Advantages and Disadvantages of the Holding of Gold Reserves by Central Banks – With Special Reference to the Swiss National Bank

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1. PREFACE: POLITICS, MONETARY REGIME AND INFLATION

In an article for the Swiss newspaper, the *Neue Zürcher Zeitung* (2000), entitled "Am Ende eines Jahrhunderts der Hyperinflationen" (At the End of A Century of Hyperinflations) I pointed out that never during human history had there been as many and as extreme hyperinflations than in the twentieth century, that is since 1914 (Table 1). Our ancestors living under the gold standard before World War I would have scarcely believed that such events could be possible and would have considered them to be a relapse into barbarism. Also, even inflations in countries with relatively stable currencies have been higher since 1914 than before, since no inflationary trend was present during the 19th century (Figure 1), quite in contrast to the time after 1914.

Moreover, rates of inflation have been more pronounced and more diverse for relatively stable currencies since 1971/73 than in the two preceding decades, a consequence of the breakdown of the Bretton Woods with fixed exchange rates, in which monetary policies and, therefore, rates of inflation, were mostly determined by the independent US Federal Reserve System. Finally, after 1971/73 inflation has been higher in countries with dependent than in those with independent central banks (Figure 2). It seems to be obvious that these different developments result from the differences in the kind of monetary regimes present, given the inflationary bias of governments.

The gold standard has been more stable concerning inflation than discretionary paper money regimes, and among the latter such with independent central banks more stable than those with central banks dependent on the government (BERGER, DE HAAN and EIJFFINGER 2001).

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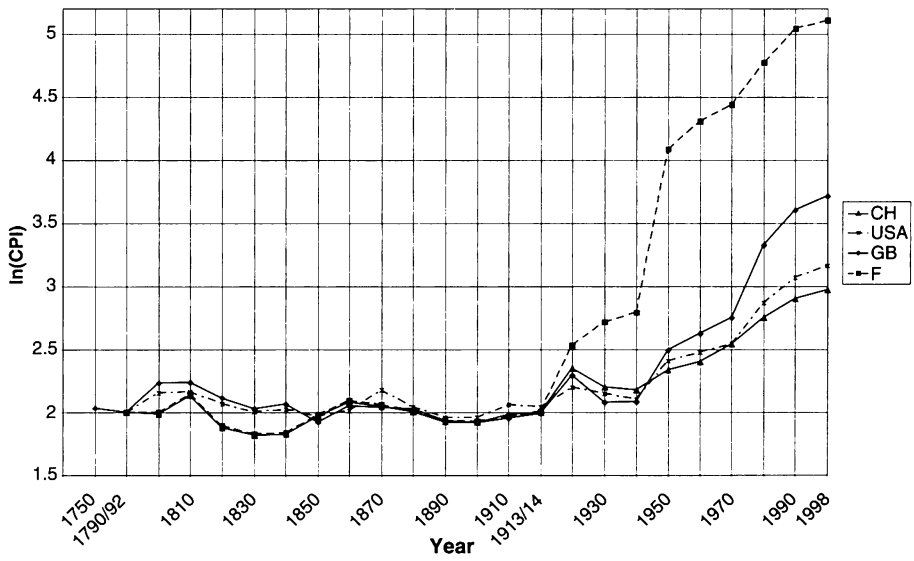
Table 1: Hyperinflations in History

Country	Year(s)	Highest Inflation p. Month	Country	Year(s)	Highest Inflation p. Month
Argentina	1989/90	196.6	Hungary	1945/46	1.295 E + 16
Armenia	1993/94	438.04	Kazakhstan	1994	57
Austria	1921/22	124.27	Kyrgyzstan	1992	157
Azerbaijan	1991/94	118.09	Nicaragua	1986/89	126.62
Belarus	1994	53.4	Peru	1988/90	114.12
Bolivia	1984/86	120.39	Poland	1921/24	187.54
Brazil	1989/93	84.32	"	1989/90	77.33
Bulgaria	1997	242.7	Serbia	1992/94	3.09 E + 8
China	1947/49	4208.73	Soviet Union	1922/24	278.72
Congo(Zaire)	1991/94	225	Taiwan	1945/49	398.73
France	1789/96	143.26	Tajikistan	1995	78.1
Germany	1920/23	29525.71	Turkmenistan	1993/96	62.5
Georgia	1993/94	196.72	Ukraine	1992/94	249
Greece	1942/45	11288	Yugoslavia	1990	58.82
Hungary	1923/24	82.18			

