5.
Foreign exchange rates in Sweden 1658–1803[1]

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5.1.   Introduction

This chapter deals with foreign exchange rates in Sweden in the period 1658–1803. Since Finland was part of Sweden up to 1808/9, Swedish currency was also current there. However, the primary data used in this study are from Stockholm and other towns in present-day Sweden.

In the 18th century, the most frequently quoted exchange rates in Sweden were on Amsterdam, Hamburg, London, Paris, Copenhagen, Gdańsk and Swedish Pomerania. Of these seven, the exchange rates on Hamburg and Amsterdam were the most frequent. At that time, all seven currencies were based in one way or another on precious metals, primarily silver, and the par relations between them were, therefore, largely determined by their intrinsic metal values.

A classic distinction is made between exchange of coins and exchange by bills.[2] The bill of exchange is a written order by the drawer to the drawee to pay money to the payee. Before the spread of paper currency, payments in international trade were often made in bills. While foreign exchange was, at least from the 17th century, mainly conducted in bills, exchange between domestic currencies was mostly conducted in actual coins.

Bills of exchange had different terms to maturity, from a few days (sight bills) up to more than 6 months. Nowadays, the spot exchange rate is usually calculated as the average of the buying and selling rates. For earlier times, the price of sight bills is often the only available source for the calculation of spot exchange rates. The price of

2   McCusker (1978, p. 18).

bills with longer terms to maturity should be lower than the price of sight bills, and in theory the difference would be determined by the prevailing interest rate. In reality it is not as simple. The price of a sight bill does not necessarily equal the spot exchange rate, since it took time to transport the bill from one city to another and there was a grace period between the day when the bill was presented and the day when it was paid.[3] In Hamburg, the grace period could be up to 12 days.[4]

A bigger problem with historical exchange rates is that the sources do not always provide information on the durations of the bills of exchange.[5]

Several authors emphasise that bills of exchange were useful instruments for evading usury ceilings and hiding interest rates. By the 18th century, credit instruments had been developed that were based on exchange rate derivatives. A low bill price is tantamount to a high interest rate. Knowing the prices of bills of various terms to maturity enables one to calculate the short-term market interest rate, and knowing the interest rate enables one to calculate a theoretical spot exchange rate. According to Flandreau, Galimard, Jobst, and Marco, the interest rate calculated from bills of exchange on, for example, Amsterdam traded in London provides information on the interest rate in Amsterdam, not London, since it is Amsterdam money that is bought, not London money. Furthermore, they argue that such a shadow interest rate is somewhat higher than the actual rate, since it includes additional transaction costs because the foreign market is located further away than the domestic market.[6]

Several of the quoted foreign currencies have their origins in the German reichstaler. According to the Leipzig convention in 1566, the German reichstaler as a coin was to contain 1/9 of a Cologne mark of silver, or 25.98 grams of fine silver. The unit was adopted in other countries and was widely used across Europe, as riksdaler in Sweden, rigsdaler in Denmark and rijksdaalder in Holland. Sometimes the term rix-dollar is used as a common label for the various national coins.[7] In 1754 the Reichstaler was replaced by the Conventionsthaler, containing 1/10 of a Cologne mark of silver.

5.2. Current and bank money

Exchange rates on Amsterdam and Hamburg could be quoted in two different currencies, one being actual coins or current money (courant) and the other notional or bank money (banco). Bank money existed in the form of credit on the books of the bank. Bank money supplied by the Bank of Amsterdam, founded in 1609, and Hamburger Bank, founded in 1619, included a premium or agio relative to current

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3   See Flandreau, Galimard, Jobst, and Marco (2006, p. 23).
4   Hayes (2001 [1740], p. 307).
5   Lobell (2000, pp. 231–2).
6   Flandreau, Galimard, Jobst, and Marco (2006).
7   Hayes (2001 [1740]) and Attman (1983, p. 8).

money.[8] For example, a premium of 4 percent on banco money implied that 100 guilders in banco money was the equivalent of 104 guilders in courant money. The premium was much higher in Hamburg (around 20 per cent in the 18th century)[9] than in Amsterdam (around 4–5 per cent),[10] although the two banks had much the same regulations.[11]

The premiums were a consequence of the two banks' refusal to accept inferior coins at par with their bank monies,[12] which were linked to the better coins, according to the standard of the mint.[13] Inferior coins circulated widely (because of wear and tear, clipping and small increases in the mint equivalent) and tended to drive out better coins (unless the latter circulated at a premium). Most rix-dollar coins that circulated in the 17th and 18th centuries had a significantly lower fine silver content than the 25.98 grams established by the Leipzig convention. The Swedish riksdaler coins, weighing 25.3–25.7 grams, had, in fact, a higher fine silver content than in other countries.[14] In addition, bank money had other advantages even compared to newly minted coins; since it was secure from fire, robbery and other accidents, it could easily be transferred between cities, etc. As pointed out by Adam Smith in *The Wealth of Nations*:[15]

> The agio of the bank of Hamburg, for example, which is said to be commonly about fourteen per cent, is the supposed difference between the good standard money of the state, and the clipt, worn, and diminished currency poured into it from all the neighbouring states.
>
> Before 1609 the great quantity of clipt and worn foreign coin, which the extensive trade of Amsterdam brought from all parts of Europe, reduced the value of its currency about nine per cent below that of good money fresh from the mint. Such money no sooner appeared than it was melted down or carried away, as it always is in such circumstances.

At some time in the 18th century (not known when) the Bank of Amsterdam stopped paying specie for banco notes. The currency supplied by the bank became de facto inconvertible. The premium on bank money was kept at a stable level since the bank usually bought bank money when the premium fell below 4.5 per cent and sold

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8   McCusker (1978, pp. 42–79).
9   Monthly premiums on Hamburg bank money can be found in McCusker (1978, pp. 65–8) for the period 1672–1775.
10 Monthly premiums on Amsterdam bank money can be found in McCusker (1978, pp. 46–51) for the period 1638–1775, and in Posthumus (1946, pp. 651–6) for the period 1648–1819.
11 Hayes (2001 [1740], p. 301).
12 However, in, for example, Amsterdam the premium was not officially sanctioned until the 1650s. See Quinn and Roberds (2006).
13 van Dillen (1936, pp. 89–90).
14 Sjöstrand (1908, p.10).
15 Smith (1999 [1776], p. 57).

whenever it rose above 4⅞ per cent[16] (in this respect, it was a kind of specie exchange standard). This could not be sustained in some periods. Most notably in 1794–1802 there was a significant discount (negative premium) on banco money (at most 27 per cent in January 1795).[17]

In Sweden, the exchange rate on Hamburg was mostly quoted on banco money. In contrast, the exchange rate on Amsterdam was mostly quoted on current money.

5.3.   Sources and calculations for this study

For the period after 1740, Sveriges Riksbank (1931) presents a continuous annual series of exchange rates on Amsterdam, Hamburg, Paris and London (the annual average of these series is arithmetic). The rates are based on quotations in various newspapers, such as *Stockholms stads priscourant*. All the data that were collected for Sveriges Riksbank (1931) is stored in the archive of Sweden's central bank.[18] The data have been used in this study, since the material includes weekly data, data for the period 1705–36 and notations on other foreign currencies.

For the period before 1740, several other sources are used in this study.

The best data are for 1660–85. Monthly prices exist for bills of exchange of various durations (8 days, 14 days, one month, two months, and longer) on Amsterdam and Hamburg, and for 1668–85 on Paris. There are also a few notations on Gdańsk, but none on London.[19] After that period, such detailed price differentiation between bills with various terms to maturity is available only from the mid-19th century onwards.

The exchange rates in 1660–85 are calculated from monthly data on bills with various durations and an estimated average interest rate for the period.

When estimating interest rates, comparisons should not be made between bills of short duration, for example one-month bills relative to 14-day bills, since the price of bills was often rounded off, which could systematically distort the computed interest rate. Data on bills of longer duration, 4 to 8 months, exist mainly for the period 1662–9. To estimate an interest rate for this period, the prices of these bills have been compared to the prices of one-month bills. The interest rate *r*, in per cent, is calculated as:

16   van Dillen (1936, pp. 101–2).
17   Posthumus (1946, p. 655).
18   Riksbankens arkiv, 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803'.
19   Kammarkollegii, oordnade handlingar, no. 444 (Riksarkivet). Posthumus (1946, pp. 592–3) presents the exchange rate in Amsterdam on Stockholm for 1664, 1665, 1669, 1671 and 1672.

$$r = \left(\left(\frac{P_{bill1}}{P_{bill2}} \right)^{12/(T_{bill2} - T_{bill1})} \right) \times 100 - 100$$

where P is the price and T the time duration in months of two bills, bill 1 and bill 2.

The 34 different interest rates that have been calculated range from -6.3 to 35.5 per cent (based on both Hamburg and Amsterdam exchange rates). The median value is 12.5 per cent, which seems to be quite a robust result.[20] This is consistent with a monthly interest rate of one per cent (12.7 per cent on an annual basis), which according to Eli Heckscher was very common in the 17th century.[21] The extreme values can be explained by market fluctuations during the month and price differences between brokers. While the individual values are unreliable, especially the extreme values (and negative interest rates did, of course, not exist), the median should be quite reliable.

The high interest rate in 17th-century Sweden – despite a more homogeneous capital market in the latter part of the century and a statutory maximum rate of 8 per cent from 1666 and 6 per cent from 1687 – is known from many sources.[22] Lower interest rates, 6–8 per cent, were common in this period, but mostly for loans with security and of a somewhat longer duration, involving lower risks.

Following the argument of Flandreau, Galimard, Jobst, and Marco (see above), the shadow interest rate calculated from bills on Amsterdam and Hamburg must be seen as reflecting the interest rate in those cities, not in Stockholm. Although the interest rate was probably lower in Amsterdam and Hamburg than in Stockholm, the shadow interest rate was probably higher than the actual one because of the additional cost of acquiring information about the foreign markets. Christina Dalhede gives two examples of short-term interest rates in Lübeck, one of 10 per cent in 1664

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20 The interest rate of the first quartile is 9.3 per cent and of the third quartile 13.1 per cent, which was probably roughly the range for the actual short-term interest rate at the time. The median for the first 17 values (in 1662–6) is 12.4 per cent and 12.9 percent for the last 17 values (in 1667–9), which is an indication that the market interest rate seems to have been quite stable over time, at least in the 1660s (which was a decade of some financial turmoil in Sweden). The median interest rate estimated from Amsterdam bills is 12.7 percent and 12.3 percent estimated from Hamburg bills, which likewise is a negligible difference.

21 Heckscher (1936, vol I:2, p. 578).

22 Heckscher (1936, vol I:2, pp. 577–81), and Montgomery (1920, p. 140). Heckscher mentions an interest rate as high as 42 per cent in 1631; according to him, the interest rate fell towards the end of the 17th century. A table of interest rates published in 1690 shows that they varied between 5 and 12 per cent, despite the legislated maximum of 6 per cent. The variation can be explained by the variation in the risk premium.

View of Stockholm*, 1801, by Elias Martin (1739–1818).*
Source: Nationalmuseum.

on a 3-month loan and the other of 12 per cent in 1667 on a 4–12-month loan,[23] which conforms to the high interest rates calculated for Hamburg and Amsterdam in the present study.

The computed median interest rate of 12.5 per cent differs significantly from the interest rates in Amsterdam, London and Paris as estimated by Flandreau, Galimard, Jobst, and Marco for the 18th century (after 1720).[24] Based on bills of exchange with various terms to maturity, they conclude that the average interest rate was around 3–5 per cent in that century. That would mean that the interest rate was more than halved between the 17th and 18th centuries. Further investigation is necessary before such a conclusion can be drawn. In Chapter 6, Håkan Lobell assumes that the shadow interest rate was 5 per cent in the first half of the 19th century; that is also the assumption in this chapter for the 18th century. For 1704–1804, it is also assumed that the term to maturity was 67 days for bills on Amsterdam and Hamburg and 90 days for bills on London and Paris, which corresponds to Lobell's assumptions for the early 19th century. The few notations on terms to maturity in the late 18th century are consistent with these conjectures.

Tables A5.1, A5.5 and A5.12 present monthly exchange rates on Hamburg, Amsterdam and Paris, respectively, for the period 1660–85 (for Paris 1668–85), based on bills with between 8 days and two months to maturity and an assumed interest rate of 12.5 per cent (which disregards the possibility that this rate may have

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23   Dalhede (2006, p. 117).
24   Flandreau, Galimard, Jobst, and Marco (2006, p. 24).

fluctuated over time).[25] Neither has allowance been made for the grace period between the day when the bill was presented and the day when it was paid (this could be viewed as a pure transaction cost). The data have been collected and the calculations have been made in collaboration with Göran Hansson for Amsterdam and with Martin Sutinen for Hamburg and Paris.

There are various sources for annual exchange rates in the period 1696–1739.[26] For this period, annual averages have been estimated mainly by taking the geometric average of the highest and lowest quotations.

For the years when direct data are missing, cross rates have been calculated for the exchange rates on Amsterdam, Paris and London, based on the exchange rate in Stockholm on Hamburg, in Amsterdam on Hamburg,[27] and in London on Hamburg, Paris and Amsterdam.[28] The cross rates are adjusted to take into account the difference between cross rates and actual rates in the adjacent periods where data on actual rates do exist.

When the sources do not provide information about the bills' terms to maturity, the spot rates are calculated from the direct data on exchange rates by increasing the latter by 1.5 per cent in 1658–85, which is consistent with, for example, 1.5 month bills and a 12 per cent interest rate. For 1686–1703, the bills on Amsterdam and Hamburg are increased by one per cent and bills on London by $1.05^{90/365}$. For the period 1704–1804, the bills on Amsterdam and Hamburg are increased by $1.05^{67/365}$ and the bills on London and Paris by $1.05^{90/365}$, consistent with the assumption of a 5 per cent interest rate. See furthermore Tables A5.21 to A5.24 for annual series. The monthly data presented for the period 1705–1803 are raw data (mostly based on two- and three-month bills), not spot rates.

5.4. Notations on foreign currencies in Swedish currency

The presented foreign exchange rates are in Swedish currency, which changed during the studied period (see Chapter 4). As a consequence of inflation, the value of Swedish currency fell relative to the quoted foreign currencies during the course of the 18th century.

Up to 1776, foreign currencies were usually quoted in mark kopparmynt (one daler kopparmynt = 4 marks kopparmynt).

In 1716–9 so-called coin tokens circulated that fell in value relative to proper

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25 Flandreau, Galimard, Jobst, and Marco (2006, p. 23).

26 Sandbergska samlingen (Riksarkivet), O:1, folio 364, presents exchange rates on Hamburg from 1703 onwards, Riksarkivets ämnessamlingar (Riksarkivet), Handel och sjöfart, Ser. I, vol. 1 Järnhandel, exchange rates on Hamburg and Amsterdam from 1703 onwards (also on London in 1704), and Börstorpssamlingen (Riksarkivet), vol. 85, exchange rates on Hamburg in 1696–1704.

27 Found in Posthumus (1946).

28 Found in McCusker (1978).

money (mainly copper plates). The only exchange rates reported for this period were on Amsterdam and Hamburg, and these were most probably noted in proper money, not in coin tokens. As explained in Chapter 4, the use of coin tokens was not easy to enforce on the foreign exchange, although there are some uncertainties on this matter. Tables A5.21 to A5.22 present the estimated exchange rates in coin tokens as well, by using the premium on proper money to compute those rates (see Chapter 4).

In 1777–88 foreign currencies were usually quoted in skilling (one riksdaler was equal to 48 skilling). Since one Swedish riksdaler was exchanged for 72 marks kopparmynt in 1777, this implies that one skilling was exchanged for 1.5 marks kopparmynt in that year. In 1789–1803, Sweden had two currencies: riksdaler banco (= 48 skilling banco), still convertible into riksdaler specie coins, and riksdaler riksgälds (= 48 skilling riksgälds), which fell in value relative to the specie coins. For the period 1789–96 the foreign exchange rates were most likely expressed in banco notes, although there are some uncertainties about this. As discussed in Chapter 4, the premium (agio) on banco notes cannot be used to transform exchange rates from banco to riksgälds, since the premium on banco notes was affected by market situations. From May 1797 to 1803 the foreign exchange rates are expressed both in riksdaler riksgälds and in riksdaler banco. The premium that can be estimated from these data differs somewhat from the noted agio (premium) in the domestic market.

