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The U.S. Dollar as an International Currency and Its Economic Effects

Daniel Fried
Congressional Budget Office
daniel.fried@cbo.gov

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Abstract

The U.S. dollar plays an important role as the most widely used currency in global goods, services, and financial markets. Strong international demand for U.S. dollars and dollar-denominated assets associated with the dollar's status as an international currency has increased the value of the dollar in foreign exchange markets and the value of dollar-denominated assets in financial markets. As a result, the dollar's status has contributed to persistent U.S. trade deficits and, by lowering interest rates, to increased access to credit for U.S. households, businesses, and the federal government. Over the next decade, the dollar's international use is expected to decline very gradually, in the Congressional Budget Office's assessment, but it will not be overtaken by either of its closest competitors, the euro or the Chinese renminbi.

Keywords: international reserves, international currency, dollar, exchange rates

JEL Classification: E58, F3, F31, F33

Contents

What Is an International Currency?

A *currency* is a type of money that serves as a medium of exchange and can take the form of banknotes (such as dollar bills), coins (such as quarters), and other fungible assets. An *international currency* is any currency that is used by households, businesses, and governments of a different country than the one where the currency is issued.

The use of international currencies can take many forms. Foreign consumers may hold international currencies to store their wealth. For example, investors in countries with high or volatile rates of inflation often purchase assets denominated in international currencies because they have more stable prices and may better maintain their purchasing power. Businesses may use international currencies to pay for imported goods and services. For example, businesses outside of the United States that want to purchase crude oil in international markets need to purchase U.S. dollars to do so because international crude oil contracts are traditionally priced in dollars and settled using dollars. In addition, international currencies can be used to pay for some domestic transactions in other countries. For example, because businesses in smaller countries sometimes issue debt denominated in international currencies, international investors looking to purchase those assets would need to hold international currencies to make those purchases.

Those examples show how international currencies can serve the three basic functions of money: store of value, medium of exchange, and unit of account. To be a good store of value, money needs to maintain its purchasing power or value over time. As a medium of exchange, money must be accepted as payment for goods and services or to repay debts. To function as a unit of account, money should be used to measure value or set prices.[1]

International currencies can serve those three functions of money for both foreign businesses and households (private agents) and foreign central banks (official agents).[2] Private agents can use international currencies as stores of value, mediums of exchange, and units of account (see Table 1). International investors can use foreign currencies, or assets denominated in foreign currencies, to store their wealth. Businesses can use international currencies to pay for goods and services. In addition, international currencies are often used to set prices for international transactions, for traded goods and services, or for financial securities.

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[1] To be a useful unit of account, money should also be divisible, countable, and fungible. Being divisible implies that money can be divided into smaller units easily without losing value. For example, a dollar can be exchanged for many combinations of coins that hold the same value as the dollar. Being countable implies that an amount of money can be measured at low cost. Being fungible implies that individual units of money are interchangeable without any loss of value.

[2] That framework for characterizing international currencies was first described in Cohen (1971) and later adapted in Kenen (1983).

Central banks sometimes use international currencies to help them conduct monetary policy. Those banks can use international currencies as a store of wealth by purchasing and holding foreign currencies to be used as reserves. For example, a central bank whose currency is pegged to the dollar will buy and sell dollars in foreign exchange markets to maintain that peg. When central banks intervene in financial markets to adjust the value of their domestic currencies, they generally use an international currency as a medium of exchange, by buying and selling those foreign currency reserves. In addition, central banks sometimes anchor the value of their domestic currency to the value of an international currency in foreign exchange markets, using the international currency as a unit of account for exchange rates. For example, when a central bank chooses an international currency to use as an anchor (or peg or reference) for their domestic currency, they are using that anchor currency as an international unit of account.

Factors That Support International Use of a Currency

Historically, the three most important factors that determine the extent to which a country's currency will be used internationally are the following:

- The size of the country's economy and trade flows,
- The degree of development and openness of the country's financial markets, and
- The stability of its prices.

Once a country's currency starts being increasingly used by international businesses, households, and governments, network effects (in short, effects from broader adoption) can further increase the currency's use globally. Network effects in the context of currencies describe the ways in which the benefits of holding and using a currency rise as more and more people, businesses, and governments use it—those additional benefits then encourage more adoption in a self-reinforcing cycle.

Economy and Trade Flows

The size of a country's economy and the volume of its trade flows are the most important factors in determining which countries' currencies gain wide international use.[3] The size of an economy can be measured by the country's economic output, and its trade volume can be measured through its export and import flows. Those measures of economic size partially describe the country's importance in the global economy. As the volume of international transactions conducted by a country rises, the more useful that country's currency will be to international businesses and consumers. The increased usefulness of that currency to buy traded goods and services from the issuing country encourages additional use of the currency as a medium of exchange and unit of account.

[3] See Chinn and Frankel (2008) for further discussion of the factors that increase the international use of currencies.

For example, when an economy accounts for a large share of global exports, foreign businesses will be willing to receive that country's currency as payment because of the breadth of goods and services that can be purchased with that currency. Furthermore, the utility that comes from economic size makes an international currency useful as a medium of exchange, even for transactions not involving the issuing country. In contrast, the value of holding a currency of a country with a smaller share of global trade will be much lower because fewer businesses, investors, and counterparties outside of the issuing country will be willing to accept its currency as payment.

Development and Openness of Capital Markets

The second important factor in determining whether a country can issue an international currency is the development and openness of its capital markets. Countries with developed capital markets tend to have financial institutions and regulations in place that facilitate the efficient allocation of capital from savers to borrowers. Similarly, countries with open capital markets provide protections for buyers and sellers of financial securities that allow financial transactions to take place with minimal legal, regulatory, or technical obstructions. Those advantages tend to increase both the demand for funding and the supply of funding, which leads to more financial intermediation (a greater volume of funds flowing from lenders to borrowers) and a deepening of financial markets (increased availability and provisioning of financial services). By reducing the frictions (or costs) associated with buying and selling financial assets (such as currency), a developed capital market will support a currency's use as a medium of exchange. In addition, reducing costs associated with buying and selling also supports the currency's capacity as a store of value.

Price Stability

The third factor that influences whether a country can issue an international currency is price stability. The stability of prices denominated in a currency preserves that currency's purchasing power and promotes its use as a store of wealth and medium of exchange. Price stability can take a number of forms, including the prices for domestic goods and services, the foreign exchange value of the country's currency, and the prices for the country's financial assets. High or volatile rates of domestic inflation, large movements in the foreign exchange value of the currency, or large swings in the values of financial markets and sovereign debt are all signals of price instability, which reduces the incentive to use a currency internationally. For example, high inflation or price volatility affects the purchasing power of a currency and can undermine that currency's function as a store of value. For that reason, the credibility of countries' monetary policy authorities in controlling prices is an important factor in the decision of foreign businesses, investors, consumers, and central banks to hold an international currency.[4] In

[4] Political instability, particularly if it affects the independence or functioning of the monetary policy authority, can reduce international confidence in a currency. Geopolitical instability can have similar effects on a currency's suitability for international use.

addition, if foreign investors cannot find sufficient safe assets in which they can store wealth denominated in that currency, the currency's usefulness to international investors and governments will be limited. Price stability issues also reduce a currency's usefulness as a unit of account by raising menu costs (which are incurred when businesses change prices) and by elevating the risks associated with any long-term price contract.

Some other factors that support a currency's use as an international currency are related to price stability. Those factors include geopolitical power, policy and political stability, and fiscal responsibility. Each of those factors gives foreign investors, businesses, consumers, and central banks confidence in a currency's ability to retain its value over time. For example, geopolitical power conveys some expected longevity to a country's sovereignty over time and, with that, the continued use of its currency. Policy and political stability reduces the probability that government authorities will debase or inflate away the currency's value or enact policies that could restrict or regulate capital flows (domestic or international). A country that is fiscally responsible will have less incentive to inflate away the value of its debt, reducing the risk that the currency will be a poor store of wealth.

Network Effects

Once a currency begins to be used internationally, a virtuous cycle can further encourage its use. Growing demand to exchange domestic currencies into an international currency can deepen foreign exchange markets for that international currency (meaning that the number of buyers and sellers increases and the volume of trade rises), which tends to reduce transaction costs and improve the currency's ability to function as a medium of exchange (see Figure 1). As the currency's use as a medium of exchange rises, it also becomes useful for invoicing and settling transactions, improving its function as a unit of account.

A currency's use as a unit of account for international trade and financial transactions will encourage foreign central banks to use the currency as an anchor currency. Small economies that depend on international trade and whose trade transactions tend to be denominated in international currencies reduce businesses' and consumers' exposure to currency risk by pegging their currencies to an international currency. For example, when a country's exporters are paid in an international currency for trade transactions, those exporters may be subject to currency risk caused by a mismatch between the currency denomination of the company's income and its expenses. If that exporter's costs (for labor or other production inputs) are denominated in the local currency, then fluctuations in the rate of exchange between the local currency and the international currency will directly affect the company's profitability. Large appreciations in the value of the local currency (without any changes in prices or wages) could jeopardize the company's ability to pay its expenses. Similarly, consumers in those countries are subject to the same risk when their income is denominated in the local currency, but the prices of critical imports fluctuate with exchange rates. For that reason, small countries whose imports and exports are denominated in international currencies tend to peg their exchange rate to the most

widely used international currency, which reduces the exposure of domestic businesses and consumers to that currency risk.[5]

In addition, those network effects can lead to a virtuous circle. The greater the diversity of governments, consumers, investors, and businesses that use a currency, the greater and more stable the demand for that currency should be. Persistent increases in demand for an international currency not only will boost its foreign exchange value but also will lead to a deepening of the markets for that currency. That deepening of a currency's markets will reduce the exchange rate risk associated with holding the currency and improve its ability to store value over time.

The strength of those network effects depends on the various costs associated with switching from an international currency to a less widely used currency. When switching costs are large, they provide large disincentives to transition to a new currency. Changes in technology can reduce those switching costs by helping to create new liquid markets for currencies and by reducing transaction costs for operating in different currencies.[6] As a result, technology may be reducing those switching costs; the importance of network effects in supporting an international currency's use will probably continue to decline.

History of International Currencies

Historically, many international currencies have existed at the same time. The vast majority have been used regionally or in only a few countries. For limited periods over the past five centuries, however, a single currency has emerged as the dominant global currency, or the primary international currency.

Primary International Currencies Before 1950

Over the past five centuries, there have been three primary international currencies. For this paper, a primary international currency is defined as the most widely used international currency that serves all three functions of money (store of value, medium of exchange, and unit of account) for international transactions. The Dutch florin (or guilder) was the primary international currency for most of the 17th century.[7] Then, by the early 19th century, the British pound emerged as the primary international currency and lasted until the early 20th century. By the middle of the 20th century, the U.S. dollar overtook the pound to become the dominant

[5] Use of an international currency as a foreign exchange anchor also results in increased use of that currency as an intervention currency (one used by central banks to intervene in foreign exchange markets). To maintain a managed exchange rate, central banks often intervene by buying or selling assets denominated in the anchor currency.

[6] For example, online access to foreign exchange markets enables businesses and consumers to exchange currencies more cheaply and quickly than they could in the past.