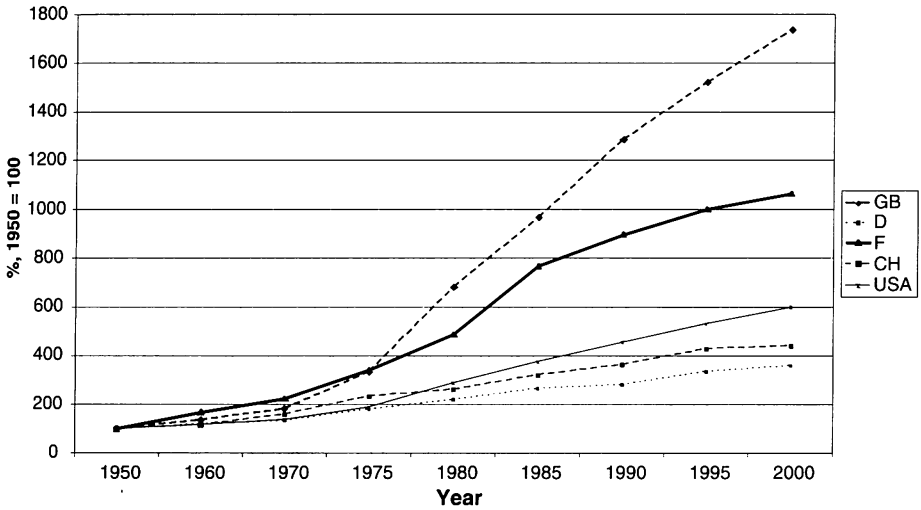
Note: Moldova may be also a candidate for inclusion. Producer prices rose by 64.5 % in April 1994. But the data are insufficient to verify this for consumer prices.

Figure 1: Development of Cost of Living Indices (French Figures for Switzerland before 1890)



Sources: Mitchell (1976), pp. 735–747. Statistisches Bundesamt (1981), pp. 704–706. US Bureau of the Census (1976). Statistisches Bundesamt (2000), pp. 230f.

Figure 2: Development of Cost of Living Indices, 1950–2000



Source: International Financial Statistics. Monthly Reports.

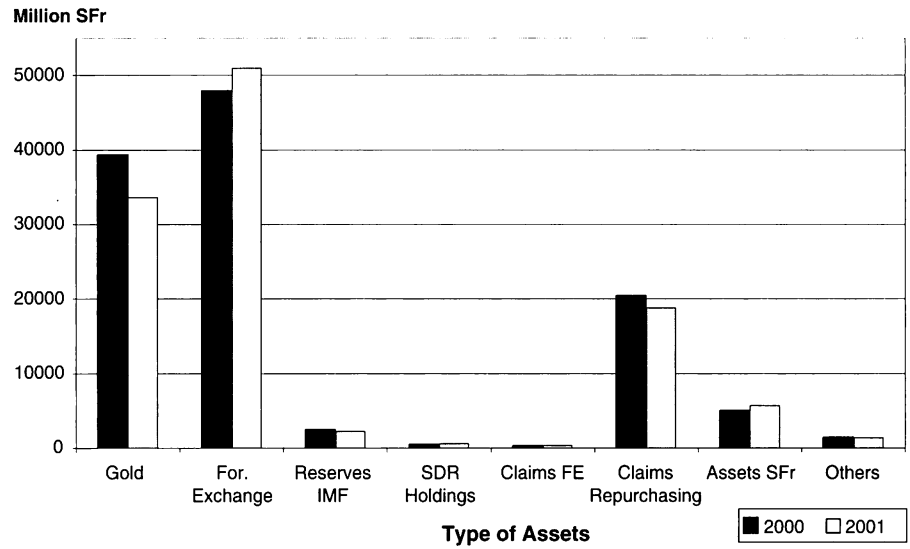
2. RECENT POLITICAL DECISIONS AND THE ORIGIN OF THE HUGE GOLD RESERVES OF THE SWISS NATIONAL BANK

It is well known that following a proposal by the former President of the Schweizerische Nationalbank (SNB), Hans Meyer, 1300 tons of gold have been declared to be no longer needed as a reserve and been earmarked for public disposal. This has been made possible by a popular referendum changing the Swiss constitution in April 1999. Presently the Bank administers this gold and the revenue earned from sales and from loaning it to others etc. Subsequently the Swiss National Bank has, beginning in May 2000, valued these and the remaining gold reserves of about 1270 tons at market prices, instead of a price of 4595.74 SFr. per kg as prescribed by the former constitution. This led to an increase in the book value of about 27.7 billion Swiss francs. In 2000 the SNB sold 170.8 of these 1300 tons (Figure 3). The sales are still going on within the framework of the so-called Washington agreement among quite a number of central banks, which stipulates that the signatories shall not sell together more than about 400 tons a year.

Like the former President of the SNB, Fritz Leutwiler, I have been opposed to the policy of reducing the gold reserves of the Bank from the very beginning (Basler Zeitung 1999). Before turning to the substance of my analysis concerning the long-term role of gold as a part of central bank reserves, I would like to make two introductory remarks. The first relates to the reasons why the *"nicht mehr für monetäre Zwecke benötigte Goldbestand"* ("gold reserves no longer needed for monetary purposes") (Schwei-

zerische Nationalbank 2000, p. 82) came into existence. The second refers to the role central bank reserves have to play in different monetary regimes or constitutions.

