ECONOMIC VIEWPOINT

Has the Spike in Inflation Volatility over the Past Few Years Changed Equilibrium Exchange Rates?

By Hendrix Vachon, Principal Economist

Highlights

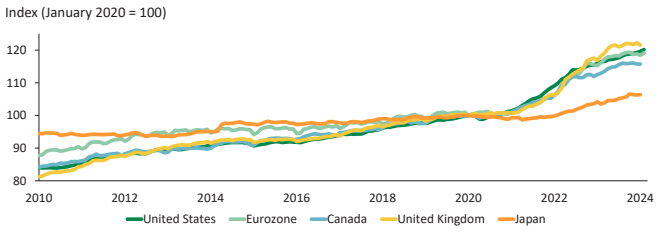
One way to estimate the long-run equilibrium exchange rate is to compare price levels in different countries. In general, over the long term, exchange rates should gradually adjust so that prices in different countries are equal when expressed in the same currency. This is called purchasing power parity (PPP). Since the pandemic, inflation has become more volatile, and this has likely changed the long-run equilibrium exchange rate for certain currency pairs. In this Economic Viewpoint, we'll look at how this might affect our exchange rate forecasts for the currencies of major advanced economies.

Prices Have Become More Volatile

Usually, inflation used to increase by about 2% per year in most advanced economies. But that has changed significantly in recent years. Inflation rates soared to 8%, or even higher than 10% in some cases. Since the pandemic, the total consumer price index (CPI) has climbed the most in the United Kingdom (graph 1), followed closely by the eurozone and the United States. Prices rose less in Japan. In the end, the spike in price volatility and diverging trends in different countries have probably changed the equilibrium exchange rate as estimated using PPP.

Graph 1

Prices Have Risen More in the UK, but the Eurozone and the US Aren't Far Behind



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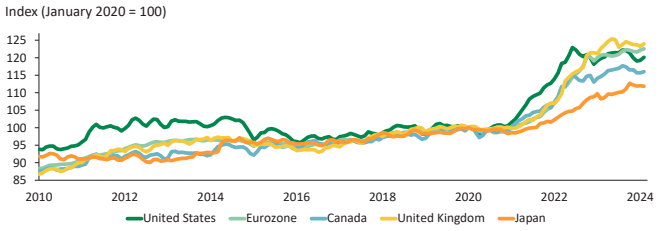
Technically, the "purest" measurement of PPP is known as absolute PPP. It should be calculated by directly comparing the price of the same basket of goods and services in two different countries. If this basket costs CAN$1,000 in Canada and US$750 in the United States, the equilibrium exchange rate between the currencies of these two countries would be 1,000/750, or CAN$1.33/US$. But we don't have that kind of data. Of course, there's the Big Mac index, which compares the price of the famous burger in different countries. Yet there's no denying that a single sandwich is a rather incomplete basket of consumer goods. Consequently, we have to rely on other data, like CPI. However, CPI is also an imperfect indicator because different countries calculate it in different ways. It also doesn't allow us to directly compare the price of the consumer basket in different countries. It's still useful for measuring how prices change over time and for calculating the equilibrium exchange rate. But we should nevertheless assume that PPP will prevail over the long term, and that exchange rates will more or less follow the trajectory of its equilibrium value as dictated by price movements.

Ideally, we should only compare the prices of tradable goods, since price differences between different countries create arbitrage opportunities. Without this kind of arbitrage, prices could easily diverge over the long run, which would give us less reliable information on equilibrium exchange rates. A compromise can be made when analyzing goods prices. Goods are often tradable, or they're produced using inputs that are

widely traded between countries. In 2021 and 2022, goods prices increased faster in the US, but were then overtaken by prices in the UK and the eurozone (graph 2). It's also worth noting that goods prices in the major economies didn't diverge much between 2016 and 2020. Major differences have emerged over the past three years, which has led to changes in equilibrium exchange rate estimates.

Graph 2
Trends in Goods Prices Have Diverged Even More in Recent Years



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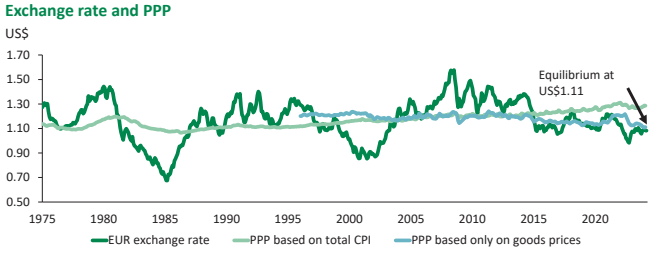
The Euro's Equilibrium Value Based on the Price of Goods Has Fallen

The euro is currently fluctuating around US$1.08, which isn't far from the equilibrium value according to PPP based on goods prices (graph 3). In addition, since 2015 the euro has rarely deviated much from the equilibrium value calculated with this method. Between 2015 and 2020, the equilibrium value hovered around US$1.15. It rose to US$1.20 in 2021 and 2022, then fell back down to its current value of US$1.11.

