

# 7.

## Swedish money supply, 1620–2012

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### 7.1. Introduction<sup>1</sup>

This chapter aims to estimate the Swedish money supply and its components for the whole period 1620–2012. There are, however, a number of issues that need to be resolved before fully consistent series on the money supply can be constructed, not least how money supply and various monetary aggregates should be defined.

Money has four basic functions: medium of exchange, store of value, unit of account and standard of deferred payment. Money supply is a measure of liquidity circulating in the economy. Exactly what should be included is not given, and there are several definitions of money supply. The narrowest, M0, comprises the coins and notes in the possession of the public (the money-holding sector), while M1, M2 and M3 are broader measures, which also include various substitutes for money, mainly deposits. Moreover, the definitions of M0, M1, M2 and M3 vary between countries and over time within the same country.

The international standard provided by the IMF<sup>2</sup> is in turn an adaptation to the definitions applied in *System of National Accounts 1993*.<sup>3</sup> Society is divided into 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 the possession of the money-holding sector. The most significant difference from various national definitions is that the money-holding sector is broader<sup>4</sup> in that it also includes other financial institutions than banks that provide credit and receive deposits. These financial institutions are, together with banks, labelled 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.

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1 Some of the results in this study have previously been presented in Ögren (2003, 2009), and Edvinsson (2012).

2 IMF (2000).

3 Inter-Secretariat Working Group on National Accounts (1993).

4 Inter-Secretariat Working Group on National Accounts (1993, pp. 98–99).

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.<sup>5</sup>

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 Debt Office). M0 was defined as notes and coins outside the bank sector, while M3 also included bank deposits and bank certificates. In addition, M3+ 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,<sup>6</sup> which are applied to the euro area. The ECB definitions are in turn accommodations to the definitions of IMF and SNA 1993. In Sweden, data are presented on M0, M1, M2 and M3 but not any longer 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 is somewhat narrower because the money-holding sector has been broadened. M1, narrow money, comprises M0 plus deposits that are immediately convertible 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 comprises 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 comprises M2 plus interest-bearing securities with a term to maturity of up to two years. The old (but not the new) definition of M3 also included 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 (but not the old) definition includes shares in money-market funds, money-market instruments and other securities with terms to maturity of up to two years.

Statistics Sweden also publishes a series of the monetary base, defined as the sum of all coins and notes in circulation outside the Riksbank, deposits by the money-issuing sector at the Riksbank, and Riksbank certificates. This series is extended back to January 1981.<sup>7</sup>

While the new definition leaves M0 almost unchanged (for January 2006 it is reduced by 0.1 per cent), it increases M3 by 20 per cent for January 2006. The new definitions are presented from January 1998 onwards. However, to provide comparability over time, Statistics Sweden continues to publish M0 and M3 according to the old definitions.<sup>8</sup>

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5 Statistics Sweden (2006, 2007, 2013).

6 ECB (undated).

7 Statistics Sweden (2013).

8 Statistics Sweden (2013).

In a pioneering work, Lars Jonung presents estimates of money supply, monetary base and other credit aggregates for the period 1732–1971.<sup>9</sup> He applies a definition of M2 that includes notes and deposits at commercial banks, but excludes deposits in savings banks and agricultural credit associations.<sup>10</sup> He did this because commercial banks were the dominant credit institution in Sweden and monthly data on deposits at commercial banks are available back to January 1871. One problem is that the definitions in Jonung are not compatible with modern definitions of money supply. Jonung was published before the Riksbank presented its first estimates of M3. Although modern definitions are not always the most appropriate for earlier historical periods, it is desirable to have long-term series that are consistent over time.

Because of the problem with applying the new definition before 1998, not least because it includes financial institutes outside the bank sector, the series of M0 and M3 in this study are based on Statistics Sweden's "old" definitions. 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 Statistics Sweden's "old" definitions.

Data previously published by the Riksbank on the composition of the notes circulation during the period 1701–1924 are utilized in the present study.<sup>11</sup> Data have also been taken from the Riksbank's yearbooks<sup>12</sup> and other regular publications of records of the Riksbank and private banks. Some of the data had been previously collected by Lars Jonung and Per Hortlund, who have contributed to the present project at the Riksbank to construct historical and financial historical statistics.

The series before 1960 are adjusted to the series from 1961 onwards.

M0 is constructed as follows:

- + Total amount of Swedish coins –
- The Riksbank's possession of Swedish coins –
- Commercial banks' (including Postbanken) possession of coins –
- Savings banks' possession of Swedish coins –
- Cooperative banks' possession of Swedish coins –
- + Riksbank notes in circulation outside the Riksbank +
- + Riksgäld notes in circulation outside the Riksbank (existed for the period 1789–1844) +
- + Stockholm banco notes in circulation (existed for the period 1661–67) –
- Commercial banks' (including Postbanken/Postsparbanken) possession of Riksbank notes –
- Savings banks' possession of Riksbank notes –
- Cooperative banks' possession of Riksbank notes

Data are missing on the possession of notes and coins for Postsparbanken for the

9 Jonung (1975).

10 Jonung (1975).

11 Riksbank (1931).

12 Sveriges Riksbank (1909–78); Sveriges Riksbank (1979–2001).

periods 1884–1933 and 1962–69, for cooperative banks before 1970 and for savings banks before 1932. To fill these gaps, the present study extrapolates the missing data using the ratio of the deposits in these types of bank to the deposits in commercial banks, and commercial banks' possession of notes and coins, as indicators. Private bank notes are not included in M0. A broader measure of liquidity can be calculated by adding the private bank notes to M0.

The present study's M0 is the same as Statistics Sweden's series according to the old definition back to 1971. For the 1960s, the difference arises because Statistics Sweden did not deduct the possession of notes and coins by Postbanken/Postsparbanken and agricultural credit associations.

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

- + M0 +
- + Private bank notes held by the public +
- + 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 –
- PK-banken's clearing account with the Post Office (existed for the period 1974–1986) +
- + Bank certificates

Private deposits at the Riksbank are not included in M3, even though they were substantial up to the 19th century.

In the time series for banks' total deposits presented by Statistics Sweden, a break occurs in December 1995. According to an older series, at that time the deposits in all banks totalled 655 billion SEK, but according to a newer series they amounted to 673 billion SEK, i.e. higher by 2.7 per cent. 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 per cent. Several other breaks occur in the series in the period 1961–94, but Statistics Sweden seems to have spliced the series for this period. Bank certificates are presented for the period 1980 onwards, but this series seems to be unbroken.

Up to 1964, the Riksbank yearbooks have separate entries for the deposits in Postsparbanken/Postbanken and Postgiro. From 1965, the yearbook indicates that the deposits in 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). Postverket continued to handle the interest-bearing postgiro account. Before that date, Postbanken was not included in commercial banks.

In 1969, a change was made in the Bank Inspection Board's monthly reports of

the assets and liabilities of commercial banks.<sup>13</sup> Figures for December 1968 were presented according to both systems.<sup>14</sup> The most significant change was a reduction of sight deposits by almost 50 per cent, from 8,227 million SEK according to old system account to 4,578.5 million SEK according to the new system. The change in total deposits from the public was less significant, from 41,235 million SEK according to the old system to 40,442 million SEK according to the new system.

Total deposits in commercial banks, Postsparbanken, Postgiro and savings banks before 1961 are presented in Statistics Sweden (1960) and the Riksbank yearbooks.

Annual data on deposits in agricultural credit associations are presented in the Riksbank yearbooks back to 1934. For the period 1920–33, estimates of deposits in agricultural credit associations are interpolated using data on lending every five years as an indicator, presented in Statistics Sweden.<sup>15</sup>

The appendix displays the data. M0 is estimated for the whole period back to 1620. M3 is presented only from 1819 onwards, since it has not been possible to calculate the size of bank deposits in the private Discount companies in the late 18th and early 19th centuries. For 1819, M0 and M3 are the same, since there were no deposits in private banks.

## 7.2. An overview of Swedish currencies 1620–2012

During the studied period, which covers almost four centuries, the Swedish currency was changed several times. Before the Swedish krona was introduced in 1873, there were several domestic currencies that circulated at flexible market exchange rates. This evolution is described in detail in Volume One of *Historical Monetary and Financial Statistics for Sweden*.<sup>16</sup> The present study transforms the value of all currencies in circulation into the monetary unit in most common use, de facto the weakest currency, using the market rate instead of the official rates.

In 1620 Sweden was on a silver standard, with the mark as the main unit of account. The mark was divisible into 8 öre, while 4 marks were counted as one daler. The riksdaler (specie) existed in parallel and was primarily used as a stable international currency, although the coin was also minted in Sweden.

In 1624, the copper standard was introduced and the silver standard continued to exist in parallel. An extremely complicated monetary system was implemented, with up to 6–7 currencies in use, in periods at floating exchange rates relative to each other. The copper currency was later devalued compared to the silver currency, so that one daler silvermynt was set equal to 2 daler kopparmynt in 1633, to 2.5 daler kopparmynt in 1643 and to 3 daler kopparmynt in 1665. Daler silvermynt and daler kopparmynt were mainly used as units of account for the main currency in use. 4 marks

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13 Årsbok - Sveriges riksbank, 1970, p. 35\*.

14 Årsbok - Sveriges riksbank, 1970, p. 52\*.

15 Statistics Sweden (1960).

16 Edvinsson, Jacobson and Waldenström (2010).

*Seven different means of payment circulating at the time of the foundation of the Riksbank, each of them a distinct currency units in various periods.*

Source: The Royal Coin Cabinet.



1. Gold ducat minted in 1664.



4. Petty copper coin, valued  $2\frac{1}{2}$  öre kopparmynt or one öre silvermynt, minted in 1661.



2. Copper plate, 1 daler silvermynt, minted in 1649.



5. Öre in silver coin (öre courant), 4 öre courant, minted in 1665.



3. Riksdaler coin, minted in 1646



6. Mark in silver coin, 8 mark, minted in 1664.



7. Paper note, issued as 100 daler silvermynt by Stockholm Banco in 1666.

in actual silver coins were later called *daler carolin*, and came to be valued at more than the *daler silvermynt*. 32 öre in actual silver coins were called *daler courant* and officially set equal to the *daler silvermynt*, but there were periods when the market disagreed. The *riksdaler (specie)* continued to exist as its own currency, and the gold ducat was also minted. For a brief period, in 1715–19, so-called emergency coins (“*nödmynt*”) or coin tokens came to dominate circulation, but were devalued by 50 per cent in 1719. There was a premium on proper coins (copper plates and silver coins), at least from 1716, when exchanged into coin tokens. In the 18th century, paper monies were introduced on a large scale and fell in value relative to the metallic currencies.

