EXPLAINING THE BEHAVIOR OF THE SWISS FRANC AND ITS LONG-TERM GLOBAL MACRO OUTLOOK

www.snbchf.com (as George Dorgan)

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Explaining the behavior of the Swiss Franc and its long-term outlook

• Take-aways
• Part 1: Balance of Payments and the missing link in the CFA material: Equity investments & micro versus macro & FX

• Part 2: Global Macro History
  Bretton Woods and its sudden death, Bretton Woods II and its slow death

• Part 3: Will the Swiss capital account be able to neutralize the persistent current account surpluses?
TAKE-AWAY 1: DON’T FEAR INFLATION

World of aging-induced weak consumption, pay-down of debt, tight monetary & fiscal policy, “total factor productivity effect”

Emerging Markets:
Apart from China, these new garants of growth are growing very slowly
- Necessity enforced by current account/FX rate depreciation
- or by aging?
- or by real estate prices?
TAKE-AWAY 2: SNB WILL STOP FRANC ONLY TEMPORARILY

Swiss Franc Should Appreciate in 2 Phases: 1) Fear Phase, 2) Swiss Boom Phase
Temporary Stop at "Krugman’s Lower Bound"

Phase 1: Fear Phase
“Reverse Carry Trade”
Swiss CPI > 1%
EUR/CHF < 1.20

Phase 2: Swiss Boom Phase
Swiss inflation higher than Euro zone inflation
→ Recover previous rise for periphery wages

Phase 3: The bust phase will most certainly come, too.
CONTENT

Explaining the behavior of the Swiss Franc and its long-term outlook

Part 1:
Balance of Payments and the missing link in the CFA material:
Link from equity investments & micro towards macro & FX
The currency of a country with a positive Balance of Payments (a *BOP surplus*) must appreciate; while, one with a BOP deficit must devalue.

2013: Swiss BOP old picture: capital account outflows (ex SNB) absorb current account inflows
ACCORDING TO BANK ANALYSTS THE SWISS FRANC “SHOULD HAVE WEAKENED”

Current Account
- Trade in Goods and Services
- Investment Income
- (Primary and secondary income)

Capital Account or Financial Account
- \( \Delta \) Portfolio Investments
  - \( \Delta \) Bond Investments : “Investors will buy peripheral bonds and sell Swiss ones”
  - \( \Delta \) Money Market Investments : “Rate differentials against CHF”
  - \( \Delta \) Equities Investments : “Swiss Franc is overvalued, Swiss exporters have problems”
  - \( \Delta \) FX Speculators: “Risk-On: New carry trade against CHF, same as JPY”
- \( \Delta \) Direct Investments : “Swiss firms invest more abroad when fear recedes”.
- \( \Delta \) Lending of banks and corporates
- **Central Bank Reserves**

Strangely nobody speaks of higher Swiss consumer spending and a weaker trade surplus

George Dorgan, Seeking Alpha: The Swiss Franc, Pseudo-Mathematics And Financial Charlatanism
## EQUITY MARKET EVALUATIONS
### COBB-DOUGLAS PRODUCTION FUNCTION

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \Delta Y/Y )</td>
<td>Percentage growth in real output (GDP)</td>
</tr>
<tr>
<td>( \Delta A/A )</td>
<td>Percentage growth in total factor productivity</td>
</tr>
<tr>
<td>( \Delta K/K )</td>
<td>Percentage growth in the capital stock</td>
</tr>
<tr>
<td>( \Delta L/L )</td>
<td>Percentage growth in labor</td>
</tr>
<tr>
<td>( \alpha )</td>
<td>Output elasticity of capital</td>
</tr>
<tr>
<td>( 1 - \alpha )</td>
<td>Output elasticity of labor</td>
</tr>
</tbody>
</table>

Advanced economies: \( \Delta K/K \) as leverage for GDP growth reaching its limit, TFP including investments abroad

\[
\frac{\Delta Y}{Y} \approx \frac{\Delta A}{A} + \alpha \frac{\Delta K}{K} + (1 - \alpha) \frac{\Delta L}{L}
\]
TOTAL FACTOR PRODUCTIVITY, GLOBAL CARRY TRADE AND CHF

Globalized trade flows and supply chains
Access to credit fully available in Emerging Markets

