Kiel Institute of World Economics
Duesternbrooker Weg 120
24105 Kiel (Germany)

Kiel Working Paper No. 1106

An Iron Law of Currency Crises: The Divergence of the Nominal and the Real Exchange Rate and Increasing Current Account Deficits

by

Horst Siebert

May 2002

An Iron Law of Currency Crises: The Divergence of the Nominal and the Real Exchange Rate and Increasing Current Account Deficits

Abstract:
The currency crises of the 1990s all exhibit a divergence of the nominal and the real exchange rate together with an increase in the negative current account. The nominal rate does not reflect inflation differences fully and the ensuing real appreciation leads to a negative current account. This pattern holds for the Czech, the Mexican, Brazilian, Argentinian as well as the South Korean currency crises. It seems to be an iron law of currency crises.

Keywords: Currency Crisis, Real Exchange Rate, Devaluation
JEL classification: E0, F3

Horst Siebert
Kiel Institute of World Economics
24100 Kiel, Germany
Telephone: +49/431/8814-236
Fax:+49/431/8814-501
E-mail: hsiebert@ifw.uni-kiel.de

A. Non sustainable current account deficits

In a portfolio equilibrium with different currencies two different situations can be distinguished. If the expected rates of return of assets denominated in different currencies are identical (including expected exchange rate changes as part of the rates of return), there will be no net international capital flows and the capital account and the current account are in balance. If the expected rates of return differ, capital flows will ensue. Such a flow equilibrium goes hand in hand with a surplus or a deficit in the capital (and the current) account.

A portfolio equilibrium may not be sustainable. Take the case of a current account deficit that is financed by capital imports and a nominal exchange rate supported by them. If the current account deficit is used for capital accumulation and thus will be the basis for increasing the production potential of the economy and for repaying debt and serving the interest payments in the future, it is likely to be sustainable. If it is used for consumption, either of private households or of the government, there is no basis for repaying debt. When the current account deficit is financed by an inflow of short-term capital, the situation may change abruptly.

As soon as expectations change, the financial markets may no longer be willing to finance the current account deficit of a country. Capital inflows will dry up. A capital flow reversal will occur, and a currency bubble will burst with everybody running out of the currency.

B. Potential clues that a situation is not sustainable

If we look for potential clues that a negative current account deficit is not sustainable and a portfolio equilibrium is likely to change, the following points can be taken into consideration. A negative current account balance is a warning signal :

- if capital imports are used for consumption purposes or for non-investive government spending (such as social policies),
- if it is associated with a large budget deficit of the government,
- if it goes hand in hand with an excessive increase in the domestic money supply, and
- if it is associated with a diverging development of the nominal and the real exchange rate where the currency experiences a real appreciation but remains relatively constant in nominal terms.

The real exchange rate e_R is defined as

[1] $$e_R = e \frac{P^*}{P}$$

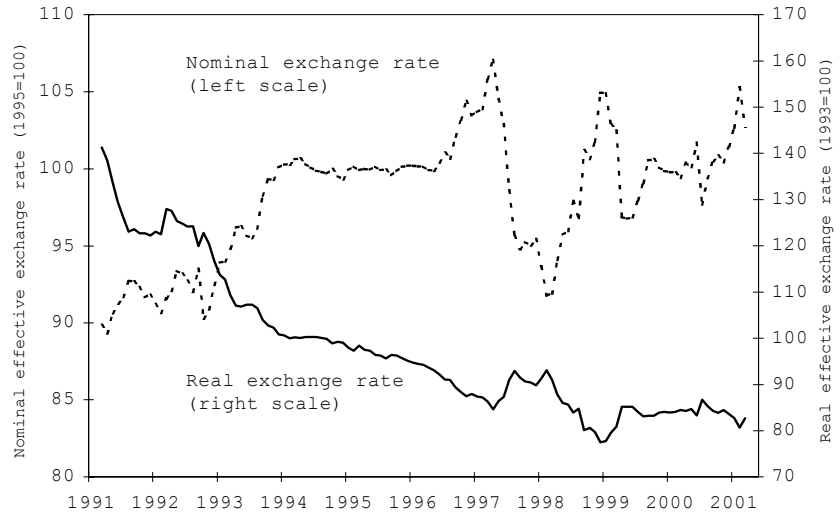
where P*, P are the respective national price levels or labor costs being used as correction factors of the nominal exchange rate, e. The real exchange rate indicates the real price of products of the foreign country, i.e. of a country's export goods in terms of its imports or import substitutes.