[7] Some experts do not consider the Dutch florin to have been a primary international currency because its use did not extend beyond Europe.

international currency. Before the Dutch guilder, some widely used international currencies existed, but their use was limited (as is the availability of data to study their proliferation), and they all failed to exhibit some of the more critical functions of international currencies.[8]

In the 17th century, the Dutch florin became the first primary international currency owing mostly to the establishment of the Bank of Amsterdam as the world's first central bank.[9] Established in 1609, the Bank of Amsterdam provided critical financial services for merchants in and around Amsterdam. By creating the florin, the bank set a standardized unit of account for financial and trade transactions; the bank also monitored the metallic content of coins in circulation (which discouraged the debasement of coins) and provided transaction settlement services to both domestic and foreign agents.[10] Those services encouraged the florin's use outside of the Dutch Republic. Evidence suggests that the florin served as a European vehicle currency (defined as a currency used to facilitate international transactions between businesses, consumers, and investors from countries that issued less widely used currencies), with the value of transactions cleared by the Bank of Amsterdam peaking in the 1670s at 1.5 times the annual gross domestic product (GDP) of the Dutch Republic.[11] In their 2016 paper, Stephen Quinn and William Roberds wrote, "It was fairly commonplace for … a merchant in, say, London to pay for goods imported from, say, Gdansk [Poland] with a bill drawn on Amsterdam." By maintaining financial stability in the Dutch Republic from the 17th century through the 18th century, the Bank of Amsterdam also established the florin as a European unit of account and a reliable store of value. By the mid-18th century, nearly 85 percent of all European cities' banks accepted florins for the settlement of claims.[12]

The dominance of the florin ended in the late 18th century. That decline resulted from a loss of confidence in the Bank of Amsterdam after the City of Amsterdam extracted equity from the bank to help fund a war against Britain, and the loans that the bank made to the Dutch East India Company failed to perform. As confidence in the Bank of Amsterdam and its florin waned, the British pound began to overtake the Dutch florin as the primary international currency in Europe.

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[8] Those older international currencies include the Spanish dollar, Venetian ducat, and Florentine florin.

[9] Before the 17th century, there were a number of international currencies, but they were mostly regional currencies whose use was limited in scope and not backed by any central monetary authority.

[10] Unlike modern central banks, the Bank of Amsterdam did not issue its own coin and did not purchase government assets to back its liabilities.

[11] See Kahn, Quinn, and Roberds (2014).

[12] See Flandreau and others (2009).

From the early 1800s until the 1930s, the British pound was the primary international currency.[13] During that period, the British economy was in its ascendancy as it became the largest economy in the world, and it dominated global trade flows. British economic strength encouraged the global use of its currency, the pound (or the pound sterling). The emergence of the pound as an international currency was also supported by two trends in the international monetary system: the adoption of the gold standard, and the use of foreign exchange reserves to supplement gold supplies.

The first trend was the expansion of gold convertibility, or the gold standard, which pegged currencies to a standard value of gold and crucially allowed holders to convert their currency holdings to gold at low cost. Under the gold standard, the global supply of money was tied to the global supply of gold, a relationship that often led to economic and financial volatility. A critical issue with the gold standard as the basis for the global financial system was that changes in the global demand for currency (which fluctuated with economic conditions) were not always matched by changes in the supply of gold (which is determined by mining activities and other factors). For example, if gold mines were less productive than normal, the money supply would grow more slowly and, as a result, money could become scarce, reducing the availability of credit and putting downward pressure on prices. Those types of shocks to the supply of gold led to disruptive fluctuations in credit conditions and prices that had costly spillover effects for the global economy. In addition, expanding the money supply in any country required purchasing and incurring costs involved with transporting gold supplies.

In response to those issues with the gold standard, central banks began to purchase and sell foreign exchange reserves to supplement their holdings of gold. Foreign exchange reserves are assets denominated in convertible international currencies and purchased by central banks. Those assets include foreign government debts and callable deposits at foreign private banks or central banks. The foreign exchange reserves allowed central banks to control the domestic money supply without needing to buy and sell gold (or other metals). As central banks began using foreign exchange reserves denominated in convertible international currencies, the global money supply became less closely tied to the stock of gold. Partially detethering money growth from gold supplies helped reduce some of the credit and price volatility inherent in the gold standard system. However, the use of foreign exchange reserves introduced new risks to the conduct of monetary policy because central banks holding international bonds or deposits at foreign banks

[13] Although the pound sterling was the most widely used international currency over that period, the French franc and the German mark also saw significant international use as well. Evidence from Lindert (1969) suggests that in 1913, the franc and the mark accounted for roughly 25 percent and 14 percent, respectively, of the global foreign exchange reserves for which the currency denomination was known. That compares with a 42 percent share for the pound sterling.

were subject to the risks that foreign governments or banks would default on their obligations and the risk that foreign central banks would suspend convertibility.

The best assets to be used as foreign exchange reserves are those backed by credible authorities, with open capital markets. Great Britain was one of the first nations to commit to convertibility for their currency and, by successfully maintaining their peg over decades, established the pound as a credible store of value. By virtue of having maintained their gold standard for longer than all other countries, British assets were generally deemed internationally credible. In addition, Great Britain had a well-developed financial system and was the world's largest gold market. As a result of both of those characteristics, the pound was the most widely used currency for foreign exchange reserves.

International Currencies Since 1950

Since the mid-20th century, roughly 10 international currencies have been in use at any given time. Some international currencies—such as the U.S. dollar, European euro, and Japanese yen—experience strong global use. The use of other currencies—such as the Australian dollar, Swiss franc, and Canadian dollar—is more regional or limited to certain types of products or transactions. Of those currencies with more regional use, the Chinese renminbi has experienced strong growth in use over the past decade.

After World War II, the U.S. dollar emerged as the primary international currency, surpassing the pound. As part of the Bretton Woods agreement in 1944, the dollar was established as the global anchor currency, which meant that most developed economies agreed to maintain a fixed peg with the U.S. dollar (while the dollar's value remained pegged to gold).[14] That arrangement differed from what took place under the gold standard, where each country separately pegged the price of its currency to gold. To maintain fixed exchange rates with the dollar under Bretton Woods, international central banks committed to intervening in foreign exchange markets by buying and selling dollar-denominated foreign exchange reserves. As a result, use of the dollar as a reserve currency and an intervention currency rose. Growth in official use of the dollar was mirrored by rising private use of the dollar, which became a vehicle currency and global unit of account for trade and financial transactions. In 1971, the Bretton Woods system effectively ended as the United States terminated its policy of dollar convertibility, severing the peg between the dollar and gold due to pressures from rising oil prices and high inflation. Yet even after that break, the dollar maintained its dominant position as the primary international currency.

[14] The Bretton Woods agreement and system created a collective international currency exchange regime based on the U.S. dollar and gold. That system of monetary management established rules for commercial and financial relations among the United States, Canada, Western European countries, Australia, and Japan after World War II.

The Dollar's Current Status as an International Currency

As of 2023, the U.S. dollar remains the primary international currency, although some metrics suggest the dollar's strength has eroded over the past two decades. Dollar-denominated assets, such as U.S. Treasury securities, account for the largest share of all foreign exchange reserves held by central banks around the world. As an international unit of account, the dollar is still the most popular international currency for setting trade prices and for denominating financial assets. In addition, evidence suggests that the dollar remains the most commonly used anchor currency by international central banks.

Reserve Currency

The U.S. dollar is the leading global reserve currency by a wide margin, although its share of total global reserves has been declining since the 1970s. After overtaking the pound in the 1950s, the dollar's share of allocated global reserves rose to around 80 percent by the mid-1970s (see Figure 2).[15] From the 1970s through 2020, the dollar's share of allocated global reserves has declined.[16] As of 2020, the share of allocated reserves held in U.S. dollars was roughly 60 percent; no other currency had a share above 25 percent.

The recent gradual decline in the dollar's share of global reserves reflects a diversification in reserve holdings into historically less widely used currencies rather than an increase in reserve holdings of other major international currencies (such as the yen, pound, or euro). Evidence from Serkan Arslanalp, Barry Eichengreen, and Chima Simpson-Bell (2022) suggests that increases in reserve holdings in Chinese renminbi account for one-quarter of the dollar's decline, and currencies of smaller economies (such as the Australian dollar, Canadian dollar, Swiss franc, and Swedish krone) account for the remainder of that decline. The authors point to evidence of declining transaction costs associated with exchanging less widely used currencies as a reason for the rise in the use of those nontraditional reserve currencies.

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[15] Evidence from Avaro (2021) suggests that the transition from the pound sterling to the dollar as a reserve currency following World War II would have taken place much quicker if not for "exchange controls, commercial threats, and economic sanctions employed by the British authorities on sterling area countries to constrain them to keep their foreign exchange reserves in sterling." In her paper, Maylis Avaro argues that those actions taken by the United Kingdom slowed the ability of many former colonies of Great Britain from liquidating their sterling reserves and purchasing dollars.

[16] Data on the currency compositions of international reserves are collected by the IMF and published in their Currency Composition of Official Foreign Exchange Reserves (COFER) Database. In that database, international reserves are divided into two categories: allocated reserves and unallocated reserves. When the reporting country identifies the currency denomination of their international reserves, those reserves are referred to as allocated reserves. In contrast, unallocated reserves are international reserves for which the currency denomination is unknown. Reporting to the IMF about the currency denomination of reserves has generally increased over time and as a result, allocated reserves have grown from roughly 75 percent of total reserves in 1995 to nearly 95 percent as of 2022.

Invoicing Currency

The dollar's use as an invoicing currency for trade also remains strong. Emine Boz and others (2022) describe the dollar's dominance in global invoicing by showing that the share of global exports denominated in dollars in 2019 (roughly 40 percent) far exceeds the share of global exports destined for the United States (roughly 10 percent). The euro's use as an invoicing currency is slightly stronger, at nearly 50 percent. However, those invoicing shares are inflated because they include the volume of trade among European countries that use the euro. If exports to the United States or euro zone countries are removed from the sample, the dollar's invoicing share rises to nearly 60 percent, indicating the global popularity of invoicing in U.S. dollars.[17]

In addition, the dollar remains a dominant international currency for denominating financial assets and settling financial transactions. Matteo Maggiori, Brent Neiman, and Jesse Schreger (2019) show that as of 2017, roughly 60 percent of all cross-border corporate bonds were denominated in U.S. dollars. (In comparison, the euro's share was roughly 20 percent.) Carol Bertaut, Bastian von Beschwitz, and Stephanie Curcuru (2021) provide evidence for the continued strength of the dollar in international banking, showing that as of 2020, just under 60 percent of all foreign currency liabilities were denominated in dollars.[18] Combining use in trade and financial transactions, data from SWIFT (a financial messaging system used to facilitate global financial transactions) suggest that the dollar's share of all international trade and financial payments was roughly 40 percent in 2021, only slightly larger than the share of the other major currency used in international settlement, the euro (see Figure 3).

