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**MANAGING MULTIPLE CURRENCIES WITH UNITS OF ACCOUNT:  
NETHERLANDS INDIA 1600-1800**

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**1. Introduction**

In his position paper for this workshop Akinobu Kuroda (2005) has pointed out that economists (and economic historians) generally assume that circulating or flowing amounts of money can best be depicted and analyzed by summing up various monies and measure them in their totality, as total amounts, further assuming that they are subject to the workings of laws pertaining to totalities, such as the quantity theory of money. The problem with this assumption is, as Kuroda demonstrates, that by doing this, one ignores the dynamics of different types of currencies circulating side by side. These different types may have different areas of circulation, or may be used in different markets, or by different networks of users. This may pertain to completely different types of money or to monies that are supposed to be denominations of one monetary system.

In line with the general topic of this workshop and with Kuroda's position paper, this paper will look at the phenomenon of multiple currencies in the area dominated by the Dutch East India Company (VOC). The time perspective chosen is a long one, from about 1600 till 1800.

The leading question in this paper is the one Kuroda formulated in his position paper: how was compatibility possible among multiple currencies? One specific topic needs closer inspection, and that is the problem of managing different currencies, by using a unit of account. Another topic is the area of circulation of different types of coins. As the larger more valuable coins may circulate in a geographically wider area,

the relationship between local and foreign becomes a key dimension of the problem. It is to these issues that we will turn in the next section.

## **2. Theoretical considerations**

### *Unit of account and unit of payment*

Theoretically a distinction can be made between two functions of money, viz., the measuring function and the exchange function, in other words the unit of account and the unit of payment. The Austrian economist Schumpeter (1908) has discussed this conceptual distinction systematically. The unit of account is used as a standard of value and of deferred payments and for the purpose of keeping accounts, while the actual unit of payment is used as a medium of exchange. The unit of account is abstract, while the unit of payment is concrete. Schumpeter argued that the two functions are completely different and in principle not interconnected, although in any working monetary system they have to be brought together somehow. This bringing together was realized completely under the gold standard system, introduced in a number of countries in the second half of the 19<sup>th</sup> century. The gold standard system made it possible to circulate a truly national currency within the borders of the territorial state.

In line with Schumpeter's analysis, the unit of account can be described as the subjective reflection of the knowledge of the price ratios of goods and services, expressed in this abstract medium (Van der Wal 1940, p. 48). The unit of account indicates the price ratios. The unit of account can become tied to a specific material medium of exchange, but can also be disconnected and become an imaginary money. Both trends can be observed in history.

The relation between coin and money of account has been the subject of a heated debate among economic historians since the 1930s. Two Belgian historians, Hans van Werveke and Raymond de Roover argued on the basis of historical material that the moneys of account in medieval Europe were based on real coins. De Roover wrote: "Medieval monetary systems were pegged either directly or indirectly to gold or silver. They were based either on a real coin, (...) or on a coin which had ceased to circulate, but which still represented a definite weight of gold or silver."

Italian historian Luigi Einaudi (1936/1953) held the view that money of account was imaginary money, independent of any "real money", that is of fixed coin or fixed quantity of precious metal. Imaginary money has developed out of real coins, with a precise gold or silver content. Imaginary money has the following connotations: (1)

Expressions in “imaginary money” are abstract numbers, used for enumeration; (2) These expressions are not absolute but relative numbers; (3) It is a matter of indifference which coin is chosen as the one whose rate is fixed. This system allowed every state to have its own unit of account. The unit of account was tied to the territorial basis of the state, while material coins circulated everywhere without consideration for frontiers. Einaudi (1953, p. 237) writes: “Imaginary money – here is my thesis – is not money at all. It is a mere instrument or technical device used to perform some monetary functions.” Einaudi then points out that rulers used imaginary money as an instrument of monetary policy.

Recently historians Frederic Lane and Reinhold Mueller (1985, p. 468-479) have argued that the two views, “hard money” versus imaginary money, do not represent irreconcilable contradictions. The “hard money” view is correct for the medieval period studied by Van Werveke, while Einaudi’s imaginary money is correct for the later period. Lane and Mueller divide the millennium between Charlemagne (around 800) and the French Revolution (1789) in three periods: the first extends from Charlemagne to circa 1250, and was characterized by the minting of a single coin; it was during the second period, from about 1250 till about 1650, that a true system of money of account was created, tied to real coins by a varying relationship with a specific precious metal content. It was during the third period, from the around 1600/1650 till the end of the 18<sup>th</sup> century, that an imaginary unit of account was used “as a measure of exchange value, no longer tied to any particular coin, but useful in stating the relative values of all the coins in use” (Lane and Mueller 1985, p.476). In his article Einaudi discusses the use of moneys of account in the multiple currency system of Milan in the 18<sup>th</sup> century.

Einaudi’s point, that rulers used the imaginary unit of account as an instrument of monetary policy is also found in the study of late medieval European currency systems, by economists Boyer-Xambeu, Deleplace and Gillard (1994). These authors have pointed out that the rulers of territories used the unit of account to proclaim the definition and the value of domestic and foreign coins. In historical perspective the unit of account was originally not imaginary, but possessed a real basis. Later, the unit of account became an abstract *numéraire*. The general rule was that coins of precious metals circulated everywhere, without consideration for frontiers, while units of account were tied to a political territory.

In this system rulers had two ways of changing the value of the coin: (1) by altering the weight or the fineness of the coin; (2) by decreeing a different value in terms of the unit of account, without changing its intrinsic quality of weight or

fineness. However, in doing so the rulers also changed the value of the unit of account in terms of precious metal. If the ruler declared that a coin in circulation was henceforth worth more units of account, the unit of account was implicitly weakened in terms of the metal represented. If the coin was given a lower official value, the unit of account was strengthened.

Rulers were not free to alter the valuation of coins at will. They had to stay close to the value at which the coins circulated among traders in the market place. Usually the official proclamation of the coin's value followed the current commercial practices.

Boyer-Xambeu et al (1994) define the organization of exchange as 'the interrelation between different units of account' (1994, p. 4). They distinguish between private money, created by merchants and public currencies, created by territorial rulers. While each sovereign zone had its units of account, the world of exchange by bills used 'exchange moneys', which could be the local unit of account, but could also be a specific type of money, created for the exchange by bills.

#### *Domestic versus foreign*

State managers acted as if these boundaries were important, issued decrees prohibiting the importation of certain types of coin and the exportation of others, trying to control the cross-border movements of these items. Local elites defended their privileges against attempts at state centralization. Merchants operated in long-distance networks of exchange and international markets, often defying the policies of the state managers.

In the 17<sup>th</sup> century the Dutch government and the United East India Company (VOC) made a distinction between coins for trade ('negotiepenningen') and coins for local circulation ('standpenningen'). They were expecting that coins from this last category, when shipped to the Netherlands Indies, would remain in local circulation.

From the time of their arrival in Asia, around 1600 till the second half of the 19<sup>th</sup> century, the Dutch have struggled with the problem that silver coins quickly disappeared from local circulation in their Asian possessions. They explained this fact with the theory that silver and silver coins were 20 to 25 percent more valuable in Asia than in Europe. From a practical point of view the Dutch officials in the Netherlands Indies had to design a monetary system that was attuned to this problem.

This brings us to Gresham's law, the famous statement that bad coins drive out good coins. The law is clearly formulated from the point of view of the territorial state with clear and well- demarcated boundaries, and the law expresses disappointment

with the fact that the coins do not stop at the borders. The law makes less sense in the world of weaker states with porous boundaries. People crossing these boundaries take the good coins to other locations where they can be sold at a profit, in accordance with price differences in markets that transcend these weak state boundaries.

### **3. Multiple currencies and units of account in the Netherlands around 1600**

The VOC, the Dutch United East Indies Company (Verenigde Oostindische Compagnie), established in Amsterdam in 1602, carried out its trading activities in Asia from its headquarters in West Java, where it had conquered the small trading settlement Jacatra, built a castle, and called it Batavia (the core of the present city of Jakarta). Elsewhere in Asia the VOC established fortified trading posts along the coast, where it collected local goods to be shipped to Batavia, for sale in other parts of Asia or in Amsterdam. Batavia was initially a small settlement, and the Company gradually enlarged the area under its control, with the result that by the middle of the 17<sup>th</sup> century the VOC was not only a trading company but had become the colonial ruler of occupied territories. In this last capacity the VOC encountered a number of monetary problems, particularly problems in connection with the valuation of different silver coins in circulation.

