Money or Export Commodity for Asia: American silver at the markets of Mexico, Castile and Amsterdam (16th to 18th centuries)

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The monetary regimes of the early modern Atlantic world have been described as based fundamentally on a bimetallic system of precious metals.[1] Nonetheless, there are some cases that seem to contradict this general assumption. For instance, during the whole colonial period, i.e. almost three centuries, Mexicans denounced permanent shortages of silver currency despite their famous silver production and absolute monetary stability.[2] Despite all complaints and petitions to the Spanish crown there was almost no legal copper coinage, not even in the 18th century. Thus current money for every day payments consisted of non metallic materials, such as paper, playing cards, cocoa beans and the like, besides different forms of credit.[3] Whereas in Mexico there were complaints of monetary shortages for coins of all sorts, in Spain these complaints were restricted to shortages of gold and silver. Copper coins and fractionary money were always available, sometimes in overwhelming quantities, due to an erratic monetary policy.[4] In the 18th century, as copper or vellon coinage presented no longer a problem for the Spanish economy, paper money was discussed.[5] The situation at Amsterdam differed from that in Spain and in Mexico. In the 17th century, the Amsterdam market with its fixed money of account in terms of silver and its stock exchange emerged as a mayor financial center of the Atlantic economies.[6] But in contrast to Mexico and Spain, at Amsterdam there were no regular remarks concerning monetary shortages despite the insistence of Flemish-Dutch merchants on obtaining licenses to import silver from the

1 Denzel, Markus, „La Practica della Cambiatura“. Europäischer Zahlungsverkehr vom 14. bis zum 17. Jahrhundert, Stuttgart 1994.

2 Covarrubias, José Enrique, La mondeda de cobre en México, 1760-1842. Un problema administrativo, México 2000.

3 Pérez Herrero, Pedro, Plata y Libranzas. La articulación comercial del México Borbónico, México 1988.

4 Hamilton, Earl J., El tesoro americano y la revolución de los precios en España, Barcelona 1975 (original Cambridge, Mass. 1934).

5 Hamilton, Earl J., Guerra y precios en España, 1651-1800, Madrid 1988 (original Cambridge, Mass. 1947).

6 The silver contens of the guilder was 1620 – 1659: 10.28g; 1660-1681: 9.74g; 1682 – 1800: 9.61g, Posthumus, Nicolas W., Nederlandsche Prijsgeschiedenis, vol. I, Leiden 1943, p. Cxiii. The weight of the peso was about 24,85g – 24,43g of fine silver Ruth Vornefeld, Spanische Geldpolitik in Hispanoamerika 1750-1808. Konzepte und Massnahmen im Rahmen der bourbonischen Reformpolitik, Stuttgart 1992, pp.127-140; Valdés Lakowsky, Vera. De las minas al mar. Historia de la plata mexicana en Asia. 1565-1834. México 1987, gives the data in the terms of the 18th century: in 1777 the peso had 11 dineros and 3 granos and was debased to 10 dineros and 20 granos.

Spanish realms.[7] Thus precious metals must have had different monetary functions at Mexico, Castile and Amsterdam that varied over time.

When the influx of American silver into Western Europe started in the mid-sixteenth century, it provoked immediately a dispute among scholar's about its economic effects.[8] In the 18th century, especially in its second half, American silver output rose again at similar growth rates without inciting any discussion. Thus, which were the monetary functions of silver in these early modern Atlantic economies? A look at the relation between silver production and prices at the markets of Mexico, Castile and Amsterdam perhaps offers some more insight.

For the purpose of the present considerations modern editions of silver production and of long term price series are necessary. Thus, the beginning of the tax records of the American mining industry will be the starting point. The period under consideration finishes with the Coalition Wars against France. The entrance of French troops in Amsterdam, the disruption of the Spanish American Atlantic trade and the massive emission of royal notes, *vales reales*, in Spain put an end to the strong relation between the Dutch Republic and the Hispanic World. Thus the present study will analyze the relation between silver production and price level in Mexico, Castile and Amsterdam from 1550 to 1800 in order to offer a hypothesis of the changing monetary functions of silver on these markets in early modern times.

Historiography has dealt with the influence of American silver on the monetary situation in different ways. One should mention investigations on the output of American silver mining. It really started in the 1540s and obscured European production with the introduction of the amalgamation process for silver ores in Mexico in the 1550s and in Peru in the 1570s. From the mid-16th century regular accounts of royal income from taxes on silver production are preserved. Due to the editorial work on Spanish American finances the estimation of registered bullion production is at our disposal.[9] Even if smuggling and tax evasion were current phenomena not only in Spanish America, estimates on silver production had been checked against mercury consumption financed by the royal treasuries with credits.[10] In

7 Israel, Jonathan I., Dutch Primacy in World Trade, 1585-1740, Oxford 1990.

8 Grice-Hutchinson, Majorie, The School of Salamanca, Readings in Spanish Monetary Theory 1544-1605. Oxford 1952.

9 TePaske, John J.; Klein; Herbert S., The Royal Treasuries of the Spanish Empire in America, 3 vols., Durham, N.C. 1982; Klein, Herbert S., The American Finances of the Spanish Empire: Royal Income and Expenditures in Colonial Mexico, Peru, and Bolivia, 1680-1809, Albuquerque 1998; Garner, Richard, Long-Term Silver Mining Trends in Spanish America. A Comparative Analysis of Peru and Mexico, in: American Historical Review 93 (1988), S. 898-935.