Anchor Currency

Although the dollar's use as an anchor (or reference) currency is significantly stronger than that of any other currency, including the euro, the dollar's strength as an anchor currency has eroded slightly over the past decade. Research from Ethan Ilzetski, Carmen Reinhart, and Kenneth Rogoff (2019), who study trends in global anchor currencies over time, suggests that the dollar's use as an anchor currency, as measured by the share of world countries that use the dollar as an

[17] Chen, Chung, and Novy (2022) examined the invoicing of imports into the United Kingdom and found that transactions invoiced in international currencies accounted for 55 percent of all imports (and the dollar's share of those was roughly 85 percent). Bertaut, von Beschwitz, and Curcuru (2021) show that between 1999 and 2019, the share of exports denominated in U.S. dollars averaged 96 percent for countries in North and South America, 74 percent for countries in the Asia-Pacific region, roughly 20 percent for European countries, and about 79 percent for the rest of the world. Also see Gopinath and others' (2020) "Dominant Currency Paradigm" and Goldberg and Tille (2008).

[18] Bertaut, von Beschwitz, and Curcuru (2021) provide evidence of the dollar's strength as a vehicle currency. Using data from the Bank for International Settlements (BIS), they show that in 2019 nearly 90 percent of all over-the-counter foreign exchange transactions involved U.S. dollars. The currency with the next largest share of use in foreign exchange transactions was the euro, at roughly 25 percent.

anchor (weighted by their share of global GDP) peaked in 2015 at 62 percent (see Figure 4).[19] By 2019, however, that share had declined, to roughly 45 percent, which is about the same as it was during the late 1980s and early 1990s.[20] Part of that decline was the result of China's decision to switch from using the dollar as an anchor for its renminbi to using a basket of currencies as an anchor. The next most widely used anchor currency in 2019 was the euro; the share of world countries (weighted by their share of global GDP) that use it as an anchor currency is less than half of the share of countries that use the dollar, though.

Economic Implications of the Dollar's International Role

The dollar's status as the primary international currency since the 1950s has affected the U.S. economy in four ways. The most salient of those effects is a higher value of the dollar in foreign exchange markets. That stronger dollar has reduced the competitiveness of U.S. exports in global markets, increased the affordability of imports for domestic consumers and businesses, and reduced the U.S. trade balance (which is the difference between U.S. exports and imports). The second economic effect of the dollar's status is the spillover effect from greater demand for dollars to greater demand for financial assets denominated in dollars; stronger demand for those assets has boosted their prices, increased the availability of domestic credit, and reduced U.S. interest rates. Those financial effects have supported domestic investment and consumption in the United States but also raised the risk of asset price bubbles (which occur when the market price of an asset exceeds its price determined by fundamental factors by a significant amount for a long period). The third economic consequence for the United States is lower transaction costs for domestic businesses involved in international trade and financial transactions. The fourth economic effect is a transfer of wealth from the United States to the rest of the world during periods of global economic volatility. Those transfers result from differences in the asset compositions of international portfolios and the increased demand for safe assets that tends to occur during those periods.

Higher Foreign Exchange Value

The international use of the dollar has boosted demand for U.S. dollars and has increased their value in foreign exchange markets. Evidence suggests that greater foreign demand for a country's assets (for a given supply of those assets) can raise the exchange value of its

[19] The findings in Ilzetski, Reinhart, and Rogoff (2019) are supported by earlier works that study anchor currencies, such as those by Meissner and Oomes (2009) and Levy-Yeyati and Sturzenegger (2005).

[20] For simplicity in this paper, all foreign exchange ties are labeled anchor currencies. Ilzetzki, Reinhart, and Rogoff (2019) separate strict fixed exchange rate regimes (which they call anchor currencies) from managed floating exchange rate regimes (which they call reference currencies). The authors found that in 2015, 65 percent of world GDP used the dollar as an anchor, while 5 percent of global GDP used the dollar as a reference currency. The authors also show that de-facto foreign exchange regimes have moved away from strict fixed systems (anchors) and toward more flexible managed and crawling-peg (reference) regimes.

currency.[21] The accumulation of dollar-denominated foreign exchange reserves by central banks in emerging market economies that impose capital controls has probably also raised the real (inflation-adjusted) value of the U.S. dollar.[22] In addition, recent literature has shown that debt assets denominated in dollars tend to have higher prices (and therefore earn lower rates of return) than comparable assets denominated in other currencies.[23] Part of that difference can be attributed to the special role of the dollar in the global economy and the premium that investors pay for owning assets denominated in that currency.

Strong demand for dollars and dollar-denominated assets from foreign central banks has increased the foreign exchange value of the dollar. In particular, the rapid accumulation of dollar-denominated foreign exchange reserves among emerging market central banks from the mid-1990s to the early 2010s drove up the value of the dollar in foreign exchange markets. By purchasing dollar-denominated assets and selling local currency in foreign exchange markets, foreign central banks increased the exchange value of the dollar in terms of local currency, resulting in a depreciation of their local currency. The depreciation of the local currency relative to the dollar increased the competitiveness of domestic exports in U.S. goods markets, supporting those countries' export industries. That policy of exchange rate management was conducted most notably by the People's Bank of China.[24] The accumulation of dollar reserves by foreign central banks has slowed considerably since around 2012 and, consequently, estimates from the literature suggest that the dollar's foreign exchange value has become less artificially inflated than it was during the prior period of rapid reserve accumulation.[25]

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[21] Evidence from Engel and Wu (2019) suggests that changes in demand for assets denominated in international currencies can be used to explain movements in exchange rates.

[22] In a country without capital controls, if a central bank accumulated foreign exchange reserves by selling local currency with the goal of keeping its domestic currency undervalued, capital flows and price changes would offset the effects of any foreign exchange intervention on the real exchange rate. That reserve accumulation would decrease the value of domestic assets and would encourage domestic and foreign investors to sell foreign assets to buy undervalued domestic currency assets, thereby pushing the real exchange rate back into equilibrium. However, if foreign investors are prevented from purchasing domestic assets or domestic investors are prevented from selling those assets, real exchange rate deviations resulting from reserve accumulation can persist. See Choi and Taylor (2022).

[23] Evidence in Jiang, Krishnamurthy, and Lustig (2021) suggests that a country's exchange rate appreciates whenever foreign investors increase their valuation of the convenience properties of that country's safe assets. That convenience property refers to the value of holding that asset in excess of the financial benefits, and it reflects the network externalities that are associated with international currencies. Also see Du, Tepper, and Verdelhan (2018).

[24] Research suggests that the Chinese renminbi was undervalued between 10 percent and 30 percent relative to the dollar during the 2000s. Estimating the extent to which a currency is undervalued requires establishing an equilibrium real exchange rate suggested by economic fundamentals that would be observed if not for exchange rate policies conducted by foreign central banks. See Cline and Williamson (2010) and Subramanian (2010).

[25] See Bergsten and Gagnon (2017).

By increasing its foreign exchange value, the dollar's status has probably contributed to large and persistent U.S. trade deficits (see Figure 5). A stronger exchange value in foreign exchange markets is associated with weaker export growth and reductions in the country's trade balance (exports minus imports).[26] For a country such as the United States, whose import and export prices tend to be denominated in its own currency, a stronger currency tends to reduce the competitiveness of exports in foreign economies.[27] For importers of U.S. products, a stronger dollar increases the amount of local currency needed to purchase a dollar. When trade prices are set in dollar terms, those changes in the exchange rate immediately affect the affordability of U.S. products for foreign buyers. Because U.S. import prices are set in dollar terms, exchange rate changes tend to have little immediate effect on the prices paid by U.S. consumers and businesses for imports. Instead, appreciation in the value of the U.S. dollar tends to widen the U.S. trade deficit, mostly by adjusting U.S. export flows.[28] Like the United States, Great Britain ran persistent trade deficits while the pound was the primary international currency in the 19th and early 20th centuries (see Figure 6).

Greater Demand for Dollar-Denominated Assets

Because of the dollar's status as an international currency, demand for dollar-denominated assets is greater, leading to higher U.S. equity prices and lower U.S. interest rates than they would have been if the dollar was only used domestically. That increase in demand for dollar-denominated assets arises because dollar-denominated debt or equity assets tend to be a better store of value than U.S. dollar bills or dollar-denominated bank reserves at the Federal Reserve (which generate no or low rates of interest, respectively). As a result, international investors—both private and official—that wish to store wealth in assets denominated in dollars will often opt to purchase higher-yielding dollar-denominated assets.[29]

Private and official international investors store their wealth in dollar-denominated assets for a number of reasons. First, investing in dollar-denominated assets is useful for investors who may need to eventually use dollars for other financial and merchandise transactions.[30] Storing wealth

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[26] Freund and Pierola (2016) show that export surges tend to be preceded by real depreciations of a country's currency. Rodrik (2008) presents evidence that overvalued exchange rates dampen economic growth. Bernard and Jensen (2004) attribute a large share of the U.S. export boom of the 1980s to the decline in the exchange value of the dollar.

[27] Gopinath (2016) examines the invoicing of global trade contracts and shows the implications of a price system in which both import and export prices tend to be denominated in very few international currencies. Building off Gopinath's work, Ha, Stocker, and Yilmazkuday (2020) find evidence of strong pass-through of dollar appreciations into import prices for U.S. trading partners and associated declines in imports from the United States.

[28] See Goldberg and Tille (2006).

[29] For private and official investors, safe debt assets provide a better store of value than currency itself.

[30] Forbes (2010) documents that countries who trade more with the United States have larger shares of U.S. assets in their international financial portfolios.

in dollar-denominated assets limits the risk that exchange rate fluctuations will affect the purchasing power of that wealth and reduces the transaction costs associated with exchanging dollars for assets in another currency. Second, dollar-denominated asset markets have been the deepest and most developed of all international financial markets.[31] In fact, financial institutions outside the United States created dollar-denominated deposit accounts (known as eurodollar accounts) and dollar-denominated bonds (known as eurobonds) because of the high demand for dollar-denominated assets. As a result, dollar markets were the only ones large enough to accommodate the demand from large international investors, central banks, and sovereign wealth funds looking for assets in which to store their wealth.[32]

That strong foreign demand for dollar-denominated assets has resulted in large and persistent inflows of foreign investment into the United States, especially since the mid-1990s (see Figure 7). Gross foreign holdings of U.S. assets rose from 49 percent of U.S. GDP in 1995 to 218 percent of U.S. GDP by 2021.[33] Contributing to that rise in gross foreign holdings of U.S. assets was the "global saving glut" described by former Chair of the Federal Reserve Ben Bernanke as the significant increase in global saving, coming mostly from emerging market economies.[34] There were a number of explanations for that saving glut, including the accumulation of reserves by foreign central banks to insure against foreign exchange shocks and the purchase of dollar-denominated assets by major global exporting countries (and, in particular, energy exporters) to store their wealth.

Since the early 1990s, foreign demand for U.S. assets has increased across nearly all asset classes. Foreign central banks have tended to exchange their dollar currency for safe dollar-denominated debt (mostly Treasury securities), and private investors have purchased more diverse portfolios of dollar-denominated assets (including equities, private debt, and direct investments). In addition, the governments of several energy-exporting countries established sovereign wealth funds that used the dollar-denominated export revenues to invest in a wide variety of dollar-denominated U.S. assets.

