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Episodes in German Monetary History – Lessons for Transition Countries? [1]

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1. Introduction

"History repeats itself!" This statement highlights that historical events can have parallels, even though a part of them certainly remains idiosyncratic. This paper presents three episodes in German monetary history, which have some parallels to monetary developments in transition and emerging market countries over the more recent past. The first episode describes the idea of a "German" pound, that German authorities considered to introduce after the hyperinflation in the early 1920s. The consideration to introduce a new currency, which was firmly linked to a stable international currency (at this time, the British pound), were based on similar motivations as the decision for a new currency in Bosnia or Bulgaria during the 1990s. Both countries introduced currency boards after monetary disruptions and linked their national currencies to a stable international currency, in this cases the Deutsche mark. The Bosnian currency (the Convertible mark) serves as a clear reminder of interesting links and developments in currency history. The second episode describes the restructuring of the German banking system after the Second World War with equalisation claims. In fact, German banks during this period were in a similar situation to banks in a number of emerging market countries over the more recent past. Large-scale bank restructuring, for example, took place in the Czech Republic in the middle of the 1990s or in Russia in 1998. The choice of equalisation claims, however, has some interesting and unique features, that are worth re-considering. The last episode deals with German monetary policy during the Bretton Woods period. The viability of the fixed exchange rate system was not only challenged by expansionary policies in the anchor currency country, but also by the catch-up process in Germany. Eventually, German monetary policy faced

[1] The views expressed are those of the authors and do not necessarily reflect the view of the Deutsche Bundesbank

the so called impossible trinity similarly to many emerging market economies nowadays.

2. Stabilization after Hyperinflation: The Idea of a "German" Pound

The proposal to introduce the British pound as legal tender in Germany was first voiced in 1923 during the hyperinflation. According to this proposal the new currency of Germany should be based on gold and currency reserves, printed out in British pounds and governed by a central bank (see Schacht, 1953, p. 254–257, Vossische Zeitung November 1923 and Pontzen 1998, p. 96, 97).

The driving force behind this idea was Hjalmar Schacht, a banker, who in autum 1923 became the banknote commissioner and later president of the Reichsbank.

After succeeding Reichsbank President Havenstein who died on November 23, 1923, the key action plan of Reichsbank President Schacht was to establish the Golddiskontbank as a new Central Bank and to print pound notes according to the available gold and currency reserves. This new banknote issue was earmarked for circulation throughout Germany; the majority of which was to be covered by a pound sterling loan from the Bank of England.

During his first year of tenure as Reichsbank President, Schacht ordered the printing of a few five and ten pound banknotes from the official issuing institute – The German Golddiskontbank (see picture 1). Although a test production was ordered in April 1924, with the aim of large-scale reproduction, President Schacht's idea was never fully realized.

In retrospect, the scenario of introducing a German pound could have been a critical catalyst responsible for transforming the German Golddiskontbank into a quasi-subsidiary of the Bank of England which would have easily bound German monetary policy to that of the Bank of England.

Apart from these political concerns, there were several practical reasons to introduce the pound in Germany. The authorities hoped to win credibility quickly on the international stage and to avoid the risk of a new hyperinflation. Furthermore, the reduction of exchange rate risk towards the British pound would have allowed easier access to the largest money and capital market at that time. The use of securitized instruments would have become more widespread and the existence of benchmarks would have made it more attractive and easier for foreign investors to invest in Germany.

Picture 1: Five and Ten Pound Banknote, issued by the German Golddiskontbank, 1924

Although the proposal was never realized throughout Germany, a pilot project was launched in Danzig. The Danzig region was under the control of the Völkerbund (the predecessor of the United Nations). In the 1920s and 1930s, this region of Germany had pegged its currency to the British pound (Jaeger 2005, p. 778–792).

3. Restructuring Banks with Equalisation Claims

Following the currency reform in Western Germany in 1948, the majority of commercial banks were severely undercapitalised. Unlike asset management corporations or the direct take-over of bad loans by the central bank, the German banks were recapitalised using "equalisation claims" – artificial assets – that were financed over many years from central bank profits.