Figure 3: Assets of Swiss National Bank



Source: Schweizerische Nationalbank (2001)

Before World War I and again until 1936, when the gold content of the Swiss franc was lowered by thirty per cent, one kg of fine gold was equal to 3438.91 francs. In 1971 the new gold parity of 1936 was changed again to 4595.74 francs. Before the change of the constitution in April 1999 Switzerland remained legally on the gold standard. The former constitution provided in article 39,6 that *"Der Bund kann die Einlösungspflicht für Banknoten* [in Gold zur Parität] ... *nicht aufheben und die Rechtsverbindlichkeit für ihre Annahme nicht aussprechen, ausgenommen in Kriegszeiten oder in Zeiten gestörter Währungsverhältnisse."* ("The federal government is not allowed to suspend the convertibility of banknotes [into gold at the parity] nor declare them to be legal tender, except during war or in times of disturbed monetary conditions"). Whether disturbed monetary conditions existed during all of the last decades, so that the Bundesrat (the government) could suspend and maintain gold convertibility without violating the constitution by its decision of June 29, 1954, I leave to the judgement of the reader. By saying this, I do, however, not imply that Switzerland alone could have stayed on the gold standard at an unchanged gold parity. This would have led, at least from 1968, to an unbearable overvaluation of the Swiss currency.

This brings us to the reason for the difference between present market price of gold and its price implied by the parity, which was caused by long-term Swiss inflationary de-

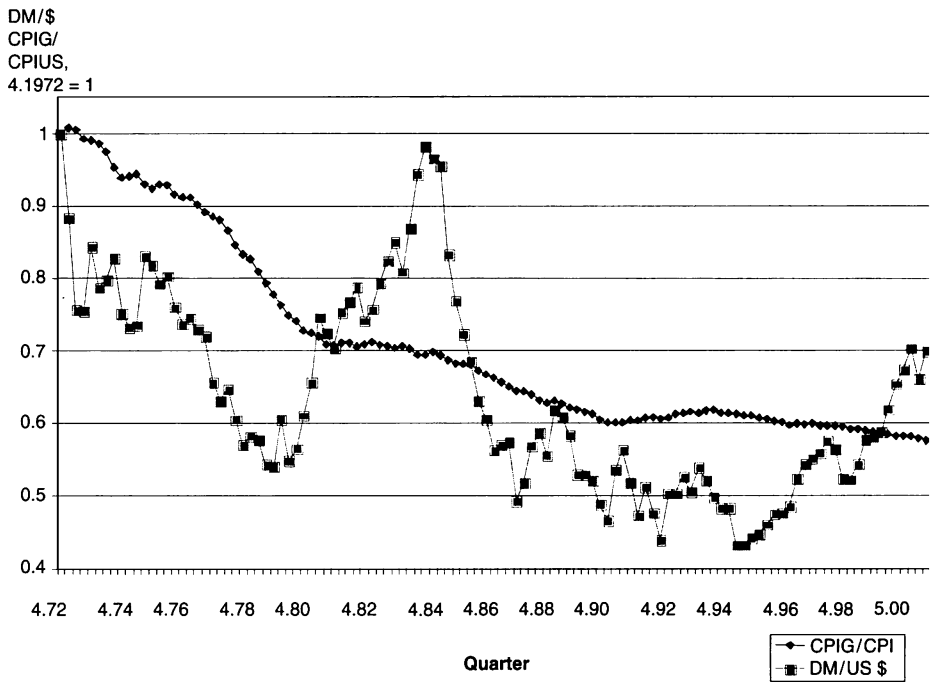
velopments described above (Figures 1 and 2). The difference in the book value of gold in the amount of 27.7005 billion francs on May 1, 2000 is the outcome of an inflation tax raised from the holders of Swiss money. On the other hand, it is also true that this amount would have been much smaller, if the demand for money had not grown over the decades since 1913 or 1936 because of the rise of real GDP, which grew by a factor of 9.9 or 6.6, respectively, during these periods. Still, without the inflationary rise of the gold price no increase of the book value of the gold held in 2000 would have resulted. Anyhow, the increased demand for money was mainly satisfied during the relevant period by the SNB by buying dollars from the public. Consequently, another factor contributing to the size of the gold holdings was the decision by the SNB to exchange dollars into gold at the parity of 35 $ per ounce at the US Treasury as long as the weak gold convertibility for central banks was maintained by the USA. That is until 1971, when President Nixon abolished this obligation of the USA. This decision of the SNB turned out to be fortunate because of the loss of value the dollar experienced in terms of Swiss francs (see below). The inflow of US dollars was itself a consequence of the fact that the SNB tried to follow a less inflationary policy than the Federal Reserve Board in the USA. One other important characteristic of Swiss developments has to be recalled: Quite in contrast to other countries the revenue of this policy and of the inflation tax was not spent by the government until 1999, but hoarded by the Swiss National Bank. It is only now that the government wants to use the proceeds of the tax for different purposes.

3. THE NEED TO HOLD RESERVES UNDER DIFFERENT MONETARY REGIMES

Let us turn next to the importance of central bank reserves under different monetary regimes. With a gold standard gold reserves are needed to maintain convertibility at the gold parity, since each citizen has the right to convert his banknotes into gold at any time. This is no longer true in a monetary regime based on the creation and management of discretionary paper money. Strictly speaking, under such a regime, gold reserves are no longer needed.