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[31] Chinn and Ito (2007) find that greater financial market development and a larger supply of government debt for developed economies lead to stronger capital inflows.

[32] Forbes (2010) finds evidence that countries with less developed financial markets tend to hold a greater share of U.S. assets.

[33] That substantial rise in gross international investment was not limited to holdings of U.S. assets. For example, gross holdings of Japanese assets rose from less than 25 percent in 1980 to about 125 percent in 2018. See Colacelli, Gautam, and Rebillard (2021).

[34] Federal Reserve Board Governor Ben S. Bernanke, "The Global Saving Glut and the U.S. Current Account Deficit" (remarks given at the Sandridge Lecture, Virginia Association of Economists, Richmond, Va., March 10, 2005), www.federalreserve.gov/boarddocs/speeches/2005/200503102/.

Lower Interest Rates

Strong international demand for dollar-denominated debt increases the price of U.S. debt assets, reducing U.S. interest rates. Results in a recent paper suggest that the dollar's status may have had a large effect on U.S. government borrowing rates.[35] Those results indicate that because of the dollar's status, between 1988 and 2017, foreign investors accepted a yield on their holdings of one-year U.S. government debt that was 1.8 percentage points lower, on average, than the yield earned on safe government debt issued by other Group of Ten (or G10) countries, a group of industrialized nations that have similar economic interests.

Other estimates suggest a smaller effect of the dollar's status on U.S. government borrowing rates. Evidence from Du, Im, and Schreger (2018) suggests that foreign investors have earned 0.2 to 0.3 percentage points less yield on their short-term U.S. government debt holdings than they have for alternative safe-haven government debt, partially because of the dollar's status.[36] Earlier papers have supported that finding by showing that the large inflows of foreign capital have depressed interest rates on U.S. Treasury securities to a similar extent.[37] Although the dollar's status as the primary international currency has reduced interest rates in the United States, losing that status would not necessarily imply substantially higher borrowing costs as evidenced by the relatively low interest rates observed in other developed economies over the past three decades.

Lower U.S. interest rates tend to boost U.S. economic output by allowing businesses, households, and the government to borrow more cheaply than they could have otherwise. By reducing the cost of capital, lower interest rates stimulate additional investment and help expand the domestic capital stock. In addition, lower borrowing costs support consumption by allowing consumers to buy housing and some durable goods more cheaply than they could otherwise. Furthermore, lower interest rates reduce the long-run cost of government spending, including the costs associated with crowding out private investment.[38]

There are some costs associated with lower interest rates, however. One such cost is an increased risk of asset price bubbles, which occur when the market price of an asset deviates from its fundamental (or underlying) value. Evidence from the literature suggests that the lower interest

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[35] See Jiang, Krishnamurthy, and Lustig (2021).

[36] The results in Du, Im, and Schreger (2018) suggest that before 2008, foreign investors were willing to pay a similar premium for longer-term U.S. government bonds (5-year and 10-year), but in the years since, that estimated premium on longer-term U.S. government bonds has disappeared.

[37] Warnock and Warnock (2009) show that foreign purchases reduced the yield on 10-year U.S. Treasury debt by about 50 basis points. (A basis point is one-hundredth of a percentage point.) Chinn and Kitchen (2012) showed that for foreign official flows equaling 1 percent of U.S. GDP, 10-year Treasury yields fell between 35 and 45 basis points.

[38] See Huntley (2014) for CBO's description of how federal deficits affect domestic and foreign investment.

rates and the increased supply of dollar-denominated credit resulting from the global saving glut probably contributed to the housing price bubble in the mid-2000s.[39] In addition, lower interest rates reduce returns for domestic savers, slowing the speed at which savers can grow their wealth and making it more challenging for U.S. households to save for retirement.

Lower Current Account Balance

The dollar's status as the primary international currency has also contributed to the increase in the United States' indebtedness to the rest of the world since the 1980s. That increasing indebtedness arose mostly from persistent U.S. trade deficits, which were financed through a net outflow of income to the rest of the world, also known as a current account deficit. Even though the dollar's status has probably reduced the U.S. current account balance, issuing the primary international currency does not guarantee that a country will necessarily run current account deficits.

A country's current account balance is equal to the difference between domestic saving and domestic investment. When domestic saving exceeds domestic investment, the country runs a current account surplus, and the country is a net lender to the rest of the world. Countries with current account surpluses accumulate foreign assets as payment for their international lending.[40] When domestic saving is less than domestic investment, the country runs a current account deficit, and the country is a net borrower from the rest of the world. Countries with current account deficits finance those deficits by selling domestic assets to foreign investors.

Although the United States has issued the primary international currency since the 1950s, it only started running current account deficits in the early 1980s. From the 1950s through the early 1980s, domestic saving roughly offset domestic investment, and the current account was balanced. Since the early 1980s, however, U.S. investment has persistently exceeded U.S. saving, and the United States has run current account deficits (see Figure 8). As a result, U.S. indebtedness to the rest of the world has steadily grown over the past four decades (although there have been some years during which indebtedness has fallen). All else being equal, stronger demand for dollar-denominated assets from international investors has probably lowered the U.S. current account balance and contributed to those current account deficits. But domestic saving also plays a critical role in determining the current account balance, and the decline in the domestic saving rate since the early 1980s has contributed to persistent U.S. current account deficits as well.

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[39] That information comes from various speeches given by Ben Bernanke (2007), Janet Yellen (2009), Maurice Obstfeld and Kenneth Rogoff (2009), and Larry Summers (2014).

[40] Countries with current account surpluses run capital account deficits. The capital account measures net flows of investment into a country. A negative capital account reflects positive net outflows of investment but an increase in net ownership of foreign assets.

Even though the dollar's international status has tended to boost foreign demand for U.S. assets and reduced the U.S. current account balance, it does not imply that the U.S. economy must run current account deficits. One reason that the United States does not necessarily need to run current account deficits is that U.S. saving could be high enough to offset the large foreign demand for dollar-denominated assets. The elevated international demand for dollar-denominated assets encourages the United States to supply a sufficient amount of dollars and dollar-denominated assets to the rest of the world. However, if domestic saving was higher (as it was before 1980) and U.S. demand for foreign assets rose, purchases of international assets by U.S. investors could increase to offset the high rates of foreign investment and thus eliminate the current account deficit.

The second reason that the dollar's status does not necessitate a current account deficit for the United States is that foreign countries are also able to supply dollars and dollar-denominated assets to the global economy by issuing liabilities, known as eurodollars and eurobonds. Because foreign countries can issue dollar-denominated assets, it is not necessary for international investors to buy U.S. assets to meet their demand for assets denominated in dollars. In practice, however, the United States has needed to serve as a lender of last resort to provide a dollar backstop to those foreign financial institutions when issues with the dollar's liquidity arise. Historically, the Federal Reserve has supplied that liquidity through swap lines that provide dollar funding to the world in times of financial volatility. Without the Federal Reserve's willingness to supply dollars at those times, the demand for eurodollars and eurobonds would most likely diminish.

Great Britain provides an example of a country that issued the primary international currency yet did not run current account deficits. For most of the period during which it supplied the primary international currency, Great Britain ran persistent trade deficits but maintained current account surpluses (see Figure 6). That divergence between the British trade deficit and its current account surplus can be explained by the substantial net international income surplus earned by British investors on their foreign asset holdings. That income surplus came from two sources: net positive interest income and large positive net transfers. British international lending, especially to British colonies, supported Great Britain's large net interest surplus, and income transfers from colonies also contributed to the large net positive income flow. In addition, before the 20th century, demand by the world's central banks for foreign exchange reserves and demand by private investors for international investments were much lower than they were in the 20th century and beyond. The weaker demand for pounds and pound-denominated assets, relative to international demand for dollars today, put less downward pressure on the British current account than has been placed on the U.S. current account since the dollar's emergence.

Reduced Transaction Costs

Because the United States issues an international vehicle and invoicing currency, U.S. consumers and businesses benefit from lower costs for trade and financial transactions. The reason that

transaction costs are lower in the United States is that consumers and businesses in countries that do not issue vehicle currencies need to exchange their domestic currency into (or out of) a vehicle currency to purchase (or sell) most goods, services, and financial products in international markets. The foreign exchange transactions needed to transform domestic currency into a vehicle currency (and back again) impose small costs on all international purchases or sales.[41] U.S. businesses and consumers avoid paying those small foreign exchange costs, though, because the dollar is a vehicle and the primary invoicing currency for nearly all U.S. trade and financial transactions. Lower costs for international transactions would reduce consumer prices and businesses' expenses relative to the prices and expenses for consumers and businesses in countries that do not issue vehicle currencies.[42]

Wealth Transfer in Times of Volatility

As the issuer of the primary international currency, the United States tends to experience an outflow of wealth to the rest of the world in times of global economic volatility. That transfer of wealth—referred to as the dollar's "exorbitant duty" in a paper by Pierre-Olivier Gourinchas and Helene Rey (2022)—arises through two channels.[43] The first channel is changes in exchange rates. The international value of the dollar tends to rise during times of crisis because of the tendency of international investors to seek dollars and dollar-denominated assets at those times (sometimes described as a "flight to quality"). The stronger dollar increases the value of dollar-denominated foreign financial portfolios when measured in units of domestic currency. Conversely, U.S. investors holdings assets denominated in foreign currencies see the value of those assets decline in dollar terms.

The second channel through which wealth is transferred from the United States to the rest of the world in periods of economic volatility is valuation effects relating to differences between the composition of the U.S. portfolio of international assets and the foreign portfolio of U.S. assets. In times of crisis, debt assets tend to outperform equity assets. Because foreign investors tend to hold a higher share of debt in their portfolio of U.S. assets than U.S. investors hold in their portfolio of foreign assets, the value of U.S. holdings of international assets tends to fall relative to the value of international holdings of U.S. assets, reflecting an indirect transfer of wealth from the United States to the rest of the world.

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[41] Those transaction costs can be approximated through the bid-ask spreads on foreign exchange transactions.

[42] Even though CBO could find no estimates of how the dollar's vehicle currency status has affected domestic prices and costs, a stylized model in Devereaux, Shi, and Xu (2010) shows that the aggregate gains from those lower transaction costs can exceed 1 percent of GDP.

[43] The authors of that paper also refer to the dollar's "exorbitant privilege"—the strength of the dollar in foreign exchange markets that allows the United States to run persistent trade deficits and the relatively low interest rates enjoyed by U.S. households, businesses, and government.

Seigniorage Revenue

The dollar's status allows the U.S. government to earn more seigniorage revenue than it would if the dollar was not the dominant international currency. (Seigniorage is the difference between the face value of money that is created and the cost of producing that money and is a source of profit for governments that produce their own money.) According to the U.S. Mint, the government earns between 30 cents and 40 cents in profit for every dollar's worth of coins issued (that amount fluctuates depending on costs of inputs and production); seigniorage revenue from minting coins totaled roughly 0.5 billion in 2021.[44] For paper money, revenue averages roughly 85 cents per dollar printed.[45] High international demand for U.S. coins and paper bills allows the U.S. government to produce more currency to satisfy that demand without reducing the value of that currency and, in turn, generate more seigniorage revenue from its creation.

