Swedish monetary standards in historical perspective

Rodney Edvinsson

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Abstract

This paper classifies the monetary standards in Sweden from the Middle Ages to the present, and gives an overview of the various currencies that were in use. During most of Sweden's history, a commodity standard was in place, while the fiat standard is a rather late innovation. The classification into monetary standards is also related to the issue of debasement under the commodity standard and the mechanisms behind the rise of multiple currencies.

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[†] Department of Economic History, Stockholm University, SE-106 91 Stockholm. Phone: +46-8-161386. Fax: + 46-8-168108. E-mail: rodney.edvinsson.@ekohist.su.se. Homepage: www.historia.se.

Introduction

From 1873, the krona (crown, abbreviated SEK), divisible into 100 öre, is the main monetary unit in Sweden. Before that date Sweden had various domestic currencies that were used as means of payment. In various periods a fluctuating market exchange rate existed between these currencies. For example, depending on which monetary unit to follow, the inflation figures would be different, since the value of some currencies fell more over time than the value of others.[1]

This paper classifies the monetary standards in Sweden from the Middle Ages to the present, and gives an overview of the various currencies that were in use. During most of Sweden's history, a commodity standard was in place, while the fiat standard is a rather late innovation. The classification into monetary standards is also related to the issue of debasement under the commodity standard and the mechanisms behind the rise of multiple currencies. Exchange rates of coins often deviated somewhat from the theoretical exchange rates based on the relations between their intrinsic metal values. The monetary history of Sweden provides examples of immediate as well as protracted adjustments of exchange rates and prices in response to debasement.

The term "Sweden" used in this paper could be questioned from a historical perspective. Up to the 17th century, the monetary history of various regions within the present borders of Sweden coincided with Denmark's. Since Finland was part of the kingdom of Sweden-Finland up to 1809, the monetary history of Sweden and Finland coincided up to early 19th century. Norway and Sweden formed a union in 1814-1905. Up to 1814, the Norwegian monetary system was coordinated with the Danish one. In the period 1814-1873, Norway continued the Danish system, where 1 speciedaler = 120 skillings.[2]

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[1] One example is given in Jansson, Palm and Söderberg (1991), pp. 6-12, for the 17th century.

[2] Lagerqvist and Nathorst-Böös (1968), p. 56.

Foreign exchange is intimately connected to the domestic currency system. Most domestic currencies, like mark, daler and riksdaler, were originally imported. The riksdaler and the ducat[3] circulated as domestic as well as foreign coins.[4] Often it was not distinguished between the exchange rate on riksdaler in foreign and domestic coins. Foreign coins played an important role not least because international transactions in earlier times were made in coins.[5]

The appendix at the end of this paper presents a list of various money terms that has historically been in use in Sweden, and Finland up to the early 19th century.

The functions of money

Money has four basic functions; serving as medium of exchange, store of value, unit of account and standard of deferred payment. A distinction is sometimes made between the all-purpose money of modern economies, which serves all the four basic functions of money, and the special-purpose money of not fully monetarised economies, which in limited contexts only serves one or two of these functions.[6]

Money can exist either in physical or ideal form. Money in ideal form is a pure unit of account or notational device, and was used in exchange and counting houses even before paper notes came into circulation. Money in physical form (mainly coins) was initially the only or main medium of exchange and store of value, but this changed during the Early Modern Period, first within foreign trade. Some of the foreign currencies quoted in Sweden in

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[3] The ducat is spelled "dukat" in Swedish.

[4] Also in Denmark, most of the rix-dollar coins that circulated in the 16th century were of foreign origin (Friis and Glamann, 1958, p. 3).

[5] Heckscher (1941), p. 5.

[6] Thurborg (1989), p. 89. The distinction is criticised in Melitz (1970).

the 17th and 18th centuries – most notably, the Hamburger reichstaler banco – were not referring to actually minted coins, but to monies of account.

In the medieval and early modern monetary system, it is important to distinguish between monetary units referring to physical mediums of payment and the ones that served merely as units of account. Although a monetary unit could establish identity between physical and ideal monies, at periods there occurred a difference. This could upset the different functions of money, for example, implying that the unit of account and standard of deferred payment could refer to different mediums of exchange valued differently at the market. After a period of confusion and conflict, for example, concerning in which type of money old debts should be paid; the consequence could be bifurcation of old monetary units. For example, the term daler first referred to the daler coins minted with a fixed silver content. In the 1570s the daler coin was set equal to 4 marks. However, later the daler coin came to be valued more than 4 marks, and a bifurcation occurred between the daler as a coin and daler as a unit of account. The daler as a coin came to be termed riksdaler, while the daler became a unit of account equal to 4 marks (see Table 3). During the 17th century, the term daler bifurcated further.

Commodity money

Money first arose as commodity money, existing in physical form and primarily valued for its physical properties, which was also the main form of money in a longer historical perspective. The permanent replacement of commodity money by fiat money is only a recent innovation established in the last decades of the 20th century.

The introduction of a single domestic currency system can be seen as part of the transformation from a pre-capitalist, feudal or semi-feudal economy, to a modern, capitalist

one. An efficient national market necessitated a common abstract standard.[7] To be an effective unit of account for commodities, money itself had to rise beyond its original physical commodity form. However, this Weberian process of rationalisation within the monetary sphere was protracted and complicated, involving achievements as well as setbacks, a process that still continues (at least at the international level, as shown by the rise of the Euro in the late 20th century).

Commodity money was linked to various precious metals. In Sweden, three metals have been important in this respect: silver, gold and copper.

Even when commodity money prevailed, coins of precious metal were never 100 percent pure commodity money. Money as pure commodity would not be money. Velde, Weber and Wright (1999) emphasise that commodity money, as the name suggests itself, is a "hybrid of a commodity and money".[8] The peculiarity of money is that its usefulness mainly comes from its property as exchange value and not from its physical properties. The face value of the metal coins was generally somewhat higher than their intrinsic metal value, which enabled the ruler to have an income from minting. The difference constitutes a "fiat component" of the coin's face value.[9] As Nathan Sussman puts it, "[t]he holder of bullion willingly paid a premium to have raw metal transformed into standard coins, due to the savings on transaction costs to be gained from using a universally accepted medium of exchange".[10] Keynes even defines a non-monetary economy as "an economy in which there is no asset for which the liquidity-premium is always in excess of the carrying-costs".[11] If the monetary unit would

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[7] Davidson (1919), p. 118.

[8] Velde, Weber and Wright (1999), p. 306.

[9] Sargent and Velde (2002), p. 19.

[10] Sussman (1993), p. 50.

[11] Keynes (1936) p. 239.

have immediately reflected its fine metal content, there would have been a loss to the mint because of the minting costs.

To put it in other words, the mint equivalent, the nominal value minted from a fixed weight of a metal (measured in, for example, daler silvermynt per ship pound), was somewhat larger than the mint price, the price of bullion when it is brought to the mint.[12] The mint price and the market price of bullion were not necessarily equal.[13] The gross seignorage is the mint equivalent less the mint price.[14] Gross seignorage includes minting costs. Net seignorage is the pure profit of the mint. The seignorage rate is the ratio of seignorage to the mint equivalent.

Minting was connected to power and the state formation process itself. This was not a linear process. For example, the first attempt to mint coins in Sweden in the late 10th and early 11th century was abandoned.[15] As argued by Jacques Melitz:[16]

"The monetary evolution of the West has not been guided by an invisible hand of progress, but largely imposed by conspicuous actions of government… Many of the foremost features of the monetary systems we know today, in fact, are the result of governmental improvisations following crises."

Given that the relative price of bullion does not change dramatically, commodity money should be accompanied by price stability. However, inflation under commodity money is well known. This reflects the hybrid nature of commodity money, and that it includes a fiat component, which could be temporarily increased.

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[12] Quinn and Roberds (2006), p. 12.

[13] Smith (1999 [1776]), pp. 59 and 130.

[14] Redish (2000), p. 27. Sussman (1993), p. 50, uses the terms "mint charge" instead of gross seignorage and "mint par" instead of mint equivalent.

[15] Malmer (1995), p. 25.

[16] Melitz (1970), p. 1032.

Depreciation under a metallic standard involves an increase in the mint equivalent. It occurs either by enhancing money, i.e. increasing the legal value of the existing coin, or through debasement, i.e. reducing the fineness of the precious metal from which the coins are minted or by reducing the weight of the coin (or both). The ruler could temporary increase his income from minting through debasement (provided that the mint price initially does not increase as much as the mint equivalent).[17] Monetary debasement was the main source of secular inflation in Sweden before 1715, while later inflation was mainly caused by excessive supply of fiat moneys.[18] Debasements also gave rise to a complicated monetary system, with the circulation of parallel currencies.

Inflation takes different forms under a metallic and a fiat standard. While under a metallic standard, the debased coins are supposed to circulate at par with the old, better coins, in reality there is usually, with some delay, a premium on the better coins. Under a fiat standard, the previously issued fiat monies usually do not circulate at a premium, although the bifurcation between riksgälds and banco notes in Sweden during the 1790s shows that this can happen.

Occasionally depreciation led to the formation of separate currency systems, when the inferior coins usurped the names of the better coins[19] (as in the case of the term daler in Sweden). Therefore, many monetary units became devalued over time (see the list of money terms in the appendix).

The strengthening of the monetary unit, or recoinage, under the metallic standard was not the mirror image of depreciation. For example, it was not accompanied by negative seignorage. Although the nominal prices usually fell substantially following the introduction

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[17] Spufford (1988), pp. 289-290, Redish (2000), p. 34.

[18] Läge (1961).

[19] Heckscher (1941), p. 4.

of better coins, this should not be interpreted as sever deflation. When the ruler returned to strong money, he began minting coins of a fine metal content that approximated the older coins before debasement. While under depreciation, debased coins were, at least officially and initially, supposed to be at par with the older better coins, under recoinage the face value of the debased coins was reduced significantly and exchanged to this reduced value for the new strong coins.[20] It could be compared to the 20th century when zeros have been struck from inflation notes on various occasions. The debased coins often seized to be legal tender after some time.

The face value of the coin could fall beneath its intrinsic metal value, which, for example, often happened with old coins with a higher content of precious metal than the new debased coins with the same face value. According to the so-called Gresham's Law, if the difference is sufficiently large, the better coins tend to be driven out of circulation and melted down.[21]

However, good money does not always drive out bad money.[22] The issue is connected to the problem of whether coins circulated by weight, i.e. in accordance with their intrinsic metal value, or by tale, i.e. in accordance with their face value. A premium could be paid for the better coins (although not necessary in proportion to their weight) allowing them to stay in circulation. Although the existence of legal tender legislation required individuals to accept both good and bad coins as if they were of equal value, this was not easily enforced. Even when enforced the better coins were often hoarded (i.e. used as store of value) rather than melted down, allowing them to be brought back as means of payments under changed circumstances.

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[20] Spufford (1988), p. 290, and Sussman and Zeira (2003), p. 1776.

[21] Heckscher (1936), vol. I:1, pp. 202-203 and Heckscher (1941), pp. 3-4.

[22] Redish (2000), p. 30, and Rolnick and Weber (1986).

Various types of transactions differentiated the demand for different types of means of payment. Coins of smaller denomination could be minted with a significantly lower intrinsic metal value than their face value,[23] which became more common in the 19th century. Such coins became de facto token coins. Copper was mostly used for this purpose. By reducing the minted amount of coins of smaller denomination, according to the so-called "standard formula", their value did not fall below their face value, at the same time as shortages of petty coins could be avoided.[24] This could be accomplished either by restricting free minting or increasing the rate of seignorage of petty coins.