Nowadays, asset management corporations or similar institutions are often the last resort source of funds for undercapitalised financial institutions. For example, resolving the banking crisis in the Czech Republic during the 1990s was assisted by founding Konsolidacni Banka. It was a special institution, to which the main part of non-performing loans from major banks were transferred. Therewith, the banks' loan portfolio was "cleansed", which helped their privatisation efforts.[2] Whereas some asset management corporations are certainly very successful, the initial success of others is mostly due to these corporations' tactic of selling only the very last profitable assets from the ailing institution's portfolio. The general preconditions for an asset management corporation – sustainable assets, an efficient secondary market and its effective control – are hardly met in these cases.

Alternatively, cleaning up the banking system often involves central banks. Non-performing loans etc. end up as "junk assets" in their balance sheets. In this form, they are the main responsibility of the central bank and not of the government. Furthermore, because they earn low or no return, they can put the central bank under financial pressure, lead to never-ending discussions with the Ministry of Finance and they can ultimately even threaten central bank independence.[3] Equalisation claims are different in this respect. It is clear from the outset, how the burden is to be shared between the Ministry of Finance and the central bank.

[2] A detailed description of banking sector development in the Czech Republic during transition is given in Tůma (2003).

[3] The Central Bank of the Republic of Turkey, for example, is heavily burdened with junk assets comprising government debt that was accumulated during the restructuring of the banking system after the financial crisis in 2000/01 (see Binay, 2003, p. 253, other examples are given in Schobert (2006)).

3.1. Review of the German Experience

Let us now look at the situation in which the Western German commercial banks found themselves in 1948 in order to understand why the need for equalisation claims arose. The war, the devaluation of the currency and the currency reform were not the only reasons for undercapitalisation. The requisition of all properties that had belonged to the National Socialist Party Organisation as well as the cessation of territories in the East placed an additional strain on the financial sector.

The currency reform had an unequal impact on the assets and liabilities of banks and other financial institutions. The asymmetry was a result of the diverse treatment of balance sheet positions and was further increased by the cancellation of the claims on the Third Reich.

3.1.1 Silent War Financing

The Third Reich's policy of "silent war financing" originally created the banking problems. By giving commercial banks no real alternative but to finance the Reich, the government did not have to ask the public to invest in "war bonds". Simultaneously, commercial banks experienced excess liquidity paired with a decline in private demand for credit. This combination almost forced them to buy public loans and bonds. Indeed, at the end of the war, the state was almost the sole investment option that was left.

During the currency reform in Western Germany and West Berlin in 1948, the Reichsmark, which had been all but destroyed by so called pent-up inflation in the National Socialist war economy, was replaced be the Deutsche Mark (DM). Regularly recurring payments (such as wages, rents, leases, and social security pensions) were converted at the ratio of 1:1. Assets and liabilities arising from debt were to be converted, in theory, at a rate of 10:1. In practice, however, credit balances in Reichsmark were converted at the ratio of only 100: 6.5. In stark contrast, assets and liabilities, such as for instance claims against the Reich and the National Socialist German Workers' Party (*Nationalsozialistische Deutsche Arbeiterpartei*), as well as interbank claims were not converted at all but simply cancelled – as were the credit balances in Reichsmark of the above-mentioned institutions (Deutsche Bundesbank 1995). Thus, after the currency reform, there were very few banks which required no equalisation claims at all. In most of the commercial banks equalisation claims represented at least 50% of their opening balance sheet (Bank deutscher Länder 1951, p. 37).

Even though the situation of financial institutions in emerging market countries is not fully comparable to that of Germany in 1948, there are certain similarities, such as for instance underdeveloped financial markets and an imbalance in assets and liabilities.