As we will see below, however, this does not imply that it may not be better to hold part of central bank reserves in gold. Next, given a discretionary paper money standard with fixed exchange rates, foreign exchange reserves are necessary to maintain the foreign exchange parity, e.g., vis-a-vis the dollar. By contrast, in the case of floating exchange rates neither gold nor foreign exchange reserves are needed, at least seen from a principal point of view. Experience has, however, shown that flexible exchange rates based on discretionary paper money standards show a high short-term variability and also medium-term swings around purchasing power parities with diversions of up to thirty per cent, and lasting from five to twelve years. Figure 4 describes one such historical case, which is still relevant. But this is typical for flexible exchange rates and similar cases have occurred since the mid-eighteenth century (BERNHOLZ 1982, BERNHOLZ, GAERTNER and HERI 1985).

Figure 4: Exchange Rate – USA (DM replaced by Euro from 1. 1. 1998)



Sources: IMF: International Financial Statistics, Monthly Reports. European Central Bank: Monthly Reports.

Governments and (or) central banks are usually not prepared to accept such developments. Consequently interventions in foreign exchange markets, the so-called dirty floating, have been the rule, not the exception. It follows that foreign exchange reserves of central banks have been considered necessary even in the case of flexible exchange rates.

In the following we will discuss the advantages and disadvantages implied by the holding of gold reserves by central banks, given a discretionary paper money standard with a flexible exchange rate. That is, for a regime that has characterized Switzerland since 1973.

4. ECONOMIC ADVANTAGES AND DISADVANTAGES OF HOLDING GOLD RESERVES

4.1. Disadvantages of Holding Gold Reserves

The disadvantages of holding gold reserves can be described with a few sentences:

a) If the central bank keeps the receipts from selling part or all of its gold reserves it can expect a higher nominal return on its reserves by investing them in money market instruments. This does, however, not imply that no return can be expected from holding gold. For instance, gold options can be sold or bought, or the gold can be loaned. The Swiss National Bank earned 173.4 million francs (Schweizerische Nationalbank 2000, p. 83) from such contracts in the year 2000. But the nominal returns from investing foreign exchange reserves are usually higher (see below).
b) If all or a part of the receipts from the sale of gold or from investing them is passed on to the Treasury the respective amounts can be used to increase expenditures, to lower taxes or to repay government debt.

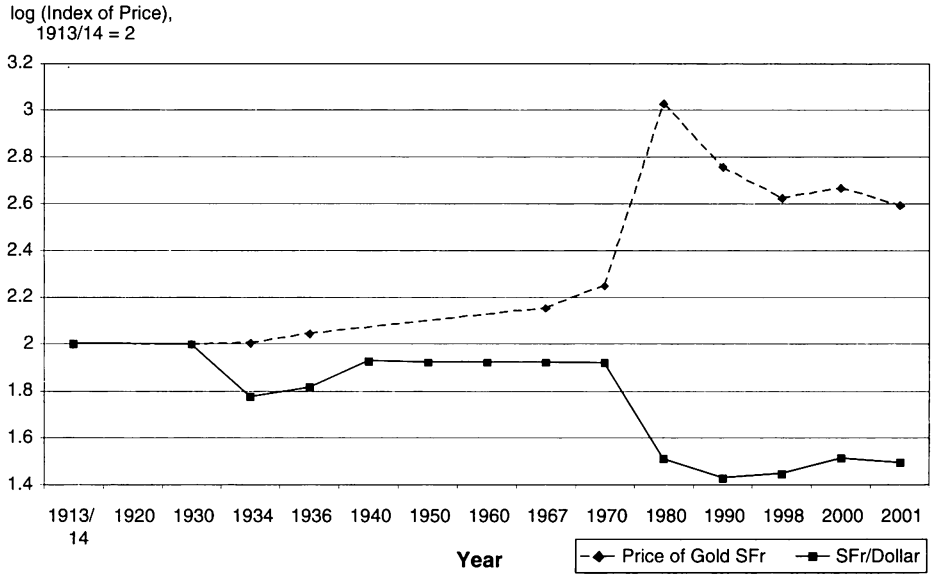
4.2. Advantages of Holding Gold Reserves

In considering the composition of central bank reserves not only the nominal rates of return, but also the safety of the reserves has to be taken into account, and this by taking a national perspective. Foreign exchange reserves are nothing but claims against foreign governments or other foreign institutions denominated in foreign currency, usually in the form of money market instruments. They face several risks, which we may call market and political risks. Market risks are given by risks concerning the safety of the debtor, changes of the price or rate of return of the asset in the market before it matures, and of the exchange rate. Apart from the political risk to be discussed below the first type of market risks is probably negligible for assets held by the central bank. The same is true for the second risk, as long as the central bank invests, because of liquidity reasons, only in short-term assets of the foreign money markets. The exchange rate risk can be, on the other hand, because of the high volatility of the rate, quite substantial, if it is not covered in forward exchange markets. The expenses to cover this risk in forward markets, are, however, quite substantial, relatively speaking. They amount for a strong currency like the Swiss franc, to the difference between the higher foreign and the lower domestic interest rate. Central banks, therefore, usually prefer not to cover their exchange reserves. As a consequence the risk implied by exchange rate movements may not be lower or even higher than that of gold stemming from fluctuations of the gold price.