Classification into monetary standards

Arthur Rolnick and Warren Weber writes that a monetary standard refers to "the objects that serve as the unit of account and that back the objects that circulate as generally accepted means of payment (i.e., the objects that back the objects that are money)".[25] Monetary standards can be classified in various ways, although the definitions and terminology can vary between studies.

A currency could be seen as a system of account, with a fixed relation between the monetary units constituting this system. Table 1 presents a classification into monetary standards used in this paper for Sweden based on the relation between the currency (or currencies) and the object (or objects) backing the currency (or currencies).

The main difference is between commodity and fiat standards. Under a *commodity standard* the currency is backed by a fixed amount of a commodity, or several commodities under a *multi-commodity standard*. Several currencies can also be backed by the same commodity.

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[23] Redish (2000), pp. 107-109.

[24] Sargent and Velde (2002), p. 5.

[25] Rolnick and Weber (1997), p. 1310.

When the commodity is a metal it is called a *metallic standard*. Under a *fiat standard* the unit of account is some abstract value not linked to any commodity. The classification of monetary standards is primarily connected to the function of money as a unit of account, and not, for example, to whether notes or intrinsic value coins are the most common means of payment.

The difference between various standards is not black and white. For example, the date when Britain introduced the gold standard is difficult to pin down - the years 1717, 1774, 1816, 1819 and 1821 have been suggested depending on what criteria one uses.[26] For example, it must be distinguished between the official monetary standard and the de facto standard in place (see Table 2). Officially, a country can be on a metallic standard, while de facto it has been abandoned if the circulating notes are made inconvertible.

Under a pure metallic standard there must be complete freedom to exchange money for metal and metal for money.

One condition often set for a pure metallic standard is so-called free minting, i.e. that anybody can go to the mint, and procure for a quantity of unminted metal an amount of coins, with a deduction for seignorage (i.e. "free" does not mean free of charge).[27] A pure metallic standard also presupposes unrestricted export and import of the metals from which the coins are minted.

Under a metallic standard based on free minting the price of bullion fluctuates, at least theoretically if the markets function effectively, within the strict borders of the specie points (gold, silver or copper points). These points are not determined arbitrary, but are market prices. The upper specie point is the price at which it is profitable to turn specie coins into bullion. Bullion will then be exported. The lower specie point is the price at which it is profitable to deliver bullion to the mint. Bullion will then be imported.

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[26] Redish (2000), pp. 161-162.

[27] Velde and Weber (1998), p. 5.

The interval between the upper and lower specie points is narrower for gold than for silver, and, in turn, narrower for silver than for copper. Increased seignorage rates lowers the lower specie points, and thus increases the interval between the lower and higher specie point. Furthermore, Thomas Sargent and Francois Velde argue that the "intervals between the minting and melting points for large and small denomination coins identify a price level band within which the ordinary quantity theory operates, cast in terms of the total quantity of coins".[28]

Free minting can be restricted and minting can be conducted on government account. In Sweden, free minting was periodically restricted, for silver coins in the 16th century,[29] and for copper coins in the 17th and 18th centuries.[30] When the right to procure minted coins from unminted metal at the mint is restricted or not in existence, the market value of coins can be upheld significantly above their intrinsic commodity value. Under such circumstances, there is no lower specie point, although the upper specie point still exists, since the option of melting coins into bullion continues to be open.[31] The band within which the ordinary quantity theory operates will also be larger under such conditions.

The difference between free and restricted minting is not always clear, for example, when dealing with a situation when the seignorage rate is increased significantly. If the fiat component of a coin's face value is large, the coin in question becomes de facto a token coin. Furthermore, Thomas Sargent and Francois Velde argue that in the absence of an explicit free minting policy, the ruler can still pursue a policy that resembles it. Provided that the ruler tries to maximise profit, the mint would buy unlimited amount of metal at a mint price.[32]

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[28] Sargent and Velde (2002), p. 11.

[29] Heckscher (1935), vol. I:1, p. 202.

[30] Heckscher (1936), vol. I:2, p. 606.

[31] Sargent and Velde (2002), p. 20, and Cottrell (1997), p. 10.

[32] Sargent and Velde (2002), p. 129.

The *mono-metallic standard* is based on only one metal. The alternative is the *multi-commodity standard*.[33] In the West, the multi-commodity standard was finally abandoned not until the late 19th century.

The most common multi-commodity standard involves two precious metals. The most common combinations have been silver and gold, gold and copper, and silver and copper. Velde and Weber define a bimetallic standard de jure as one in which two different metals "have unlimited legal tender at a fixed rate and both are freely minted".[34] According to Eli Heckscher, while the *bimetallic standard* implies a fixed relation between two types of coins based on two different metals, the *parallel standard* allows a floating exchange rate between coins of different metals.[35] The bimetallic standard is quite unstable and usually de facto transforms into a parallel or a mono-metallic standard. The fluctuations of the relative prices of various metals cause the mint equivalent to be lower than the mint price for one of the metals. Coins minted from the latter metal, therefore, either tended to be exchanged at a premium or be withdrawn from circulation (see below). Some authors use a broader definition of bimetallism, referring to all monetary standards where two different metals back one or several currencies.

While fiduciary monies, bank notes and token coins, issued by private or public institutions, are convertible into precious metals, fiat monies are not.[36] Under a *fiat standard* bank notes or token coins are inconvertible. In practice, the distinction between a fiat and metallic standard can sometimes be difficult to make.[37]

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[33] Redish (2000), p. 26.

[34] Velde and Weber (1998), p.

[35] Heckscher (1936), vol. I:2, p. 607.

[36] Redish (2000), pp. 25 and 246.

[37] Lobell (2000), pp. 13-14.

Under a *full metallic standard* all monetary transactions are conducted in metallic coins. With the exception of the early 1660s, this was the case in Sweden up to around 1700. The full metallic standard was initially replaced by a *specie standard*, implying that fiduciary monies, notes convertible into coins, were issued. The classical example is the international gold standard in 1880-1914.[38] Under a *bullion standard*, the circulated notes are partly covered by unminted billion, which was the case when the gold standard was partly re-established internationally in the 1920s. Indirectly it implies that free minting is abolished (if unminted bullion would be exchanged for specie coins it would de facto be a specie standard). Under a specie or bullion *exchange standard* the national currency is convertible into currencies that, in turn, are convertible into specie or bullion. Only small fluctuations are allowed in the exchange rates. The classical example of a gold exchange standard is the Bretton Woods system after the Second World War (only the dollar was convertible into gold, while other currencies followed the dollar) lasting up to 1971.

If free minting prevails (and the seignorage rate is very low), the value of coin types in the same precious metal would tend to be fixed (or fluctuate at a very narrow band). However, if free minting is restricted for at least one coin type, the exchange rate between different coin currencies of the same precious metal could fluctuate. Under such a system, it was usual that each coin currency had its own legal status and sphere of circulation. For example, in Sweden during the 17th century debts that were made in one coin currency usually had to be paid back in the same coin currency, i.e. there was a clear separation between different standards for deferred payment. Eli Heckscher names such as system a *coin types standard* (free translation of the terms "sortmyntfot" in Swedish and "Sortengeld" in German that were the ones actually used by Heckscher), which he distinguishes from the parallel standard. Under the latter, according to a narrow definition (especially if free minting is a condition), the exchange

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[38] Redish (2000), p. 246 and Flandreau and Zumer (2004).

rate for coin types of the same metal is fixed.[39] Some authors use a broader definition of the parallel standard that would include fluctuating exchange rates between coins types of the same metal.

In this paper, the somewhat broader term *multi-currency standard* is introduced, defined as one in which several units of accounts exist that are not fixed in value relative to each other. This is contrasted to a *mono-currency standard*, based on only one currency (see Table 1). For example, the present division of one krona into 100 öre constitute a mono-currency standard. It does not involve two separate systems of account or currencies, but only one, since the relation between krona and öre is fixed.

While a parallel standard is always a multi-currency standard, the multi-currency standard can also be combined with mono-metallism. Furthermore, it can be combined with a fiat standard, if the exchange rate between two or more fiat currencies, or fiat and metallic currencies, fluctuate relative to each other.

Under a bimetallic standard two different metals back the same unit of account or currency, and presupposes (at least de jure) a fixed exchange rate between coins minted from the two metals. It is, therefore, a mono-currency standard (see Table 1).

Here the terms multi- and mono-currency standard is used to describe the domestic economy. At an international level, a multi-currency standard usually prevails. The introduction of various currency unions (for example, the euro or the international gold standard) can be described as attempts to introduce a mono-currency standard for several countries.

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[39] Heckscher (1936), vol. I:1, p. 205.

Table 1: *Classification into monetary standards developed in the present study based on the relation between the currency(ies) and the object(s) backing the currency(ies).*

| | | Number of currencies ↔ | |
		One currency (mono-currency standard)	**Two or more currencies (multi-currency standard)**
Object(s) backing the currency(ies) ↕	**One commodity (mono-commodity standard)**	Mono-currency, mono-commodity standard.	Multi-currency, mono-commodity standard.
	Two or more commodities (multi-commodity standard)	Mono-currency, multi-commodity standard (for example, bimetallic standard according to a narrow definition). Is unstable and usually transforms into a parallel or a mono-currency, mono-commodity standard.	Multi-currency, multi-commodity standard. Two cases: 1) fixed relation between coins of the same metal (parallel standard according to a narrow definition); or 2) fluctuating exchange rate between coin types of the same metal.
	Abstract unit(s) and commodity/ies	Is logically excluded. Would be a mono-currency, mono-commodity standard with convertible fiduciary money circulating.	Combined fiat and commodity standard. Often de facto a fiat standard if commodity currencies play a minor role.
	Abstract unit(s) (Fiat standard)	Mono-currency, fiat standard.	Multi-currency, fiat standard.

From commodity to fiat standard

Table 2 contains descriptions of the monetary standard in Sweden from the 12th century to the present. The riksdaler before 1777 and gold coins before 1873 were mainly international currencies, and have not been considered when establishing monetary standards. Table 3 is a summary of the value relations between various currency units, according to official and market rates. The categorisation of Table 2 should not be interpreted in an absolute manner, since, in practice, various monetary standards partly overlap.

When standards exist on a permanent basis they are easier to identify. One problem concerns periods of a temporary fiat standard, as a result of the need to finance a war. Although the currency was then made inconvertible, there was an expectation that convertibility would later be restored at the original rate of conversion. Michael Bordo and Finn Kydland, therefore, argue that such arrangements should be seen as forms of metallic standards.[40] In Table 2 a differentiation is made between "long-term standards" and "short-terms standards". Before the collapse of the Bretton Woods system, all fiat standards were more or less viewed as temporary (sometimes lasting several decades), and the link to a metal sustained in one form or another.

On a long-term basis, Sweden was, in one form or another, on a silver standard up to 1624, on a copper and silver standard 1624-1776, on a silver standard 1776-1873, on a gold standard 1873-1971, and on a fiat standard from 1971 onwards.

In Europe (and other parts of the world[41]) before the 19th century, silver was the main precious metal backing the currency commonly in use. Gold currency was used only to a lesser extent, and mainly for high-valued transactions.[42] In Sweden, before the adoption of the gold standard in 1873, gold coins played only a minor part in domestic trade. The ones imported or minted were mainly used in foreign trade. In medieval and early modern Europe silver formed a standard to which all currencies and prices could be related. There is, therefore, a practice among some price historians to transform prices in the local currency into prices in grams of silver, which makes historical prices comparable internationally.

Figure 1 and Figure 2 present the "world" gold-silver (value) ratio from 1400 to 2005 (average of France, Kraków, and Austria 1400-1427 and 1542-1551; England, France,

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[40] Bordo and Kydland (1992).