3.1.2 Equalisation Claims

"Equalisation claims" are an artificial financial instrument allocated to banks (and other financial institutions) in order to cover the liabilities resulting from the currency reform and to restore an adequate level of equity capital. In Germany, the debtor of equalisation claims was the government. They were created to recapitalise and restructure Germany's insolvent financial system. One important advantage of equalisation claims is that they can be used to spread the cost of the restructuring over many years. This was especially important for the post-war German government which lacked any immediate source of revenue. A so–called "purchase Fund" was conceived to gradually purchase all equalisation claims from the credit institutions. Because equalization claims were non-negotiable and bore a return below market rates, the fund's gradual purchases substantially relieved the credit institutions of their burden. The central bank played a special role in this agreement. It was not the owner, but it administered the purchase fund merely on a trust basis – a solution that helped minimize transaction costs and kept administrative costs low. In 1956, the purchase fund was created as a legal entity with status of an agency of the Deutsche Bundesbank.[4]

The stylized functioning of equalisation claims can be explained in two steps: the allocation and the re-purchase. First, equalisation claims were allocated to commercial banks and substituted a certain share of their non-performing loan portfolio in order to stabilize the banking system. At the same time, the Fund received equalisation "liabilities" covered by a claim on future central bank profit plus a public guarantee. Thus, the central bank shared the responsibility for the equalisation claims together with the government The equalisation claims were interest-bearing and later on became even tradable. In the next step, the central bank distributed its profit to the equalisation fund, which used the cash in order to service interest payments on equalisation claims and eventually, to repurchase equalisation claims from banks.

The transfer of central bank profit to the Fund was clearly defined. Each year, the central bank had to transfer DM 40 million from its net profit. After 1980 this sum was reduced to DM 30 million.[5] This meant, that there would be less profit to be transferred to the Federal government at the end of each year. Thus, the Fund was financed by the government not the central bank – an important advantage of equalisation claims.

The fund eventually acquired equalisation claims for the last time in 1995 and was wound up thereafter.

[4] Before 1957, the Bank deutscher Länder.

[5] When the central bank had made no profit, this transfer was waived. This occurred as often as nine times due to valuation losses as a result of appreciations of the German mark, and delayed the winding-up of the purchase fund.

3.1.3 An Often Forgotten Factor in Success

An often forgotten factor in the success of the currency reform was section 3 of the Currency Act. This section linked the use of foreign currency to an index and made it subject to the approval of the central bank. In other words, Germans had to use the new domestic currency, which implied dollarization was not an option. Later on, the DM's good track record, additionally contributed to a constant and relatively high demand for DM. High demand for its currency was, of course, a pillar, of the Bundesbank's high and stable profits The success of the equalization claims depended on this high and stable profit, because effectively, the only true inflow to the repurchase fund came from Bundesbank's profits.

3. 2. Practical Issues for Using Equalisation Claims

3.2.1 Difficulties in Correctly Allocating Claims

The aim of allocating equalisation claims to German banks was to ensure their survival, not to increase their profitability. Therefore, the amount of allocated equalisation claims should neither be too high nor too low. This issue eventually depends on the value of the non-performing loan portfolio and the capital base of the bank. In the German case it was relatively easy to allocate equalisation claims to each bank, because they had convertible balance sheets and valuation principles for convertible balance sheets were part of the new currency laws. Thereby, the value of assets, i.e. their quantities and prices, and the value of the equity were already known before equalisation claims were allocated. In a lot of emerging market countries, however, the valuation criteria are less clear-cut. One possibility is to use the definition of a non-performing loan as a guideline. But in practice, this guideline is not so helpful since the definition of a non-performing loan varies from country to country.[6]

Clear guidelines for allocating equalisation claims are central. Without them, it will be very difficult to judge whether sufficient resources are provided to financial institutions or to estimate their profitability. Because circumstances vary and there exists no universal rule, emerging market countries will probably have to find their own way to allocate claims.

3.2.2 Increasing the Motivation for Economic Restructuring

The success of the 1948 currency reform was to a large extent based on the liberalisation of prices and – slightly later – of wages, too. The return to a market

[6] For instance, some countries allow the use of roll-over credits, whereas other do not.

based economy – after 12 years of an administrative economic system – gave the crucial impulse for the economic revival.

Most emerging markets, however, might not have found themselves in such a favourable economic position when they undertook banking restructuring. Thus, some emerging market governments had to find other, market-oriented ways to stimulate economic growth, for example, debt-equity swaps or share ownership schemes and management buyouts.

