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The FRED® Blog

Measuring the value of currencies: Exchange rates and inflation

Posted on September 18, 2023

FRED ECONOMIC DATA | ST. LOUIS FED

CPI **+3.2** % Chg. from Yr. Ago on Feb 2024

Civ. Unemploy. Rate **3.9** % on Feb 2024

10-Yr. Treas. Rate **4.27** % on 2024-03-21

Real GDP **+3.2** %, Comp. Annual Rate of Chg. on Q4 2023

IP **+0.1** % Chg. on Feb 2024

Payroll Employment **+275** Chg., Thous. of Persons on Feb 2024

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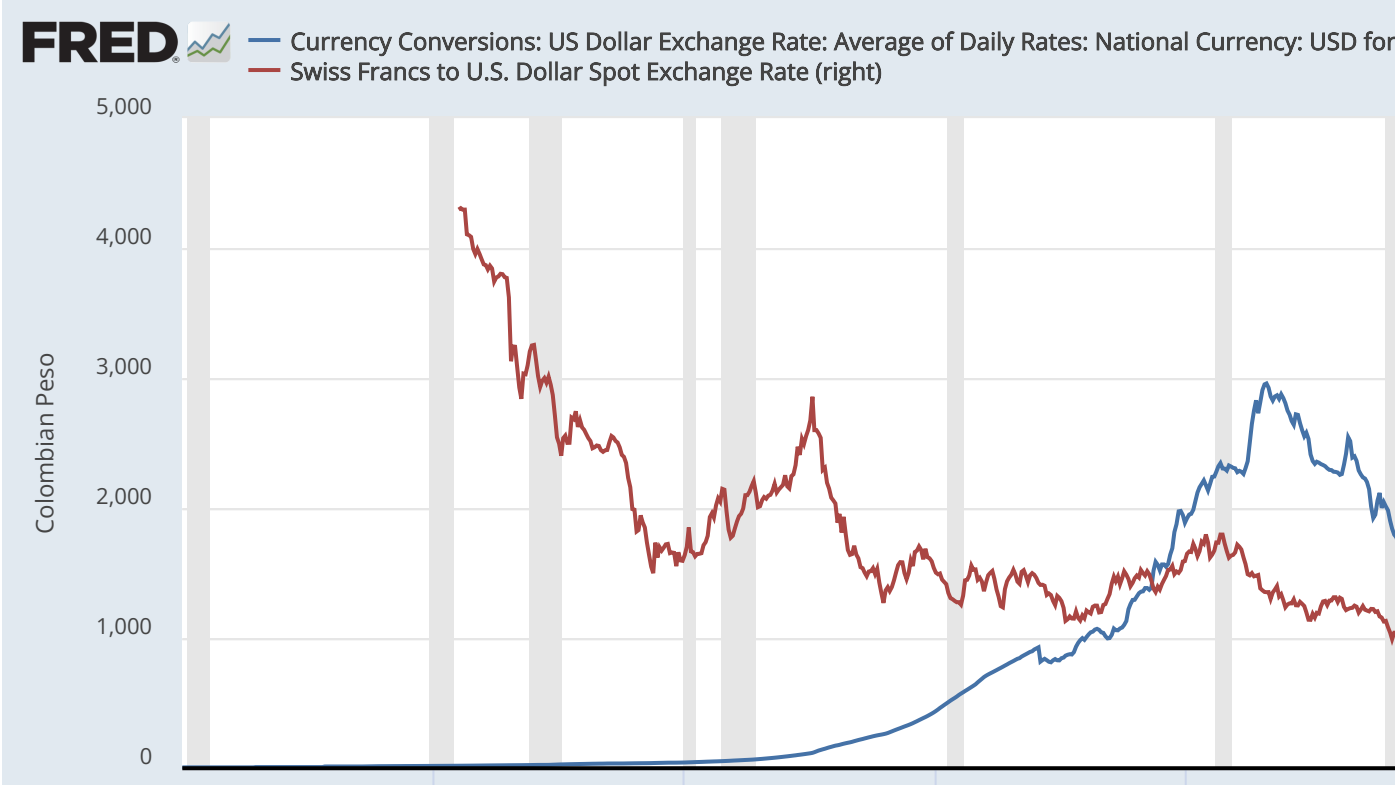

The FRED graph above shows the exchange rate of two currencies with the US dollar: the Swiss franc and the Colombian peso. We chose these two for their obvious contrasting history.

- The Swiss franc is considered to be among the strongest currencies—meaning that it tends to appreciate with respect to many other currencies.
- The Colombian peso is the opposite, with continuing depreciation with respect to strong currencies. (One peculiar benefit of using this currency is that it was never *rebased*—i.e., never had a few zeroes removed from its high face value. This numeric consistency avoids potential issues with displaying the peso's exchange rate across various definitions of the currency.)