[41] See, for example, Flynn, Giráldez and von Glahn (2003).

[42] Friedman (1990), p. 85.

Kraków, Luzern and Austria 1427-1541 and 1552-1686; Hamburg 1687-1832; and from 1833 onwards London). With the exception of a rise in the first half of the 17th century, the ratio was quite stable before the classical international gold standard in 1880-1914. The exchange rate of one ducat (a gold coin) in riksdaler (linked to silver) for the period 1652-1776, also displays a surprising stability over time.

During the 15th and 16th centuries the "world" gold-silver ratio was around 11. During the first half of the 17th century it increased from 11-12 to 14-15, and then stayed at 14-16 up to the 1870s. Gold became relatively more precious than silver when most developed countries went over from silver to gold standard. In the late 19th century the ratio increased to above 30. During the 20th century the value ratio was extremely volatile, and at a much higher level then during the previous centuries.

One important source of depreciation was the wear from circulation and clipping of coins, which implied that newly minted coins (if not debased) tended to be undervalued relative to the older coins.[43] Short-term solutions were either recoinage, when clipped coins were exchanged for new ones at a reduced rate, or debasement, when new coins could circulate at par with the old ones.[44] The metallic standard was never a complete guarantee for the intrinsic metal content. A debasement cycle consists of rapid debasement followed by recoinage. In Sweden, debasement cycles occurred in the 1350s, the 1360s, 1521-24, 1561-76 and 1590-93. The period 1716-1719 could also be described as a debasement cycle, although the debased coins rather resembled fiat money. Most of these debasement cycles were connected to war and the need to finance the war through increased seignorage, and tended to be accompanied by rapid price increases. During these debasement cycles older better coins circulated alongside the debased ones, multiplying the number of currencies.

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[43] Redish (2000), p. 33.

[44] Sussman (1993), p. 52.

The empirical evidence from Sweden shows that the exchange rates of coins often deviated somewhat from the theoretical exchange rates based on the relations between their intrinsic metal content. Furthermore, there are examples of immediate as well as protracted adjustments of exchange rates and prices in response to debasement. There were also large regional differences. When free minting and the number of debased coins was restricted, these coins initially constituted only a small part of the total money supply, and their value could be upheld significantly above their intrinsic metal value. At times, there was a shortage of means of payment, allowing for this strategy to be successfully implemented. On some occasions there was an anticipation that the debased coins would later be exchanged for better coins either at par or at least at a better rate than implied by their fine metal content, allowing them to temporarily and partly function as token coins. This occurred, for example, in early 1590-1592 and 1716-1718.

To this background, there was a need for a currency unit, alongside current money, of stable precious metal content. In Sweden, the mark silver and various gold coins functioned as such during the Middle Ages, while the riksdaler took that role after the 1530s. In Amsterdam and Holland bank monies arose in the 17th century, which were linked to the better coins, according to the standard of the mint, implying that a premium was paid for those monies. These two foreign currencies also played an important role in the Swedish economy.

From 1624, copper coins were minted in Sweden with the intention that they would circulate at their intrinsic value, something unusual in Europe. For example, in England a two-penny copper coin was minted in the 1790s with an intrinsic value equal to its face value, weighing 56 grams, but these coins were only ordered once and later castigated as being to clumsy for ordinary use.[45]

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[45] Redish (2000), p. 108.

Sweden was the largest world producer of copper, and the minting of copper coins was used to regulate the international price of copper. During the 17th century the value ratio of copper to silver was around 94.[46] The heaviest copper coins were minted in the form of plates weighing between 0.5 to 20 kg. The copper standard coexisted with the silver standard, until the copper standard was definitely abolished in 1776.

In 1777 Sweden returned to the sole silver standard (based on the riksdaler as its main currency unit), which, with the exception of suspended convertibility in 1809-1834, existed up to 1873. In the period 1834-1873, free minting was the rule for both silver and gold coins. In the 19th century minting taxes were introduced, amounting to 0.75 percent from 1830 for silver coins and to 0.3 percent from 1835 for gold coins.[47]

The first banknotes in Europe of a modern type were issued by Stockholms Banco in 1661, a precursor to the Swedish Riksbank formed in 1668, although it was in the 18th century that non-metallic money came to dominate money supply. The *fiat standard* was in place during four periods in the 18th and 19th centuries – in 1716-1719, 1745-1776, 1789-1803 and 1809-1834. All four periods were preceded by wars, creating a need to finance the war by issuing fiat money, exemplifying how monetary innovation is often the result of crisis. On all occasions convertibility was later restored, but the token monies were exchanged at a reduced rate, even though the initial plan was to restore convertibility at the old par value.

The ducat, a gold coin, continued to be minted up to 1868. In 1868-1872 another gold coin was minted, termed carolin, which would link up the Swedish gold currency to the Latin Monetary Union, formed in 1865.[48] One carolin was equal to 10 French francs (or units of the Latin Monetary Union) and to 7.1 riksdaler riksmynt. Its fine gold content was 2.90322

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[46] Heckscher (1936), vol. I:2, pp. 602-603.

[47] *Nordisk familjebok* (1913), online at: http://runeberg.org/nfbs/0051.html [date of access: 070814].

[48] Wiséhn (1995), pp. 224-226, and Lobell (2000), pp. 117-118..

grams. Since one riksdaler contained 25.5045 grams fine silver, this relation would imply a gold-silver (value) ratio of 15.59. In comparison, the Latin Monetary Union was based on a gold-silver (value) ratio of 15.5 to 1.

However, plans to join the Latin Monetary Union were abandoned after the French-German war in 1870-1871.[49] Instead a Scandinavian Monetary Union was formed, by Denmark and Sweden in 1873, joined by Norway two years later. The krona (crown) became the main currency unit, which was exchanged for one riksdaler riksmynt. Counting in riksdaler banco and riksdaler specie was abolished. Sweden also changed from silver to gold (specie) standard. When the Scandinavian Monetary Union was formed, Sweden changed from silver to gold (specie) standard. The gold standard existed up to 1914. The fine gold content of one krona was 0.403 grams. Since the riksdaler specie was equal to 4 kronor, the derived gold-silver (value) ratio was 15.81, which was in accordance with international markets. The krona of Sweden, Norway and Denmark, respectively, were equal, but the krona continued to be the currency unit of Sweden after the Scandinavian Monetary Union was definitely abolished in 1924.

When the gold standard was introduced in 1873, free minting of silver was abolished. For gold coins free minting prevailed. The tax amounted to 0.25 percent for 20-crown gold coins and ⅓ percent for 10-crown gold coins.[50]

During the 20th century the fiat standard was in place in 1914-1922/1924, 1931-1951 and 1971 onwards.

On the 2nd of August 1914, after the outbreak of the First World War, the Riksbank suspended the convertibility into gold. It was reintroduced at the old par value after the war, de facto in November 1922 and de jure on the 1st of April 1924, at the previous price of gold,

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[49] Lobell (2000), p. 117.

[50] *Nordisk familjebok* (1913), online at: http://runeberg.org/nfbs/0051.html [date of access: 070814].

but suspended again on the 27th of September 1931 following the international Great Depression.[51] The period 1924-31 was not a full return to the gold specie standard of 1873-1914. Although gold coins were minted in 1920 and 1925, these were not widely circulated and were mainly used as gold reserves.[52] In June 1933 the krona was fixed to the British pound at 19.40 SEK (compared to 18.1-18.2 SEK under the previous international gold standard), and 28th of August 1939 to the US dollar at 4.20 SEK (compared to around 3.74 SEK under the previous international gold standard). The legal price of gold was 20.67 USD per ounce up to 1933, when it was raised in several stages to 35 USD per ounce in early 1934.[53]

Although during the Second World War a de facto fiat standard was in place, the exchange rate of the dollar (and, therefore, also the price of gold in SEK) was stable. In 1946 the krona was revalued by 14.3 percent (1 USD = 3.60), but in 1949 it was devalued by 30.5 percent (1 USD = 5.17 SEK).[54]

Sweden joined the Bretton-Woods system formally in 31st of August 1951,[55] when a gold exchange standard prevailed, but at a higher gold price than during the previous gold standard. Central bank currencies would remain convertible into US dollars, and only the US dollar was convertible on demand into gold.[56] During the Bretton Woods system one US dollar was linked to gold at the rate of 35 USD per ounce or 1.12527 USD per gram. Since one krona stood at 5.17 per dollar from 1949, this would imply that the fine gold content of one krona during the Bretton Woods system was 0.217 grams, i.e. half of the fine gold content fixed in 1873.

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[51] Jonung (2000), p. 19.

[52] Wettmark (1995), p. 256.

[53] Friedman (2000), p. 86.

[54] Jonung (1975), pp. 182-184, and Jonung (2000), p. 19.

[55] Ahlström and Carlsson (2006), p. 64.

[56] Redish (2001), p. 247.

Since the fall of the Bretton Woods system in 1971 Sweden has been on a fiat standard. A difference with the present fiat standard compared to earlier ones is that the link to precious metals has been completely severed and there are no plans to reintroduce a metallic standard. Only in the 1990s has the fiat standard been combined with price stability. This international price stability is based on the inflation targets of central banks, where inflation is measured by the Consumer Price Index. However, the commodity aspect of money has not been completely abandoned. Since the unit of account is backed by the commodities constituting the Consumer Price Index, the present fiat standard possesses some features of a non-metallic multi-commodity standard, resembling what Stanley Jevons called a "tabular standard".[57] Although the unit of account is backed by a decreasing amount of commodities over time (i.e. allowing a small inflation), also during the metallic standard the amount of metal backing the unit of account (at least before the 19th century) tended to decrease over time.

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[57] In the late 19th century, Stanley Jevons (1875, ch. xxv) favoured a so-called "tabular standard", under which a multiple legal tender would be adjusted in accordance with the general price level. He asked whether not "the progress of economical and statistical science might not enable us to devise some better standard of value".

Table 2: *Monetary standards in Sweden since the 12th century.*

Period	"Long-term stan-dard"	"Short-term standard"			
		Official monetary standard	De facto monetary standard	Main currency unit	Other currency units (on a floating market rate with the main unit)
12th century to 1624	Silver standard linked to the mark	Mostly full metallic, multi-currency, silver standard (different currencies were predominant in different regions)		Mark (penningar)	Mark silver/lödig*, mark gutnisk, Danish mark, gammal örtug, rhensk gyllen, nobel
1534-1624		Mostly full metallic, mono-currency, silver standard (at some periods multi-currency standard based on silver, in 1590-1592 partly a fiat standard based on token coins)			Daler/rdr, gyllen (gold), krongyllen
1624-1633	Copper and silver standard linked to daler koppar-mynt and daler silver-mynt as units of account	Copper standard	Full metallic, multi-currency, copper and silver, standard	Öre in copper coins	Öre in silver coins, mark in silver coins, rdr
1633-1643		Silver standard	In the 1630s, full bimetallic, copper and silver, standard. In the early 1640s parallel standard.	Dsm/dkm	Rdr
1643-1665		Copper standard	Initially bimetallic and later multi-currency standard	Dsm/dkm linked to plates, initially also to silver coins	Mark in silver coins, öre in silver coins, rdr, ducat, Palmstruch's credit notes
1665-1674		Silver standard	Multi-currency standard	Dsm/dkm linked to plates and öre courant	Carolin, rdr, ducat, Palmstruch's credit notes
1674-1681		Copper standard	Full metallic, multi-currency, copper and silver, standard	Dsm/dkm linked to plates	Öre courant, carolin, rdr, ducat
1681-1686		Silver standard	Full metallic, multi-currency, copper and silver, standard	Dsm/dkm linked to plates and öre courant	Carolin, rdr, ducat
1686-1709			Initially bimetallic copper and silver standard, later mono-metallic, silver standard	Dsm/dkm linked to öre courant and carolins, initially also plates	Rdr, ducat
1709-1716		Copper standard	Bimetallic, copper and silver, standard	Dsm/dkm linked to plates, öre courant and carolins	Rdr, ducat
1716-1719		Suspended copper specie standard	Fiat standard (multi-currency, fiat, copper and silver standard)	Dsm in token coins	Dsm in plates, Görtz' carolin, carolin, öre courant, rdr, ducat
1719-1745		Copper specie standard	Multi-currency, copper and silver, standard	Dsm/dkm linked to plates	Öre courant, carolin, rdr, ducat

Table 2: *Continued*.