In the long run, this risk may be exacerbated if the currency held as a reserve shows a higher rate of inflation than experienced domestically, since the exchange rate will fluctuate around a falling rate for the foreign in terms of the domestic currency in this case.

That this risk has not been negligible for the dollar reserves of the SNB in the long run can be seen by comparing the development of the prices of gold and of the US $ (Figure 5), for dollar denominated exchange reserves were the main assets held by the SNB most of the time. As shown by the figure, the gold price was higher than that of the US $ all years since about 1967. The gold price had a tendency to rise in Swiss francs and the dollar a tendency to fall.

Figure 5: Development of Prices of Gold and Dollar in Swiss Francs



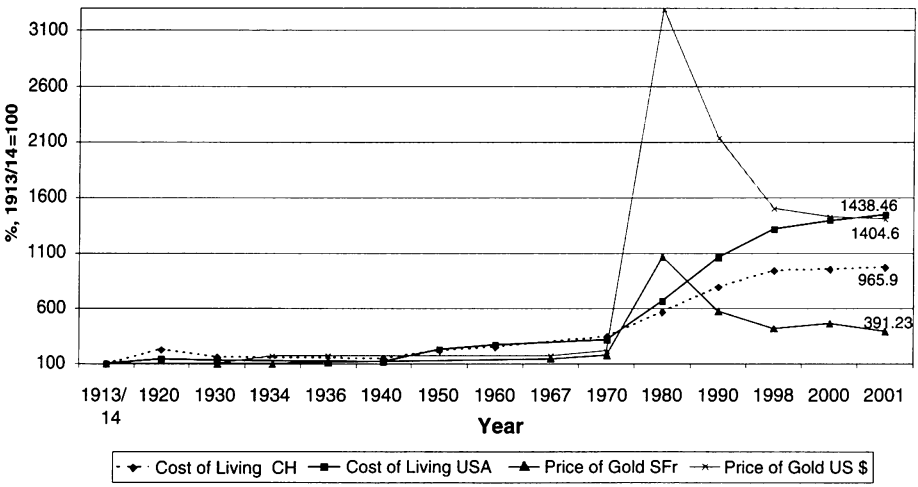
Sources: For cost of living: IMF: International Financial Satistics. Monthly Reports. For gold prices before 1970 gold parities. For later years: World Gold Council: Gold in the Official Sector, No. 13, October 2000. For 2001: Neue Zürcher Zeitung.

As a consequence, to compare the return on gold to that of foreign exchange reserves earned in the money markets, not only the nominal returns on both assets, but also the return following from the different development of their prices has to be taken into account. To see the long run importance of this divergence for the return on assets held by the SNB let us calculate the difference for the last 71 years. In 1930 the indices for both gold and dollar stood at about 100 (1913/14 = 100). Until 2001 the index rose to 391.23 for gold, but fell to 31.17 for the $. If we calculate the nominal average annual rate of return during this long period, we get 1.94 % for gold and -1.62 % for the $. The difference amounts to 3.56 %. Note, that the percentage would be much higher if only the period since 1971 had been taken into account (see Figure 5). Anyhow, this difference has to be added to the nominal rate of return on gold for a fair comparison with the nominal return on foreign exchange reserves.

The latter amounted for the three-months dollar money market to an average of 5.588 % (figure kindly provided by Peter Kugler) for this period from 1930 to 2001, so that a difference of 5.588–3.56 = 2.028 % in favor of foreign exchange reserves remains, if we neglect nominal returns on gold holdings from options written on them, from lending them etc. This difference is the price to be taken into account if the different political risks of holding gold or foreign exchange reserves are considered.

Let us note in passing that neither the price of the $ nor that of gold did in any way compensate their holders for the increase of the Swiss cost of living index (Figure 6). On the other hand, the price of gold would have been, compared to the inflationary development of the US cost of living index, a perfect hedge, but without taking into account any forgone returns, storing costs, or property or wealth taxes to be paid.

Figure 6: Development of Cost of Living Indices and of Gold Prices in the United States and Switzerland



Sources: For cost of living: IMF: International Financial Statistics. Monthly Reports. For gold prices before 1970 gold parities. For later years: World Gold Council: Gold in the Official Sector, No. 13, October 2000. For 2001: Neue Zürcher Zeitung.

