

How currency appreciation can impact prices: the rise of the U.S. dollar

By Andrew Alderman, Kevin M. Camp, and Erin Mandiak

The value of a currency is an important determinant for prices in international trade. When the value of a currency changes, prices for goods traded using that currency can be affected. A currency appreciation (when the value increases over time) results in a lower effective price for imported goods; currency depreciation (when the value decreases over time) translates to higher import prices. By and large, firms across the world have adopted the relatively stable U.S. dollar as their preferred currency for import and export transactions. But shifts in U.S. dollar exchange rates with many other currencies shook up international trade prices in 2022. This **Beyond the Numbers** article will discuss how interest rate increases affect the value of the U.S. dollar and the consequences on import and export prices and consumers. The article will also examine certain world currencies, the housing market, and commodities.



Inflation in 2021 and 2022

[Import and export price indexes](#) reveal these price impacts on imports to and exports from the United States. But before we discuss the price impacts, let's explore why the U.S. dollar value changed relative to other currencies. The story starts with another broad economic indicator: inflation. Defined as the rate of price increase over time, inflation impacted consumers, companies, and the economy in 2021 and 2022. As economies reopened and markets shifted closer to prepandemic behavior, issues with the supply chain and disruption in the fuel market increased costs for the food and raw materials markets, which then contributed to higher price levels within the United States. As inflation increases, a currency's buying power decreases, which weakens it against other currencies.

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The Federal Reserve's response to inflation

As prices increased, the Federal Reserve Board's Open Market Committee (FOMC) raised the interest rate on bank-to-bank lending. This rate, also known as the federal funds rate, underwent seven increases in 2022. In the first quarter of 2022, the FOMC held the federal funds rate around zero, before deciding on a 25-basis point increase in mid-March.¹ The FOMC continued raising the basis points over the year, with the last increase being 50 basis points in December 2022. The FOMC increased the federal funds rate a total of 425 basis points, equivalent to 4.25 percentage points. Considering the conventional goal of a 2-percent per year inflation rate, increasing the federal funds rate 4.25 percentage points is an example of monetary policy tightening.² Higher interest rates are intended to induce savings and restrict the demand of borrowing in the U.S. economy, which should subsequently ease price pressure.

Table 1. Federal Open Market Committee (FOMC) federal funds rate changes in 2022

FOMC meeting date	Rate change (in basis points)	Federal funds rate (in percent)
December 15, 2022	50	4.25 to 4.50
November 3, 2022	75	3.75 to 4.00
September 22, 2022	75	3.00 to 3.25
July 28, 2022	75	2.25 to 2.5
June 16, 2022	75	1.50 to 1.75
May 5, 2022	50	0.75 to 1.00
March 17, 2022	25	0.25 to 0.50

Note: For more information, see <https://www.federalreserve.gov/monetarypolicy/openmarket.htm>. A basis point is 1/100th of 1 percent.
Source: Federal Reserve Board.

The impact of interest rates on currency values

How do U.S. interest rates and the dollar relate to one another? The interest rate in a country is the return on investment for the country's currency. As a result of interest rates rising throughout 2022, the value of the U.S. dollar also increased compared with other currencies, making the U.S. dollar attractive to global investors. Around the world, investors sell other currencies to purchase U.S. dollars, in turn strengthening the dollar while weakening other currencies.

The rise of the U.S. dollar

Chart 1 shows the daily index of the U.S. dollar against an average of major currencies, illustrating the upward trend in the value of the dollar over the past year. Specifically, the U.S. dollar index rose 11.4 percent from the beginning of 2022—peaking on September 27th, 2022. As a result of a stronger dollar, import goods became relatively cheaper as fewer dollars were needed to pay the same price in other currencies. At the end of 2022, this trend reversed somewhat as the U.S. dollar index declined 5.5 percent from September 27th to December 30th. The correction came amid investor concerns that higher interest rates could result in a recession, coupled with a strengthening Chinese yuan.³

Chart 1. Daily nominal trade weighted U.S. dollar index for broad good and services, January 2019–December 2022



Hover over chart to view data.
Source: Board of Governors of the Federal Reserve.