C. Some recent currency crises

It is amazing that the currency crises of the 1990s all exhibit a divergence of the nominal and the real exchange rate together with an increase in the negative current account. This seems to be an iron law of currency crises. In the following we will study this aspect of the currency crises of the 1990s.

The Czech devaluation

In the case of the Czech crown (koruna), a divergence between the nominal and the real exchange rate developed in the nineties (Figure 1). Czechoslovakia and (since 1993) the Czech Republic de facto pegged the crown to a basket of currencies (65 percent DM, 35 percent US$ since May 1993). Until 1997, the Czech National Bank was able to defend the nominal exchange rate. In real terms, however, the currency appreciated. This went along with an increasing current account deficit which was financed by capital inflows. The real appreciation hurt the competitiveness of the Czech economy. Eventually, a situation developed in which the nominal exchange rate could no longer be defended. The crown had to devalue.



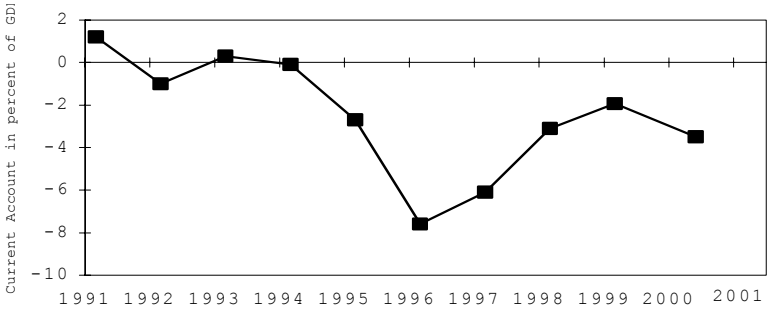


Figure 1: Czech Republic: Nominal[a] and real[b] exchange rate and current account[c]
[a]1995 = 100. — [b]1990 = 100. — [c]In percent of GDP
Source: IMF International Financial Statistics 2001; EBRD Transition Report, various issues

The Mexican crisis

The Mexican peso more or less followed a crawling peg to the US dollar in the early 1990s. However, the rate of devaluation of the peso was lower than the inflation differential between the two countries, i.e.

[2] $\hat{e} < \hat{P}^* - \hat{P}$.

With prices and nominal wages rising at a higher speed than in the US, Mexico did not succeed in effectively using the exchange rate as a nominal anchor. The Pacto agreement between the government, employers' associations and trade unions to limit wage and price increases did not work out. The slow nominal depreciation and the higher inflation differential implied a real appreciation of the peso which began in the late 1980s (Figure 2). At the same time, monetary policy was expansionary. Together with a real appreciation of the peso, a current account deficit developed which was financed by short-term capital inflow, attracted by high real interest rates and a booming stock market. Eventually, investors lost confidence, capital flows reversed, and Mexico lost 122 billion US$ in foreign currency reserves in 1994. The peso had to devalue and the current account deficit was almost eliminated afterwards.