Reduced Sensitivity to International Shocks

The dollar's status as the dominant invoicing and anchor currency helps insulate the U.S. economy from external economic shocks. Reflecting the dollar's unique international status in invoicing, evidence from Gita Gopinath and others (2020) shows that U.S. import volumes tend to be less sensitive to changes in bilateral exchange rates than other countries' import volumes. Furthermore, the fact that most transactions for U.S. households and businesses are conducted in dollars means that the U.S. economy is relatively unaffected by changes in monetary policy in other countries; in contrast, the dollar's wide use for the invoicing and settlement of transactions abroad implies that Federal Reserve policy tends to have a material effect on financial conditions and the cost of trade financing in the rest of the world.

The Likelihood of a Transition Away From the Dollar as the Primary International Currency

Although CBO expects that the role of the dollar will continue to gradually diminish over time, the agency considers it unlikely that the dollar would lose its status as the primary international currency over the next 10 years. Beyond the 10-year horizon, CBO expects the dollar's status will continue to erode gradually. The likelihood that the dollar will maintain its status as the primary international currency becomes increasingly uncertain at longer horizons. Evidence from past shifts suggests that transitions between primary international currencies have taken place only after a country overtakes the previous leader in terms of economic size and total trade volume. In addition, past transitions began slowly but were accelerated by financial crises or

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[44] Department of the Treasury, *United States Mint: 2021 Annual Report*, www.usmint.gov/wordpress/wp-content/uploads/2021/12/2021-US-Mint-Annual-Report.pdf, and United States Mint, *Congressional Budget Justification and Annual Performance Plan and Report, Fiscal Year 2021*, https://home.treasury.gov/system/files/266/22.-Mint-FY-2021-CJ.pdf.

[45] Board of Governors of the Federal Reserve System, "FAQs: How much does it cost to produce currency and coins?" www.federalreserve.gov/faqs/currency_12771.htm.

wars. Research from Barry Eichengreen, Arnaud Mehl, and Livia Chitu (2018) suggests that technological advances since the 1950s could hasten the potential transition away from the dollar. Those authors also argue that the transition away from the dollar could result in a multipolar system in which a handful of competing international currencies coexist.

The strongest competitor currencies to the dollar, the euro and the renminbi, both face different obstacles that would probably impede any large increases in their international use. The major obstacle to the expansion of the euro is its economic size. In CBO's estimation, it would be unlikely for economic output in the euro zone to exceed output in the United States over the coming decade. The renminbi has a different set of obstacles that might limit its expanded international use. Although Chinese export flows have already surpassed U.S. export flows and Chinese GDP is likely to overtake U.S. GDP in coming years, restrictions on capital flows and questions about legal protections for international investments make it unlikely that the renminbi would overtake the dollar over the next decade.

Characteristics of Previous Transitions

It is challenging to draw conclusions about the mechanics of transitions between primary international currencies because there have been so few examples of primary international currencies over history. At most, there have been two transitions between primary international currencies to examine—the transition from the florin to the pound, and the transition from the pound to the dollar.[46] However, three factors were common to both transitions: the loss of trade and economic dominance for the country issuing the primary international currency, the emergence of a new leader with developed financial markets, and a triggering event.

Loss of Trade and Economic Dominance. Historical experience and theory suggest that the loss of trade and economic dominance by the country issuing the primary international currency often signals a future transition to the currency of the new leader. When a country's importance to the global economy wanes, the economic incentives that support the international use of its currency can begin to decline. Even after a country loses economic and trade dominance, though, the network effects that support its currency's international status, derived from its wide use and acceptance, can be a powerful force to maintaining that status. Most experts agree that those network effects may delay transitions between primary international currencies, but it is unclear for how long. In fact, the extent to which those network effects delay transitions may have declined since the transition between the pound and the dollar.

[46] The relevance of the transition from the florin to the pound for understanding the likelihood of a transition away from the dollar is limited because of the large differences, in terms of both geographic and technological scope, between the use of the florin in the 17th century and the use of the dollar today.

By the middle of the 18th century, Great Britain had overtaken the Dutch Republic as the world's most prolific trading nation.[47] By the early 19th century, per capita GDP in Great Britain exceeded that measure in the Dutch Republic.[48] The economic and trade dominance achieved by Great Britain then provided the foundation for it to establish its currency as the primary international currency by the middle of the 19th century.

Similar to the transition between the florin and the pound, the transition from the pound to the dollar was preceded by the United States' overtaking Great Britain in terms of its economic size and its trade share in the global economy. Estimates suggest that U.S. real GDP overtook British GDP in level terms around the 1870s and on a per capita basis around the turn of the century. Then, in the 1910s, the United States became the world's largest trading economy as measured by its share of total global trade flows.

Emergence of a New Leader With Developed Financial Markets. Although the economic size of Great Britain provided important advantages to the British pound, its international use was propelled further by the strength of London as a major financial center. That strength took several forms. The consolidation of the British banking system during the 1870s led to growth in international lending and branching, which increased international confidence in the British financial system and its currency.[49] At the same time, London had the world's leading gold market, supported by the gold supply from British colonies. The easy availability of gold in London and the deep money markets there enabled the Bank of England (the central bank of Great Britain) to control prices better than other central banks at the time.[50] In addition, the Bank of England provided the critical function of being the lender of last resort, assuring liquidity when financial markets came under stress. The bank's willingness to accept that role enhanced international confidence in the British financial system and the pound.

The transition from the pound to the dollar was similarly supported by the development of U.S. financial markets. Research suggests that the transition to the dollar was initially restrained because of the lack of a central bank and restrictive financial regulations.[51] Before the establishment of the Federal Reserve in 1913, the United States had no central bank, and the country's financial system was subject to considerably more risk and volatility than the financial

[47] Israel (1989).

[48] Broadberry and Wallis (2017).

[49] Eichengreen, Mehl, and Chitu (2018).

[50] Like modern central banks, the Bank of England conducted open market operations, meaning that it controlled prices and the supply of credit through purchases and sales of financial assets.

[51] Eichengreen, Mehl, and Chitu (2018).

systems of other advanced economies (like Great Britain).[52] The establishment of the Federal Reserve provided stability to the U.S. financial system by serving as a lender of last resort, managing seasonally volatile credit conditions, and facilitating the development of domestic financial markets. At the same time, restrictions on international banking were relaxed to allow U.S. banks to operate foreign branches. By granting U.S. financial institutions the ability to operate internationally, the U.S. government placed them on equal footing to counterpart banks in Britain and other major developed economies.

Triggering Event. In the late 18th century, the decline in the florin's status as an international currency was accelerated by the Dutch Republic's war with Great Britain and the decisions made by the Bank of Amsterdam in response. In 1780, Great Britain declared war against the Dutch Republic (the fourth Dutch-Anglo War) in response to the Dutch recognition of American independence and their sales of arms and munitions to the colonial revolutionaries. To assist the Dutch government in their war effort, the Bank of Amsterdam issued loans to the Dutch government. The Bank of Amsterdam also issued loans to the Dutch East India Company, the multinational trading company chartered in the Dutch Republic, to help the company weather trade disruptions related to the war. When the Dutch Republic eventually lost its war with Great Britain, the loans to the Dutch Republic and the Dutch East India Company fell into default. As a result, the Bank of Amsterdam was forced to significantly devalue the florin. That devaluation led to a deterioration in the currency's international use. Although those triggering events signaled the demise of the florin, the pound would not emerge as the primary international currency until the middle of the 19th century.

Similar to the experience of the florin in the late 18th century, the use of the pound declined steeply as a result of the two world wars. Financial pressures on Great Britain during World War I forced the Bank of England to suspend gold convertibility for the pound.[53] After that war, the expansion of the money supply in Britain needed to finance the war led to a spike in inflation. Those two factors reduced the usefulness of the pound as a store of value and a vehicle currency and precipitated a shift toward the international use of the dollar as a reserve currency (see Figure 2). In the interwar period, the dollar's use as a reserve currency declined as the financial crisis and the Great Depression in the United States encouraged international central banks to reduce their holdings of all foreign exchange reserves, especially those denominated in dollars. The reemergence of the pound was short-lived, though. Similar to the British experience in World War I, the Second World War led to a large expansion of the British money supply, a run-up in British debt, and a decline in the global demand for pounds. Following World War II, the

[52] Before the Federal Reserve was established, two central banks had previously operated in the United States. The First Bank of the United States operated from 1791 to 1811 under a 20-year charter. The Second Bank of the United States was established in 1816, and its charter expired 20 years later (in 1836).

[53] See Crabbe (1989) for a description of the evolution of the international gold standard in the early 20th century.

establishment of the dollar as the global anchor currency through the Bretton Woods system reflected the end of the transition from the pound to the dollar as the primary international currency.

Since the dollar's emergence as the primary international currency, two major financial events have brought the dollar's status into question but ultimately have not reduced its use—perhaps because of the lack of a clear competitor to the dollar at the time of those events. The breakdown of the Bretton Woods system with the end of dollar convertibility was one such event. When the United States suspended convertibility from the dollar to gold, the system of fixed exchange rates among the dollar, gold, and other international currencies began to unravel as exchange rate pegs were slowly relaxed and the dollar value of gold declined. At that point, the international financial community could have migrated to a new international currency. However, the relative strength of the U.S. economy and the network effects that had built up over the previous three decades had reinforced the dollar's strength. In addition, at that time, there was no international currency that was a clear competitor to the dollar. After the dissolution of Bretton Woods, the dollar's international use expanded.

In addition, the global financial crisis of 2007–2008 was another event that did not immediately trigger a transition away from the dollar as the primary international currency. Even though the financial crisis was centered in the United States, global investors responded to the crisis by selling off riskier assets to purchase safe dollar-denominated Treasury securities and other safe U.S. assets. As a result of that increased demand, the value of the dollar rose, interest rates in the United States fell, and international use of the dollar remained strong.[54]

Current Competitors to the Dollar

In CBO's view, the euro and the renminbi are the two currencies most likely to displace the dollar as the primary international currency, but neither is likely to overtake the dollar over the coming decade.[55] The main obstacle for the euro is that the euro zone's economic importance in the global economy (relative to the importance of the United States) is expected to wane. Currently, nominal output in the euro zone (measured in dollar terms) is roughly two-thirds the size of U.S. nominal output. According to CBO's projections, that gap is expected to widen over time as the United States grows at a faster pace than the economies of the euro zone (see Figure 9). Because economic output in the economies of the euro zone is unlikely to overtake U.S. output, it is similarly unlikely for the international use of the euro to exceed the dollar's use over the next 10 years and beyond. Furthermore, the euro zone's limited banking

[54] Evidence from Dominguez, Hashimoto, and Ito (2012) showed that although central bank purchases of dollar reserves slowed during the crisis itself (to a large extent the spike in reserves at the time reflected changes in the valuation of those assets), purchases of dollar reserves returned to their precrisis trend shortly thereafter.

[55] Bertaut, von Beschwitz, and Curcuru (2021) have a similar expectation for the future of the dollar as the primary international currency. See also Chinn (2014).

union (without a common deposit insurance program) introduces an additional risk to the euro zone's financial system that is not as apparent in the financial system of the United States. As a result, CBO projects that international use of the euro is likely to stagnate over the coming decade.