3.2.3 The Interest Rate Question

There are four main factors to be assessed when deciding the interest rate paid on the equalisation claims: First, the financial burden on the budget; second, the importance of commercial bank profitability; third, the implications for liquidity and the creation of a benchmark on the capital market; fourth, the fact that a relatively low interest rate may be justified because the equalisation claims constitute national aid – or a bailout – for the commercial banks. In principle, a low interest rate may also be justified by the credit quality of the debtors. Assessing the credit quality, however, can be difficult in these extraordinary situations. In such a situation, the best possible form of credit guarantee is a state-guaranteed bond in conjunction with central bank profits.

3.2.4 Risks of Moral Hazard

In Germany, it was clear to all participants that the allocation of equalisation claims in 1948 was a historic exemption. It aimed to save the banking system as a whole, and therefore, its repetition was never considered in crisis situation of individual banks – not even during the Herstatt Bank crisis in 1974 or the crash of investment bank Schröder, Münchmeyer, Hengst & Co Bank in 1983. It was only during German reunification in 1990 that this instrument was used again, albeit in a different context.

There are concerns that, in certain countries, the use of equalisation claims will be construed as a kind of lender of last resort activity. This could easily be interpreted as an open invitation to go on making the same mistakes that have already been made in the past. And the risk of creating moral hazard should by no means be underestimated. It is therefore crucial to place strict conditions and tight controls on credit institutions before equalisation claims may be purchased in later periods.

3.2.5 Limiting Risks for the Central Bank

Using equalisation claims limits risks for the central bank. Because the central bank does not directly acquire non-performing loans from the banking system,

these non-performing loans do not put a burden on its balance sheet. Clear guidelines for the distribution of central bank profits to the Fund and the state guarantee for the equalisation claims preserve the financial independence of the central bank. Furthermore, the transaction does not lead to a direct injection of liquidity to the banking system as it would be the case, if the central bank bought the non-performing loans directly from banks. This limits inflationary risks.

3.2.6 Reasons for Using Central Bank Profits

One can rightly ask the question why a central bank should bear the burden of the banking systems' non-performing loans. One could argue in response that it is in the interests of all parties, including the central bank, to maintain the stability of the financial system. The central bank cannot maintain monetary stability without financial stability.

Central bank profit usually arises mainly from seigniorage, i.e. net revenues from the central banks monopoly power in base money. Base money consists of currency in circulation and banks' deposits at the central bank. Both parts of base money can generate monopoly revenues. Most obviously, currency in circulation is a non-interest bearing claim of money holders on the central bank. The central bank receives a return on assets that it holds as counterparts of currency in circulation. Thus, it could be argued that using these monopoly revenues to maintain an efficient and well functioning banking system is legitimate, at least in extreme events. Additionally, banks' deposit can also generate monopoly revenues, especially if required reserve and excess reserve holdings bear no or below market interest rates. Under normal conditions, banks' deposits at the central bank function as a buffer against unforeseen liquidity shortages of banks. The central bank should therefore use the resulting monopoly revenues in extreme events, i.e. to rebuild a financial system after monetary disruptions. However, it should be kept in mind that using central bank profits should not be thought of lightly, last but not least, because it includes the risks of moral hazard.

3.2.7 Developing Financial Markets

The experience of Western Germany in 1948 is an example of how the banking sector can be stabilised by means of equalisation claims. Certainly, a long-term repurchase system paid from the central bank's profit provides a possible way of solving indebtedness without having to dip into the state budget. Applying this approach elsewhere, however, should be scrutinized carefully. Nevertheless, it offers an opportunity – particularly for smaller countries which do not yet have a sufficiently developed secondary market – for solving bank restructuring problems. At the same time using equalization claims can help to develop a country's financial markets, because, for example, interest rates on equalisation claims

become a first benchmark and tradable equalisation claims foster financial market development.