Graph 3
The Euro Is Close to Equilibrium according to PPP Based on Goods Prices



PPP according to total CPI is indexed based on the average from 1975 to the present. PPP based on the price of goods is indexed based on the average from 1996 to the present.
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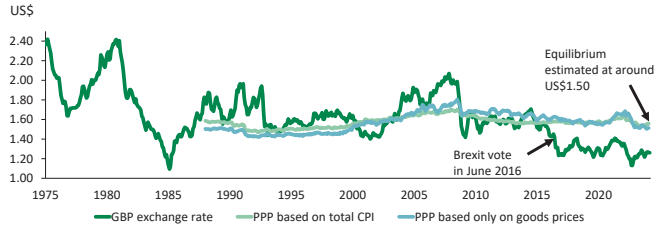
The difference between the euro's exchange rate and its equilibrium value expanded to its widest in almost a decade in 2022, when the Federal Reserve began tightening its monetary policy before the European Central Bank. At the time, there were also major concerns in Europe over the fallout from the war in Ukraine, especially in terms of the energy supply. Since then, these concerns have mostly faded, reducing the likelihood that the euro's exchange rate will move too far off its equilibrium value. Interest rates will likely be brought down more gradually in the United States than in the eurozone, which could limit how high the euro will rise for several months. It's quite possible that the euro's exchange rate won't equal its equilibrium exchange rate of $1.11 before the end of 2024, or even sometime in 2025.

The Pound Has Been Stuck below Its Equilibrium Value since Brexit

One of the pound sterling's characteristics is that its equilibrium value estimated using PPP is roughly the same, whether it's based on the total consumer price index or only on goods prices. Currently, the equilibrium value in both cases is around US$1.50. From 2015 to 2020, this value fluctuated around US$1.55, then temporarily climbed to more than US$1.60 in 2021 and 2022.

Unlike the euro, the pound's exchange rate is currently well below its estimated equilibrium value (graph 4). This has been the case since the UK voted to leave the European Union (Brexit). The pound will likely converge back towards its equilibrium value, but this will probably take some time as the UK's economy gradually adjusts to its new post-Brexit environment.

Graph 4
Since Brexit, the Pound Has Been Stuck below Its Equilibrium Exchange Rate Based on PPP



PPPs use prices indexed based on the average from 1988 to the present.
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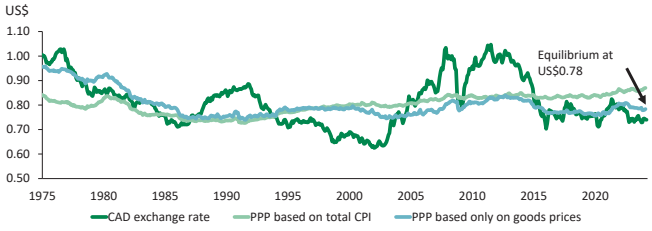
The Canadian Dollar Seems to Have Settled below US$0.80

The estimated equilibrium value for the loonie has long remained above US$0.80. Even now, PPP based on total CPI suggests an equilibrium value of US$0.87. But PPP based on goods prices is probably a more reliable indicator, and it has widely diverged from PPP using total CPI since 2015. Based on the price of goods, the equilibrium value turns out to have been just under US$0.77 between 2015 and 2020. It advanced to US$0.80 in 2022 and has since retreated to around US$0.78 (graph 5 on page 3).

Throughout 2023, the Canadian exchange rate remained below equilibrium, and it appears unlikely to reach it in 2024 or 2025. The potential for interest rate cuts looks higher in Canada than in the United States, which means the Canadian dollar will remain less attractive than the greenback to investors. The loonie is still showing some sensitivity to oil and commodities prices (in the past, it used to be more sensitive), but we don't expect them to rise enough to substantially influence the exchange rate.

