived vulnerability to disruptions in Russian oil and gas exports.

Second, the sharp rise in oil and gas prices following Russia's invasion of Ukraine drove significant dollar appreciation against the currencies of energy importers that experienced a deterioration in their balance of payments. In the two weeks following the invasion, front-month Brent crude oil futures prices rose more than 30 percent to reach almost $130 per barrel. This increase led to a significant negative terms-of-trade shock for economies that are large net energy importers, such as the euro area and Japan. Meanwhile, higher energy prices were viewed as having a relatively small impact on the United States, which is largely energy self-sufficient.

Lastly, the broad dollar was viewed as supported by the continued rise in U.S. yields, which caused both real and nominal interest rate differentials to widen in favor of the dollar. Over the quarter, two-year U.S. Treasury yields rose 160 basis points (a tripling of the yield compared to the prior quarter). The Federal Open Market Committee's (FOMC) communications at its two meetings in the quarter were seen as key factors contributing to the rise in short-dated yields. At the January FOMC meeting, the FOMC kept its policy rate unchanged and noted in its statement that it would "soon be appropriate" to raise rates, in line with expectations. At the press conference, Chair Powell left open the possibility that rate increases could occur at each of the next several meetings, noting that there

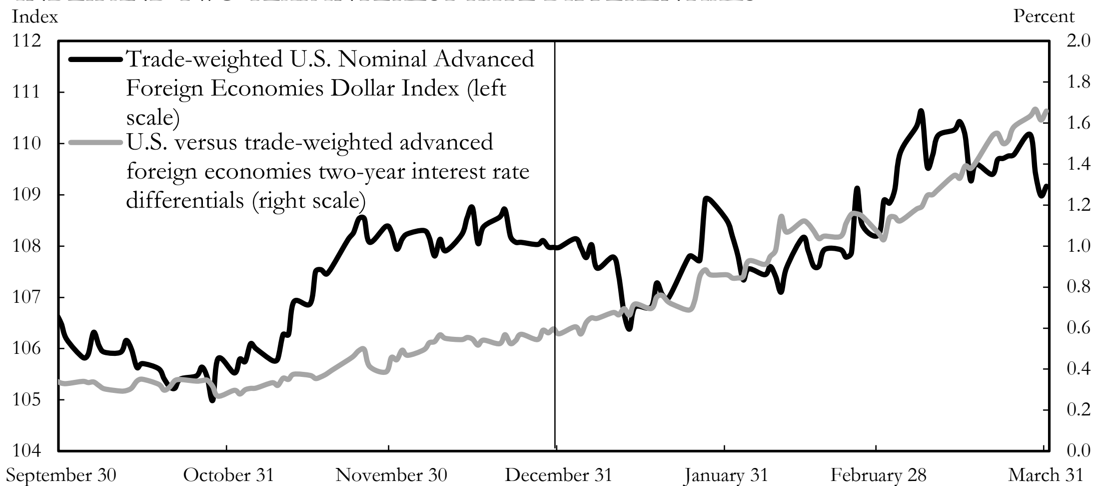
[1] The Federal Reserve's broad trade-weighted dollar index is based on twenty-six currencies, including major advanced market currencies and currencies of other important trading partners of the United States, including emerging markets.

was “quite a lot of room” to raise rates. The remarks were viewed as somewhat less accommodative than expected, triggering a notable rise in short-dated U.S. yields and a modest rise in the broad dollar index. At its March meeting, the FOMC started its tightening cycle with a 25 basis point rate increase, as was widely expected. In addition, the Committee’s projection for the federal funds rate showed a steeper path of policy than anticipated, with seven 25 basis point increases in 2022 and three to four increases in 2023, which was seen as contributing to a further rise in short-dated U.S. yields.

Both FOMC meetings came against a backdrop of significant U.S. inflationary pressures, with U.S. headline consumer price inflation reaching 7.9 percent year-on-year in February, its fastest pace since 1982. Meanwhile, U.S. employment data was generally robust, with nonfarm payrolls for February rising by 678,000 and the unemployment rate edging down to 3.8 percent, which market participants viewed as further reducing the case for maintaining monetary policy accommodation.

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.

In the final two weeks of the quarter, the dollar retraced most of its earlier appreciation amid some improvement in risk sentiment, with U.S. equity prices rising above their pre-Ukraine invasion levels and front-month Brent crude oil futures falling back below $100 per barrel. Market participants generally attributed the improvement in risk sentiment to expectations regarding the potential for Russian and Ukrainian leaders to negotiate a ceasefire and Russia’s announcement that it intended to reduce military operations around Kyiv. Market sentiment was also seen as buoyed by the Biden administration’s announcement that it would release up to 180 million barrels of oil reserves, at a pace of 1 million barrels per day, to ease short-term supply pressures.