The graph shows that, over the longer run, the Swiss franc has become stronger than the dollar while the Colombian peso has gotten significantly weaker than the dollar. There are considerable variations at shorter horizons, which can be driven by many factors related to the expectations about the currencies' respective economies. (This recent FRED Blog post covers this topic.) But back to the long-run changes…

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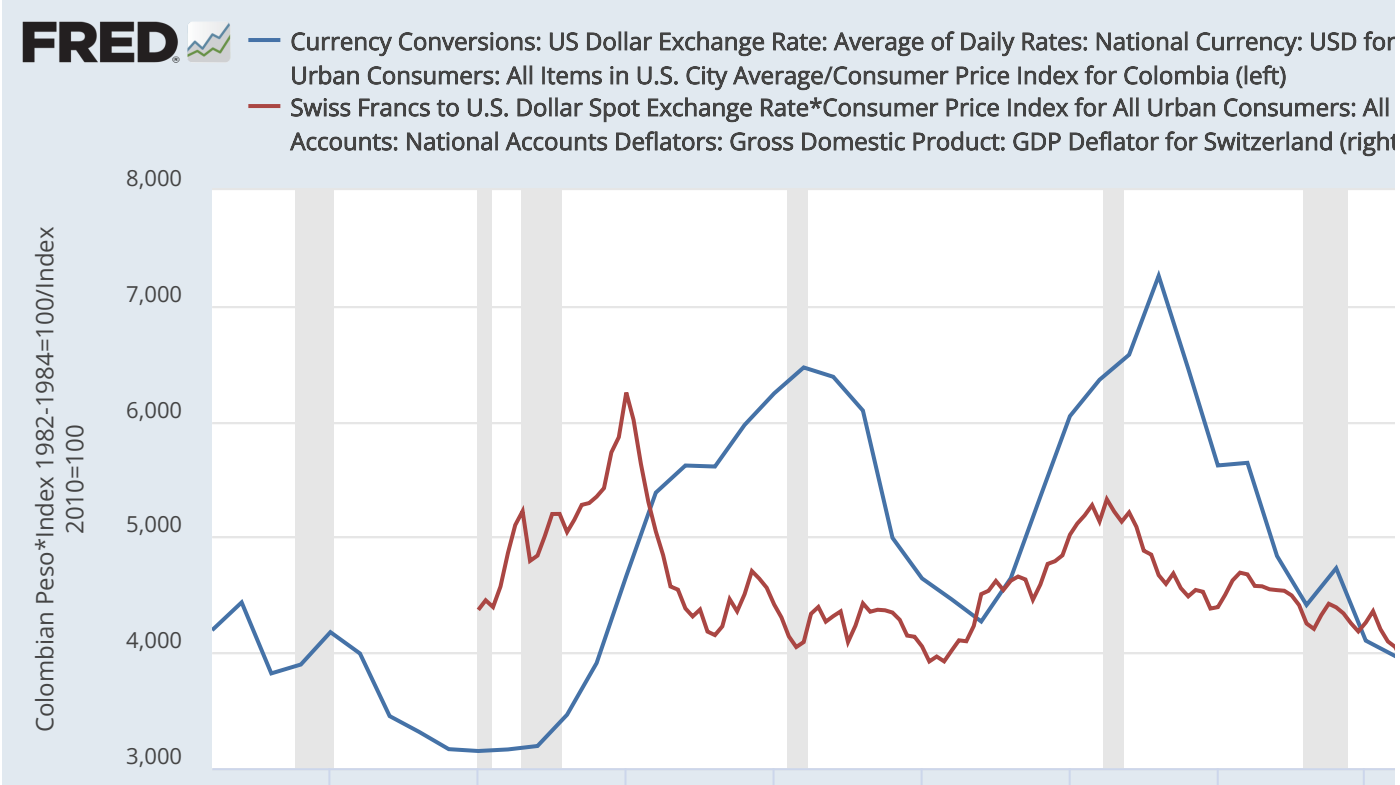

The second graph takes the same exchange rates and adjusts them by the inflation rates in the US, Switzerland, and Colombia. These are so-called *real* exchange rates. Note how the lines are much flatter, especially as you compare the scale of the vertical axes in both graphs.

A large part of these long-run exchange rate movements can indeed be explained by inflation differentials: Inflation is typically low in Switzerland, while it is typically high in Colombia. The lines are not completely flat, though. First, the consumer price index or the GDP deflator may not be the appropriate price index to use here, as other factors such as taxes, tariffs, and other trade impediments may matter. Finally, most currency exchange is not performed to buy foreign goods, but rather for purely financial transactions. Thus, a currency can be more or less attractive depending on economic or political developments.

How these graphs were created: Search FRED for “Colombia exchange rate” and take the option with the longest time range. Click on “Edit Graph,” open the “Add Line” tab, and search similarly for “Switzerland exchange rate.” Open the “Format” tab and put the legend for the second line on the

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right. You have the first graph. For the second, take the first graph, click on “Edit Graph,” add series by searching for “US CPI,” then again for “Colombia CPI,” in both cases making sure the series is as long as possible and in levels, not growth rates. Apply formula *a*b/c*. Repeat for the second line and “Switzerland deflator” (the CPI series is too short).

Suggested by Christian Zimmermann.