4. Fixed Exchange Rates and High Productivity Growth in Post-War Germany

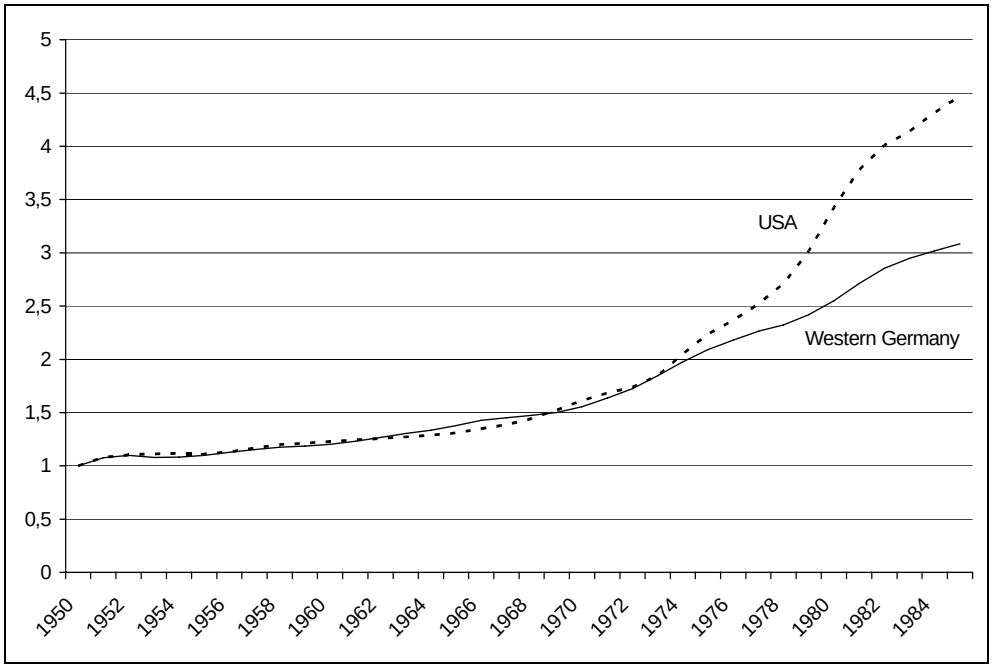
During the early decades of the Deutsche mark, the Bundesbank conducted monetary policy under the exchange rate restriction of the Bretton Woods system. The final collapse of the Bretton Woods system in the early 1970s often highlights that the more stability-oriented monetary policy in Germany was in fact incompatible with the more expansive monetary and fiscal policies in the anchor currency country, the United States. As for example summarized by Krugman and Obstfeld (1994, p. 547), many economists view the expansionary US macroeconomic policy package of 1965–1968 as a major blunder that helped unravel the system of fixed exchange rates. US government spending increased in order to finance the Vietnam military build-up and programs such as the "Great Society"[7]. As these increases in government expenditure were not sufficiently matched by a prompt increase in taxes or restrictive monetary policy, substantial fiscal expansion contributed to US price increases that were inconsistent with the viability of the fixed exchange rate system.

However, this explanation concentrates on price developments in the anchor currency country and overlooks real economic developments of other Bretton Woods member countries during this period. Abramovic (1986), for example, extends the simple catch-up hypothesis in order to explain the rapid growth rates of many industrial countries in Europe after the Second World War. Emminger (1976, p. 548) stresses the undue emphasis on inflation differential and points towards the large income differentials between Germany and the US in the post-war period which pressured exchange rate relations: Average industrial wages in Germany were only about 20% of the US industrial wage in 1950 and only about 40% in 1965. Real income per capita in Germany in the early 1950s was no more than about a third of that in the US and in 1960 it was just under 45 %. But by the end of the 1970s nominal and real levels reached the US level. A catching-up process of such truly historical dimensions was bound to affect monetary relations as well. Attempting to bring German and US income levels in line without adjusting the US dollar-Deutsche mark exchange rate would have meant pushing up the price level in Germany. An appreciation of the Deutsche mark against theUS dollar of almost 70% over the period from 1961 to 1975 was apparently necessary to bring about this adjustment without undue inflation in Germany. In other words, the German economy was on a pronounced "transition path" during this time period as it recovered from its downturn after the Second World War. As shown in chart 1 and

[7] The Great Society Program included funds for public education and urban redevelopment