Period	"Long-term standard"	"Short-term standard"		Main currency unit	Other currency units (on a floating market rate with main unit)
		Official monetary standard	De facto monetary standard		
1745-1766		Suspended copper specie standard	Fiat standard (multi-currency, fiat, copper and silver standard)	Dsm/dkm, officially in plates, de facto in notes	Öre courant, carolin, rdr, ducat
1766-1776		Silver standard		Officially rdr specie, de facto notes in dsm/dkm	Öre courant, carolin, ducat
1776-1789	Silver standard linked to riks-daler specie/ riks-mynt	Silver specie standard		Rdr specie	Ducat
1789-1803		Silver specie standard (banco)	Fiat standard (multi-currency, fiat and silver specie standard)	Rdr riksgälds	Rdr banco, ducat
1803-1809		Silver specie standard		Rdr banco/riksgälds	Ducat
1809-1834		Suspended silver standard	Fiat standard (multi-currency fiat and silver standard)		Rdr specie, ducat
1834-1855		Silver specie standard		Rdr banco/riksgälds/ specie	Ducat
1855-1873				Rdr riksmynt	Ducat, carolin (gold)
1873-1914	Gold standard linked to krona as a unit of account	Gold specie standard		Krona	
1914-1922/1924		Suspended gold standard	Fiat standard		
1922/1924-1931		Gold bullion standard (de facto from 1922, de jure from 1924)			
1931-1951		Suspended gold standard	Fiat standard		
1951-1971		Gold exchange standard			
1971-		Fiat standard (gold standard was abandoned de jure in 1974, de facto in 1971)			

Sources: Fregert and Jonung (2003), p. 225, Jonung (2000), p. 19, and Wallroth (1918).

d.s.m. – daler silvermynt, d.k.m. – daler kopparmynt, rdr – riksdaler

*Not a currency unit.

Table 3: *Exchange rates between Swedish currencies from the Middle Ages to the present.*
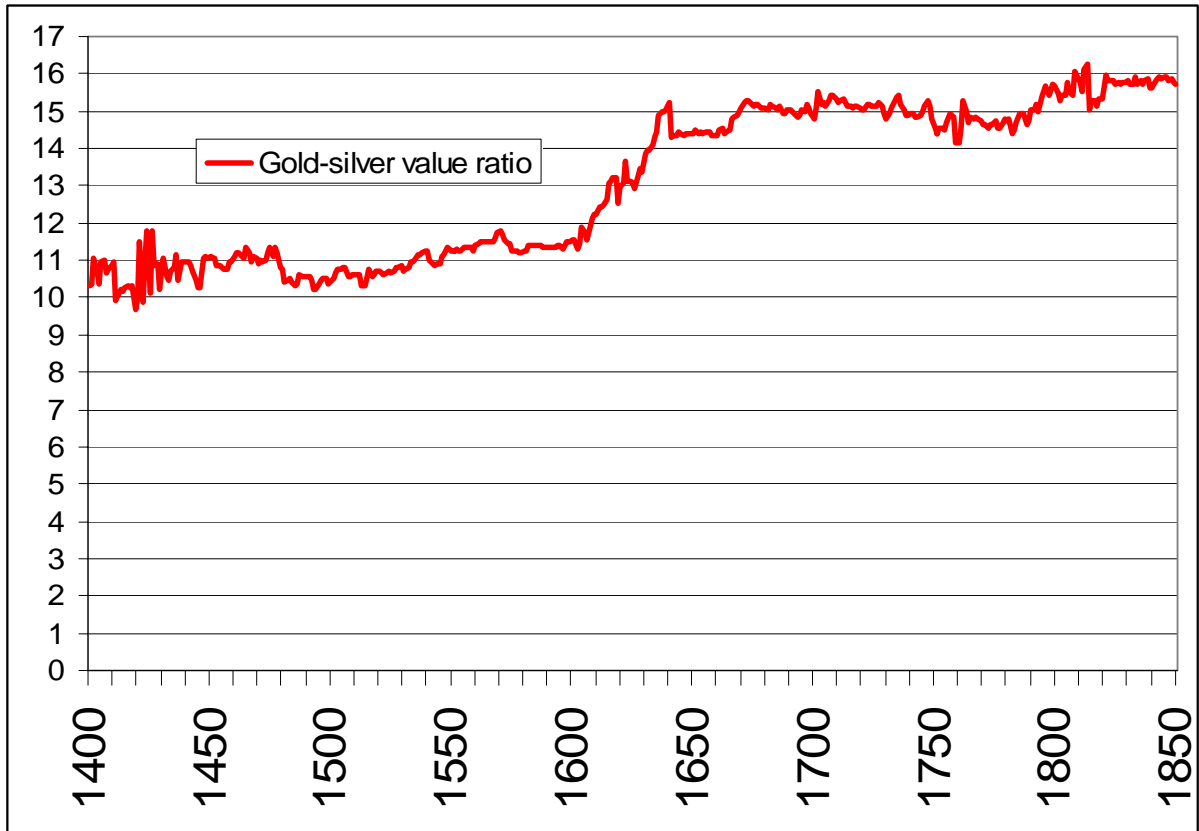
Period	Official rates of conversion	Market rates
Before 1290	1 mark = 8 öre = 24 örtug = 192 penningar (Svealand) = 384 penningar (Götaland)	1 mark silver = 2 or 3 to 4.56 mark penningar
c. 1290- c. 1400	1 mark = 8 öre = 24 örtug = 192 penningar	1 mark silver = 3 to 8 mark penningar (in proper coins)
c. 1400- c. 1450		1 mark penningar = 1 to 4.5 mark gutniska 1 mark lödig = 6 to 11 mark penningar
c. 1450-1534	1 mark = 8 öre = 24 örtug = 192 penningar From 1523 1 öre = 2 minted örtugs 1 mark dansk = 3 mark gutniska = ¾ mark svensk = 6 Swedish öre (1450-1550)	1 mark lödig = 8 to 24 mark penningar (in proper coins)
1534-1560	1 mark = 8 öre = 192 penningar	1 silver daler = 3 to 4.125 marks
1560-1576		1 silver daler = 3.75 to 32 marks
1576-1589		1 slagen daler = 4 to 4.5 marks
1589-1592		1 slagen daler = 4.5 to 18 marks
1592-1624	1 mark = 8 öre = 192 penningar 1 (svensk daler) = 4 mark 1 slagen daler/rdr = 4.5 marks in 1607-1619 and 6.5 marks in 1619-1633.	1 slagen daler/rdr = 4.5 to 6.75 marks

Table 3: *Continued.*

| Period	Official rates of conversion			Market rates
1624-1633		1 öre in copper coins = 1 öre in silver coins 1 rdr = 6.5 marks		1 rdr = 6.5 to 17.5 marks in copper coins 1 rdr = 6.5 to 12.8 marks öre silver coins 1 rdr = 6.5 to 8 marks silver coins
1633-1643		1 d.s.m. = 2 d.k.m. 1 rdr = 12 marks k.m. = 1.5 d.s.m.		1 rdr= 12 to 17.5 marks k.m.
1643-1665		1 d.s.m. = 2.5 d.k.m. 1 rdr = 15 marks k.m. = 1.5 d.s.m.		1 rdr = 15 to 21.75 marks k.m. 1 öre in silver coins = 2.5 to 3 öre k.m. 1 daler carolin = 2.5 to 3 d.k.m.
1665-1681	1 daler = 4 marks = 32 öre	1 d.s.m. = 3 d.k.m.	1 carolin = 16 öre s.m. 1 rdr = 19.5 marks k.m. = 1.625 d.s.m. 1 ducat = 100 öre s.m. ≈ 1.923 rdr	1 rdr = 21 to 27.3 marks k.m. 1 öre courant = 3 to 3.5 öre k.m. 1 carolin = 16.5 to 20.8 öre s.m. 1 ducat = 40 to 60 marks k.m. = 1.92 to 2.28 rdr
1681-1686			1 carolin = 18 ⅔ öre s.m. 1 rdr = 24 marks k.m. = 2 d.s.m. 1 ducat = 128 öre s.m. = 2 rdr	1 rdr = 22.6 to 27.3 marks k.m. 1 öre courant = 3 to 3.1 öre k.m. 1 carolin = 18 ⅔ to 20 öre s.m. 1 ducat = 48 to 52 marks k.m. = 1.91 to 2.08 rdr
1686-1716			1 carolin = 20 öre s.m. 1 rdr = 24 marks k.m. = 2 d.s.m. 1 ducat = 128 öre s.m. = 2 rdr	1 rdr = 24 to 27.1 marks k.m. 1 ducat = 47 to 60 marks k.m. = 1.88 to 2.29 rdr
1716-1719				1 d.s.m. in token coins = 0.5 to 1 d.s.m. in proper coins 1 rdr= 26 to 140 marks k.m. 1 ducat = 1.99 to 2.03 rdr
1719-1745			1 carolin = 25 öre s.m. 1 görtz' carolin = 16 öre s.m. 1 rdr = 3 d.s.m. (1718-1776) 1 ducat = 2 rdr	1 rdr = 34 to 43 marks k.m. 1 öre courant = 3 to 3.4 öre k.m. 1 carolin = 25 to 31 öre s.m. 1 ducat = 68 to 90 marks k.m. = 1.97 to 2.06 rdr
1745-1776				1 rdr = 38 to 108 marks k.m. 1 öre courant = 3.1 to 6.5 öre k.m. 1 carolin = 29.5 to 57.5 öre s.m. 1 ducat = 76 to 200 marks k.m. = 1.84 to 2.04 rdr
1777-1789	1 rdr = 48 skillings 1 skilling = 12 runstycken	1 rdr = 72 marks k.m. = 6 d.s.m. 1 ducat = 94 skillings ≈ 1.958 rdr		
1789-1803		1 ducat = 94 skillings specie		1 rdr banco = 1 to 1.67 rdr riksgälds
1803-1809		1 rdr banco = 1.5 rdr riksgälds 1 ducat = 94 skillings specie		
1809-1834		1 rdr banco = 1.5 rdr riksgälds 1 ducat = 94 skillings specie (102 skillings specie from 1830)		1 rdr specie = 1 to 2 ⅔ rdr banco
1834-1855	1 rdr specie = 2 ⅔ rdr banco = 4 rdr riksgälds 1 ducat = 102 skillings specie			
1855-1873	1 rdr riksmynt = 100 öre 1 rdr specie = 4 rdr riksgälds 1 ducat = 8.25 riksdaler riksmynt 1 carolin (gold) = 7.1 riksdaler riksmynt			
1873-	1 krona = 100 öre			

s.m. – silvermynt, k.m. – kopparmynt, d. – daler, rdr – riksdaler

Figure 1: *"World" gold-silver (value) ratio 1400-1850*.