In order to finance its Asian trade and to purchase goods for the European market, the VOC shipped gold and silver bullion and silver coins from Amsterdam to Asia. This was due to the fact that the Netherlands and Europe in general at that time did not produce goods that were in demand in Asia. All the purchases had to be paid with precious metal. The VOC encountered the phenomenon that gold and silver coins were valued higher in Asia than in Europe. Managing these differences in valuation continued to be a problem for the administrators in Batavia until the beginning of the 19<sup>th</sup> century.

The British East Indies Company in India did not have this problem (Van den Berg 1907, p. 9-10). The British did not export British currency to the overseas colony. The United Kingdom prohibited the export of British coins. The East India Company found a well-functioning monetary system in India, in which they participated by bringing in bullion from Europe.

As the monetary system in the Netherlands Indies was to a large extent an extension of the monetary system in the Netherlands, we will briefly discuss the situation in that country around the turn of the seventeenth century.

### *The monetary system in the Netherlands*

The areas that were later called the Netherlands, had been ruled by counts and dukes during the Middle Ages, and became part of a larger political state, the dukedom of Burgundy, in the fifteenth century. By marriages this dukedom became part of the empire ruled by the Habsburg monarchs at the end of that century, which under emperor Charles V (1515-1555) encompassed the kingdoms of Spain, the empire of Germany and Austria, and the Low Countries (more or less present day Belgium and the Netherlands). Both emperor Charles and his son, the Spanish king Philips II followed a policy of centralization, which ran counter to established local privileges and practices of self-rule. Parts of the Low Countries rebelled against the Spanish-dominated administration and in what was to become the eighty years war (1568-1648) a number of provinces in the northern part of the Low Countries proclaimed and achieved political independence (in the 1580s) under the name of the Republic of the Seven United Provinces, under the sovereignty of a national parliament (Staten-Generaal). This independence was financially made possible by the commercial and industrial development in this part of Europe, in the last decades of the sixteenth century, centered on the town of Amsterdam.

The monetary situation was confused. Most of the provinces had their own mints, where they regularly minted coins, usually with provincial heraldic symbols. In 1600 14 mints were active in the Republic. The national parliament tried to impose central rules and regulations, but provincial authorities resisted these attempts at centralization.

The national parliament attempted to regulate the money circulation by supervising the minting of coins, by deciding which foreign coins were admitted in the country and by valuating the rate at which the coins would circulate. However, parliament regularly had to change the tariff lists of the valuations, because the coins in circulation showed the tendency of “steigerung” (rearing up), i.e., to be at a premium or agio. The reason for this was that of a certain type of coin, old and worn out pieces circulated side by side with new pieces, with the consequence that people kept the new pieces aside and traded them at a higher price. After some time the government had to follow the market and legalize the higher exchange rate (Van Gelder, 1949, p.9).

In most of the European markets the price of silver coins increased steadily. The Dutch historian De Bree (1928, I, p. 25) argued that this was not the result of a rise in the price of silver, but of an increased demand for minted silver coins. To prevent the outflow of these coins at the increased market price, the government then raised the

official price of the coins. This policy caused a discrepancy between the nominal and the real value of the coins.

The only way in which the value of coins in circulation could be expressed was in terms of a unit of account. In the last decade of the 16<sup>th</sup> century the stiver (stuiver) was the unit of account in the Republic; while 20 stivers made up one imaginary guilder. The guilder was not in circulation as an actual coin, but the financial settlement between the VOC headquarters in Amsterdam and the overseas trading offices as well as the VOC bookkeeping were carried out in guilders.

#### *The guilder of 20 stivers as unit of account*

In the fifteenth century the rulers from the House of Burgundy and their Habsburg successors succeeded in bringing the various political territories of the Low Countries (present-day Belgium, the Netherlands, Luxemburg) under a somewhat centralized government. They tried to create order in the monetary chaos, by introducing a unit of account. They established a fixed ratio between a large gold (or silver) coin and smaller silver coins, called 'groots' (Engl.: groats). From then on two systems of moneys of account developed in the Low Countries:

1. The Flemish pound (Vlaamse pond) with 20 shillings (schellingen) or 240 groats, one shilling worth 12 groats (grooten);
2. the guilder (gulden) of 20 stivers (stuivers). The exchange rate between the two systems was two groats equal to one stiver, and one Flemish pound equal to 6 guilders.

The Habsburg emperor Charles V had a silver guilder minted in 1544, the silver Carolus, worth 20 stivers (stuivers) with a silver content of 19.065 grams of pure silver. This amount of silver was at that moment equal to the silver content of the imaginary guilder from the previous century. This silver coin (minted between 1544 and 1558) remained in circulation, but its valuation in terms of stivers increased over the years, reaching 37<sup>1/2</sup> stivers in 1621. After 1558 no new silver guilder coins were minted, until 1681. This meant that the guilder as a unit of account, equal to 20 stivers, was detached from the real silver Carolus. From the middle of the 16<sup>th</sup> till the end of the 17<sup>th</sup> century the guilder remained an imaginary coin. From 1681 onwards a new silver coin was minted, with a lower silver content.

Although the guilder was an imaginary unit for more than one century, the smaller denominations were real coins, according to the division: 1 guilder is 20 stivers, 1 stiver is 16 penningen (pennies), 1 stiver is 8 duiten (doits), 1 stiver is 4 oortjes.

The national parliament of the Republic issued a decree in 1606, proclaiming the rijksdaalder (rixdollar) as the standard coin, with a pure silver content of 24.376 gram, valued at 47 stivers, in 1608 provisionally increased to 48 stivers, in 1610 confirmed at that rate. This meant that the (imaginary) guilder of 20 stivers, equaled 10.5696 gram of fine silver.

From then on the rixdollar as a unit of account was disconnected from the real coin and the two went different roads. In fact we can distinguish two kinds of unit of account, the imaginary guilder with a changing silver content, and the guilder based on the rixdollar of 1610.

1. Although the guilder remained an imaginary coin until 1681, its pure silver content can be calculated from other coins, using the exchange rate expressed in stivers. In 1619 the rixdollar was valued at 50 stivers, which put the guilder at 10.2766 gram of fine silver. The increase in the official valuation of the rixdollar, in terms of stivers, implicitly lowered the silver content of the imaginary guilder. As Dutch minted silver coins quickly disappeared from circulation, coins from the Spanish Netherlands (later Belgium) started to circulate in the Republic. One of these coins, the patagon, had a silver content of 24.5875 gram, and was officially valued at 48 stivers, which implicitly put the guilder at 10.2447 gram.

The stiver as 1/20th part of the guilder, was a unit of account, used for defining the relative values of the coins. The silver content of the real stivers and double stivers (dubbeltjes), was in relative terms lower, and did not add up to the silver content of the imaginary guilder. The double stiver (dubbeltje) had 0.89 gram of fine silver, putting the guilder at 8,9 gram. A 1619 stiver had 0.43623 gram, putting the guilder at 8,7246 gram.

In 1681 the parliament of the Republic issued a real silver guilder, with a pure silver content of 9.61 gram. In 1816 the newly established kingdom of the Netherlands put the silver content of the standard coin at 9.613 gram and with the currency reformation of 1839 this was lowered to 9.45 gram, which was the basis of the minting of a real guilder from 1845 onward. The development of the silver content of the guilder is presented in Table 1.

