MPE_AMEM: Azerbaijan 2015-2016

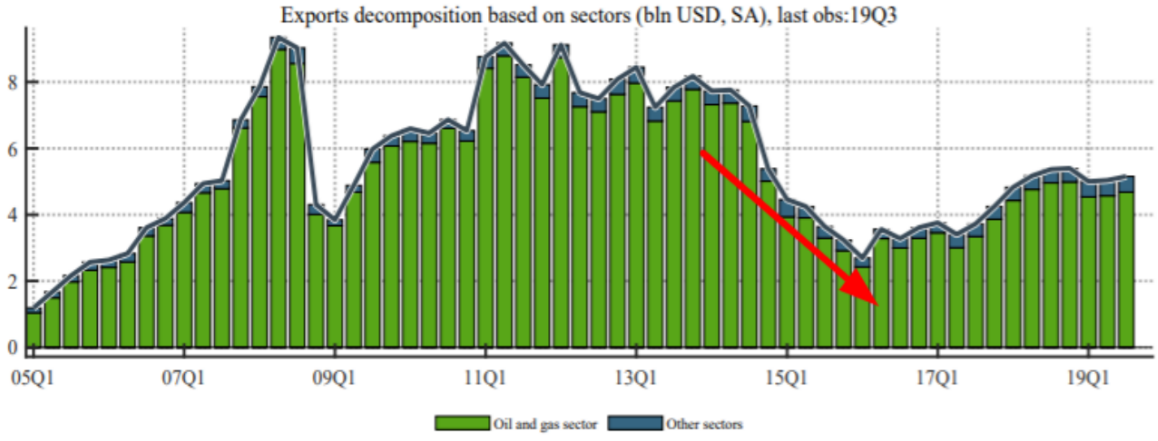
Tomas Motl, Course for Masaryk University, Spring 2021

What Happened

Oil Shock

Rapid, permanent decline of oil price:

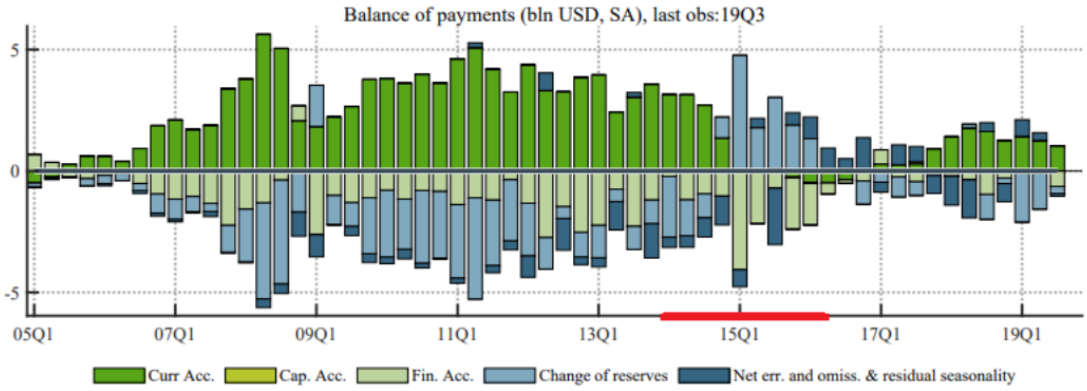
Large drop in export revenues:



Two problems here:

- drop in fiscal revenues (austerity, decline in domestic demand)
- imbalance in the forex market