TFP lowers inflation in developed nations, via increasing industrial capacity / supply / (normal) productivity from Emerging Markets + technology

“Great Moderation” lead to “Global Carry Trade” against “consumption country” USA and against saver countries Japan/Switzerland in favor of currencies of Emerging Markets and European housing boom countries, countries with a higher carry, i.e. higher inflation

Real Effective Exchange Rate for CHF currently on the long-term trend
A bit stronger thanks to immigration, in particular thanks to more highly qualified personnel
MICROECONOMICS

Equity Analyst: Discounted Cash Flow model

\[
\sum_{all\ periods\ i}^{n} CF_i = (1 - t) \ast payout \ast \frac{1}{(1 + r)^i} \ast \sum(x_i \ast p_i - c_{L_i} - c_{K_i} + TFP_i)
\]

Continuous Evaluation:

Equity \(\Delta\) Price = Estimated Future \(\Delta\) in profits

- Estimate Output \(x\)
- Estimate Price \(p\)
- Estimate Capital costs / wacc \(c_K\)
- Estimate Labor costs \(c_L\)
- Assuming: Payout, Tax rate and fixed costs remain the same

\(\Delta\)profit = based on estimates of \((\Delta x, \Delta p, \Delta c_L, \Delta c_K)\)
FROM MICRO TO MACRO

\[ \sum_{all \ firms}^n \ profit = (1 - t) \times \sum(x \times p - c_L - c_K + TFP) \]

Macro Analyst:

Total \( \Delta \) Value of Companies = Estimated Aggregated \( \Delta \) in Profits
--- Estimate Capital Costs, Labor Costs
--- Estimate Output
--- Estimate Output Price
--- Estimate TFP (as residual)

\[ GDP \ growth = \sum_{all \ firms \ incl. \ gov.}^n \Delta profit + \Delta wages \]

Don‘t get confused by macroeconomic noise!

Macro = \( \sum \) Micro

but: Macro \( \neq \) Stock Market Index (Exxon \( \approx \) Luxembourg)
- selection – survivorship bias
- government - not listed
- easier access to TFP via global investments
COMMON PITFALLS IN FX THINKING

Case 1: CHF rises from EUR/CHF 1.50 to EUR/CHF 1.20 by 20%. Is this a problem?

$$\sum_{all\ firms} \Delta \text{profit} = (1 - t) \sum (\Delta x \cdot \Delta p \cdot 0.3 - c_L \cdot 0.3 \cdot 1.2 - c_K \cdot 0.5 + TFP)$$

With stronger currency $c_L$ on exported part (0.3) rise, but $c_K$ for whole economy fall.
$\rightarrow$ danger of wrong capital allocations

Case 2: A Euro exit /currency depreciation reduces labor costs for export industries, but increases capital costs for the whole economy $\rightarrow$ currency risk is expensive
$\rightarrow$ European leaders want both: cheap capital and (relatively) cheap labor

$$\sum_{all\ firms} \Delta \text{profit} = (1 - t) \sum (\Delta x \cdot \Delta p \cdot 0.3 - c_L \cdot 0.3 \cdot 0.8 - c_K \cdot 2 + TFP)$$

Case 3: Currency depreciation can entrain imported inflation, higher wage demands.
- May end in hyper-inflation $\rightarrow$ Central banks in EM fight currency depreciation

_The base exception: United States as reserve currency thanks to its wealth, tradition_
FROM MACRO TO CURRENCIES

If profits for companies of one country are expected to rise more than in the other:
→ Currency appreciates

Reasons could be: $X_{\text{local}}$ and $X_{\text{foreign}}$

**In most cases it is $X_{\text{foreign}}$**

$X_{\text{local}}$ usually moves with salaries / labor costs
→ Null-sum-game

**Exception case:**
Reducing household savings rate increases $X_{\text{local}}$ and GDP and company profits.

But FX rate may still move in the opposite direction with the rising trade deficit.

**Swiss success factors:**
- Rising profits on trade surplus $X_{\text{foreign}}$
- Reduces labor costs via $L_{\text{foreign}}$
- Low tax attract foreigners

Source: Nordea Markets and Reuters Ecowin
PURCHASING POWER PARITY AND LABOR COSTS

PPP: Currency of a country with higher inflation depreciates

\[
E(FX_t) = \frac{1 + \text{inflation}_A}{1 + \text{inflation}_B} \ast FX_0 \approx \frac{1 + \Delta C_{LA}}{1 + \Delta C_{LB}} \ast FX_0
\]

An evident relationship for Japan...

