

Exchange rate problem at the beginning of the transformation process

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- Klaus says that the setting of the exchange rate was the most difficult task in the whole transformation process.
- The reason was partly the complexity of the problem
- Foreign advisers recommended setting exchange rate between 20 up to 40 crowns per USD. It did not help reformers much. :-)
- We explain the theoretical background and later on the entire problem in this presentation

preconditions

- this presentation shows just very simple cases or impacts. Reality is much more complicated.
- we suppose foremost that
 - inflation is equitable – all prices (including wages!) change the very same way
 - all foreign currency reserves are held by the central bank (it worked like that at the beginning of the transformation)

- note that we use the direct quotation of exchange rate ... it means that the exchange rate is expressed in the form 18 CZK per USD. Instead of the indirect quotation that says 1 CZK is $1/18$ of USD!

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 - crown is too weak



The first part

THEORETICAL BACKGROUND – BASIC TERMS

1. Impact of the nominal exchange rate change

- the basic impact is clear – devaluation helps exports and has negative impact on imports. Appreciation has the opposite effect.
- we can imagine a basic case. First of all, the exchange rate is 10 crowns per USD. Crown devaluates to 20 crowns per USD. It means that a Czech exporter selling a product in the USA for 100 USD gets 2000 crowns instead of 1000 crowns. It is good for him or her. :-)

devaluation is good for exports

world market		Czech Republic
	10 crowns = 1 USD	
1000 USD (Czech exports)		10 000 crowns
<hr/>		
	devaluation	
	20 crowns = 1 USD	
1000 USD (Czech exports)		20 000 crowns

- but at the same time. All the imports cost more in CZK. Imagine that a product (for example oil) costs 1000 USD on the world market. The Czech economy needs it and we import it. It now costs twice the previous price in CZK. It means that **devaluation causes inflation.**

2. Real exchange rate (RER)

- theoretical concept that should say how it is on average possible to exchange goods and services between countries
- how many times it is possible to purchase basket of goods abroad for the same basket in the home economy
- in practice changes are foremost important, more than absolute level ... in other words appreciation and depreciation of the RER

real exchange rate

RER depends on both – nominal exchange rate and price levels in both of the countries

$$\text{Real exchange rate} = \frac{\text{Nominal exchange rate} \times \text{Foreign price}}{\text{Domestic price}}$$

- for example ... nominal exchange rate is 25 crowns per euro, price of a product in Germany is 1 euro and in the CR 25 crowns
- real exchange rate (RER) = $25 * 1/25 = 1$
- if $RER > 1$ we have to spend more than one domestic basket on purchasing one foreign basket

appreciation of the RER

- There are generally two ways how crown can appreciate.
 - a. change in the nominal value of exchange rate \Rightarrow CZK nominally appreciates
 - b. change in price level \Rightarrow price level in the CR grows more than abroad
- you can generally see it when the Czechs can purchase more on the foreign markets (because of nominal appreciation or because growth in wages is higher in the CR than abroad)

Real appreciation of CZK under fix

Germany		Czech Republic
	10 crowns = 1 DM	
1000 DM (price of a products)		10 000 wage
<hr/>		
Inflation = 0 %	Fix exchange rate	Inflation = 50 %
	10 crowns = 1 DM	
1500 DM (price of a products)		15 000 wage

- If there is fix exchange rate - 10 crowns per DM. Price level in Germany does not change but price level in the CR increases by 50 %. Then average wage in the CR increases and the Czechs can purchase goods in value 1500 DM in Germany.

Impact of real app. on exports

Germany

Czech Republic

1000 DM (price of a product)

10 crowns = 1 DM

costs = 6000 CZK

10 000 CZK ... profit 4000 CZK



Inflation = 0 %

Fix exchange rate

Inflation = 50 %

1000 DM (price of a product)

10 crowns = 1 DM

costs = 9000 CZK

10 000 CZK ... profit 1000 CZK



- but this process has cons for exporters. Firstly, they sell a product in Germany for 1000 DM. They get 10 000 CZK. They have a nice profit of 5000 CZK. Next - there is no inflation in Germany but 50% in the CR. They still sell the product in Germany for 1000 DM and get 10000 CZK for it but their profit declines to 1000 CZK.

Impact of real appreciation

- the exporters are under pressure that was caused by real appreciation of CZK, they will call for nominal depreciation of crown to balance it.
- trade balance will worsen because exports are declining and imports are growing
- it means that there will be **overall pressure to devalue crown**

3. Balance of payment

- balance of payment is the basic indicator of an open economy. It covers all international transactions with abroad.
- it has important consequences
- it is always balanced by definition (but informally we talk about surplus and deficit of balance of payment – it means inflow and outflow of foreign reserves).
- we first of all define the basic terms and then show the logic behind

balance of payment

- consists of several accounts. In basic textbooks there are only:
 - current account
 - trade balance = Sum of exports – sum of imports
 - balance of services = exports of services – imports of services
 - financial account
 - different forms of capital (FDI, portfolio, short run, long run)
 - and we again consider a balance between inflow and outflow of capital from the country

balance of payment

- in these textbooks current account is always equal to financial account
 - if there is surplus in the current account it must be balanced by outflow of capital in the financial account
 - if there is a deficit in the current account it must be balanced by inflow of capital in the financial account

$$\begin{array}{r} \text{current account} \\ \text{financial account} \\ \hline =0 \end{array}$$

balance of payment

- in reality the accounting world is a bit more complicated
- the balance of payment has to be of course balanced but there are additional entries. For our needs we consider foremost change in foreign reserves

balance of payment

$$\begin{array}{r} \text{current account} \\ \text{financial account} \\ \text{change in foreign reserves} \\ \hline =0 \end{array}$$

for example if surplus in the current account > outflow of capital in the financial account the foreign reserves increase to balance the whole balance of payment