10 Bakewell, Peter J., Registered Silver Production in the Potosí District, 1550-1735, in: Jahrbuch für

addition there is a bias as the amount of silver refined by the smelting process escaped treasury control. Nonetheless it seems that the available data offer a good proxy for the Mexican silver production. Besides the numerous studies on the Mexican mining industry[11] and its production, we can make use of investigations concerning the monetary regime of New Spain. In both cases the focus is on the late 18th century and the end of the colonial period, whereas the 17th century and the period after the War of the Spanish Succession received less attention. The amount of token money, credit facilities and treasury bills in circulation is unknown at our disposal are only qualitative and institutional studies.[12] In order to study the function of silver on the Mexican financial market, the production data of silver should be compared with the development of the price level. Historiographical studies of the Mexican price level refer to the evolution of maize prices as the basic foodstuff. Mexican maize price series start in 1577. Even if these reflect the harvest situation and the effects of demographic changes the maize prices series must be sufficient as an indicator of the evolution of the general price level as no long term price series of other commodities are available.[13]

Another group of historical studies deals with the monetary situation in Spain and the kingdom of Castile. Whereas in New Spain the silver content of the peso was almost fixed, the Castilian economy experienced a whole series of monetary disturbances. Since the end of the 16th century, in a futile attempt to finance European warfare, once and again silver coin debasement was followed by the issue of pure copper money, afterwards the copper money was debased, and finally radical deflationary measures were taken. Thus extreme monetary instability characterized the situation in Castile during the 17th century until the end of the War of the Spanish Succession. In addition the Castilian gold:silver ratio rose from 1:10.6 in1550 to 1:15 in the mid 17th century. During the 18th century, the Bourbon kings maintained the monetary system stable applying only minor devaluations. With the beginning of the Coalition Wars against France this was no longer possible, thus, currency debasement and massive issue of paper money started. For the monetary situation and the price level in Spain one can still rely on the careful investigation of E. J. Hamilton and his wife, who went through monastery and hospital accounts on the eve of the Spanish Civil War. They

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Geschichte von Staat, Wirtschaft und Gesellschaft Lateinamerikas 11 (1975), pp. 68-103.

11 Hausberger, Bernd, La Nueva España y sus metales preciosos. La industria minera colonial a través de los 'libros de cargo y data' de la Real Hacienda, 1761-1767, Frankfurt a. M. 1997.

12 Perez Herrero, Plata y libranzas; Covarrubias, Moneda de cobre, Irigoin, Maria Alejandra, Gresham on Horseback: The Monetary Roots of Spanish American Political Fragmentation in the Nineteenth Century, Working Papers No. 96/06 December 2006, Department of Economic History London School of Economics, see also: The Economic History Review 62/3 (2009), p. 551-575.

13 Garner, Richard, http://home.comcast.net/~richardgarner04/datafiles.html (21.01.2008).

uncovered material that did survive only in part the military struggles. Their edition of price series for Castile starts in the Middle Ages.[14] Besides local price studies for short periods of time there has not been a further attempt to continue the work of E.J. Hamilton on a larger scale.[15]

Finally studies that deal with the relation between Mexican silver and the Dutch economy should be mentioned. This connection is analyzed in investigations on Spanish American commerce and smuggling. But many of these works focus on trade with the British as they emerged as the most important trading partner of Spanish America after the Seven Years War or at least by the end of the 18th century.[16] The role of Dutch traders, pirates and smugglers is less known for Spanish America but is studied mainly for Brazil. The Dutch trade with Spain has been the subject of investigations for the Golden Age, but for the 18th century, our knowledge of American precious metals and especially silver in Amsterdam is rather scarce. Even the function of the Dutch as Asian traders with American metals since the second half of the 17th century is obscured by the attention received by London and the British competitors, even if many traders at London were of Dutch or at least of continental origin, as were their networks and their merchandise.[17] At Amsterdam the gold:silver ratio was considerably lower than in Castile. It started from 1:13 in 1620 in order to reach 1:15 only in the mid 18th century. Amsterdam price indices are available from the 30 Years War onwards, when the bourse began with its regular price notations. For the Amsterdam market we have the well known price series of N. Posthumus.[18] In contrast to the Mexican and the Castilian consumer prices, those recorded for Amsterdam were prices fixed at the bourse i.e. wholesale prices.

The purpose of the present study is to offer some hypothesis concerning the use of silver as a monetary basis in the Atlantic economies comparing the relation between silver production in the Americas and especially New Spain with the development of commodity prices at the

14 Hamilton, Earl J., Money, prices and wages in Valencia, Aragon and Navarre, 1351-1500, Philadelphia 1975 (Cambridge, Mass. 1936); Hamilton, El tesoro; Hamilton, Guerra.

15 Pieper, Renate, La revolución de los precios en España (1500-1640). Sus causas y efectos, Barcelona 1987

16 Pearce, Adrian J., British Trade with Spanish America, 1763-1808, Liverpool 2007

17 Pearce, British Trade, chapter 1; Israel, Jonathan I., Dutch Primacy in World Trade, 1585-1740, Oxford 1990; Crespo Solana, Ana Maria, Entre Cádiz y los Países Bajos. Una comunidad mercantil en la ciudad de la Ilustración, Cádiz 2001, see A New Interpretation of Contraband Trade, Hispanic American Historical Review, 81 (2001), 733-738, the review of the work of Ernst Pijning written in Dutch; Postma, Johannes; Enthoven, Victor (eds.), Riches from Atlantic Commerce. Dutch Transatlantic Trade and Shipping, 1585-1817, Leiden 2003

18 Posthumus, Prijsgeschiedenis; Cf. Allen, Robert C., Consumer price indices, nominal/real wages and welfare ratios of building craftsmen and labourers, 1260-1913, datafile: Amsterdam, http://www.iisg.nl/hpw/data.php 14.07.2009. The data of Posthumus and of Allen are not related to each other, therefore the data of Posthumus will be used.

markets of Mexico, Amsterdam and Castile.[19] Therefore credit and banking systems should be taken into account likewise. During the colonial period, in New Spain there was no official banking system although different sorts of treasury as well as private bills circulated and ecclesiastical institutions offered various forms of credit.[20] In Spain private bankers moved from Seville to Madrid at the beginning of the 17th century.[21] In 1782, the Banco de San Carlos, the first public bank, opened in Madrid in order to redeem public promissory notes, the *vales reales*. From 1794 on, when another tranche of *vales reales* was issued in order to finance the Coalition Wars against France the *vales* rapidly lost their value. The bank notes of the Banco de San Carlos found little acceptance.[22] In Amsterdam, the Wisselbank opened already in 1609, its money of account remained fixed in terms of its silver contents as the Wisselbank was not used to finance warfare of the Republic or to redeem public debt. Furthermore, Dutch colonial efforts were not formally financed and organized as a state affair.[23] Thus we try to compare three different systems, two with a stable monetary policy, one with heavy nominal fluctuations, and two systems without a public bank versus the prototypical version of an early modern public bank.