Figure 5.1 compares an index of the quotations on Hamburg, Amsterdam and London with the Swedish inflation index (see Chapter 8) in 1658–1838. All three foreign currencies had a relatively stable precious metal content during the studied period (at least in the long run). The currency index clearly shows how Swedish currency deteriorated relative to these three stable currencies, which was due to debasements and the circulation of fiat money. Up to the 1770s the currency and the inflation indices follow each other in the long run, but after the 1770s the price level rose more than the quotation on the three foreign currencies. Hence, part of the increase in prices in the late 18th century must be explained by other factors than a deteriorating currency. Between 1658 and 1838 the currency index increased 35-fold, while the price level rose 53-fold. The sharpest devaluations of Swedish currency occurred in 1716–19, 1756–62, 1769–73, 1788–99 and 1808–20, which coincided with the circulation of fiat monies (see Chapter 2).

5.5. Quotations on Hamburg

During the studied period the Hamburg reichstaler banco was the most important foreign currency quoted in Sweden. Before 1777, quotations on the Hamburg reichstaler banco were even more important than quotations on the domestic riksdaler.

Hamburg was the centre of exchange for the Baltic area. The bank money of Hamburg was viewed as one of the securest in Europe, and all foreign exchange was negotiated through the bank. Hamburg shared its current money with the city of Lübeck. As the circulated coins deteriorated, the premium on bank money increased from 3 per cent in 1672 to over 20 per cent in the 1770s (see Table A5.21).

Figure 5.1. *Index of quotations on Hamburg, Amsterdam and London in Swedish currency and the Swedish inflation index 1658–1838 (1658 = 100).*
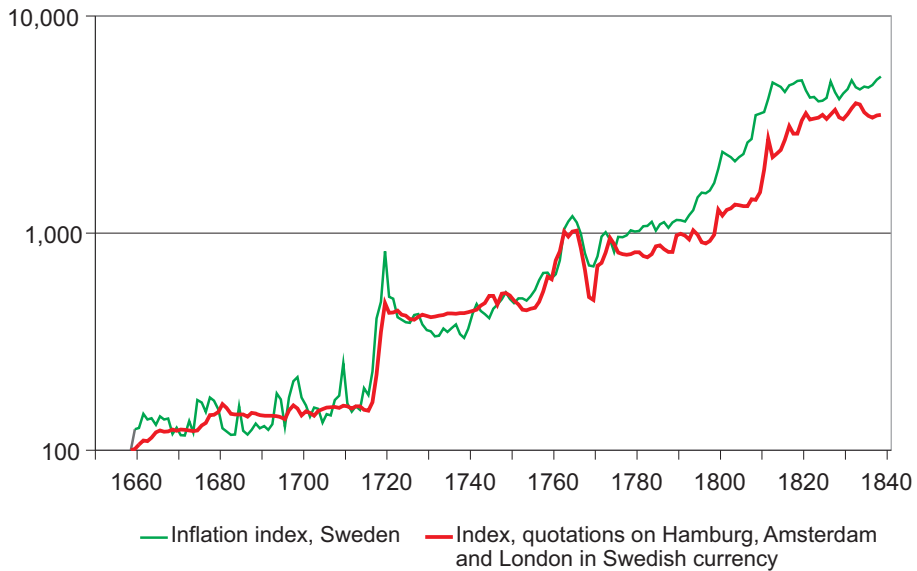
Sources: Tables A5.21 to A5.24, Sveriges Riksbank (1931) and Chapter 8.
Note: The two indices follow mark kopparmynt in 1658–1776, riksdaler specie in 1777–88 and riksdaler riksgälds in 1789–1838. In the period 1716–19 they follow the coin tokens and assume that these tokens were devalued by 50 per cent in 1719.

The Hamburger reichstaler banco was equal to 3 marks banco.[29] Eli Heckscher writes that the 'Hamburg Rixdollar Banco was an ideal money, equivalent to one-ninth of the mark of Cologne, in fine silver, which ought to give it a weight in fine silver of 25.984 gr., though in Sweden it was generally considered as corresponding only to 25.276 gr.'[30] In comparison, in the 18th century the minted Swedish riksdaler (specie) had a fine silver content of 25.6973 grams.

From 1790 the issue rate of one reichstaler banco was 9.25 per mark of fine silver and of the mark banco 27.75 per mark of fine silver. Since the mark of fine silver in Hamburg was equal to 233.855 grams (the Cologne mark), from then on one reichstaler banco was the equivalent of 25.2816 grams.[31]

In Sweden, almost all exchange rates are quoted in bank money, but a few notations on the current money of Lübeck are extant. Tables A5.1 to A5.4 present

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29   Attman (1983, p. 8).
30   Heckscher (1934, p. 194).
31   Shaw (1895, p. 387).

An example of exchange rate notations in Stockholm in early 1668 (the year in which the Riksbank was founded). Prices for bills differed with their terms to maturity (8 days, 14 days, 1 month, 2 months, 4 months and 6 months). Bills of longer duration were cheaper, reflecting a shadow interest rate. For example, in January a 2-month bill on Hamburg (reichstaler banco) was sold for 20¾ marks kopparmynt, while an 8-day bill was sold for 21¼ marks kopparmynt. There were also differences between brokers. In March, a 2-month bill on Amsterdam was sold for somewhat less than a 4-month bill by another broker.
Source: Kammarkollegii, oordnade handlingar, nr 444 (Riksarkivet).

monthly exchange rates on Hamburg; Tables A5.21 and A5.23 give the annual rates. Although the exchange rate on current money of Hamburg can be estimated by deducting the premium on Hamburger reichstaler banco, which is presented for the period 1672–1775 in Table A5.21, the few notations in Stockholm on the current money show that the premium on bank money estimated from the Stockholm data deviated somewhat from the noted premium in Hamburg.

Figure 5.2. *Swedish riksdaler per Hamburger Reichstaler banco 1658–1808.*
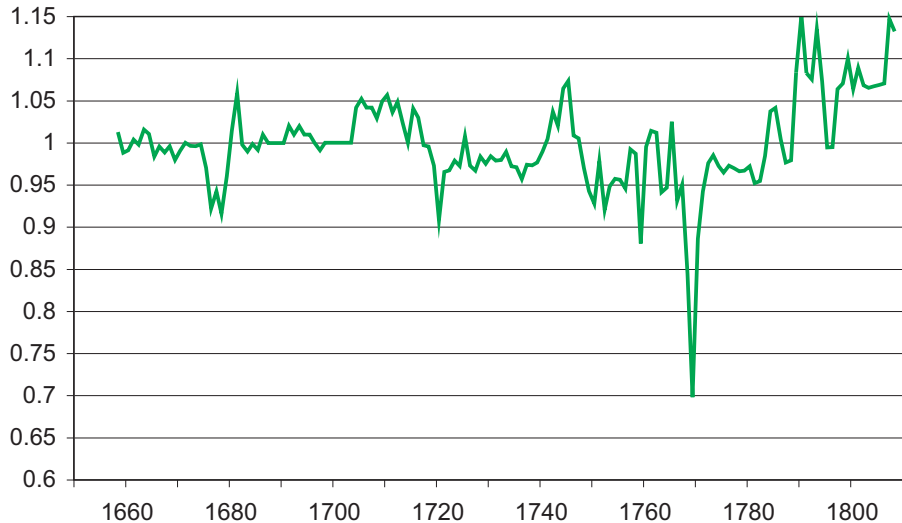
Sources: Tables A5.21 and A5.23, Sveriges Riksbank (1931) and Chapter 4.

Figure 5.2 presents the Hamburger Reichstaler banco in Swedish riksdaler (specie/banco) in 1658–1808. The silver content of both currencies was stable throughout the period. The par level was slightly below 1 (0.984 in the late 18th century, but closer to 1 in the late 17th century). This level applied during most of the period but at times there were significant deviations, most notably in 1769 and after 1789, caused by monetary instability. In 1769, the high valuation of the Swedish riksdaler was an effect of deflationary policies (see Chapter 4), while after 1789 the riksdaler banco was valued less than Hamburger reichstaler banco because of the circulation of riksgälds notes and expectations that banco notes could become inconvertible as well, which in fact happened in 1808–9. The deviation in 1769 most likely went beyond the specie points (see Chapter 6).

5.6.   Quotations on Amsterdam

Up to 1681, the guilder/florin[32] was a unit of account rather than a minted coin. It was equal to 20 stuivers. The rijksdaalder coin that was minted in the late 16th century and the first half of the 17th century had a fine silver content of 25.7 grams; it was set equal to 42 stuivers in 1583, 46 stuivers in 1596, 47 stuivers in 1603, 48

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32   The guilder as a money of account equal to 20 stuivers should not be confused with the silver
     carolus guilder, which was an actual coin minted in the 16th and early 17th centuries.

Dam Square, Amsterdam, *by Gerrit Berckheyde (1638–98), a Dutch specialist in town-scapes. Notations on Amsterdam were very frequent at the Stockholm exchange in the second half of the 17th century.*
Source: http://en.wikipedia.org/wiki/File:AmsterdamDamsquar.jpg

stuivers in 1610–9 and 50 stuivers (i.e. 2.5 guilders) from 1619 onwards. According to the Dutch price historian Posthumus, the fine silver content of one guilder was 11.17 grams in 1597–1603, 10.94 grams in 1604–6, 10.89 grams in 1607–10, 10.71 grams in 1611–9 (since the rijksdaalder was equal to 48 stuivers), 10.28 grams in 1620–59 (since the rijksdaalder was equal to 50 stuivers) and 9.74 grams in 1660–81 (since the silver ducat contained 24.37 grams fine silver and was set equal to the rijksdaalder).[33]

On 25th December 1681 the states of Holland and West Friesland prescribed the minting of the first gulden (guilder) piece, which hitherto had existed only as money of account. The guilder was fixed at 9.613 grams of fine silver, which did not change until 1845. Thus the fine silver content of one rijksdaalder courant became 24.03 grams, i.e. 6.5 per cent below the fine silver content of the rijksdaalder coins minted in the first half of the 17th century. From 1845 the guilder contained 9.45 grams of fine silver.[34]

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33 Posthumus (1946, pp. cviii–cix).
34 Shaw (1895, pp. 350–5), and Posthumus (1936, p. lv).

Figure 5.3. *Amsterdam rijksdaalder courant in Hamburger reichstaler banco 1660–1810 based on Swedish foreign exchange.*
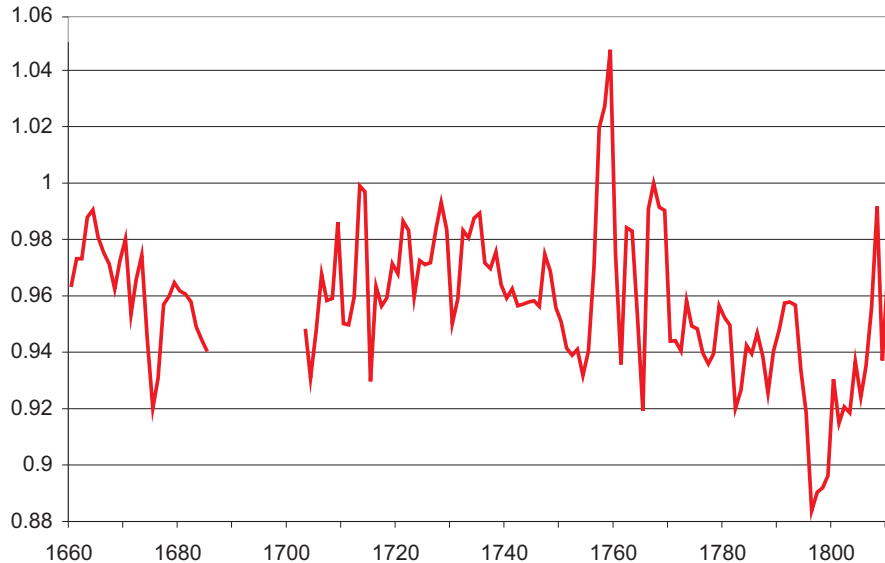
Sources: Tables A5.21 and A5.23, Sveriges Riksbank (1931) and Chapter 4.

Tables A5.5 to A5.8 present monthly exchange rates on Amsterdam; Tables A5.21 and A5.23 give the annual rates. To express the exchange rate on Amsterdam in banco money, the exchange rate on rijksdaalder courant can be augmented with the premium on bank money, for which annual data are presented for 1660–1776.[35]

Figure 5.3 presents the cross rate of Amsterdam rijksdaalder in Hamburg reichstaler banco in 1660–1810 based on the data from the foreign exchange in Sweden. The par level based on the fine silver contents of the two currencies in the late 19th century was 0.96, which was also the average and the median value in Sweden in 1660–1810. The coefficient of variation was only 2.7 percent, an indication of quite efficient markets and that the two currencies moved within the specie points.

5.7.   Quotations on London

One pound sterling was equal to 20 shillings or 240 pence.[36] Since the fine silver content of one penny was 0.479 grams in 1560–1600 and 0.464 grams in 1601–1815, the fine silver content of one pound sterling (if counted in pennies) was 115.1

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35   See footnote 10.
36   McCusker (1978, p. 35).

London: The Thames and the City of London from Richmond House, *1747, by Giovanni Antonio Canal (1697–1768), a Venetian artist. During the 18th century the pound sterling became an important currency on the Stockholm exchange.*
Source: http://commons.wikimedia.org/wiki/File:Canaletto_london.jpg

grams in 1560–1600 and 111.4 grams in 1601–1815.[37] However, in the period 1717–1815 the silver content of the pound was de facto somewhat lower. England had a bimetallic standard in 1717–1815, based on a value ratio of gold to silver of 15.072 to 1. This tended to overvalue gold and cause an outflow of silver and an inflow of gold. Britain introduced a mono-metallic gold standard de jure in 1816. The fine gold content of the sovereign with the nominal value of one pound was then fixed at 7.3224 grams.

Although England played a dominant role in the world economy, in the 18th century the exchange on Hamburg and Amsterdam was much more important for Sweden. This is confirmed by what *The Negociator's Magazine* wrote about Sweden in 1740: 'To London they mostly exchange by the Way of Amsterdam or Hamburgh; but sometimes Exchange may be directly to London …'[38]

Tables A5.9 to A5.11 present monthly exchange rates on London; Tables A5.22 and A5.24 give the annual rates.

Figure 5.4 presents the cross rate of the British pound in Hamburger reichstaler banco based on the exchange rates in Sweden 1700–1830. The par level based on the

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37　'Allen - Unger Database: European Commodity Prices 1260–1914'.
38　Hayes (2001 [1740], p. 338).

Figure 5.4. *The pound sterling in Hamburger reichstaler banco based on exchange rates in Sweden 1704–1830.*
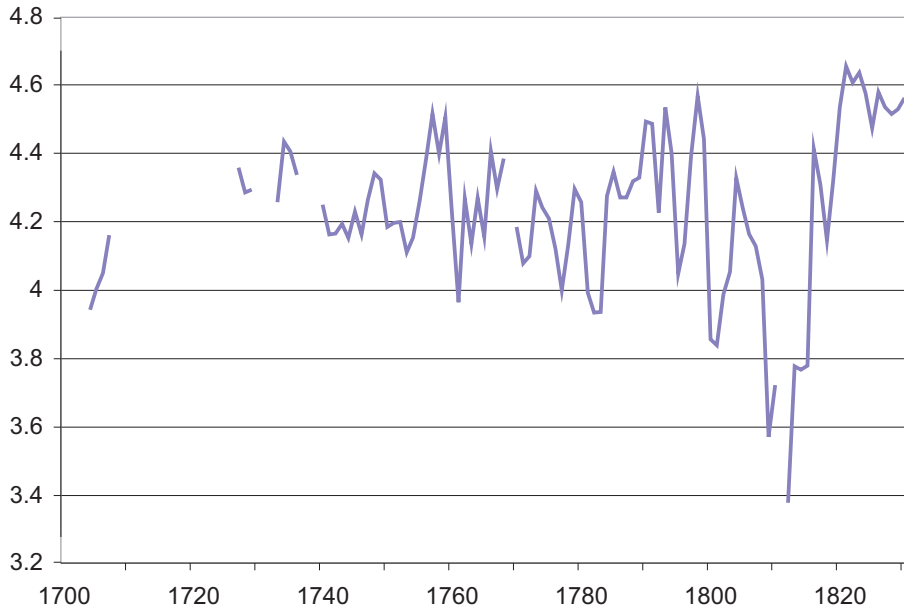
Sources: Tables A5.21 to A5.24, Sveriges Riksbank (1931) and Chapter 4.

silver contents of the two currencies was around 4.4 reichstaler per pound. During the 18th century the market rate was normally below this level because of the over-valuation of gold under the bimetallic standard, making British silver coins undervalued. Very few silver coins were in fact minted after 1717, and Britain was, therefore, de facto on a gold standard in the 18th century.