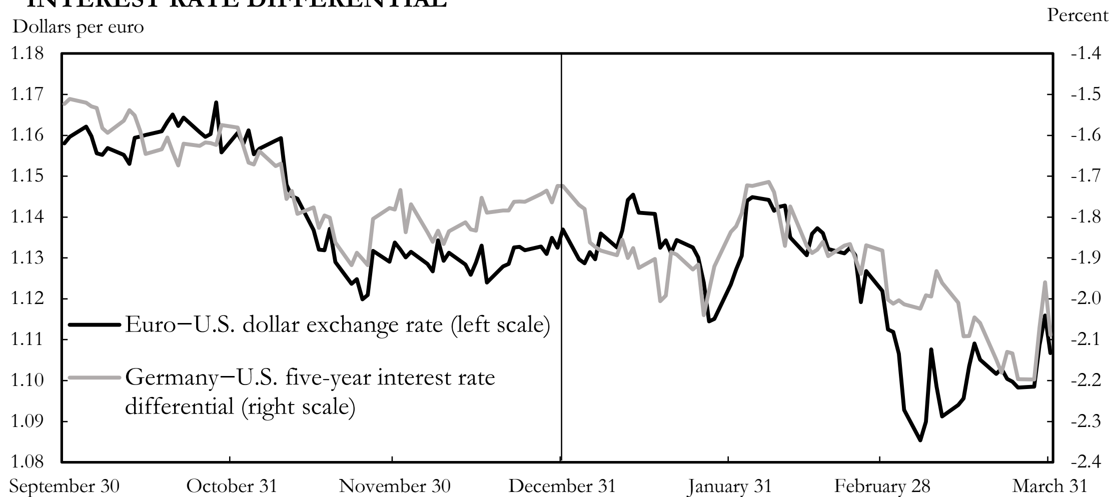
EURO DEPRECIATES DESPITE LESS ACCOMMODATIVE COMMUNICATIONS BY ECB AMID EXPECTATIONS FOR HIGHER INFLATION AND LOWER GROWTH

The dollar appreciated 2.7 percent against the euro as U.S. and euro area monetary policy continued to diverge and the invasion of Ukraine led to expectations for higher euro area inflation, lower growth, and negative terms-of-trade effects. Monetary policy divergence was viewed as a major currency driver during this period, as the European Central Bank's (ECB) initial moves toward removing policy accommodation were viewed as modest compared to the more accelerated pace of rate increases expected from the FOMC. The ECB kept interest rates on hold over the quarter, as expected. However, at the February ECB meeting, some of President Lagarde's remarks at the press conference were viewed as less accommodative than expected, including her statement that there was "unanimous concern" among the Governing Council about the inflation outlook, with the risks now "tilted to the upside," and that she would not rule out rate increases in 2022. At its March meeting, the ECB announced an accelerated wind-down of asset purchases and substantially raised its 2022 inflation projections to 5.1 percent, from 3.2 percent. Nevertheless, the rise in euro area yields in response to the less accommodative outlook for ECB policy was somewhat modest relative to the large rise in U.S. yields, causing U.S.–euro area interest rate differentials to widen further in favor of the United States throughout the quarter.

The euro also faced depreciation pressure from downward revisions to euro area growth forecasts, which were marked down notably following the Russian invasion amid market concerns that the region's proximity to the crisis and vulnerability to disruptions in Russian energy supplies made it more vulnerable to an economic downturn. This contrasted with the United States, where economic spillovers were viewed as more modest and economic growth markdowns were more contained. In addition, the sharp rise in global energy prices represented a significant negative terms-of-trade shock for the euro area, which is a large net energy importer, whereas it had a relatively neutral terms-of-trade impact on the United States due to the country's energy self-sufficiency.

Chart 6

EURO–U.S. DOLLAR EXCHANGE RATE AND FIVE-YEAR GERMAN–U.S. INTEREST RATE DIFFERENTIAL



Source: Bloomberg L.P.