In contrast, real output in the Chinese economy is likely to overtake real output in the United States by the end of the decade, CBO projects, although a number of obstacles may impede the transition from the dollar to the renminbi.[56] The most important of those obstacles are the capital controls imposed by the Chinese government that inhibit the purchase and sale of renminbi and renminbi-denominated assets. Restricting transactions in renminbi and Chinese assets limits the ability of the renminbi to function as a useful medium of exchange. In addition, legal protections for international investors are not as strong in China as they are in most developed economies. Weak legal protections may also limit the renminbi's ability to function as an international store of value. Consequently, CBO projects that the renminbi's use internationally will grow only gradually over the next 10 years. Although material changes in Chinese policies do not appear likely in the near term, international use of the renminbi could grow at a faster pace if China opened its capital markets and improved investor protections.

The long-run outlook for the dollar is less clear. If China opened its capital markets and bolstered investor protections, it seems possible for the renminbi to overtake the dollar as the primary international currency sometime in the next three decades. Alternatively, if China did not enact those reforms, emergence of the renminbi as an international currency might stall (as did the rise of the yen in the 1980s). Over the long run, a multipolar international monetary system could arise in which multiple regional currencies are in use simultaneously without the emergence of a primary international currency.[57] In that scenario, the use of the dollar would continue to erode gradually over time in parallel with the shrinking U.S. share of the global economy. That scenario presumes that no major economic event takes place that might strengthen or weaken the international use of the dollar. For example, a world war or a severe financial crisis in the United States would probably have large and unpredictable implications for the projected path of the dollar over time.

In addition, technological developments are likely to further erode the strength of the dollar in the long run. The emergence of digital currencies (and, in particular, central bank digital currencies) or improvements in financial tools could further reduce transaction costs and costs of currency exchange in a way that would lessen the network effects that support the use of a

[56] Although nominal U.S. imports still exceed nominal Chinese imports, the dollar value of Chinese exports overtook the dollar value of U.S. exports in the early 2000s.

[57] That hypothesis is described in Eichengreen, Mehl, and Chitu (2018).

primary international currency.[58] As a result, the recent trend toward diversification could lead to an international financial environment with many widely used international currencies, some of which may be privately issued.

[58] Prasad (2021).

Table

Table 1.

Functions of International Currencies for Private and Official Agents

Function	Private	Official
Store of Value	Investment Currency	Reserve Currency
Medium of Exchange	Vehicle Currency	Intervention Currency
Unit of Account	Invoicing/Settlement Currency	Anchor Currency

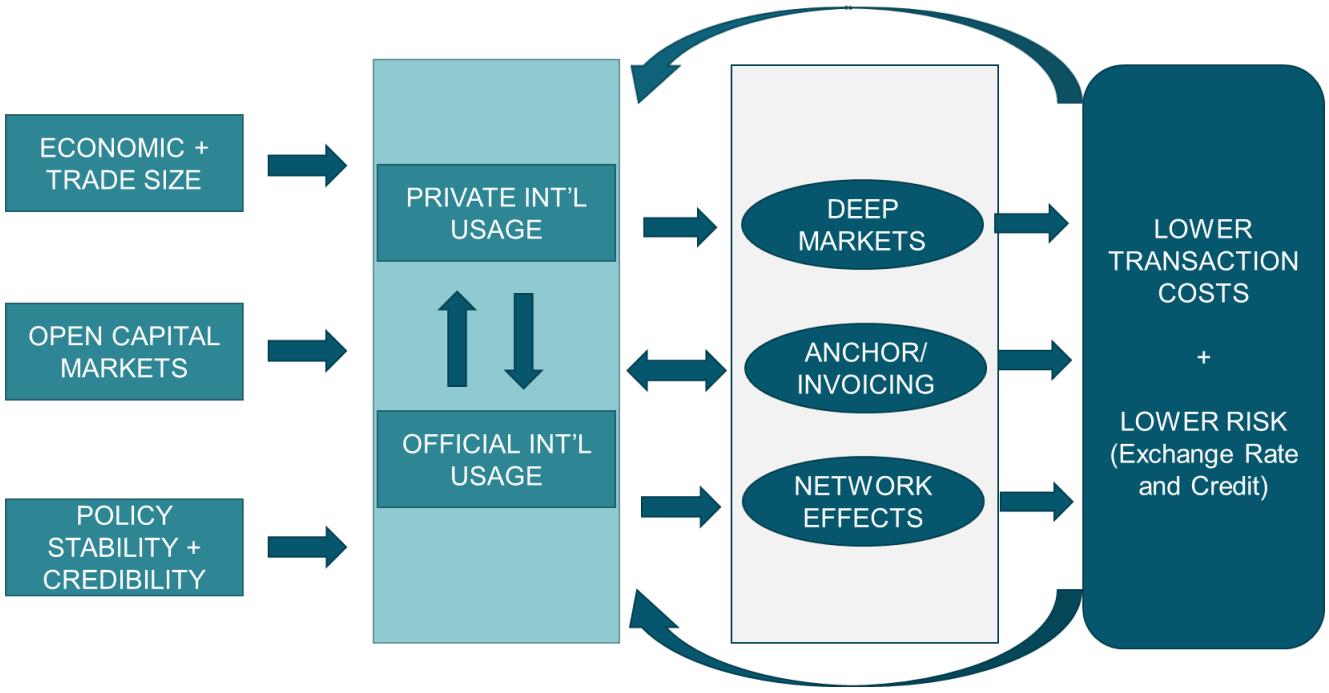
Data source: Based on the framework described in Cohen (1971) and later adapted by Kenen (1983).

Private agents are foreign businesses and households. Official agents are foreign central banks.

Figures

Figure 1.

Factors Conducive to International Adoption of a Country's Currency

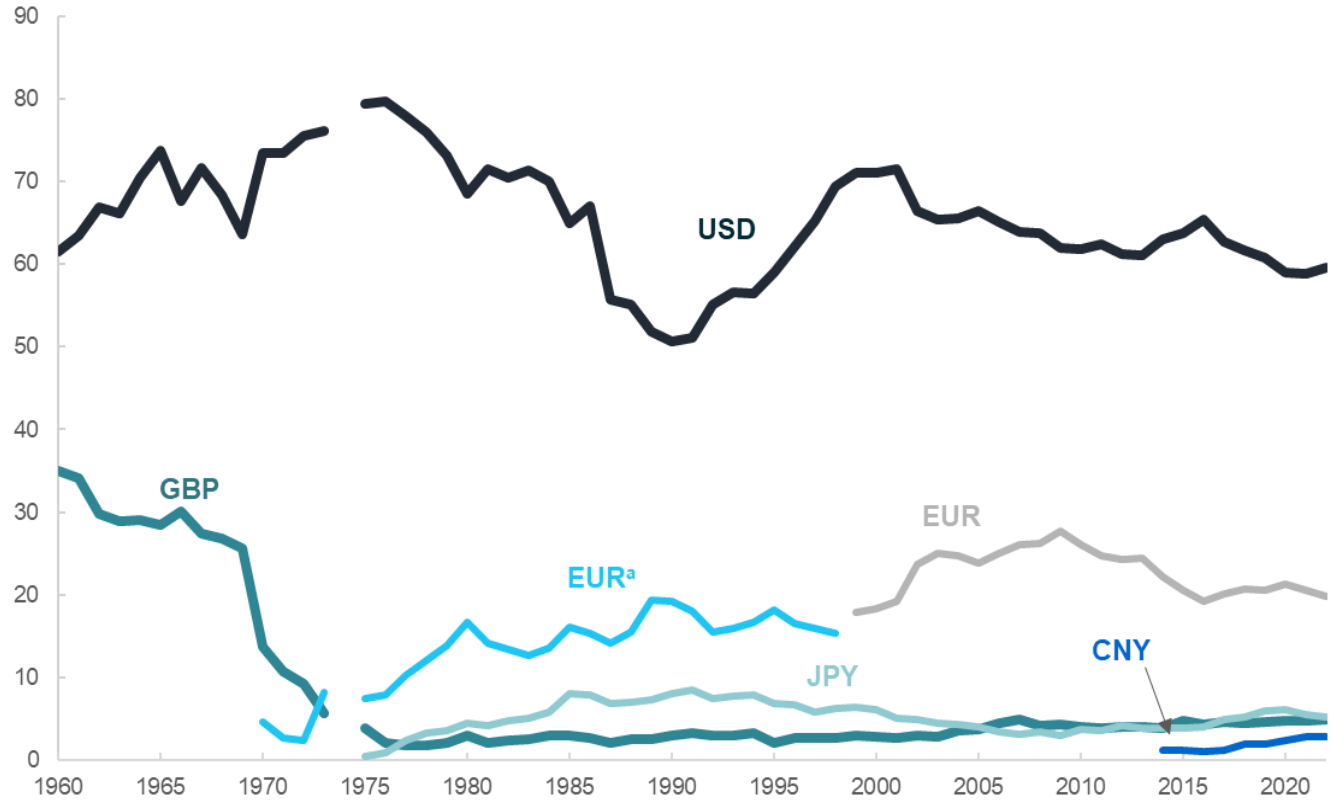


Data source: Congressional Budget Office.

Figure 2.

Currency Shares of Foreign Exchange Reserves in Global Central Banks

Percent



Data sources: IMF's COFER Database; Eichengreen-Mehl-Chitu data on the currency composition of international reserves.

Foreign exchange reserves in this figure reflect data on "allocated" reserves produced by the International Monetary Fund (IMF).