**Table 1 Weight of the Netherlands guilder as unit of account in grams of fine silver (1544-1914)**

| Year | Coin on which the calculation is based     | Weight in grams fine silver | Valuation in stuivers of the unit of account | Weight in grams of fine silver of the unit of account, the guilder of 20 stuivers |
|------|--|-----------------------------|--|---|
| 1544 | Silver Carolus guilder (22.97 gram)        | 19.06 gr.                   | 20   | 19.06   |
| 1567 | Kruisdaalder (29.27 gr.)                   | 26.016 gr.                  | 32   | 16.26   |
| 1571 | Statendaalder (30.76 gr.)                  | 22.85 gr.                   | 31   | 14.74   |
| 1572 | Statendaalder                              | 22.85                       | 32   | 14.28   |
| 1577 | (see above)                                |                             |  |   |
| 1577 | Silver Carolus guilder (see above)         | 19.06 gr.                   | 28   | 13.62   |
| 1581 | Silver Carolus guilder (see above)         | 19.06 gr.                   | 30   | 12.70   |
| 1583 | Neth. rijksdaalder (rixdollar) (29.28 gr.) | 25.70 gr.                   | 42   | 12.24   |
| 1589 | Neth. silver reaal (34.46 gr.)             | 28.60 gr.                   | 50   | 11.44   |
| 1594 | Silver Carolus guilder (see above)         | 19.06 gr.                   | 34   | 11.21   |
| 1595 | Silver Carolus guilder (see above)         | 19.06                       | 33   | 11.55   |
| 1596 | Neth. Rijksdaalder (see above)             | 25.70 gr.                   | 46   | 11.17   |
| 1606 | Silver Carolus guilder (see above)         | 19.06 gr.                   | 35   | 10.89   |
| 1610 | Neth. rijksdaalder                         | 25.70 gr.                   | 48   | 10.71   |
| 1615 | (see above)                                |                             |  |   |
| 1619 | Neth. rijksdaalder (see above)             | 25.70 gr.                   | 50   | 10.28   |
| 1621 | Neth. rijksdaalder (see above)             | 25.70                       | 50   | 10.28   |
| 1622 | rijksdaalder                               | 25.70                       | 50   | 10.28   |
| 1633 | (see above)                                |                             |  |   |
| 1638 | rijksdaalder                               | 25.70                       | 50   | 10.28   |
| 1640 | (see above)                                |                             |  |   |
| 1645 | rijksdaalder                               | 25.70                       | 50   | 10.28   |
| 1653 | (see above)                                |                             |  |   |
| 1659 | Silver ducaat (ducat)                      | 24.37 gr.                   | 50   | 9.74  |
| 1681 | Gulden (guilder)                           | 9.61 gr.                    | 20   | 9.61  |
| 1694 |  |                             |  |   |
| 1816 | Gulden (guilder)                           | 9.613 gr.                   | 20   | 9.613   |
| 1839 | Gulden (guilder)                           | 9.45 gr.                    | 20   | 9.45  |

Source: N.W.Posthumus, *Nederlandse prijsgeschiedenis, deel 1, Goederenprijzen op de beurs van Amsterdam 1585-1914; Wisselkoersen te Amsterdam 1609-1914*. Leiden: E. J. Brill, 1943. Page cxii.

N.B. The authorities in the Spanish Netherlands and later in the Republic proclaimed the official value of coins in circulation by regularly issuing decrees ('placcaat') stating the value of the coin in numbers of stivers. The author of the table above, Prof. Posthumus, has derived the value of the unit of account not from the highest valued coin in circulation at the time, but from the lowest valued ones, because, as

he writes (page cx), the highest valued coins were driven out of circulation anyway, according to Gresham's law.

2. The VOC, established in 1602, kept its accounts in guilders. However by choosing the guilder as unit of account, the Company did not follow the imaginary guilder with its changing silver content. Instead the Company used as unit of account the imaginary guilder derived from the rijksdaalder, valued at 48 stivers in 1610. Throughout the period of the VOC's existence (1602-1798) the unit of account was thus the rijksdaalder at this fixed rate. In the 18<sup>th</sup> century, when rixdollars as real coins had long disappeared from circulation, this rijksdaalder was still used as the unit of account. One therefore often finds in the VOC sources the comment that it was the rijksdaalder which served as the unit of account.
  
3. Finally we have the 'courante rijksdaalder' (current rixdollar) as a real coin. In 1606 the Republic minted a new rixdollar, weighing 29.03 gram, with a fineness of 0.885, and a fine silver content of 25.69 gram (Van Gelder, 1965, p. 220, 268). In the second half of the 17<sup>th</sup> century the name rixdollar was attached to another coin, the silver ducat, weighing 28.25 gram, fineness 0.873, pure silver content 24.66 gram (Van Gelder 1965, p. 225, 268). In 1622 the Dutch government valued the rijksdaalder at 50 stivers. In Netherlands India the valuation went to higher levels as we shall see in the next section. By the end of the 17<sup>th</sup> century the rijksdaalder had disappeared from the circulation both in the Netherlands and in Netherlands India. In the 19<sup>th</sup> century the name rijksdaalder was used again for a coin valued at 2.50 guilder, or 50 stivers. Coins of this denomination were part of the Dutch currency system until the shift to the euro in the year 2000.

#### **4. Multiple currencies in Netherlands India, 1600-1798**

When Dutch merchants arrived in Java in 1596, they entered a world where the Portuguese had been active, as traders and conquerors, for almost a century. Initially the Dutch were interested in purchasing spices, but soon their interests expanded. The Portuguese had used the Spanish silver pieces of eight reales (de ocho reales) in their trade with Asia.

Throughout the 16<sup>th</sup> and 17<sup>th</sup> centuries the VOC attempted to manage the currencies in its Asia settlements and administered territories on the basis of the rixdollar as the unit of account. The VOC representatives in Asia tried to establish more or less fixed ratios between coins made of different materials. As supply and demand of these coins fluctuated in the course of time, their market value went up and down. Three types of coins can be distinguished:

- (a) Large coins made of precious metal, gold and silver, of different origin and of different degrees of fineness. The value of these coins was in principle determined by their precious metal content, although supply and demand in the market played a role as well.
- (b) Small silver coins, usually referred to as payment, minted in the Netherlands and shipped to Asia. The value of these coins was in principle higher than their precious metal content, although this depended on the price of gold and silver.
- (c) Coins made of less valuable metal, copper, tin or lead, or various kinds of alloys of these metal. The value of these coins was lower than their base metal content.

#### *Silver coins in circulation*

During the first decades of the 17<sup>th</sup> century large amounts of Dutch coins were shipped to Batavia. The VOC used these coins primarily for trading in Asia, but certain types also circulated in Batavia and environs. Silver coins, particularly the Spanish ocho reales pieces had been introduced by the Portuguese in Asia, and the Dutch joined this practice. The Dutch merchant vessels brought large amounts of these silver pieces ('realen van achten' or 'reals of eight' as the Dutch called them) to the archipelago. After 1602, when Dutch merchants were united in the East Indies Company (VOC), the Company ordered the minting of coins in The Netherlands, with the same silver content as the eight reales pieces, but with different symbols. These coins were not well accepted by Asian traders. Throughout the 17<sup>th</sup> century the eight reales piece was the local money in Batavia. All penalties had to be paid in these pieces.

Aside from large silver coins, the VOC also shipped small silver coins of one and two stivers (the two stivers coin was called dubbeltje), as well as schellingen (schillings) of 6 stivers, stoters of 2 stivers and 8 pennies to Java. The general name for these small coins, with a relatively low silver content and heavy alloy, was

‘payment’ (‘pasmunt’, small change). Initially these coins only circulated in Batavia, but later they spread to the other VOC-controlled areas in Java.

The VOC officials in Batavia noticed that the large silver coins were disappearing from the local circulation. They also noticed that these coins were exchanged at a premium (did agio) in local markets. They interpreted this as proof of the fact that silver had a higher price in Asia than in Europe. In order to prevent the exportation of full bodied silver coins they raised the price in terms of the unit of account, the stiver.

In 1639 the Governor-General in Batavia issued a decree, raising the valuation of Netherlands kroonen or leeuwendaalders (lion thalers) from 42 to 48 stivers, or 24 dubbeltjes. The decree compared foreign coins to Dutch coins, judging the last ones superior in quality and silver content. This decree only pertained to ‘Batavia and jurisdiction’, that is the area around Batavia, and the part of West Java between Bantam in the West and the sultanate of Cheribon in the East. In the same decree the Governor-General raised the value of the Dutch rijksdaalder (rixdollar), which was worth 50 stivers in Holland, to 52 stivers. In 1640 the Governor-General raised the value of the rixdollar from 52 to 60 heavy stivers or 75 light stivers, the same level as the Spanish piece of eight, although the silver content was lower.

The Spanish eight reales piece, with a pure silver content of 25,2605 gram, was the standard coin in the Indies. In the Netherlands the coin was accepted as legal tender, in 1594 valued at 45 stivers, in 1605 at 46 stivers, in 1606 at 47 stivers, in 1616 at 48 stivers (putting the guilder at 10.5253 gram fine silver) and in 1620 at 50 stivers. This rise in price was caused by the fact that the VOC paid a premium (agio) when it bought the coins in Amsterdam. The government then legalized the higher market price. The same happened in the Indies, where the eight reales piece did agio in the markets.