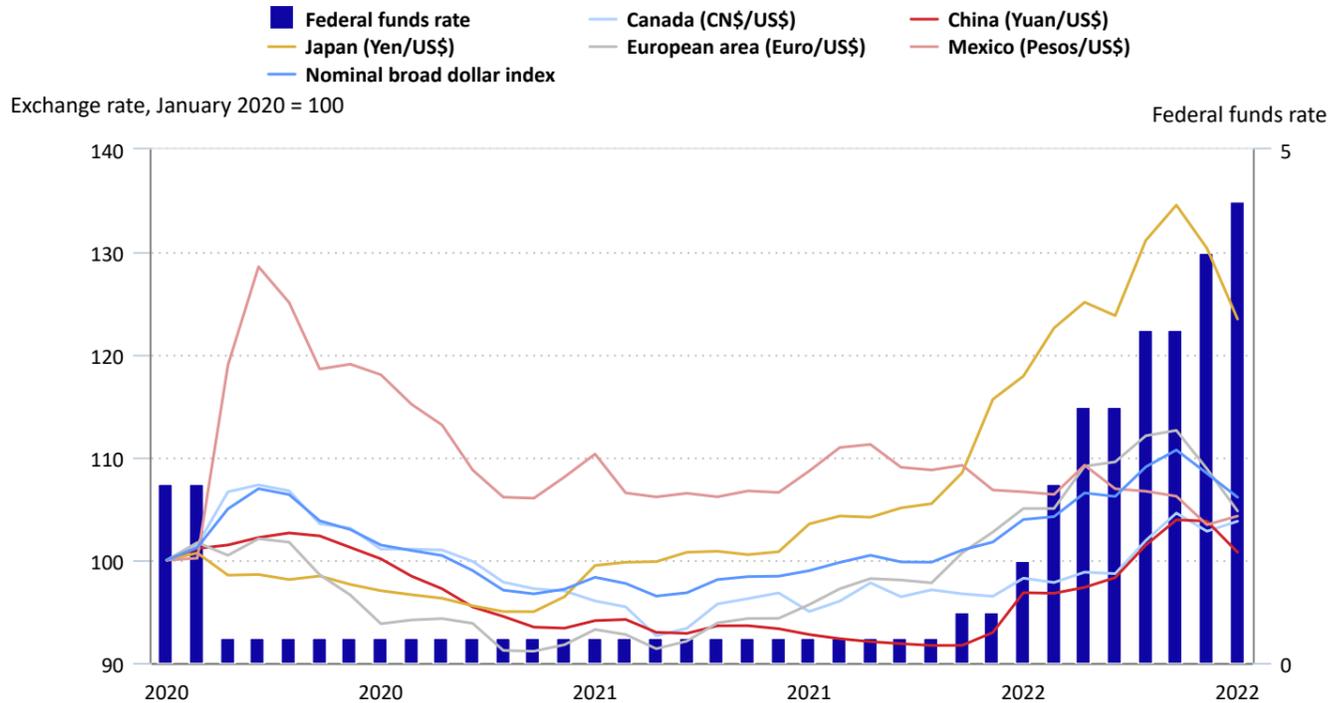
[View Chart Data](#)



The impact on world currencies

Chart 2 illustrates how dollar exchange rates with the United States' major trading partners are affected by a changing federal funds rate. As the FOMC increased the federal funds rate, the U.S. dollar appreciated and got stronger against the other currencies. Chart 2 shows how the Canadian dollar, euro, Mexican peso, and yuan exchange rates began depreciating against the U.S. dollar. The simultaneous federal funds rate and exchange rate increases are reflected in the broad dollar exchange rate index as well. Interestingly, the U.S. dollar appreciated during a time when, like the United States, most of the comparison countries also carried out monetary policy tightening—raising interest rates to fight domestic inflation. The FOMC strategy of aggressive interest rate increases more than offset policies in other countries, allowing the dollar to strengthen relative to the corresponding currencies. As demonstrated in chart 1, we see a reversal of the trend in November and December 2022. In chart 2, the weakening dollar translated to a relative appreciation for the yuan, yen, and euro to close out 2022.