In 1776 the silver standard was reintroduced but with the *riksdaler* as the main unit of account, divisible into 48 skillings. Paper notes were devalued by 50 per cent, so that 6 *daler silvermynt* in notes were exchanged for one *riksdaler*. The gold ducat continued to be minted. The stable monetary situation was brief; in 1789 the *Riksgäldskontoret* started to issue its own notes, while the *Riksbank* notes continued to be convertible into *riksdaler specie* coins. The *riksdaler riksgälds* fell in value relative to the *riksdaler banco*. In 1803 one *riksdaler banco* was set equal to 1.5 *riksdaler banco*, but in 1809 the *riksdaler banco* was made inconvertible and fell in value relative to the *riksdaler specie* with a stable fine silver content. In 1834, when the silver standard was reintroduced, one *riksdaler specie* was set equal to  $2 \frac{2}{3}$  *riksdaler banco* or 4 *riksdaler riksgälds*. In 1855 the *riksdaler riksmünt*, divisible into 100 öre, became the main unit of account, and set equal to one *riksdaler riksgälds*. In 1873 the *riksdaler riksmünt* was transformed into the *krona* in connection with the adoption of the gold standard and the forming of the Scandinavian Currency Union. The *kronas* of Sweden, Norway and Denmark were equal in value relative to each other and the *krona* continued to be Sweden’s currency unit after the Scandinavian Monetary Union was finally abolished in 1924. The *krona (SEK)* is still Sweden’s currency unit.<sup>17</sup>

The present study follows the usual convention in Swedish economic history of setting one SEK equal to one *riksdaler riksmünt* in 1855–72, to one *riksdaler riksgälds* in 1789–1854, to one *riksdaler specie* in 1777–88, to 18 *daler kopparmynt* (or 72 mark *kopparmynt*) in 1633–1776, to 18 *daler* in copper coins (or 576 copper öre) in 1624–32, and to 18 *daler* (or 72 mark) in 1620–23. SEK is assumed to follow the most common or weakest currency in various periods, which implies that it follows the coin tokens in 1715–18 and paper notes in 1745–76.

### 7.3. Stockholm Banco, 1656–68

Stockholm Banco is famous for being the first bank to issue bank notes in Europe. Between 1661 and 1668 it issued what were then quite considerable amounts in notes

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<sup>17</sup> Hecksher (1949b), pp. 254–255.

– or Credit notes as they were labelled. Unfortunately, the books of the bank were damaged in a fire, making it impossible to follow the note issuance by accounting.<sup>18</sup>



*Stockholm Banco Account Books*

Source: Palmstruchska Samlingen Riksarkivet. Photo: Anders Ögren

A secondary source is, however, a book by Aleksandrs Platbārdis (1960). From the damaged material (*Räkenskapsböcker*), Platbārdis managed to recover information on all the notes issued in the year 1661 or no less than 735 notes (numbered individually).<sup>19</sup>

Even more impressive is Platbārdis' detective work on the years after 1661. Using a large number of primary sources, he managed to collect information on the more than 20,000 notes that were issued over the next seven years.<sup>20</sup>

Platbārdis provides information on total notes in circulation in 1665–67,<sup>21</sup> while a report quoted by Heckscher estimates the total amount at the end of 1664 to 2.7

18 For those interested in the history of Stockholm Banco and its founder Johan Palmstrüch, see Ögren (2012b).

19 These are listed in Table 7.I Appendix (*Bilaga*) 12 (1960, pp. 181 – 183). Nevertheless, it is not completely clear exactly how he extracted these data.

20 These notes are listed in Table 7.II Appendix (*Bilaga*) 13 (Platbarzdis, 1960, pp. 184 – 213).

21 Platbarzdis (1960, p. 72).



million daler kopparmynt.<sup>22</sup> The same level is assumed at the end of 1663. By comparing tables on the specific notes issued, tables on denominations and tables on falsified notes (which include dates), one can estimate with some precision the development of note issuance per year in different denominations at the ends of 1661 and 1662.

#### 7.4. The Early Riksbank, 1668–1788

When Stockholm Banco was forced into bankruptcy, parliament seized the opportunity to open its own bank instead. This bank, *Rikets Ständers Bank* (RSB), was more or less a blueprint of the former Stockholm Banco – with two distinct differences: 1) The owner was solely the parliament, and 2) RSB's regulations officially banned any issuing of notes.

Clearly, however, market actors would use the papers issued by RSB as means of payment. They include authorized assignments (*assignationer*), which were cheques drawn on an account or a credit in RSB, and Bank receipts (*Insättningsbevis*), i.e. receipts on deposits in the Bank.

Transportation notes (*Transportsedlar*) were introduced in the early 18th century. They were not really what would count as bank notes today. If anything, the Transportation note resembled a cashier's check, as the amount was stated on each note and the note's recipient had to be assigned on the note by its previous owner. This restricted the circulation of Transportation notes, especially in rural areas where illiteracy was widespread.<sup>23</sup>

At first these notes were not a success; the first one was released in 1701 and only sixteen were issued in 1701–09.<sup>24</sup> Their wider circulation did not start until after the reign of Karl XII and even in the 1720s it was modest.<sup>25</sup> The first year for which Transportation notes are included in the Bank's accounts is 1707 (1,712 daler silvermynt), and the second comes three years later, 1710 (4,819 daler silvermynt).<sup>26</sup> A comparison of these figures with the concurrent amounts of authorized assignments and bank receipts in circulation shows that the Transportation notes had a very slow start as a circulating means of payment.

The first experiment with fiat money on a larger scale was, however, not with notes. Towards the end of the Great Nordic War, 1716–19, the monetary system was in disarray as a result of several changes, most notably the circulation of token coins, called 'nödmynt' (emergency coins) or 'mynttecken' (coin tokens). The value of the copper metal from which these coins were minted was only 0.5 to 1 per cent

22 Heckscher (1936, p. 630).

23 Heckscher (1949a, p. 738), Lindgren (1968, p. 39).

24 Sveriges Riksbank (1931, p 40 note 1). The first Transportation note was issued on September 18th to a Per Johan von Horn and was cashed on December 31st in the same year.

25 Heckscher (1949a, p.737).

26 Sveriges Riksbank (1931, p. 40).



*Coin token issued during the Great Nordic Wars.*

Source: The Royal Coin Cabinet.

of their face value. Various measures were taken to ensure the use of coin tokens by the general public and to draw in proper money to the Crown. Initially, the coin tokens did not significantly disturb the monetary system and were even welcomed for being easy to handle. Later, however, they contributed to inflation, since the volume minted became very large, accounting for nearly half of M0 in late 1718. By a decree of 23rd April 1719, the circulated coin tokens valued at one daler silvermynt (32 öre silvermynt) were redeemed for another type of token coin, 'Hoppet' (The Hope), valued at 2 öre silvermynt, and a note worth 14 öre silvermynt that would be exchangeable later at its full value. The exchange was carried out in June 1719. In effect, this amounted to a 50 per cent devaluation of the coin token worth one daler silvermynt. The devaluation was even larger in practice, since not all notes were exchanged at their full value (although a majority of them were repaid later on) and the value of the devalued coin tokens continued to depreciate.<sup>27</sup>

In 1722 the Banking Committee addressed the issue of the Transportation notes' low popularity. Merchants were critical of these notes, which they meant were difficult to use for transactions. For example, the notes of the previous Stockholm Banco had had spaces for the assignments when these notes were transported, a feature which the Riksbank's Transportation notes lacked.<sup>28</sup>

As a way of increasing the Transportation notes' popularity, in 1726 it was decided that they could be used for tax payments, which made them a kind of legal tender. This improved the demand for Transportation notes and people started to save postal fees by removing the paper sheet that was intended for transportation signatures (the Transportation note consisted of two sheets of paper to provide enough room for written transportations). This meant that the public disregarded the rules for Transportation notes and ceased to document the transactions. From the mid-1720s, Transportation notes normally carried only one written transportation – the assignment from the Riksbank to the first owner – and were finally signed by the person redeeming the note in the Riksbank.<sup>29</sup> Thus it became more like a modern bank note with a printed denomination.

<sup>27</sup> Edvinsson (2010).

<sup>28</sup> Lindgren (1968, pp. 39–40).

<sup>29</sup> Lindgren (1968, p. 46), Montgomery (1931, p. 7).



*In 1776 the riksdaler specie became the main currency unit when Sweden switched to a sole silver standard.*

Source: Source: The Royal Coin Cabinet.

Demand for Transportation notes grew as a result of the decision to allow them for tax payments. For the total money stock, the initial increase in Transportation notes in the mid-1720s seems to have involved substituting these notes for authorized assignments and to a smaller extent for bank receipts.

The rapid increase in note-issuing started in the early 1730s. We know that at least from 1728, Riksbank notes had begun to circulate in Russia. At this time the bank notes were used to a very small extent compared with metallic coins.

The regulation of Riksbank lending was eased in the 1730s. Previously the rules had been very strict and still served as a reminder of Stockholm Banco's failure. The Riksbank got the right to lend its profits from the loan business in 1731 and was permitted to lend against goods (preferably iron) as collateral from 1734. This could to some extent also explain the increase in note-issuance.<sup>30</sup>

Extended credit from the RSB to domestic manufacturing appeared in 1739. This policy was run by parliament, or more precisely the Cap party, as a means of subsidizing Swedish trade and manufacturing in accordance with a more mercantilist approach. The extended credit was funded by extended note issuance; Transportation notes, which up to this time had been fully covered by deposits, started to become credit notes. The real take-off in note issuance was connected with the Cap's war against Russia 1741–43 and its funding by printing money.<sup>31</sup> Although bank notes had to fall a long way in value compared with copper before it became profitable to export copper instead of notes, the point was finally reached at which the copper standard had to be suspended. The export of metallic coins was prohibited in

<sup>30</sup> Hecksher (1949a, pp.742, 745–746), Montgomery (1931, p. 7).

<sup>31</sup> Heckscher (1949a, pp. 747), Montgomery (1931, pp. 7–8).

1743 and the convertibility of notes into specie metals was officially suspended in 1745.<sup>32</sup>

When the Riksbank abandoned the fixed exchange rate in 1743, authorized assignments and bank receipts ceased to be used for transactions. The Bank's note issuance clearly made up for more than these instruments. In 1745 the Riksbank started to issue more "modern" bank notes, with printed denominations and no need for transportation. This had not been done since Stockholm Banco's credit notes in the 1660s.<sup>33</sup> The practice has continued ever since.

The period with a paper standard was marked by (a) an enormous increase in note issuance, and (b) repeated unsuccessful attempts to restore monetary order by establishing a specie standard. The State's borrowing requirement grew during the Seven Years War in 1756–63 (the Pomeranian War) and it accounted for just over half of the Riksbank's loans. These loans and the imbalance in state finances led to a complete breakdown of the monetary system and in 1762 the Riksbank had to cancel its loans to the public. At the peak in 1762, the Riksbank had enlarged the money stock by 35 times the level in 1730.

The main issue from then on was the adoption of a specie standard.<sup>34</sup> However, the need to finance the State blocked the attempts that were made in 1764 and 1769.<sup>35</sup> The 1770s was also a decade of extended note-issuance, albeit at a slower pace than in the late 1750s and early 1760s. A new plan for convertibility was launched in 1774 and put into practice in 1776, despite resistance from the Riksbank.<sup>36</sup>

The new specie standard was based on the Riksdaler specie; one riksdaler specie was set equal to six daler silvermynt in paper notes.<sup>37</sup> It was a silver standard and did not suffer from the problems of the previous bimetallic copper and silver standards. This currency was first used in book-keeping in 1776.

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32 Heckscher (1949a, p. 750).