In 1640 the VOC officials in Batavia increased the official exchange rate of the eight reales piece to 60 stivers, adjusting it to the current market value. However, for accounting purposes the value of 48 stivers was used. This measure created in fact two types of eight reales pieces, viz., an imaginary piece of eight valued at 48 stivers as a unit of account, called the ‘courante reaal’ (current rial) and the metal piece of eight (specie), valued at 60 stivers.

Implicitly this measure also created two types of stivers, viz., the so-called ‘heavy stiver’ (or ‘Hollandse stuiver’), equal to  $1/48^{\text{th}}$  of a piece of eight, and the ‘light stiver’ (or ‘Indische stuiver’) equal to  $1/60^{\text{th}}$  of a piece of eight. The exchange

rate between these two kinds of stivers was: 5 light (Indies) stivers equal to 4 heavy (Dutch) stivers.

These increases in the value of the coins in circulation in terms of the unit of account, was in fact a debasement of the currency in the Netherlands Indies. The abovementioned valuation of the rixdollar at 60 heavy stivers, implicitly gave the guilder of 20 stivers a silver content of 8.818 gram (while the official figure in the Netherlands at the time was 10.28 gram). Table 2 shows the valuation of the main silver coins during the 17<sup>th</sup> and 18<sup>th</sup> centuries.

Another effect of the rate increase of the eight reales piece and the rixdollar, to 60 stivers or 30 dubbeltjes (double stivers), was that dubbeltjes disappeared from the circulation in Batavia, causing a scarcity of payment (small change). Moneychangers had found out that 30 dubbeltjes, when melted down, yielded more pure silver (30 times 0.89 gr. is 26.7 gr.) than an eight reales piece (25.26 gr.) or a rixdollar (24.37 gr.). It was profitable to exchange the large coins for dubbeltjes and to export these for recoinage elsewhere, probably in China. (Van Dam, Book 1, Part 2, page 63)

The rate increase also caused confusion in the money transfers by bill of exchange between Batavia and Amsterdam. VOC personnel and private persons in Batavia and in other VOC offices in Asia wanted to send money they had earned to Amsterdam. The VOC offices accepted these payments and sent bills of exchange to Amsterdam, where the main VOC office paid out the money to the beneficiaries of these transfers. In the 1640s the VOC office in Batavia accepted the eight reales pieces at the rate of 55 stivers the piece, that is including the agio of ten percent. However, the Amsterdam office paid out the amount of money in eight reales pieces of 50 stivers. One VOC official started a law suit against the Company, arguing that he had worked in Asia under the rule that an eight reales piece was worth 55 stivers and he demanded that this amount, including the ten percent profit that he thus had made in Asia, would be paid out to him. He won the case. (Van Dam, Book I, Part 2, p. 94-103)

In 1651 the Company issued a decree stating that the bills of exchange would be made out in guilders. In other words, in order to avoid further confusion the VOC used a money of exchange for its money transfers.

The VOC officials in Amsterdam realized that the rate increase in Batavia meant that they had the option to follow another strategy with regards to their money shipments. Instead of shipping for 200,000 guilders payment to Batavia (as demanded by the official in the Indies), it was more profitable for the Company to change this amount in Amsterdam into eight reales pieces at 49<sup>1/2</sup> stivers a piece,

yielding 80,808 pieces, ship these coins to Batavia, sell them for three guilders a piece, which would yield 242,424 guilders, resulting in a profit of 42,424 guilders compared to the payment shipment. (Van Dam, Book 1, Part 2, page 63)

**Table 2 List of coins circulating in Netherlands India and their valuation in the Netherlands and in Netherlands India**

| Names of coin types          | Fine silver content in grams | Value in Neth. stivers | Official valuation of the coins circulating in Netherlands India, indicated in stivers (from 1656 in light stivers) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
|------------------------------|------------------------------|------------------------|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----|
|                              |                              |                        | 1639  | 1640 | 1652 | 1656 | 1658 | 1676 | 1682 | 1686 | 1693 | 1699 | 1700 | 1707 | 1715 | 1719 | 1727 | 1735 | 1747 | 1755 | 1757 | 1758 | 1760 | 1767 | 1780 | 1785 | 1786 |    |
| 8 reales piece               | 2526                         | 48                     |   | 60   | 50   | 60   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 80   |    |
| Neth.kroon or leeuwendaalder | 2055                         | 40                     | 48  |      | 42   | 48   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| Dukaton or silver rider      | 3047                         | 63                     |   |      | 63   | 63   |      | 90   | 75   | 90   |      |      | 97½  |      |      |      |      |      |      | 80   |      |      |      |      |      |      | 66   |    |
| Rixdollar                    | 2437                         | 50                     |   | 60   | 52   | 60   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| kruisdaalder                 |                              | 50                     |   |      | 50   | 60   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 80   |    |
| Dukaton (VOC)                |                              |                        |   |      |      |      |      |      |      |      |      |      |      |      |      | 78   |      |      |      | 100  |      |      |      |      |      |      |      |    |
| Surat rupee                  | 11.04                        |                        |   |      |      |      |      |      |      |      | 35   | 37½  |      |      |      |      |      |      |      | 30   |      |      |      |      |      |      | 37½  |    |
| Arkot rupee                  | 10.84                        |                        |   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 37½  |    |
| Persian rupee                |                              |                        |   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 30   | 37   |      |      |      |      | 37½  |    |
| Batavia rupee                | 10.58                        |                        |   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 37½  |    |
| Threegulder                  | 29.92                        | 60                     |   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 60 |
| Gulder                       | 9.62                         | 20                     |   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 20 |
| Schelling                    | 3.32                         | 6                      |   |      | 6    | 6    | 7½   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| Dubbeltje                    | 0.89                         | 2                      |   |      | 2    | 2    | 2½   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| Stiver (1619)                | 0.43                         | 1                      |   |      | 1    | 1    | 1¼   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |

Source: E.Netscher en J.A. van der Chijs, De munten van Nederlandsch Indië beschreven en afgebeeld. In *Verhandelingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen*. Deel XXXI. Batavia: Lange & Co, 1864. Page 55.

### *Conflict between the VOC directors in Amsterdam and the officials in Batavia*

In the 1640s and early 1650s the VOC directors (the Gentlemen XVII) in Amsterdam and the VOC officials in Batavia quarreled about the valuation of the coins. Initially the VOC directors had not paid attention to the measures in Batavia. In 1646 the Batavia government was planning to coin silver kroonen ('crowns'). When the VOC directors heard of this plan, they rejected it in strong words. When the VOC was established in 1602, the government of the Dutch Republic had stated in the VOC mandate that the Company did not have minting rights. The plan of the Indies government was a violation of this mandate and of the sovereignty of the Dutch government.

In 1649 the VOC directors send an order to the administrators in Batavia that the increase in valuation of the silver coins should be annulled. The directors could not understand why this rate increase had been necessary. The administrators in Batavia published the decree, but left out the valuations. In their correspondence with Amsterdam they pointed out the problem of the disappearance of coins from the circulation and defended their decisions. In 1651 the Amsterdam directors expressed their dissatisfaction with this policy and they repeated the demand that the valuation of the coins be lowered. In 1652 the officials in Batavia issued the decree announcing the reduced values: the Spanish pieces at 50, the Leeuwendaalders at 42 and the rixdollars at 52 stivers. In their correspondence with the directors they continued complain about the problems with the silver circulation.

In 1655 the directors gave in and authorized the officials in Batavia to raise the rates of the large silver coins. In 1656 the officials restored the old valuation and raised the value of the Brabant kruisdaalder to 60 stivers as well. However, the directors in Amsterdam insisted that if the value of currency in Asia was higher than in Europe, that this also held for the smaller coins, and they ordered the officials in Batavia to raise the value of the schelling to  $7\frac{1}{2}$  stivers, the dubbeltje to  $2\frac{1}{2}$  stivers and the stiver to  $1\frac{1}{4}$  Indies stiver. The officials in Batavia protested as this would restore the original balance between large and small coins. However, the Amsterdam directors insisted and the payment was brought on the same valuation as the large coins. To remedy the confused situation the Batavia administrators issued small copper coins, called "tangen", in order to have a smaller coin that would serve as the valuation of the stiver.

The distinction between the "heavy" and the "light" stiver was ended in the 1740s. In 1741 VOC official Van Imhoff (later to become Governor General) wrote a

report on the state of affairs of the VOC in Asia, under the title “Condideratiën” (Considerations), in which he called the distinction between “heavy” and “light”, a mystery that no one has penetrated, and he proposed a swift end to the practice, at least to remove it from the accounting books (Imhoff 1741/1912, p.485). The Gentlemen XVII agreed with his proposal.