Besides credit American gold production should be kept in mind even if its value was considerably lower than that of silver. Throughout the 17th century, New Granada (modern Columbia) supplied the Atlantic markets. From 1690 until the mid 18th century Brazilian gold exports were famous. Nonetheless, their amount was not yet enough to alter the gold:silver ratio at the Atlantic markets.

In order to discern the influence of silver on the monetary basis of the different economies at first the production cycles of Mexican silver should be considered (graph 1). One may distinguish three different periods. The mid-sixteenth century was the starting point of massive Mexican silver output. In the first decade of the 17th century it reached its first peak when in severeal years more than 6 million pesos were registered for taxation at the royal offices. By then Mexican production was overshadowed by that of Peru and Alto Peru where

19 Relations between specie and prices depended on a large set of variables. See articles in: Flynn, Dennis O.; Giráldez, Arturo, von Glahn, Richard, Global Connections and Monetary History, 1470-1800, Aldershot 2003.

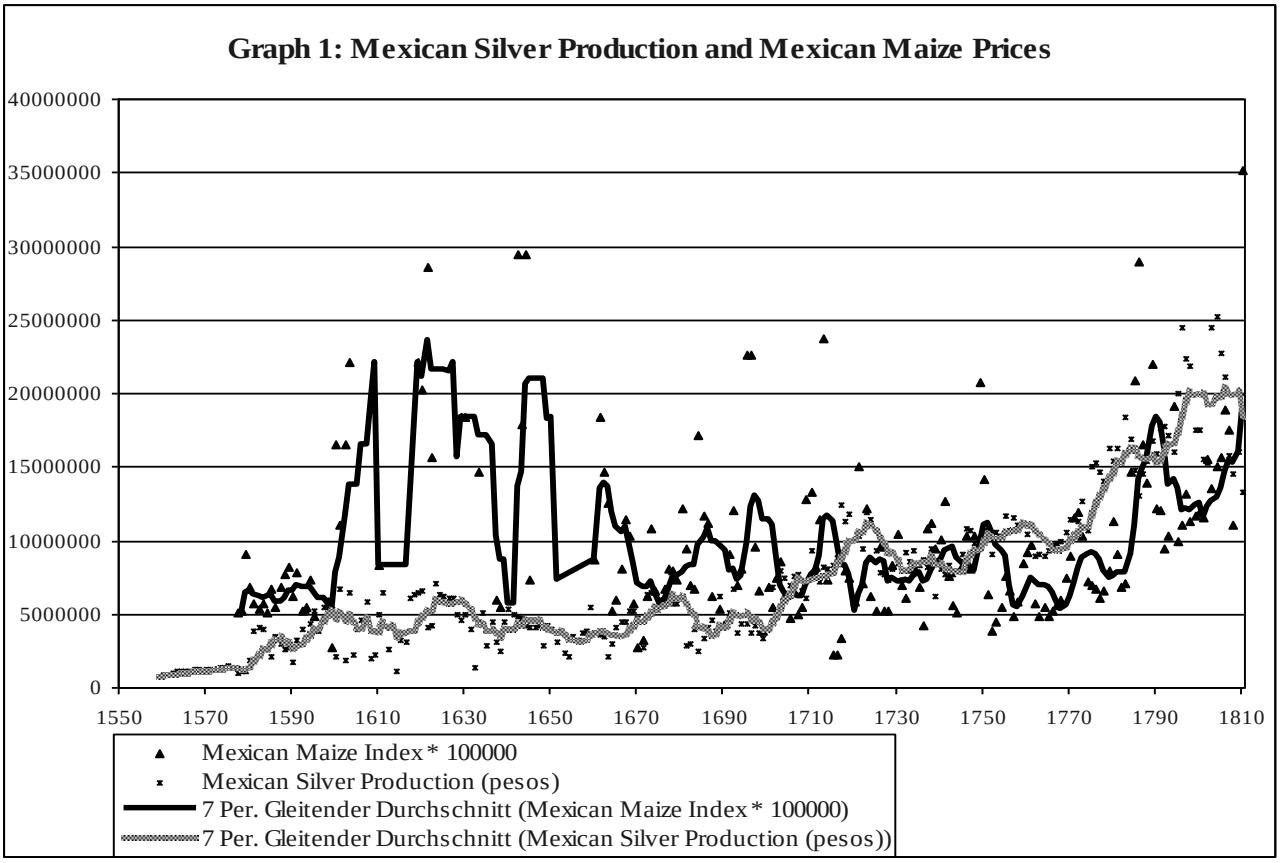
20 Dehouve, Danièle, Quand les banquiers étaient des saints. 450 ans de l'histoire économique et sociale d'une province indienne du Mexique, Paris 1990; Ludlow, Leonor; Marichal, Carlos (eds.), La banca en México, 1820-1920, México 1998; Martínez López-Cano, María del Pilar; del Valle Pavón, Guillermina (eds.), El crédito en Nueva España, México 1998

21 Priotti, Jean Philippe, Metales preciosos, competencia comercial y transformación económica en el Atlántico franco-español (1550 – 1570), in: Jahrbuch für Geschichte Lateinamerikas 43 (2006), p. 25-40.

22 Hamilton, Guerra.

23 The importance of Amsterdam for Norther Europe is shown by: North, Michael, From the North Sea to the Baltic. Essays in Commercial, Monetary and Agrarian History, 1500-1800, Aldershot 1996.

more than 8 million pesos had been declared in 1610. Since the 1590s the Peruvian mean value was about 6-7 million pesos a year. In 1628, when Piet Heyn captured the Mexican silver fleet he missed the richer Peruvian deliveries.