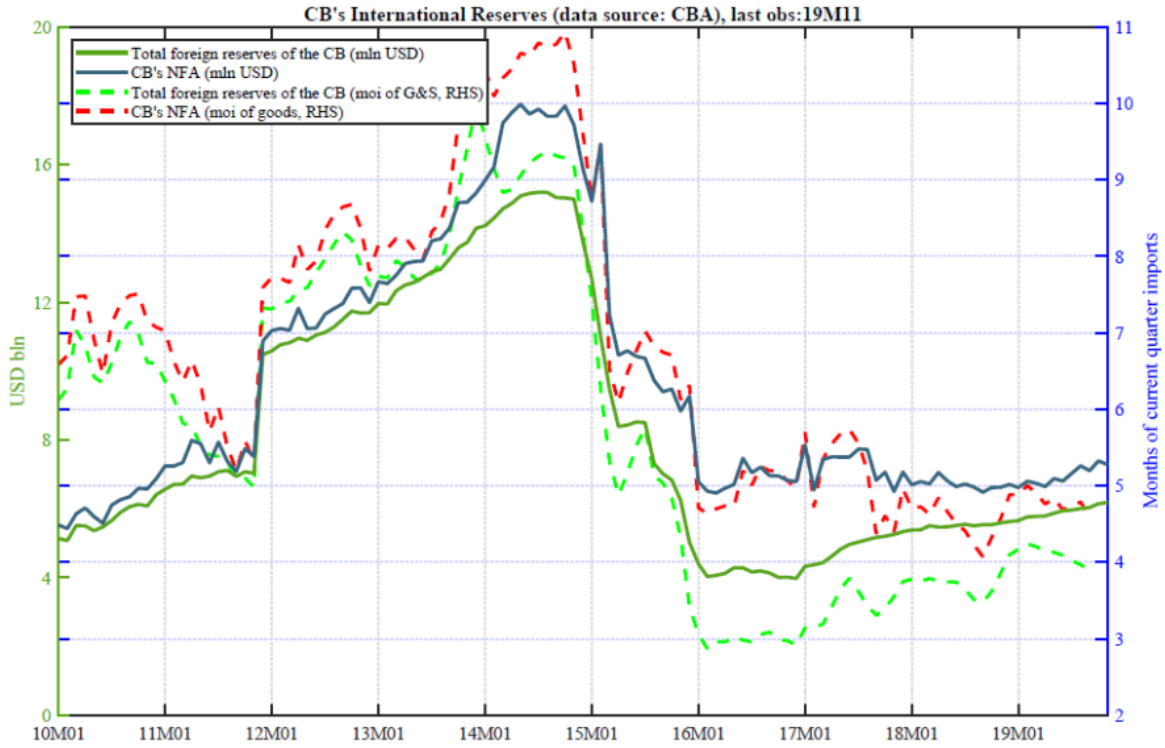
BoP problems



Note:

- CA surplus disappeared
- FA deficit (outflows) intensified:
    - Outflows before: e.g. SOFAZ investments
    - Outflows in 2015 - people trying to run away from manat
    - CBA replaced missing inflows by selling forex reserves

But forex reserves sales was a temporary to permanent problem:

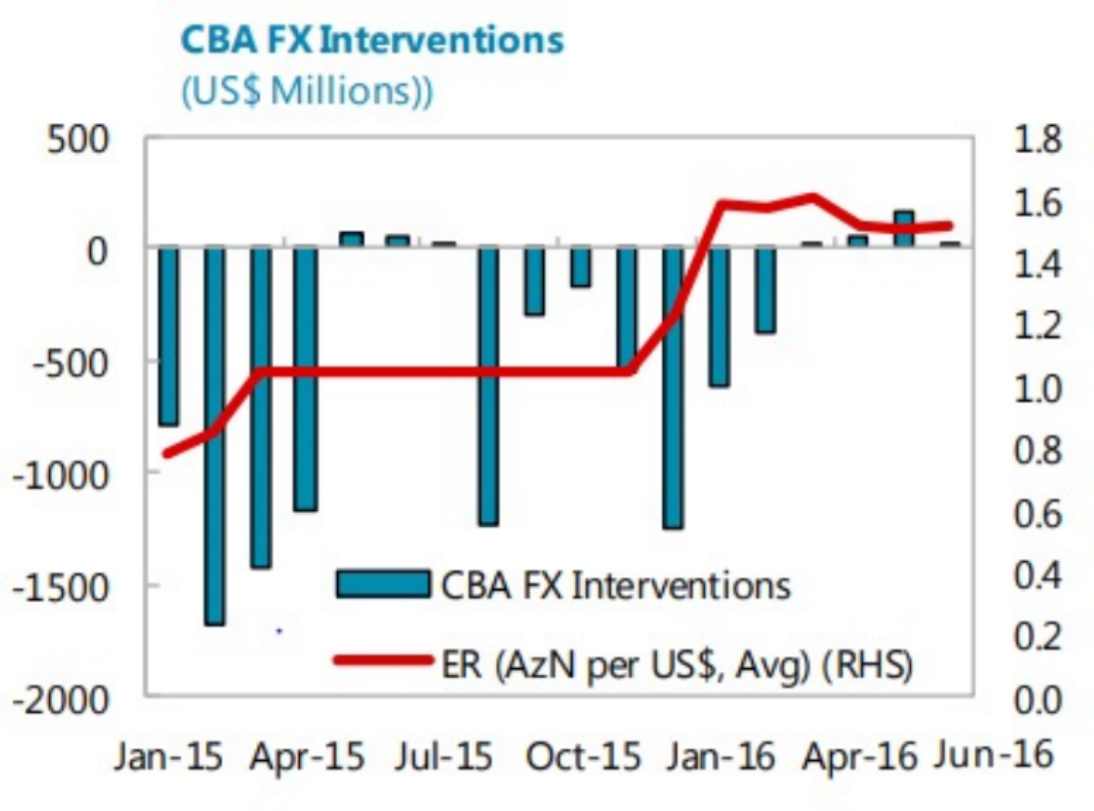


How can you solve the imbalance:

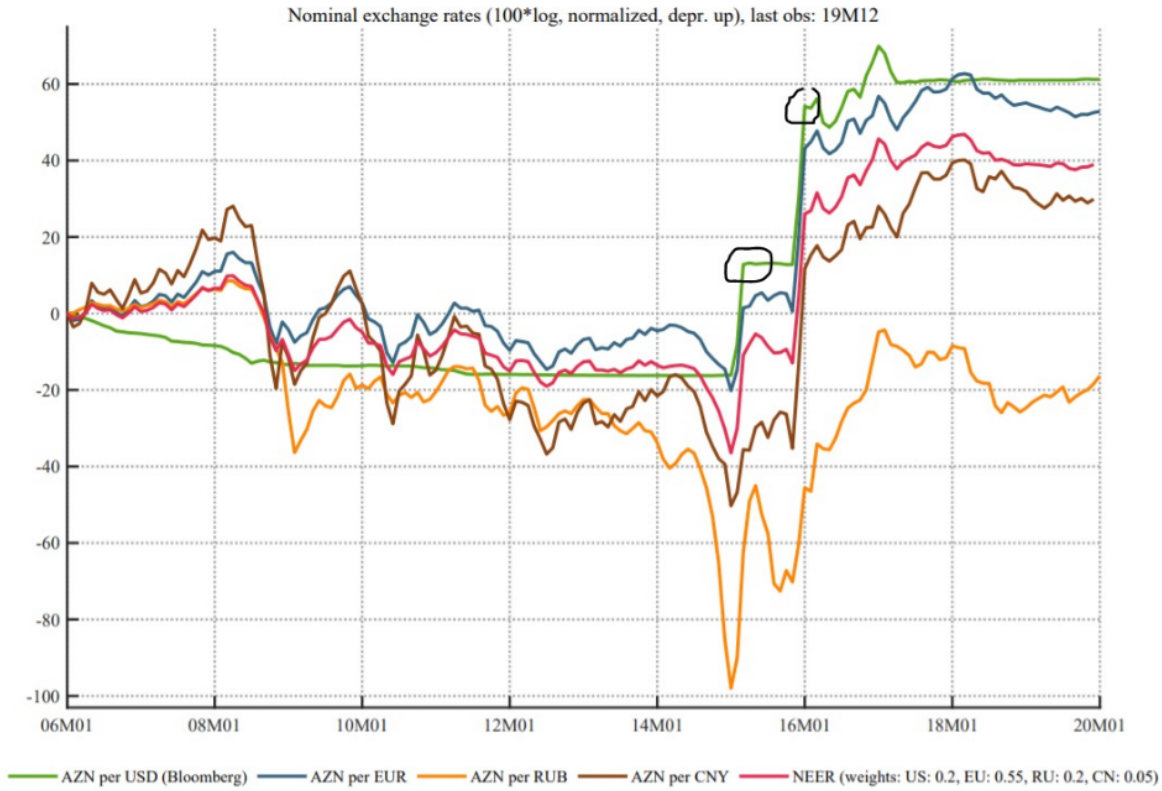
- permanently increase borrowing (from where?)
- increase exports again (how? how quickly?)
- decrease imports (how?)
    - restrictions

