

Swedish Historical Monetary Statistics, 1668–2008

Annual data on M0 and M3 1871-2006¹

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Money has four basic functions; serving as medium of exchange, store of value, unit of account and standard of deferred payment. Money supply is a measure of liquidity circulated in the economy. It is defined as the possessions of debt instruments of the money issuing sector by the money holding sector. Exactly what should be included is not given, and there are several definitions of money supply. M0 is the narrowest definition and includes the possessions by the public (the money holding sector) of coins and notes, while M1, M2 and M3 are broader measures, which include various substitutes for money, mainly deposits. The definitions of M0, M1, M2 and M3 vary between countries and over time within the same country.

In IMF (2000) an attempt is made to provide an international standard, which in turn is an adaptation to the definitions applied in *System of National Accounts 1993* (Inter-Secretariat Working Group on National Accounts, 1993). Society is divided into different sectors: the money issuing sector, the money holding sector and the money neutral sector. Money supply is defined as the debt instruments of issuers in possession of the money holding sector. The most significant change in comparison to various national definitions is that the money-holding sector is broadened (Inter-Secretariat Working Group on National Accounts, 1993, pp. 98-99) to also include other financial institutions than banks that provide credit and receive deposits. These financial institutions are, together with banks, labelled as Monetary Financial Institutions. The need of broader measures for purposes of economic analysis and policy-making is a consequence of financial innovation and deregulation since the 1970s.

The Riksbank presents monthly data on M0 and M3 back to 1961. From 2003, the Riksbank outsourced the production of financial market data to Statistics Sweden (Statistiska centralbyrån, 2006 and 2007a).

¹ This text is a complement to texts written by Lars Jonung (forthcoming) and Per Hortlund (forthcoming) concerning historical bank statistics and various monetary aggregates within the Riksbank projekt *Historical Monetary Statistics for Sweden 1668-2008*.

Up to December 2005 series were presented of M0, M3 and M3+. The issuers consisted of Swedish banks (including foreign branches located in Sweden and treasury bills issued by Riksgäldskontoret/National Dept Office). M0 was defined as notes and coins outside the bank sector, while M3 included bank deposits and bank certificates. M3+ also included the Swedish public's holding of Treasury bills. No data on M1 and M2 were presented before 2006.

As of 2006, the Riksbank applies new definitions of various credit and monetary aggregates. This is in accordance with a harmonisation with the definitions of the European central bank (ECB, *The ECB's definition of euro area monetary aggregates*), which is applied on the euro area. The ECB definitions are in turn accommodations to the definitions of IMF (2000) and SNA 1993. In Sweden, data on M0, M1, M2 and M3 are presented, but no more on M3+. Central government is seen as constituting a money neutral sector with the exception of central government liabilities with a monetary character. The money issuing sector now excludes foreign branches, but includes unsettled claims with foreign branches.

M0 is calculated in the same way as previously, although it has decreased somewhat because the money holding sector has been broadened. M1, narrow money, includes M0 as well as deposits which can immediately be converted into currency or used as means of payment, i.e. demand deposits. According to the new definitions demand deposits include overnight loans and deposits in transaction accounts. M2 includes M1, deposits with a term of maturity of up to two years and deposits redeemable at up to three months notice. M3 according to the new definition is equal to M2 plus interest-bearing securities with a term to maturity of up to two years. The old definition of M3 (but not the new one) also includes deposits with agreed upon terms to maturity of more than two years and deposits redeemable at more than three months notice. M3 according to the new definition includes shares in money market funds, money market instruments and other securities with terms to maturity of up to two years, which are not included in the old definition of M3.

While M0 is almost the same according to the new definition (for January 2006 it was decreased by 0.1 percent), M3 was increased by 12 percent for January 2006 according to the new definition. The new definitions are presented from January 1998 and onwards. However, to provide comparability over time, Statistics Sweden continues to publish M0 and M3 according to the old definitions.