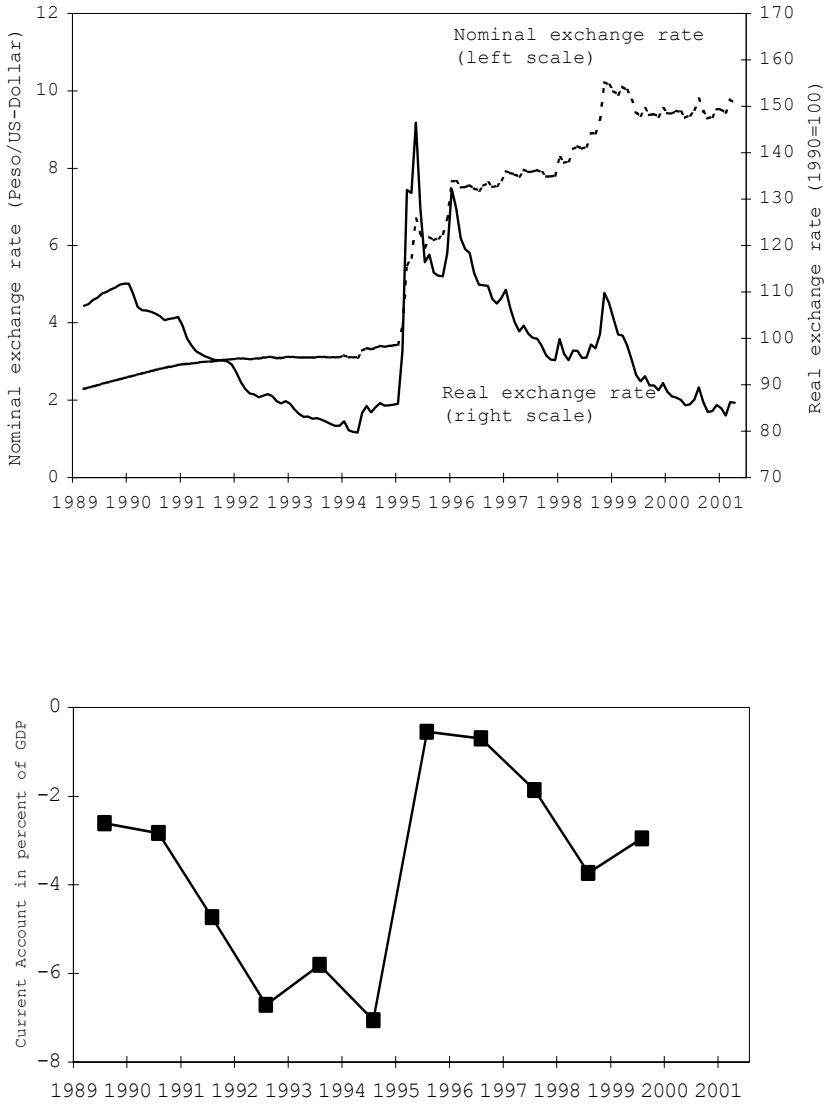


Figure 2: Mexico: Real[a] and nominal exchange rate and current account[b]
[a]1990 = 100. — [b]In percent of GDP
Source: IMF International Financial Statistics 2001

Meanwhile, the nominal and real rate diverge again. It seems that the real appreciation does not lead to a balance of payment deficit of the same relative magnitude as before the 1994 crisis. This may be due to Mexico having joined NAFTA. The governmental budget deficit is not excessive. Nevertheless, the divergence of the nominal and the real exchange rate is a warning signal.

Brazil

In the late 1990s, there was quite a divergence between the nominal and the real exchange rate of the Brazilian currency, the real (Figure 3). Due to the appreciation of the real exchange rate, the current account became more and more negative in the 1990s; at the same time, the budget deficit was 8 percent of GDP. Temporally, Brazil used a high real interest rate of 30 percent to defend the nominal exchange rate; this, however, hurt investment and production and proved not to be sustainable. In January 1999, Brazil had to widen its exchange rate band in the crawling peg and then to float the real which was devalued by about 50 percent.