5. ADVANTAGES OF HOLDING GOLD RESERVES BECAUSE OF POLITICAL RISKS

Apart from market risks, foreign exchange reserves are subject to political risks. Let us first observe that the United States (and the greater part of Swiss foreign exchange reserves has until recently been held in US dollars) has often blocked all foreign assets of different countries held in the USA, including foreign exchange reserves of the respective central banks. For instance, Swiss assets were blocked by the US during World

War II since 1941 (Schweizerische Nationalbank 1987, p. 33) (this was also true for the gold reserves held by the Swiss National Bank in the US) until the Washington agreement of 1946, de facto even until 1949. When this happened, the SNB decided to exchange only the dollars earned by exporters, but not out of capital investments into francs at the official rate of 4.28 per $. For these dollar holdings were claims on American debtors, so that they were blocked and could not be used by the SNB. As a consequence the dollar foreign exchange market was split, and the financial $ fell for some time to nearly 50% of the official rate (Schweizerische Bankgesellschaft 1987, p. 175 Schweizerische Nationalbank 1982, p. 33). Perhaps this blocking of Swiss assets has even been one of the reasons motivating the Swiss National Bank to undertake her dubious gold transactions with Nazi Germany. As another example, recall that President Nixon was very near to imposing foreign exchange controls on the dollar in 1971, in which case $ denominated foreign exchange reserves would not have been freely available. Such dangers are absent for gold reserves held domestically. The terrorist attacks on the United States in September 2001 and the counter measures taken by the USA have again shown the vulnerability of foreign exchange reserves. Debtors may not be able to transfer them at demand, or the respective exchange rates may fall strongly, as after the terrorist acts, of the US $ and the Euro. Or the US government may move to block them if a country does not follow its understanding of which persons or group are terrorists, and whose accounts should consequently be seized by all countries. Some passages of President Bush's announcement concerning the seizure of terrorist accounts sound already somewhat ominously. We read that the blacklist *"puts the world on notice – if you do business with terrorists, if you support or sponsor them, you will not do business with the United States of America."* (as quoted from the Wall Street Journal Europe Sept. 2001, p. 1). And as the Wall Street Journal Europe puts it:

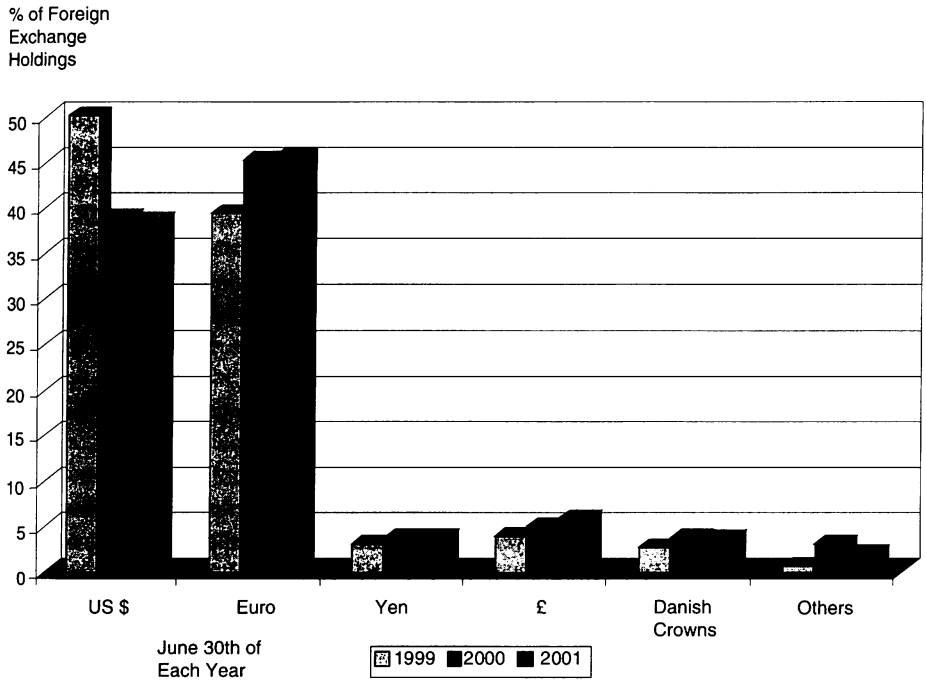
> "The Bush's administration list of alleged supporters of terrorism included a usual-suspects list of Bin Laden associates, as well as charities the U.S. believes funnel money in his al-Qaeda organization." (p. 1)

Note the words ***alleged supporters*** and ***usual-suspects***, for it is clear that it is the US administration, and not the foreign countries who are asked to conform, who will determine who can be rightly suspected. This means again that the USA reserves the right to block assets held by foreigners at its own discretion, if foreign firms or governments do not respond to its demands.

It is true that these political as well as the market risks can be mitigated by a diversification of foreign exchange reserves. The SNB has done so increasingly during the last years (Figure 7).

But this may also lead to short-term losses, as shown by the diversification in favor of the Euro during the last years. Moreover, there is no guarantee that different currencies could not move into the same direction because of common underlying reasons; or that, let's say, the USA and the European Union could not take combined sanctions against Switzerland by threatening to block or by actually blocking foreign exchange reserves.

Figure 7: Shares of Different Currencies in Foreign Exchange Holdings of the Swiss National Bank



Source: Schweizerische Nationalbank (2001).