- making imports more expensive
  - lower household incomes in LCY with the same FX rate
  - same household incomes in LCY with weaker FX rate

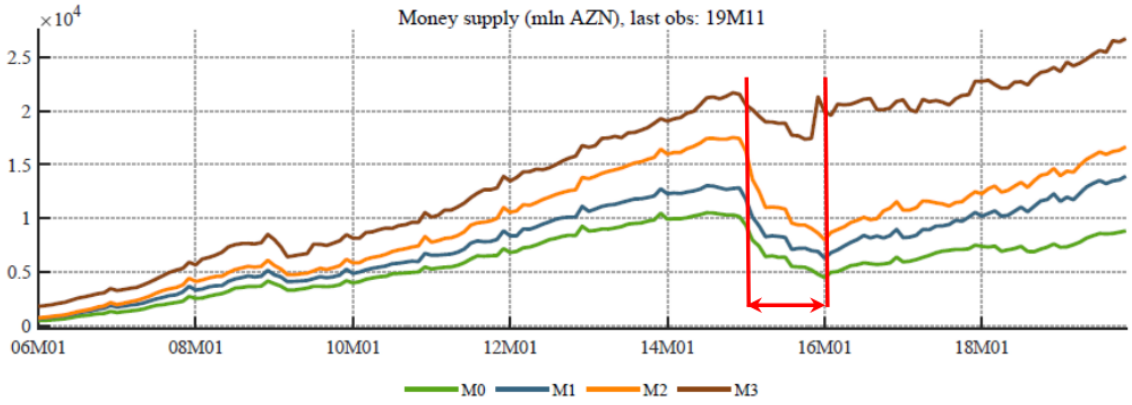
CBA Response



But eventually CBA had to allow for weaker FX rate. Why not weaker wrt Russian ruble?



Important: FX interventions are also monetary policy!