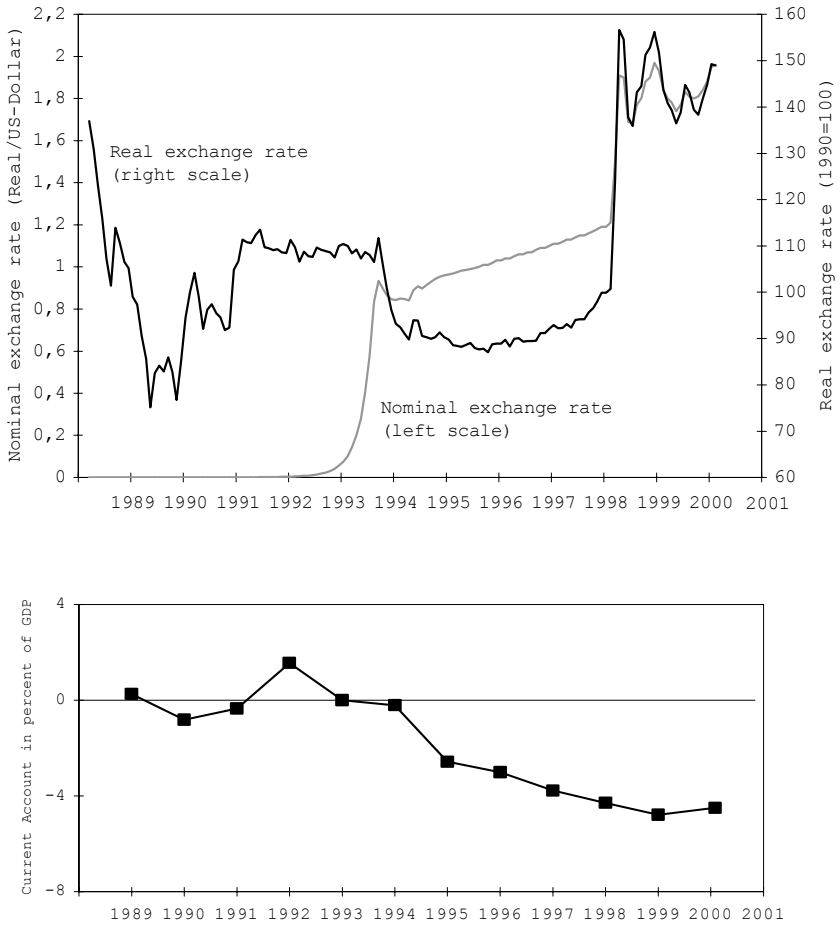


Figure 3: Brazil: Real and nominal exchange rate and current account
Source: IMF, International Financial Statistics, June 2001