USD = U.S. Dollar

EUR = Euro starting in 1999

EUR[a] = sum of French Franc and German Mark before 1999

JPY = Japanese Yen

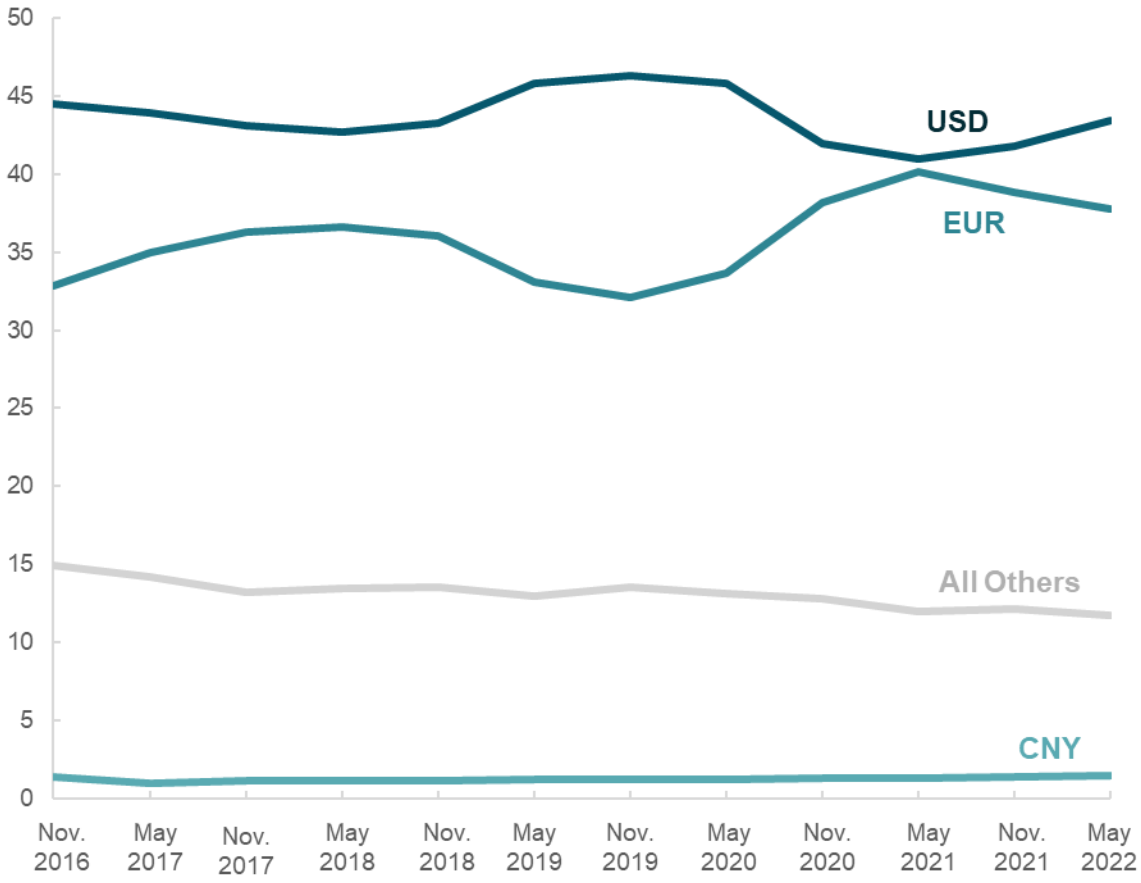
GBP = British Pound

CNY = Chinese Renminbi

Figure 3.

Currency Shares for International Trade and Financial Transactions

Percent



Data source: SWIFT.

Includes shares of all international transactions settled through SWIFT. Excludes transactions within the countries of the euro zone.

USD = U.S. Dollar

EUR = Euro

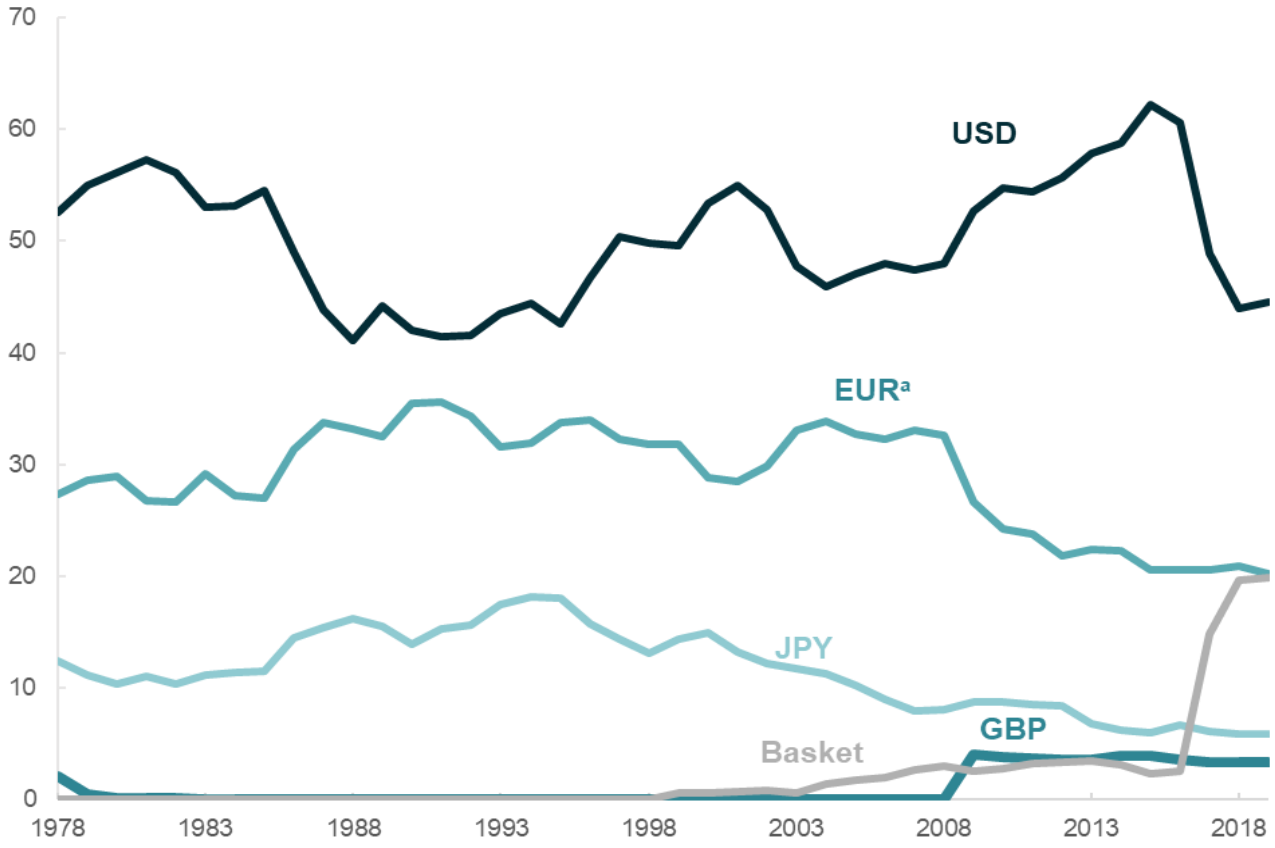
CNY = Chinese Renminbi

The category "All Others" comprises the Japanese yen, British pound, Canadian dollar, Australian dollar, and Swiss franc.

Figure 4.

Currencies' Shares of Global Use as an Anchor Currency (Weighted by GDP)

Percent



Data source: Ilzetzki, Reinhart, and Rogoff (2019).

USD = U.S. Dollar

GBP = British Pound

JPY = Japanese Yen

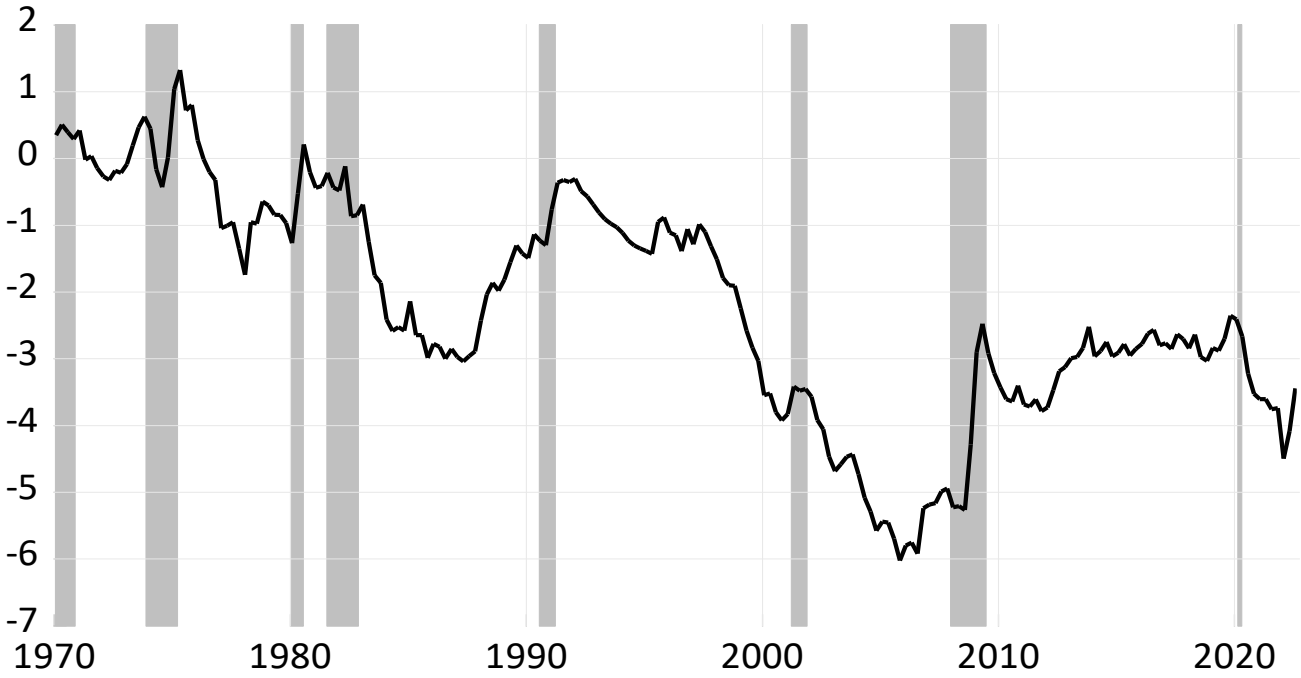
EUR[a] = Euro after January 1999, and sum of French Franc and German Mark before 1999

Basket = countries whose currencies are anchored to a basket of currencies

Figure 5.

U.S. Trade Balance

Percentage of U.S. GDP



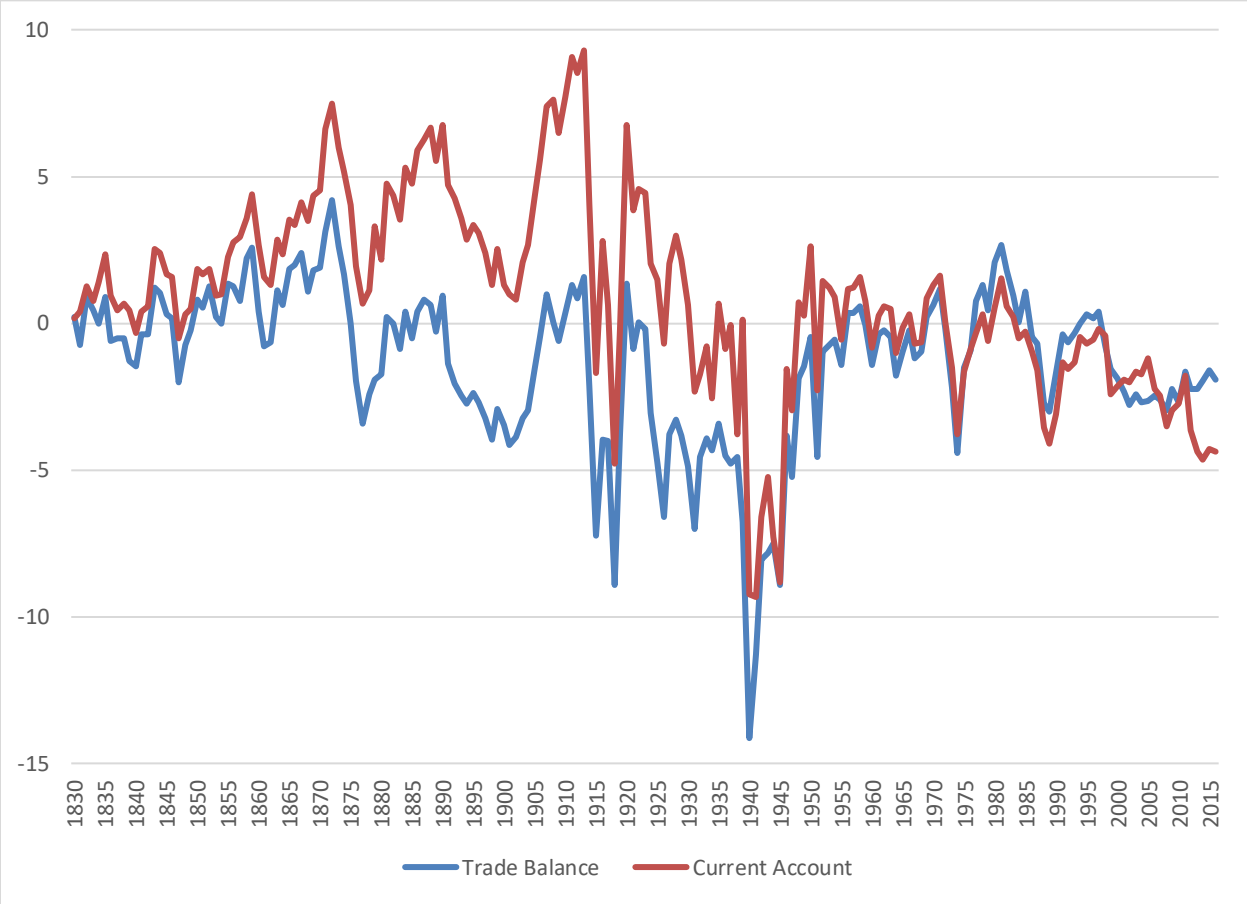
Data source: Bureau of Economic Analysis (CBO's calculations).

