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Monthly exchange rates for Sweden 1913–2006

1. Sources and methods used for calculating an exchange rate index

Exchange rates

The exchange rates are the prices quoted in Stockholm for currencies, i.e. how many Swedish krona (SEK) a given unit of a foreign currency amounted to.

In most cases the monthly exchange rates are calculated as monthly averages of daily quotations, except for the period stretching from 1952–1974, when the monthly exchange rates are averages of the highest and lowest daily quotation of the particular month. During the Second World War and its aftermath international trade was to a large extent characterised by bilateral trading arrangements and for many currencies there were no active currency markets; accordingly the same exchange rate was used for many years and we lack daily quotations for most currencies. In the 1930's, after the break-up of the Gold Standard, and during the Second World War and its aftermath so called clearing exchange rates were often used in international transactions. In most cases, however, the clearing rates tracked the official market exchange rates closely, and the latter are used in constructing the exchange rate index.

In presenting the exchange rates of the various currencies present day currency codes have been used, which in some cases is anachronistic since political changes and currency reforms led some countries to change the name of their currencies. The most important example is probably Germany where the old Reichsmark was abolished at the end of the hyper inflation in 1923. The German currency was stabilized with the introduction of the Rentenmark which was then in the end of 1924 replaced by a new Reichsmark. The latter lasted until Germanys defeat in the Second World War and in 1949 a new currency was introduced in Western Germany, the D-mark.

In collecting monthly exchange rate data the following sources have been used:

For the period 1913–1919 the monthly exchange rates of the British Pound (GBP), the German Reichsmark (DEM), the French Francs (FRF) and (from 1915) the US dollar (USD) derive from information in *Sveriges riksbank årsbok* (Yearbook of the Swedish Central Bank). All other exchange rates for this period derive from information on monthly exchange rates collected in the archives of Sveriges riksbank (Swedish Central Bank).

For the period 1920–1979 the exchange rate data derive from *Sveriges riksbank årsbok*, from 1978 *Sveriges riksbank statistisk årsbok* (Statistical Yearbook of the Swedish Central Bank).

In this source we lack data on the exchange rate between the Swedish krona and the Japanese yen before 1977. For the period 1960–1977 the monthly exchange rates between the Japanese yen (JPY) and the Swedish krona (SEK) has been calculated from monthly exchange rates between the Norwegian krona (NOK) and the Japanese yen (JPY) and between the Norwegian krona (NOK) and the Swedish krona (SEK) as found on the Norwegian Central Banks website of exchange rates:

http://www.norges-bank.no/english/statistics/exchange/.

For the period 1980–1999 the exchange rate data derive from information collected in the archives of *Sveriges riksbank* (Swedish Central Bank) except for the Swiss francs (CHF) and the Icelandic krona (ISK) in 1980, where the data derive from *Sveriges riksbank statistisk årsbok.*

For the period 2000– the exchange rate data derive from the web site of *Sveriges riksbank* (Swedish Central Bank):

http://www.riksbank.se/templates/stat.aspx?id=15882.

Methods used for constructing the exchange rate index

In constructing an exchange rate index the ambition has been to include currencies of countries whose share of Swedish foreign trade (exports + imports) amounted to at least one percent and to achieve a coverage rate of at least 80 percent of Swedish foreign trade. Due to lacking data it has not always been possible for some years and some countries to uphold this ambition. Because of the availability of unbroken series of data, currencies of some countries have also been included in the index even though the shares of those countries in Swedish foreign trade were less than one percent for particular years. An obvious example is the Swiss francs. In constructing trade weights I have used official Swedish foreign trade statistics.[1]

[1] SOS Handel (from 1961 SOS Utrikeshandel). From 1977 the trade weight data derive from the website of Statistiska centralbyrån (Statistics Sweden): www.scb.se.

Trade shares of countries shift over time and political changes lead to disappearance of states and (re-)births of new ones. In constructing an exchange rate index we therefore need to change weights periodically. Weights are changed every five years, and an exchange rate index is calculated for each five-year period. In some cases the periods are a little longer or shorter due to political changes, currency reforms and data availability. Table 1 documents the chosen sub-periods, the base year for each period and the included countries. It also shows the share of the included countries in total Swedish foreign trade (exports + imports) in the chosen base years.

For each sub-period separate exchange rate indices are calculated using the Laspeyre price index formula. The exchange indices for the various sub-periods are then linked to form an exchange rate index covering the entire period 1913–2006.

Between 1913 and 2006 the trade shares of the most important countries in Swedish foreign trade were quite stable, but there were also years when the composition of Swedish foreign trade changed notably. Some examples may serve to illustrate the index number problem created by changing trade weights. After World War I the share of the USA increased from 6.6 percent in 1913 to 14 percent in 1923. Another important change following the First World War was the shrinking importance of Russia in Swedish foreign trade following the Bolshevik revolution.