The Argentine crisis

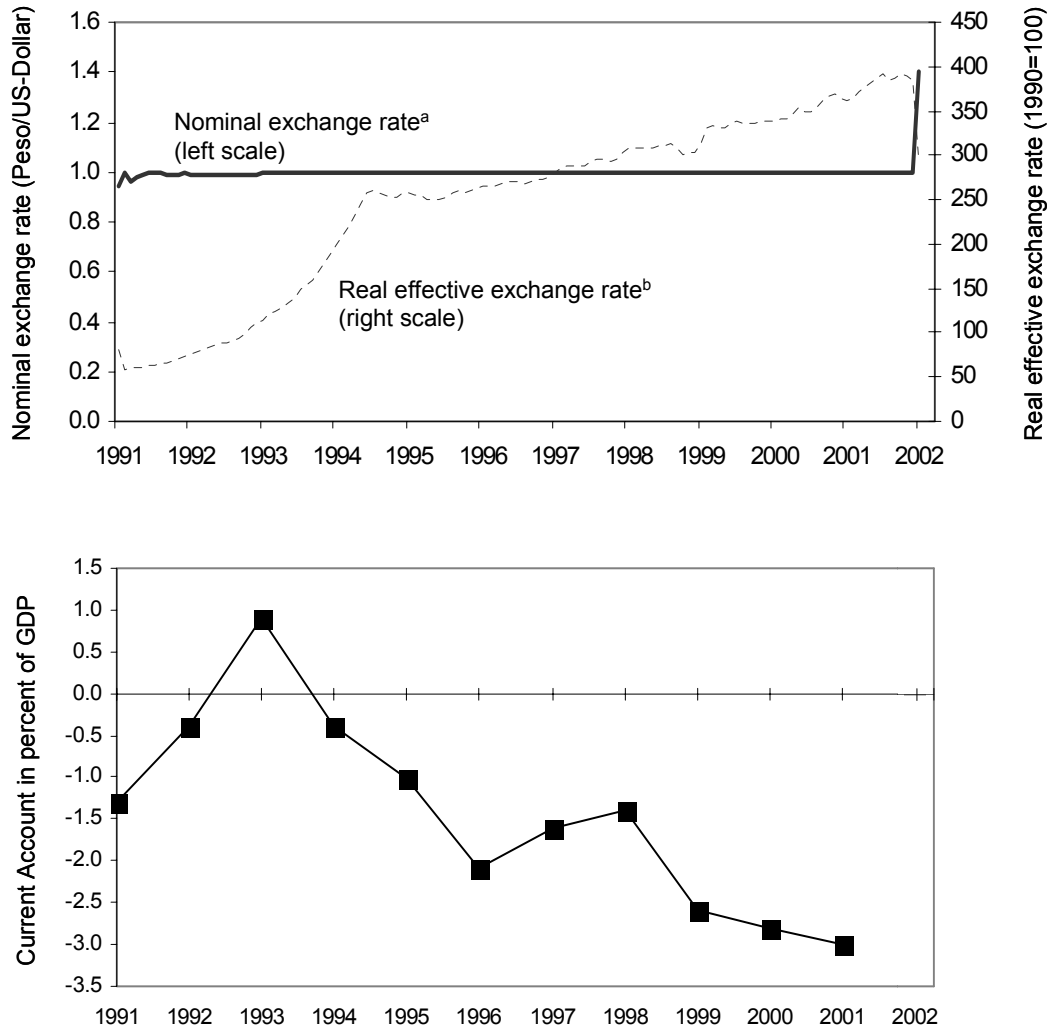


Figure 4: Real and nominal exchange rates and the current account
[a]National currency per US Dollar.-[b]Argentine peso index 1990=100 (JPM)NB – Trade weighted (rhs)
Source: IFS, Datastream (JP Morgan)

Yet another experience is the financial crisis of Argentina in 2001/2002. With the currency board, the nominal exchange rate was fixed to the US

dollar and remained constant (Figure 4) . But at the same time, there was a considerable real appreciation of the peso. This made life more difficult for Argentine exporters and easier for importers leading to a current account deficit. When expectations changed, especially after problems became apparent in the aftermath of the currency crises of 1997/98 elsewhere in the world and as a negative spillover of the Brazilian devaluation on trade, the current account deficit was no longer sustainable.

South Korea

When the Asian crisis erupted, it was not expected that South Korea - number 11 in the world economy in terms of GDP prior to the financial crisis - could become part of the problem. The real exchange rate had only slightly moved away from the nominal exchange rate (Figure 5). The large current account deficit of 5 percent of GDP could be explained by the liberalization of current and capital account transactions in anticipation of South Korea's accession to the OECD. However, the deficit in the current account had increased in 1996, albeit not to high levels in comparison to Latin American countries. This was partly due to Korea's export problems in computer components. Moreover, the private sector had accumulated high debt, including short-run foreign debt in foreign currencies. This represented a liability for the country as a whole. The crisis erupted when it was reported that large conglomerates (chaebols) faced insolvency.