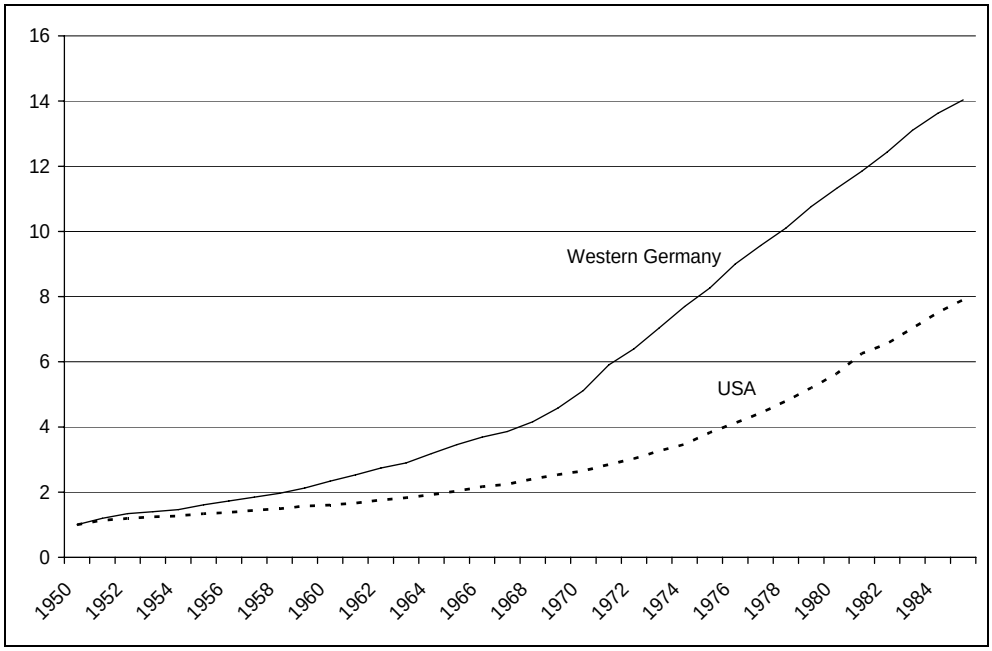
2, until 1973 large differentials in productivity growth rather than inflation differentials arose between Germany and the US during the Bretton Woods system and thereby complicated the viability of a fixed exchange rate regime.

Chart 1: Development of Consumer Prices, 1950–1985
Index (1950=1)



Source: International Financial Statistics, IMF.

Chart 2: Gross Domestic Product per Employed, 1950–1985
Index (1950=1)



Source: International Financial Statistics, IMF.

On the one hand, the pressures on the US dollar/Deutsche mark exchange rate were only occasionally and insufficiently counteracted by revaluations (for example, the revaluation of the Deutsche mark in 1961 by 5%). On the other hand, any inflationary developments – whether supply or demand-side driven – would neither have been supported by the German monetary authorities nor by the German citizens. Similar to citizens of many transition countries[8], Germans feared monetary disruptions, they had suffered, particularly the hyperinflation in 1923 and the "pent-up" inflation during the "Third Reich"[9]. Consequently, a necessary