Chart 2. Exchange rates with major trading partners, foreign currency to U.S. dollar, January 2020–December 2022



Click legend items to change data display. Hover over chart to view data.
Source: Federal Reserve Board.

[View Chart Data](#)



Consequences of U.S. dollar appreciation

You may be wondering, what is the upshot? Broadly, a currency appreciation in the United States means that one dollar can now buy more of a good valued in a foreign currency. Accordingly, as the dollar strengthened, import consumer goods prices fell. Consumer goods prices declined 0.5 percent from April to June 2022 when the dollar started to rise, then rebounded slightly with a 0.3-percent rise from June to August 2022 when the dollar briefly leveled. Prices for consumer goods then declined, falling 0.4 percent from August to December 2022 as the dollar strengthened and subsequently weakened, even as the FOMC continued increasing interest rates.

Capital goods prices were also influenced by the appreciating dollar, though more mildly than consumer goods prices.⁴ The impact was slower to unfold, as long-term contracts are more prevalent with capital goods purchases. Import capital goods prices remained unchanged by the stronger dollar until May 2022, then advanced a mere 0.5 percent from May to December 2022 as supply chain constraints continued to hinder production capabilities in the sector.

How do rising interest rates impact fuel prices?

Though the effect is indirect, rising U.S. interest rates and the subsequent increase to both consumer and manufacturing costs can impact the demand for petroleum products as well. If the overall cost of living increases, consumers may elect to forgo travel and other cost-prohibitive activities as affordability drops even further. Likewise, rising interest rates could impact the amount of petroleum demanded by manufacturers, because the cost of producing and transporting goods will be higher.

Furthermore, oil exporters often price their product in U.S. dollars, which means a stronger dollar can make oil effectively more costly for importers using a different currency, resulting in a demand decrease. Prices for U.S. import petroleum fell 37.3 percent from June to December 2022.

How do interest rates impact the housing market?

Interest rate hikes also dampened activity in the U.S. housing market. Rising mortgage rates in 2022 increased the cost of borrowing money, which in turn reduced demand for loans from potential home buyers. At the same time, U.S. homebuilding declined, falling 8.8 percent for the year ended October 2022.⁵ Single-family housing starts, accounting for the largest share of homebuilding, decreased to the lowest level since May 2020. From a recent peak in March 2022 to the end-of-year data from December 2022, prices for selected building materials imports decreased 21.4 percent.

How do interest rates impact export prices?

Rising interest rates also affected the overall competitiveness of U.S. exports on the global market. When the U.S. dollar's value increases relative to a foreign currency, the affordability of goods exported from the United States to foreign markets effectively declines; a greater amount of a foreign currency is needed to buy the same amount of a U.S.-exported good. This exchange rate effect impacted the market for several items exported from the United States, including two key U.S. industries: soybeans and plastics.

Before impacts from the stronger dollar took hold, the price index for soybeans exports rose at the beginning of 2022—advancing 22.4 percent from January to June. More recently, prices declined as the exports became effectively more expensive for foreign buyers. From June to December 2022, soybeans export prices fell 12.7 percent. The aforementioned price decreases for petroleum likely reinforced the decline in export prices for soybeans, because crude oil is a key input for soybean production.⁶