In Mexico a permanent decline may be observed from 1628 onwards. In Peru production continued at a high level for another decade. In Mexico the bottom was reached with an output of 2 million pesos in 1663. Whereas in Peru, the value of registered silver dropped even more to less than1 million pesos per year during the War of the Spanish Succession. Mexican silver production recovered and went ahead of the Peruvian during the second half of the 17th century. At the start of the 18th century registered Mexican silver output had reached its previous maxima and continued to grow. It should be stressed that output fluctuations were high in Mexico, whereas in Peru the rise of the silver economy and its decline were more steadily.[24] Between 1592 and 1634 Mexican and Peruvian silver production together arrived at their first maximum with a mean value of 10 million pesos per year, sometimes the output even reached 13 million pesos. By the mid-1660s it had fallen to half that amount. In the following decades total American silver output stabilized around 8

24 Hausberger, Nueva España, shows this was due to the scattered mining fields in Mexico, whereas in Alto Peru and Peru there were a few big centers.

million until the end of the century.

At the beginning of the 18th century Mexican production surpassed previous levels and reached 7 million pesos. Due to new mining and refining techniques such as the introduction of blasting with gunpowder a new upward trend began. In the 1730s production stabilized around 9-10 million pesos until 1774. After the Seven Years War, silver production was fostered by the new administration lowering the price for mercury in two steps to half of its former costs. Thus in the last quarter of the 18th century production increased until it reached a mean value of 21 million pesos in 1796-1805. The same reforms were applied to Peru but here results were much more modest in absolute and relative numbers, and the mean value of the first boom period could be attained only in the 1780s. Between 1796 and 1805 total American mining output reached almost 30 million pesos per year.

The possible effects of the silver boom of the late 16th and early 17th century incited a whole series of studies by contemporaries and modern historians alike, but the silver boom of the late 18th century had no similar echo. This might be due to a reduced influence of silver on the monetary basis of the 18th century. In order to obtain more insight in the importance of this precious metal for the monetary supply and its monetary functions the Mexican and total American silver production should be compared with the development of the price level at Mexico, Castile and Amsterdam.

In Mexico, as far as maize prices are concerned, the price level more than doubled at the beginning of the 17th century (graph 1). The high level reached already in 1600-1603 was maintained for the next 60 years. Afterwards the prices descended nearly to their former position, so that from the 1667 until 1783, maize prices remained at a level almost half of that of the early 17th century. In the years following the Treaty of Paris maize prices increased and roughly doubled once again but did not yet reach the scale of the first half of the 17th century.[25] A comparison with Mexican silver production shows no relation between the development of prices and silver output in Mexico. Between 1577 and 1598 when silver production increased at least fourfold, maize prices only rose by a third. From 1628 to 1663, when silver production and population were receding steadily, maize prices reached the maximum of the colonial period. Prices remained stable when population and silver production stabilized at first and increased considerably from 1700 on. Only during the last quarter of the colonial period both prices and silver production rose, but with opposite

25 The average index numbers are: 1577-1598: 60; 1600-1667: 150; 1668-1783: 82; 1784-1805: 145.

fluctuations. Thus both the calculation of the correlation coefficient and graph1 show very clearly that there was no connection between the price development and the level of silver output in New Spain. Endorsed by the complaints of contemporaries about the shortages of silver coins the available data show that silver did not serve as a monetary basis in Mexico at all.[26] Only from 1783 onwards, at the very end of the colonial period, the situation might have changed. The available information suggest that during the colonial period in New Spain silver was not used as a means of payment but as an export commodity like sugar. For smaller transactions the monetary system was based on pre-colonial items like cocoa beans or token money and on petty credits.[27] Larger transactions made extensive use of credit.[28] Thus in the short run the price level in New Spain depended on harvest fluctuations which lead to heavy oscillations. Long term shifts of the price level might be explained by transformations of the colonial economy and changes in the commerce with the Caribbean and the Asian markets. These influences appear to have been far more important for the price level than the output of the silver mines.[29] Obviously, money was supplied on demand by many different institutions and thus prices remained stable until the 1780s. The integration of the Mexican economy into the Atlantic monetary system which was based on silver and gold, only began when trade with Northern Europe intensified in the very last decades of the colonial period.

Whereas in Mexico silver fulfilled the function of an export commodity, the situation in Spain and especially in Castile and Andalusia was quite different (graph 2 and 3). In the 16th and early 17th century there was a strong dependence between the monetary basis in Castile and the supply of American precious metals. In Castile, between 1551 an 1621, the general price level in terms of fine silver was determined to 81 % by the officially declared silver imports. The relation between taxed American production and Castilian prices was less intense. Total American silver production determined 79 % of the changes of the Castilian price level, Mexican silver output alone had a correlation to Castilian prices of 70 %, whereas the Peruvian influence was somewhat higher (76 %). The divergence between the impact of taxed silver production and taxed silver imports on the Castilian price level might have been