The shaded vertical bars indicate periods of recession.

Figure 6.

Great Britain's Trade Balance and Current Account Balance

Percentage of British GDP

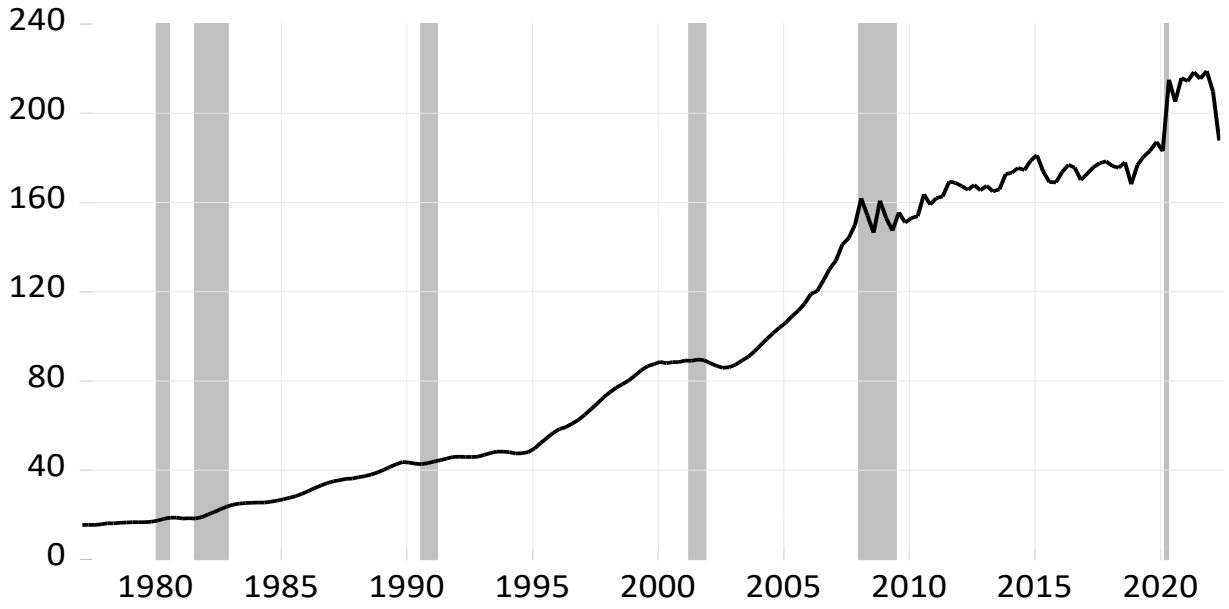


Data source: Bank of England (CBO's calculations).

Figure 7.

Gross Foreign Holdings of U.S. Assets

Percentage of U.S. GDP



Data source: Bureau of Economic Analysis's International Investment Position data (CBO's calculations).

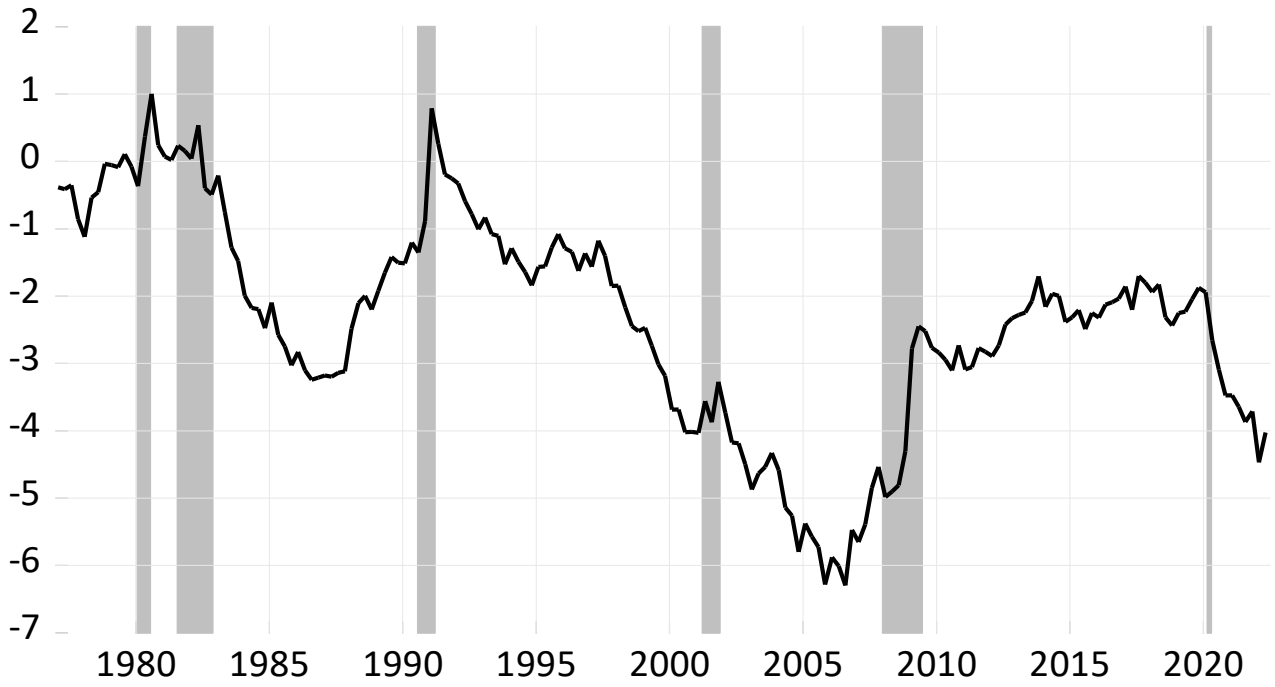
The earliest published data on international asset positions are from 1977.

Shaded vertical bars indicate periods of recession.

Figure 8.

U.S. Current Account Balance

Percentage of U.S. GDP

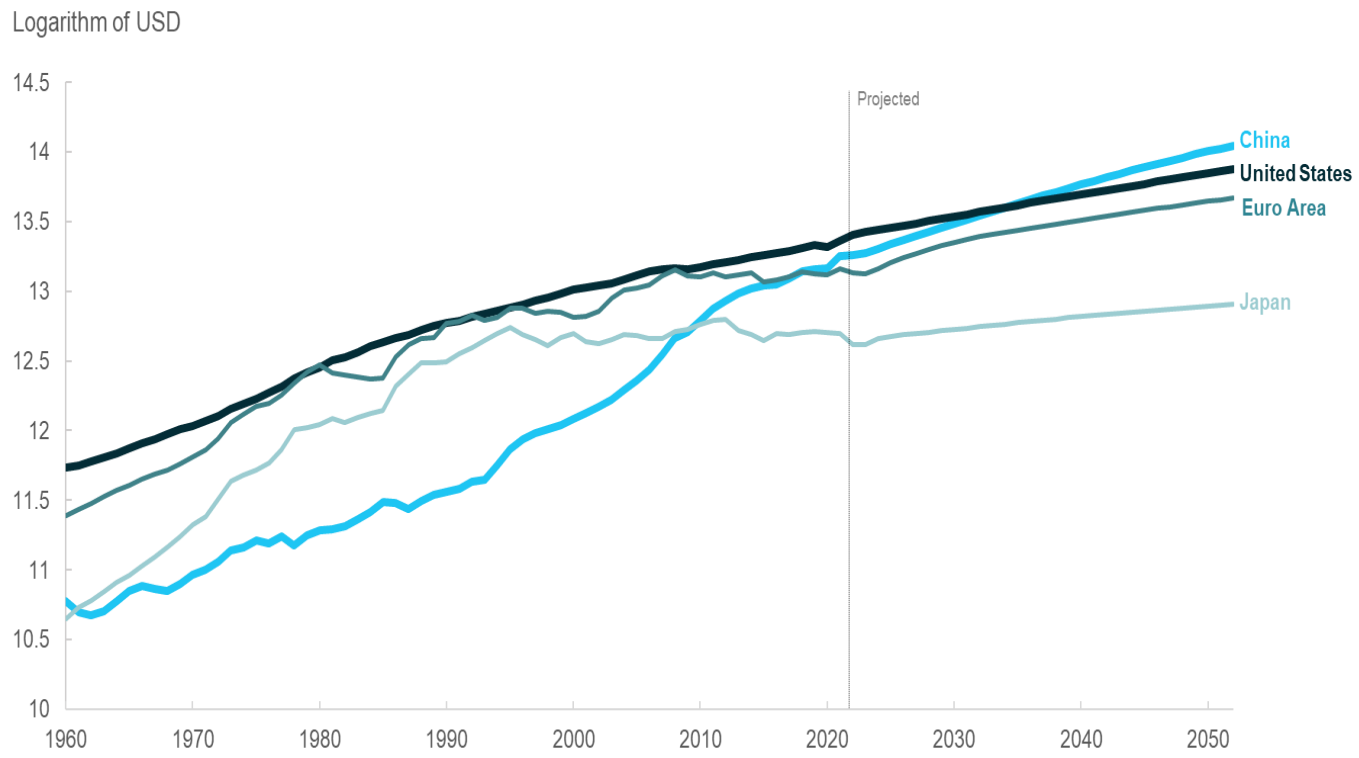


Data source: Bureau of Economic Analysis's International Investment Position data (CBO's calculations).

Shaded vertical bars indicate periods of recession.

Figure 9.

Projections of Nominal GDP for the United States, Euro Area, China, and Japan



Data source: Penn World tables (CBO's calculations).

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