Unit labour cost growth determines inflation rates

... and the United States

\[\text{ULC}_1 \text{ defined as gross income per employee divided by real GDP per capita in total working population}\]

\[\text{Inflation}^{(2)} \text{ as GDP deflator}\]

\[\text{Inflation}^{(3)} \text{ as price index of goods and services}\]

\[\text{ULC}^{(4)} \text{ as gross income of employees per hour divided by real GDP per hour of total working population}\]
Explaining the behavior of the Swiss Franc and its long-term outlook

Part 2:
Bretton Woods and its sudden death, Bretton Woods II and its slow death

Dollar Against CHF and DEM/Euro and Real Gasoline Prices

1981-2001: Nearly unchanged USD/CHF rate, despite higher US inflation
From undervalued dollar in 1981 to overvalued dollar in 2000
BRETTON WOODS AND ITS BREAKDOWN

Bretton Woods was a stable system until 1965

Lower wage level and higher pay rises in Germany still allow for higher German consumption increases

<table>
<thead>
<tr>
<th>Change in Total Consumption</th>
<th>1961</th>
<th>1962</th>
<th>1963</th>
<th>1964</th>
<th>1965</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>10.3%</td>
<td>10.0%</td>
<td>7.2%</td>
<td>7.0%</td>
<td>10.7%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>11.4%</td>
<td>12.2%</td>
<td>9.4%</td>
<td>9.3%</td>
<td>7.6%</td>
</tr>
<tr>
<td>United States</td>
<td>4.0%</td>
<td>6.9%</td>
<td>4.9%</td>
<td>6.9%</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

Source Mark Thoma
Germans/Swiss Reacted to higher rates with higher savings, Americans continued consumption
Only Volcker managed to beat the spending boom with higher unemployment
BRETTON WOODS AND ITS BREAKDOWN

- Why could Americans Increase Consumption so much?
  - Because wages were rising...
  - Because money & credit were rising

**Figure 2**

Average Annualized Hourly Earnings Growth, 12-Month Moving Average, 1971-80

**Figure 3**

Year-Over-Year Monetary Base Growth Minus Year-Over-Year Real GDP Growth, 1963:Q1-1981

Capital flows got globalized, **but trade flows only a bit**

Credit growth translated into wage growth and into price inflation

High borrowing costs and missing investments weakened productivity

US wages were rising too quickly in global comparison → currency must collapse

Same issue as before Great Depression: during soaring 1920s wages were rising everywhere (Rothbard)
BRETTON WOODS II

Once again: “Please finance my investments with US current account deficits”

The Bretton-Woods II schematic

Source: UBS, Bawerk.net
Why could Americans increase consumption so much?

- Home prices and perceived wealth were rising
- Exceptional TFP in durables -> Low inflation

But US wages are not really rising
Real wages were even contracting
Higher consumption translated in rising trade and current account deficits

source: International Trade Commission, Bureau of Economic Analysis
BRETTON WOODS II STOPS WORKING WHEN WEST STOPS SPENDING

- EM wages were rising too much
- US savings rate up from 0.4% in early 2007 to 5.7% in 2014
- Real wages increase in U.S. but “consumers misbehave”
- Real retail sales only up 2.5% per year since 2009

U.S. Manufacturing Slowly Recovers

![Graph showing resource utilization rate components and investment in equipment as a percent of GDP for different countries, including Italy, Germany, US, and France, with a source note to the European Commission.]
IS BRETTON WOODS II ENDING? A LOOK ON INFLATION

Massive built-up of production capacities in EM, while U.S. is just recovering a bit
• That will help to keep global inflation low and TFP for durables high

![Gross Fixed Capital Building in % GDP](chart)

Real US GDP still driven by TFP and “durables deflation”