33 Montelius (1931, p. 141).

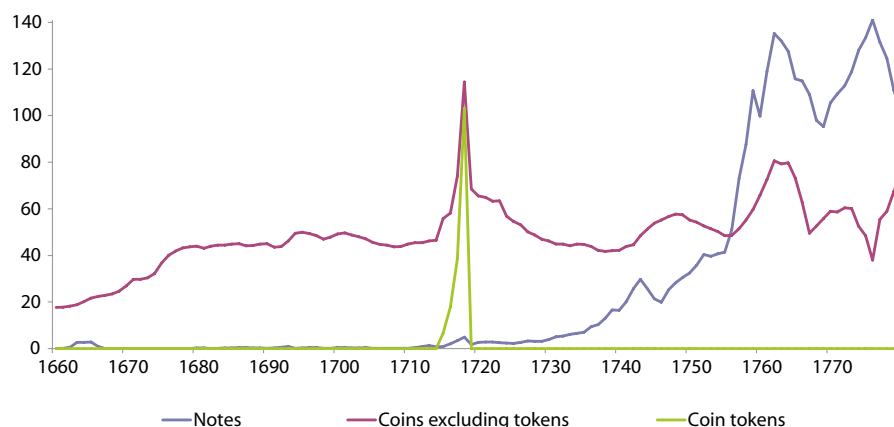
34 Fregert & Jonung (1996, pp. 445, 454), Montgomery (1931, pp. 35–36), Nygren (1984, p. 21).

35 Montgomery (1931, pp. 50, 59–62, 108–111).

36 Montgomery (1931, pp. 164, 190, 219).

37 Ahlström (1974, p. 38), Sveriges Riksbank (1931, pp. 9–10).

**Figure 7.1:** Notes, coins and coin tokens in million daler kopparmynt (following the weakest currency) 1660–1780.



Source: Table A7.1.

As seen in Figure 7.1, which summarises the different means of payment in 1660–1780, paper money monetization took off in the 1730s and led to a remarkable increase in the money stock from the 1740s and especially late 1750s, notwithstanding the deflationary pressure in the latter period. The enactment of the silver standard led to slight downward pressure on note circulation from 1776, a situation that changed drastically in 1789 with Gustav III’s need to fund the war on Russia.

## 7.5. Dual currencies: The National Debt Office and the Riksbank, 1789–1833

The episode when two state authorities issued notes on different footings is undoubtedly one of the most interesting periods in Swedish monetary history. In 1789 the National Debt Office (*Riksgäldskontoret*) was founded by transforming the former Office that had been responsible for the state’s debts (*Riksens ständer kontor*). The latter Office had been established in 1719 to pay off the debts from the Great Nordic Wars in the reign of Karl XII.<sup>38</sup>

To fund the war on Russia, the National Debt Office started to issue interest-earning promissory notes in small denominations. These promissory notes were then transformed as early as 1791 into non-interest earning notes, the same type as bank notes.<sup>39</sup> The Riksbank continued to issue its notes based on silver, as enacted in 1776. The intention behind parliament’s regulation had been for the National Debt Office to issue notes for no more than five to six hundred thousand riksdaler specie. However, in the regulation the amount was preceded by the words “*in the begin-*

<sup>38</sup> Ahlström (1989, pp. 93–94), Carlsson (1989, p. 35).

<sup>39</sup> Lindgren (1968, p. 105).



*A wallet belonging to Märta Helena Reenstierna (“Årstafrun”) from the late 18th century at a time when paper notes came to dominate money supply.*

Source: The Royal Coin Cabinet.

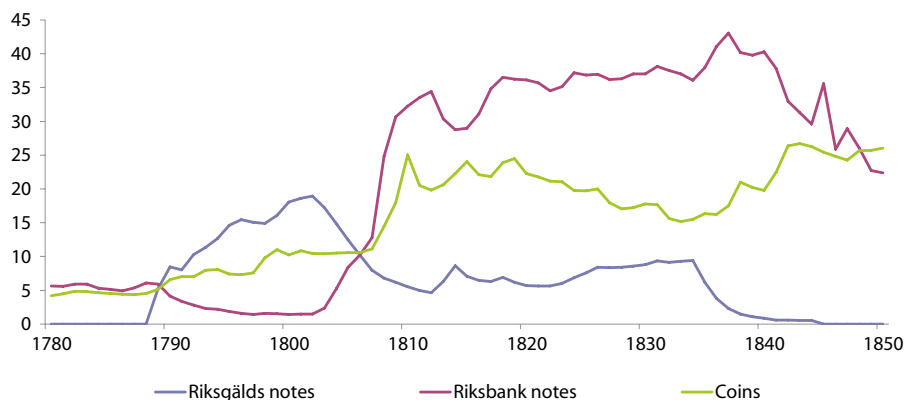
*ning*”. Hecksher describes the start of note-issuing by the National Debt Office as “opening Pandora’s box”; once opened, nothing could stop the avalanche. The amount of six hundred thousand (600,000) Riksdaler Specie had been exceeded within a month.<sup>40</sup>

Even after the war, the National Debt Office had to go on increasing its note issuance in order to service its debts; other factors also contributed to this. Parliament wrestled with the problem of how to restore monetary order and presented a detailed plan with a common silver standard in 1800. It was more or less decided that the Riksbank would take over the National Debt Office’s monetary liabilities but the reform was delayed until 1803. In the meanwhile the National Debt Office increased its note issuance to a nominal value of almost 19 million riksdaler on the date of the monetary reform.<sup>41</sup>

<sup>40</sup> Heckscher (1949b, pp. 236, 245).

<sup>41</sup> Hallendorf (1931, pp. 209, 221–235, 290), Heckscher (1949b, p. 254).

**Figure 7.2:** Notes and coins in circulation issued by the Riksbank and the National Debt Office, 1780–1850, in million SEK (riksdaler riksgälds) at market rates.



Sources: The appendix.

The National Debt Office notes were valid for payments to the State, except for the Riksbank. The market soon accepted the notes, probably due to an inadequate supply of trustworthy means of payment. It did not take long for prices to be quoted in National Debt Office notes.<sup>42</sup>

Because of their massive flood from the National Debt Office, the notes depreciated rapidly in relation to Riksbank notes. The latter were still convertible into silver.<sup>43</sup> As a result of the notes' different bases and supply, two units of accounts were constructed: riksdaler banco (issued by the Riksbank) and riksdaler riksgälds (issued by the National Debt Office). The premium on the riksdaler banco relative the riksdaler riksgälds is presented in the appendix (end-of-year). The relationship between the two types of note was finally fixed in 1803 at one riksdaler banco equal to one-and-a-half riksdaler riksgälds. These two units of account existed side by side in Sweden until the currency reform of 1855, when riksdaler riksgälds became the sole unit of account under the name riksdaler riksmünt.

## 7.6. The Banking System and the Riksbank, 1834–1913

Although the Riksbank did not officially abandon the silver standard during the period with dual currencies, it was forced to do so in practice in 1809. Parliament decided to readopt the silver standard in 1830 and this was implemented in 1834. From then until 1913 Sweden experienced an unbroken period of eighty years with a fixed exchange rate, terminated by the outbreak of World War One.

More fundamental changes for the money supply came with the emergence of the

<sup>42</sup> Fregert & Jonung (1996, p. 458), Heckscher (1949b, p. 239).

<sup>43</sup> Heckscher (1949b, pp. 239–240, 242).





*6 2/3 riksdaler banco, the equivalent of 10 riksdaler riksgälds; paper noted issued by the Riksbank in 1848. Sweden was at the time on a silver standard, and the note was convertible into 2 1/2 riksdaler specie coins.*

Source: The Royal Coin Cabinet.

banking system. Savings banks started to appear in the 1820s and the first commercial banks were established in the 1830s.

The commercial banks, so-called *enskilda* (private) banks, were based on unlimited liability and had the right to issue credit notes. This right has led to a lot of confusion about the Swedish monetary situation in the 19th century, not least because the phenomenon of note-issuing private banks has been interpreted with hindsight along the lines of what free banking theory suggests rather than in accordance with the actual empirical history.

What the empirical evidence shows is that the private bank notes were inside money; no *enskild* bank ever issued notes that were accepted or used as reserves by other banks in the banking system. This clearly differed from the role of Riksbank notes, which were base money, used as reserves by the banking system throughout the period – even when the law stipulated that they were not a legal basis for note issuance.<sup>44</sup> It follows that any interpretation of how the Swedish money supply was

<sup>44</sup> See Ögren (2006, 2012a)





*Private bank note issued in 1876.*

Source: The Royal Coin Cabinet.

organized which assumes that *enskilda* and Riksbank notes competed on an equal footing is flawed. Against this background, private bank notes are not included in M0 but are included in the broader measure of M3.

While the notes issued by private (*enskilda*) banks are not to be seen as having the same foundation as Riksbank notes, they were an important part of monetization through the creation of bank money. It is safe to say that the hallmark of Swedish monetization in the 19th century is the enormous and steadily growing impact of bank-created money.

The huge importance of the banking system for the money supply means that an empirical account of the money stock and its components is very dependent on bank data. This is not a problem in the late 19th, more specifically from 1871 onwards. Commercial bank data in the form of balance sheets are conveniently available in *Sammandrag af Bankernas Uppgifter*. Commercial bank data are presented monthly from 1878, which means that from then on, monthly series can be constructed for the money stock and its components including the monetary base, although this is not done in the present study. The publication *Sammandrag af Bankernas Uppgifter* ends with the year 1911; *Ekonomisk Tidskrift* continued to publish the banks' reports thereafter and as these are digitalized, they are a very convenient source to work with.

For the period before 1871, however, reliable data are less easy to come by. The Riksbank published aggregated commercial-bank balance sheets from 1834 in its seminal statistics: *Sveriges Riksbank 1668-1918-1924 Bankens tillkomst och verksam-*

het Volume V.<sup>45</sup> However, the aggregated nature of these data means that it is not possible to distinguish between the commercial banks' monetary assets and their liabilities (notes, demand deposits, time deposits, and reserves).

Sven Brisman's (1934) history of Swedish banking, *Sveriges affärsbanker – Utvecklingstiden*, has a series on note issuance and reserves by *enskilda* banks from 1834 until 1858, but the sources are not mentioned. Jonung's (1975) important work, *Studies in the Monetary History of Sweden*, has the same figures as Brisman for the commercial banks in the same period (but again no source is provided). The likely source for both Brisman and Jonung is the Special Committee on Finance of 1858 (*Finanskommittéen 1858*), instigated after the crisis of 1857/58. That enquiry forced all commercial banks to send in data on their positions regarding reserves, equity capital and note issuance since their foundation; the figures for the banking system in that report exactly match the figures used by Brisman and Jonung. This means that the latter's series are ex-post constructions. Due to a lack of data for the period 1859–71, Jonung interpolated the figures for the private banks' note issuance, which implies an assumption that their note issuance grew steadily in this period.

To resolve all these problems in estimating a correct money supply, a previous study by Anders Ögren (2003), on which the present study is based, uses a completely different methodology and completely different sources. From the outset, note issuance in the commercial banking system was a matter of concern for the authorities in that it had to be based on certain assets. Moreover, the banks were supervised by the local municipality and required to report their position on note issuance. Each report was published in the Swedish State's official journal: *Post och Inrikes Tidningar*. Furthermore, the balance sheets which appear in *Sammandrag af Bankernas Uppgifter* from 1871 onwards are simply collections of the bank statistics that had been published in *Post och Inrikes Tidningar*. Due to the increasing number of banks from the mid-1860s, the banks' balance sheets were published in the journal as comprehensive appendices instead of as scattered reports per bank. This source certainly seems to provide the preferable foundation for an accurate estimation of the money supply.

A problem with this methodology is that it is very time-consuming as each bank has separate reports and these are scattered in time as well as in place in the publication. Moreover, a few reports are missing in the early 1830s, when the banking system was in its infancy (the first bank was established in 1831 and the second in 1833). Still, all in all this source has provided a much better series on private bank note issuance, deposits and reserves than any other source used. So far, the data in this series are annual but, given even more effort, it could be possible to create a series with a higher frequency (up to quarterly). Also, as the banks' complete balance sheets were already being published in the 1840s, this source is of immense importance for the statistics on commercial banks before 1871.