Chart 3. Soybeans export price index, January–December 2022



Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

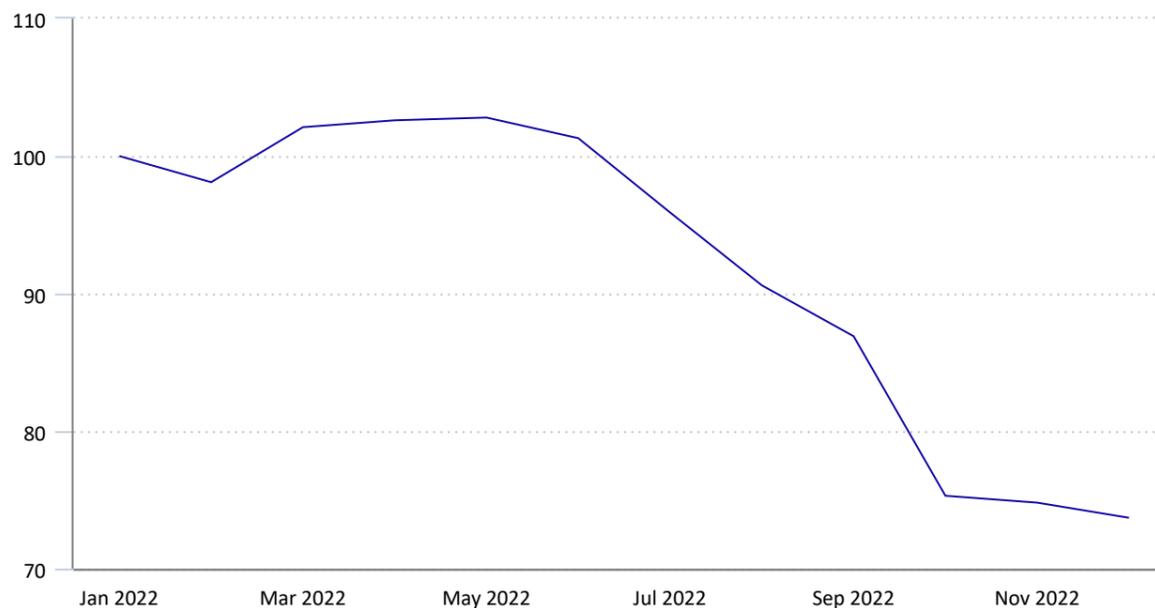


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Likewise, prices for export plastics rose somewhat to begin 2022, then began to decline from their peak close to the middle of the year. From May to December 2022, the price index for export plastics fell 28.3 percent. That includes a record drop of 13.4 percent in October 2022—the largest decline for the index since the monthly percent change series began in January 1994.

Chart 4. Plastic materials export price index, January–December 2022

Export plastic materials, January 2022 = 100



Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.


[View Chart Data](#)

Outlook for the federal funds rate and U.S. trade

In 2022, a clear pattern emerged linking inflation, interest rates, and import and export prices. What remains to be seen is how persistent the trends among these indicators will be moving forward. The FOMC's response to inflation is to stabilize domestic market prices. In early 2023, high prices and low unemployment prompted speculation that the FOMC would continue targeting inflation with further increases to the federal funds rate.⁷ But a higher interest rate has international impacts, as can be seen with the recent trends in import and export prices. For those interested in following along, keep an eye on the latest [U.S. Import and Export Price Indexes news release](#).

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Notes

Notes

¹ A basis point is 1/100th of 1 percent.

² For more information about inflation, see Carlos Garriga and Devin Werner, "Inflation, part 3: What is the Fed's current goal? Has the Fed met its inflation mandate?" *Economic Synopsis*, Federal Reserve Bank of St. Louis Economic Research, September 2, 2022, <https://doi.org/10.20955/es.2022.25>.

³ Caroline Valetkevitch, "Dollar falls against major currencies amid economy concerns; yuan strengthens," *Reuters*, December 7, 2022, <https://www.reuters.com/markets/currencies/dollar-edges-up-darkening-growth-outlook-hurts-sentiment-2022-12-07/>.

⁴ Capital goods and consumer goods are end-use classifications that identify goods based on principal end-use rather than the physical characteristics of the merchandise. For more information, see <https://www.census.gov/newsroom/blogs/global-reach/2012/03/end-use-trade-term-of-the-month-2.html>.

⁵ "U.S. housing starts tumble in October amid soaring mortgage rates," *Reuters*, <https://www.reuters.com/markets/us/us-housing-starts-tumble-october-amid-soaring-mortgage-rates-2022-11-17/>.

⁶ Kevin M. Camp, "The relationship between crude oil prices and export prices of major agricultural commodities," *Beyond the Numbers: Global Economy*, vol. 8, no. 7 (U.S. Bureau of Labor Statistics, April 2019), <https://www.bls.gov/opub/btn/volume-8/the-relationship-between-crude-oil-and-export-prices-of-major-agricultural-commodities.htm>.

⁷ For more information, see: <https://www.marketwatch.com/story/feds-kashkari-says-open-minded-about-size-of-march-interest-rate-hike-967cb1ca>.

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