<table>
<thead>
<tr>
<th>United States Real GDP Growth (annualized)</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal consumption expenditures ..........</td>
<td>2.3</td>
<td>1.8</td>
<td>2.4</td>
<td>1.2</td>
</tr>
<tr>
<td>Goods...........................................</td>
<td>3.1</td>
<td>2.8</td>
<td>3.4</td>
<td>1.0</td>
</tr>
<tr>
<td>Durable goods...................................</td>
<td>6.1</td>
<td>7.3</td>
<td>6.7</td>
<td>3.2</td>
</tr>
<tr>
<td>Nondurable goods...............................</td>
<td>1.8</td>
<td>0.7</td>
<td>1.9</td>
<td>0.0</td>
</tr>
<tr>
<td>Services........................................</td>
<td>1.8</td>
<td>1.3</td>
<td>1.9</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Source BEA
INTERNATIONAL FISHER EFFECT AND THE COLLAPSE OF THE CARRY TRADE

Finally the central bank must hike interest rate to fight inflation, but Western central banks – in particular US Fed - are reluctant to do so

Fisher Effect: Interest rate differentials := inflation rate differentials

- Cost of labour

\[ E (FX_t) = \frac{1 + \Delta C_{LA}}{1 + \Delta C_{LB}} \times FX_0 \]

- Cost of capital

\[ E (FX_t) = \frac{1 + \Delta C_{KA}}{1 + \Delta C_{KB}} \times FX_0 \]

Rising labour and capital costs must end in collapsing profits, higher unemployment and - sooner or later - in a collapse of the carry trade in favor of a high inflation country

\( X_{local} \) keeps things going until either consumer behaviour changes or current account and subsequently the currency collapses

\[ \sum_{all\ firms}^{n} \text{profit} = (1 - t) \times \sum (x \times p - c_L - c_K) \]
IS BRETTON WOODS II ENDING? A LOOK AT INFLATION

US CPI: at 2.0% YoY
Services inflation (60% of basket) at 2.74%,
   ---  of which 2.9% shelter/housing (30%) aka asset price inflation
“Commodities”/durables inflation (20%) at -0.3% (big part of it imported in global supply chains)
Energy/Food inflation (20% of basket) at 2.5%

Blueprint for Swiss CPI basket in the next decade(s)
Services from 56% in 2007 to 59% of basket (no owner-occupied rent)
Regulation on rents (indexation to mortgage rates) prevents rents inflation, for now only 1% ...
Health care & rents = 41% of Swiss basket
THE SLOW END OF BRETTON WOODS II?

Bretton Woods II:
• Insufficient money in EM compared to invest/spending desire → money multiplier effect fully valid
• Excessive money in advanced economies → money multiplier effect not valid
• Advanced economies provide additional cheap money for additional capacity, investments
• often in form of foreign direct investments, the leaders (relative to GDP) are CH, GER

Slow End of Bretton Woods II: Tight monetary policy + rising wages
• EM wages have risen too much, EM less competitive
• Central banks maintain tight monetary policy and high real yields
• No financial repression in EM on long-term deposits
• Western funds have become tight with the fear of EM currency collapses
• In order to keep current accounts in shape, EM reduce import of capital goods & their investments
• Weaker currency/spending & less investments creates more unemployment in EM
• With lower FX rate, oil price got too expensive in their currency → demand weakens (slightly rising supply (shale, Libya))
• West does not increase its demand any more → Brent oil down from the 147$/2008 and 130$/2011 peaks to 100$ in 2014
BRETTON WOODS II, END OF THE GLOBAL CARRY TRADE?

Central banks in EM fight currency depreciation
EM struggle with both higher labor and higher capital costs

Source: Nordea Markets and Reuters Ecowin

Figure 5: May-13 to Jul-14 change in real rates – decomposed by contribution from nominal and inflation

Current Accounts of Emerging Markets worse than in 2007 but better than the IMF Projection of 2013 – current account in % of GDP

snbchf.com & CFA Society
Explaining the behavior of the Swiss Franc and its long-term outlook

Part 3: Will the Swiss capital account be able to neutralize the persistent current account surpluses?
The currency of a country with a positive Balance of Payments (a BOP surplus) must appreciate; while, one with a BOP deficit must devalue over time.

2013: Swiss BOP back to old picture: capital account outflows absorb current account inflows
“Current account surplus: portion of the income of this country not spent on consumption and investment at home. The savings surplus invested abroad, so country’s balance abroad rising.”
no objections to a country that rather saves, and that invests the savings surplus abroad, i.e. exports capital."

Are the Swiss still ready to export capital with the ending of Bretton Woods II?
SWISS CAPITAL ACCOUNT ABLE TO NEUTRALIZE THE STRONG CURRENT ACCOUNT SURPLUSES?