Sources: http://sccweb.scc-net.rutgers.edu/memdb and http://www.measuringworth.com. Average of France,

Kraków, and Austria 1400-1426 and 1542-1551; England, France, Kraków, Luzern and Austria 1427-1541 and

1552-1686; Hamburg 1687-1832; and London 1833-1850.

Figure 2: *"World" gold-silver (value) ratio 1850-2005.*
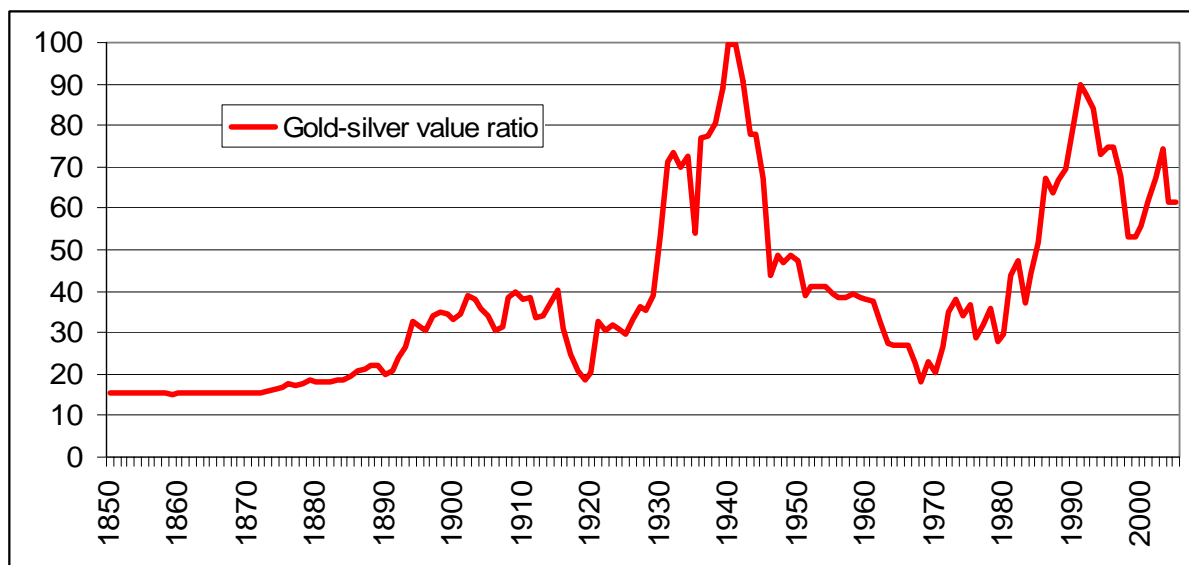
Source: http://www.measuringworth.com. Based on London prices. Continues the series of Figure 1.

Conclusions and summary

Monetary standards can be classified in various ways. A monetary standard refers to the objects that serve as the unit (or units) of account and that back the objects that are used as accepted means of payment. In this paper, a distinction is made between a mono-currency standard, based on only one currency, and a multi-currency standard, based on several units of accounts that are not fixed in value relative to each other.

Under a commodity standard the unit of account is backed by a fixed amount of a commodity, or several commodities under a multi-commodity standard. In Sweden, gold, silver and copper have been used for this purpose. Under a mono-metallic standard only one metal backs the unit of account. Under a bimetallic standard two different metals back the same unit of account, and, therefore, presupposes (according to a narrow definition) a fixed exchange rate between coin types made from the two metals. The parallel standard involves a fluctuating exchange rate between currencies made of different metals. Under a multi-currency standard, the market exchange rate between currencies of the same precious metal

can fluctuate as well. Although the so-called Gresham's Law states that cheap money drives out dear money, one condition for the Law is a fixed exchange rate between the two. The existence of premium on dear money allows them to stay in circulation alongside cheap money, which on numerous occasions in Swedish monetary history led to the formation of new currencies.

Under a fiat standard the unit of account is some abstract value not linked to any commodity. The means of exchange consist of token coins or bank notes. While fiduciary money is convertible into specie or bullion, fiat money is not.

The difference between various monetary standards is not always clear-cut, and there is often a discrepancy between the official and de facto monetary standard. Definitions of various monetary standards should not be applied in a too rigid manner.

Up to 1624 Sweden was on a silver standard, with the mark as the main currency unit. In 1624-1776 a combined silver and copper standard was in place, with daler silver and daler kopparmynt forming a common system of account, although a fiat standard was de facto in place in 1745-1776. In 1777 the sole silver standard was introduced, with the riksdaler as the main currency unit, which lasted only up 1789, and was followed by a fiat standard with the riksdaler riksgälds as the main currency unit. In 1803 the silver standard was reintroduced, but was abandoned in 1809, and reintroduced in 1834. In 1873 Sweden went from silver to gold (specie) standard. The krona replaced the riksdaler riksmynt as the main currency unit. Since the fall of the Bretton Woods system in 1971, Sweden has been on a pure fiat standard.

Appendix: Historical money terms

This list presents various money terms that has historically been in use in Sweden (and Finland up to the early 19th century). Some foreign currency units are also included that have been used as a means of payment in Sweden. The main sources are Wallroth (1918), *Kulturhistoriskt lexikon för nordisk medeltid från vikingatid till reformationstid* (1956-1978), and Lagerqvist and Nathorst-Böös (1968). For other sources see footnotes.

Abo: A coin that circulating in Finland in the 15th century, which was worth 4-6 penningar.[58] It was the same, or of equal value, as the Livonian artig (revalsk).

Adolphin: During the reign of Adolf Fredrik (1751-1771) the term "adolphin" was sometimes used instead of carolin, equal to two marks in minted silver coins. One "dubbel adolphin" was two carolins.

Albertustaler or Albertusdaalder: A silver coin first minted in 1612 in Spanish Netherlands, with the fine silver content of 24.65 grams. See korsdaler.

Amsterdam rijksdaalder courant: One of the most quoted foreign currencies in Sweden during the 17th, 18th and 19th centuries. The Amsterdam rijksdaalder courant was equal to 2.5 guilders. On the 25th of December 1681, the gulden was set equal to 9.613 grams of fine silver (being 10.28 grams in 1620-1659 and 9.74 grams in 1660-1681). In 1845 the fine silver content of one guilder was decreased to 9.45 grams fine silver.

Bondemark: A currency unit in Finland in the 15th century, equal to 24 abo or ¾ mark örtug.[59]

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[58] *Kulturhistoriskt lexikon för nordisk medeltid från vikingatid till reformationstid* (1956-1978), "Abo".

[59] Hyötyniemi, (2000), p. 50.

Carolin (early 17th century): A round gold coin minted in 1606-1624 with the face value of 16 marks. It contained 4.8524 grams fine silver.

Carolin (1665-1776): A term used officially from mid-1660s to designate two marks in actual silver metal coins. In the period 1665-1776 one carolin had the unchanged fine silver content of 7.2228 grams. Another term used for carolin was "halv svensk daler" (half Swedish daler). During the reign of Fredrik I (1720-1751) the term "fredrik" and during the reign of Adolf Fredrik (1751-1770) the term "adolphin" were sometimes used instead of carolin. One carolin was officially equal to 16 öre silvermynt up to 1681, 18⅔ öre silvermynt in 1681-1686, 20 öre silvermynt in 1686-1716 and 25 öre silvermynt in 1716-1776, although the market exchange rate was often higher.

Carolin (19th century): A gold coin minted in 1868-1872. One carolin was equal to 10 French francs (or units of the Latin Monetary Union) and to 7.1 riksdaler riksmynt. Its fine gold content was 2.9032 grams.

Carolin (Görtz): "Görtzka caroliner" were minted in 1718. One of Görtz' carolins was equal to 16 öre courant (which was the official value of one carolin before 1681), or 16/25 of one "old" carolin.

Christin: 8-mark silver coin (later 4 carolins) that was minted in 1649 with the portrait of Queen Christina. It had the same face value as the later dukaton, although the christin had a higher fine silver content. The fine silver content of one christin was 31.6997 grams.

Daler: A silver coin minted in Sweden from 1534 to imitate the German Joachimdaler. Up to 1776 (when the riksdaler became the main currency unit), this coin was not used much in domestic trade. The fine silver content of the coin was stable throughout its existence; in 1534-1536 28.0593 grams, in 1537-1541 27.6245 grams, in 1542-1638 25.5957 grams, in 1639-1675 25.2739 grams, in 1676-1830 25.6973 grams and in 1831-1873 25.5045 grams. From the 1570s the term "daler" also came to refer to the unit of account equal to 4 marks. To

distinguish between these two types of daler, the silver daler was called "slagen daler" (minted daler), later riksdaler, and the unit of account "svensk daler" (Swedish daler). In the 17th century several different counting systems arose based on daler silvermynt, daler kopparmynt, daler courant and daler carolin.

Daler carolin: A term used after mid-1660s up to 1776. Equal to two carolins or 4 marks in silver coins. Another term for daler carolin was "svensk daler" (Swedish daler). One daler carolin was officially set equal to one daler silvermynt up to 1681, 1 1/6 daler silvermynt in 1681-1686, 1.25 daler silvermynt in 1686-1716 and 1 9/16 daler silvermynt in 1716-1776, although the market exchange rate was often higher.

Daler courant silvermynt: Before 1777, the same as 32 öre courant. Officially one daler courant silvermynt was equal to one daler silvermynt, but the market rate was higher in some periods.

Daler klippingmynt (1590s): A term for 4 marks in debased klipping coins.[60] In the late 1592, one daler klippingmynt was set equal to ¼ daler in proper mark coins.

Daler kopparmynt: A unit of account that arose in the 17th century, to distinguish it from daler silvermynt, although forming the same system of account. 1 daler kopparmynt = 4 mark kopparmynt = 32 öre kopparmynt.

Daler penningar (late 16th century): The same as Swedish daler equal to 4 marks.[61]

Daler silvermynt: A unit of account that arose in the 17th century, to distinguish it from daler kopparmynt. In 1624, when the first copper coins were minted, one daler in copper coins was supposed to be equal to one daler in silver coins. However, the copper coins soon fell in value relative to silver coins. One daler silvermynt was equal to two daler silvermynt in 1633-1643, 2.5 daler silvermynt in 1643-1665 and 3 daler silvermynt in 1665-1776. 1 daler

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[60] Used, for example, in 1592 in *Stockholms stads tänkeböcker från år 1592*, part 1 (1939), pp. 70 and 90.

[61] Used, for example, in 1596 in *Vadstena stads äldsta tänkeböcker 1577-1610* (1952), p. 226.

silvermynt = 4 mark silvermynt = 32 öre silvermynt. Although the fixed relation between the daler silvermynt and daler kopparmynt was supposed to establish a fixed relation between silver and copper coins, there was at periods a deviation between the two types of coins at the market, implying that the actual silver coins did not follow the daler silvermynt. 1 daler in actual silver coins was, therefore, termed daler courant or daler carolin. After 1776, the daler silvermynt continued to be used as a term for 1/6 riksdaler or 8 skillings, and later for 12 skillings riksgälds.[62]

Daler silvermynt in specie or daler silvermynt i vitt mynt: Around mid-17th century, a term for daler silvermynt when payment was made in actual silver coins. From mid-1660s, the terms "daler courant" and "daler carolin" were used instead.

Dubbel pjes (double pjes): In 1739-1776, a term for coins that were minted as 10 öre, but had the nominal value of 12 öre courant. Was also called "12-styver".

Dubbel slant: From the late 17th century the same as two öre silvermynt in copper coins. In 1777-1803 had the nominal value of ½ skilling (banco).

Ducat or florin: First minted in Venice 1285. A gold coin that was imported to, and from 1654 also minted in, Sweden. The fine gold content of one Swedish ducat was 3.3431 grams in 1654-1664, 3.3966 grams in 1665-1835 and 3.4006 grams 1836-1868. One Swedish ducat was worth around two riksdaler (specie).

