

**EXECUTIVE  
BOARD  
MEETING**

SM/19/134  
Correction 1

June 13, 2019

To: Members of the Executive Board  
From: The Secretary  
Subject: **Switzerland—Selected Issues**

Board Action: The attached corrections to SM/19/134 (6/4/19) have been provided by the staff:

**Evident Ambiguity**

**Page 4**

**Factual Errors Not Affecting the Presentation of Staff's Analysis or Views**

**Page 24**

**Typographical Errors**

**Page 5**

Questions: Ms. van Elkan, EUR (ext. 34763)  
Mr. Apostolou, EUR (ext. 39011)  
Ms. Nowak, EUR (ext. 36429)  
Mr. Hebous, FAD (ext. 35754)



extent of fixity of the franc relative to the estimated reserve currency “anchor baskets.” The estimated currency weights are then considered in the context of fundamental factors that might influence which currencies the Swiss franc comoves with~~the choice of anchor currencies~~, and the weights are used to calculate an effective foreign interest rate relevant for Switzerland.

## B. Related Literature

**3. Identifying reserve currency blocks and the de facto behavior of currencies is an ongoing pursuit.** The gap between de jure and de facto exchange rate regimes has been extensively documented. Many countries, especially emerging markets, tend to maintain less-flexible arrangements than suggested by their official regimes, which has been attributed to fear of floating (Calvo and Reinhart, 2012). Tovar and Nor (2018) find that the international monetary system has transitioned from a bi-polar to a tri-polar one, with an increasing role for the renminbi. Ilzetzki and others (2019) find that despite the prediction of a more multipolar system, the US dollar remains the dominant global anchor currency (or reference currency in the case of more flexible arrangements). They also find the euro to be the only other major anchor currency, although its sphere of influence is limited to Europe, and only a few examples of dollar-euro baskets have existed. McCauley (2014) finds that the euro’s importance was growing prior to the GFC—with its sphere of influence extending to Australia, New Zealand, Canada and Latin America—but has since retreated alongside an increasing role for the dollar.

**4. A related issue is how closely countries peg to the anchor currency (basket).** The purported widespread adoption of inflation forecast targeting in recent decades was generally believed to have led to more flexible exchange rates. Bracke and Bunda (2011) find evidence of greater exchange rate flexibility among Central and Eastern European and CIS countries. On the other hand, while Ilzetzki and others (2019) find an increase in the number of intermediate managed-float and target-zone regimes, they conclude that the world remains heavily skewed toward less-flexible arrangements.

**5. Available characterizations of Switzerland’s de facto exchange rate regime convey a mixed picture and may not apply to the most recent period.** Prior to the floor with the euro, Bracke and Bunda (2011) conclude the franc was very flexible, with the euro playing only a limited anchor role. For the period since the floor, Ilzetzki and others (2019) characterize the franc as a de facto moving band linked to the euro within a relatively narrow range. This latter characterization therefore does not detect any recent influence of the dollar on the franc.

## C. Estimating the De Facto Swiss Franc Currency Regime

**6. The two dimensions of exchange regimes—the anchor currency (basket) and the degree of exchange rate flexibility—should be identified simultaneously.** This makes it possible to determine whether changes in the value of a country’s currency are due to co-movement with its anchor(s) or result from less-fixity around a central parity. Frankel and Wei (2008) and Frankel and Xie (2010) present an approach that synthesizes these steps into a single equation estimation model.

Flexibility is determined by whether shocks to demand for a currency translate into the price of the currency (floating), the quantity of the currency (fixed) or some combination (intermediate regime).<sup>3</sup> Identification of the anchor currency (basket) is obtained by regressing changes in the value of the currency on changes in the value of potential candidate anchors.

**7. Following the models by proposed by Frankel and Wei (2007, 2008) and Frankel and Xie (2010), the de facto Swiss franc regime is estimated by regressing changes in the Swiss franc on a weighted average of changes in leading reserve currencies.** Each currency is valued in terms of the SDR,<sup>4</sup> and enters as a percentage change to reduce the likelihood of nonstationarity while also allowing for the inclusion of a constant term to reflect a possible trend appreciation (or depreciation) in the level of the currency relative to its “basket”. Additionally, we include an exchange market pressure term, defined as the sum of the percentage change in the value of the currency and the percentage change in the stock of base money. The specification is as follows:

$$\begin{aligned} [\Delta \log CHF_t - \Delta \log GBP_t] &= c + \\ w_1[\Delta \log EUR_t - \Delta \log GBP_t] &+ w_2[\Delta \log USD_t - \Delta \log GBP_t] + \\ w_3[\Delta \log JPY_t - \Delta \log GBP_t] &+ \beta EMP + u_t \\ \text{where } EMP &= [\Delta \log CHF_t + \Delta \log MB_t] \end{aligned}$$

*CHF, USD, EUR, JPY* and *GBP* denote the value of the currencies relative to the SDR. Monetary base is denominated in Swiss franc. The coefficients,  $w_i$ , capture the weight of each currency in the de facto exchange rate basket, where their sum is constrained to unity.<sup>5</sup>  $\beta$  measures the extent of de facto exchange rate flexibility, and multiplies a measure of exchange market pressure (EMP) defined as the percentage change in CHF relative to the SDR plus the percentage change in the SNB’s monetary base. When  $\beta$  is equal to zero, changes in EMP do not affect the value of the franc, implying a pegged regime, whereas a value of unity implies a pure float because *MB* does not change.<sup>6</sup> The estimation is performed using ordinary least squares on monthly data for the period July 1999 to January 2019.