Lars Jonung (1975) presents estimates of money supply, monetary base and other credit aggregates for the period 1732-1971. Anders Ögren (2003) and Per Hortlund (2005) present similar data for the periods 1834-1913 and 1870-1915, respectively. In Riksbank (1931) there are data on the composition of the notes circulation during the period 1701-1924.

Lars Jonung (1975) applies a definition of M2 that includes notes and deposits at commercial banks, but excludes deposits in savings banks and agricultural credit associations. The reason for this delimitation was that commercial banks were the dominant credit institution in Sweden, and that monthly data on deposits at commercial banks is available back to January 1871.

Anders Ögren presents various measures of money supply. In M1 he includes the public's possession of Riksbank and private bank notes. Ögren uses new sources concerning Riksbank notes held by commercial banks. In M2, which is similar to Jonung's broader definition of money supply, Ögren includes deposits in commercial banks and in M3 deposits in savings banks. However, Ögren excludes circulation of coins in his measure of money supply, since no direct data is available and since Ögren assumes that the share of coins in total money supply was very small (which, in fact, only was the case from the late 19th century and onwards).

One problem is that neither the definitions in Jonung (1975) nor in Ögren (2003) are compatible with modern definitions of money supply. Jonung (1975) was published before the Riksbank presented its first estimates of M3. Ögren's measure is probably closest to the older definition of the Riksbank of M3 (which is published from 1961 and onwards), although Ögren stops at 1913 and thus cannot by itself be related to the series of Statistics Sweden for 1961-2006.

Because of the problem to apply the new definition before 1998, not least because financial institutes outside of the bank sector are included, the series of M0 and M3 in this study is based on the old definitions of Statistics Sweden. Some breaks occur also in the series according to the old definitions, and some adjustments have been made in this study to present consistent series over time that are as close as possible to the "old" definitions of Statistics Sweden applied today.

For the period 1871-1960 the present series of M0 and M3 are largely based on data collected by Lars Jonung and Per Hortlund, some of which have yet not

been published, and data presented in the yearbook of the Riksbank (*Årsbok - Sveriges riksbank 1909-1978* and *Statistisk årsbok - Sveriges riksbank 1979-2001*). The series of 1871-1960 is adjusted to the series of 1961-2006.

M0 is constructed as follows:

- + Total amount of Swedish coins –
- The Riksbank possession of Swedish coins –
- The Commercial banks (including Postbanken) possession of coins –
- The savings banks' possession of Swedish coins –
- Cooperative banks' possession of Swedish coins –
- + Riksbank notes in circulation outside of the Riksbank –
- The Commercial banks (including Postbanken/Postsparbanken) possession of Riksbank notes –
- The savings banks' possession of Riksbank notes –
- Cooperative banks' possession of Riksbank notes +
- + Private bank notes held by the public

Data is missing on the possession of notes and coins of Postsparbanken for the periods 1884-1933 and 1962-1969, of cooperative banks before 1970 and savings banks before 1932. To fill out these gaps the present study extrapolates the missing data using the ratio of the deposits in these types of banks to the deposits in commercial banks, and the possession of commercial banks of notes and coins, as indicators. The possessions of commercial banks of notes and coins before 1961 are presented in Jonung (forthcoming).

The series of coins in circulation is presented in Edvinsson (2007). Up to 1903 private bank notes (see Hortlund, forthcoming) are also included in M0.

M0 of the present study is the same as the Statistics Sweden series according to the old definition back to 1971. For the 1960s, the difference seems to be explained by the fact that Statistics Sweden does not deduct the possession of notes and coins of Postbanken/Postsparbanken and agricultural credit associations.