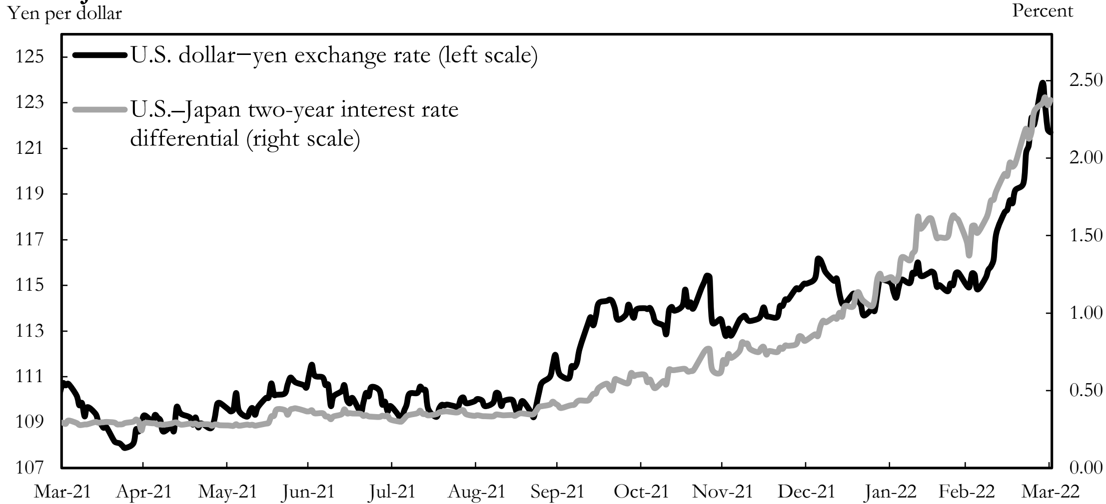
JAPANESE YEN DEPRECIATES AMID WIDENING INTEREST RATE DIFFERENTIALS AND A DETERIORATING TRADE BALANCE

The dollar appreciated 5.8 percent against the Japanese yen, as interest rate differentials widened notably in favor of the United States and rising commodity prices weighed on Japan's balance of payments. The move was viewed as particularly notable as it appeared to mark a departure from the historical pattern, in which the yen tends to appreciate against the dollar in response to deteriorating risk sentiment.

Market participants primarily attributed the yen's depreciation to two factors. First, interest rate differentials widened notably in favor of the United States, and the yen has recently been more sensitive to rate differentials than other major currencies. This widening of rate differentials reflects the further divergence between U.S. and Japanese monetary policy, with the Bank of Japan (BoJ) reaffirming its commitment to its yield curve control framework and containing any increase in long-end yields, while the FOMC raised its policy rate in March and signaled its intention to raise rates further at future meetings. Second, the sharp rise in global energy prices represented a significant negative terms-of-trade shock for Japan, which is a large net energy importer, suggesting that balance of payments pressures could weigh on the yen going forward.

Chart 7

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



Source: Bloomberg L.P.

BRITISH POUND DEPRECIATES AMID WIDENING RATE DIFFERENTIALS AND EXPECTATIONS FOR HIGHER INFLATION AND LOWER GROWTH IN THE U.K.

The broad dollar appreciated 3.0 percent against the British pound, as U.K. yields rose less than U.S. yields and Russia's invasion of Ukraine led to expectations for higher inflation and lower growth in the United Kingdom. In contrast to other advanced economy central banks, Bank of England (BoE) communications were viewed as shifting toward a more neutral stance over the quarter, which was seen as containing the rise in U.K. yields and resulted in a further widening of interest rate differentials in favor of the United States. While the BoE continued to increase its policy rate, policymaker communications moved from highlighting the potential for larger rate increases to combat inflation to emphasizing the deteriorating growth outlook. Specifically, at its March meeting, the BoE's Monetary Policy Committee voted 8-1 to increase its Bank rate by 25 basis points to 0.75 percent. However, some market participants viewed the single dissenting vote to keep rates unchanged and statement language emphasizing downside growth risks as slightly more accommodative than expected. In addition, the statement noted that further rate increases "might be" appropriate in the coming months, compared to the February meeting statement that noted rate increases were "likely."

EMERGING MARKET CURRENCIES MIXED AMID CROSSCURRENTS FROM RISING COMMODITY PRICES AND GROWTH CONCERNS

The dollar depreciated 1.0 percent against emerging market currencies in the first quarter, as measured by the Federal Reserve's trade-weighted Emerging Market Economies Dollar index.[2] Given the notable rise in commodity prices, which was exacerbated by the Ukraine conflict, the currencies of commodity-exporting countries saw the most significant appreciation over the quarter, with the Brazilian real and South African rand appreciating 17.6 percent and 9.1 percent, respectively, against the dollar. By contrast, the currencies of net commodity-importing countries generally depreciated; the Turkish lira saw the largest declines, given its reliance on energy and wheat imports, depreciating 9.3 percent against the dollar.