6. DOMESTIC POLITICAL PROBLEMS RESULTING FROM THE SALE OF GOLD RESERVES

If the government obtains part or all of the receipts from the sale of gold reserves this is a boon to politicians. For they are now able to provide benefits to groups of voters or pressure groups without being forced to increase any burdens on the population. As a consequence, a struggle will set in among them on how to distribute this bonanza. Such a development can presently (until October 2001) be observed in Switzerland. The government wanted to use all or at least part of the proceeds from the sale of "the no longer needed" gold reserves for a *Solidaritätsstiftung* (Solidarity Fund). Not surprisingly, this position has been recently supported by the "Schweizer Hilfswerke" (the organizations working to assist the needy at home and abroad), who presumably hope to participate in the spoils (Basler Zeitung, September 11, 2001). The Cantons, on the other hand, maintained that it is their legal right to get the greater part of them as the main shareholders of the SNB, whereas the right wing party SVP proposed, later supported by a part of the Social Democrats and unions, to use it to rescue the financing of the old age pension sys-

tem AHV for the next ten years or so without increasing taxes. The SVP has started a popular initiative for this purpose. The Ständerat (comparable to the US Senate) in good Swiss compromise tradition made a counterproposal, according to which one third of the proceeds from the sold gold treasure would to the Solidarity Trust, one third to the Cantons and the last third to the AHV. The Nationalrat (the lower House) has agreed after much haggling on Sept. 24, 2001 with the addition that the gold should go to the AHV after 30 years. As had to be expected, voices claiming the disposal of the other "no longer needed reserves" of the SNB have already been raised. But the final decision will be taken by a vote of the sovereign, the population, probably in March 2002.

Let me mention that there could have been quite a different solution, namely to distribute the income from the sale of the gold to holders of banknotes. This would have been technically more difficult but more appealing from the point of view of maintaining the rule of law, since a tax on the holders of currency caused the existence of the gold hoard.

On the other hand, it is true that the present holders are mostly not be the people who were subject to the inflation tax.

Another possibility, also more in line with the rule of law, would have been the distribution of the proceeds to the shareholders according to the number of shares they own since the SNB is a joint stock company whose shares are quoted in the stock market.

In this case the Cantons would have profited most, since they and the Cantonal Bank hold 54 % of the shares. And the private shareholders would not have gone empty. It is obvious that the Cantons based their claims to the proceeds from the "gold no longer needed" on their position as shareholders.

The agreement concerning the annual distribution of part of the profits of the SNB which it concluded with the Federal Finance Department on April 24, 1998 (Schweizerische Nationalbank 2000, pp. 101 f.), must also be considered as problematic from this point of view, since the Federal government does not own any shares.

On the other hand, it is true that these arguments can be countered with the statement that the dividends to be distributed to the shareholders have always been limited by law to 6 %, so that the shares have been similar to bonds, and that the returns from seignorage should always go to the state. But even then, why should they go to the central state, that is why should the Federal government participate in the profits of the SNB? Or, for that matter, in the proceeds from the sale of "the no longer needed gold reserves"?

Now, it is obvious that the two solutions just mentioned are not feasible, given political forces. But it is interesting and revealing that they have not been discussed.

Another possible alternative, namely to increase expenditures or to lower taxes by using the proceeds from the sale of gold is also problematic, since these changes may be of a permanent nature and give rise to a budget deficit later on. From this perspective only the repayment of government debt would have been without problems.

7. OTHER CONSIDERATIONS FOR MAINTAINING GOLD RESERVES

A further disadvantage of the sale of gold reserves is given by the fact that it increases the difficulty of an eventual return to the gold standard, or more generally to a commodity standard including gold as one of its components. This problem is certainly not important at the moment, especially since there seems no political chance for such a change in the foreseeable future. But in the long-term perspective taken here, it still merits our attention.

For it has to be expected that the problem will become more important when monetary systems approach more and more a pure credit money standard, in which the use of government money, that is of central bank notes and coins becomes superfluous. A development into this direction can already be observed and is obviously furthered by technical progress in computer and information technology. In this case central banks will lose control of the money supply, which would lead, as already seen by KNUT WICKSELL (1898/1965), to an unstable and thus inflation-prone price level. Given these conditions, a control of the money supply by central banks can only be maintained by either government regulations (for instance minimum reserves in government money to be held with the central bank) or convertibility of the internet or computer money into gold or another commodity standard at a fixed parity. It is interesting in this respect that the former President of the German Bundesbank, Hans Tietmeyer, has told me at a conference in November 2000, that this was the main reason that he insisted on the right of the European Central Bank, to oblige the banks to hold obligatory reserves at the Central Bank. I rather believe that the convertibility at a fixed parity would be a better solution.

REFERENCES

BERGER, H., J. DE HAAN and S. EIJFFINGER (1991), "Central Bank Independence: An Update on Theory and Evidence", *Journal of Economic Surveys*, 15 (1), p. 3–40.

BERNHOLZ, P. (1982), "Flexible Exchange Rates in Historical Perspective", *Princeton Studies in International Finance*, 49, July, Princeton, N.J., International Finance Section, Dept. of Economics, Princeton University.