During the French Revolutionary and Napoleonic wars, sterling reached its lowest level, due to excessive note issues and the suspension of conversion on demand in 1797.[39] In the early 1810s sterling was one fourth below its par level against the reichstaler banco (see also Chapter 6). The situation led to the Bullionist Controversy, where the Bullionists, among them David Ricardo, argued that convertibility must be restored, while the Anti-Bullionists claimed that banks would not issue more notes than commerce demanded. Convertibility into gold was not restored until 1821.

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39   Mayhew (1999, p. 132–52).
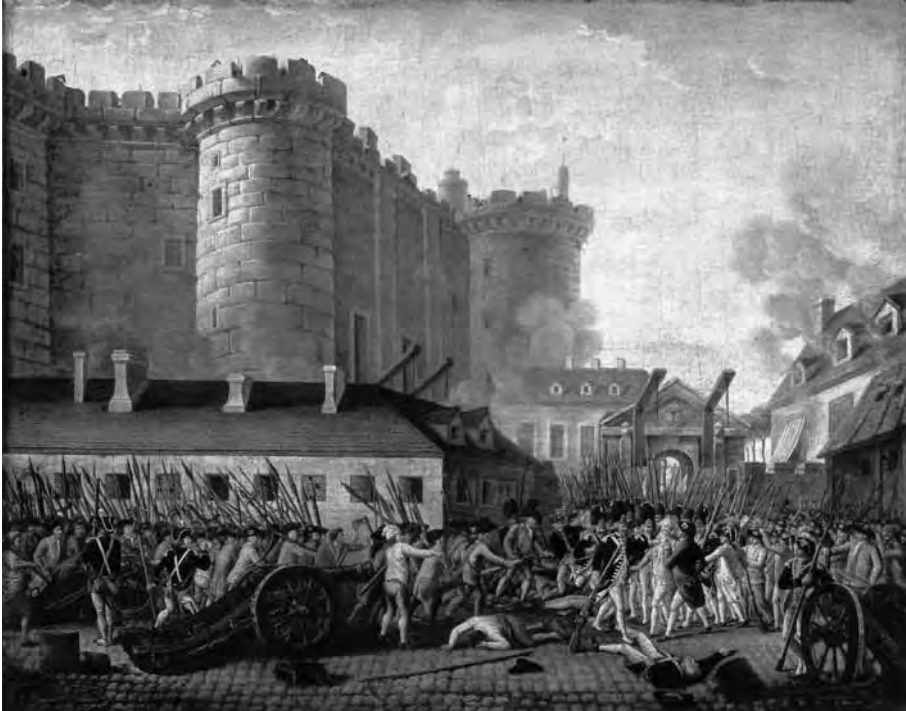
The Storming of the Bastille in Paris, *July 1789. Despite the dramatic events, the value of the livres tournois was quite stable relative to other currencies. The French currency did not start to deteriorate until 1791.*

Source: http://upload.wikimedia.org/wikipedia/commons/5/57/Anonymous_-_Prise_de_la_Bastille.jpg

5.8. Quotations on Paris

In the sources used in this study, the exchange rate on Paris is quoted in livres tournois in 1740–1794, but in écu de change in 1668–1707. The écu de change was the French equivalent of the reichstaler. One écu de change was equal to three livres tournois, and one livres tournois to 20 sou tournois. This accounting relation was stable in the 17th and 18th centuries up to the French revolution, despite the monetary chaos in the 17th and early 18th centuries.[40] Livres tournois ceased to be minted in 1641 but continued to exist as a unit of account.[41] In the 18th century some quotations were also made on Bordeaux and Marseille. Tables A5.12 to A5.15 present monthly exchange rates on Paris; Tables A5.22 and A5.24 give annual rates.

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40 McCusker (1978, pp. 87–8).
41 Lagerqvist and Nathorst-Böös (1968, p. 78).

Figure 5.5. *The livres tournois (franc) in marks kopparmynt (= 1/72 riksdaler specie 1777–88 and 1/72 riksdaler riksgälds 1789–1810) and Hamburger reichstaler banco based on foreign exchange in Sweden 1668–1810 (estimated spot rates).*
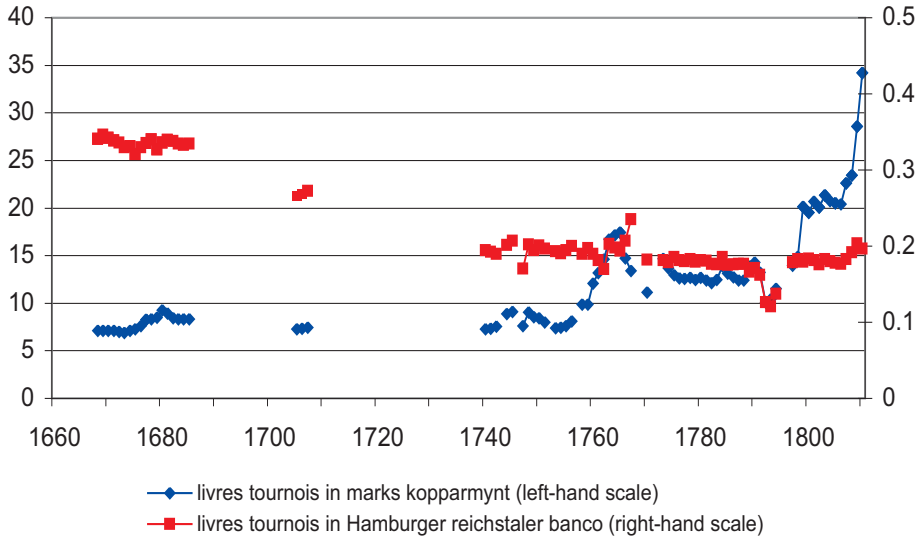
Sources: Tables A5.21 to A5.24, and Sveriges Riksbank (1931).

The French currency was unstable in 1681–1725 but for this period only a few notations exist from Sweden. The fine silver content of one livres tournois was 11.61 grams in 1603–35, 9.06–10.31 grams in 1636–41, 7.71–8.75 grams in 1642–99, 5.85–8.3 grams in 1700–17, 3.06–5.64 grams in 1718–26, and 4.7 grams in 1727–89.[42] As can be seen from Table A5.22, French currency reached its lowest level in 1720, following the collapse of the shares in the Mississippi Company and John Law's failed experimentation with bank notes.

In the aftermath of the French revolution the monetary system initially fell into disarray. As shown in Table A5.14, the exchange rate on Paris (in skilling banco) decreased by a third between 1789/90 and 1792/3. The franc was introduced in 1795, based on a decimal system (equal to 100 centimes), and was set equal to the old livres tournois. Its fine silver content was 4.5 grams,[43] implying a par level of 8.4 skilling banco for one livre tournois.

In 1803 a bimetallic standard was introduced, based on a gold-silver (value) ratio of 15.5 to 1.[44] The fine gold content of one franc was 0.29 grams.

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42 'Allen - Unger Database: European Commodity Prices 1260–1914'
43 Lagerqvist and Nathorst-Böös (1968, p. 78).
44 Redish (1994, p. 70).

Figure 5.5 presents the market value of the livres tournois (franc from 1795) in Swedish and Hamburg currencies in 1668–1808. It shows that while the value relation between French and Swedish currency in the 1750s was about the same as in the 1660s, in this period French currency fell relative to the stable Hamburger reichstaler banco. After the 1750s Swedish currency fell relative to French currency, while, with the exception of a dip after the French Revolution, French currency was stable against the Hamburger reichstaler banco. In the period 1740–88, the median value of one livres tournois was 0.19 Hamburger reichstaler banco, which was also the theoretical exchange rate between the two currencies based on their fine silver contents.

5.9.   Quotations on Copenhagen

Before the union with Sweden in 1814, Norway was part of the Danish kingdom, with a common currency unit. Since the late medieval period (see Chapter 3), the Danish mark was set equal to roughly half the value of the Lübeck mark, although this could not be maintained in some periods. Like the Lübeck mark, the Danish mark was divided into 16 skillings. The Danish rigsdaler or speciedaler was linked to the German reichstaler, later at par with the Hamburg reichstaler banco. In the 18th century it contained 25.28 grams of fine silver, only slightly less than the Swedish riksdaler. Since the Hamburg reichstaler was divided into 3 German marks, this implies that the par level of the Danish rigsdaler was 6 marks. In 1625 the following relation was fixed: 1 rigsdaler or speciedaler = 6 marks = 96 skillings. In the late 17th century the crown was also minted, set equal to 64 skillings or 4 marks.[45]

The Danish rigsdaler as a unit of account, equal to 96 skillings in coins or notes, must be distinguished from the actual rigsdaler in specie coins. Given that low-standard coins were minted, a premium arose on speciedaler in courant money ('kurantmønt'). The fine silver content of the crown was also debased. Therefore there was also a premium on the speciedaler in crown coins, although not as high as the premium on speciedaler in courant money.

In his study of prices in Jämtland, which Sweden conquered from Denmark-Norway in 1645, Göran Hansson finds that prices were quoted in Swedish daler kopparmynt as well as in Norwegian rigsdaler in the period 1666–88, making it possible to estimate the exchange rates between these two currencies.[46] Throughout this period one Norwegian rigsdaler stood at around 4.5 Swedish daler kopparmynt, which was significantly below the market rate of the Swedish riksdaler specie and the Hamburg reichstaler banco. The quoted Norwegian rigsdaler is, therefore, mostly likely not the specie riksdaler. While in 1666–76 one Norwegian rigsdaler was valued at 0.8–0.9 Hamburg reichstaler banco, in 1677–88 it was valued at only around 0.7 Hamburg reichstaler banco. In comparison, the data of Friis and Glamann show

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45   Friis and Glamann (1958, pp. 3–4 and 15).
46   Hansson (2009).

Figure 5.6. *The Danish rigsdaler kurant in marks kopparmynt (= 1/72 riksdaler specie 1777–88 and 1/72 riksdaler riksgälds 1789–1808) and Hamburger reichstaler banco based on foreign exchange in Sweden 1741–1815 (estimated spot rates).*
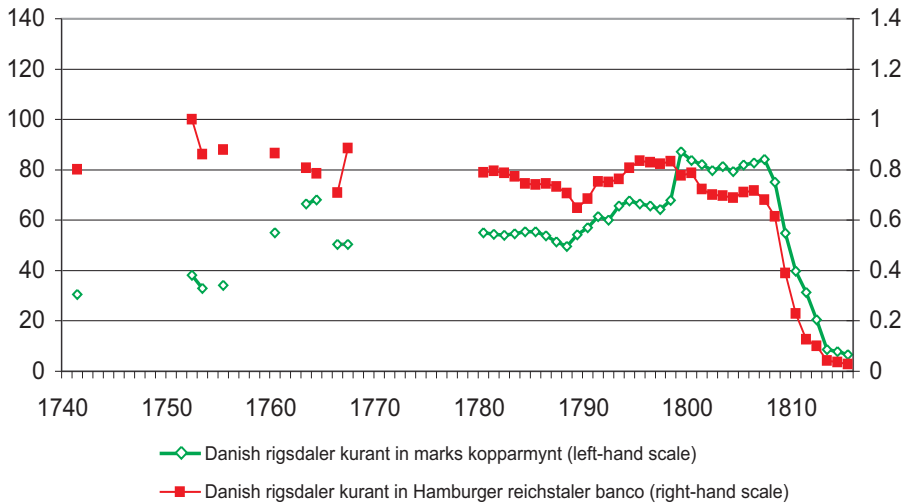
Sources: Tables A5.16 to A5.18, Table A5.21 and A5.23, untitled volume with exchange rates 1804–89 (Riksbankens arkiv), Sveriges Riksbank (1931), and Chapter 6.

that the Danish rigsdaler in courant coins stood at around 0.9 Hamburg reichstaler banco in the 1690s.[47] One possible explanation for the low exchange rate of the Norwegian rigsdaler in Jämtland is that inferior coins circulated in Jämtland during the 1680s. Friis and Glamann also show that the fine silver content of the minted coins varied significantly in the late 17th century. For example, in 1660–70, the most common coins that were minted contained only 65 per cent per unit of the nominal value of the fine silver of the speciedaler.[48]

In 1713–28, paper money circulated in Denmark but was not equivalent to coins in value. In 1737 the Kurantbanken was established as a privately-owned bank; it was nationalised in 1773. Although its notes were supposed to be convertible, convertibility was suspended in 1745–7 and from 1759. There were periods of varying length when the value of the Kurantbanken notes fell below the value of current money in coins. In 1791, the Dansk-Norske Speciesbank was established and issued notes that initially were convertible into speciedaler.[49]

Figure 5.6 presents the exchange rate on the Danish rigsdaler kurant 1741–1815 in Swedish and Hamburg currencies (based on Tables A5.16 to A5.18 up to 1803).

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47   Friis and Glamann (1958, pp. 33–4).
48   Friis and Glamann (1958, p. 6).
49   Friis and Glamann (1958, pp. 5–16).

The quotations on Copenhagen follow the Kurantbanken notes, not the courant coins, as is shown, for example, by the deterioration of the Danish currency in 1788–9.

Figure 5.6 shows that during most of the second half of the 19th century the Danish rigsdaler stood at around 0.8 Hamburger reichstaler banco, while appreciating against the Swedish currency. Hence, the Danish currency was much more stable than the Swedish in the 18th century, despite the periods of inconvertibility. The worst Danish inflation occurred instead in the early 19th century, at the time of the Napoleonic wars, as is further discussed by Håkan Lobell in Chapter 6. After 1807, the Danish currency fell like a stone against the Swedish currency, even though the latter fell substantially against the Hamburger reichstaler banco. In 1813 one Danish rigsbankdaler was exchanged for 6 rigsdaler kurant.

5.10.   Quotations on Gdańsk

Quotations on Gdańsk were quite common in the 18th century. Gdańsk was one of the largest cities on the Baltic seaboard and handled most of Poland's maritime trade via the river Vistula.

In Poland in the late 17th century both good and bad coins circulated, forming parallel currencies. While the ducat was worth around 7.5 Polish florins (Gulden or złoty) in better coins, it was worth up to 18 Polish florins in inferior coins.[50] The city of Gdańsk used the better coins, which was especially important in foreign trade, and that is the currency that was quoted in Stockholm. The florin was divided into 30 grosz[y] in better coins.

The best material exists for the period 1740–76 and is presented in Table A5.19. Figure 5.7 presents the Gdańsk florin in Swedish marks kopparmynt and Hamburger reichstaler banco for the same period. It shows that the value of both Gdańsk and Swedish currencies fell relative to the stable silver currency of Hamburg during the investigated period. Between 1750 and 1765 the fine silver content of the Gdańsk florin decreased, from around six to four grams, due to the debasement of coins.[51] Since the Swedish currency deteriorated even more, the value of the Polish florin in marks kopparmynt increased somewhat between 1740 and 1776. Although the value of the Gdańsk florin doubled in Swedish currency between 1755 and 1762 in connection with the high inflation in Sweden, later the Gdańsk florin fell back to lower levels.

There are also some quotations from the periods 1675–81 and 1777–81, although not on the florin, but on a taler unit. After 1781 quotations on Gdańsk no longer appear in the Swedish sources, reflecting the decline of Gdańsk as an important seaport.

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50   Furtak (1935, p. 45).
51   Furtak (1935, pp. 47 and 77).

Figure 5.7. *Gdańsk florin in Swedish marks kopparmynt and Hamburger reichstaler banco 1740–76 (estimated spot rates).*

Gdańsk florin in marks kopparmynt (left-hand scale)
Gdańsk florin in Hamburger reichstaler banco (right-hand scale)
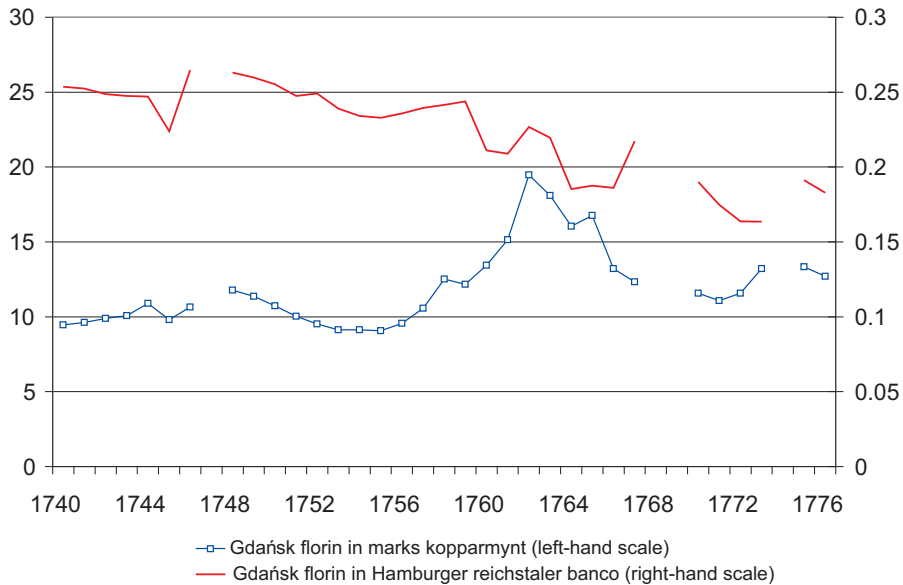
Sources: Table 5.19 and Table 5.21.