In this study, the M3 includes, besides M0, all bank deposits and bank certificates. More specifically, M3 is constructed as follows:

- + M0 +
- + Deposits in commercial banks (including Postbanken) held by the public +
- + Deposits in savings banks held by the public
- + Deposits in cooperative banks (agricultural credit associations up to 1973) held by the public +
- + Postgiro –
- Avräkningskonto med postverket för PK-banken (existed for the period 1974-1986) +
- + Bank certificates

In the time series for total deposits of banks presented by Statistics Sweden a break occurs in December 1995. According to an older series, the total deposits in all banks in December 1995 were 655 billion SEK, but according to a newer series they amounted to 673 billion SEK, i.e. at a 2.7 higher level. However, Statistics Sweden does not make any adjustment before 1995 to take account of this change. Henceforth, for the period before 1995 the present study increases the total deposits in all banks by 2.7 percent. There are several other breaks in the series in the period 1961-1994, but Statistics Sweden seem to have spliced the series for this period. Bank certificates are presented for the period 1980 onwards, but this series seems to be without breaks.

Up to 1964 the deposits in the Postsparbanken/Postbanken and Postgiro are presented separately. From 1965 the yearbook of the Riksbank, the deposits in the Postbanken include both the saving account and the postgiro account. As of July 1st 1974 Postbanken and Kreditbanken fused to form a new commercial bank, Post- och Kreditbanken (PKbanken). The Postverket continued to handle the interest bearing postgiro account. Before that date Postbanken were not included in commercial banks.

In 1969 there was a change in the monthly report published by the Bank Inspection Board of the assets and liabilities of commercial banks (*Årsbok - Sveriges riksbank*, 1970, p. 35*). For December 1968 figures were presented according to both systems (*Årsbok - Sveriges riksbank*, 1970, p. 52*). The most significant change was the reduction in sight deposits, which was 8227 million SEK according to old system account, but 4578.5 million SEK according to the new system, i.e. almost a 50 percent reduction. The change on the total deposits from the public was less significant. The total deposits from the public were reported to be 41235 million SEK according to the old system, but 40442 million SEK according to the new system.

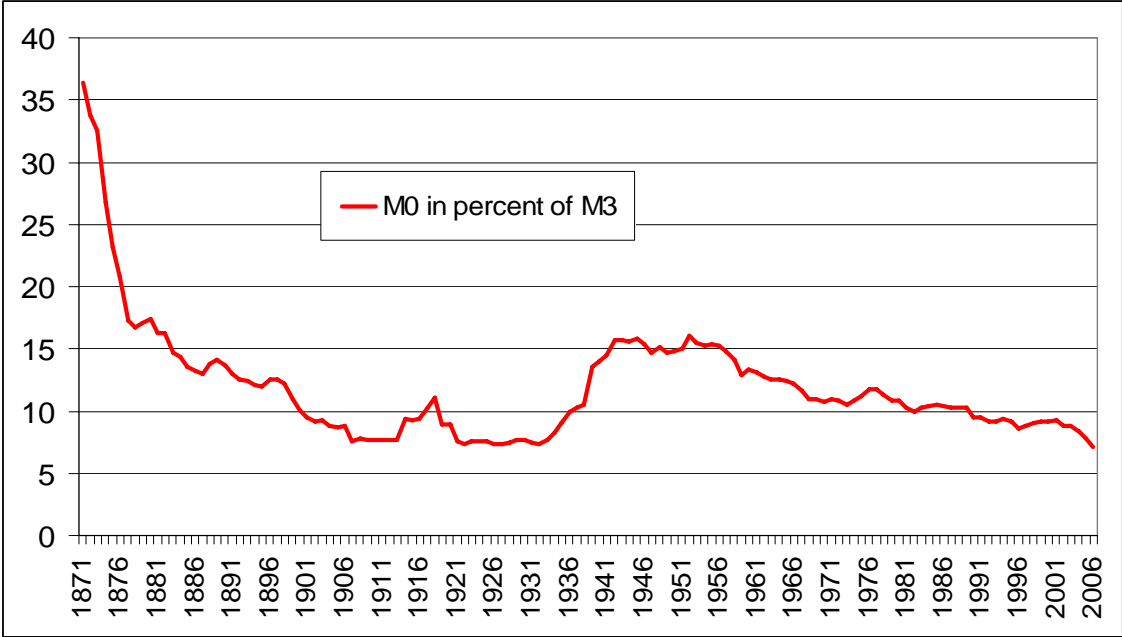
Total deposits in commercial banks, the Postsparbanken, postgiro and savings banks before 1961 are presented in Jonung (forthcoming), Hortlund (forthcoming), Statistics Sweden (1960) and the yearbooks of the Riksbank.