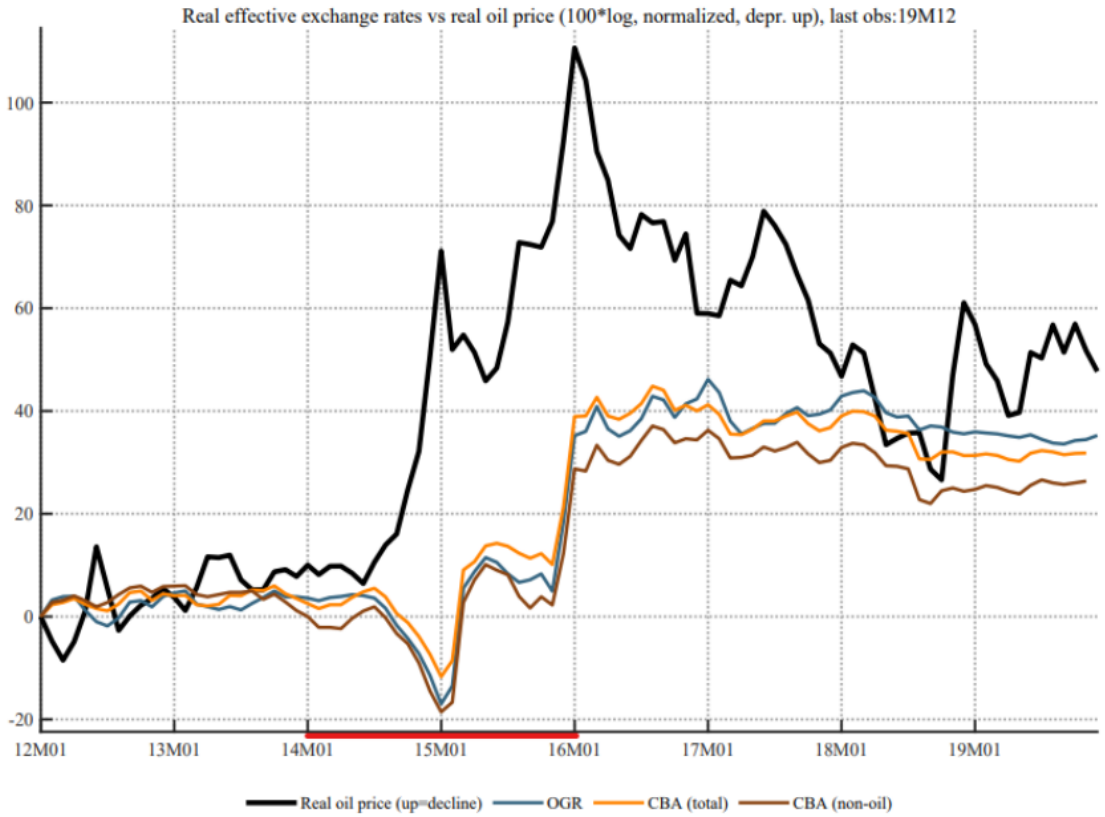


Evaluation:

- CBA postponed inevitable
- faster adjustment would have saved reserves, helped economy, shortened the crisis
    - expectations: people knew devaluation was coming, so pressure on inflation (no body wants to hold manat)
- crisis was inevitable, baked in the FX regime

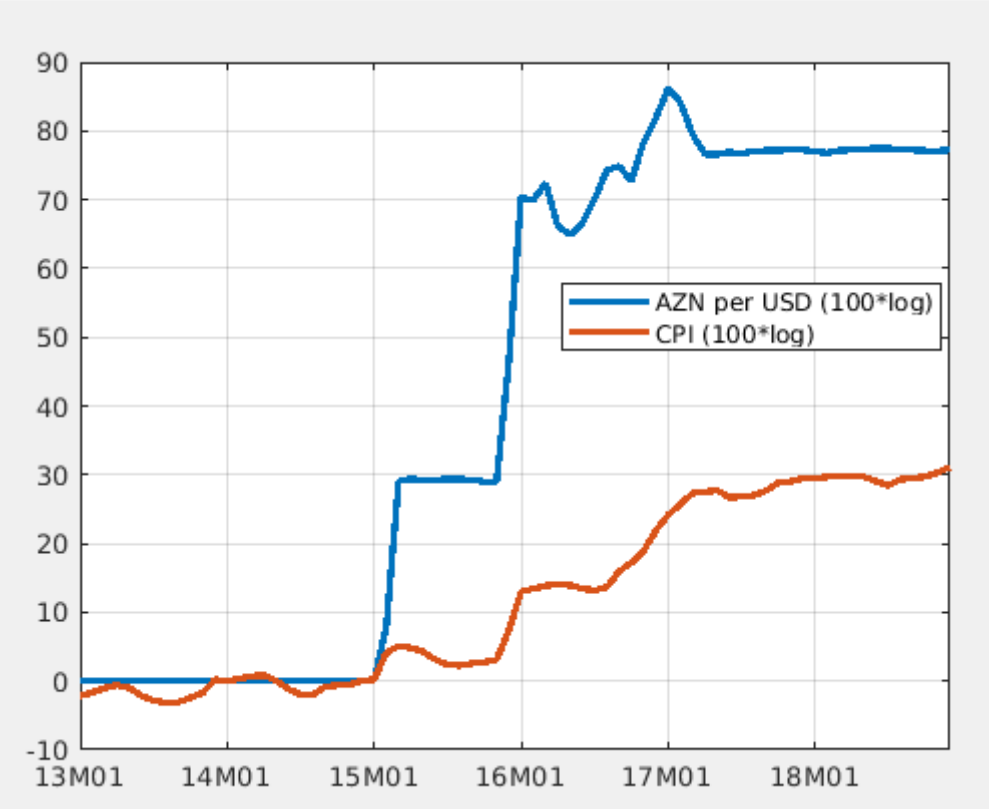
Impact on REER

Permanent impact on REER (trend):