Dukaton or dubbel svensk daler (double Swedish daler): Coin with the face value of 4 carolins. It was minted in 1664-1704, and had the same face value as the earlier christin, although the dukaton had a lower fine silver content. The fine silver content of one dukaton was 28.8985 grams.

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[62] Talvio (1995), p. 205.

Engelot: A gold coin minted in France and England (in England under the name of angel) that was imported to Sweden. In the 16th century, it weighed 5.18 grams, but after 1601 less. In 1541, one engelot was valued 7.5 marks.

Engelsk or själländsk engelsk (English): A Danish 3-penny coin (1/64 Danish mark), minted as an English sterling. It was common in Götaland in the early 15th century, and circulated then as 1/4 Swedish öre (6 Swedish penningar). It initially contained 0.66 grams fine silver (which was less than for the English sterling).

Enkel daler: In the 16th century the same as the silver daler.

Enskilling: In 1834-1855, the copper coin with the nominal value of 2/3 skilling banco (= 1 skilling riksgälds).

Enstyver: In 1799-1855, the copper coin with the nominal value of 1/6 skilling banco.

Florin: The same as ducat.

Fredrik: During the reign of Fredrik I (1720-1751) the term "fredrik" was sometimes used instead of carolin, equal to two marks in minted silver coins.

Fyrk: Equal to ¼ öre. Fyrks in silver were minted in 1523-1601. Fyrks in copper were minted in 1624-1660. It was also called "halvöre" (half öre), since from 1633 ½ öre in copper coins was set equal to ¼ öre in silver coins.

Gammal örtug (old örtug): The örtug minted before 1478. In the late 15th century a premium arose on "gammal örtug". In 1481, 1 "gammal örtug" = 9 penningar = 1.125 new örtugs. Around 1500, 1 "gammal örtug" = 10 penningar = 1.25 new örtugs. After 1523: 1 "gammal örtug" = ¾ öre = 1.5 new örtugs. The "gammal örtug" was also minted in 1589-1590 to the nominal value of ¾ öre.

Gote or gute: A coin minted in Gotland from 1320-1340 to mid-15th centuries, originally the Gotlandic örtug. In the 15th century, 1 öre gutnisk was set equal to 4 gote, so that 1 mark gutnisk = 32 gotar, but the relation 1 öre gutnisk = 3 gote is also known.

Gros tournois: A French coin that circulated widely in Sweden during the late 13th century and first half of the 14th century, valued 17-20 penningar. The gros tournois initially weighed 4.22 grams and had 23/24 fineness. The weight and fineness of gros tournois was unchanged until 1322. After 1329, its weight changed frequently, and was no longer minted after 1364. The sterling was reckoned as one third of the gros tournois. [63]

Gyllen (silver coin): A currency unit in silver minted in the 1520s.

Gyllen (gold coin): The name of several gold coins that circulated in Sweden in the 15th, 16th and 17th centuries. The fine gold content of one gyllen (gulden) was supposed to be the same as the florin or the ducat, but later the coins were debased, and several types of gyllen coins circulated at various values. The "rhensk gyllen" (Rhine gulden) had a lower fine gold content than the ducat, and so-called "lätte gyllen" even lower than the rhensk gyllen, but the "ungersk gyllen" followed the ducat.[64]

Halv carolin (1665-1776): Half carolin, the same as one mark silver coin.

Halvanstyver (one and a half styver) or bankovitten (19th century): In 1802-1855, the copper coin of the nominal value of ¼ skilling (banco). Equal in value to one and a half styver.

Halvöre: After 1633, the same as ½ öre kopparmynt.[65]

Hamburger reichstaler banco: The most quoted foreign currency in Sweden in the 18th and early 19th centuries. One Hamburger reichstaler banco was equal to 3 mark-banco. In 1622, the fine silver content of one mark banco was 8.66 gram and one reichstaler banco 25.98 grams, in accordance with the Leipzig convention establishing the reichstaler in 1566. From 1790 the issue rate of a reichstaler banco was 9.25 per mark of fine silver and the mark-

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[63] Spufford, 1986, pp. 184-186.

[64] Hildebrand (1983), pp. 910-911 and 947.

[65] Stiernstedt (1863), pp. 61-62.

banco 27.75 per mark of fine silver. Since the mark of fine silver in Hamburg was equal to 233.855 grams, one reichstaler banco was the equivalent of 25.2816 grams fine silver. Although the Hamburger reichstaler banco was often used as an equivalent for the riksdaler specie, the Swedish riksdaler specie was normally of a somewhat higher value.

Hvid: A Danish coin, minted from mid-14th to late 17th centuries. Circulated in parts of Sweden during various periods. 1 hvid = 4 (Danish) pennings = 1/3 skilling. In 1451, the Danish hvid was set equal to 3 Swedish pennings. It was also used at that value (also called albus) when counting was made in mark danska (= 48 hvid).

Joachimstaler: Minted since 1518 in Joachimsthal in Bohemia. From 1534 the Joachimdaler was minted in Sweden, called daler, and later slagen daler, riksdaler and riksdaler specie.

Kopparrunstycke: A term used from 1719 to 1776 (previously only runstycke) for coins with the face value of one öre kopparmynt that were minted from 1719 onwards.[66]

Korsdaler: Probably the same as the Albertustaler (kreutztaler). A coin with a slightly less silver content than the riksdaler that was imported to and quoted in the exchange rate markets in 17th century Sweden. In mid-1660s, the legal value of one korsdaler was set to 50 öre silvermynt, which can be compared to 52 öre silvermynt for one riksdaler.[67]

Kreutzer: A copper coin minted by Swedish monarchs in the 17th century for circulation in Germany.

Krona: The currency unit introduced in Sweden 1873 when the Scandinavian Monetary Union was formed and replaced the riksdaler. One krona was set equal to one riksdaler riksmynt, but was linked to gold instead of silver. The fine gold content of one krona was 0.4032258 grams. The krona of Sweden, Norway and Denmark, respectively, were equal, but

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[66] Stiernstedt (1863), p. 62.
[67] Starbäck (1886), p. 563.

the krona continued to be the currency unit of Sweden after the Scandinavian Monetary Union was definitely abolished in 1924. During the Bretton Woods system one US dollar was linked to gold at the rate of 35$ per ounce or 1.12527$ per gram. Sweden joined the Bretton Woods system in 1951.[68] Since one krona stood at 5.18 per dollar, this would imply that the fine gold content of one krona during the Bretton Woods system was 0.217 grams, i.e. half of the amount fixed in 1873. 1 krona = 100 öre. The international code is SEK.

Krongyllen: A gold coin minted in 1569-1573 and 1598-1599. One krongyllen was equal to 1.25 slagen daler and its fine gold content was 3.0395 grams.

Mark (unit of account): A unit of account used in Sweden up to 1776 equal to ¼ daler or 8 öre. During the 17th century mark kopparmynt and mark silvermynt became two different units, although forming the same system of account.

Mark danska: A unit of account used in Sweden (mainly Götaland) around 1450-1550. In 1451, the official rate of the Danish hvid was fixed to 3 Swedish pennings. Since one mark danska = 16 skillings = 48 hvider (or albus), one mark danska was equal to 144 Swedish penningar, i.e. 1 mark danska = 6 Swedish öre = ¾ mark svenska. This became purely a unit of account, and the counting in mark danska was made in Swedish coins and not in actual Danish coins (i.e. one mark danska was not necessarily equal to one actual Danish mark). Another term was "mark danska i svenskt mynt" (Danish marks in Swedish coins).

Mark guld (mark in gold): During the Middle Ages, the same as gold weighing one mark (around 210 grams, gross weight).

Mark gutnisk: The mark gutnisk was originally the mark of Gotland, which had its own monetary system in the 12th and 13th centuries. In the 13th century Gotlandic coins was also used as the main currency in Öland, Småland and Östergötland. In that century: 1 mark gutnisk = 24 örtug = 288 penningar. Sometimes before the 1340s, Gotland adopted the

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[68] Ahlström and Carlsson (2006), p. 64.

Hansaetic system, where one Gotlandic örtug or gote was set equal to 3 pennies of Lübeck or 6 Swedish penningar. According to one theory the Gotlandic mark silver was the same as the mark of Lübeck counted in gotar, originally equal to 144 gotar or 2⅔ traditional Gotlandic marks.[69] In the early 14th, 1 mark in Götaland was counted as 32 gutar (based on 1 gote = 6 penningar). Since gotar deteriorated in value, this mark, called tysk mark in the 1410s and mark gutnisk from the 1420s, became less worth than the mark örtug.[70] Mark gutnisk was worth only ½ mark örtug in the 1420s and early 1430s, and around ¼ mark örtug in the 1440s. It is considered that Gotland adopted the Danish monetary system in 1449, where the gote was replaced by the hvid (= 4 penningar = 1/16 skilling = 1/48 mark), but the old gotar continued to dominate circulation in Gotland and Götaland in the second half of the 15th century. After the mid-15th century the term "mark gutnisk" probably referred to different types of currencies. In the 1530s, in Götaland the mark gutnisk was used as a pure unit of account equal to ¼ mark örtug or ⅓ mark dansk.

Mark härdalsk: A unit of account used in Härjedalen during the Middle Ages, which was probably the same as the mark jämtsk.

Mark jämtsk: A unit of account used in Jämtland, and known from 1346 to the late Middle Ages, probably linked to Norwegian coins from the 14th century. In 1437, 1 mark jämtsk = 1 13/35 Swedish mark.

Mark kalmarsk: The same as mark stackota or mark gutnisk.

Mark karlgill and köpgill: These two mark currencies are mentioned in Upplandslagen, written in the late 12th century. 1 öre karlgill was equal to 12 penningar and 1 öre köpgill to 8 penningar. Mark karlgill has been interpreted as mark silver, which is unconvincing since one

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[69] Hyötyniemi, 1999.

[70] Hyötyniemi, 2000.

mark silver was valued 3-4.5 mark penningar at the time when the Upplandslagen was written.

Mark klipping (1570s): Mark in debased klipping coins.[71] In 1575, one mark in proper coins was set equal to 6.5 marks in debased klipping coins. In 1576, one mark klipping was reduced to one öre (1/8 mark in proper coins).

Mark klipping or klippingmynt (1590s): Mark in debased klipping coins.[72] In late 1592, one mark in proper coins was set equal to 4 marks in debased klipping coins, and in May 1594 one mark klipping was further reduced to ¾ öre (0.09375 mark in proper coins).[73]

Mark kopparmynt: A unit of account that was never minted. 1 mark kopparmynt = 8 öre kopparmynt = ¼ daler kopparmynt. Foreign exchange rates were often quoted in mark kopparmynt. When the riksdaler was introduced as the main currency unit in 1777, it was set equal to 72 mark kopparmynt.

Mark kölnisk (Cologne mark): A silver weight unit used in large parts of Europe. Equal to 233.8 grams of silver in gross weight, although the fineness could vary.

Mark lybsk: Lübeck coins were common especially in Götaland during the 14th and 15th century. 1 mark of Lübeck = 16 skilling = 48 Witten = 192 pennies. 1 mark of Lübeck circulated as 2 Swedish mark in the early 14th century, but deteriorated to 1 mark or somewhat above later during the century. The fine silver content of the mark of Lübeck, equal to 48 Witten, was 50-55 grams in the late 14th century. In 1401 it was reduced to 46 grams, in 1411 to 40 grams, in 1424 to 28 grams, in 1433 to 25 grams and in 1461 to 20 grams.