5.11. Quotations on Swedish Pomerania

Western Pomerania and a strip of Eastern Pomerania, including the cities of Stralsund och Greifswald and the island of Rügen, belonged to Sweden in the period 1637–1814 (formally from 1648). After the Napoleonic wars, Swedish Pomerania was ceded to Denmark in exchange for Norway in 1814 and was transferred to Prussia in 1815. Swedish Pomerania minted its own coins and had its own currency system, from 1690 adopting the Leipzig Money Convention (although some deviations occurred from this Convention). The taler was the main unit of account, and was of a lower fine silver content than the original reichstaler. Swedish notes were not accepted in Swedish Pomerania.[52]

Since Swedish Pomerania had its own currency system, the Pomeranian taler was often quoted at the foreign exchange in Sweden. Table A5.20 presents monthly exchange rates for the period 1740–1800, and Figure 5.8 the Pomeranian taler in Swedish marks kopparmynt and Hamburger reichstaler banco for the same period.

Most notable in Figure 5.8 is the falling exchange rate on the Swedish-Pomeranian taler in the early 1760s, and the subsequent appreciation. This was caused by

52 Lagerqvist and Nathorst-Böös (1968, pp. 194–200).

Wiesen bei Greifswald, 1820–2, by Caspar David Friedrich (1774–1840), a German Romantic landscape painter. Greifswald, where Friedrich was born, belonged to Sweden from 1631 to 1814 (formally from 1648). However, Swedish Pomerania retained its own currency, which was quoted in Stockholm.
Source: http://upload.wikimedia.org/wikipedia/commons/b/be/Caspar_David_Friedrich_043.jpg

rapid debasement of the Pomeranian taler to finance Sweden's war efforts[53] during the Seven Years' War (1756–63) that pitted Prussia, Britain and some smaller German states against Sweden, Austria, France, Russia and Saxony. The value of the Pomeranian taler decreased from, on average, 0.74 Hamburger reichstaler banco in 1758 to, on average, 0.17 reichstaler banco in 1764/5. The Pomeranian taler even fell in value relative to the weak Swedish currency. However, with the minting of better coins, by April-May 1766 the exchange rate had increased again to 0.69 reichstaler banco. In 1788 it stood at 0.77 reichstaler banco, the same as before the inflationary episode.

5.12. Summary

Foreign currencies played a crucial role in Sweden. Most of the domestic currency units were, in fact, originally imported. In this study, primary data on monthly exchange rates are presented on Hamburg (reichstaler banco), Amsterdam (rijks-

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53 Lagerqvist and Nathorst-Böös (1968, p. 197).

Figure 5.8. *Swedish Pomeranian taler in Swedish marks kopparmynt (= 1/72 riksdaler specie 1777–88 and 1/72 riksdaler riksgälds 1789–1800) and Hamburger reichstaler banco 1740–1800 (estimated spot rates).*
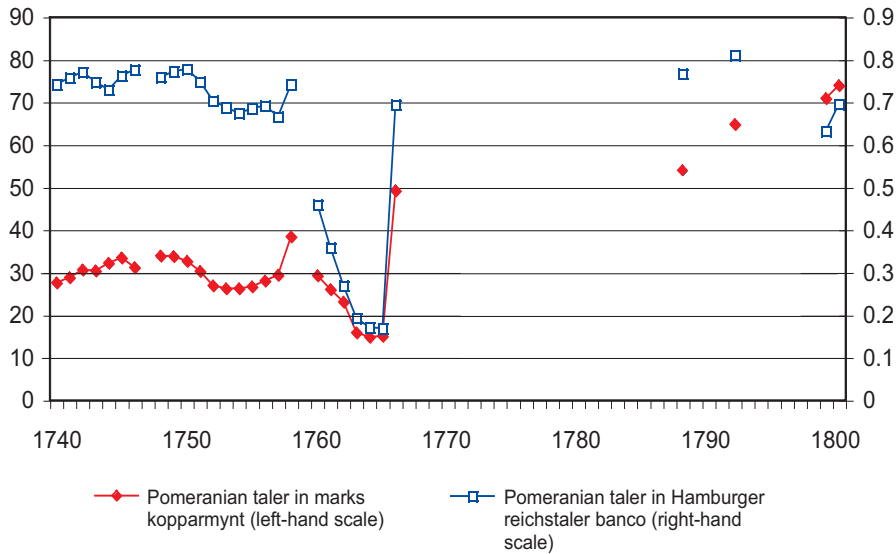
Sources: Tables A5.20, A5.21 and A5.23.

daalder courant), London (pound), Paris (livres tournois/franc), Gdańsk (florin/gulden/złoty = 30 groszy), Copenhagen (rigsdaler kurant = 96 skillings) and Swedish Pomerania (taler) in 1660–1803. All of these foreign currencies were courant money, i.e. linked to actual coins, except for the Hamburg reichstaler banco, which was bank money. Bank money existed also in Amsterdam, but the quotations in Sweden were on its courant money. Since direct data are missing for some years, cross rates are used to fill in some gaps for the annual series.

The primary data are bills of various durations, in the 18th century mostly 67- and 90-day bills. To estimate spot rates, an assumption must be made of a shadow interest rate on these bills, which is problematic since no such rate is known for the 18th century. Only the monthly data 1660–85 are of sufficiently good quality for estimating reliable spot rates for this period. In the period 1662–9 the estimated median shadow interest rate on bills of exchange was as high as 12.5 per cent. This result deviates significantly from the shadow interest rates of 3–5 per cent in the 18th century recently estimated by Flandreau, Galimard, Jobst, and Marco. It is, therefore, likely that interest rates decreased substantially between the 17th and 18th centuries.

The quoted currencies were all based on precious metals, as was the Swedish riksdaler (specie), which implies that the par values between those currencies were determined by their fine metal contents. The actual market rate deviated from these par relations, and on some occasions, at times of monetary instability, the deviation could be quite large.

Compared with its neighbours, Sweden had a weak currency in the 18th century. The quoted currencies on Hamburg, Amsterdam and London were relatively stable in the long term, and the Swedish currency fell substantially relative to these three currencies. Sweden experienced substantial inflation during the 18th century. The Hamburg and Amsterdam rix-dollars contained (more or less) fixed amounts of fine silver, and functioned as important reference points for the monetary system of Sweden. The Hamburg reichstaler banco was even used as a proxy for the value of the riksdaler specie coin. The French livres tournois (franc from 1795), the Danish rigsdaler kurant and the Polish florin were also more stable than the Swedish currency in the 18th century, although the Danish rigsdaler kurant was significantly devalued after 1807. The Swedish-Pomeranian taler fell substantially against the Swedish currency in 1758–65 but was also quite stable in other periods.

Appendix A5: Summary tables

Table A5.1. *Monthly exchange rates on Hamburger reichstaler banco in marks kopparmynt 1660–85 (estimated spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1660	17.63	17.63	17.72	17.5	17.63	17.18	17.12	17.7	17.5	17.67	17.89	17.71
1661	18.33	18.38	18.38	18.39	18.39	18.39	18.39	18.39	18.19	17.89	17.84	18.14
1662	18.34	18.38	18.49	18.49	18.03	17.92	18.05	18	18.14	18.3	18.18	18.25
1663	18.44	18.57	18.39	18.34	18.43	18.34	18.72	18.95	18.95	19.55	19.56	20.14
1664	21.45	21.4	20.04	20.05	19.67	19.24	19.55	19.86	19.91	19.06	20.45	20.93
1665	20.91	21.15	21.28	20.59	20.2	20.42	20.57	21	21	21.13	21.07	21.09
1666	21.18	20.95	21	20.91	20.93	20.98	20.88	21.05	21	20.93	20.7	20.4
1667	20.71	20.77	20.96	21.01	20.87	20.93	20.96	21.01	20.96	20.94	20.96	19.19
1668	21.21	20.9	21	21.13	21.13	21.25	21	20.82	20.77	20.75	20.8	20.82
1669	20.45	20.55	20.65	20.77	20.43	20.43	20.41	20.62	20.83	20.52	20.68	21
1670	20.82	20.84	21.04	21.07	20.87	20.22	20.24	20.5	20.8	21.07	21.09	21.13
1671	21	21	21.05	21.02	20.84	20.82	21.05	21.05	21	21.05	21.13	21
1672	20.91	20.88	21	20.89	21	20.75	20.94	20.97	20.89	20.97	20.97	20.97
1673	20.99	21.12	21.15	21.15	21	20.75	20.6	20.78	20.97	21.1	21.07	21.13
1674	21.38	21.51	21.26	21.26	21.26	21	21	21.07	21.57	22.14	22.26	22.39
1675	22.39	22.14	22.29	22.1	22.04	22.04	22.47	23.48	24.02	23.73	23.14	22.77
1676	22.66	22.51	22.56	22.66	22.73	22.39	22.76	23.14	23.35	23.52	24.02	24.18
1677	23.79	23.92	24.17	24.3	24.3	24.36	24.4	25.09	25.22	25.41	25.53	25.53
1678	24.9	25.41	24.97	24.78	24.78	24.53	24.36	24.31	24.27	24.24	24.27	24.24
1679	24.4	24.36	25.03	25.28	25.16	25.66	25.94	26.62	27.17	27.07	27.1	27.7
1680	27.88	27.9	27.97	28.14	27.29	26.92	26.79	27.14	27.62	27.39	27.52	27.82
1681	27.88	27.88	28.05	27.42	26.57	26.32	26.19	25.49	25.28	25.28	25.16	25.03
1682	24.99	24.74	25.11	25.52	25.02	24.99	25.03	24.74	24.92	24.61	24.44	25.12
1683	25.06	25.24	25.11	25.19	24.65	24.71	24.71	24.37	24.11	25.12	25.11	25.25
1684	25.31	25.52	25.25	25.06	24.86	24.99	24.87	24.87	24.74	24.8	24.68	24.75
1685	24.93	25.06	25.02	24.87	24.87	24.84	24.67	24.61	24.61	24.86	24.94	24.96

Sources: Kammarkollegiet, oordnade handlingar, no. 444 (Riksarkivet). The data have been collected and calculated in cooperation with Martin Sutinen. The monthly data are based on bills of 8 days to 2 months, assuming an interest rate of 12.5 per cent.

Table A5.2. *Monthly exchange rates on Hamburger reichstaler banco in marks kopparmynt 1705–76 (not spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1705					27	27.44	27.19	27.31	27.31	25.75	27.38	27.44
1706	27.44	27.31	27.31		26.94	27	27.06	27	26.94	26.81	26.81	26.5
1707	26.94	26.81										
1722				37	37.13		37	37	36.88	36.88	37	37
1723	36.88	36.75	36.63									
1727						33.75	34.88	34.5	34.94	35.13	35.38	35.75
1728	35.88	35.25	35.5	35.75	35	35	35.75	37.75		35.63	35.88	35.5
1729	36.5	36	35.5		34.75							
1733	35.25	35.25	35.38	35.75	35.63	35	34.94	35.25	35.38	35	35.44	35.13
1734	35.38	35.25	35.56	35.69	35.44	35.31	35.06	35.19	35.38	35.38	35.5	35.31
1735	35.69	35.88	36	36.06	36.06	36.19	35.75	35.81	35.38	35.19	35.25	35.63
1740			37.13	37.19	37.13	37.31	37.25	36.5	37.06	37	37.13	37.19
1741	37.31	37.31	37.38	37.19	37.25	37.06	36.81	37.44	37.94	39	39.75	40.38
1742	41.06	40.44	40.63	41.25	41.13	40.94	40.75	39.5	37.38	37.38	38.19	38.25
1743	38.38	38.13	38.38	39.63	40.75	40.25	39	40.75	41.38	42.38	43.13	44.06
1744	43.13	43	42.75	43.75	44.63	43	43.25	43.25	44.38	44.94	45.25	45.5
1745	45.75	45.5	46.38	43.63	41.25	40	40	40	40	40	40	40
1746	40	40	40	40	40	40	40	40	40			
1747	40	40	40		44.88	44.5	45.13	45.25	44.5	44.63	44.63	46.5
1748	46.38	45	45	45.13	44.38	43.56	43.44	43.63	44	44.13	44.13	44.38
1749					44.5	44.13	43.38	43	42.75	42.75	43.38	43.5
1750	43.63	43.38	43.13	42.5	41.88	41.88	41.69	41	40.25	40.31	40.5	40.5
1751	40.38	40.25	40.5	40.88	40.81	40.63	40.38	40.13	39.63			
1752	39.88	39.38	39.38	38.75	38.38	37.5	36.38	36.88	36.75	37.38	37.88	38.25
1753	38.13	38.13	38.13	37.75	37.63	37.63	37.94	38.13	38.06	38	38.25	38.63
1754	38.63	38.63	38.63	38.63	38.63	38.69	38.88	38.81	38.81	38.81	38.81	38.81
1755	38.81	38.81	38.81	38.81	38.5	38.63	38.5	38.06	37.81	38.13	39	40
1756	41.38	41.88	40.75	39.38	39.5	39.63	39.63	39.63	39.38	39.38	41.13	41.88
1757	42.25	40.88	40.25	40.63	41.88	43.38	44.75	46.5	46.88	46.88	48	49.63
1758	49.63	53.13	55.5	54.13	53.38	52	50.38	49.5	49.25	49.25	49.25	49
1759	48.63	48.25	47.88	47.5	47.38	48.75	49.25	49.25	51	52.38	53.13	54.13
1760	56.75	59.75	61	58.13	59.75	60.13	63	65.88	66.88	68	70.13	73.38
1761	73.75	72.25	73.5	74.13	71.75	71.13	71.75	71.5	69.75	69.13	72	74.25
1762	73.63	74	75.5	77.63	77.75	80.5	88.25	89.25	92.88	102.6	101.8	91.5
1763	84.5	81.88	84	81	80	79	75	76.5	83	90	86.25	85.5

Table A5.2 (cont.). *Monthly exchange rates on Hamburger reichstaler banco in marks kopparmynt 1705–76 (not spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1764	84.5	81.5	81.5	82.25	83.5	85.25	84.75	86.5	92.25	93.5	92	86
1765	82.75	82.75	84.75	85.13	85.13	91.5	90.5	88.5	86.5	83.5	80.5	79.5
1766	77.75	77	70	70	70	70	70	70	70	68.75	68.25	67.25
1767	66	66	65.75	65.25	64.5	62.75	57.75	48	43.5	43.5	43.25	42.75
1768	42	42	42	42	42	42	42	42	42	42	42	42
1769	42		42	42	42	42	42	42	42	42	42	
1770	56	55.5	55	55	55	55	60.5	64.5	63.75	65	64.5	65
1771	65	65	65.25	63.5	61	61	62.25	61.5	62	62.5	63.5	64.25
1772	64.5	66	67	68.75	68.75	68.5	71	73.25	71	70.25	70	73
1773	73.75		82	81	81	81.5	81.5	80.5	79.38	80.13	80.38	80.63
1774	80.5	80.5	80.38	80.13	77.75	75.5	73.5	72.38	72.5	72.75	73.13	73.25
1775	71	70.5	70.13	69.38	68.63	68.25	68.38	68.63	69	69	69	69.13
1776	69.13	68.88	69.13	69	68.88	68.88	69	69	69	69	69.13	69.63

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates, and mostly based on two-month bills.