<sup>3</sup> Demand shocks are measured using exchange market pressure. See Country Report No. 18/174.

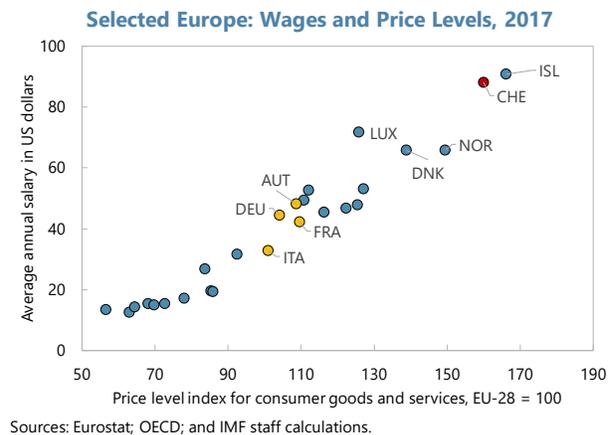
<sup>4</sup> If the currency follows a peg, identification of the basket will be precise (an  $R^2$  of 100 percent), irrespective of the choice of numeraire. Alternatives to the SDR, including the Australian and New Zealand dollars, were tested as numeraires, and resulted in similar estimation outcomes.

<sup>5</sup> This condition is imposed by subtracting the percentage change in the pound-SDR exchange rate from the left side of the equation and the percentage change in the pound-SDR weighted by the remaining currency weights from the right-hand side of the equation. The weight on the pound can be recovered as the difference between unity and sum of the other currency weights.

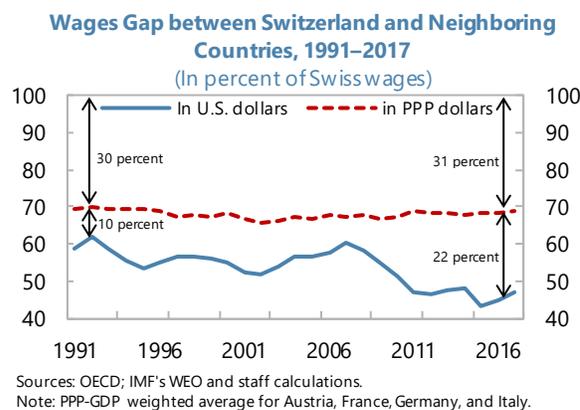
<sup>6</sup> If the regime is a peg (to the anchor currency or basket), then the value of the currency—the first term in the EMP variable—does not change in response to a demand shock for the currency, which instead will be absorbed by a change in monetary base—the second term in the EMP variable. To ensure that the change in the value of the EMP

(continued)

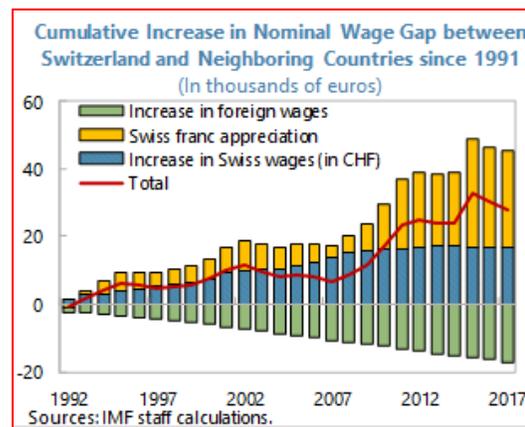
**5. Nominal wage differentials between Switzerland and its neighbors are likely influenced by the higher cost of living in Switzerland.** The two largest Swiss cities—Zürich and Geneva—are consistently found to be the top two most-expensive in the world.<sup>8</sup> Switzerland has the second-highest price level in Europe, with prices of consumer goods and services some 60 percent higher than the EU average. Prices of services—a proxy for nontradables—are significantly higher in Switzerland than in neighboring countries, as are several products that are shielded from international competition.<sup>9</sup>



**6. Swiss firms compensate their employees for the higher cost of living.** Cross-country wage differences narrow after adjusting for price differences. Measured at current purchasing power parity (PPP) exchange rates, the wage gap stood at about 30 percent in 2017 (in percent of Swiss salaries), compared to about 50 percent at market exchange rates. Moreover, the PPP-adjusted wage gap has been relatively constant over time.



**7. Appreciation of the Swiss franc since the global financial crisis has widened the cross-border nominal wage gap.** On several occasions, the safe-haven Swiss franc has appreciated sharply against the euro since 2008. These successive appreciation surges expanded wage differentials. Despite some reversal since 2015, cumulative franc-euro appreciation accounts for most about 30 percent of the widening of the wage gap since the early 1990s. Other factors—mainly i increases in foreign wages (measured in euros) and —contributed nearly half to the wider gap, while nominal growth in Swiss wages (measured in Swiss francs) nearly offset each other has contributed a smaller share.



<sup>8</sup> <https://www.ubs.com/microsites/prices-earnings/en/intro/>

<sup>9</sup> According to Credit Suisse, 2018. Transfers from consumers and taxpayers to producers of several agricultural goods arising from policy measures equal about CHF 3.5 billion per year, and create a gap between domestic market prices and border prices (OECD 2017a). In addition, pharmaceuticals are subject to separate authorization procedures and restrictions on sales.