The currencies of central and eastern European countries also faced significant depreciation pressure due to their dependence on energy imports and their geographical proximity to the Ukraine conflict, though respective central bank measures were viewed as limiting currency weakness. Specifically, the Hungarian and Czech central banks increased their policy rates in the weeks following the Russian invasion, while the Polish central bank announced that it sold foreign currency to support the zloty. More broadly, emerging market yields outside of Asia generally kept pace with U.S. yields during the quarter, lending additional support to many emerging market currencies. The Russian ruble depreciated sharply against the dollar in the days following the Russian invasion of Ukraine and the imposition of sanctions on Russian entities by the United States and other countries. The ruble retraced much of its depreciation in late March, however, amid aggressive capital control measures by Russia's central bank, the accumulation of large current account surpluses, which were buoyed by elevated commodity prices, and a modest improvement in risk sentiment.

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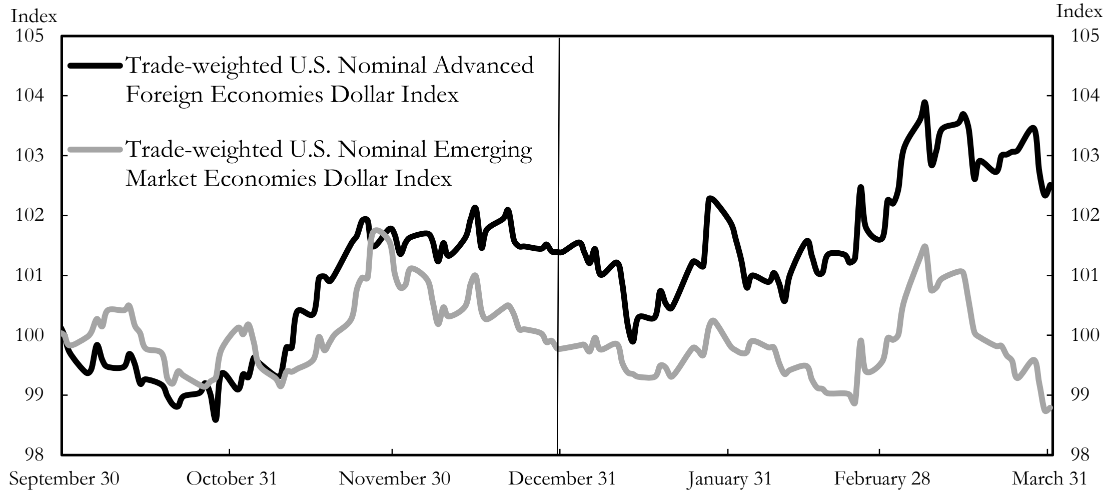
[2] The Federal Reserve's Emerging Market Economies Dollar Index, formerly known as the Other Important Trading Partners (OITP) index, is a weighted average of the foreign exchange value of the U.S. dollar against a subset of emerging market currencies. For more information on the index, see Revisions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

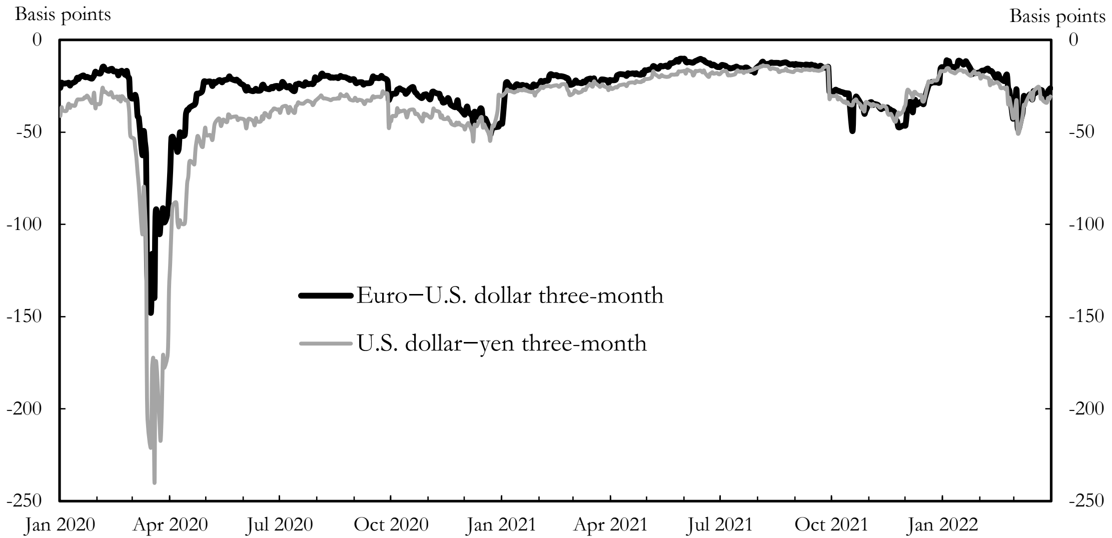
Note: Values indexed to September 30, 2021.