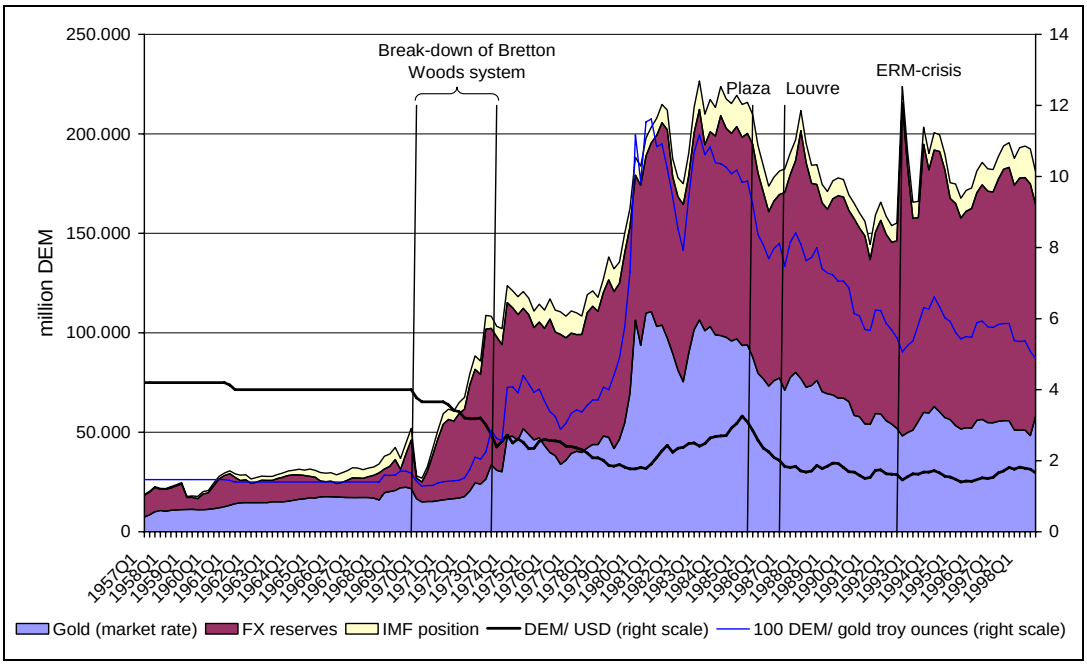
[8] Dinkic (1995) describes in detail the monetary disruptions of Yugoslavia during the 1990s which contributed to a lack of confidence in the national currency, the dinar. Mitrovic (2004, p. 218–220) describes the Yugoslav hyperinflation in 1993, whereas Avramov (1999, p. 226–228) the hyperinflation and dollarization in Bulgaria in 1996/1997.

[9] During the Third Reich monetary policy was increasingly forced into the service of armaments financing, and later of the war economy. Although rigorous price controls helped to keep prices stable, the value of the currency was eroded from within, so called "pent-up inflation" (Deutsche Bundesbank, 1995, p. 10).

precondition for re-gaining confidence in the national currency was a firm commitment to price stability.

In this way, Germany faced a similar dilemma during the Bretton Woods system as many fast growing transition countries with (implicit or explicit) fixed exchange rates have faced over the more recent past. Productivity differentials contributed – among other factors – to appreciating pressures on the exchange rate as well as to supply-side driven inflation. Large-scale and continuous revaluations were not compatible with fixed exchange rate regimes and higher inflation was strictly not in line with citizens' preferences. This conflict between internal and external equilibrium, in which monetary policy during the Bretton Woods system was caught, is described in detail in Holftfrerich (1999) and Emminger (1977).

Chart 3: Development of Foreign Reserves in Germany, 1957Q1–1998Q4



Source: International Financial Statistics, IMF.

Many emerging market countries, which implicitly or explicitly have an exchange rate objective and at the same time high capital inflows, nowadays accumulate foreign reserves rapidly and up to very high levels. As can be seen in chart 3, Germany also built -up of foreign reserves in Germany supports the argument that the German monetary authorities intervened heavily in order to prevent revaluations of the Deutsche mark. At first, these interventions took place very

occasionally, for instance in 1961. During the crumbling down period of the Bretton Woods system, however, interventions became more substantial and foreign reserves increased rapidly. This is similar to many transition and emerging market countries which have built up foreign reserves "endogenously". In other words, the accumulation of foreign reserves is often not driven by the desire to reach an adequate level, but it is a reflection of monetary and exchange rate policies which suppress exchange rate appreciation. Under sufficiently high capital mobility, combining an (implicit or explicit) exchange rate target with the objective of internal price stability results in a dilemma situation that has become known as the "impossible trinity". German monetary authorities pursued the objective of internal and external price stability while at the same time, the capital account was already fairly liberalized.[10] In order to escape the impossible trinity, the German monetary authorities tried to curtail speculative capital inflows by capital account restrictions.[11] These capital restrictions, however, only had temporary effects on speculative capital account transactions. Eventually, these measures neither prevented revaluations, as in 1961, nor the final move to flexible exchange rates in 1973. Thus, they were gradually removed thereafter.[12]

The conflict between internal and external equilibrium is an ongoing issue in many emerging market economies. Since reconciling the "impossible trinity" is hardly possible and escaping it by introducing capital account restrictions is not well perceived by international financial markets, monetary authorities ultimately face the choice between one of both objectives: fixed exchange rates or monetary policy autonomy.