Mark lödig: The same as mark silver, a silver weight unit used in the Middle Ages and the 16th century (as opposed to "mark penningar", which was a currency unit). The term "mark

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[71] Used, for example, in *Vadstena stads äldsta tänkeböcker 1577-1610* (1952), p. 98.

[72] Used, for example, in 1592 in *Stockholms stads tänkeböcker från år 1592*, part 1 (1939), pp. 51 and 62.

[73] *Stockholms stads tänkeböcker från år 1592*, part 1 (1939), p. 218.

lödig" is known from 1341 onwards. Before the term mark silver was used instead. In the 16th century it was equal to 210.616 grams of silver, although there is an uncertainty concerning the fineness of this silver. Assuming that the fineness could vary between 85 and 95 percent, the mark lödig probably contained between 180 and 200 grams fine silver. The mark penningar depreciated continually relative to mark lödig during the Middle Ages.

Mark grossa: Mark in Gotlandic "grossa".[74] Probably the same as mark gutnisk.

Mark penningar (mark in pennies): A currency unit in contrast to mark lödig. Up to the late 13th century, 1 mark penningar was equal to 192 penningar in Svealand, but to 384 penningar in Götaland. From the late 13th century, 1 "mark penningar" = 192 penningar in both Svealand and Götaland. The equivalent term "mark örtug" was in use from the late 15th century onwards.

Mark rigisk or revalsk: The currency unit in Livonia. In the 13th century the mark rigisk was equal to 24 artig of Riga. In the 14th century another mark rigisk came in use that was set equal to 144 artig, originally at pari with the mark silver.[75] In the 1420s a third mark rigisk came in use, which was set equal to 36 old artig (or new schilling). The counting in coins of Riga was common in Finland during the 15th and first half of the 16th centuries. In the 1520s and 1530s 1 "mark rigisk" = 9 öre in Swedish penningar, and was probably also used as a unit of account for Swedish coins.[76]

Mark silver (marcha argenti puri): The same as mark lödig. Up to the 14th century the mark silver could have different weights in various regions. In Stockholm the mark was 209 grams, in Skara 215 grams and in Uppsala 218 grams.[77] The Danish mark silver was 3-4 percent heavier than the Stockholm weight. The term marcha argenti could also refer to units

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[74] Sjögren (1944), p. 354.

[75] Hyötyniemi, (1999).

[76] Hallenberg (1798), p. 233.

[77] Hildebrand (1894), p. 757.

of much lower fine silver content than the marcha argenti puri, although in Sweden the two terms were often used as synonyms.

Mark (silver coins): Coins were minted in Sweden with this denomination in 1536-1755. From around 1660, the term carolin was used to refer to minted two marks. The fine silver content of a minted one-mark coin was 8.854 grams in 1534-1535, 8.2272 grams in 1536-1540, 6.0176 grams in 1541-1561, 5.8296 grams in 1562, 4.1371 grams in 1563-1568, 2.0568 to 3.0852 grams from late 1568 to early 1571, 1.0284 grams from July 1571 to 1574/1575, 6.0176 grams 1576-1589 (based on half-mark coins), 2.9971 grams 1590 to early 1591, 0.6473 to 1.1753 grams from May 1591 to 1592, 4.2311 grams in early 1593, 6.399 grams in late 1593, 6.0522 grams in 1594-1603 (based on half-mark coins), 4.0503 grams in 1604-1633, 3.9003 grams in 1634-1638, 4.1297 grams in 1639-1649, 3.9003 grams in 1649-1663 and 3.6114 grams in 1664-1776. The one-mark coin was last minted in 1721, the two-mark coin in 1754 and the four-mark coin in 1755.

Mark silvermynt: A unit of account. 1 mark silvermynt = ¼ daler silvermynt = 8 öre silvermynt. Around mid 17th century a difference in market value occurred between the mark silvermynt as a unit of account and the mark silver coin, called "halv carolin" (half carolin), even though the official values of the two were the same up to 1681. The official value of a "halv carolin" was raised to 1 1/6 mark silvermynt in 1681, 1.25 mark silvermynt in 1686 and 1 9/16 mark silvermynt in 1716.

Mark skånsk: The mark of Skåneland (Scania, Halland, Blekinge and Bornholm), which in the first half of 14th century was different from both the Danish and the Swedish mark. In this period, 1 mark skånsk was valued around 2 Danish marks and around 1.2 Swedish marks. 1 mark skånsk = 240 penningar.

Mark stackota: A currency unit common in Götaland from the 1440s up to the late 15th century. There are evidence that the term was used as a synonym for mark gutnisk, but some

authors argue that the mark stackota was the traditional Gotlandic mark equal to 24 gotar or ¾ mark gutnisk.[78]

Mark sterling: In the 13th and 14th century, the same as one mark silver in sterling coins. In 1272, one mark sterling was counted as 144 sterling coins, which contained 193 gram fine silver. In 1267 one mark sterling in Cologne weight was counted as 160 sterlings, which, in turn, was equal to two thirds of a pound sterling.

Mark svenska (Swedish mark): Could have two different meanings in the 15th and 16th centuries. (1) The same as mark örtug used in Sweden, as distinguished from mark dansk, gutnisk and jämtsk. (2) The same as mark danska in Swedish coins, and, henceforth, equal to ¾ mark örtug. Another term was "mark danska i svenskt mynt".[79]

Mark stockholmsk or holmsk: The same as mark örtug.[80]

Mark västgötsk: The same as mark stackota or mark gutnisk.

Mark örtug: The same as mark penningar.

Mark östgötsk: The same as mark stackota or mark gutnisk.

Myntsedel (coin note): Issued inconvertible notes in 1716 and 1717 with the face values of 25, 10 and 5 daler silvermynt. These notes never circulated as widely as "mynttecken" (coin tokens).

Mynttecken (coin tokens) or nödmynt (emergency coins): The coin tokens issued in 1716-1719 to the face value of one daler silvermynt (except for the last coin token, "Hoppet", that was issued to the face value of two öre silvermynt in 1719). A premium arose on proper coins relative the coin tokens.

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[78] Hyötyniemi, 2000.

[79] Hallenberg (1798), pp. 35-36.

[80] Used, for example, in *Stockholms stads tänkebok under vasatiden*, part 1, 1524-1529 (1915), pp. 82, 107 and 110.

Nobel: An English gold coin imported to Sweden in the late Middle Ages and the 16th century. From 1354 its weight was 7.78 grams and from 1412 7 grams. From 1464 the so-called rosenobel was minted, weighing 7.78 grams, the same as the nobel before 1412. In the second half of the 15th century, 1 nobel was worth 3-4 mark örtug.

Palmstruchska kreditivsedlar (Palmstruch's credit notes): Initially convertible notes issued in 1661-1664 by Stockholm Banco (the forerunner to the Swedish Riksbank), being the first banknotes in Europe in a proper sense. Were made inconvertible in 1664, and fell below their par values. After 1667 the notes were exchanged to their full nominal values.

Penning (Swedish penny): A currency unit from the Middle Ages to 1776. Up to the late 13th century, in Svealand 1 penning = 1/192 marks, in Götaland 1 penning = 1/384 marks (i.e. 1 penning of Svealand = 2 pennings of Götaland) and in Gotland (and eastern Götaland) 1 penning = 1/288 Gotlandic marks (≈ 1 penning of Götaland). From the late 13th century, 1 penning = 1/192 marks in both Svealand and Götaland (but not Gotland). The penning was not minted after the 16th century, but continued to exist as a unit of account up to 1776.

Penning bla/blå: A monetary term used in Västergötland in the mid-12th century. The penning bla was most likely a foreign coin. According to one theory the term referred to a silver penny minted by the house of Blois in France, weighing 1.36 gram.[81]

Pjes/pjäs or enkel pjes: In 1719-1776 a term for the silver coin that was minted as 5 öre (up to 1684 minted as 4 öre), but had the nominal value of 6 öre courant. It was also called "sexstyver" and "tolförestycke". Its fine silver content was 1.5601 grams.

Plåt (plate): After 1715, two daler silvermynt in copper plates (later also 6 daler kopparmynt in notes). Before 1715, the term riksdalerplåt was used.[82] After 1776, the term

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[81] Bjurling (1950).

[82] Stiernstedt (1863), p. 62.

referred to 16 skillings (since 2 daler silvermynt = 1/3 riksdaler = 16 skillings), and later to 24 skillings riksgälds.[83]

Plåtmynt (plate coin): Copper coins minted as plates weighing between 0.378 to 19.7 kg, and accepted as means of payment 1644-1776. They were denominated in daler silvermynt.

Pound sterling: The quoted currency unit for the exchange rate on London. One pound sterling was equal to 20 shilling or 240 pence. The fine silver content of one pound sterling (if counted in pennies) was reduced from 321.1 to 319.7 grams in 1278, and was further reduced to 308.4 grams in 1335, to 291.1 grams in 1344, 259 grams in 1351, 215.8 grams in 1412, 172.6 grams in 1465, to 153.4 grams in 1524, to 143.9 grams in 1542, 115.1 in 1552, 111.4 grams in 1601, and 104.6 grams in 1816. Britain went over to the gold standard in 1816. The gold content of the sovereign was fixed at 7.32 grams.

Portugalös: The Swedish term for portuguezen, a gold coin. Some few were minted during the reign of Johan III (1568-1592). One Swedish portugalös weighed 34.4 grams, and was set equal to 10 ducats or 4 rosenobel.

Reichstaler: The later term for the joachimthaler in Germany. The standard was introduced in 1566 by the Leipzig convention, which set the reichstaler as a coin containing 1/9 of a Cologne mark silver. In 1754, the Conventionsthaler, containing 1/10 of a Cologne mark silver, replaced the Reichstaler.

Revalsk or räflisk (Livonian artig): The coins of Riga that dominated circulation in Finland during the 15th century. The artig minted from 1343, and was initially valued 3 pennies of Lübeck or 6 Swedish penningar. In the 15th century, 1 revalsk was valued 4-6 Swedish penningar. In the early 15th century, the term "revalsk örtug" was also common, which by the 16th century had been replaced by the term "rigisk skilling".

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[83] Talvio (1995), p. 205.

Rhensk gyllen (Rhine golden): A gold coin imported to Sweden during the Middle Ages and the 16th century. Its fine gold content decreased from 3.4 grams in the late 14th century to 2.53 grams in the late 15th century. In the second half of the 15th century and early 16th century 1 rhensk gyllen was valued around 1.5 mark örtug or 2 mark danska. In 1533, 1 rhensk gyllen = 2/3 ungersk gyllen = 4/5 Joachimthaler.

Riksdaler: From the late 16th century the term used for the silver daler ("slagen daler"), in contrast to the Swedish daler used as a unit of account and equal to 4 marks. Later on the riksdaler could also designate other types of currencies.

Riksdaler banco: In 1777-1809, the Riksbank notes were convertible into riksdaler specie, and therefore linked to a fixed silver content. In 1809 the banco notes were made inconvertible, and the riksdaler banco started to fall in value relative to the riksdaler specie. In 1834, the riksdaler banco (which in 1803 had been set equal to 1.5 riksdaler riksgälds) was fixed in value so that: 1 riksdaler banco = 3/8 riksdaler specie.

Riksdaler carolin: The same as 3 carolins or 6 marks in silver coins. In 1633-1665 the official value of one riksdaler was 6 marks or 48 öre in actual silver coins. The riksdaler counted in actual mark silver coins was termed "riksdaler carolin", in actual öre silver coins "riksdaler courant" and in actual riksdaler coins "riksdaler specie". The market value of the riksdaler specie rose, and the official value was set equal to 6.5 marks or 52 öre silvermynt in 1665. The counting of riksdaler in 6 marks in silver coins, riksdaler carolin, remained, but had a lower value than the riksdaler specie. When the carolin was appreciated in 1681 relative to öre courant, the official value of riksdaler carolin became higher than of the riksdaler courant. After 1665, one riksdaler carolin had the unchanged fine silver content of 21.6684 grams.