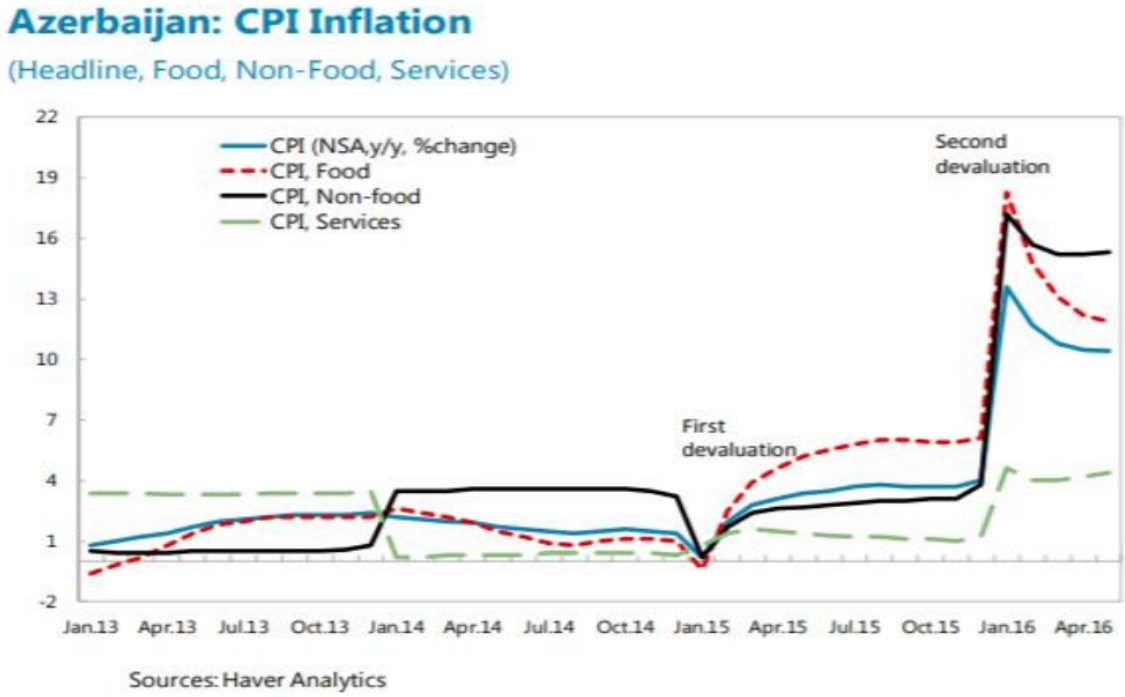


Impact on inflation / CPI

CPI change much smaller than the FX change.



REER adjustment requires that relative prices change. Import prices went up, prices of domestic production (wages) remained low.

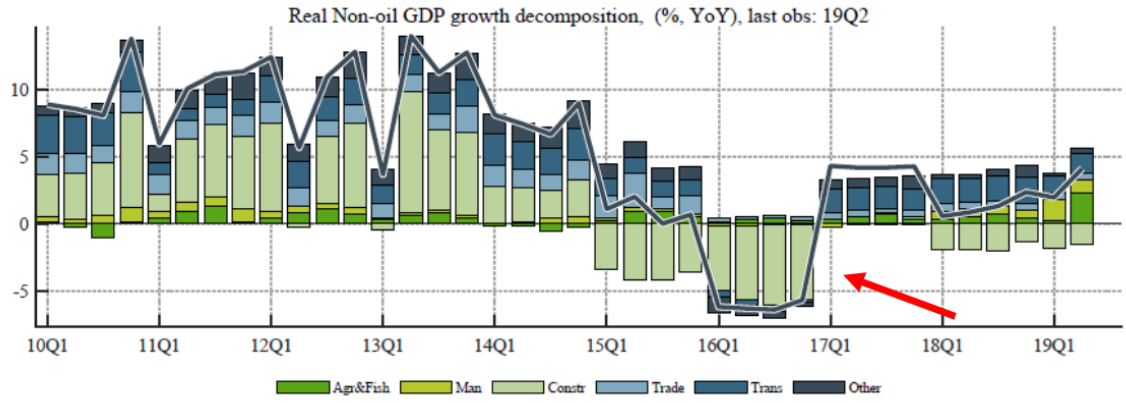


Very typical for the fundamental shocks. Very different from UIP / CPI target shocks. That's why estimation on data is very difficult unless you have long time series where all shocks are proportionally represented.

CBA hiked rates to calm public and control inflation expectations. Probably had not a large effect, cause of weak transmission.