The disruption brought to international trade by the Second World War and its aftermath signified great changes in the composition of Swedish foreign trade. During the Second World War, Germany's share of Swedish foreign trade increased from 22.5 percent in 1939 to 47 percent in 1943, while the share of the UK and the USA declined from 16.9 percent and 13.5 percent in 1939 to 0.6 percent and 1.6 percent in 1943. Thereafter the share of Germany in Swedish foreign trade declined to 1 percent in 1946, while the shares of the UK and USA increased to 12.3 and 16.6 percent. When the economies of the Western European countries had been reconstructed in the 1950's trade shares were stabilised again. In 1955 the trade shares of the UK, Germany and the USA were 21.2 percent, 18 percent and 8.7 percent.

Sweden's most important trading partners were during the entire period our Nordic neighbours, the western European countries (in particular the UK and Germany) and the USA. However other countries gradually increased their importance, particularly during the last few decades. Data availability has also made it possible to increase the number of countries included in the exchange rate index since the 1990's.

Table 1: Periods for which separate exchange rate indices are calculated, countries included in the indices and percentage of Swedish foreign trade covered by countries included in the exchange rate indices.

Period (weights pertaining to year)	*Countries, whose currencies are included in exchange rate index*	*Percentage of total Swedish foreign trade (imports + exports) of countries included in the index*
1913,1–1916,1 (1915)	UK, USA, Germany, France, Denmark, Norway, Finland, Austria, Russia	88.2
1916,1–1921,1 (1915)	UK, USA, Germany, France, Switzerland, Netherlands, Denmark, Norway	83.6
1921,1–1924,2 (1920)	UK, USA, Germany, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italym Spain	86.8 (excl. Germany: 74.5)
1924,2–1930,1 (1925)	UK, USA, Germany, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy, Spain, Czechoslovakia	85.5
1930,1–1935,1 (1930)	UK, USA, Germany, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy, Spain, Czechoslovakia, Poland	86.5
1935,1–1940,1 (1935)	UK, USA, Germany, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy, Czechoslovakia, Poland	84
1940,1–1943,1 (1940)	UK, USA, Germany, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy	82.2
1943,1–1944,9 (1943)	UK, USA, Germany, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy, Portugal, Argentina	83.6
1944,9–1945,5 (1944)	UK, USA, Germany, Switzerland, Netherlands, Denmark, Norway, Finland, Portugal, Argentina	79.7
1945,5–1945,12 (1945)	UK, USA, Switzerland, Denmark, Norway, Finland, Argentina	66.2
1945,12–1950,1 (1946)	UK, USA, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Argentina	66.1
1950,1–1950,9 (1950)	UK, USA, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy, Argentina, Brazil	60.5
1950,9–1955,1 (1950)	UK, USA, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy, Argentina, Brazil	72.1
1955,1–1960,1 (1955)	UK, USA, Germany, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy	81.7
1960,1–1965,1(1960)	See, previous period	76.7
1965,1–1970,1 (1965)	UK, USA, Germany, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy, Spain, Austria, Canada, Japan	82.2
1970,1–1975,1 (1970)	See, previous period	85.9
1975,1–1980,1 (1975)	See, previous period	82
1980,1–1985,1 (980)	See, previous period	76.5
1985,–1990,1 (1985)	See, previous period	82.4
1990,1–1995,1 (1990)	UK, USA, Germany, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy, Spain, Austria, Canada, Japan, Portugal,Australia	85.3

1995,1–2000,1 (1995)	UK, USA, Germany, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy, Spain, Austria, Canada, Japan, Portugal, Australia	83.7
2000,1–2002,2 (2000)	UK, USA, Germany, France, Belgium, Switzerland, Netherlands, Denmark, Norway, Finland, Italy, Spain, Canada, Japan, Australia, Czech Republic, Poland, Estonia, P.R.China, Hong Kong, Turkey, Taiwan, Mexico, Malaysia, Russia	88
2002,2–2005,1 (2000)	Euro-land (Germany, France Belgium, Netherlands, Finland, Italy, Spain, Austria, Portugal, Ireland, Greece), UK, USA, Switzerland, Denmark, Norway, Canada, Japan, Australia, Czech Republic, Poland, Estonia, P.R.China, Hong Kong, Turkey, Taiwan, Mexico, Malaysia, Russia	91.1
2005,1– (2005)	Euro-land (Germany, France Belgium, Netherlands, Finland, Italy, Spain, Austria, Portugal, Ireland, Greece), UK, USA, Switzerland, Denmark, Norway, Canada, Japan, Australia, Czech Republic, Hungary, Poland, Latvia, Estonia, Lithuania, P. R. China, Hong Kong, Turkey, Mexico, Russia	90.3

2. Exchange rate regimes

In interpreting the exchange rate index it is important to bear in mind regime shifts in the international monetary system. During the First World War governments financed their war efforts by printing money and inflation was rampant all over Europe. From 1915 the classical Gold Standard broke up. During World War I and its aftermath the Swedish krona appreciated sharply, whether we include Germany in the index or not. In the period 1921–1923 Germany was afflicted by hyper inflation. Since Germany was a major trading partner of Sweden it also has substantial impact on the calculated exchange rate index. For the period 1921,1–1924,11 I have therefore calculated two separate exchange rate indices, one including Germany and the other excluding Germany If we exclude Germany during he hyper inflation period in the index the appreciation of the krona becomes less pronounced, but it does not substantially change the picture of a sharp appreciation of the krona in the period 1915–1924.