#### *Money from bills of exchange*

The VOC factories in Asia were not completely dependent on shipments of precious metals from Amsterdam. They had another way of acquiring money for company trade and for the administration of occupied territories, and that was by facilitating the transfer of money owned by private persons to Amsterdam, via bills of exchange. The bill of exchange is known as an instrument for the transfer of money to another place. However, the transferring organization receives the amount in its treasury in place A and accepts the obligation of paying the amount in place B. Private persons in Asia (often Company servants) deposited their funds in the treasuries of the VOC in Asian settlements, received a bill of exchange, which was then sent to Europe, and cashed in the Netherlands. In Asia the VOC received the money, and used it to finance its expenses. This money was entered in the books under the same heading as money shipments from the Amsterdam headquarters (Gaastra 1994).

Persons in the Netherlands took advantage of this facility, to smuggle money to Asia, convert it into bills of exchange and cashed the amount again in the Netherlands. The difference in valuation of coins between Europe and Asia enabled them to make a handsome profit on this deal. In 1726 the VOC had made the ducaton the “exchange money” (“penning van wissel”) for the transfer of funds, meaning that all amounts on bills had to be expressed in ducatons. The official rate in the Netherlands was 63 stivers, in Batavia around 1700 the value was 78 heavy stivers. People bought ducatons in the Netherlands, smuggled them on VOC ships to Asia, bought bills of exchange, had the bills shipped back to the Netherlands, where the amount indicated was paid at the Batavia exchange rate of 78 stivers. In addition the VOC paid a compensation of 4% interest on the amount of money. This has cost the VOC large amounts of money, for many years. In 1738 the arrangement was terminated. (Gaastra 1994; Pol 1985, p. 90-96)

### *Silver from Asia*

In order to reduce the shipment of silver from Amsterdam to Asia, the VOC attempted to buy silver in Asia. The VOC bought silver in Japan and shipped it to Batavia for distribution to other VOC settlements in Asia.

Another source of silver was Manila, in the Spanish colony the Philippine Islands. Manila served as the entrepôt in the trade between China and the Spanish possessions in the Americas. Chinese traders brought silk and other goods to Manila, and returned with Spanish pieces of eight from Mexico. Between Manila and Acapulco in Mexico a Spanish galleon made a yearly roundtrip, transporting Asian goods eastwards and returning with American silver to Asia. The Dutch and English in Asia attempted to engage in trade with Manila. However, the Spanish authorities in the Philippine Islands prohibited other Europeans from entering Philippine ports. The European traders therefore sent Asian traders, particularly from Malacca, with Asian goods to Manila, in order to obtain the desired silver. The VOC still had a monopoly on spices and could deliver Ceylonese cinnamon to Manila. This indirect trade with the Spanish colony provided the VOC with substantial amounts of Spanish pieces of eight, in the order of 50.000 guilders per year. (Roessingh 1968)

### *The VOC in India and silver rupees in Netherlands India*

The VOC was actively engaged in trade with India. In the various VOC settlements along the Indian coast, silver coins from Europe circulated side by side with Indian coins. Under the Moghul empire both gold and silver coins were circulating in the territories controlled by the state. In the 16<sup>th</sup> century a silver coin was introduced under the name rupaya (rupee), with a fine silver content of 11.4 grams. The VOC brought silver bullion to Bengal and had it minted into rupees.

In the last decade of the 17<sup>th</sup> century rupee coins also entered circulation on Java, where they became known under the Dutch name 'ropijen', initially valued at 24 stivers. The literature does not mention the use of the smaller denominations, in silver and copper, of the rupee. In India the rupee was divided into 16 annas, 64 paises or 192 pies. In 1693 the government admitted rupees at the rate of 28 stivers, but had them stamped with the symbol of a small horse rider. Unstamped rupee coins circulated at the rate of 30 stivers. In 1700 all rupee coins were valued at 30 stivers. This value was too high and as a result large amounts of rupees entered the circulation in Java. In 1735 the Indies government reduced the value to 27 stivers. At that time no less than 35 different kinds of rupees were in circulation. In 1753 the rupee was again

valued at 30 stivers. In the 1740s the government in the Indies started minting Batavia or Java rupees, with a fine silver content of 12.08 gram, later of 10.58 gram.

### *Chinese traders and caixas and picis*

The foreign traders encountered in Java an existing monetary circulation of several types of small coins. In previous centuries the money circulation in Java consisted of Chinese copper coins, with a square hole in the middle. In the 14<sup>th</sup> century locally made coins of tin, or copper-tin and lead-tin alloys and lead, imitations of the Chinese copper coins, circulated in the archipelago, called *picis* by the Javanese. In the 16<sup>th</sup> century the Portuguese called them *caixas*, *kasha* in Malay, the British called them *cash*, the Dutch *cassies*. As these coins had a hole in the center, they could be threaded, 200 at a string making a *satta*; 50 *satta* or 10,000 *caixas* made a *farde*; ten *farde* or 100,000 *caixas* a *catty* of *caixas*. The exchange rate between silver pieces and *caixas* fluctuated. Dutch traders noticed in the 1590s that the rate was 12.500 *cassies* to the eight reales piece, around 1600 30.000 *cassies* to the piece, in 1618 it was 8000 *cassies* to the piece, because the Chinese junks had not shown up in Batavia that year (Van den Berg 1907, p. 4; De Bree, 1928, I, p. 25).

These coins were widely used in Java. Historian Van Aelst (1995, p. 388) hypothesizes that 'Java was fully monetized when the Dutch arrived'. Historian Blussé (1986) argues that the monetization of Java was not the work of Europeans bringing in silver coins, but of Chinese traders, bringing in small coins from China and manufacturing *picis* in Java and using this money to stimulate commercial agriculture.

Chinese junks arriving in Batavia brought these small coins from China. As the demand for *picis* was constantly rising, the Dutch officials in Batavia had *picis* manufactured by local Chinese entrepreneurs. The large circulation of *picis* in Batavia and environs attracted Indonesian traders from other parts of the archipelago.

Although the Dutch introduced large amounts of small coins, both small silver and copper, *picis* were still used in parts of Java, as Blussé (1986, p. 48) has found. By the middle of the 18<sup>th</sup> century leaden *picis* were used and manufactured in Ceribon and Banten in West Java:

“The *picis* which are manufactured here are composed of 1/5 of tin and 4/5 of lead. Their value is calculated in relation to an imaginary real of 56 stuivers, divided into four times 14 stivers. The stuivers are equal to 100 *picis*. That means 12 *picis* for one duit and 25 *picis* for 2 duiten. One real's worth of *picis* weights 4 catties or 5 pounds. It is a very unstable means of

payment, considerably increasing and decreasing in value.” (VOC archive, quoted in Blussé 1986, p. 48)

The use of picis as small change lasted till about 1780, when they seem to have vanished and been replaced by small copper coins imported by the Dutch (Blussé 1986, p. 48).

#### *Small silver coins and copper doits*

Until about 1680 the currency circulating in the VOC-controlled North coast region of Java consisted of Spanish pieces and copper picis. The VOC paid for its purchases of goods in the interior of Java with Spanish pieces. These Spanish coins had to be bought at an agio of 10 – 12 percent, a significant loss for the Company (De Haan 1912, vol. 3, p. 237). In order to avoid this exchange, the Governor General decided in 1677 to introduce Dutch money in the whole of Java, particularly silver double stivers or dubbeltjes. The Company concluded a treaty with the ruler of Mataram, the Javanese state in the interior of Java, to accept the new coins at a rate of 24 dubbeltjes to the Spanish eight reales piece. At first the population and the Chinese traders hesitated to accept the new coin, but soon the dubbeltjes became popular. In the early 1700s the state of Mataram used the silver coins for payment of war debts to the VOC. By 1710 the dubbeltjes had entered the interior of Java. From 1701-1708 the VOC shipped large amounts of dubbeltjes to Java's North coast, to the extent that in Batavia and environs these coins became scarce. As the VOC purchased more goods from the population than it sold to them, the small silver coins did not flow back into the Company's treasury. The exchange rate between dubbeltjes and Spanish piece differed according to location. Along the North coast the rate was 30 :1, in Mataram 31 or 32 : 1. The dubbeltjes also flowed to other parts of the Indonesian archipelago.