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45 Sveriges Riksbank (1931).

The private banks' issuance of postal bank bills was utilized quite extensively, although they are not included in the estimates of M3 in the present study. Here again, the difference between the liabilities of the private commercial banks and the Riksbank as central bank is evident – the private banks did not need any reserves to cover for these liabilities, whereas postal bank bills issued by the Riksbank were considered to be part of the circulating money stock and had to be covered by reserves along with all other monetary liabilities issued by the Riksbank.

For commercial banks it is possible to distinguish different public liabilities such as their issued notes, time deposits and demand deposits.

Regarding the characterization of banks' time versus demand liabilities, the situation is by no means as clear as it might seem. Even issued notes could in fact be regarded as time liabilities because the Banking Act of 1864 entitled banks to delay their redemption for up to six months.<sup>46</sup>

A major and more intractable problem when estimating the money supply is the lack of data on the savings banks' activities. These banks were considered to be philanthropic institutions for fostering savings without a profit motive, so a similar demand for transparency did not exist and thus there are no similar data on their activities. Work by Ingemar Nygren does provide annual data on the public's deposits in savings banks from 1834 (at Statistics Sweden (SCB)), but no distinction is made between demand deposits and time deposits and there is no information on reserves.

In practice, the liquidity of money circulating as *enskilda* bank notes differed from that of money held as deposits. Under these circumstances, a measure of liquidity may be used, composed of M0 and private bank notes in circulation.

## 7.7. Coins in circulation

Coins in circulation at year-ends are presented in the Riksbank yearbooks from 1939 onwards; the data are monthly from 1946. No official data exist for the period before 1939. One problem with the data from 1939 onwards is that they appear to assume that hardly any coins were disappearing from circulation.

In this study, coins in circulation before 1939 are derived from the minting statistics,<sup>47</sup> with a deduction for the Riksbank's possessions. For the silver, nickel, iron and bronze coins minted after 1873, this study assumes that depreciation was very low and its rate is adjusted so that the calculated figure agrees with the Riksbank yearbook for 1939.

The Riksbank's possession of coins is deducted from the total minted stock to arrive at the amount of coins in circulation outside the Riksbank (including coins in

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46 See Ögren (2003, 2012a).

47 Tingström (1972) and Wallroth (1918).



*A riksdaler riksmünt silver coin, minted in 1862. In 1873, when Sweden switched to a gold standard, the riksdaler riksmünt was replaced by the krona.*

Source: The Royal Coin Cabinet.

the possession of private banks). Data on the Riksbank's possession of gold, silver, nickel, iron and bronze coins are from previous publications by the Riksbank.<sup>48</sup>

The circulation of gold coins during the classic gold standard of 1873–1914 is difficult to assess. Flodström assumes that in 1908 the circulation was not significant,<sup>49</sup> since most of the gold coins were melted down in industry. However, the expansion of the Riksbank's reserves of gold coins after 1908 indicates that this is incorrect. In fact, the Riksbank's possession of gold coins that qualify as legal tender at the end of 1917 was 28 per cent more than the total minting up to that year. Part of this discrepancy is explained by imports of Danish and Norwegian gold coins, which were also legal tender in Sweden due to the Scandinavian Monetary Union, but this does not account for the entire increase in the Riksbank's possession of Scandinavian gold coins.

The present study assumes that in the period before the First World War, four per cent of the gold coins outside the Riksbank and the commercial banks disappeared each year, which seems to be a maximum assumption. For the period after 1890, net imports of gold coins from Denmark and Norway are assumed to have had an impact on the total amount of gold coins in circulation in Sweden. After the outbreak of the First World War, when the gold standard was suspended, gold coins basically ceased to be circulated as currency, and are therefore not included in measures of M0 and M3.

All coins minted before 1873 are assumed to have depreciated at a higher rate than non-gold coins after 1873. The circulation of coins is calculated from data on minting, with an assumption of a natural depreciation of the stock, i.e. that coins were regularly driven out of circulation.<sup>50</sup> The so-called Perpetual Inventory Method (PIM) is applied, as is common in modern national accounts when estimating capital stocks indirectly from investment in preceding accounting periods.<sup>51</sup>

The maximum life span of a coin is set equal to  $T$  years. For each coin  $x$  the stock,

48 Sveriges rikens ständers bank (1831–61); Sveriges rikens ständers bank (1862–66); Sveriges riksbank (1867–69); Sveriges riksbank (1870–1923); Sveriges Riksbank (1931); Sveriges riksbank (1909–78); Sveriges riksbank (1979–2001).

49 Flodström (1912).

50 Note circulation is from Sveriges Riksbank (1931).

51 Inter-Secretariat Working Group on National Accounts (1993, pp. 148–150).

$s_{t,x}$ , in existence on the 1st of January in year  $t$  is computed as the dot product of two vectors:  $\mathbf{m}_{t,x} = [m_{t-T,x}, m_{t-T+1,x}, \dots, m_{t-2,x}, m_{t-1,x}]$ , a minting vector describing the amount minted from years  $t-T$  to  $t-1$  of the coin in question, and  $\mathbf{r}_{t,x} = [r_{T,x}, r_{T-1,x}, \dots, r_{2,x}, r_{1,x}]$ , describing the proportion of coins ( $0 \leq r_{k,x} \leq 1$ ) in existence 1 to  $T$  years after being minted.  $s_{t,x}$  is determined as:

$$s_{t,x} = \mathbf{m}_{t,x} (\mathbf{r}_{t,x})' = \sum_{k=T}^{t-1} (m_{k,x} r_{t-k,x})$$

The determination of  $\mathbf{r}_{t,x}$  is problematic and has to be based on various assumptions about the rate of depreciation. Nevertheless, while PIM is less reliable for annual fluctuations, it yields reasonable assessments of long-term changes. It can be added that the Riksbank's present estimates of the stock of coins in circulation assume no loss in circulation at all,<sup>52</sup> which is not very realistic.

The composition of coin treasures can be used as an indicator of the composition of coins in circulation at the time when the coins were hidden. This can be compared with the volume of minting in various years, which yields a rough indication of the rate of depreciation. Coin treasures in Sweden and Finland show that coins still circulated half a century or more after they were minted. Copper coins most likely spent a shorter time in circulation.<sup>53</sup> According to Tingström, in the eighteenth century, half of the copper plates disappeared as means of payment after around 20 years.<sup>54</sup>

Various rates of depreciation can be assumed. In a geometric rate of depreciation, the lifespan,  $L$ , of a coin is a geometric random variable. The implied half-life is constant throughout the coin's lifetime. Since older and newer coins depreciate at the same rate, they could be described as "history-less". In the present study, a function is used based on the assumption of a linearly decreasing half-life rate, with a minimum  $T$  of 65 years, implying that older coins, due to wear and tear, depreciated at a higher rate than newer ones. For a coin  $x$  it is assumed that:

$$r_{k,x} = \prod_{j=1}^k 0.5^{1/(T-65-(T-65)(j-1)/T)}; 1 \leq k \leq T$$

$T$  has been chosen at different levels for different coins, from 84 years, implying that half the coins disappeared after 17 years, to 101 years, implying that half disappeared after 30 years. For petty copper coins minted in 1624–60 and petty copper coins denominated in skilling riksgälds minted in 1799–1802, the half-life is set to 17 years. For copper plates minted in 1644–1776, and petty copper coins minted in 1661–1779, skilling banco copper coins minted in 1802–55, and bronze öre minted in 1857–73, the half-life is set to 20 years. For öre courant minted up to 1767, ducats minted in 1654–1868, and gold carolins minted in 1868–72, the half-life is set to

52 Sveriges Riksbank (1979–1999).

53 Sarvas (1967); Sarvas (1969); Tingström (1984).

54 Tingström (1984, pp. 94–95).

25 years. For silver carolins (mark coins minted in silver) minted up to 1755, riksdaler (specie) minted up to 1854, and riksdaler (and 10-öre) riksmünt minted in 1855–73, the half-life is set to 30 years. These half-lives roughly correspond to earlier studies on the composition of coin treasures.

Minting data exist for most of the studied period. Missing data are interpolated, based on the numismatic values attached to various coins today.<sup>55</sup> Coins that were only minted in small amounts for a particular year can be assumed to fetch a higher numismatic price than coins minted in larger amounts for another year.

When the mint equivalent was raised for various coins or when they were undervalued for other reasons in relation to their official nominal value, the rate of depreciation must be assumed to have increased substantially. Sarvas argues that coin treasures indicate that Gresham's Law operated under such circumstances. He shows that coins at the old mint equivalent tended to be driven out.<sup>56</sup> Nevertheless, the effect of Gresham's Law was ambiguous. Some of the older, better coins were not melted down or exported, but temporarily withdrawn from circulation, and returned when a premium was paid for them. Monetary authorities often increased the nominal value of undervalued coins. Although coins sometimes temporarily disappeared as means of payment, they could continue to function as a store of value. As such they should not be excluded from the money supply.

Coin treasures show that for some coins in some periods, there is a clear indication that Gresham's Law was in operation. For others there is no such indication. For instance, when the mint equivalent of four-öre silver coins was raised in 1686, the older coins tended to be driven out of circulation. However, Gresham's Law did not seem to have an effect on the older, better one-öre silver coins in the late 17th and early 18th centuries. Even when Gresham's Law was effective, the composition of coin treasures shows that dear monies were never driven out completely. The present study makes the following assumptions:

- The stock of copper plates minted in the 17th century is assumed to have depreciated by an additional six per cent per year from 1692, when they became undervalued compared to silver coins. This rate is based on the observation that older plates constituted 20 per cent of the value of copper plates in early 18th century coin treasures.<sup>57</sup> The same additional rate of depreciation is assumed for older copper plates after their mint equivalents were raised in 1649, 1660 and 1674.
- Copper plates minted after 1715 were largely exported, especially after the copper standard was suspended in 1745. Therefore, export<sup>58</sup> is deducted from minting when computing the stock of plates in circulation.
- Carolins (silver coins denominated in mark) are assumed to have been driven

55 Tonkin and Tonkin (2005).

56 Sarvas (1967, p. 35).

57 Sarvas (1967, p. 36).

58 Tingström (1984, pp. 96–98).

out by an additional five per cent per annum in 1725–32, when they were undervalued. This rate is based on information that four million carolins were melted down at that time in Danish and Holstein mints.<sup>59</sup>

- Silver coins denominated as 4 öre that were minted in 1664–84 are assumed to have disappeared from circulation by an additional five per cent per year in 1685–1717, based on the finding that these coins were 5–7 times less common in early 18th century coin treasures, relative to their minting volumes when compared with other silver coins.<sup>60</sup>
- The stock of silver coins minted before 1664 is assumed to have depreciated by an additional five per cent per year from 1664.<sup>61</sup> In that year the mint equivalent was raised for carolins and öre courant.

Although the so-called old carolins in 1717–18 were briefly decreed to be invalid as means of payment, they are included in circulation since the measure was temporary.<sup>62</sup> These coins probably continued to function as means of payment since they were intrinsic value coins. The value of various coins in circulation is calculated using market exchange rates at each year-end when monthly data exist (or the average of the two adjacent years when monthly data are missing).<sup>63</sup>

## 7.8. Changing borders

One problem is that the borders of the Kingdom of Sweden changed several times. Swedish coins only circulated in Sweden and Finland, while, for example, Swedish Pomerania minted its own coins. The present study estimates various aggregates both for Sweden within present borders and for the total circulation of currency issued by the central Swedish monetary authorities (i.e. in Sweden-Finland up to the early 19th century).