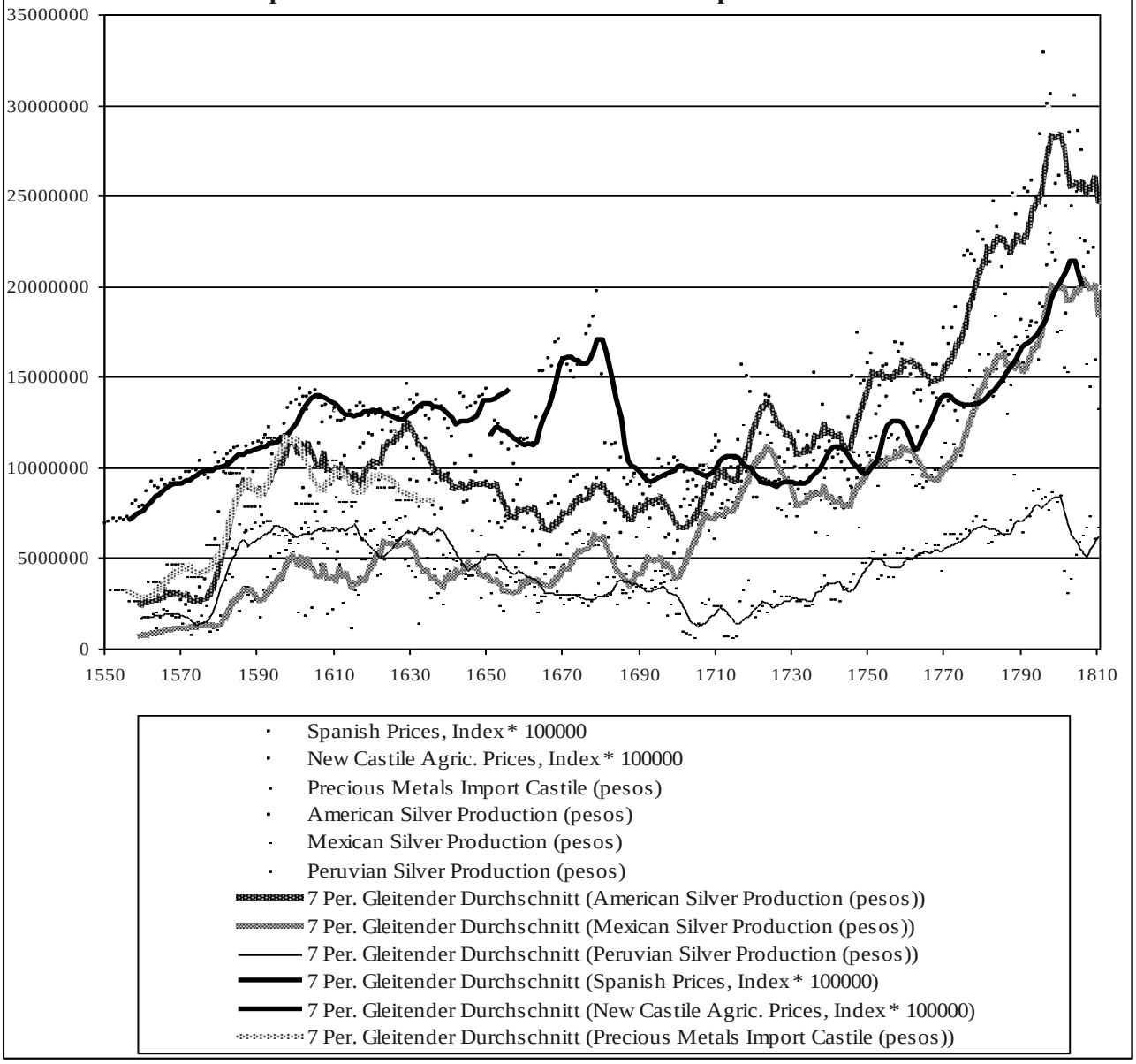
26 Pietschmann, Horst, Anmerkungen zum Problem einer Geld- und Finanzgeschichte des kolonialen Hispanoamerika, in: Schneider, Jürgen (ed.), Wirtschaftskräfte und Wirtschaftswege. Festschrift für Hermann Kellenbenz, vol. 4, Stuttgart 1978, S. 103-115; Romano, Ruggiero, Moneda, seudomonedas y circulación monetaria en la economía de México, Mexico 1998.

27 Bátiz Vázquez, José Antonio; Covarrubias, José Enrique (eds.), La moneda en México, 1750-1920, México 1998

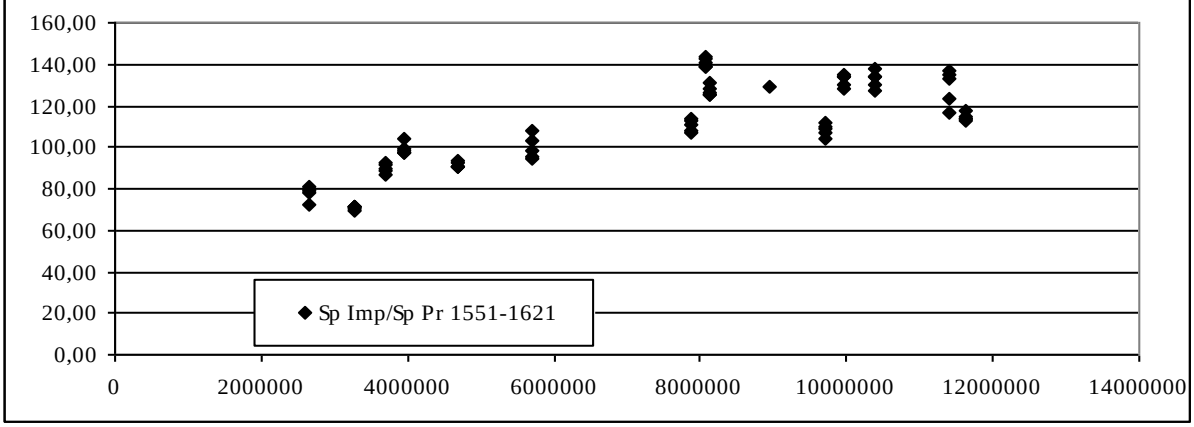
28 Martínez López-Cano, del Valle Pavón, El crédito.

29 For the direct connection to Asia see Alfonso Mola, Marina; Martínez Shaw, Carlos (eds.), El Galeón de Manila, Madrid 2003; Flynn, Dennis O.; Giraldez,Arturo (eds.), European Entry into the Pacific. Spain and the Acapulco-Manila Galleons, Aldershot 2001. For the Atlantic and Caribbean connection see: Kuntz Ficker, Sandra; Pietschmann, Horst (eds.), México y la economía atlántica (siglos XVIII-XX), México 2006.