In 1724 the VOC started importing small copper coins, called duiten (doits), from the Netherlands, valued at 4 doits to the silver stiver. Later half doits were imported as well. In the 1730s doits were introduced in the interior areas of Java, against the wishes of the Sultans, who earned much from the coinage of picis (De Haan, vol. 3, p. 733). By 1760 the doits became more popular in Java, so that in 1763 these coins had become scarce (De Haan, p. 733). In the 1770s more than 10 million doits were sent to Netherlands India. In 1787 doits had replaced picis in West Java, though not yet in Central Java.

The exchange rate between the different kinds of coins fluctuated. In 1742 a scarcity of payment gave these coins by exchange against large coins an agio of 10%. In 1757 large silver did agio of 10 – 12% against copper. Similarly in the 1770s

sugar miller changing large silver for small silver and doits, to pay the wages of their workers, made a profit of 7 – 12 %, but in 1784, when war had broken out between England and the Republic, small change had become scarce again. In the last decades of the 18<sup>th</sup> and the first decade of the 19<sup>th</sup> century, silver coins had become so scarce that they did significant agio above paper money. (De Haan 1912, vol. 3, p. 741-743)

#### *Different payment circuits*

By the end of the 17<sup>th</sup> century the Company preferred to pay in Dutch currency for the purchase of agricultural products in the Indonesian archipelago. Throughout the 17<sup>th</sup> and 18<sup>th</sup> centuries contracts, accounts and payments were expressed in rixdollars and stivers, although these coins were not used and actual payment was in different currencies. The Company paid for pepper in Jakarta and for products from Central Java in payment. Around 1700 the rulers of Ceribon preferred to be paid in Spanish pieces, but three decades later these rulers expressly asked to be paid in payment, not with ducats. Likewise regents in Priangan asked to be paid partly in payment for the coffee deliveries to the Company. Actual payments were a combination of ducats, payment and doits. Later in the 18<sup>th</sup> century Spanish dollars and various types of rupees became common in payments. Payment in gold was rare, and only done when payment was scarce.

The Spanish piece and later the Spanish dollar or piaster fluctuated heavily in value. Chinese junks coming to Batavia brought large amounts of Chinese copper coins and picis of lead, as well as products such as tea, and took large amounts of Spanish coins with them. Officially the Spanish piece was valued at 60 stivers, but in trade the value went up to 64 stivers. In the payment of coffee deliveries the Spanish dollar was always valued at 64 stivers (De Haan, 1912, vol. 3, p. 731-2)

In Javanese society small coins were preferred for small-scale daily purchases, particularly schellingen (shillings), dubbeltjes and doits. In the second half of the 18<sup>th</sup> century old clipped dubbeltjes were valued at 8 doits, new ones at 10 doits, old shillings at 24 doits, new ones at 30 doits. In coffee deliveries the stiver is calculated at 4 doits, the rixdollar at 192 doits.

#### *Paper money denominated in rixdollars*

In the second half of the 18<sup>th</sup> century the VOC administration in Java experienced with the issuance of paper money. In 1738 the Company issued bonds, earning an

interest and negotiable. These bonds were used to pay regents for coffee deliveries. A next step was the issuance of paper money. For this purpose the VOC created a bank in 1752, or rather fused a lending bank (Bank van Lening) established in 1746 with an exchange and deposit bank (Bank-courant), created in 1752. The management of the bank was in the hands of VOC-servants. The new bank had the right to accept deposits, to give credit on the basis of collateral and to issue paper money. The bank accepted gold and silver specie as deposit and issued bank paper, which could circulate as fiduciary money. The deposits could be withdrawn on demand, which was not compatible with the practice of putting out this money to lenders. The bank issued bankpaper in denominations of 10,000 to 1,000 rixdollars, 500, 100, 50 and 10 rixdollars, later followed by notes of 1 rixdollar. The rixdollar was valued at 48 heavy stivers, which is the original unit of account held by the VOC. The books of the bank were kept in rixdollars.

During the first decades the bankpaper was much in demand by the upper class of Dutch VOC servants and private persons, Chinese traders and Javanese aristocrats. At that time a large variety of coins circulated in the archipelago: Dutch and Javanese ducats, Venetian sequins, Persian and Sicca rupees, ducats, Spanish pieces or dollars, etcetera. It was easier to use bank paper, denominated in standard money, for payments. Depositors also received interest on their deposits, of  $\frac{1}{4}$  % per month, in 1762 reduced to  $\frac{1}{8}$  % and later to  $\frac{1}{12}$  %. At that time there were almost no banks in Europe following this practice.

In 1782 silver coins were scarce in Batavia, because the war between England and Holland had prevented the shipment of silver to Batavia. The Company, not having any cash money, started to issue paper money, credit paper earning an interest of 6%, which was circulating side by side with the bank paper, earning 3%. This Company paper money was used for the payment of VOC obligations. As the bank also did not have sufficient silver cash money to exchange bank paper for coins, the Company provided credit paper to the bank, an attempt to guarantee debt paper with another kind of debt paper. Under these circumstances the paper money quickly devaluated: in 1786 the agio loss was 6%, in 1788 10%, in 1789 already 20%. In subsequent years official agio loss was 15%, in the market 25%, in 1802 going down to 40%.

In the last years of the VOC the Company paid the coffee deliveries by the regents in paper money, but it compensated for the agio loss. In other words the regents received a larger amount in paper, than the official price of the delivery. In some years the Company paid partly in paper, partly in silver and copper coins.

During all these years the cause was lack of cash money in the Company and later the state treasury. The Napoleonic wars in Europe had brought about a blockade by the British of the Dutch possessions in Asia. The bank was liquidated in 1794. The VOC was abolished in 1798 and the State of the Netherlands took over control of Netherlands India. In 1811 the British landed in Java and took control of the Dutch possessions in Asia.

*Money of account late 18<sup>th</sup> and early 19<sup>th</sup> centuries*

In Java in the 1790s actual payments were done in dukatons, Spanish dollars and in payement and doits (De Haan, III, p. 730-731). Rixdollars and stivers had since long disappeared from the circulation. However, in the areas under VOC control, both in the Indonesian archipelago and in other parts of Southeast Asia the rixdollar and the stiver were used as the unit of account. In these areas, accounts were kept and contracts were made in rixdollars and stivers.

The Universal Cambist, a 'treatise on exchanges, monies, weights and measures' (Kelly, 1821), mentions the following places where the rixdollar as an imaginary money was used: Batavia, Banda, Banjarmassin (on the island of Borneo), Amboyna and Ternate (in the Moluccas), Macassar (on the island of Celebes), Palembang (on the island of Sumatra), Ceylon, Cochin on the Malabar coast in India, Malacca and in the Danish settlement of Tranquebar (Coromandel coast in India).

In the Indonesian archipelago and in Malacca, the exchange rate with lower denominations was as follows: one rixdollar, of 8 shillings (schellingen), or 24 dubbeltjes, or 48 stivers, or 192 doits; one stiver valued at 4 doits. Foreign silver coins were also rated in stivers and schillings, while in India an exchange rate with one of the Indian units of account was established.

**Table 2 Valuation of silver coins in Southeast Asia late 18th and early 19th Centuries**

| Silver coins           | Value in stivers in Batavia | Value in schillings (schellingen) (in Macassar and Malacca) | Value in Indian fanams (Cochin, Malabar Coast, India) |
|------------------------|-----------------------------|---|---|
| Dutch new ducaton      | 80                          | 13  | 50  |
| Old ducaton            | 78                          |   |   |
| Spanish dollar         | 64                          |   | 40  |
| English crown          |                             | 10  |   |
| German crown           | 60                          |   |   |
| Bombay and Surat rupee | 30                          | 5   | 18  |
| Madras and Arcot rupee |                             | 4   |   |
| Negapatam Pagoda       | 90                          |   | 64  |
| Star Pagoda            | 99                          |   |   |
| Gold mohur             | 480                         |   |   |

Source: P. Kelly, *The Universal Cambist and Commercial Instructor*. Vol. I. London: 1821.

In these locations various coins were circulating side by side: Spanish pillar dollars, ducatoons, French crowns, various types of rupees, as well as smaller coins, such as shillings, dubbeltjes, doits and cash. With the stiver as unit of account, and the imaginary rixdollar valued at 48 stivers, 4 rixdollars were equal to 3 Spanish dollars, or one dollar valued at  $1\frac{1}{4}$  rixdollar. It is remarkable that the exchange rates, based on stivers, were rather uniform throughout the VOC dominated areas in Southeast Asia. It is also remarkable that these ratios and relationships, established during the last decades of VOC domination in Asia, were still reported as daily practices in the first decades of the 19<sup>th</sup> century, and as important enough to be presented in a cambist (or catalogue) for business and exchange in the 1820s.