Table A5.3. *Monthly exchange rates on Hamburger reichstaler banco in skilling banco 1777–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1777	46.33	46.42	46.25	46.58	46.58	46.58	46.5	45.5	45.25	45.33	46.5	46.67
1778	46.67	47	46.83	46.29	46.29	45	44.75	44.83	45.08	45.58	46.75	46.58
1779	46.63	46.42	45.25	45.58	45.58	45.71	45.29	45.63	45.58	46.29	47.13	47.13
1780	47	47	46.67	46	45.58	45	45.58	45.71	45.42	46	47.08	47.08
1781	46.75	45.75	45.58	45.17	45.08	45.88	45.42	45.13	44.92	44.5	45.58	44.58
1782	45.17	45.5	45	45	45.13	45.63	45.13	45.5	45.42	45.42	46	46.13
1783	45.58	46	45.75	45.75	45.79	46.88	47.17	47.79	47.79	47.83	48	48
1784	48	48	48	48	48	48	48	48	50	49.25	52	53
1785	51.25	49.13	49.42	49.33	48.88	48.71	49.5	49.5	49.88	49.58	51.25	49.75
1786	48.75	47.75	47.5	47.38	47	47	46.63	47.13	47.63	47.42	48	48
1787	47.42	46.63	46.29	46.38	46.29	46.21	46.25	46.25	45.88	46.5	46.75	46.88
1788	46.5	46.75	46.5	46.13	46	46.75	46.88		47.5	46.88	46.5	46.75
1789		47	48	47.75	48.63	48.5	49.75	51	49.13	51.25	55.75	55.25
1790	53.5	55	56.5	54.5	55	56	56.75	54	54.5	55.5	54.5	54.5
1791	53.75	53.5	53.38	53.25	52.5	51.5	50	50.58	50.42	49.25	49.5	49.5
1792	49	49	50	50	50.75	51.75	50.88	51	52.25	52.25	52.25	52.25
1793	52.25	53	51.88	53.75	54.5	54.5	53.75	52.88	54.5	55.5	54.75	57.5
1794	57.25	52	51.25	51.38	50.75	50.88	51	49.5	49.25	49	49	48
1795	48	48	48	48	47	47	47	47	47	47	47	47

Table A5.3 (cont). *Monthly exchange rates on Hamburger reichstaler banco in skilling banco, 1777–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1796	47	47	47	47	47	47.5	47	47	47	47.5	48	48
1797	49.25	49.13	49.63	50.5	50.13	50.13	50	51.5	50.75	50.25	51	51.5
1798	53.5									50	50.5	50.5
1799	50.5	52	53	52.75	52	53	53	52.38	51	52	53.5	
1800				54	52	51	51	51	50	49.5	49.5	49.75
1801	50	52.75	52.75	52.5	52.5	52.75	52	51	51.25	51.5	51.13	51.5
1802	53	53	52	51.5	50.5	51.5	50.5	50.63	49.5	49	49.25	50
1803	50.5	50.33	50.67	51.5	51	52.21	52.25	52	48.5	49.25	48.88	50.5

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). Monthly exchange rates are estimated from the mid-month figures, and mostly based on two-month bills.

Table A5.4. *Monthly exchange rates on Hamburger reichstaler banco in skilling riksgälds 1797–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1797					51.25	52.25	51.5	53	53	54	53.75	55.5
1798	56.88	56	54	53.75	53.25	51	51	53	52.5	54.25	56	69.5
1799	67.75	71	72	74	73.75	76	75.5	76	74.5	77.5	82	
1800				75.25	72.25	68	69.25	69.75	70	69.75	69.75	70.75
1801	69.75	79.5	73.75	74.25	73.75	74.5	73.25	75	76.75	78	77.88	77.88
1802	79.5	76.75	76.75	75.25	74.5	75.25	75.75	75.25	73.75	73.13	76.25	75.75
1803	75.75	76.25	76	77.13	77.88	79.75	78.75	78.25				

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). Monthly exchange rates are estimated from the mid-month figures, and mostly based on two-month bills.

Table A5.5. *Monthly exchange rates on Amsterdam rijksdaalder courant in marks kopparmynt 1660–85 (estimated spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1660	17.2	17.33	17.02	17.12	16.56	16.31	16.43	16.93	16.98	16.98	17.02	17.25
1661	17.42	17.63	17.84	17.92	17.92	18.14	18.09	18.09	17.5	17.69	17.37	17.62
1662	17.7	17.86	17.99	18	17.65	17.31	17.33	17.5	17.55	17.81	17.94	18.07
1663	18.27	18.3	18.28	18.14	18.09	18.31	18.75	18.82	18.83	19.05	19.13	19.62
1664	21.38	21.45	20.75	19.8	19.39	19.32	19.1	19.39	19.2	19.38	20.1	20.1
1665	20.42	20.34	20.26	20.45	20.22	20.17	20.32	20.40	20.66	20.68	20.68	21
1666	20.3	20.28	20.28	20.37	20.57	20.68	20.91	20.71	20.25	20.28	19.91	20.2
1667	20.2	20.17	20.17	20.17	20.2	20.21	20.17	20.15	20.14	20.12	20.2	20.17
1668	20.21	20.17	20.21	20.23	20.2	20.4	20.21	20.07	20.13	20.17	20.07	20.05

Table A5.5 (cont.). *Monthly exchange rates on Amsterdam rijksdaalder courant in marks kopparmynt 1660–85 (estimated spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1669	20.14	20	20.32	20.4	20.12	20.19	19.89	19.68	19.82	19.42	20.17	20.42
1670	20.5	20.65	20.96	20.94	20.2	20.09	19.7	19.84	20.19	20.56	20.69	20.44
1671	20.06	20.05	20.2	19.94	19.69	19.75	20.12	20.12	20.12	20.20	20.12	19.94
1672	19.87	19.93	20.18	20.34	20.25	20.20	20.11	20.05	20	20.28	20.75	20.63
1673	20.59	21.09	20.18	20.74	20.7	20.59	20.27	20.27	20.08	20.05	20.57	20.27
1674	20.44	20.56	20.52	20.2	20.2	20.03	20	20.12	20.34	20.58	20.38	20.38
1675	20.63	20.95	20.85	20.5	20.55	20.5	20.5	21.44	21.63	21.46	21.13	20.69
1676	20.55	20.7	21.15	20.65	20.45	20.5	21.7	21.56	22.04	22.33	22.83	23.05
1677	22.76	22.89	23.23	23.33	23.29	23.29	23.65	23.91	24.31	24.46	24.18	23.96
1678	24.42	24.36	23.86	23.79	23.73	23.5	23.35	23.35	23.32	23.16	23.26	23.12
1679	23.29	23.79	24.05	24.36	24.34	25.16	25.22	25.66	25.87	26.16	26	26.56
1680	26.79	26.94	27.07	27.19	26.12	25.81	25.53	26.51	26.37	26.49	26.12	26.82
1681	26.98	26.85	27	26.12	25.44	25.37	25.11	24.61	24.24	24.15	23.98	24.23
1682	24.31	24.01	24.31	24.61	24.11	23.98	23.89	23.73	23.48	23.1	23.1	24.05
1683	23.67	24.24	24.05	24.11	24.05	23.08	23.1	24.24	22.91	23.02	23.31	23.69
1684	23.83	24.02	23.79	23.67	23.52	23.44	23.44	23.61	23.5	23.35	23.35	23.51
1685	23.61	23.54	23.73	23.35	23.35	23.31	23.06	23.1	23.23	23.1	23.23	23.85

Sources: Kammarkollegiet, oordnade handlingar, no. 444 (Riksarkivet). The data have been collected and calculated in cooperation with Göran Hansson. The monthly data are based on bills of 8 days to 2 months, assuming an interest rate of 12.5 per cent.

Table A5.6. *Monthly exchange rates on Amsterdam rijksdaalder courant in marks kopparmynt 1705–76 (not spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1705					25.75	26.44	26	26.13	26.06	26	26.19	26.31
1706	26.13	26.19	26.06		25.94	25.88	25.94	25.94	25.94	25.81	25.81	25.5
1707	25.94	25.81										
1724			33.75	34.5	34	33.75	33.63	33.75	33.75	33.63	33.75	33.5
1725	33.88	34										
1726												
1727							33.63			35	35	35
1728	35.5	35	35	35.5	35.25	34.5	35	35	34.88	34.75	35	34.38
1729		34.63	34.5	35.13	34.75				32.88	32.88		
1733	34.25	34.38	34.56	34.88	34.88	34.25	34.44	34.94	34.81	34.38	34.75	34.38
1734	34.88	34.81	35	35.25	35.06	35	34.56	34.94	35.13	35.06	35.13	
1735										34.19	34.5	34.69
1736	34.88	35.38	35.69	35.88	35.81	35.75	35.38	35.25	34.44	34.5	34.25	34.69

Table A5.6 (cont.). *Monthly exchange rates on Amsterdam rijksdaalder courant in marks kopparmynt 1705–76 (not spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1740			35.44	35.56	35.63	35.69	35.75	35.13	35.5	35.56	35.81	35.75
1741	35.88	36	35.88	35.75	35.88	35.75	35.5	36.25	36.69	37.5	37.75	39
1742	39.38	39.19	39.19	39.63	39.38	39.13	39.19	37.75	35.88	35.88	36.25	36.31
1743	36.56	36.88	36.88	37.88	38.88	40	38.25	38.5	39.5	40.38	41.13	42.25
1744	41.31	41.13	40.81	41.75	42.63	41.13	41.5	41.5	42.69	43.13	43.5	43.75
1745	43.81	43.75	44.38	42	39.5	38.25	38.25	38.25	38.25	38.25	38.25	38.25
1746	38.25	38.25	38.25	38.25	38.25	38.25	38.25	38.25	38.25			
1747	38.25	38.25	38.25		43.88	43.63	44.13	44.38	43.75	43.75	43.88	45.63
1748	45.13	44.13	44.38	44	43	42.38	42	41.88	41.88	41.88	42	42
1749					42.5	42	41.5	41.25	41	40.88	41.13	41
1750	41	41	40.88	40.5	39.88	39.94	39.69	38.88	38.38	38.25	38.25	38.25
1751	38.13	38.13	38.25	38.25	38.25	38.13	37.88	37.88	37.38			
1752	37.63	37.25	36.88	36.63	36.13	35.25	34.25	34.63	34.75	35.25	35.75	36
1753	35.88	35.94	35.88	35.69	35.63	35.38	35.69	35.81	35.63	35.75	35.88	36
1754	36.13	36.13	36.13	36.13	36.06	36.19	36.13	36	36	36.06	36.13	36.06
1755	36	36.06	36.06	36.06	36.06	36.13	36.13	36.13	36.06	36.13	36.88	38.25
1756	39.38	39.88	39.25	38.13	38.25	38.5	38.63	38.63	38.5	38.63	40.5	41.38
1757	42	41.13	40.5	40.69	42.25	44.63	46.13	47.63	47.88	47.88	48.5	49.75
1758	50.44	54.13	56.38	55.13	55	53	51.88	51.13	51	51	50.88	50.63
1759	50.38	50.25	50.5	50.63	50.88	52.25	52.63	52	52.5	53.63	54.25	55.25
1760	57.38	60.75	62.5	59.5	59.75	58.5	60	62.38	62.5	63	64.63	67.75
1761	68.13	67.25	68.75	69	67	66.88	67.88	67.13	66	65.13	67.75	69.25
1762	68.88	70	71.5	74	75	79	86.75	85	93.63	102.5	101	89.5
1763	83	80.75	82.75	80	78.75	78	74	75.75	82.25	84.5	83.5	83
1764	80.63	77	77.75	78.25	79.5	81.25	81	82.75	88.25	90	88.5	82
1765	79.25	79.25	80.5	81	81	87.5	86	85	83.5	80.5	77.5	76.5
1766	75	74	69	69	69	69	69.5	70	70	69	69	67.25
1767	66	66	66	66	66	64	58.5	49	44.5	44.25	43.75	42.25
1768	41.38	41.63	41.63	41.75	41.75	41.75	41.75	41.13	41.25	41.75	40.5	41.75
1769	41.75	41.75	40.63	41.75	40.38	41.75	41.75		41.75	41.75	41.75	
1770	54	53.5	53	53	53	53	58	61.75	60.5	61.5	60.75	61
1771	61	61	61	59	58.5	58	59.5	58.75	59	59.5	60	60
1772	60.5	62.25	63	65	64.75	64.75	67	69	67	66.25	68.25	69
1773	69.25		78	77.5	78.25	78.5	78.25	77.5	76.38	76.38	76.25	76
1774	75.88	76	76	76	73.75	71.5	70.38	69	69	69.13	69.13	69.13
1775	67	66.75	66.38	66	65.5	65.25	65.25	65.25	65.25	65.38	65.25	65.25
1776	65.13	64.88	65.25	65.25	65.25	65.13	65.13	64.88	64.75	64.75	64.38	64.75

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates, and mostly based on two-month bills.

Table A5.7. *Monthly exchange rates on Amsterdam rijksdaalder courant in skilling banco 1777–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1777	43.25	43.33	43.33	43.75	44	43.83	43.17	42.25	42.25	42.33	43.17	43.5
1778	43.33	44	44	43.33	43.25	42.17	42.08	42.75	43	43	43.88	44
1779	43.5	44.13	43.75	43.63	44.08	44	43.58	43.5	43.75	44.13	44.67	43.79
1780	45	45.08	45.08	44.13	44	43	43.42	43.42	43.42	43.75	44.5	44.17
1781	43.88	44	43.75	43.13	43.17	43.88	43.5	43.17	42.63	42.08	42.33	41.38
1782	41.88	42.25	42	42	42.25	42.38	42.21	42.08	41.5	40.88	41.5	40.75
1783	41.17	42.58	42.5	42	41.75	42.75	43.33	44.71	44.79	45.25	45.5	45.33
1784	45.33	45.33	45.33	45.5	45.5	45.5	46	46.5	46.5	46.33	48	48.5
1785	47.25	46	46	46	46	45.75	46.58	46.63	46.88	46.67	48.38	47
1786	46.63	45.5	45	45.5	45.25	45	44.63	44.5	44.75	44.5	45	45
1787	44.42	44	43.58	43.58	43.25	43.33	43.21	43.13	43	43.75	44	44
1788	43.42	43.75	43.75	43.38	43	43.5	42.88		43.67	42.75	42.5	42.42
1789		43.38	44.88	44.5	45.63	45.5	46.81	47	46.5	48.75	52.5	51.38
1790	50	52.13	53.5	52.25	52	53	53.75	51	51.5	52.5	51.5	51
1791	50.5	50.5	50	50.25	50	49.5	49.25	48.58	48.42	47	47.13	47.5
1792	47	47.25	48	48	48.5	49.5	48.75	49	50	49.75	49.75	49.75
1793	50	51	50.5	52.25	53	51.75	52.5	51.25	53.13	52.08	51.13	53.5
1794	53.25	48.25	47.75	48	47.75	47.38	47	45	45.5	45	45	46
1795				47	46	45.75	42	42	43	42.5	42.5	41.75
1796	41	43	42	42.5	42	42.33	41.88	41.25	40.33	41.25	41.75	42
1797	43.63	43	45	45.5	45	45	45.5	46.25	47	46.75		47.5
1798	51										45	44
1799		46.5		46	46	46	46.63	47.5	47.5	47	48	
1800				50.5	48	47.75	47	47	46	46	46	
1801				50			47.5	47	46.75	47	47	
1802		47	47.63	47.38	47	47.13	47	46.5	45.75	45.88	46.5	
1803			48		48.5	49	48.5	47.75	45.5	46	45.25	46.13

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). Monthly exchange rates are estimated from the mid-month figures, and mostly based on two-month bills. For monthly exchange rates after 1803, see Chapter 6.

Table A5.8. *Monthly exchange rates on Amsterdam rijksdaalder courant in skilling riksgälds 1797–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1797					46.5	48	47	48	49	50.5	50	51.38
1798	53.38	52	50	51.25	50.75	48	48	49	50.5	49.75	51	61.5
1799	60.5	63	63.75	65	64.75	67	69	69	68	71	71	
1800				72	68.5	64	66	65.5	66	65.5	65.5	65.75
1801	64.25	74	67	69	69.5	70	68.25	69.5	70.5	72.25	72.38	71.75
1802	72.25	70.5	70.5	71.5	70.5	71.25	70.75	70.25	69.25	69.25	71.5	71.25
1803	70.25	72	71.25	73.25	73.25	75.25	74.88	72.38				

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). Monthly exchange rates are estimated from the mid-month figures, and mostly based on two-month bills.