Annual data on deposits in agricultural credit associations are presented in the yearbooks of the Riksbank back to 1934. For the period 1920-1933, estimates of deposits in agricultural credit associations are interpolated using data on lending every five years as an indicator presented in Statistics Sweden (1960).

Figure 1 presents M0 in percent of M3 1871-2006. The most significant change occurred in the 1870s when the share of M0 in M3 dropped dramatically due to the rapid expansion of the bank sector.

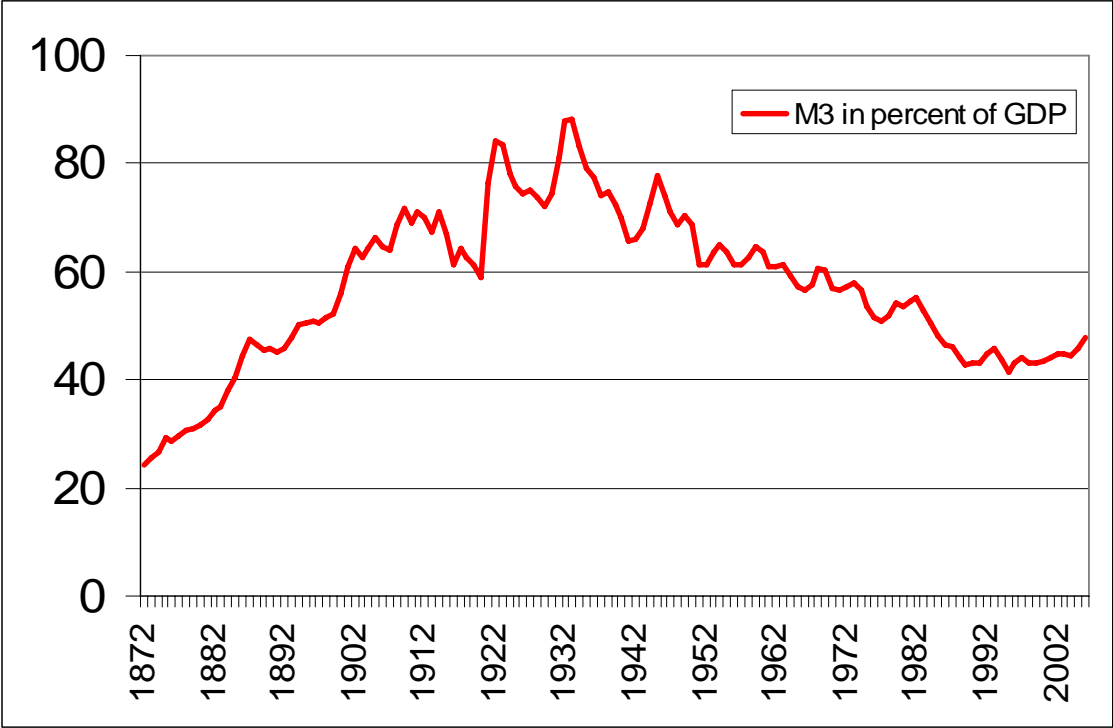
Figure 2 presents M3 in percent of GDP in market prices. This ratio increased from the 1870s up to the 1930s, as a result of the expansion of the banking system, while it decreased between the 1940s and early 1990s. Since the early 1990s the ratio has increased.

Figure 1: M0 in percent of M3 1871-2006.



Sources: See this paper.

Figure 2: M3 in percent of GDP 1872-2006.



Sources and calculations: For M3, see this paper. M3 has been estimated as the average during the year, which is calculated as the geometric average of the current and previous years' December figures. For GDP Edvinsson (2005) and Statistiska centralbyrån (2007b and 2007c) are used.

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