FOREIGN EXCHANGE SWAP MARKETS EXHIBIT MODEST VOLATILITY BEFORE STABILIZING AHEAD OF MARCH QUARTER-END

Foreign exchange swap market pricing and trading conditions were stable in the first two months of the quarter, though premiums to borrow dollars through major currency pairs widened considerably in late February, as investors reportedly held back on lending dollars amid a deterioration in broader risk sentiment. Bid-ask spreads for foreign exchange swap transactions also widened, indicating a reduction in market depth, likely driven by elevated volatility in pricing for short-term U.S. dollar funding. However, U.S. dollar funding markets generally functioned well through the period of heightened market volatility. Dollar funding markets were supported by the availability of several Federal Reserve liquidity facilities, including the central bank liquidity swap lines, the FIMA Repo Facility, and the Standing Repo Facility, though usage of these facilities remained minimal during March. Market conditions steadied in the first two weeks of March and remained stable through quarter-end, supported by abundant levels of U.S. dollar liquidity in global funding markets.

Chart 9

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 U.S. dollar liquidity swap arrangements with foreign central banks decreased to roughly $0.4 billion by the end of the first quarter of 2022, compared to $3.3 billion at the end of the fourth quarter of 2021. The decline was driven by maturation of swaps that had been originated at U.S. dollar liquidity swap operations in December 2021 amid a seasonal uptick in demand for U.S. dollars ahead of year-end. All outstanding central bank liquidity swaps at the end of March were with the ECB, while the BoJ, BoE, Swiss National Bank, and Bank of Canada did not have any U.S. dollar swaps outstanding. The temporary U.S. dollar swap line arrangements with nine central banks expired on December 31, 2021. As of March 31, there were no outstanding swaps with temporary swap line central banks.

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, the value of the Federal Reserve System Open Market Account (SOMA) foreign-currency-denominated assets totaled $19.6 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 $19.6 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 March 31, the U.S. dollar value of euro-denominated deposits and government securities held by the SOMA and the ESF decreased to $23.9 billion from $24.5 billion on December 31, 2021, and the U.S. dollar value of yen-denominated deposits and government securities decreased to $15.4 billion from $16.2 billion on December 31, 2021. These changes are 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

		Changes in Balances by Source				
	Carrying Value, December 31, 2021[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, 2022[a]
Federal Reserve System Open Market Account (SOMA)						
Euro	12,256	0	(11)	0	(307)	11,939
Japanese yen	8,122	0	0	0	(425)	7,697
Total	20,378	0	(11)	0	(732)	19,635

		Changes in Balances by Source				
	Carrying Value, December 31, 2021[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, 2022[a]
U.S. Treasury Exchange Stabilization Fund (ESF)						
Euro	12,237	0	(11)	0	(306)	11,920
Japanese yen	8,122	0	(0)	0	(425)	7,697
Total	20,359	0	(11)	0	(731)	19,617

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, 2022

	U.S. Treasury Exchange Stabilization Fund (ESF)[a]	**Federal Reserve System Open Market Account (SOMA)[a]**
Euro-denominated assets	**11,920.3**	**11,938.6**
Cash held on deposits at official institutions	6,971.9	6,990.2
Marketable securities held under repurchase agreements[b]	0.0	0.0
Marketable securities held outright	4,948.4	4,948.4
German Government securities	777.8	777.8
French Government securities	2,864.5	2,864.5
Dutch Government securities	1,306.0	1,306.0
Yen-denominated assets	**7,696.7**	**7,697.7**
Cash held on deposit at official institutions	7,168.8	7,168.8
Marketable securities held outright	527.9	527.9

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 21.82 and 21.85 months, respectively; both the SOMA and ESF yen portfolios had Macaulay durations of 0.21 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 March 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	366
Swiss National Bank	Unlimited	0
Bank of Japan	Unlimited	0
Bank of Canada	Unlimited	0
Bank of England	Unlimited	0
		366
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