Table A5.9. *Monthly exchange rates on pound sterling in daler kopparmynt 1705–76 (not spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1705					27	27	27.13	27.31	27.31	27.31	27.38	27.56
1706	27.56	27.63	27.44		27.5	27.5	27.38	27.31	27.19	27.25	27.81	28
1707	28.13	27.88										
1727					37.5	36.5	37.5	37.25	37	37.38	37.88	38
1728	38.5	38.38	38.38	38.5	37.38	37	37.38	37	37.13	37.13	37.13	36.63
1729	37.25	37	37.13	37.5	36.88				33.38	33.38		
1733	37.25	37.25	37.5	37.75	37.75	37.25	37.25	37.38	37.38	37.31	37.88	37.88
1734	38.38	38.75	39	39.38	39.25	39.25	38.81	38.88	39.19	39.25	39.38	
1735										38.5	38.94	38.75
1736	39.5	39.25	39.63	39.56	39.31	39.13	38.63	38.38	37.63	37.5	37.63	37.69
1740			39.63	39.63	39.44	39.44	39.31	38.56	38.63	38.88	39.13	39
1741	39.25	39.13	39.19	39.13	39.13	38.75	38.31	39	39.13	39.94	40.63	42.5
1742	42.13	42	41.88	42.63	42.38	42.13	42.25	41.44	39.38	39.13	39.63	39.63
1743	40.38	40.63	41.13	41.25	42.13	41.75	41.19	41.75	42.63	43.5	44.5	46.13
1744	45	44.88	44.31	45.13	46.13	44.38	44.75	45.13	45.63	46.13	46.5	46.88
1745	47.13	47.38	48.63	45.88	44.25		41.5	41.5		41.5		
1746			41.5	41.5	41.5	41.5	41.5	41.5	41.5			
1747	41.5	41.5	41.5		48.63	48.25	48.63	48.75	48.5	48.5	48.63	50.5
1748	50	48.25	49	48.88	48.25	47.75	47.13	47.5	47.38	47.5	47.75	47.75
1749					48.5	48.13	47.25	46.63	46.38	45.63	45.63	45.63

Table A5.9 (cont.). *Monthly exchange rates on pound sterling in daler kopparmynt 1705–76 (not spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1750	45.5	45.25	44.88	44.38	43.5	43.13	43.13	42.38	41.63	41.5	42.38	42.5
1751	42.38	42.25	42.13	42.5	42.38	42.38	42.13	41.88	41.5			
1752	42.13	41.63	40.88	40.38	39.88	39.25	37.75	38	38.25	38.25	39.13	39.63
1753	39.5	39.13	38.88	38.81	38.5	38.56	38.69	38.88	38.88	39.13	39.38	40
1754	39.88	39.88	39.94	39.88	39.88	40.13	40.06	40	40.13	40.25	40.44	40.44
1755	40.44	40.44	40.63	40.88	40.88	41	41.06	41.06	41	41.06	41.81	42.88
1756	44.25	45	44.13	43.5	42.75	43.63	44.25	43.75	43.75	44	45.5	47.25
1757	47.5	46.75	46	46.25	47.88	48.38	49.38	51.38	51.5	51.5	52.5	53.75
1758	54.25	57	60.5	58.75	58.38	56.5	55.5	54.88	54.88	54.63	54.63	54.75
1759	54.25	54.25	54.5	54.75	54.75	55.88		56.63	58.25	58.38	59.5	62.13
1760	62.75	64.25	67.63	65.5	65	63.75	64.75	67	67.25	67.25	69	72.5
1761	72.5	71.88	72.5	73.13	72	69.75	70.5	70.5	68.75	68.5	71.5	75.5
1762	74.5	76	78.25	81	81.63	84.38	92.25	95.75	100	110.5	108	96.5
1763	89.88	86.75	87.75	85	83.25	82.25	78	79.5	79.5	93	90	89.25
1764	86.75	85.5	86.75	86.75	89	90.5	91.5	93	98.75	100	99.5	92.5
1765	90.5	90.25	93		93.5	98.63	96	94.75	93	89	89.5	84
1766	83	83	76		76	76	76.5	76.5	76.5	74	75.13	73
1767	72	71.88	71.88	72	71.75	69.13	64	52.25	48.75	47.5	46.75	45.25
1768	46	46	45.38	46.25				44.5				
1769												
1770	56.13	57	56.38	56.5			66.5	65.25	64.5	65.5	64.75	65.75
1771	65.5	66	66	64.25	63.25	62	63.5	62.75	62.75	63.75	63.5	64
1772		67	67.25	71	69.5	69.5	72	74.5	72.75	72.5	74.5	76.5
1773	67.38				86.63	87.25	87.5	86.5	85.5	86.13	86	86
1774	86.5		86.5	86.5	84	81.25	79	77.25	77.38	77.38	77.25	77.38
1775	75.5	75	74.75	73.38	72.5	72	72	72	72.25	72.38	72.38	72
1776	72.06	71.75	72.13	71.88	71.63	71.25	70.25	70.38	70.25	70.13	70.06	70.19

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates, and mostly based on three-month bills.

Table A5.10. *Monthly exchange rates on pound sterling in riksdaler banco 1777–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1777	3.91	3.91	3.917	3.931	3.925	3.901	3.854	3.771	3.708	3.742	3.818	3.859
1778	3.859	3.888	3.927	3.953	3.953	3.938	3.948	3.979	3.979	3.99	4.063	4.099
1779	4.208	4.224	4.146	4.188	4.182	4.135	4.073	4.031	3.927	4.021	4.104	4.146
1780	4.156	4.198	4.194	4.099	4.078	4.042	4.026	4.021	4.021	4.047	4.073	4.052
1781	4.01	3.958	3.917	3.875	3.854	3.823	3.729	3.698	3.625	3.609	3.63	3.589
1782	3.677	3.708	3.698	3.724	3.734	3.75	3.76	3.755	3.708	3.688	3.688	3.688

Table A5.10 (cont.). *Monthly exchange rates on pound sterling in riksdaler banco 1777–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1783	3.724	3.833	3.792	3.776	3.714	3.724	3.75	3.849	3.854	4	4.073	4.125
1784	4.229	4.25	4.281	4.297	4.281	4.344	4.333	4.37	4.406	4.385	4.521	4.688
1785	4.563	4.49	4.484	4.438	4.344	4.375	4.427	4.516	4.521	4.484	4.536	4.5
1786	4.38	4.323	4.333	4.281	4.181	4.104	4.125	4.161	4.167	4.182	4.271	4.26
1787	4.146	4.104	4.104	4.104	4.104	4.073	4.083	4.099	4.109	4.177	4.193	4.229
1788	4.208	4.214	4.245	4.208	4.156	4.177	4.161		4.208	4.151	4.141	4.151
1789		4.255	4.313	4.359	4.391	4.469	4.531	4.604	4.526	4.656	4.917	4.938
1790	5.042	5.083	5.208	5.167	5.25	5.219	5.208	5.167	5.042	5.01	4.917	4.896
1791	4.958	4.917	4.875	4.896	4.854	4.781	4.703	4.703	4.698	4.604	4.484	4.719
1792	4.375	4.458	4.479	4.448	4.438	4.469	4.448	4.448	4.51	4.552	4.583	4.625
1793	4.703	4.786	4.875	5.021	5.125	5.125	5.125	5.083	5.167	5.063	5.219	5.073
1794	5.036	4.818	4.823	4.823	4.75	4.625	4.625	4.5	4.458	4.375	4.313	4.188
1795	4.167	4.125	4.135	4.188	4.021	3.917	3.917	3.875	3.875	3.885	3.938	3.938
1796	3.938	4.01	3.979	4.167	4.104	4.094	4.01	4	4	4.104	4.188	4.25
1797	4.375	4.396	4.417	4.542	4.583	4.604	4.667	4.802	4.948	4.813	4.865	5
1798											4.833	4.833
1799	4.729	4.979			4.917	4.854	4.719			3.854	3.792	
1800					4.083	4.125	4.104	4	4.021	4.01		3.938
1801	3.896	4.167				4.271	4.083	4.094	4.083	4.229	4.208	4.156
1802			4.323	4.24	4.208	4.26	4.198	4.219		4.156	4.156	4.24
1803		4.5	4.5	4.438	4.438	4.417	4.417	4.344	4.125	4.167	4.208	4.375

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates, and mostly based on three-month bills.

Table A5.11. *Monthly exchange rates on pound sterling in riksdaler riksgälds 1797–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1797					4.635	4.771	4.724	4.958	5.083	5.083	5.177	5.271
1798	5.271	5.375	5.167	5.203	5.172	4.979	4.958	5.125	5.208	5.208	5.375	6.708
1799	6.49	6.719	6.76	6.938	6.792	6.813	6.75	6.75	6.25	5.917	6.188	
1800				5.917	5.833	5.708	5.813	5.729	5.688	5.688	5.688	5.479
1801	5.438	6.146		6.083	5.917	5.958	5.875	6.042	6.146	6.313	6.375	6.354
1802	6.521	6.354	6.323	6.313	6.167	6.271	6.302	6.313	6.25	6.292	6.417	6.448
1803	6.583	6.75	6.708	6.75	6.688	6.792	6.677	6.625				

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates, and mostly based on three-month bills.

Table A5.12. *Monthly exchange rates on écu de change (= 3 livres tournois) in marks kopparmynt 1668–85 (estimated spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1668									21.41			
1669	21.41	21.41	21.41		21.41			21.41			21.41	
1670	21.21	21.31	21.41	21.41	21.41	21.18	21.29	21.29		21.4		
1671	21.63				21.21	21.41	21.21	21.31	21.31	21.21	21.31	
1672	21.21		21.21	21.21	21.21	21.31	21.18	20.95	20.95	20.95		20.83
1673	20.7	20.7	21.21		21.21	21.15	21.06	21.21	21.06	21.06		21.21
1674	21.21	21.21	21.21	21.21	21.21	21.21	21.56	21.56	21.56	21.4	21.6	21.4
1675	21.56	21.71		21.56	21.56	21.56	22.07		22.07	22.07	22.22	22.22
1676	22.58			22.72	22.72	21.81	20.95	22.2	22.58	23.73	23.73	24.99
1677	24.24			24.24	24.24		24.24	24.74	25.25	25.25	25.49	25.37
1678	25.25	25.25	25.25	25.25	25.25		25.5	25.37	24.73	24.61	24.61	24.61
1679	24.61	24.61	24.74	24.61	24.74	25.11	25.62	25.97	26.13	26.13	26.13	26.89
1680	27.14	27.27	28.02	28.28	28.28		27.14	27.27	27.77	27.53	28.04	28.55
1681	28.28	28.28		27.27	27.07	27.27	27.1	27.14	26.13	25.93	25.25	25.47
1682	25.5	25.25	25.75	26.13	26.13		25.24	24.84	24.73	24.65	24.73	25.25
1683	25.25	25.11	25.4	25.41	24.74	24.74	24.92	24.06	24.73	25.06	25.25	25.12
1684	25.5	25.06	25.16	24.99	24.96		24.74	24.87	24.93	24.8	24.62	24.84
1685	25.15	25.25	24.98	24.73	25.09	24.9	24.73	24.78	24.73	24.74	24.98	25.11

Source: Kammarkollegiet, oordnade handlingar, no. 444 (Riksarkivet). The monthly data are based on bills of 8 days to 2 months, assuming an interest rate of 12.5 per cent.

Table A5.13. *Monthly exchange rates on livres tournois in marks kopparmynt 1705–76 (not spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1705					7.25	7.25	7.139	7.25	7.25	7.25	7.25	7.25
1706	7.25	7.25	7.25					7.167	7.167	7.167	7.167	7.167
1707	7.25	7.25										
1740				7.375			7.5	7.438	7.125	7.125	7.125	7.125
1741	7.125	7.125	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.5	7.75
1742					7.625	7.563	7.438			7.5	7.5	7.375
1743						7.75						
1744							8.75	8.75				
1745		9.25	9.25		8.5							
1746												
1747	7.5	7.5	7.5								8	
1748			9.125	9.125	9.125	9.125	8.75	8.75	8.75	8.75	9	9

Table A5.13 (cont.). *Monthly exchange rates on livres tournois in marks kopparmynt 1705–76 (not spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1749					8.75	8.75	8.5	8.375	8.375	8.375	8.375	8.375
1750	8.375	8.5	8.5	8.5	8.5	8.5	8.5	8.375	8.25	8	8	8
1751	8	8	8	8	8	8	8	8	7.875			
1752		7.5	7.5	7.25								
1753	7			7.5			7.375			7.5	7.5	
1754		7.375	7.375		7.438			7.25				
1755	7.5								7.5			7.5
1756	8.5	8.188	7.938	8	8	8	8	8	8	8	8	
1757												
1758											9.75	9.75
1759		9.75										
1760	10.75	11.75	11.75	12					12	12.25	12.5	12.5
1761	14	12.75	12.75	13	13	13		13	13			13.25
1762	13.25		13.5	13.5		14	14	16	16			17
1763	17		17	17			16	16				16.25
1764	18	16.25	15								19	
1765	16						18	18				
1766	15	15										13.5
1767	13.5	13.5	13.5	13.5	13.5	12.75	12					
1768												
1769												
1770												
1771												
1772												
1773				14.5		14.5						
1774				14.25								
1775		13.06						12.5				12.5
1776			12.5				12.38	12.38		12.94	12.25	12.38

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates, and mostly based on three-month bills.

Table A5.14. *Monthly exchange rates on livres tournois (franc from 1795) in skilling banco 1777–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1777	8.25	8.25	8.25	8.333	8.292	8.333		8.167	8.292	8.292	8.375	
1778	8.417	8.333	8.417	8.308	8.333		8.333	8.333	8.375	8.333	8.417	
1779			8.417			8	8.25		8.333	8.333	8.417	8.333
1780	8.375	8.25			8.333	8.125	8.333		8.333	8.417	8.333	8.333
1781	8.25	8.333	8.333	8.167	8.167	8.333	8.167	8.167	8.208	8.25	8	7.875
1782	7.75	8	7.875	8	7.917	8.083	8.125	8.083	8.083	8.042	7.875	
1783	7.917	8	7.875	8	8	8.167	8.167	8.25	8.25	8.25	8.75	8.833
1784	9.042	8.917	9.292	9.219	8.875	9.167	9.042	9.292	9.208	9.208	9.333	9.417
1785	9.167	8.75	8.625	8.417	8.625	8.375	8.542	8.75	8.625	8.75	8.792	8.75
1786	8.5	8.667	8.5	8.5	8.417	8.458	8.417	8.167	8.25	8.333	8.333	8.5
1787	8.5	8.25	8.083	8.5	8.5	8.125	8.167	8.083	8.125	8.208	8.25	8.229
1788	8.25		8.25	8.125	8.167	8.083	8.125			8.25	8.375	
1789			8.25	8.25	8.167	8.375	8.5	8.667	8.375	8.417	9.083	8.917
1790	8.833	9	9.5		9.417	9.375	9.375	9.75	<u>9.333</u>	9.333		9.333
1791	9	9	9	8.833	8.75				8	7.917	8	8
1792	7.5	6.875			6	6	6	6.167	6.333	7	7	
1793	7					6						
1794		7										
1795												
1796												
1797	9	9										
1798												
1799	8.5											
1800												
1801					9.875							
1802		10	8				9	9.5				
1803	9.25	9.75	8.5				9.833	8.667	8.667	8.667	8.5	8.667

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates, and mostly based on three-month bills.

Underlined data = exchange rates on Bourdeaux.

Table A5.15. *Monthly exchange rates on franc in skilling riksgälds 1798–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1798				10		9.5						
1799				13	12.67	14	14					
1800							13.75		12	12.71	12.75	12.75
1801	12.5	13.33	13.5	14	13.38	13.67	14	14		15	14.5	
1802	14.5			13.25		13.25	13.25	13.5	12.79	12.75	13.38	13.13
1803	13.04	14	13.5	14.13	13.75	14.75	14	14				

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates, and mostly based on three-month bills.

Table A5.16. *Monthly exchange rates on Danish courant rigsdaler (= 6 marks in Kurant-banken notes) in marks kopparmynt 1741–67 (not spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1741						31.5	31.5	31.5	31.5	31.5	31.5	
1752		38	38									
1753								32.75				
1754												
1755				34								
1760									56	54	54	55
1761												
1762												
1763								66				66
1764	66			65		66	65			68	72	72
1765	64											
1766												50
1767	50	50	50									

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates.