[10] In 1958 Germany was one of the first European countries that introduced a convertible currency during the post war period. Convertibility was more widely defined than provided for in Art. VIII of the IMF Art. of Agreement, which is based on the avoidance of payment restrictions in transactions of the current account, because outflows of the capital account were mainly liberalized as well.

[11] Examples are the ban on interest payment on foreign deposits with domestic banks, on the sale of money market paper to non-residents and on repo securities transactions between residents and non-residents in June 1960, by the declaration of a coupon tax on non-residents' interest income from domestic bonds in March 1964 and its introduction one year later, by the introduction of the authorization requirement for the acceptance of foreign funds by domestic banks in November 1968 and by the introduction of the cash deposit requirement for borrowings abroad in March 1972 (Deutsche Bundesbank, 1985).

[12] In 1975 removal of the last restrictions on interest payments on non-residents' deposits, in 1981 removal of the last quantitative restrictions on the purchase of securities by non-residents, and in 1984 removal of the last restrictions on interest payments on bonds held by non-residents („coupon tax").

References

Abramovic, M. (1986) Catching up, forging ahead, and falling behind, The Journal of Economic History, Volume XLVI, No. 2, June

Avramov, R., editor (1999) "120 years Bulgarian National Bank: A chronology 1879–1999", Bulgarian National Bank, Sofia

Binay, S. (2003) "Fiscal issues and central banking in emerging economies". In: *Bank for International Settlement Paper,* 20, Fiscal issues and central banking in emerging economies, Basel

Bank deutscher Länder (1951) "The Equalisation Claims of the Commercial Banks", *Monthly Report*, June

Deutsche Bundesbank (1985) "Freedom of Germany's capital transactions with foreign countries", *Monthly Report*, July

Deutsche Bundesbank (1995) "The monetary policy of the Bundesbank" , *Monthly Report*? October

Deutsche Bundesbank (1995) "Equalisation claims arising from the currency reform of 1948 and the Fund for the Purchase of Equalisation Claims", *Monthly Report* November

Dinkic, M. (1997) The economy of destruction, 2nd edition, Stubovi Kultura Belgrade

Emminger, O (1976) : „Deutsche Geld- und Währungspolitik im Spannungsfeld zwischen innerem und äußerem Gleichgewicht" (1948–1975), Frankfurt/ M.

Emminger, O. (1977) „The D-Mark in the conflict between internal and external equilibrium 1948–75" in *Essays in International Finance*, No. 122, June, Princeton University, New Jersey ;

Holtfrerich, C. (1999) "Monetary policy under fixed exchange rates (1948–1970)" in Baltensperger, E., Tietmeyer, H. Issing, O.: *Fifty years of the Deutsche mark*, Oxford University Press, Oxford

Jaeger, K. (2005) Die Deutschen Münzen seit 1871, 19. Auflage, Regenstauf 2005

Krugman, P. and Obstfeld, M. (1994) "International Economics", HarperCollins, New York

Mitrovic, A. et al., editors (2004) "National Bank 1884–2004", National Bank of Serbia, Belgrade

Pontzen, M. (1998), " Die deutsche "Pfundwährung" An aspect of the dollarisation discussion in Germany 1919–1923, in *Money Trend*, , 5/98 Wien

Pontzen, M. (2001) "Restructuring banks with equalisation claims", in *Central Banking*, Volume XI/3, Feb 2001, p. 83–86, London

Schacht, H. (1953) „76 Jahre meines Lebens", Kindler und Schiermayer, Bad Wörishofen

Schobert, F. (2006) "Linking Financial Soundness and Independence of Central Banks – Central and Eastern Europe, Turkey and the CIS Countries", *Review of International Business and Finance*, Vol. 20 (2)

Tůma, Z. (2003) "Banking sector development in the Czech Republic", in Tumpel-Gugerell, G. and Mooslechner, P: *Structural Challenges for Europe,* Edward Elgar, Cheltenham

Vossische Zeitung (1923) November