### **5.Last attempt at management with the unit of account: 1798-1816**

The VOC was abolished in 1798 and the occupied territories in the Indies came under administration of the Dutch government. In 1810 the French empire under Napoleon annexed the Netherlands. In 1811 the British conquered Java and established a government that answered to the administration of British India under the East Indies Company.

The British administration in Java, under Lt. Governor General Raffles, attempted to reorganize the chaotic currency system. One of the first British

proclamations fixed the value of the coins in circulation in Java. Remarkably, this valuation was done in terms of the stiver as unit of account (see Table 3).

Initially the British adopted the Spanish dollar as the standard coin, but in 1813 the government announced the issue and minting of a silver Java-rupee, of the same degree of fineness as the old Java rupee (11.5 gr.), but with an inscription in the Malay and Javanese languages. Ten copper doits were equal to one *wang* (Malay: uang; Dutch: dubbeltje), and twelve *wang* were equal to one rupee. The Java rupee was thus equal to 30 stivers or 120 doits.

**Table 3 British proclamation of 11 September 1811, fixing the value of the coins in circulation in stuivers and in duiten**

| Type of coin   | Value in stivers | Value in doits |
|--|------------------|----------------|
| <b>GOLDCOINS</b>   |                  |                |
| gold ducat = $2\frac{3}{4}$ rixdollars                     | 152 stivers      | 528            |
| Java gold rupee = 10 rixdollars =<br>16 Java silver rupees | 480              | 1920           |
| half gold rupee = 5 rixdollars                             | 240              | 960            |
| <b>SILVER COINS</b>  |                  |                |
| spanish dollar   | 64               | 256            |
| half Spanish dollar  | 32               | 128            |
| American dollar  | 60               | 240            |
| old ducaton  | 78               | 312            |
| new ducaton  | 80               | 320            |
| half ducaton   | 40               | 160            |
| rixdollar  | 48               | 192            |
| rupee (Batavia, Surat, Arkot)                              | 30               | 120            |
| half rupee (same)  | 15               | 60             |
| Sicca rupee  | 31 1/2           | 126            |
| half Sicca rupee   | 15 3/4           | 63             |
| schelling (shilling)                                       | 7 1/2            | 30             |
| dubbeltje ('double stiver')                                | 2 1/2            | 10             |
| stuiver (stiver)   | 1                | 4              |

Source: De Bree

Thomas Stamford Raffles, *The History of Java*, volume two, London 1817, p. cclx

NB The stuiver is the old VOC stiver, valued at 4 doit.

## 7. Conclusion: money of account as a policy instrument

In the middle and the second half of the 19<sup>th</sup> century a number of Dutch authors wrote extensive discussions of monetary policies in Netherlands India during “the last 250 years” (i.e. the period from 1600 till about 1850) (Van Zuylen van Nijevelt 1847; Mees 1851; Bosse 1863; Van den Berg 1863, 1907, 1918). Without exception these authors passed a very negative judgement on the policies followed by their

predecessors, using characterizations such as “chaotic policies”, ‘currency confusion’, “capital mistakes”, “misconceptions”, “mismanagement” and “ignorance”, causing “miserable conditions” in the Indonesian archipelago. These authors had all had some economic training, theoretically or practically. Mees would later become president of the Netherlands Central Bank, Van den Berg president of the Java Bank in Netherlands India.

This strongly negative judgment is not justified in my view. This was probably also the opinion of Dutch historian and national archivist De Haan (1922, vol. 2, p. 390) who wrote: “we can therefore say with complete certainty that, if there was anything the Government understood well, it was the policy measures regarding currency matters.” What 19<sup>th</sup> century commentators apparently have not understood is that the VOC officials in Batavia used the imaginary unit of account as the policy instrument to manage multiple currencies and to create complementarity among different currencies. By the middle of the 19<sup>th</sup> century modern economists apparently had the view that they had much more sophisticated instruments at their disposal, and in fact with the upcoming gold standard formula, they would soon have one.

Summarizing his earlier views Van den Berg (1918, p. 793-794) wrote that Dutch officials ‘in the first 250 years’ had made three capital mistakes: (1) the decision to value silver coins in Netherlands India higher than in the Netherlands; (2) the decision to flood the country with low grade small coins; and (3) the excessive issue of paper money. The first point pertains to the VOC period (1602-1798). The second point is not valid for the VOC period, only for the period from the 1820s till the 1850s. The third argument is valid for the last decades of the VOC, and the first ones of the colonial state period. As only the first point is relevant for the entire VOC period, we will only deal with this argument.

The fundamental problem the VOC encountered in Netherlands India, was that a full-fledged monetary system with both large and small coins, did not exist. Such a system existed in India, and foreign traders could simply fit in and use the system to their own advantage. In the Indonesian archipelago coins of foreign origin circulated, the Chinese caixas and their local imitations, and the European traders introduced other foreign coins, viz., the Spanish pieces of eight. The VOC then brought in a variety of Dutch silver coins.

VOC officials were of the opinion that silver had a higher value in Asia than in Europe, in the order of 20 – 25%. This idea was certainly prominent among VOC officials in Batavia, it was somewhat hesitantly accepted by the Gentlemen XVII in Amsterdam, and it was so strong that it even guided Dutch policy views after 1816.

The idea was finally dropped with the currency reform of 1826. What could be the cause of this higher value in Asia?

In one of his earlier publications Van den Berg (1863, p. 17, 25-29) apparently accepts the correctness of this views, and he even explains on theoretical grounds why silver coins had a higher value in Asia, in other words, they were accepted at a higher price. The reason for this is that the transportation costs have to be added to the value of the coin. Van den Berg roughly estimated these costs at 7% of the value of the goods (this estimate undoubtedly reflected conditions around 1850, not of previous centuries). According to Van den Berg the silver coin must have a price in Asia, 7% higher than in Europe. He pointed out that it was impossible that the price of money could be the same in Asia as in Europe.

However, the problem then is, how to express this higher value? Van den Berg pointed out that this difference in valuation could not be properly indicated in a silver money system. It could only be done in a gold standard system, in which the value of silver could be expressed in a common unit of value, i.e. gold. He gives as an example the price of a Mexican dollar (around 1860), containing 24.2414 gram of fine silver, valued in London at 52 pence (of the gold based British pound sterling) and in Singapore at 56 pence. Another example: there is value parity between the Netherlands and the Indisch guilder (again in the 1860s), if one gets for 100 Indisch guilders, six month later 107 Netherlands guilders of the same silver content.

Dutch author Van Bosse (1863) has pointed to another cause of the higher valuation of certain coins. Writing about the mid-19<sup>th</sup> century situation, he mentions the fact that the old Spanish piaster, with a silver content of not more than 24.102 gram, implying a real value of 2.55 guilders, was sold in Batavia for 3 guilders; the Mexican dollar, worth about 2.56<sup>5</sup> guilders, was sold for 2.72 – f 2.77 guilders. Van Bosse (1863, p. 65) explains this by pointing out that the exchange value of a coin comes from two sources, viz., the inner content of precious metal, and the value as more or less accepted means of payment. Spanish piasters, Mexican dollars and Indian rupees circulated as means of payment in the whole of Southeast Asia, while Dutch coins were not accepted outside the territory of Netherlands India. The first category of coins had a wider market, was more in demand and therefore commanded a higher price.

The problem for the VOC officials in the 17<sup>th</sup> and 18<sup>th</sup> centuries was that the only mechanism they had to express this higher valuation was in terms of the unit of account, the rixdollar and the stiver. They tried to anchor both the larger silver coins and the smaller coins in a comparative system, by using the unit of account to

establish the ratio between coins of different metals. What they did was in fact not different from the monetary policies of the European states in the late Middle Ages and the early modern period. In all these cases monetary officials used the unit of account as an instrument for managing currencies. The imaginary unit of account was used as a policy instrument for pricing all the coins on one scale.

One reproach, made by the 19<sup>th</sup> century Dutch commentators against the VOC was that the officials in Batavia were inconsistent and incompetent in their valuations of the different coins. Some coins were valued too high, others too low, in view of the silver content of the coins. As a result the undervalued coins disappeared quickly from the circulation. This reproach is justified to some extent, although we cannot reconstruct the precise motivations of the VOC policymakers for each of their decisions. It is hard to imagine that these policymakers were uninformed, where traders of different background showed a keen acumen in the valuation of coins.