In 1843 the Riksbank was forced to redeem its notes that circulated in Finland as the Russian authorities wanted to break the monetary ties with Sweden. The circulation of Riksbank notes was rather important as the exchange of these notes was a heavy burden on the Riksbank, so heavy in fact that for several years the Bank had to allow its coverage of its notes to fall below what was regulated.<sup>64</sup> An earlier study by Anders Ögren uses David Davidson's estimation of notes circulating in Finland together with an assumption that the entire trade deficit with Finland from 1834 to 1840 was paid in Riksbank notes and that meant that at least 3 million SEK in Riksbank notes was circulating in Finland during the years up to 1843. It is proposed here that figures on the trade balance may be used to estimate the amount of Swedish

59 Sjöstrand (1908, p. 9).

60 Based on Sarvas (1969, p. 133).

61 See Sarvas (1967, p. 35).

62 Wallroth (1918, p. 92). This assumption differs from Edvinsson (2012).

63 Edvinsson (2010); Lobell (2010).

64 Ögren (2007)

notes circulating in Finland. Perhaps we cannot assume that all such payments were made by sending Riksbank notes but it is reasonable to assume that these deficits (and surpluses) affected the Riksbank's position vis-à-vis Finland and it seems to be the most straightforward way of estimating to what extent Swedish paper money ended up circulating in Finland.

For the period 1668–1809 the present study assumes that the ratio of circulation within Sweden's present borders to total circulation was 0.8. For the period after 1809 this ratio is linearly increased to 0.944 up to 1842, in accordance with the earlier study by Anders Ögren. From the end of 1843 it is assumed that no coins and notes circulated outside Sweden's present borders.

For earlier years, two border changes are taken into account, in 1645 and 1658. In those two years the ratio of the money supply's circulation within Sweden's present borders to total circulation is based on the size of the population in various regions in 1699. It is further assumed that it took 10 years for the currency to be replaced by Swedish coins and notes in the conquered territories.

## 7.9. An overview

It is possible to establish a fairly unique database on the money supply, both in detail and in time. Most of the work has already been done and is presented in this chapter. There is of course more information to retrieve – such as data on the discount companies in the late 18th and early 19th centuries.

The series presented in this chapter show that there were important shifts in the composition of the money supply. Figure 7.3 shows the development of coins in circulation, M0, M3, and GDP in market prices within Sweden's present borders in 1620–2012. Figure 7.4 displays the velocity of money according to two measures; GDP divided by M0 and M3, respectively.

Coins dominated the circulation up to the early 17th century. The first bank notes, issued in the 1660s, accounted for at most 14 per cent of the money supply. It was not until the late 1750s that paper notes accounted for most of the liquidity outside the Riksbank. Although the issuing of notes in the 1660s caused a panic, the fall in the value of paper money and the cancelling of its convertibility could partly be explained by inexperience rather than over-issuing.<sup>65</sup> The first Swedish experiment with fiat monies on a larger scale was instead with coin tokens minted towards the end of the Great Nordic War. Towards the end of 1718 they accounted for nearly half of the money supply.

While various metallic currencies continued to exist alongside each other, their relative shares were not constant. In the 1650s, copper plates overtook petty copper coins as the most important copper money. Up to 1665, copper coins dominated the money supply, while in 1665–85 silver and copper coins had roughly equal shares.

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<sup>65</sup> Brisman (1918, p. 66).





*Christmas market in Stockholm in 1859. The expansion of the market economy at that time increased the velocity of paper notes and coins.*

Source: Stockholm City Museum.

After 1685 it was the silver currencies that expanded and drove out copper plates, but this was reversed after 1710. In the 1770s, riksdaler came to dominate the metallic means of payment. Minting of riksdaler coins was extremely large in 1766–76, in preparation for the conversion to the sole silver standard in 1777, when the riksdaler became the main currency unit. After 1789, Riksbank notes were quickly replaced by riksgälds notes. This was reversed in the early 19th century.

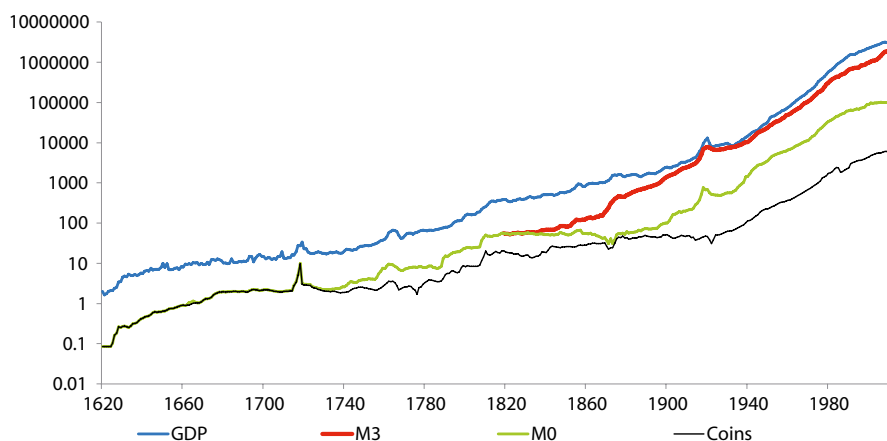
The velocity of money, measured by the ratio between GDP and M3, shows two distinct decreases, in 1650–80 and in 1870–1920.

The first decrease corresponds to the growth of Stockholm and trade. Except for sharp annual fluctuations, the velocity of money was then quite stable at 6–7 between the end of the 17th and the mid-19th century, a period of more than 150 years. Despite the expansion of paper notes in the 18th century, the velocity of money did not change, which shows that paper notes replaced metallic coins rather than expanding the money supply relative GDP.

The second change was the effect of the banking system's rapid growth in the

19th century. This led to a dramatic fall in M0's share of M3 and the two measures of money's velocity diverged. The considerable business activities of Swedish savings banks make M3 an interesting measure of the entire banking system's importance for the process of monetization.<sup>66</sup> The two periods of substantial commercial bank establishments, the late 1860s and the mid-1890s, both accompany a marked acceleration in the growth of M3.

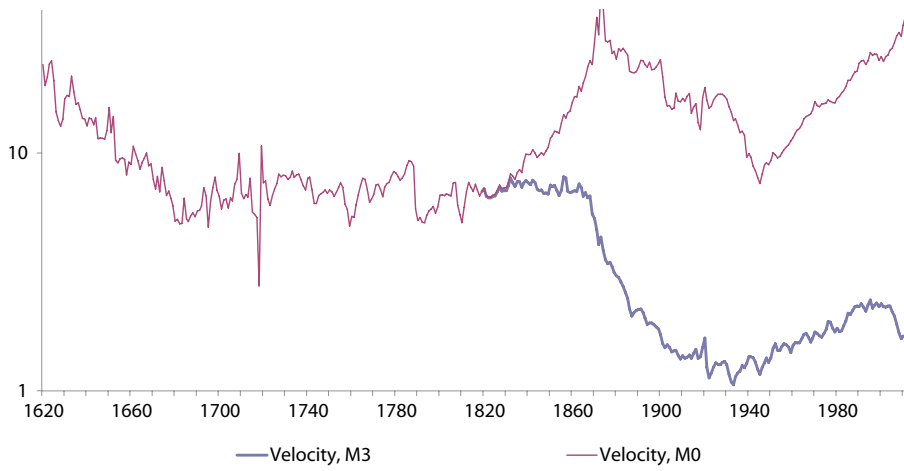
**Figure 7.3:** M3, M0, coins and GDP in current values within Sweden's present borders (million SEK, 1 SEK = 18 daler kopparmynt), 1620–2012.



Sources: Tables A7.1, A7.2 and A7.3; Edvinsson (2014).

<sup>66</sup> See Lilja (2000), Petersson (2000). The money stock 1871–1971, calculated in Jonung's study, consisted of the volume of *enskilda* and Riksbank notes held by the public plus deposits from the non-banking sector in commercial banks (Jonung, 1975 pp. 13, 208–211).

**Figure 7.4:** *Velocities of M3 and M0 1620–2010 (GDP divided by money supply).*



Sources: See figure 7.3.

## Appendix

**Table A7.1:** *Money supply 1619–1776, year-end data.*

	Circulation within Sweden's present borders, mn SEK (1 SEK = 18 daler kopparmynt)		Ratio: Within Sweden's present borders to Kingdom of Sweden	Total circulation, Kingdom of Sweden (including Finland), mn daler kopparmynt			
	M0	Coins, including coin tokens		M0	Coins, including coin tokens	Notes	Coin tokens
1619	0.0853	0.0853	0.978	1.571	1.571	0.000	0.000
1620	0.0852	0.0852	0.978	1.569	1.569	0.000	0.000
1621	0.0851	0.0851	0.978	1.566	1.566	0.000	0.000
1622	0.0848	0.0848	0.978	1.560	1.560	0.000	0.000
1623	0.0844	0.0844	0.978	1.553	1.553	0.000	0.000
1624	0.0848	0.0848	0.978	1.562	1.562	0.000	0.000
1625	0.1038	0.1038	0.978	1.910	1.910	0.000	0.000
1626	0.1604	0.1604	0.978	2.952	2.952	0.000	0.000
1627	0.1839	0.1839	0.978	3.385	3.385	0.000	0.000
1628	0.2650	0.2650	0.978	4.878	4.878	0.000	0.000
1629	0.2544	0.2544	0.978	4.682	4.682	0.000	0.000
1630	0.2684	0.2684	0.978	4.940	4.940	0.000	0.000
1631	0.2735	0.2735	0.978	5.034	5.034	0.000	0.000
1632	0.2650	0.2650	0.978	4.877	4.877	0.000	0.000
1633	0.2546	0.2546	0.978	4.686	4.686	0.000	0.000
1634	0.2781	0.2781	0.978	5.118	5.118	0.000	0.000
1635	0.3102	0.3102	0.978	5.709	5.709	0.000	0.000
1636	0.3216	0.3216	0.978	5.920	5.920	0.000	0.000
1637	0.3334	0.3334	0.978	6.137	6.137	0.000	0.000
1638	0.3715	0.3715	0.978	6.837	6.837	0.000	0.000
1639	0.4115	0.4115	0.978	7.574	7.574	0.000	0.000
1640	0.4318	0.4318	0.978	7.947	7.947	0.000	0.000
1641	0.4570	0.4570	0.978	8.411	8.411	0.000	0.000
1642	0.4774	0.4774	0.978	8.787	8.787	0.000	0.000
1643	0.4872	0.4872	0.978	8.967	8.967	0.000	0.000
1644	0.5343	0.5343	0.978	9.835	9.835	0.000	0.000
1645	0.5909	0.5909	0.978	10.876	10.876	0.000	0.000
1646	0.6146	0.6146	0.976	11.341	11.341	0.000	0.000
1647	0.6097	0.6097	0.973	11.279	11.279	0.000	0.000
1648	0.6170	0.6170	0.971	11.442	11.442	0.000	0.000
1649	0.6269	0.6269	0.968	11.654	11.654	0.000	0.000
1650	0.6447	0.6447	0.966	12.016	12.016	0.000	0.000
1651	0.6448	0.6448	0.963	12.047	12.047	0.000	0.000
1652	0.6863	0.6863	0.961	12.855	12.855	0.000	0.000