Riksdaler courant: In the 17th century equal to 48 öre courant, which towards the end of the century was the same as 48 öre silvermynt. In the 18th century it became a pure unit of account equal to 1.5 daler silvermynt (48 öre silvermynt). Up to 1681, 3 carolins were

officially equal in value to 48 öre courant. However, in 1681 the carolins appreciated relative the öre courant. From then on the riksdaler courant was probably not the same as the riksdaler carolin, although further investigation is needed on this issue.

Riksdaler riksgälds: A war with Russia led to the formation of the Riksgäldskontoret, which started to issue the riksgälds notes in 1789. These notes became inconvertible and quickly came to dominate trade, replacing the Riksbank (banco) notes. Riksdaler rikgälds fell in value relative the riksdaler banco. In 1803 the relation 1 riksdaler riksgälds = 2/3 riksdaler banco was fixed.

Riksdaler riksmynt: The main currency unit in 1855-1873. Replaced the riksdaler riksgälds to the same face value. 1 riksdaler riksmynt = 100 öre = ¼ riksdaler specie.

Riksdaler specie: The riksdaler with a stable fine silver content of 25.3-25.7 grams. The term was used already in the first half of the 17th century. See daler.

Riksdalerplåt: In 1681-1715 a term for the copper plates with the nominal value of two daler silvermynt. In 1681, the official value of the riksdaler was set equal to two daler silvermynt. In 1715 copper plates were revalued by 50 percent, and in 1718 the official value of one riksdaler was set equal to 3 daler silvermynt. From 1715 the term "plåt" was used for two daler silvermynt in copper plates, and later for Riksbank notes of 6 daler kopparmynt.

Rosenobel: A gold coin imported to Sweden especially in the 16th century, weighing 7.78 grams. A double rosenobel (set equal to ½ portugalös or 5 ducats) was minted in Sweden during the reign of Johan III (1568-1592) weighing 15.3 grams.

Runstycke (before 1777): A term used from the early 1630s for one öre in copper coins,[84] while one öre in silver coins was termed (h)vitrunstycke. From 1719, the term kopparrunstycke was used.

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[84] Stiernstedt (1863), p. 61, and Hayes (2001 [1740]), p. 337.

Runstycke (1777-1855): 1/12 skilling. Coincided in value with the kopparrunstycke or öre kopparmynt of the currency system before 1777 (since 1 riksdaler = 6 daler silvermynt = 576 öre kopparmynt according to the conversion rate from old to new currency and 1 riksdaler = 48 skillings = 576 runstycken according to the new currency system of 1777).

Räknedaler: Daler used as a unit of account, which arose in the 1570s, in contrast to the silver daler.

Sessling or sexling: From mid-1660s the same as the copper coin with the designated value of 1/6 öre silvermynt. From early 1680s the term "halvöre" (half öre) was used instead, since 1/6 öre silvermynt = ½ öre kopparmynt.

Sexskilling: In 1849-1855, a term for the copper coin with the nominal value of 4 skillings banco (= 6 skillings riksgälds).

Sexstyver (18th century): In 1719-1776 the same as pjes.

Sexstyver (19th century): In 1802-1855, a term for the copper coin of the nominal value of one skilling banco.

Skilling: Introduced in 1777, when the riksdaler became the main currency unit in Sweden. 1 riksdaler = 48 skillings and 1 skilling = 12 runstycken. Later a difference occurred between skilling banco, riksgälds and specie.

Skilling banco: 1 riksdaler banco = 48 riksdaler banco. From 1803, 1 skilling banco = 1.5 skilling riksgälds.

Skilling (Danish): 1 skilling = 1/16 mark = 3 hvids. A currency unit also used in parts of Sweden (mainly Götaland) around 1450-1550, where 1 Danish skilling = 1/16 mark danska = 3/64 mark svenska = 3/8 Swedish öre.

Skilling riksgälds: Equal to 1/48 riksdaler riksgälds.

Skilling specie: Equal to 1/48 riksdaler specie. This was rather a unit of account, and no coins were ever minted in this denomination.

Skilling svenska penningar (skilling Swedish pennings): A term used before 1550 when accounting was made in mark danska in Götaland. There were no Swedish skilling coins in this period. Neither was the payment made in Danish skillings (i.e. one "skilling svenska pengar" was not necessarily equal to one skilling in actual Danish coins), but it was purely an accounting system based on Swedish coins. One "skilling svenska penningar" was equal to 1/16 mark danska, 3/64 mark örtug or 3/8 Swedish öre.

Slant: From mid-1660s the same as the copper coin with the designated value of one öre silvermynt. In 1777-1803 it had the nominal value of ¼ skilling (banco), since in 1777 1 riksdaler = 48 skilllings was exchanged for 192 öre silvermynt (6 daler silvermynt). Another term was "enkel slant".

Styver (from late 1710s to 1776): The same as one öre courant.[85]

Styver (1777-1855): A term for skilling coins, where one styver was initially equal to ¼ skilling (banco),[86] and later (from around 1800) ¼ skilling riksgälds or 1/6 skilling banco. This custom arose since the old copper coins continued to circulate in 1777-1803 to the nominal value of ¼ skilling (banco) per one öre silvermynt. The term styver was usurped by the coins in skilling riksgälds that were minted from 1799 onwards.

Svensk daler (Swedish daler): A unit of account used from the 1570s to designate 4 marks in silver coins, in contrast to slagen daler that fluctuated in value relative the minted mark coins. The term "svensk daler" later referred to two carolins.

Tjugostyver (twenty styver): The name of 10 öre after 1855. The "tjugostyver" after 1855 was of a somewhat lower value than 20 styver before 1855, which was equal to 5 skilling riksgälds or 10/96 riksdaler riksgälds.

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[85] Stiernstedt (1863), p. 62.
[86] Talvio (1995), p. 205.

Tolvörestycke (twelve-öre piece): The same as pjes. Up to 1684, these coins were minted as 4 öre (but from 1690 as 5 öre), which initially had the nominal value of 12 öre kopparmynt (since one öre silvermynt = 3 öre kopparmynt).[87] The nominal value of this coin was increased to 6 öre silvermynt in 1717.

Tolvskilling (twelve-skilling): From 1834 the same as 1/16 riksdaler specie (since 1 riksdaler specie = 192 skillings riksgälds in 1834-1855). After 1855, a term for 25 öre (since 1 riksdaler specie = 400 öre).

Treskilling (three-skilling): In 1834-1855 a term for the copper coin with the nominal value of 2 skillings banco (= 3 skillings riksgälds).

Tvåstyver (two-styver): In 1799-1855, a term for the copper coin of the nominal value of ½ skilling riksgälds.

Trestyver (three-styver): In 1802-1855, a term for the copper coin of the nominal value of ½ skilling banco.

Tysk mark: In the 1410s, in Götaland the name for the mark counted as 32 gotar. From the 1420, the term mark gutnisk was used instead.

Tunna guld (gold barrel): A unit of account for larger sums of money, a term borrowed from Germany.[88] First used in the late 16th century. Equal to 100000 daler silvermynt, originally 100000 silver daler. Since the daler silvermynt fell in value relative to the riksdaler, one tunna guld expressed in riksdaler fell over time. In 1777 equal to 16666⅓ riksdaler specie (since one riksdaler specie was exchanged for 6 daler silvermynt), and in the 19th century the same as 16666⅓ riksdaler banco (from 1834 equal to 6250 riksdaler specie). Even if the term gives the impression of a specific weight of gold, the amount of gold that one tunna guld

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[87] Stiernstedt (1863), p. 62.

[88] *Nordisk Familjebok* (1892). Online at: http://runeberg.org/nfap/0475.html [data of access: 070701]. See also Heckscher (1941), p. 11.

could buy fell over time. In the late 16th century one tunna guld could buy around 200 kg gold, in 1777 28-29 kg gold and in 1834 around 10 kg gold.

Ungersk gyllen (Hungarian gulden): A gold coin that was imported as well as minted in 1568-1573. One ungersk gyllen minted in Sweden was valued 1.5 slagen daler and its fine gold content was 4.1245 grams. Internationally the coin was equal to one ducat, but in Sweden the minted ungersk gyllen had a higher fine gold content and was, therefore, not equal to one ducat.

Vit penning or Witten (white penny): A German 4-penny coin (1/48 mark of Lübeck), which was common in Götaland in the late 14th and early 15th centuries. In this period it circulated as 1/3 Swedish öre (= 1 örtug = 8 penningar).

Vitrunstycke: A term used in 1633-1776 for one öre courant.[89]

Vitten: Before 1777, a term for one öre silvermynt, in 1777-1855 for ¼ skilling (banco) in copper (since in 1777, 1 riksdaler = 48 skillings was exchanged for 192 öre silvermynt), and in 1855-1873 for ½ öre in bronze.

Åbo-mark: A currency unit used in Finland during the 15th century equal to the Swedish mark, but counted in coins of Riga (usually 32-48 revalska).

Öre (from 1855 onwards): The öre unit was reintroduced in 1855, although it only shared the name with the old öre. 1 riksdaler riksmynt (from 1873, 1 krona) = 100 öre. For comparison, while in 1777 one riksdaler specie was exchanged for 576 öre kopparmynt, in 1855 one riksdaler specie was set equal to 400 öre.

Öre (up to 1776): In the Middle Ages one öre was equal to 1/8 mark and 3 örtug. From the 1290s, 1 öre = 24 penningar in both Svealand and Götaland, but not in Gotland. In the 17th century a difference arose between öre silvermynt, öre kopparmynt and öre courant. The öre was abolished as a currency unit 1st of January 1777.

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[89] Stiernstedt (1863), p. 61, and Hayes (2001 [1740]), p. 337.

Öre courant: The term for öre in actual silver coins. In some periods, for example in 1686-1715, one öre courant was equal to one öre silvermynt, but in other periods there was premium on öre courant.

Öre kopparmynt: A unit of account in 1633-1776. 1 öre kopparmynt = 1/8 mark kopparmynt = 1/32 daler kopparmynt.

Öre silvermynt; A unit of account in 1633-1776. 1 öre silvermynt = 1/8 mark silvermynt = 1/32 daler silvermynt. In 1624, when the first copper coins were minted, one öre in copper coins was supposed to be equal to one öre in silver coins. However, one öre minted in copper soon fell in value relative to one öre minted in silver. One öre silvermynt was set equal to 2 öre kopparmynt in 1633-1643, 2.5 öre kopparmynt in 1643-1665 and 3 öre kopparmynt in 1665-1776.

Örtug: A currency unit in Sweden in the Middle Ages and the 16th century. As a unit of account, 1 örtug = 1/3 öre = 1/24 mark. In 1523, the fine silver content of the öre was reduced, and thereafter 1 minted örtug = ½ öre. In 1589-1590, the so-called "gammal örtug" was minted to the value of ¾ öre (in proper coins). This was also the last time örtugs were minted in Sweden. The örtug continued to exist during the 16th century as a unit of account (1 mark = 24 örtugs), which became different from the minted örtug. Furthermore, one "mark dansk" (used in Götaland as a unit of account around 1450-1550) was also divisible into 24 örtugs. Therefore, the örtugs of the two different systems of accounts in Götaland and Svealand were different (henceforth, around 1450-1550, one öre was equal to 3 örtugs in Svealand, but 4 örtugs in Götaland).[90]

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[90] Hallenberg (1798), p. 175.

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