BERNHOLZ, P. (2000), "Am Ende eins Jahrhunderts der Hyperinflationen", *Neue Zürcher Zeitung*, Jahrgang 221 (48), 26./27. Februar, p. 59.

BERNHOLZ, P. (1999): "Währungspolitik auf falschem Wege", *Basler Zeitung*, 21. April.

BERNHOLZ, P., M. GAERTNER and E. HERI (1985), "Historical Experiences with Flexible Exchange Rates", *Journal of International Economics*, 19, p. 21–45.

MITCHELL, B.R. (1976), *European Historical Statistics, 1750–1970*, New York.

Schweizerische Bankgesellschaft (ed.) (1987), *Die Schweizer Wirtschaft. Daten, Fakten, Analysen*, Zürich.

Schweizerische Nationalbank (ed.) (1982), *75 Jahre Schweizerische Nationalbank. Die Zeit von 1975 bis 1982*, Zürich.

Schweizerische Nationalbank (2000), *Geschäftsbericht*, Nr. 93, Zürich.

Schweizerische Nationalbank (2001), *Statistisches Monatsheft*, July, Zürich.

Statistisches Bundesamt (1981), *Statistisches Jahrbuch für die Bundesrepublik Deutschland*, Wiesbaden.

Statistisches Bundesamt (2000), *Statistisches Jahrbuch 2000 für das Ausland*, Wiesbaden

US Bureau of the Census (1976), *Historical Statistics of the United States: Colonial Times to 1970*, Bicentennial Edition, Washington, D.C.

WICKSELL, K. (1898/1968), *Geldzins und Güterpreise,* Berichtigter Nachdruck der Ausgabe von 1898, Aalen.

SUMMARY

It is advantageous for a country like Switzerland to hold part of its central bank reserves in gold, even given a discretionary monetary regime with flexible exchange rates. This in spite of the fact, that the return on gold reserves is usually lower than that on foreign exchange reserves. Reasons are first, the greater security of gold reserves kept at home For foreign exchange reserves are claims against foreign banks and authorities, which can be blocked any time for political reason. Second, short and especially long-term movements of exchange rates are often more important than that of the gold price. Finally, the selling of gold reserves in favor of political authorities or purposes implies a political struggle for the distribution of the proceeds as witnessed by recent events in Switzerland. Finally, in comparing the return on gold and foreign exchange reserves not only the respective nominal returns, but also the long-term development of the prices of gold and the respective foreign currencies have to be taken into account. For whereas the price of gold in Swiss francs has risen substantially, the price of the US dollar has fallen heavily since 1968.

ZUSAMMENFASSUNG

Selbst bei einer diskretionären Papiergeldwährung mit flexiblen Wechselkursen ist es für ein Land wie die Schweiz vorteilhaft, einen Teil der Währungsreserven trotz eines vermutlich geringeren Ertrags in Gold zu halten. Die Gründe liegen einmal in der grösseren Sicherheit von im Inland gelagerten Goldreserven im Vergleich zu Devisenreserven, da es sich bei den letzteren um Forderungen auf ausländische Währungen handelt, die jederzeit aus politischen Gründen blockiert werden können. Zweitens können die kurz- und langfristigen Schwankungen der Wechselkurse stärker als die des Goldpreises sein. Ausserdem führt ein Verkauf von Goldbeständen zu Gunsten der öffentlichen Hand regelmässig zu innenpolitischen Verteilungskämpfen, wie am Beispiel der schwei-

zerischen Erfahrungen gezeigt wird. Schliesslich ist beim Vergleich der Erträge auf Gold- bzw. Devisenreserven neben den Nominalerträgen die langfristige Entwicklung des Goldpreises und des Preises der Währungen, in denen die Devisen gehalten werden, einzubeziehen. In Schweizer Franken ist jedoch der Goldpreis langfristig (seit 1968) stark gestiegen, während z. B. der Dollarpreis stark gefallen ist.

RÉSUMÉ

Le système monétaire suisse repose sur une monnaie fiduciaire discrétionnaire et un taux de change flexible. Même dans un tel ordre monétaire, il s'avère avantageux de détenir une partie des réserves de change en or, malgré le fait que le rendement de l'or est probablement inférieur à celui de placements alternatifs. D'une part, les avantages du métal jaune résident dans une sécurité accrue des réserves d'or, stockées à l'intérieur du pays, comparées aux réserves de devises qui représentent une créance envers l'étranger, ces dernières pouvant être bloquées en tout temps pour des raisons politiques. D'autre part, les mouvements à court et à long terme des taux de change peuvent être plus prononcés que ceux du prix de l'or. En outre, des ventes d'or en faveur des finances publiques mènent régulièrement à des conflits politiques sur la distribution des revenus, comme le démontrent les expériences suisses. Finalement, une comparaison du rendement des réserves d'or et des réserves de devises doit non seulement se baser sur les rendements nominaux, mais également tenir compte de l'évolution du prix de l'or et des taux de change à long terme. Mesuré en francs suisses, le prix de l'or a fortement augmenté depuis 1968, tandis que le taux de change du dollar, par exemple, a fortement chuté.