(this is a simple explanation in reality double-entry accounting is used)

reserves – for accounting reasons „+“ means decline in reserves and „-“ means increase in reserves

balance of payment - example

current account	EX=50, IM=40	EX-IM = 50-40	+10
financial account	EX _K =100, IM _K =80	IM _K -EX _K = 80-100	-20
change in foreign reserves ("+" means decline in foreign reserves)			+10
			=0

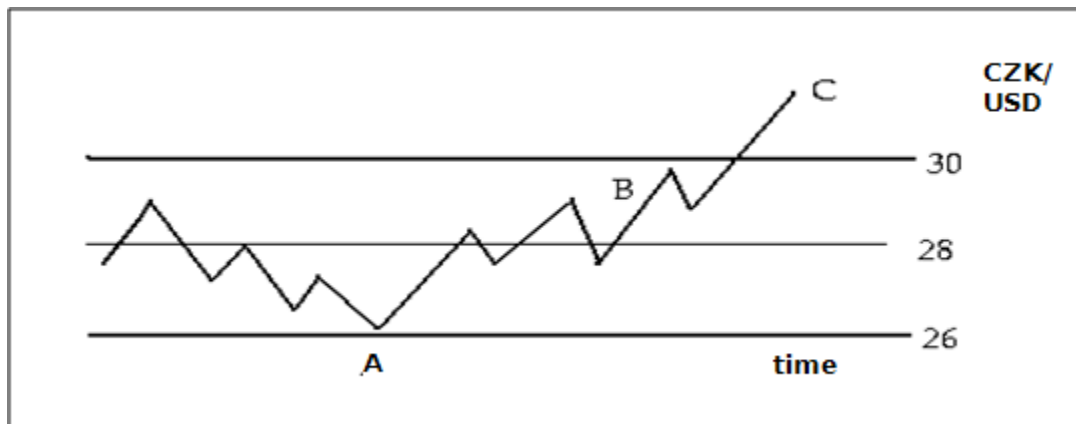
- exports of goods > imports of goods and the current account is due to it in surplus (+10). Outflow of capital > inflow of capital (-20). Capital leaves the country. It means that foreign reserves decline by 10 (+10).
- foreign reserves are especially important in the **fix exchange rate regime**

4. Fix exchange rate regime

- in the world economy there are several different forms of exchange rate regimes. In the transformation process the reformers decided on fix exchange rate. It was supposed to be an anchor of the whole system.
 - countries that decided on this regime generally achieved lower inflation than countries with flexible exchange rate.
- The ultimate goal of the central bank in this regime is to keep the exchange rate fixed to a currency or a basket of currencies (the Czech(oslovak) case).

- at the same time. It means an obligation for the central bank to exchange any amount of local currency (CZK) per foreign currency in the fix exchange rate. It implies that the central bank needs to have enough foreign reserves do be able to meet this demand.
- We can see it in the following basic example. For better clearness we show a small fluctuation zone of the crown. In reality the fluctuation zone is usually in percentage points and not in units. And in the Czech case there was the basket of currencies.

The central bank in the fix regime



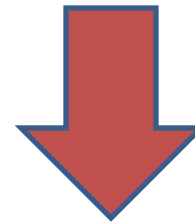
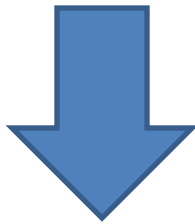
- in case A crown is relatively strong. There are a lot of USD on the market and a small amount of CZK. The CB must sell CZK and purchase USD to keep CZK in the corridor. On the contrary in situation B the exchange rate is close to depreciation zone and the CB must sell USD and purchase CZK. It implies that it **needs to have reserves** to purchase CZK on the market. These reserves are the very same reserves from the balance of payment!

THE SECOND PART

THE KEY DECISION

Key decision about the exchange rate

- the crown is too strong
 - government decides to set the exchange rate at 10 crowns per USD
- the crown is too weak
 - government decides to set the exchange rate at 50 crowns per USD



Crown is too strong

- Exporting is pointless because the exports cannot compete on the foreign market
- on the other hand imports are highly competitive on the domestic market
- \Rightarrow deficit of trade balance \Rightarrow deficit of the current account (we cannot expect inflow of capital in the country) \Rightarrow deficit of the balance of payment (outflow of capital from country)



crown is too strong

- there is natural pressure to devalue (to balance the trade balance)
- + central bank does NOT have reserves to defend the currency (to keep [fix exchange rate](#))
- it cannot stand up to the situation for long without reserves and is forced to

DEVALUATE

Crown is too weak

- it is good for exporters but deep devaluation causes inflation as well
- inflation leads to real appreciation of crown
- this appreciation causes situation when the central bank is not able to defend the exchange rate and must

DEVALUATE

Summary

- the ultimate goal of the reformers was to keep fix exchange rate as an anchor of the whole system
- wrong setting of the exchange rate could create environment for potential devaluation
 - more serious worries were (of course) connected with too strong crown that would lead directly to the depleting of foreign reserves
 - but too weak currency could create real appreciation pressure

Summary

- the reformers decided to undershoot crown during (100 %) devaluations in 1990.
- crown was probably too weak – it means that exchange rate transformation buffer (cushion) was created
- this buffer was there to help exporters in the first months/years of the transformation
- but this buffer was running out in the following years because inflation in the CR was higher than abroad (that implies that CZK was appreciating in real terms)

Summary

- the nominal exchange rate stayed fix till the currency crisis in 1997
- meanwhile crown strongly appreciated in real terms