Do you believe this CBA statement?
"This decision is based on the purpose of *creating additional incentives for diversification of national* economy, to reinforce international competitiveness and export potential, and therefore, to ensure the strategic sustainability of balance of payments and solvency."

Impact on growth



How to Model It

Our job is to choose a suitable combination of shocks to represent the effects above.

Oil price is part of foreign block and therefore will be imposed automatically, no need to do anything there.

We have oil effects in the model, but they will not be sufficient to give us a good forecast:

- model is calibrated for "normal" times, crisis is different, real world is non-linear
- model is missing some transmission channels

- model is imperfect as it is

We start with overview how variables should move

Trends

- (permanent), quick shift in REER trend level (by ?%)
- (permanent) slowdown in REER appreciation
- (partly temporary) increase in country risk premium
- (partly temporary) drop in potential output growth
- (temporary) increase in CPI target tp represent elevated inflation expectations

Gaps

- REER gap initially overvalued, then overshooting into undervaluation (typical pattern)
- output gap to the negative
- RIR gap - ?

How to do it

1. Run plain forecast: do not put any tunes. We will observe what the model + external assumptions implies.
   (command in Matlab: "c.forecast('baseline')")
2. Identify where the forecast goes wrong.
3. Start with trends - implement tunes, observe results.
4. Add gap tunes, observe results.
5. Repeat 2-4 until happy.

Note: Only put soft tunes, ie. shocks, do not tune trends or gaps directly (hard tunes).

Reports

cmop will generate forecast report which you can use to understand the forecast.

You can also run file "compare_results.m" which will compare your forecast of main variables to the actual historical data.

Technicalities

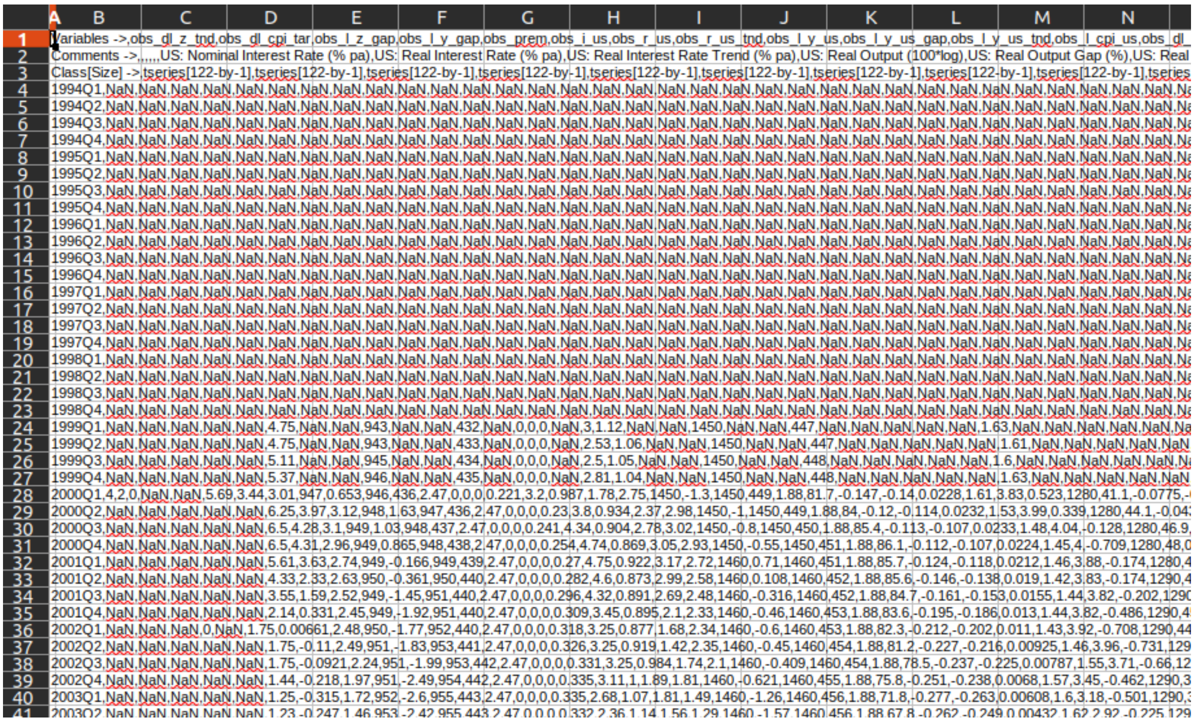
Adding Tunes

Add tunes to file "az_model/tunes/az_baseline_tunes.csv". Do not delete anything from this file. If you mess it up, download the file again from IS.