**Table A7.1 (cont.):** *Money supply 1619–1776, year-end data.*

	Circulation within Sweden's present borders, mn SEK (1 SEK = 18 daler kopparmynt)		Ratio: Within Sweden's present borders to Kingdom of Sweden	Total circulation, Kingdom of Sweden (including Finland), mn daler kopparmynt			
	M0	Coins, including coin tokens		M0	Coins, including coin tokens	Notes	Coin tokens
1653	0.7433	0.7433	0.959	13.959	13.959	0.000	0.000
1654	0.7547	0.7547	0.956	14.209	14.209	0.000	0.000
1655	0.7548	0.7548	0.954	14.246	14.246	0.000	0.000
1656	0.7887	0.7887	0.954	14.886	14.886	0.000	0.000
1657	0.8223	0.8223	0.954	15.520	15.520	0.000	0.000
1658	0.8629	0.8629	0.954	16.286	16.286	0.000	0.000
1659	0.8902	0.8902	0.938	17.077	17.077	0.000	0.000
1660	0.9062	0.9062	0.923	17.674	17.674	0.000	0.000
1661	0.9003	0.8957	0.908	17.856	17.764	0.091	0.000
1662	0.9331	0.9026	0.892	18.824	18.210	0.615	0.000
1663	1.0498	0.9183	0.877	21.551	18.851	2.700	0.000
1664	1.0915	0.9623	0.861	22.806	20.106	2.700	0.000
1665	1.1509	1.0196	0.846	24.484	21.690	2.794	0.000
1666	1.0772	1.0364	0.831	23.340	22.456	0.884	0.000
1667	1.0382	1.0366	0.815	22.918	22.883	0.035	0.000
1668	1.0406	1.0406	0.800	23.413	23.413	0.000	0.000
1669	1.0984	1.0984	0.800	24.713	24.713	0.000	0.000
1670	1.1932	1.1932	0.800	26.848	26.848	0.000	0.000
1671	1.3248	1.3248	0.800	29.808	29.808	0.000	0.000
1672	1.3207	1.3207	0.800	29.716	29.716	0.000	0.000
1673	1.3492	1.3492	0.800	30.358	30.358	0.000	0.000
1674	1.4290	1.4290	0.800	32.153	32.153	0.000	0.000
1675	1.6253	1.6253	0.800	36.568	36.568	0.000	0.000
1676	1.7788	1.7782	0.800	40.023	40.010	0.013	0.000
1677	1.8592	1.8587	0.800	41.833	41.821	0.012	0.000
1678	1.9179	1.9178	0.800	43.153	43.150	0.003	0.000
1679	1.9427	1.9427	0.800	43.710	43.710	0.000	0.000
1680	1.9635	1.9516	0.800	44.180	43.911	0.269	0.000
1681	1.9212	1.9115	0.800	43.227	43.009	0.219	0.000
1682	1.9542	1.9522	0.800	43.970	43.925	0.045	0.000
1683	1.9810	1.9742	0.800	44.573	44.419	0.154	0.000
1684	1.9886	1.9760	0.800	44.744	44.461	0.284	0.000
1685	2.0052	1.9957	0.800	45.117	44.904	0.213	0.000
1686	2.0219	2.0002	0.800	45.493	45.004	0.490	0.000
1687	1.9772	1.9597	0.800	44.487	44.094	0.393	0.000
1688	1.9770	1.9667	0.800	44.482	44.252	0.231	0.000

**Table A7.1 (cont.):** *Money supply 1619–1776, year-end data.*

	Circulation within Sweden's present borders, mn SEK (1 SEK = 18 daler kopparmynt)		Ratio: Within Sweden's present borders to Kingdom of Sweden	Total circulation, Kingdom of Sweden (including Finland), mn daler kopparmynt			
	M0	Coins, including coin tokens		M0	Coins, including coin tokens	Notes	Coin tokens
1689	2.0095	1.9957	0.800	45.215	44.904	0.311	0.000
1690	2.0067	1.9980	0.800	45.151	44.955	0.196	0.000
1691	1.9493	1.9336	0.800	43.859	43.507	0.352	0.000
1692	1.9732	1.447	0.800	44.398	43.756	0.642	0.000
1693	2.0950	2.0549	0.800	47.137	46.236	0.901	0.000
1694	2.2114	2.2029	0.800	49.757	49.566	0.192	0.000
1695	2.2351	2.2233	0.800	50.290	50.024	0.266	0.000
1696	2.2121	2.1938	0.800	49.772	49.360	0.412	0.000
1697	2.1731	2.1550	0.800	48.895	48.488	0.407	0.000
1698	2.0988	2.0904	0.800	47.223	47.034	0.189	0.000
1699	2.1356	2.1265	0.800	48.051	47.846	0.205	0.000
1700	2.2077	2.1881	0.800	49.674	49.232	0.443	0.000
1701	2.2256	2.2061	0.800	50.076	49.638	0.438	0.000
1702	2.1833	2.1687	0.800	49.123	48.795	0.328	0.000
1703	2.1465	2.1355	0.800	48.296	48.048	0.248	0.000
1704	2.1126	2.0923	0.800	47.533	47.077	0.456	0.000
1705	2.0321	2.0250	0.800	45.722	45.562	0.161	0.000
1706	1.9975	1.9907	0.800	44.945	44.791	0.154	0.000
1707	1.9837	1.9747	0.800	44.633	44.431	0.202	0.000
1708	1.9473	1.9407	0.800	43.813	43.665	0.148	0.000
1709	1.9491	1.9453	0.800	43.854	43.769	0.085	0.000
1710	2.0009	1.9925	0.800	45.021	44.832	0.189	0.000
1711	2.0426	2.0221	0.800	45.959	45.496	0.462	0.000
1712	2.0629	2.0205	0.800	46.415	45.462	0.953	0.000
1713	2.1070	2.0510	0.800	47.406	46.148	1.258	0.000
1714	2.0951	2.0639	0.800	47.139	46.437	0.702	0.000
1715	2.8107	2.7692	0.800	63.242	62.306	0.935	6.567
1716	3.4814	3.3880	0.800	78.331	76.229	2.102	17.993
1717	5.1557	5.0048	0.800	116.004	112.609	3.395	38.603
1718	9.8935	9.6731	0.800	222.604	217.645	4.958	103.281
1719	3.1242	3.0474	0.800	70.295	68.566	1.729	0.000
1720	3.0293	2.9137	0.800	68.160	65.557	2.603	0.000
1721	3.0112	2.8881	0.800	67.752	64.982	2.770	0.000
1722	2.9332	2.8107	0.800	65.997	63.241	2.756	0.000
1723	2.9278	2.8160	0.800	65.875	63.360	2.514	0.000
1724	2.6309	2.5247	0.800	59.194	56.807	2.387	0.000

**Table A7.1 (cont.):** *Money supply 1619–1776, year-end data.*

	Circulation within Sweden's present borders, mn SEK (1 SEK = 18 daler kopparmynt)		Ratio: Within Sweden's present borders to Kingdom of Sweden	Total circulation, Kingdom of Sweden (including Finland), mn daler kopparmynt			
	M0	Coins, including coin tokens		M0	Coins, including coin tokens	Notes	Coin tokens
1725	2.5257	2.4273	0.800	56.829	54.614	2.216	0.000
1726	2.4784	2.3590	0.800	55.763	53.079	2.685	0.000
1727	2.3735	2.2274	0.800	53.404	50.117	3.287	0.000
1728	2.3108	2.1692	0.800	51.994	48.807	3.187	0.000
1729	2.2277	2.0880	0.800	50.123	46.980	3.143	0.000
1730	2.2256	2.0531	0.800	50.075	46.195	3.880	0.000
1731	2.2202	1.9972	0.800	49.954	44.937	5.017	0.000
1732	2.2314	1.9908	0.800	50.205	44.794	5.412	0.000
1733	2.2350	1.9626	0.800	50.288	44.158	6.130	0.000
1734	2.2897	1.9953	0.800	51.518	44.895	6.623	0.000
1735	2.3016	1.9898	0.800	51.786	44.771	7.015	0.000
1736	2.3658	1.9484	0.800	53.230	43.839	9.391	0.000
1737	2.3280	1.8726	0.800	52.380	42.132	10.248	0.000
1738	2.4297	1.8527	0.800	54.669	41.685	12.984	0.000
1739	2.6066	1.8670	0.800	58.649	42.007	16.642	0.000
1740	2.6042	1.8711	0.800	58.594	42.100	16.494	0.000
1741	2.8328	1.9450	0.800	63.739	43.764	19.975	0.000
1742	3.1181	1.9780	0.800	70.156	44.506	25.651	0.000
1743	3.4758	2.1529	0.800	78.206	48.441	29.765	0.000
1744	3.4232	2.2824	0.800	77.021	51.355	25.667	0.000
1745	3.3474	2.3956	0.800	75.316	53.900	21.416	0.000
1746	3.3409	2.4544	0.800	75.171	55.224	19.947	0.000
1747	3.6415	2.5177	0.800	81.934	56.648	25.285	0.000
1748	3.8227	2.5639	0.800	86.011	57.687	28.325	0.000
1749	3.9062	2.5509	0.800	87.890	57.396	30.494	0.000
1750	3.8987	2.4538	0.800	87.721	55.210	32.511	0.000
1751	4.0063	2.4152	0.800	90.142	54.342	35.800	0.000
1752	4.1338	2.3394	0.800	93.010	52.636	40.374	0.000
1753	4.0492	2.2853	0.800	91.108	51.419	39.689	0.000
1754	4.0384	2.2320	0.800	90.865	50.221	40.644	0.000
1755	3.9969	2.1568	0.800	89.930	48.528	41.402	0.000
1756	4.4315	2.1620	0.800	99.708	48.645	51.063	0.000
1757	5.5265	2.2841	0.800	124.346	51.392	72.955	0.000
1758	6.3540	2.4551	0.800	142.965	55.240	87.726	0.000
1759	7.5703	2.6513	0.800	170.332	59.655	110.676	0.000
1760	7.3573	2.9260	0.800	165.539	65.836	99.703	0.000

**Table A7.1 (cont.):** *Money supply 1619–1776, year-end data.*

	Circulation within Sweden's present borders, mn SEK (1 SEK = 18 daler kopparmynt)		Ratio: Within Sweden's present borders to Kingdom of Sweden	Total circulation, Kingdom of Sweden (including Finland), mn daler kopparmynt			
	M0	Coins, including coin tokens		M0	Coins, including coin tokens	Notes	Coin tokens
1761	8.5095	3.2242	0.800	191.463	72.545	118.918	0.000
1762	9.5913	3.5811	0.800	215.805	80.576	135.229	0.000
1763	9.3952	3.5220	0.800	211.393	79.246	132.147	0.000
1764	9.2152	3.5445	0.800	207.341	79.752	127.589	0.000
1765	8.4059	3.2592	0.800	189.132	73.332	115.800	0.000
1766	7.8953	2.7902	0.800	177.643	62.780	114.863	0.000
1767	7.0450	2.1983	0.800	158.512	49.463	109.049	0.000
1768	6.6897	2.3376	0.800	150.518	52.597	97.921	0.000
1769	6.7201	2.4826	0.800	151.202	55.859	95.343	0.000
1770	7.3092	2.6203	0.800	164.456	58.956	105.501	0.000
1771	7.4632	2.6038	0.800	167.923	58.585	109.338	0.000
1772	7.6936	2.6839	0.800	173.106	60.388	112.718	0.000
1773	7.9550	2.6715	0.800	178.988	60.108	118.879	0.000
1774	8.0213	2.3326	0.800	180.480	52.483	127.997	0.000
1775	8.0842	2.1523	0.800	181.893	48.427	133.466	0.000
1776	7.9576	1.6913	0.800	179.046	38.053	140.992	0.000

Note: In 1715–18 the daler kopparmynt follows the value of coin tokens. The premium on better coins (copper plates and silver coins) when exchanged into coin tokens is set equal to nil on 31st of December 1715, 6 per cent on 31st of December 1716, 24 per cent on 31st of December 1717 and 60 per cent on 31st of December 1718.