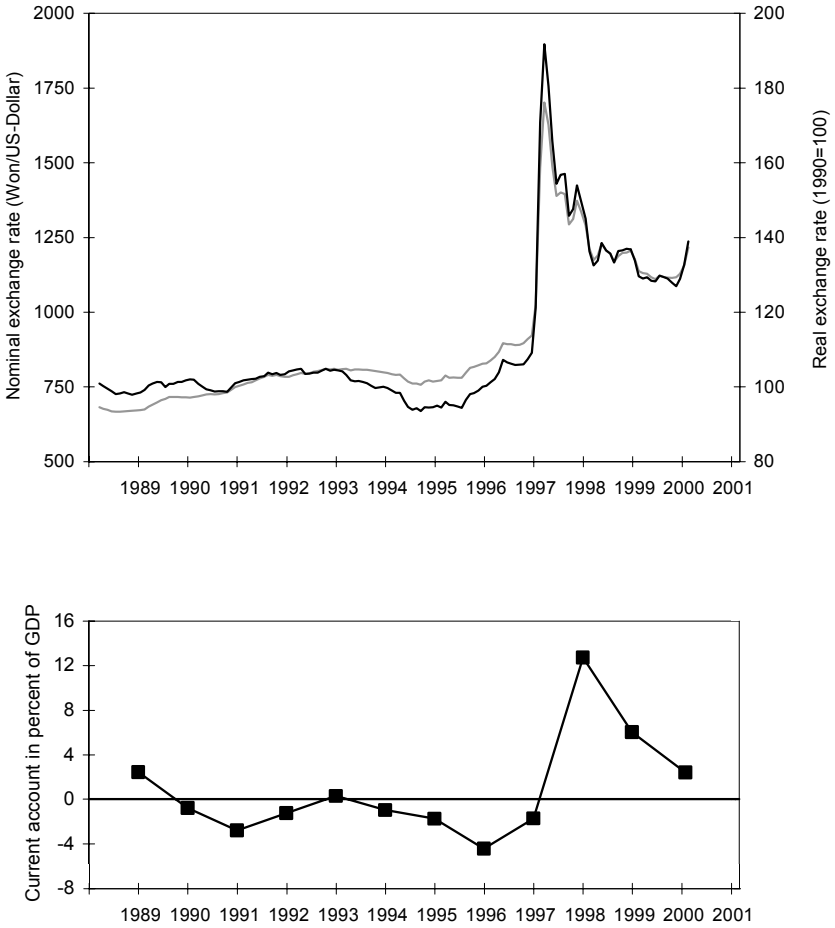


Figure 5: South Korea: Real and nominal exchange rate and current account
Source: IMF International Financial Statistics, June 2001

Whereas the Mexican and the Brazilian can be classified as a typical Latin American currency crisis with governmental budget deficits and over-absorption of the state and lacking monetary stability, the Czech crisis exhibits some similarities to the Latin American problems. The Argentine crisis seems to be *sui generis*. But in the end over-absorption by the government, especially the provinces, and exposure to high foreign debt made it a Latin American crisis. South Korea was somewhat different. The typical Latin American problems were not at the root of the problem. The country was vulnerable in its trade position which then showed up in the capital account. South Korea was very much affected by the environment

in the world financial markets; it was not robust enough to withstand contagion.

C. Some conclusions

The pattern of financial crises of the countries discussed is strikingly similar: A divergence between the nominal and the real exchange rate that is followed by an increasing current account deficit seems to lead to a currency crisis. Some lessons follow:

First, inflation and hyperinflation have to be prevented by correct institutional arrangements and an adequate monetary policy. The independence of the central bank is of utmost importance. A basic rule is that public budget deficits should not be financed by printing money. This condition has been violated in Latin American countries in the past. In industrial countries, the interrelations between politics and the central bank are, of course, more intricate. The central bank must be strong enough to resist political pressure for an easy money policy if such a policy is in conflict with price-level stability.

Second, a country has to have sound fundamentals. This relates to solidity in public finances, i.e., it is necessary that the government has a sustainable budget position. After all, the Brazilian currency crises was fired when the governor of Minhas Gerais declared not to service the provincial debt any longer. It also means that the balance-of-payments situation is sustainable. More generally, economic policy should be oriented towards stability. If structural issues are not solved, if short-termism dominates, then the fundamentals are not in order. Constitutional constraints for policy makers

should ensure that long-run opportunity costs of budget deficits are not disregarded. Thus, a country needs rules by which excessive public deficits are prevented.

Third, it may be wise for a country to make sure that it is not vulnerable and that it has enough strength to withstand a blow from the outside and a less friendly environment including reduced credit access to the international capital markets.

Fourth, a policy of a constant nominal rate may not be sustainable. This also holds if a crawling peg does not reflect inflation differentials and if a backlog of nominal adjustment is built up.

Fifth, a country must be able to be flexible enough to adjust the real exchange rate in order to prevent excessive current account deficits. This implies that macroeconomic absorption remains under control, but it also requires that labor markets are flexible and that wages do bear some of the adjustments.

Sixth, there is also a lesson for a currency union like the Euro. When the nominal exchange rate is fixed, adjustment in the real exchange rate are required. This requires flexibility of the labor market. And solidity of public finances is needed as well. In order to prevent a *Minhas Gerais* problem, public expenditures have to be under some control.

References

Siebert, H (2002). The World Economy. Second edition. London. Routledge. In print.