Graph 5
The Canadian Dollar's Equilibrium Exchange Rate Based on Goods Prices Rose in 2021 and 2022, but Has Fallen since Then
Exchange rate and PPP



PPPs use prices indexed based on the average from 1975 to the present.
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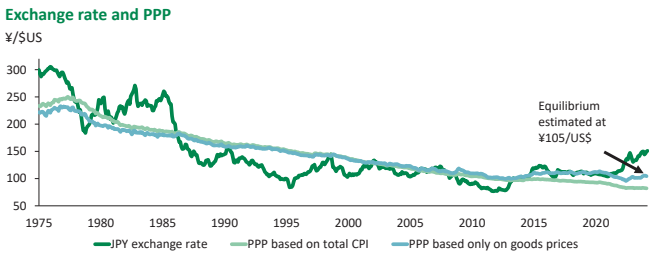
The Yen Is Currently Significantly Undervalued

The yen is particularly undervalued compared to its equilibrium exchange rate estimated according to PPP (graph 6). Over the years, persistently lower inflation in Japan has helped slowly boost the yen's purchasing power. But over the past 10 years, PPP based on total CPI and PPP based on the price of goods have diverged widely. The equilibrium value based on the price of goods is currently ¥105/US$, which isn't far from the average estimate over the preceding decade. Meanwhile, total CPI suggests the equilibrium exchange rate is around ¥80/US$. The yen's value has rarely reached such heights. The last time was in the early 2010s, when the Federal Reserve kept key rates extremely low while also buying massive amounts of assets.

Graph 6
PPP Suggests the Yen Is Highly Undervalued
Exchange rate and PPP



PPPs use prices indexed based on the average from 1975 to the present.
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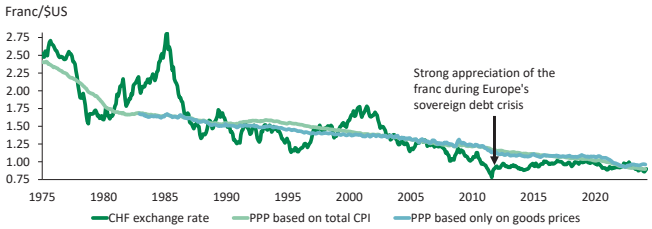
The yen will need to appreciate by more than 40% to return to its equilibrium value based on goods prices. But this doesn't seem likely to happen over the next year or two. We're forecasting more gradual appreciation, especially since interest rates in Japan are expected to stay significantly lower than in the United States in 2024 and 2025. The Bank of Japan also doesn't seem to be in much of a hurry to trim its balance sheet, which further reduces the yen's appeal versus the greenback.

The Swiss Franc Is Close to Equilibrium

As with the yen, persistently lower inflation in Switzerland has helped buoy the franc's purchasing power over time. But, unlike the yen, the franc currently doesn't appear to be undervalued. It's even trading a little higher than the equilibrium exchange rate based on goods prices, which is currently at 0.96 francs/US$ (graph 7).

Graph 7
The Swiss Franc Is Also Benefiting from an Extended Period of Low Inflation
Exchange rate and PPP



PPP according to total CPI is indexed based on the average from 1975 to the present. PPP according to goods prices is indexed based on the average from 1982 to the present.
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The Swiss National Bank started its loosening cycle before the other major central banks by cutting rates in March. That took some wind out of the franc's sails. The franc is also sensitive to perceived risk in Europe. During the sovereign debt crisis, investors looked to the franc as a safe haven, significantly driving up its value. As the European economy picks up steam, the franc may depreciate and move closer to its equilibrium value.

Certain Currencies Show More Potential, but Many Other Factors Will Influence Short- and Long-Term Exchange Rates

The PPP isn't a perfect way to measure equilibrium values, but it does give us clues about what future trajectories for foreign exchange rates might look like. Based on this analysis, the yen offers greater potential for appreciation. The same holds true for the pound, but this would depend on how quickly the United Kingdom adjusts to life after Brexit. Meanwhile, the Canadian dollar and the euro don't show as much potential for appreciation, and we expect the Swiss franc to depreciate somewhat. In all cases, each country's economic conditions, especially their interest rate trajectories, will continue to have a significant impact on exchange rates in 2024 and 2025. This will greatly influence how quickly they converge towards estimated equilibrium values. Other factors will also influence the major exchange rates to varying degrees. These factors include perceived risk, government debt, financial market volatility, commodity prices and the way that geopolitical factors affect capital flows.

Along with this analysis, we also need to think about future trends in goods prices. Prices may continue to follow different trajectories in different countries, as they have in recent

years. However, prices in different countries could reconverge instead. In addition, prices could be affected by each country's policy decisions on issues such as carbon pricing, protectionist measures, or corporate subsidies. This means there's still room for equilibrium exchange rates to change.