Sources: Sveriges Riksbank (1931), Wallroth (1918), Edvinsson (2012), Lindgren (1968).



**Table A7.2:** Money supply 1777–1845, year-end data.

Circulation within Sweden's present borders			[R] Ratio, Sweden present borders to total circulation	[BD] Bank deposits	Total circulation (including circulation in Finland up to 1842)					[PR] Premium on riksdaler banco notes, end of year (%)
[SM3] M3, mn SEK	[SM0] M0, mn SEK	[SC] Coins, mn SEK			[TNB] Notes and coins held by the bank sector	[TP] Private bank notes	[TC] Coins, mn SEK	[TR] Riksgäldsnotes, mn riksdaler riksgälds	[TRB] Riksbanknotes, mn riksdaler banco	
1777	8.313	2.469	0.800				3.087		7.304	
1778	8.155	2.619	0.800				3.274		6.919	
1779	7.926	2.999	0.800				3.749		6.158	
1780	7.864	3.340	0.800				4.174		5.655	
1781	8.014	3.561	0.800				4.451		5.567	
1782	8.637	3.882	0.800				4.852		5.944	
1783	8.584	3.841	0.800				4.802		5.928	
1784	7.939	3.703	0.800				4.629		5.295	
1785	7.733	3.614	0.800				4.517		5.149	
1786	7.477	3.530	0.800				4.412		4.934	
1787	7.749	3.471	0.800				4.339		5.347	
1788	8.474	3.621	0.800				4.526		6.067	
1789	13.064	4.135	0.800				5.169	5.230	5.527	7.3
1790	15.317	5.247	0.800				6.558	8.445	3.708	11.7
1791	14.723	5.610	0.800				7.012	8.046	3.032	10.4
1792	16.079	5.611	0.800				7.014	10.271	2.542	10.7
1793	17.293	6.356	0.800				7.945	11.342	2.046	13.8
1794	18.395	6.475	0.800				8.094	12.704	1.858	18.1
1795	19.138	5.915	0.800				7.394	14.640	1.716	10.0
1796	19.514	5.860	0.800				7.324	15.459	1.462	10.1
1797	19.210	6.046	0.800				7.558	15.054	1.252	12.0
1798	21.020	7.858	0.800				9.823	14.878	1.153	36.5
1799	22.860	8.793	0.800				10.992	16.037	1.002	54.3
1800	23.807	8.201	0.800				10.251	18.056	1.029	41.1
1801	24.783	8.690	0.800				10.863	18.624	0.983	51.9
1802	24.719	8.392	0.800				10.491	18.942	0.967	51.6
1803	23.989	8.325	0.800				10.406	17.207	1.582	50
1804	24.498	8.399	0.800			0.642	10.498	14.867	3.505	50
1805	25.172	8.466	0.800			1.623	10.583	12.453	5.619	50
1806	24.813	8.459	0.800			2.436	10.574	10.175	6.845	50
1807	25.499	8.919	0.800			2.546	11.149	7.958	8.511	50
1808	36.876	11.544	0.800			3.068	14.430	6.816	16.566	50
1809	43.829	14.339	0.800			4.098	17.924	6.191	20.448	50

**Table A7.2 (cont.):** Money supply 1777–1845, year-end data.

	Circulation within Sweden's present borders			[R] Ra- tio, Sweden present borders to total circula- tion	[BD] Bank depos- its	Total circulation (including circulation in Finland up to 1842)					[PR] Premi- um on riksdal- er banco notes, end of year (%)	
	[SM3] M3, mn SEK	[SM0] M0, mn SEK	[SC] Coins, mn SEK			[TNB] Notes and coins held by the bank sector	[TP] Private bank notes	[TC] Coins, mn SEK	[TR] Riks- gälds- notes, mn riksdal- er riks- gälds	[TRB] Riks- bank notes, mn riksdal- er ban- co		
1810		50.583	20.160	0.804				8.688	25.063	5.558	21.509	50
1811		47.749	16.590	0.809				8.214	20.513	4.992	22.357	50
1812		47.870	16.125	0.813				9.336	19.831	4.638	22.936	50
1813		46.776	16.827	0.817				10.863	20.584	6.290	20.232	50
1814		49.003	18.307	0.822				10.857	22.276	8.607	19.162	50
1815		49.653	19.852	0.826				9.069	24.029	7.106	19.309	50
1816		49.556	18.374	0.831				8.651	22.123	6.456	20.725	50
1817		52.537	18.210	0.835				6.144	21.810	6.332	23.188	50
1818		56.508	20.054	0.839				2.144	23.894	6.929	24.337	50
1819	56.463	56.463	20.682	0.844				0.000	24.515	6.183	24.152	50
1820	54.426	54.331	18.870	0.848	0.094	0.029	0.000	22.252	5.703	24.095	50	
1821	53.911	53.764	18.562	0.852	0.147	0.045	0.000	21.776	5.627	23.811	50	
1822	52.745	52.442	18.137	0.857	0.304	0.094	0.000	21.169	5.627	23.005	50	
1823	53.804	53.490	18.109	0.861	0.314	0.097	0.000	21.029	6.038	23.431	50	
1824	55.743	55.093	17.122	0.865	0.650	0.200	0.000	19.783	6.858	24.809	50	
1825	56.353	55.624	17.149	0.870	0.729	0.225	0.000	19.715	7.578	24.585	50	
1826	57.849	56.921	17.499	0.874	0.928	0.286	0.000	20.017	8.421	24.639	50	
1827	55.805	54.604	15.787	0.879	1.201	0.370	0.000	17.969	8.363	24.125	50	
1828	55.535	54.168	15.042	0.883	1.367	0.421	0.000	17.036	8.438	24.198	50	
1829	56.806	55.327	15.279	0.887	1.479	0.456	0.000	17.219	8.561	24.686	50	
1830	57.950	56.286	15.853	0.892	1.663	0.513	0.000	17.779	8.823	24.689	50	
1831	59.764	57.836	15.842	0.896	1.928	0.594	0.000	17.680	9.351	25.405	50	
1832	57.594	55.456	14.056	0.900	2.137	0.659	0.000	15.610	9.120	25.012	50	
1833	58.505	54.952	13.707	0.905	2.444	0.727	1.110	15.150	9.305	24.671	50	
1834	58.318	54.377	14.117	0.909	2.477	1.235	1.464	15.528	9.428	24.060	50	
1835	57.946	52.967	14.936	0.914	3.144	2.545	1.835	16.350	6.194	25.321	50	
1836	59.436	52.981	14.881	0.918	3.927	3.365	2.527	16.212	3.785	27.393	50	
1837	62.464	54.169	16.141	0.922	4.209	4.148	4.086	17.502	2.294	28.726	50	
1838	66.339	54.095	19.472	0.927	4.901	4.279	7.344	21.014	1.482	26.774	50	
1839	66.168	51.411	18.820	0.931	5.683	5.897	9.074	20.215	1.115	26.526	50	
1840	67.810	51.730	18.518	0.935	6.041	5.672	10.039	19.798	0.872	26.872	50	
1841	68.655	51.172	21.079	0.940	6.810	6.447	10.672	22.431	0.623	25.232	50	
1842	67.915	50.656	24.905	0.944	7.064	6.301	10.195	26.380	0.597	21.986	50	

**Table A7.2 (cont.):** *Money supply 1777–1845, year-end data.*

Circulation within Sweden's present borders			[R] Ra- tio, Sweden present borders to total circula- tion	[BD] Bank depos- its	Total circulation (including circulation in Finland up to 1842)						[PR] Premi- um on riksdal- er banco notes, end of year (%)
[SM3] M3, mn SEK	[SM0] M0, mn SEK	[SC] Coins, mn SEK			[TNB] Notes and coins held by the bank sector	[TP] Private bank notes	[TC] Coins, mn SEK	[TR] Riks- gälds notes, mn riksdal- er riks- gälds	[TRB] Riks- bank notes, mn riksdal- er ban- co		
1843	68.387	51.333	26.706	1.000	7.604	7.263	9.450	26.706	0.560	20.887	50
1844	68.675	50.461	26.250	1.000	8.427	5.948	9.788	26.250	0.543	19.744	50
1845	73.109	52.011	25.430	1.000	9.140	9.006	11.959	25.430	0.000	23.724	50

Note: [SC] = [TC]\*[R]; [SM0] = ([TC]+[TR]+[TRB]\*[PR]-[TNB])\*[R]; [SM3] = [SM0]+[TP]+[BD]; Total liquidity = [TM0]+[TP].

Sources: Sveriges Riksbank (1931), Skogman (1946a, 1946b), Wallroth (1918), Statistics Sweden (1960), Ögren (2003), Edvinsson (2012).

**Table A7.3:** Money supply 1846–2012, year-end data (mn SEK).

	[M3] M3	[M0] M0	[C] Coins outside the Riksbank	[BC] Bank certificates	[BD] Bank deposits	[NB] Notes and coins held by the bank sector	[P] Private bank notes	[RB] Riks- bank notes outside the Riksbank
1846	76.29	53.14	24.83		9.75	10.52	13.40	38.84
1847	84.68	58.31	24.26		10.83	9.32	15.54	43.37
1848	85.04	56.68	25.63		12.57	8.05	15.78	39.10
1849	84.60	53.86	25.73		15.33	5.96	15.40	34.09
1850	81.01	51.44	26.07		14.52	8.17	15.04	33.54
1851	83.40	50.96	26.09		15.98	8.75	16.46	33.62
1852	86.87	51.43	26.01		18.80	8.44	16.65	33.86
1853	97.48	55.29	25.82		21.65	11.91	20.55	41.38
1854	110.32	60.31	25.81		24.63	15.47	25.37	49.97
1855	122.45	63.93	25.98		26.91	21.23	31.61	59.18
1856	119.16	65.34	27.89		27.13	15.01	26.69	52.46
1857	118.84	66.55	28.47		30.88	8.61	21.41	46.69
1858	121.21	56.47	28.03		39.48	11.81	25.26	40.25
1859	120.30	54.83	28.23		38.81	10.18	26.66	36.78
1860	129.95	54.66	28.16		45.08	12.99	30.22	39.49
1861	135.79	54.53	30.29		49.04	13.03	32.22	37.27
1862	139.65	55.85	30.58		53.40	10.57	30.39	35.83
1863	132.60	51.57	31.86		53.92	11.56	27.10	31.27
1864	134.81	53.01	31.84		54.24	10.36	27.56	31.53
1865	145.55	48.56	31.20		63.50	13.15	33.49	30.51
1866	145.62	47.47	30.89		69.11	10.05	29.04	26.63
1867	157.16	44.13	31.06		78.54	13.11	34.50	26.18
1868	153.29	41.34	31.37		85.35	16.40	26.60	26.36
1869	186.19	43.76	32.18		107.47	15.29	34.95	26.88
1870	206.80	37.32	26.43		130.25	18.50	39.23	29.40
1871	241.73	30.90	22.70		162.53	23.08	48.30	31.28
1872	314.13	41.20	24.67		215.58	28.73	57.35	45.26
1873	345.45	31.26	24.60		246.97	38.06	67.21	44.73
1874	405.51	38.50	31.79		303.09	33.86	63.92	40.57
1875	433.31	52.02	41.04		321.46	25.20	59.83	36.18
1876	469.83	54.66	44.30		353.93	19.72	61.24	30.08
1877	461.39	53.72	43.50		356.90	16.73	50.77	26.95
1878	444.53	56.45	47.49		342.20	17.94	45.88	26.90
1879	452.82	53.32	42.77		350.28	21.04	49.22	31.59
1880	498.63	61.22	43.34		387.17	21.52	50.23	39.40
1881	515.09	56.33	39.84		409.82	21.30	48.93	37.80
1882	551.82	59.04	40.73		440.17	19.07	52.61	37.38
1883	585.19	58.25	42.41		474.47	19.83	52.48	35.67