Outflows in 2009 to 2012 mostly caused by SNB
KEY FACTOR: PORTFOLIO INVESTMENTS

Until 2006 Swiss strongly invested abroad

While new foreign portfolio investments in Switzerland fell to zero....
WILL THE SWISS INVEST MORE STRONGLY ABROAD AGAIN?

While the SNB owns more than 50% of the Net International Investment Position
• with a far lower yield than Swiss companies might be able to achieve
KEY FACTOR PORTFOLIO INVESTMENTS

\[ \sum_{\text{country } 1}^{n} \text{profit expectations go up more than for other countries} \rightarrow \text{FX rate appreciates} \]

2012: With strong Swiss Q1/2012 GDP release 
EUR/CHF = 1.2008:
Massive foreign purchases of Swiss equities despite SNB heavily buying foreign stocks

2014: US stocks beat Swiss ones
SNB is recently leading in the rallye for better stock market performance against foreign portfolio investors in Switzerland

Yahoo Finance
SMI vs. S&P500, Eurostoxx
SWISS CAPITAL ACCOUNT ABLE TO NEUTRALIZE THE STRONG CURRENT ACCOUNT SURPLUSES?

Capital Account:
Stable factor: investment income (rising)
Key factor: trade surplus

Swiss Current Account Components Compared to SNB and Financial Account
Given that Bretton Woods II is slowly ending....

And the period of this form of “economic colonisation” might be end once wage differences shrink. China and Russia are already showing their muscles against foreign companies.

and Germany got hit first...
CAPITAL ACCOUNT: WILL THE SWISS MORE STRONGLY INVEST ABROAD AGAIN?

Or will they simply continue receiving the yield from their existing foreign investments?

<table>
<thead>
<tr>
<th>Domestic Savings minus Domestic Investments, in % of GDP</th>
<th>2013</th>
<th>2007</th>
<th>1999</th>
<th>1983</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arab World</td>
<td>17.6</td>
<td>16.1</td>
<td>5.6</td>
<td>-2.9</td>
</tr>
<tr>
<td>Switzerland</td>
<td>11.3</td>
<td>10.8</td>
<td>4.2</td>
<td>-0.4</td>
</tr>
<tr>
<td>Russia</td>
<td>10.3</td>
<td>11.8</td>
<td>17.5</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>6.0</td>
<td>7.8</td>
<td>1.3</td>
<td>-2.8</td>
</tr>
<tr>
<td>China</td>
<td>4.2</td>
<td>11.4</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>1.8</td>
<td>0.4</td>
<td>2.3</td>
<td>-0.1</td>
</tr>
<tr>
<td>Spain</td>
<td>2.8</td>
<td>-6.4</td>
<td>-1.3</td>
<td>-0.9</td>
</tr>
<tr>
<td>United States</td>
<td>-3.0</td>
<td>-4.7</td>
<td>-2.1</td>
<td>-1.6</td>
</tr>
<tr>
<td>Greece</td>
<td>-3.3</td>
<td>-14.0</td>
<td>-9.2</td>
<td>-8.2</td>
</tr>
<tr>
<td>India</td>
<td>-9.6</td>
<td>-8.3</td>
<td>1.0</td>
<td>10.2</td>
</tr>
</tbody>
</table>

snbchf.com based on World Bank data

Maintaining a second Swiss economy abroad and helping India with IT & infrastructure investments against weaker savings and recruiting the very best foreigners for work in Switzerland.
July 2014: Thanks to stronger terms of trades, Swiss trade surplus at record high

No sign of rising Swiss labor costs and inflation
→ No comparison to the 1980s yet
Profit margins of Swiss companies are still high, visible in trade balance

**Conclusion:** Swiss Franc will only depreciate more strongly when Swiss start spending more or the highly qualified foreigners leave Switzerland again
REFERENCES

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• George Dorgan, Purchasing Power Parity: Is CHF overvalued?, http://is.gd/hdklun
• George Dorgan, The Balance of Payments Model, http://is.gd/UcYADn
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• The Economist, Labor Productivity, http://is.gd/sKJo9n
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Suggested reading:

• George Dorgan, Seeking Alpha: FX Rates, Contrarian Investment And The Misleading Concept Called GDP, http://is.gd/zUA8W9