Graph 2: American Silver Production and Spanish Prices

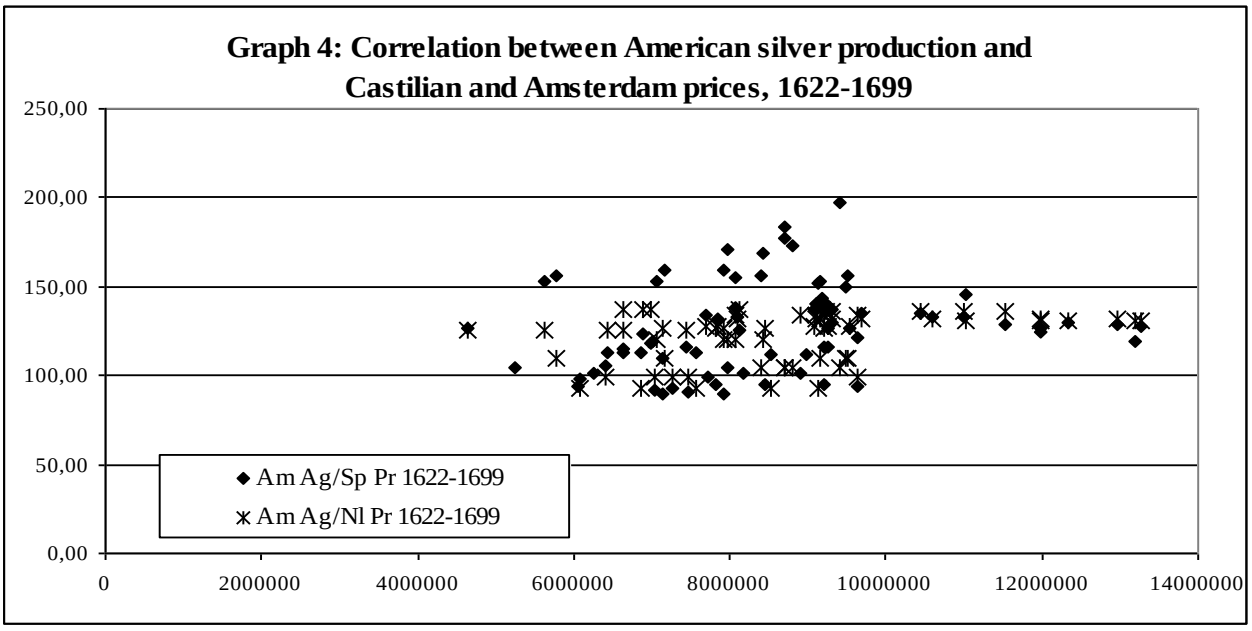


Graph 3: Correlation between Castilian prices and imports of American Silver, 1551-1621



due to different information channels. The amount of specie embarked on the flotas and galeones was well known in advance, even before the departure of the fleets from Havanna, and the Sevillian bankers (*compradores de oro y plata*) managed in person the specie at its arrival in Andalusia. In contrast, the communication to the royal treasuries at Lima and Mexico was less direct. In any case, until the 30 Years War, and in sharp opposition to the situation in Mexico, the monetary situation in the interior of the Iberian Peninsula was determined to a considerable degree by the silver ingots that really reached the Spanish market.

With the entry of Spain in the 30 Years War the situation changed completely. For the rest of the 17th century, American silver exports or production registered at Mexico and Peru had no effect on the Spanish monetary system (graphs 2 and 4). Wether prices were calculated in fine silver or as money of account (copper coins), the price level was not affected by the situation in the American realms. Prices remained rather stable until the mid 17th century. From 1664 to 1680 they experienced a sharp increase of ca. 30-40 % and fell somewhat beyond their former level afterwards.[30] At the start of the 18th century, the Castilian price level was lower than ever during the 17th century. Two effects might be responsible for the disruption of the connection between American silver production and Castilian prices. Due to warfare and

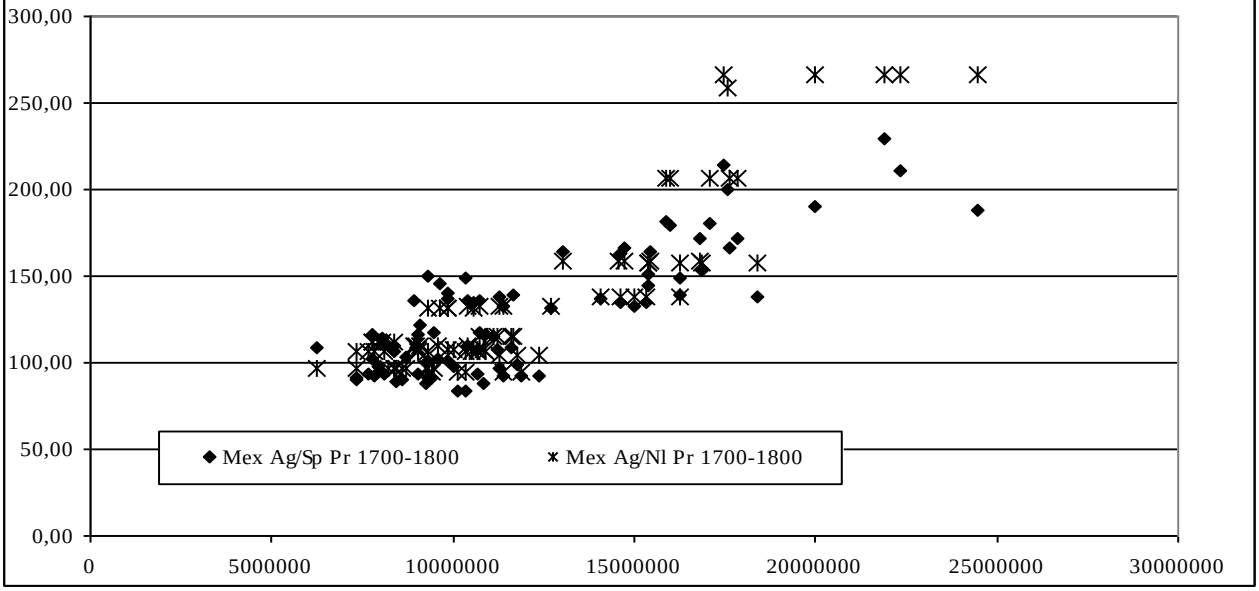


30 Hamilton, El tesoro, offers a general price index for Andalusia, Castile and Valencia for 1500-1650. Hamilton, Guerra, offers only a price index for agricultural products in New Castile for 1650-1800. Furthermore, there are different basic years for the indices of the two price series, therefore the series are not fully compatible.

