PREDICTING EXCHANGE RATES

How can we estimate future exchange rates (XR) for strategic purposes (3-10 years out)? The answer is that a random walk model does the best job.
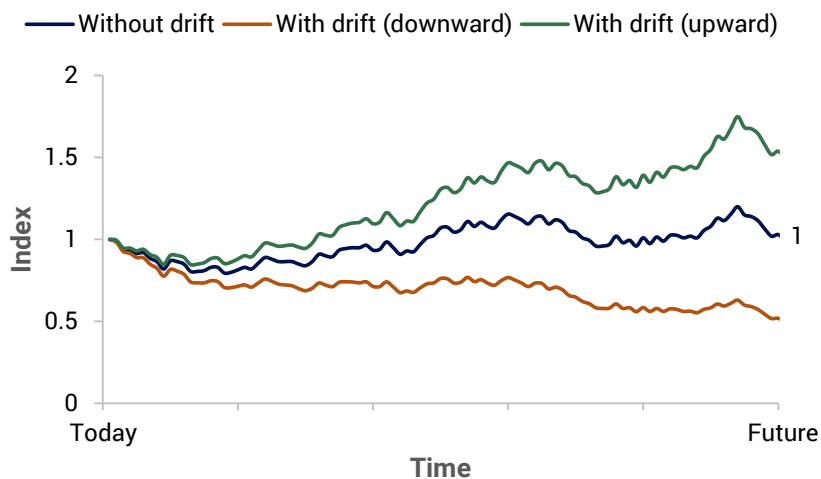
Understanding the logic of future XR may seem difficult, but it is not. We tend to make it difficult though. Here is one example.

A global company did a global 5-year planning exercise. Argentina stood out as the most attractive country with revenue growth over 30% p.a. This was accepted by corporate for several weeks and we heard two senior executives mention the impressive Argentine outlook. Then the mistake was discovered. They had used today's XR for all five years.

❶ Barbara Rossi, in the brilliant paper "Exchange Rate Predictability",[1] explains how we should understand XRs. The best predictor of XR in the strategic case is a random walk.

Examples of random walk models are the stock market with upward drift, Black-Scholes option pricing equation, and yes, XR.

RANDOM WALK EXAMPLES

All kinds of more sophisticated XR models have been built, but they fail. They may work for one country, or for a certain time period, but they fail on a global basis and into the future.

This does not mean the that the random walk model is perfect. It will have errors. Over a long time period, it will better than any other model.
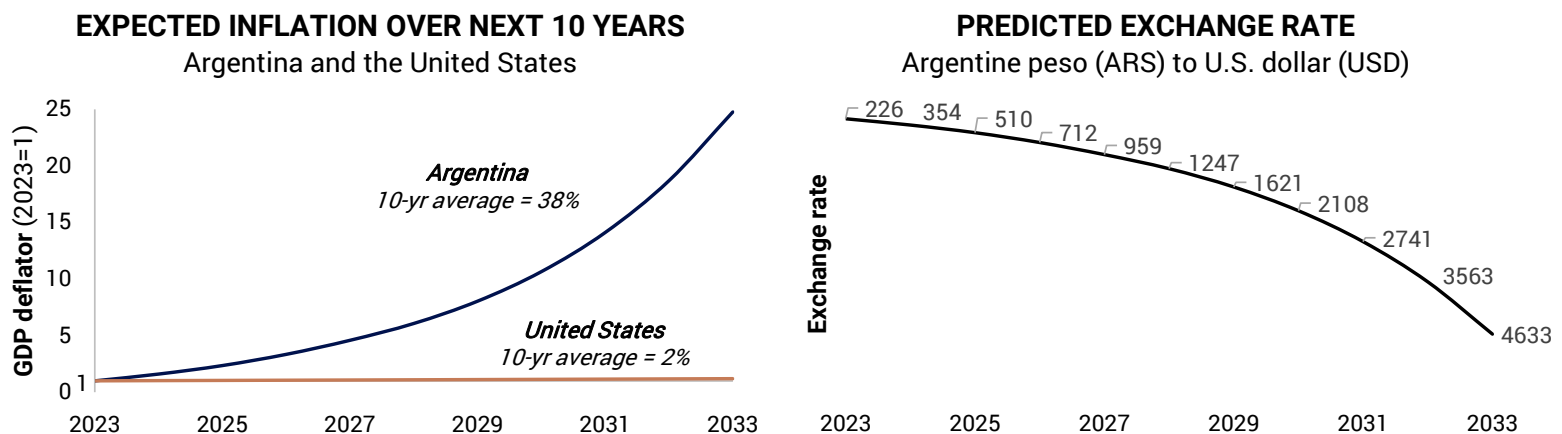
❷ For XR, the random walk model has drift. What is the drift? It is the differential inflation between the reporting country and the HQ country.

The middle graph shows the example of Argentina and the U.S. The expected differential inflation is 36% p.a. over the next 10 years.

Thus:

XR (next period} = XR (this period) + differential inflation for the period + error [with average of zero over all periods]

❸ The next graph shows the expected XR for the coming 10 years. The Argentine peso will decline from ARS 226 to 4633 per 1 USD.,

EXPECTED INFLATION OVER NEXT 10 YEARS
Argentina and the United States

GDP deflator (2023=1)

Argentina
10-yr average = 38%

United States
10-yr average = 2%

2023 2025 2027 2029 2031 2033

PREDICTED EXCHANGE RATE
Argentine peso (ARS) to U.S. dollar (USD)

Exchange rate

226 354 510 712 959 1247 1621 2108 2741 3563 4633

2023 2025 2027 2029 2031 2033

What we have described is the only logical way a company can project future exchange rates. There may be snake oil merchants of alternatives, but Rossi shows they are wrong.

Institutions like the IMF get this right, and so do some private sector sellers of XR and other data. Tellusant's various products take use this approach consistently for every country in the world.

What about the caveats. They exist but are secondary. We do not know what future inflation will be, so we must use the best available current estimate (we recommend the IMF). Some currencies do not use floating exchange rates and then the logic changes (in an easy to predict manner). The method works for short-term predictions but with low precision.

In sum, what looks difficult is quite easy.

---

[1] Rossi (2013): Exchange Rate Predictability. *J. Econ. Lit*. Vol. 51(4), 1063-1119
https://www.aeaweb.org/articles?id=10.1257/jel.51.4.1063