In 1924 Sweden returned to gold, the UK followed suit in 1925 and by 1927 most of Swedish trading partners were back on the Gold Standard. The new Gold Standard proved short-lived and after the German banking crisis in 1931 it broke up. In september 1931 Sweden followed the UK in abandoning the Gold Standard and in june 1933 Sweden pegged the krona against the British pound at 19.40 krona. After Hitler's seizure of power in Germany another currency zone formed with Germany and central European countries under German hegemony. The USA and other European countries, notably France, Belgium ,Switzerland, the Netherlands, Poland and Czecoslovakia tried to hold fast to the Gold Standard and formed the so called Gold Bloc. In 1933 the USA devalued the dollar, and in 1934–36 various European gold bloc countries also devalued their countries. By the middle of the 1930's there was not much left of the gold standard.

When Sweden left the Gold standard in 1931, the Swedish *krona* depreciated by 25–30 percent. The Swedish *krona* appreciated in the aftermath of the Second World War. In the autumn of 1949 Sweden followed the UK and devaluated the krona against the US dollar.

After the institution of the D-mark in West Germany in 1949 the Bretton Woods-system negotiated in 1943 began to take shape. The Bretton Woods system was a fixed exchange rate system with the US dollar as a reserve currency. The exchange rates were only allowed to vary in a narrow band and with the institution of the International Monetary Fund a credit facility was created for countries whose balance of payments came under stress. Only under extra ordinary circumstances were countries taking part in the system allowed to devalue or revalue their currencies. To protect the currencies from speculative financial attacks countries used capital controls.

Uneven growth rates of productivity among countries made it gradually more difficult to uphold existing parities in the 1960's. Moreover, increasing volumes and sophistication of financial markets eroded the effectiveness of capital controls. In 1971 the USA suspended the convertibility of dollars to gold and in 1973 the Bretton Woods system ended when currencies of the major countries were set free to float freely against each other.

After the demise of the Bretton Woods system, within the system of floating exchange rates West European countries have nevertheless strived to peg their currencies to each other within a so called adjustable peg system. Central banks intervened to assure that currencies only fluctuated within a more or less narrow band against other European currencies, cooperating in the adjustable peg system. This basket of western European currencies has then floated against other currencies. The arrangements have gone under many names: "the snake in the tunnel", "the snake" and the European monetary system (EMS). After the European currency crisis, in 1993 the band within which the currencies participating in the EMS were allowed to vary their exchange rates towards one another were increased to 15 percent. At the same time, a time table for the introduction of a common European currency and stringent convergence criteria were agreed upon. In 1999 the currencies of European countries taking part in the monetary union were fixed towards one another and in 2002 the new currency, the Euro, was born.

From November, 1949 until the break-up of the Bretton Woods system the Swedish exchange rate was quite stable. After 1973, there followed two decades of depreciation of the krona.

Sweden, though not a member of the European Union until 1995, has nevertheless for a large part of the period since the break-up of the Bretton Woods system endeavoured to peg its currency to the currencies taking part in the western European adjustable peg system. This proved difficult without realignments in the value of the krona, since in the 1970's and early 1980's Swedish unit labour costs tended to grow faster than in other western European countries. To assure the competitiveness of Swedish industry, the Swedish krona was devalued on three occasions; in the autumn of 1977, in the autumn of 1981 and then again in the autumn of 1982.

From early 1983 until late 1992 the exchange rate of the Swedish *krona* fluctuated mildly around a quite stable level. In November 1992 it proved impossible to defend the krona against speculations in the international currency market. The krona depreciated sharply from November 1992 to late 1993. Thereafter the exchange rate of the krona against an exchange rate index of Sweden's trading partners has fluctuated, hitherto without any clear trend.

Summing up the history of the Swedish exchange rate since the First World War there were two periods when the value of the krona changed markedly. The first one was from 1915 to early 1924 when the krona appreciated sharply. The other period of significant realignment in the value of the krona was 1977–1993 when the krona depreciated in several steps. From 1924 to 1977 there was no long-run change in the value of the krona, event though the depreciation in the 1930's and the appreciation in the aftermath of the Second World War were significant episodes in the history of the Swedish exchange rate. It is of course natural that the periods of exchange rate stability, 1924–1931 and 1953–1973, were also periods of fixed exchange rate regimes in the international monetary system