You can add new columns to add tunes. Column header should be the name of shock or variable (as in the model file) you want to tune. Shock = soft tune, variable = hard tune. Preferably use shock tunes only.

Note

The CSV file can be open in Excel. However, Czech Excel version will most likely display it wrongly, because it expects columns to be separated by semicolon ";", while the are separated by comma ",".



To fix that, see the third suggested solution here:
https://kb.paessler.com/en/topic/2293-i-have-trouble-opening-csv-files-with-microsoft-excel-is-there-a-quick-way-to-fix-this
Or download LibreOffice (free, https://www.libreoffice.org/download/download/) and open the CSV in LibreOffice.

The file should look like this:

	A	B	C	D	E	F	G	H	I
1	Variables ->	obs_dl_z_tnd	obs_dl_cpi_tar	obs_l_z_gap	obs_l_y_gap	obs_prem	obs_i_us	obs_r_us	obs_r_us_tnd
2	Comments ->						US: Nominal Interest Rate (% pa	US: Real Interest Rate (% pa	US: Real Interest Rate Trend (% pa
3	Class[Size] ->	tseries[122-by-1]	tseries[122-by-1]	tseries[122-by-1]	tseries[122-by-1]	tseries[122-by-1]	tseries[122-by-1]	tseries[122-by-1]	tseries[122-by-1]
4	1994Q1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
5	1994Q2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
6	1994Q3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
7	1994Q4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
8	1995Q1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
9	1995Q2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
10	1995Q3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
11	1995Q4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
12	1996Q1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
13	1996Q2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
14	1996Q3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
15	1996Q4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
16	1997Q1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
17	1997Q2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
18	1997Q3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
19	1997Q4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
20	1998Q1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
21	1998Q2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
22	1998Q3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
23	1998Q4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
24	1999Q1	NaN	NaN	NaN	NaN	NaN	4.75	NaN	NaN
25	1999Q2	NaN	NaN	NaN	NaN	NaN	4.75	NaN	NaN
26	1999Q3	NaN	NaN	NaN	NaN	NaN	5.11	NaN	NaN
27	1999Q4	NaN	NaN	NaN	NaN	NaN	5.37	NaN	NaN
28	2000Q1	4	2	0	NaN	NaN	5.69	3.44	3.01
29	2000Q2	NaN	NaN	NaN	NaN	NaN	6.25	3.97	3.12
30	2000Q3	NaN	NaN	NaN	NaN	NaN	6.5	4.28	3.1
31	2000Q4	NaN	NaN	NaN	NaN	NaN	6.5	4.31	2.96
32	2001Q1	NaN	NaN	NaN	NaN	NaN	5.61	3.63	2.74
33	2001Q2	NaN	NaN	NaN	NaN	NaN	4.33	2.33	2.63
34	2001Q3	NaN	NaN	NaN	NaN	NaN	3.55	1.59	2.52
35	2001Q4	NaN	NaN	NaN	NaN	NaN	2.14	0.331	2.45
36	2002Q1	NaN	NaN	NaN	0	NaN	1.75	0.00661	2.48
37	2002Q2	NaN	NaN	NaN	NaN	NaN	1.75	-0.11	2.49
38	2002Q3	NaN	NaN	NaN	NaN	NaN	1.75	-0.0921	2.24
39	2002Q4	NaN	NaN	NaN	NaN	NaN	1.44	-0.218	1.97
40	2003Q1	NaN	NaN	NaN	NaN	NaN	1.25	-0.315	1.72
41	2003Q2	NaN	NaN	NaN	NaN	NaN	1.23	-0.247	1.46
42	2003Q3	NaN	NaN	NaN	NaN	NaN	1	-0.623	1.39
43	2003Q4	NaN	NaN	NaN	NaN	NaN	1	-0.698	1.36