Table A5.17. *Monthly exchange rates on Danish courant rigsdaler (= 6 marks in Kurantbanken notes) in skilling banco 1777–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1780								36				37
1781						36						
1782			35.5		36							
1783						34		35	37	37.33	37	37
1784	36.5		37.5				36		36.5	36		38
1785	37	36.75	37		36.5	36.38	36.75	36.75	36.75	37	36.5	37
1786	36.5	35.75	36	35.5				34.5	35.38	35.5		
1787	35	34.25	34.25	34		34	34				33.04	
1788	33.25				33	33.5	33		32.25	32.5		
1789		31.75				32.13	33	33		33.5	35.5	35.75
1790	37	35	36			37	37.25		38	40		40
1791	40	40.25	41	40.5			39	36.25	37.5	38.5	37	38
1792	36.75	37	38	38		38.5	38	38.13	39.25	39.75	39.5	40
1793		39.75	40		42	41		42	42.5			
1794				40.5	42	41.5			41			
1795	39	40.75		39	39.75	39	39	40	39.5	39.75	39.25	39.5
1796	39.5	39	39	39	39.5	40		38.88	38.5	38.5	39.5	40.25
1797	40.5	41	40.75	40.5	41	43	40.5	43	42	42.13	42	43.75
1798												
1799					40	42.5				41		
1800												
1801			38			38	37	36.63				
1802					36		34.5			34		
1803		37				37	36	33.33	34.83	34.75	34	34.5

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates.

Table A5.18. *Monthly exchange rates on Danish courant rigsdaler (= 6 marks in courant-money) in skilling riksgälds 1798–1803 (not spot rates).*

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1798	45.75	46.25	45	44.75	44.5	41.25	42.63	43	43.75	43	45.25	56.5
1799	55.25	55.75	56.25	56.75	56.25	58.5	58.25	58	56	60.5	64	
1800				59	55	55	57.25	55	55	54.25	54.5	54
1801	52	57	54.75	55.25	53.5	53.38	53.25	54.63	54.38	54.5	55.5	54.5
1802	55.5	54.75	54.38	53.5	51.75	53.25	52.25	51.75	51	51	52.5	52
1803	53.88	56.13	55.75	56.5	55.5	56	54.25	51.88				

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates.

Table A5.19. *Monthly exchange rates on Gdańsk florin/gulden/złoty (= 30 grosz) in marks kopparmynt 1740–76 (not spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1740						9		9.5	9.5	9.5	9.5	9.5
1741	9.5	9.5	9.5	9.5	9.5	9.438	9.438	9.438	9.5	9.625	9.75	10
1742	10							9.75	9.75			
1743	9.75	9	9.625	9.875		10.5		10.25				11.25
1744		11									10.75	10.75
1745							9.75					
1746	9.75	9.75	9.75		11.5		11.5	11.5				
1747												
1748		12	12	12	12	12	11.38	11.38	11.5	11.5	11.5	11.5
1749					11.5	11.38	11.38	11.25	11.13	11.13	11.13	11.38
1750	11	11	11	11	11	10.75	10.5	10.5	10.5	10.25	10.25	10.13
1751	10	9.75	10	10	10	10	10	10	10			
1752	9.875		9.563	9.5	9.5	9.375	9.375	9.25	9.25	9.625	9.375	
1753		9.125	9.125			9.125	9.125	9	9.063	9.063	9	
1754							9.25		9	9	9	
1755	9						9					
1756	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	
1757						10.5						
1758								12.63	12.63		12.25	12.25
1759								11.5	11.5	11.5		14
1760	14				14	14		14	12	12	13	14
1761	16	15.75	15		14.5	15		15	15		14	15.25
1762				16			19	19.25			21	22
1763		19			17							
1764	17		15.5	16		16.25	15.5	15.5				
1765								16	17	17		
1766						13	14.56	12.88	12.88	12.88	12.88	12.88
1767	12.88	12.44	12	12	12	12.5	12					
1768												
1769												
1770								11.5				
1771									11			
1772				11.5								
1773				13.25		13						
1774												
1775			13.25									
1776								14			11.38	

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv). The monthly data are estimated as the median of highest and lowest rates.

Table A5.20. *Monthly exchange rates on Swedish-Pomeranian taler courant in Swedish currency 1740–1800 (not spot rates).*

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
in marks kopparmynt												
1740								28	27	27.5	27.5	27.5
1741	28.5	28.5	28.5	28.25	28	28.13	28.13	28.75	28.88	29.25	29.75	29.5
1742						30.5						
1743			30.5					30				
1744					32							
1745	34.5		32									
1746	29.25	29.25	29.25		33		33	33				
1747												
1748		34.88	35	35		35	33	32.75	32.5	32.5	33.25	33.63
1749							34	34	34	33	33	33.5
1750	33.75	33.5	32.75	32.5	32.5	32.5	32.5	32.5	32			30.5
1751	30.5	30.5	30.5	30	30	30	30	30	30			
1752		27		28	27	25.25	26			26	28
1753		26.5	26.5				26	25.5				
1754		26	26.5					26	26	26.75	26	25.63
1755		26		26.5								27
1756		28	28	28	28	28	28	28	27.5	27.5	27.75	
1757	28.5	28.5	28.5					31.5				
1758			48		42	41		34.5		33	33	
1759												
1760			32					31	28	27.5	27.5	29
1761		26.5			29.5						22	26
1762											23	
1763		17.75							15.88	14		
1764	16.5	13.38			14.5			15				
1765		15.06								15	15	
1766				49	49							
in skilling banco												
1788			36		35.5							
1792									41.5			
in skilling riksgälds												
1799		44				48		48	48			
1800						51			48		48	

Source: 'Växelkurser å Stockholms börs. Primärtabeller (1705–)/1740–1803' (Riksbankens arkiv).

The monthly data are estimated as the median of highest and lowest rates.

Table A5.21. *The exchange rate on Hamburg and Amsterdam 1658–1776.*

Year	Hamburg, 1 reichstaler banco in marks kopparmynt				Premium on Hamburg bank money (%)	Amsterdam, 1 rijksdaalder courant in marks kopparmynt				Premium on Amsterdam bank money (%)
	Direct data (spot rates 1660-1685)			Estimated spot rates		Direct data (spot rates 1660–85)			Estimated spot rates	
	Average	Lowest	Highest			Average	Lowest	Highest		
1658	17			17.255						
1659	17			17.255						
1660	17.572	17.077	18.297	17.572		16.924	16.284	17.545	16.924	3.25
1661	18.258	17.672	18.548	18.258		17.768	17.081	18.297	17.768	
1662	18.213	17.591	18.583	18.213		17.724	17.167	18.297	17.724	
1663	18.857	18.177	20.302	18.857		18.628	18.051	19.839	18.628	3.25
1664	20.121	18.356	21.67	20.121		19.929	18.583	21.597	19.929	3.06
1665	20.866	19.375	21.555	20.866		20.465	20.09	21.095	20.465	3.06
1666	20.909	20.395	21.305	20.909		20.394	19.63	21.054	20.394	
1667	20.767	19.187	21.555	20.767		20.171	19.692	20.302	20.171	
1668	20.964	20.197	21.305	20.964		20.176	19.758	21.305	20.176	
1669	20.61	20.302	21.095	20.61		20.044	19.313	20.702	20.044	3.65
1670	20.804	20.133	21.206	20.804		20.392	19.597	21.054	20.392	
1671	21.003	20.592	21.206	21.003		20.026	19.613	20.905	20.026	3.88
1672	20.929	20.702	21.054	20.929	7.12	20.214	19.801	20.803	20.214	3.8
1673	20.984	20.512	21.206	20.984		20.446	20.051	21.206	20.446	
1674	21.502	20.954	22.469	21.502		20.31	19.944	20.844	20.31	4.16
1675	22.708	21.964	24.062	22.708		20.895	20.302	21.711	20.895	3.66
1676	23.034	22.307	24.187	23.034		21.44	20.302	23.059	21.44	3.78
1677	24.661	23.731	25.566	24.661		23.599	22.721	24.563	23.599	3.96
1678	24.585	24.187	25.566	24.585		23.6	23.104	24.488	23.6	3.78
1679	25.934	24.312	27.77	25.934		25.017	23.226	26.769	25.017	4.16
1680	27.529	26.761	28.275	27.529		26.475	25.498	27.265	26.475	4.01
1681	26.354	24.993	28.072	26.354		25.316	23.606	27.07	25.316	3.58
1682	24.935	24.108	25.566	24.935		23.887	23.059	24.741	23.887	4.01
1683	24.884	23.983	25.372	24.884		23.616	22.601	24.359	23.616	4
1684	24.974	24.642	25.53	24.974		23.584	23.226	24.108	23.584	4.28
1685	24.854	24.488	25.239	24.854		23.371	23.037	23.964	23.371	4.25
1686	<u>24.241</u>			24.483		<u>22.907</u>			23.136	5.06
1687	25			25.25	10.21	<u>24.252</u>			24.495	
1688	25			25.25	9.88	<u>23.761</u>			23.999	5.18
1689	25			25.25	10.12	<u>23.432</u>			23.666	5.47
1690	25			25.25	10.89					
1691	25			25.25	10.73	<u>23.376</u>			23.609	5.42
1692	25			25.25	9.98	<u>23.009</u>			23.239	5.48
1693	25			25.25	9.6	<u>23.572</u>			23.808	7.38

Table A5.21 (cont.) . *The exchange rate on Hamburg and Amsterdam 1658–1776.*

Year	Hamburg, 1 reichstaler banco in marks kopparmynt				Premium on Hamburg bank money (%)	Amsterdam, 1 rijksdaalder courant in marks kopparmynt				Premium on Amsterdam bank money (%)
	Direct data (spot rates 1660-1685)			Estimated spot rates		Direct data (spot rates 1660–85)			Estimated spot rates	
	Average	Lowest	Highest			Average	Lowest	Highest		
1694	25			25.25	11.09	23.553			23.788	4.77
1695	25			25.25	12.67	23.925			24.164	4.83
1696	26.749	26.5	27	27.016	14.29	25.505			25.76	4.76
1697	26.685	26.25	27.25	26.952	13.98	26.216			26.478	4.96
1698	26.28	25	27.625	26.543	13.74	25.287			25.54	4.82
1699	24.625	24.5	24.75	24.871	13.57	23.495			23.73	5.17
1700	25.499	25.25	25.75	25.754	14.28	24.6			24.846	4.65
1701	24.749	24.5	25	24.996	13.39	24.247			24.489	4.73
1702	24.375	24.25	24.5	24.618	13.34	23.749			23.986	3
1703	26.209	24.5	26.875	26.471	15.1	24.855	23.875	25.875	25.103	2.81
1704	27.098	26.25	27.75	27.342	17.17	25.225	24.125	26.375	25.452	2.69
1705	27.311	27	27.75	27.557	18.8	25.872	25.5	26.25	26.105	3.27
1706	27.122	26.75	27.5	27.366	18.24	26.245	25.75	26.75	26.481	5.54
1707	26.998	26.75	27.5	27.241	17.56	25.875	25.75	26	26.107	5.62
1708	26.781	26.5	27	27.022	16.95	25.687	25.5	25.875	25.918	4.84
1709	27.299	26.5	28.75	27.545	16.78	26.921	26	27.875	27.163	4.83
1710	27.486	26.375	28.75	27.734	16.73	26.118	25.5	26.75	26.352	4.76
1711	26.711	26	27.75	26.951	16.71	25.367	24.75	26	25.596	
1712	27.274	26.375	28	27.519	16.54	26.175	25.375	27	26.41	
1713	26.608	25.5	28	26.847	17.28	26.58	26	27	26.819	
1714	25.56	25	26	25.79	18.28	25.48	24.5	26.5	25.71	4.5
1715	25.793	25	27.5	26.025	19.7	23.979	23	25	24.195	
1716	26.546	25	28.75	26.785* 28.39**	20.9	25.573	24	27.25	25.803* 27.35**	
1717	33.952	29	39.75	34.258* 38.37**	24.72	32.473	27.75	38	32.765* 36.7**	
1718	52.056	43.75	83.75	52.525* 60.26**	27.74	49.933	42	80	50.382* 57.8**	4.59
1719	40.03	38	41	40.39	29.7	38.884	36	42	39.234	
1720	36.289	36	37	36.615	28.33	35.123	34.75	35.5	35.439	
1721	36.24	35	37	36.566	28.84	35.749	35.5	36	36.071	
1722	36.616	35.25	37.25	36.945	29.53	35.999	35.75	36.25	36.323	5.25
1723	35.577	34.125	36.625	35.897	30.35	34.139	32.375	36	34.447	4.94
1724	35.209	34.125	36	35.526	31.35	34.242	33.5	35	34.55	4.57
1725	33.968	32	35.75	34.274	33.24	32.985	32	34	33.282	4.42
1726	33.552	32.5	34.5	33.854	16	32.606	31.5	33.75	32.899	4.88
1727	34.293	32.5	35.5	34.602	16	33.735	32.75	34.75	34.039	4.97

Table A5.21 (cont.) . *The exchange rate on Hamburg and Amsterdam 1658–1776.*

Year	Hamburg, 1 reichstaler banco in marks kopparmynt				Premium on Hamburg bank money (%)	Amsterdam, 1 rijksdaalder courant in marks kopparmynt				Premium on Amsterdam bank money (%)
	Direct data (spot rates 1660-1685)			Estimated spot rates		Direct data (spot rates 1660–85)			Estimated spot rates	
	Average	Lowest	Highest			Average	Lowest	Highest		
1728	35.11	33.5	36	35.426	16	34.869	34.25	35.5	35.183	4.79
1729	34.806	34	35.5	35.119	16	34.227	33	35.5	34.535	4.77
1730	35.119	34.25	35.75	35.435	16	33.369	32.75	34	33.669	4.58
1731	34.933	34.25	35.5	35.247	16	33.496	33	34	33.798	4.52
1732	34.958	33.625	35.75	35.272	16	34.369	33.75	35	34.679	4.02
1733	35.308	34.75	35.875	35.626	16	34.623	34.25	35	34.934	3.8
1734	35.31	34.75	35.75	35.627	16	34.869	34.25	35.5	35.183	4.44
1735	35.369	34.75	36	35.688	16	34.992	34.25	35.75	35.307	4
1736	35.68	34.75	36.375	36.001	16	34.667	33.5	35.875	34.979	3.9
1737	36.028	35.5	36.5	36.352	16	34.936	34.625	35.25	35.25	4.02
1738	35.933	35.25	36.5	36.256	16.31	35.056	34.375	35.75	35.371	4.45
1739	36.305	35.25	37	36.632	17.48	34.996	34.5	35.5	35.311	5.11
1740	37.06	36	37.5	37.393	18.03	35.55	34.75	35.875	35.87	5.23
1741	37.86	36.75	41	38.201	17.49	36.44	35.375	39.5	36.768	4.64
1742	39.53	36.75	42	39.886	17.79	37.81	35.25	40	38.15	4.43
1743	40.48	37	44.25	40.844	18.85	38.74	35.75	42.5	39.089	4.8
1744	43.83	42	45.75	44.224	19.37	41.98	40	44	42.358	4.86
1745	43.57	40	47	43.962	20	41.75	38.25	45.25	42.126	4.93
1746	40	40	40	40.36	18.67	38.25	38.25	38.25	38.594	4.86
1747	44.23	40	47.5	44.628	16.5	43.11	38.25	46.25	43.498	4.65
1748	44.47	43.125	47.25	44.87	16.17	43.08	41.75	46	43.468	4.74
1749	43.45	42.25	44.75	43.841	17.05	41.53	40.5	42.75	41.904	4.64
1750	41.74	40	43.75	42.116	17.51	39.69	38.125	41	40.047	4.53
1751	40.28	39.25	41	40.642	17.68	37.92	37	38.25	38.261	4.88
1752	38	36	40	38.342	16.44	35.68	33.75	37.75	36.001	4.48
1753	37.99	37.5	38.75	38.332	17.34	35.75	35	36	36.072	4.63
1754	38.71	38.5	39	39.058	17.24	36.07	36	36.25	36.394	4.51
1755	38.63	37.5	40.75	38.978	17.56	36.33	36	39	36.657	4.18
1756	40.28	39	43	40.642	17.42	39.08	37.75	42.25	39.432	4.22
1757	43.84	40.25	49.75	44.234	11.7	44.7	40.25	50	45.102	3.76
1758	51.49	48.75	56.25	51.953	7.68	52.9	50.125	57.25	53.376	3.33
1759	49.55	47.25	55	49.996	8.02	51.89	50.25	56.25	52.357	2.27
1760	63.21	55	76	63.779	18.58	61.63	55.5	70	62.184	3.11
1761	72.04	67.75	75.75	72.688	24.83	67.41	63.75	70.75	68.016	4.53
1762	85.28	73	108	86.047	22.39	83.93	68.5	108	84.685	3.02
1763	81.82	73	94.5	82.556	23.85	80.43	71.5	93	81.154	2.36

Table A5.21 (cont.) . *The exchange rate on Hamburg and Amsterdam 1658–1776.*

Year	Hamburg, 1 reichstaler banco in marks kopparmynt				Premium on Hamburg bank money (%)	Amsterdam, 1 rijksdaalder courant in marks kopparmynt				Premium on Amsterdam bank money (%)
	Direct data (spot rates 1660-1685)			Esti-mated spot rates		Direct data (spot rates 1660–85)			Esti-mated spot rates	
	Aver-age	Low-est	High-est			Aver-age	Low-est	High-est		
1764	86.08	79	96	86.854	26.21	82.07	74	93	82.808	3.12
1765	88.87	79	94	89.669	21.44	81.69	76	90	82.425	3.76
1766	70.53	66.5	80	71.165	19.88	69.88	66.5	77	70.509	4.74
1767	56.42	42	66	56.928	17.72	56.41	41	66	56.917	4.76
1768	42	42	42	42.378	22.35	41.64	39.25	41.75	42.015	4.58
1769	42	42	42	42.378	24.6	41.59	39	41.75	41.964	4.87
1770	60.54	55	68	61.085	24.26	57.15	53	64	57.664	4.9
1771	62.93	60	65.5	63.496	24.64	59.41	57	61	59.944	4.88
1772	70.26	64	74.5	70.892	25.08	66.08	60	70	66.674	4.75
1773	80.23	73.5	82.5	80.952	24.71	76.88	69	79.5	77.572	4.66
1774	75.75	72	80.5	76.431	23.88	71.91	69	76	72.557	4.73
1775	69.3	68.25	72	69.923	21.88	65.72	65.25	68	66.311	4.7
1776	69.06	68.5	70	69.681		64.9	64	65.25	65.484	4.781

Underlined data = based on cross rates.