**Table A7.3 (cont.):** Money supply 1846–2012, year-end data (mn SEK).

	[M3] M3	[M0] M0	[C] Coins outside the Riksbank	[BC] Bank certificates	[BD] Bank deposits	[NB] Notes and coins held by the bank sector	[P] Private bank notes	[RB] Riks- bank notes outside the Riksbank
1884	621.89	60.50	42.91		509.00	20.41	52.39	37.99
1885	642.02	60.80	42.27		531.68	20.81	49.54	39.34
1886	669.98	67.13	45.75		554.28	20.50	48.57	41.89
1887	682.61	64.45	45.08		568.62	20.79	49.54	40.16
1888	711.09	69.93	46.47		585.32	20.73	55.84	44.19
1889	735.87	72.80	49.08		604.21	20.12	58.86	43.84
1890	764.34	72.77	47.88		632.98	20.52	58.60	45.40
1891	794.87	71.42	46.95		664.69	19.40	58.76	43.87
1892	811.53	70.85	45.93		682.72	19.10	57.96	44.02
1893	847.18	72.69	45.93		715.43	21.07	59.06	47.83
1894	890.51	73.86	45.65		755.32	23.69	61.33	51.90
1895	932.77	74.92	43.36		796.97	25.18	60.88	56.74
1896	989.32	85.32	44.48		838.69	22.45	65.30	63.30
1897	1085.90	91.44	45.42		922.26	22.82	72.20	68.84
1898	1197.05	96.13	50.44		1021.61	25.17	79.32	70.86
1899	1322.27	101.00	50.84		1141.62	25.04	79.66	75.19
1900	1430.90	99.81	51.72		1248.84	23.90	82.25	71.99
1901	1513.02	114.18	47.67		1343.18	34.47	55.66	100.98
1902	1570.59	138.44	44.30		1407.10	43.28	25.05	137.41
1903	1649.85	163.63	41.65		1482.17	43.87	4.05	165.84
1904	1728.70	166.21	42.80		1560.60	46.90	1.89	170.31
1905	1855.21	177.04	44.34		1676.57	51.01	1.60	183.71
1906	2041.30	194.61	46.40		1846.69	53.71	0.00	201.91
1907	2198.23	181.71	49.02		2016.52	57.43	0.00	190.12
1908	2320.27	197.77	48.98		2122.50	52.70	0.00	201.49
1909	2386.03	197.80	46.93		2188.23	51.03	0.00	201.90
1910	2493.38	206.07	48.89		2287.31	49.30	0.00	206.49
1911	2602.03	215.37	48.81		2386.66	51.54	0.00	218.10
1912	2736.85	218.67	43.17		2518.18	52.92	0.00	228.43
1913	2884.79	229.95	44.06		2654.84	48.59	0.00	234.47
1914	3071.63	286.60	37.72		2785.03	55.18	0.00	304.06
1915	3377.07	310.77	39.38		3066.30	56.49	0.00	327.89
1916	4072.65	377.90	41.28		3694.75	80.90	0.00	417.52
1917	5102.65	520.84	43.15		4581.81	95.03	0.00	572.72
1918	6835.28	757.51	45.85		6077.77	101.88	0.00	813.53
1919	7503.92	668.48	47.02		6835.44	126.11	0.00	747.56
1920	7755.70	686.95	46.04		7068.76	118.97	0.00	759.88
1921	7527.05	568.05	38.24		6959.00	97.89	0.00	627.70

**Table A7.3 (cont.):** Money supply 1846–2012, year-end data (mn SEK).

	[M3] M3	[M0] M0	[C] Coins outside the Riksbank	[BC] Bank certificates	[BD] Bank deposits	[NB] Notes and coins held by the bank sector	[P] Private bank notes	[RB] Riks- bank notes outside the Riksbank
1922	7103.40	522.73	30.65		6580.67	92.12	0.00	584.19
1923	6786.78	513.49	38.07		6273.29	100.97	0.00	576.39
1924	6642.24	499.84	50.22		6142.41	87.67	0.00	537.29
1925	6586.27	499.16	50.58		6087.11	81.21	0.00	529.79
1926	6705.40	491.48	51.58		6213.92	85.17	0.00	525.08
1927	6855.78	499.57	53.82		6356.20	80.49	0.00	526.24
1928	6933.89	516.44	56.72		6417.46	86.30	0.00	546.01
1929	7180.91	550.54	60.12		6630.38	78.71	0.00	569.13
1930	7495.98	571.97	63.09		6924.02	85.01	0.00	593.88
1931	7554.57	564.99	64.23		6989.58	81.92	0.00	582.68
1932	7738.35	568.35	64.33		7170.00	94.20	0.00	598.22
1933	7914.66	612.04	67.10		7302.62	102.66	0.00	647.60
1934	8063.10	664.04	71.00		7399.06	115.19	0.00	708.23
1935	8325.67	755.65	76.08		7570.02	106.35	0.00	785.92
1936	8733.74	867.67	80.70		7866.07	106.03	0.00	893.00
1937	9173.97	948.22	85.44		8225.75	117.30	0.00	980.09
1938	9783.22	1032.07	90.80		8751.15	119.41	0.00	1060.68
1939	10415	1416	103		8999	109	0	1422
1940	10407	1462	113		8945	133	0	1482
1941	11530	1670	118		9860	147	0	1700
1942	12762	1999	125		10762	141	0	2016
1943	14395	2259	137		12137	145	0	2266
1944	15967	2494	150		13473	148	0	2492
1945	17544	2769	162		14775	174	0	2782
1946	18767	2888	186		15880	175	0	2877
1947	19777	2905	203		16872	193	0	2895
1948	20823	3142	217		17681	188	0	3113
1949	22537	3317	225		19219	195	0	3287
1950	23990	3552	228		20438	189	0	3513
1951	27216	4093	241		23124	238	0	4090
1952	28469	4576	254		23893	255	0	4577
1953	31326	4851	268		26475	252	0	4835
1954	33372	5092	283		28280	277	0	5087
1955	34556	5313	307		29242	312	0	5319
1956	36616	5586	322		31030	333	0	5598
1957	39421	5813	333		33608	360	0	5840
1958	42701	6021	340		36680	378	0	6059
1959	47971	6193	352		41778	425	0	6266

**Table A7.3 (cont.):** Money supply 1846–2012, year-end data (mn SEK).

	[M3] M3	[M0] M0	[C] Coins outside the Riksbank	[BC] Bank certificates	[BD] Bank deposits	[NB] Notes and coins held by the bank sector	[P] Private bank notes	[RB] Riks- bank notes outside the Riksbank
1960	48865	6540	366		42325	385	0	6559
1961	52035	6843	381		45192	408	0	6870
1962	57076	7271	403		49804	462	0	7330
1963	61954	7791	431		54163	509	0	7869
1964	66612	8342	460		58270	504	0	8386
1965	70135	8702	493		61433	537	0	8746
1966	76111	9297	525		66814	526	0	9298
1967	85835	10018	557		75817	504	0	9965
1968	95583	10469	597		85114	709	0	10581
1969	100222	10963	647		89259	647	0	10963
1970	105792	11356	686		94436	649	0	11319
1971	116295	12779	730		103517	655	0	12704
1972	129989	14111	805		115878	619	0	13925
1973	146690	15338	861		131352	752	0	15229
1974	159732	17277	919		142455	916	0	17274
1975	179963	20084	1003		159879	1025	0	20106
1976	189087	22119	1125		166968	1119	0	22113
1977	206835	24372	1321		182463	1368	0	24419
1978	244140	27521	1427		216619	1653	0	27747
1979	284187	30880	1524		253307	2224	0	31580
1980	310273	33518	1720	6210	270545	2622	0	34420
1981	351408	35993	1801	6325	309090	2863	0	37055
1982	380575	37985	1915	6588	336002	2915	0	38985
1983	406768	41872	2242	12357	352539	3089	0	42719
1984	435262	45024	2436	5878	384360	3932	0	46520
1985	439037	46006	2371	5788	387243	4460	0	48095
1986	485498	50242	1819	2893	432363	5627	0	54050
1987	505587	52043	1922	8485	445059	6182	0	56303
1988	531853	54930	2063	5185	471738	6584	0	59451
1989	585056	60419	2229	7176	517461	7889	0	66079
1990	651487	61713	2359	7284	582490	10266	0	69620
1991	677515	64556	2991	5033	607926	11543	0	73108
1992	699089	64051	3205	7348	627690	9894	0	70740
1993	726997	66803	3308	6166	654028	8919	0	72414
1994	729353	68594	3450	4704	656055	7848	0	72992
1995	749249	68303	3596	8044	672902	8357	0	73064
1996	833675	72017	3656	13354	748304	8774	0	77135
1997	843265	74114	3809	18556	750595	8681	0	78986

**Table A7.3 (cont.):** Money supply 1846–2012, year-end data (mn SEK).

	[M3] M3	[M0] M0	[C] Coins outside the Riksbank	[BC] Bank certificates	[BD] Bank deposits	[NB] Notes and coins held by the bank sector	[P] Private bank notes	[RB] Riks- bank notes outside the Riksbank
1998	863922	77879	3980	9530	776513	8389	0	82288
1999	947814	87161	4213	33672	826981	11289	0	94237
2000	974091	88881	4434	17294	867916	8782	0	93229
2001	1038972	96743	4744	15730	926499	10368	0	102367
2002	1086038	95847	5005	24331	965860	11137	0	101979
2003	1119288	98481	5265	19009	1001798	10459	0	103675
2004	1171218	98243	5442	21360	1051615	10651	0	103452
2005	1286682	100479	5559	6530	1179673	10596	0	105516
2006	1427436	100883	5518	7336	1319217	11492	0	106857
2007	1634076	100523	5807	34803	1498750	13801	0	108517
2008	1826405	99515	6007	72898	1653992	12758	0	106266
2009	1873879	100119	6073	38486	1735275	10544	0	104590
2010	1965359	96911	5499	4854	1863594	8490	0	99902
2011	2076594	92384	5365	11455	1972755	7896	0	94915
2012	2225347	88182	5385	19169	2117996	8259	0	91056

Note: The following relations hold:  $[M0] = [C] + [RB] - [NB]$ ;  $[M3] = [M0] + [P] + [BC] + [BD]$ ; Liquidity =  $[M0] + [P]$ .

Sources: Sveriges Riksbank (1931), Wallroth (1918), Statistics Sweden (1960), Statistics Sweden (2013) Sveriges riksbank (1909–78), Sveriges riksbank (1979–2001), Sveriges Riksbank (2001–13), Ögren (2003).



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