shortages of mercury production an increasing amount of silver was melted. Thus less silver ore was refined by amalgamation and therefore escaped taxation as no mercury, delivered by the royal treasuries, was needed for this refining method. Furthermore commerce with Spain and its overseas realms was severely disrupted by warfare and pirates. Thus regular deliveries of precious metals and information exchange became difficult. From the 30 Years War until the War of the Spanish Succession, in Castile monetary supply depended only to a very small extent on American silver but must have relied completely on credit, treasury bills and copper imports.

During the 18th century the influence of American silver production was visible once again (graphs 2 and 5). At first Castilian prices remained stable at a relatively low level, but from 1750 onwards they experienced a steady growth and had doubled by 1800. The end of the Caribbean piracy improved the transatlantic connections considerably. After the Treaty of Utrecht, information on silver output became more reliable and the production records of American tax officials could once again be used for commercial and monetary ends. The. correlation between declared total American silver production and Castilian agricultural prices, as recorded in the account books of urban monasteries and hospitals, surpassed even the level of the 16th and early 17th century reaching 86 % during the 18th century. Mexican

Graph 5: Correlation between Mexican silver production and Castilian and Amsterdam prices, 1700-1800

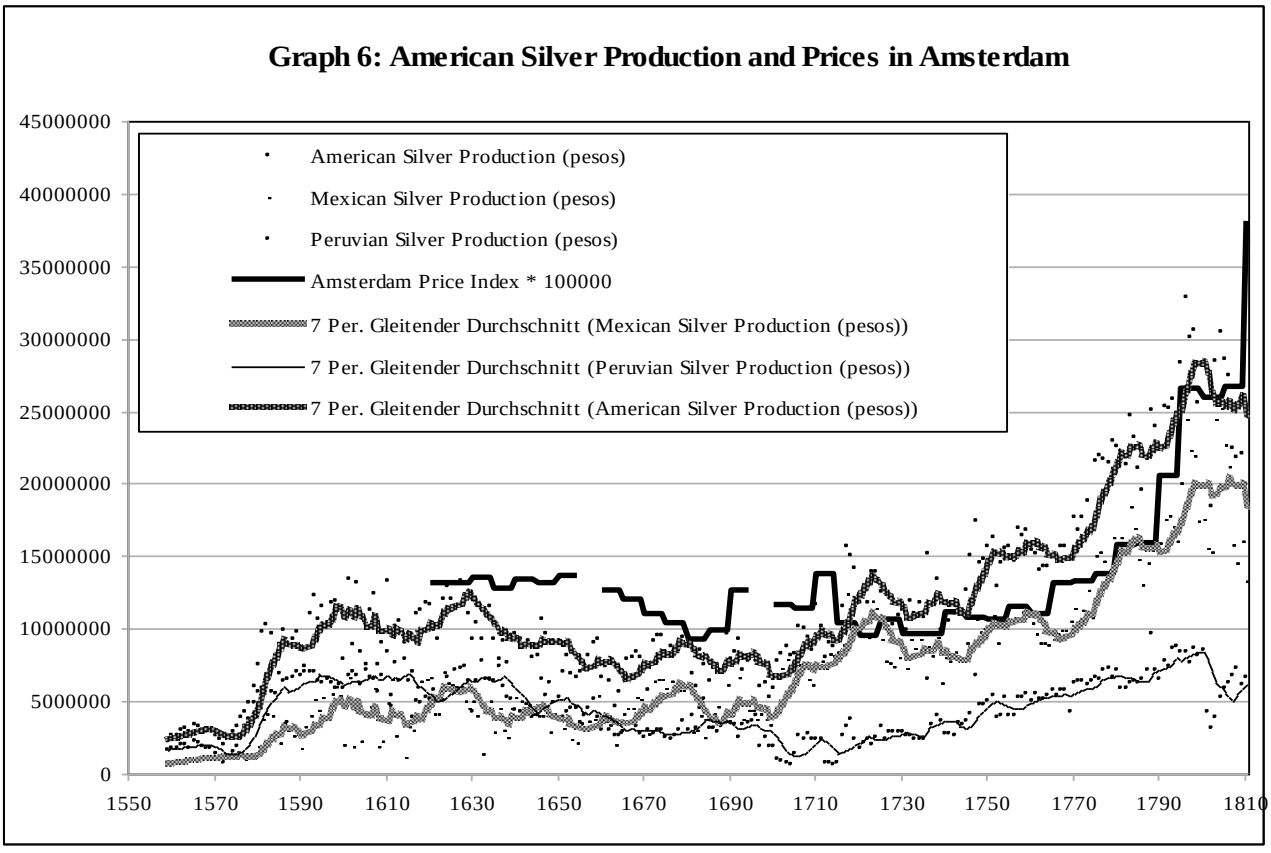


silver production accounted for 83 % of the development, even if actually few silver coins circulated and the use of copper and credit dominated in Castile during the 18th century.

Contrasting with the 16th century, in the 18th century, the leading information for Castilian prices were no longer the import declarations in Spain but the silver brought to the royal mints in New Spain. Thus compared to Mexico, in Spain, silver fulfilled at least some monetary functions as the price level for agricultural goods at the Spanish interior markets depended heavily on the records from the American treasuries until the Napoleonic Wars and the disruption of the Empire.