Sources: See the main text. For 1660–85, the exchange rates on Hamburg and Amsterdam are esti-mated spot rates, based on bills of 8 days to 2 months, assuming an annual interest rate of 12.5 per cent, and the average calculated as the geometric average of the monthly data (see Table A5.5). To calculate spot rates for the period 1658–9 the direct data are increased by 1.5 per cent; for 1686–1703 the increase is 1 per cent. For 1704–77 the direct data is increased by $1.05^{67/365}$.

* Estimated rates in proper coins 1716–18.

** Estimated rate in coin tokens 1716–18.

Table A5.22. *The exchange rate on London and Paris 1658–1776.*

Year	London, 1 pound sterling in daler kopparmynt				Paris, 1 livres tournois in marks kopparmynt			
	Direct data			Esti-mated spot rates	Direct data (spot rates up to 1702)			Esti-mated spot rates
	Average	Lowest	Highest		Average	Lowest	Highest	
1658	17.49			17.752				
1659	18.197			18.47				
1660	20.226			20.53				
1661	21.137			21.454				
1662								
1663	21.206			21.525	6.914			6.914
1664	22.108			22.44	7.013			7.013
1665	22.026			22.356	7.043			7.043
1666	21.096			21.413				
1667	21.81			22.137	7.151			7.151
1668	22.936			23.28	7.138	7.138	7.138	7.138
1669	22.517			22.855	7.138	7.138	7.138	7.138
1670	22.826			23.168	7.108	7.061	7.138	7.108
1671	22.921			23.265	7.108	7.069	7.209	7.108
1672	22.316			22.651	7.033	6.943	7.104	7.033
1673	21.487			21.809	7.018	6.901	7.069	7.018
1674	21.526			21.849	7.12	7.069	7.199	7.12
1675	23.315			23.665	7.286	7.188	7.405	7.286
1676	24.302			24.666	7.592	6.985	7.91	7.592
1677	26.424			26.82	8.259	8.079	8.498	8.259
1678	26.664			27.064	8.352	8.203	8.499	8.352
1679	26.235			26.628	8.477	8.203	8.71	8.477
1680	29.829			30.277	9.25	9.048	9.425	9.25
1681	28.784			29.216	8.939	8.415	9.425	8.939
1682	26.872			27.276	8.429	8.217	8.71	8.429
1683	26.556			26.954	8.327	8.021	8.469	8.327
1684	26.552			26.95	8.317	8.207	8.499	8.317
1685	26.831			27.234	8.31	8.243	8.415	8.31
1686								
1687								
1688								
1689	25.869			26.182	8.294			8.294
1690	25.234			25.54				
1691	25.39			25.698	7.302			7.302
1692	25.738			26.049	7.364			7.364
1693	24.711			25.01	7.191			7.191

Table 5.22 (cont.). *The exchange rate on London and Paris 1658–1776.*

Year	London, 1 pound sterling in daler kopparmynt				Paris, 1 livres tournois in marks kopparmynt			
	Direct data			Esti-mated spot rates	Direct data (spot rates up to 1702)			Esti-mated spot rates
	Average	Lowest	Highest		Average	Lowest	Highest	
1694	24			24.291	7.434			7.434
1695	22.224			22.493	7.332			7.332
1696	25.564			25.873	7.927			7.927
1697	29.253			29.607	7.732			7.732
1698	27.932			28.27	7.318			7.318
1699	25.846			26.159	6.882			6.882
1700	27.079			27.407	7.153			7.153
1701	26.985			27.312	6.875			6.875
1702	25.659			25.969	6.477			6.477
1703	26.351			26.67				
1704	26.625			26.947				
1705	27.25	26.875	27.625	27.58	7.222	7.111	7.333	7.31
1706	27.375	26.75	28	27.706	7.25	7.167	7.333	7.338
1707	28	27.75	28.25	28.339	7.333	7.167	7.5	7.422
1708	27.695			28.03	7.447			7.537
1709	27.624			27.959	7.583			7.675
1710	27.763			28.099	7.549			7.64
1711	27.483			27.815				
1712	27.994			28.333				
1713	28.281			28.623	6.263			6.339
1714	27.498			27.831	6.494			6.572
1715	27.972			28.311	7.936			8.032
1716	28.256			28.598* 30.314**	7.647			7.74* 8.2**
1717	35.458			35.887* 40.193**	10.02			10.14* 11.35**
1718	54.381			55.039* 63.14**	11.9			12.05* 13.82**
1719	42.695			43.212	7.229			7.317
1720	38.29			38.754	3.763			3.808
1721	38.262			38.725	5.55			5.617
1722	39.63			40.11	5.453			5.519
1723	37.957			38.417	5.105			5.166
1724	36.999			37.447	6.706			6.788
1725	35.611			36.042	8.078			8.176
1726	35.973			36.408	7.752			7.846
1727	37.25	36.5	38	37.701	7.256			7.343

Table 5.22 (cont.). *The exchange rate on London and Paris 1658–1776.*

Year	London, 1 pound sterling in daler kopparmynt				Paris, 1 livres tournois in marks kopparmynt			
	Direct data			Esti-mated spot rates	Direct data (spot rates up to 1702)			Esti-mated spot rates
	Average	Lowest	Highest		Average	Lowest	Highest	
1728	37.5	36.5	38.5	37.954	7.197			7.284
1729	37.25	36.5	38	37.701	7.008			7.093
1730	36.405			36.845	6.979			7.064
1731	37.052			37.5	6.926			7.01
1732	37.307			37.759	7.091			7.176
1733	37.46	37	38	37.913	7.081			7.167
1734	39.02	38	39.5	39.492	7.26			7.348
1735	38.84	38.5	39	39.31	7.187			7.274
1736	38.57	37	40	39.037	7.145			7.232
1737	38.499			38.965	7.288			7.376
1738	38.42			38.885	7.192			7.279
1739	39.229			39.704	7.169			7.256
1740	39.25	38	39.75	39.725	7.19	7	7.5	7.277
1741	39.28	38.125	42.5	39.755	7.26	7	7.75	7.348
1742	41.04	38.75	43.125	41.537	7.48	7.25	7.625	7.571
1743	42.31	39.75	46.5	42.822	7.963			8.059
1744	45.36	43.25	47	45.909	8.79	8.5	9	8.896
1745	45.93	41.5	49.25	46.486	9	8.5	9.25	9.109
1746	41.5	41.5	41.5	42.002	7.8			7.895
1747	47	41.5	51	47.569	7.5	7.5	7.5	7.591
1748	48.12	46.75	50.5	48.702	8.95	8.75	9.125	9.058
1749	46.82	45.5	48.75	47.387	8.43	8.25	8.75	8.532
1750	43.53	41	45.75	44.057	8.36	8	8.5	8.461
1751	42.13	41.25	42.75	42.64	7.88	7.75	8	7.975
1752	39.77	37.5	42.25	40.251	7.244			7.332
1753	38.92	38.375	40	39.391	7.31	6.5	7.5	7.398
1754	40.07	39.75	40.5	40.555	7.35	7.25	7.5	7.439
1755	41.01	40.375	43.5	41.506	7.5	7.5	7.5	7.591
1756	44.03	42.25	47.5	44.563	8.03	7.875	8.5	8.127
1757	49.34	46	53.75	49.937	8.489			8.591
1758	56.44	54	61	57.123	9.75	9.75	9.75	9.868
1759	55.64	54.25	62.5	56.313	9.75	9.75	9.75	9.868
1760	66.58	61.5	75	67.386	11.94	10.75	12.5	12.08
1761	71.18	68	76	72.041	13.03	12.75	14	13.19
1762	90.72	74	117	91.818	14.42	13.25	17	14.59
1763	84.33	76	93	85.351	16.52	16	17	16.72
1764	91.61	83	102.5	92.719	16.97	15	19	17.18

Table 5.22 (cont.). *The exchange rate on London and Paris 1658–1776.*

Year	London, 1 pound sterling in daler kopparmynt				Paris, 1 livres tournois in marks kopparmynt			
	Direct data			Esti-mated spot rates	Direct data (spot rates up to 1702)			Esti-mated spot rates
	Average	Lowest	Highest		Average	Lowest	Highest	
1765	92.06	83	101	93.174	17.2	16	18	17.41
1766	77.46	73	85	78.398	14.56	13.5	15	14.74
1767	60.41	45	72	61.141	13.24	12	13.5	13.4
1768	45.9	44.5	46.5	46.456	8.097			8.195
1769	42.207			42.718	7.996			8.093
1770	63.14	55.5	68	63.904	11	11	11	11.13
1771	63.96	61	66	64.734	11.88			12.03
1772	71.78	67	77	72.649	13.24			13.4
1773	85.78	67	88	86.818	14.5	14.5	14.5	14.68
1774	80.08	77	86.5	81.049	13.5	13	14.25	13.66
1775	72.71	71.75	76	73.59	12.8	12.38	13.125	12.95
1776	70.93	69.875	72.375	71.788	12.51	12.25	13.5	12.66

Underlined data = based on cross rates.

Sources: See the main text. To calculate spot rates, the direct data are increased by 1.5 per cent for London in 1658–85, by $1.05^{90/365}$ for London in 1686–1703, and by $1.05^{90/365}$ for Paris and London in 1704–76. For Paris 1668–1685, see Table A5.12.

* Estimated rates in proper coins 1716–18.

** Estimated rate in coin tokens 1716–18.

Table A5.23. *The exchange rate on Hamburg and Amsterdam 1777–1804.*

Year	Hamburg, 1 reichstaler banco in					Amsterdam, 1 rijksdaalder courant in				
	skilling banco, direct data			skill-ing banco, spot rate	skill-ing riks-gälds, spot rate	skilling banco, direct data			skill-ing banco, spot rate	skill-ing riks-gälds, spot rate
	Ave-rage	Low-est	High-est			Aver-age	Low-est	High-est		
1777	46.16	45	47	46.575		43.2	42	44	43.589	
1778	45.97	44.5	47	46.384		43.19	42	44.33	43.579	
1779	46.01	45	47.5	46.424		44.01	43.25	45	44.406	
1780	46.25	45	47.5	46.666		44.04	43	45.5	44.436	
1781	45.31	44.13	47	45.718		43.03	41.25	45.75	43.417	
1782	45.43	45	46.5	45.839		41.8	40	43	42.176	
1783	46.84	45	48.5	47.261		43.4	41	46	43.79	
1784	49.35	48	54	49.794		46.51	45.33	49.5	46.928	
1785	49.56	48	52.5	50.006		46.56	45	48.5	46.979	
1786	47.78	46.5	49	48.21		45.24	44.25	47	45.647	
1787	46.47	45.75	47.75	46.888		43.62	42.75	44.75	44.012	
1788	46.59	45.75	47.5	47.009		43.12	42.25	43.75	43.508	
1789	51.55	47	58.5	52.014	55.711	48.48	43.25	54	48.916	
1790	54.79	52	58	55.283	55.785	51.93	49	56	52.397	
1791	51.52	49	54	51.983	54.507	49.33	47	51.5	49.774	
1792	51.17	49	52.5	51.63	53.411	49.01	47	50	49.451	
1793	54	51.5	58	54.486	57.485	51.66	48	53.5	52.125	
1794	51.04	48	57.25	51.499	55.913	47.65	44.5	53.25	48.079	
1795	47.32	47	48	47.746	53.274	43.47	41	47	43.861	
1796	47.34	47	49	47.766	52.99	41.84	40.33	43	42.216	
1797	50.62	50	52.5	51.075	52.115	45.07	43	48	45.475	47.907
1798	50.94	50	53.5	51.398	54.496	45.44	44	51	45.849	51.439
1799	52.35	50	54	52.821	74.878	46.92	46	48	47.342	66.523
1800	50.62	49	54	51.075	70.983	47.1	46	50.5	47.524	66.796
1801	51.82	50	53	52.286	75.967	47.41	46.5	50	47.837	70.741
1802	50.82	48.67	54	51.277	76.038	46.79	45.75	47.75	47.211	71.205
1803	50.69	48	53	51.146	78.106	46.56	45	49.5	46.979	73.667
1804	50.78	49.5	53	51.237	76.855	47.57	46	49	47.998	71.997

Sources: See the main text. To calculate spot rates, the direct data are increased by $1.05^{67/365}$.

Table A5.24. *The exchange rate on London and Paris 1777–1804.*

Year	London, 1 pound sterling in					Paris, 1 livres tournois (franc from 1795) in				
	riksdaler banco, direct data			riks-daler banco, spot rate	riks-daler riks-gälds, spot rate	skilling banco, direct data			skill-ing banco, spot rate	skill-ing riks-gälds, spot rate
	Aver-rage	Low-est	High-est			Aver-age	Lowest	High-est		
1777	3.835	3.688	3.938	3.881		8.27	8	8.75	8.3701	
1778	3.948	3.854	4.01	3.9957		8.36	8.2	8.417	8.4612	
1779	4.105	3.854	4.24	4.1549		8.23	7.917	8.417	8.3296	
1780	4.089	3.99	4.229	4.1387		8.35	7.917	8.5	8.4511	
1781	3.757	3.5	4.021	3.8028		8.16	7.5	8.333	8.2588	
1782	3.713	3.656	3.771	3.7576		8.01	7.5	8.25	8.1069	
1783	3.83	3.677	4.167	3.8761		8.21	7.75	9	8.3094	
1784	4.382	4.229	4.792	4.4351		9.14	8.5	9.667	9.2506	
1785	4.474	4.25	4.625	4.5281		8.64	8	9.333	8.7446	
1786	4.238	4.083	4.438	4.2896		8.39	8.167	8.667	8.4915	
1787	4.122	4.063	4.25	4.1718		8.19	7.833	8.5	8.2891	
1788	4.179	4.125	4.281	4.2295		8.19	8	8.5	8.2891	
1789	4.635	4.219	5.167	4.6909		8.54	8	9.167	8.6434	
1790	5.113	4.792	5.333	5.1748		9.33	8.5	10	9.4429	
1791	4.8	4.396	5.042	4.8585		8.33	7.833	9	8.4308	
1792	4.492	4.333	4.667	4.5465		6.44	6	7.5	6.5179	
1793	5.085	4.656	5.292	5.147		6.5	6	7	6.5787	
1794	4.665	4.167	5.292	4.7213		7*	7	7	7.0847	
1795	3.978	3.833	4.25	4.0263						
1796	4.066	3.917	4.333	4.115						
1797	4.618	4.333	5.104	4.6736	4.8834	9	9	9	9.1089	
1798	4.833	4.833	4.833	4.8918	5.3253					9.949
1799	4.83	4.583	5	4.888	6.6383	8.5	8	9	8.6029	13.431
1800	4.054	3.938	4.25	4.1032	5.7667					13.036
1801	4.132	3.896	4.271	4.1817	6.1291	9.83	9.75	10	9.949	13.785
1802	4.209	4.146	4.323	4.2597	6.4131	8.9	8	10	9.0077	13.38
1803	4.268	3.917	4.5	4.3194	6.7727	8.87	8	10	8.9774	14.25
1804	4.565	4.333	4.75	4.62	6.9301	9.12	8.25	10	9.2304	13.846

Sources: See the main text. To calculate spot rates, the direct data are increased by $1.05^{90/365}$.

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