In retrospect, it is not clear what else the VOC officials could have done to keep the imported silver coins in the local circulation. The problem for these officials was aggravated by the fact that they were operating in a much wider geographical region than the occupied territories in the Indonesian archipelago, they were managing the VOC trading network in Asia. If 19<sup>th</sup> century Dutch commentators criticize them for their shortcomings, they are passing judgment from the viewpoint of the nascent territorial state, which was not yet the shape of the political units in the earlier centuries.

Was the policy instrument of the money of account effective in the management of multiple currencies? In the areas described in this paper, different currencies have circulated side by side for several decades. Einaudi (1936/1953, p. 252-3) mentions as one of the policy aims of monetary management maintaining stability of prices. Although the material presented in this paper does not warrant definite statements on this matter, it can be tentatively suggested that prices of many agricultural products in the Indonesian archipelago remained relatively stable of long periods of time during the 17<sup>th</sup> and 18<sup>th</sup> centuries. This is a remarkable phenomenon, which should not easily be discounted. During this period the policy instrument of the money of account was capable of creating a remarkable degree of complementarity among currencies of different metals during. The intriguing question arises why this policy instrument ceased to be effective towards the end of the 18<sup>th</sup> century.

## Bibliography

- Aelst, Arjan van – 1995 –  
'Majapahit *Picis*: The Currency of a 'Moneyless' Society 1300-1700'. *Bijdragen tot de Taal-, Land- en Volkenkunde*, vol 151, no. 3, pp. 357-393.
- Berg, N. P. van den – 1863 –  
*De kwestie over den geldsomloop in Nederlandsch-Indië*. Batavia.
- Berg, N. P. van den – 1870 –  
*De Bataviasche Bank-courant en Bank van Leening, 1746-1794. Een bijdrage tot de geschiedenis van het bank- en financiewezen van Nederlandsch-Indië*. Amsterdam.
- Berg, N.P. van den – 1907 -  
*Munt-, crediet- en bankwezen, handel en scheepvaart in Nederlandsch-Indië: historisch-statistische bijdragen*. 's-Gravenhage: Martinus Nijhoff.
- Berg, N.P. van den, and G. Vissering – 1918 –  
Muntwezen. *Encyclopaedie van Nederlandsch-Indië*. Redactie S. de Graaf en D. G. Stibbe. Tweede Deel (Second Part) H – M. 's-Gravenhage: Martinus Nijhoff. Pp. 793-811.
- Blussé van Oud-Alblas, J. L. – 1986 –  
'Trojan Horse of Lead: The *Picis* in Early 17<sup>th</sup> Century Java. In: *Strange Company: Chinese settlers, mestizo women and the Dutch in VOC Batavia*. Proefschrift Leiden.
- Bosch, J.H. Graaf van den – 1850 –  
*Een viertal verhandelingen over de belangrijkste quaestien thans omtrent Java aande orde van den dag. I<sup>e</sup> stuk, Over het betaalmiddel*. 's-Gravenhage: P.C. Dill.
- Bosse, J. P. van – 1863 –  
*Het muntwezen op Java*. Proefschrift (Ph.D. dissertation) Leiden. Leiden: Gebroeders van der Hoek.
- Bottema, J.W.T – 1995 –  
Market Formation and Agriculture in Indonesia from the mid-19<sup>th</sup> Century to 1990. Ph.D. dissertation Nijmegen. Jakarta: Desa Putera.
- Boyer-Xambeu, Marie-Thérèse, Ghislain Deleplace and Lucien Gillard –1994 –  
*Private Money & Public Currencies: The 16<sup>th</sup> Century Challenge*. Translated by Azizeh Azodi. Armonk, New York: M.E. Sharpe.
- Bree, L. de – 1928 –  
*Gedenkboek van de Javasche Bank: 1828 – 24.1.1928*. Two parts. Weltevreden.
- Einaudi, Luigi – 1936 – (1953)  
'The theory of Imaginary Money from Charlemagne to the French Revolution'. In: *Enterprise and Secular Change: Readings in Economic History*. Edited by Frederic C. Lane and Jelle C. Riemersma. Homewood, Illinois: Richard D. Irwin, Inc. Pp. 299-261.

- Gaastra, Femme S. – 1994 –  
Private money for Company trade: the role of the bills of exchange in financing the return cargoes of the VOC. *Itinerario* 13/1, pp. 65-74.
- Gelder, H. Enno van – 1949 –  
*Munthervorming tijdens de Republiek, 1659-1694*. Proefschrift (Dissertation)  
Amsterdam. Amsterdam: P.N. van Kampen en Zoon N.V.
- Gelder, H. Enno van – 1965 –  
*De Nederlandse munten*. Utrecht/Antwerpen: Aula-Boeken.
- Haan, F. de – 1912 –  
Priangan: De Preanger regentschappen onder het Nederlandsch bestuur tot 1811.  
Volumes 1 - 4. Batavia: G. Kolff & Co.
- Haan, F. de – 1922 –  
Oud Batavia: gedenkboek, vol. 1 – 2. Batavia: G. Kolff & Co.
- Imhoff, G.W. Baron van – 1741/1912 –  
Consideratiën over den tegenwoordigen staat van de Nederlandsche Oost Indische Maatschappij. *Bijdragen tot de Taal-, Land- en Volkenkunde van Nederlandsch-Indië*, vol. 66, pp. 483-513.
- Kelly, P. – 1821 –  
*The Universal Cambist and Commercial Instructor being a full and accurate treatise on exchanges, monies, weights and measures of all the trading nations and their colonies; with an account of their banks, public funds, and paper currencies*. 2 volumes. London.
- Kuroda, Akinobu – 2005 –  
Complementarity non-integral among monies in history: Nature of currency as viscous, non-uniform and separable stream. Position paper.
- Laanen, J. T. M. van – 1980 –  
*Money and Banking 1816-1840*. Volume 6 of Changing Economy of Indonesia: A Selection of statistical source material from the early 19<sup>th</sup> Century up to 1940. Edited by P. Creutberg and J.T.M. van Laanen. The Hague: Martinus Nijhoff Publishers.
- Lane, Frederic C., and Reinhold C. Mueller – 1985 –  
*Money and Banking in Medieval and Renaissance Venice: Volume 1 Coins and Moneys of Account*. Baltimore and London: The John Hopkins University Press.
- Mees, W.C. – 1851 –  
*Het muntwezen van Nederlandsch-Indië*. Amsterdam: P.N. van Kampen.
- Nederburgh, S. C. H. – 1876 –  
'De verstoring van den geldsomloop in Nederlandsch-Indië door de oude duiten.'  
*Tijdschrift voor Nederlandsch-Indië*, vol. 5 (New Series), part 1, pp. 401-425.

- Netscher, E. en J.A. van der Chijs – 1864 –  
*De munten van Nederlandsch-Indië*. In: *Verhandelingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen*, vol. XXXI. Batavia: Lange & Co.
- Pol, Arent –1985 –  
 Tot gerieff van India: Geldexport door de VOC en de muntproductie in Nederland, 1720-1740. *Jaarboek voor munt- en penningkunde*, 72, pp. 65-195.
- Posthumus, N. W. – 1943 –  
*Nederlandsche Prijsgeschiedenis. Deel 1 Goederenprijzen op de beurs van Amsterdam 1585-1914; Wisselkoersen te Amsterdam 1609-1914*. Leiden: E.J.Brill.
- Roessingh, M.P.H. – 1968 –  
 Nederlandse betrekkingen met de Philippijnen, 1600-1800. *Bijdragen tot de Taal-, Land-, en Volkenkunde*, 124, pp. 482-504.
- Schimmel, W. F. – 1882 –  
*Geschiedkundig overzicht van het muntwezen in Nederland*. Academisch proefschrift aan de universiteit van Amsterdam. Amsterdam: Metzler & Basting.
- Schumpeter, J. A. – 1908 –  
*Das Wesen und der Hauptinhalt der Theoretischen Nationalökonomie*.
- Vissering, G. – 1920 –  
*Muntwezen en circulatiebanken in Nederlandsch-Indië*. Amsterdam: J.H. De Bussy.
- Zuylen van Nijevelt, J.J.P. van – 1847 –  
 Bijdrage tot de geschiedenis van het muntwezen in Nederlands Oost-Indische bezittingen. *Utrechtse Bijdragen tot de kennis der Nederlandsche en vreemde Koloniën*. Jaargang 1847, nr. 4. Utrecht.