In Amsterdam the situation resembled that of Spain (graph 6). During the early 17th century the price level at the international bourse remained stable at a high level until the Treaty of the Pyrennees. From then on till the 1680s a steady decline occurred that stopped when two thirds of the previous price level were reached. From 1685-1690 onwards an unsteady recovery with many ups and downs could be observed. By the end of the Seven Years War the level of the mid 17th century was attained once again. From then on, until the end of the Dutch Republic the price level at the Amsterdam stock exchange rose by 50 %. Comparing this development with the American silver production no correlation between overseas mining and Amsterdam prices (33 %) could be observed for the 17th century (graph 4). In contrast, during the 18th century a very close relation could be detected between the evolution of registered Mexican silver output and Amsterdam prices (0.83 %) that was even slightly higher than the dependence of Spanish prices on Mexican production (graphs 5 and 6). The correlation

Graph 6: American Silver Production and Prices in Amsterdam



between total registered American silver production and the Amsterdam wholesale prices was rather strong (81 %) as well. The correlation between Peruvian silver production and the Amsterdam market was less pronounced (68 %).

Thus during the Dutch Golden Age, American silver was of no importance for the monetary situation at the stock exchange, even if the American production of precious metals was the only one left which really could have supplied the European markets. Like in Mexico and in Spain, during the 17th century, other monetary elements, especially credit, must have played a crucial role for the money supply of the Dutch entrepôt. The interdependence between the American economies and especially its silver production and the European markets were weakest during the 17th century. Caribbean privateering which should have improved the access to the American riches did not alter the situation but worsened it. As Dutch and English merchants used the official Spanish trade monopoly with Spanish America for their own ends[31] they must have been seriously affected by the assaults of corsairs and freebooters which were probably the main reason why the unsteady influx of American silver via Spain to the Amsterdam markets did not lead to any monetary reactions or expectations.

In the 18th century when peace was restored in the Caribbean and the connections with Mexico worked rather smooth, independently of European warfare, information about silver production seems to have been a valuable asset. Thus in contrast to the situation in New Spain, at the Dutch stock exchange silver was clearly considered as money and variations of the monetary supply at Amsterdam depended on the fluctuations of the Mexican production. What is even more remarkable is the minimal time lack between the production of the export commodity in Mexico and the changes of the price level at the Dutch market. Connections between Amsterdam and Mexico were more intense than between Peru and the Dutch Republic, first, due to the sheer volume of Mexican production that obscured the Peruvian one, but also because of the strong Dutch presence in the Caribbean. During the 18th century, Hispanoamerican exports diversified to the extent that only half of the official and clandestine exports consisted of precious metals by the mid-century.[32] Thus half of the Mexican export volume determined the monetary situation at the Amsterdam market, and only a fraction of Mexican silver production really entered the Amsterdam harbor. The strong correlation without a real time lag between registered production in Durango and Guanajuato and prices in Amsterdam needs further investigation. One possible explanation might be that the

31 Pearce, British trade.

32 Fisher, John R., Commercial Relations between Spain and Spanish America in the Era of Free Trade, 1778-1796, Liverpool 1985; Pearce, British Trade, especially p. 261-287.

summaries of silver presented for taxation, which were sent to Spain, were copied and circulated all over Europe in the 18th century. Already in the early 17th century, these copies had been published with mayor errors by European merchant gazettes.[33] At the beginning of the 19th century Alexander von Humboldt used these summaries as well.[34] The monetary basis at the Amsterdam stock exchange thus might have been determined by the official synopsis of legal and taxed silver production at Mexico and to a lesser extent that of Peru, independently if the silver really was disembarked at Amsterdam or not. The direct relation between Mexico and Amsterdam is even more astonishing as an increasing amount of Mexican silver was exported to Asia via the transpacific trade, silver that at least in part was previously recorded in the tax registers. Moreover the amount of smuggled silver varied in absolute and relative numbers. Their effects on the monetary basis of Amsterdam did not match the influence of officially registered precious metals. Thus smuggling might have been crucial for the actual transfer of specie either within the Caribbean basin or on the Atlantic and the Pacific, but its impact on the price level of the Amsterdam stock exchange was considerably lower. Thus the situation of the 17th century had been completely reversed during the 18th century.

Comparing the monetary situation at three different markets and the effects American silver might have had one may conclude that in Mexico silver had no monetary functions at all during the whole colonial period. In Castile it served as a monetary basis during the periods of a relatively stable monetary system, and when reliable records either of silver imports or its production were regularly available. When warfare and piracy interrupted the information transfer credit, copper and paper money became crucial for the monetary system of Castile in New Spain and Peru. At Amsterdam steady and trustworthy information from the American centers of silver production proved to be crucial as well. Thus wholesale prices at the Amsterdam stock exchange recorded in a stable money of account in terms of grams of fine silver depended on records of Mexican silver production during the 18th century. Throughout the 17th century, regular and dependable information was lacking despite the publication of merchant gazettes announcing the American silver fleets, therefore no effects of American precious metals on the monetary supply at the Amsterdam market could be discerned. It should be stressed that the influence of the American bullion did not depend on the physical deliveries but that the transfer of information and bills of exchange were sufficient and even

33 Morineau Michel, Incroyable gazettes et fabuleux métaux. Les retours des trésors américains d'après les gazettes hollandaises (16e-18e siècles), Paris-London 1985, used this data as good proxy, but a comparison with the official Spanish documents shows the shortcomings.

34 Flores Clair, Eduardo; Velasco Ávila, Cuauhtémoc, Los pasos de Alejandro de Humboldt por la minería novohispana, en: Jahrbuch für Geschichte Lateinamerikas 42 (2005), pp. 47-58.

more effective as they lessened the time lack between production and monetary supply at least by one year. Thus whereas in Mexico the production of silver had to be paid for with cocoa beans and paper money, in Madrid and Amsterdam the production of paper and the consumption of cocoa had to be paid for with silver coins.