Money and Banking in Medieval and Renaissance Venice

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SILVER: SPECIAL PROBLEMS

i. STANDARDS OF FINENESS

A good general explanation of various medieval methods of defining and measuring the fineness of refined silver is in Carlo Cipolla’s *Le avventure della lira.*

The fineness of the Venetian grosso is given by Papadopoli as 0.965 in the modern system of thousandths by starting from Pegolotti’s statement of its fineness in the duodecimal system in use in his native Florence (explained by Cipolla). Papadopoli converted that first into the Venetian system, which described fineness according to the number of copper (or nonsilver) carats in the 1,152 carats that constituted 1 Venetian mark.

Grossi were thus described as “peggio 40,” meaning that 40 out of 1,152 carats were not silver. Since $(1,152 - 40)/1,152 = 0.965$, and since that agreed well enough with chemical analyses of coins, Papadopoli used that figure. He ignored the statement in the first chapter of the mintmasters’ statute of 1278 that, in addition to specifying how many grossi were to be cut from 1 mark of metal, specified that the metal be “de tam bono argentō, quod non callet ultra medium quarterium pro marcha vel inde inferius,

1Pp. 126–31, esp. nn. 22 and 23, to which it may be added that Venetians occasionally expressed fineness using their system of ounces, of which there were 8 in a mark; a fineness of 0.9525 was stated as “d’onc. 7, q.2-1/2.”

2See above, table A.1; Papadopoli, i:84–86; and Pegolotti, *Pratica,* 289. Pegolotti gives the fineness as 11 oncia 14 denari; 12 oncia = 288 denari (of 24 to the oncia); \(278/288 = 0.96527\).
ad rationem boni argenti." Since a quarterio, or quarto, a fourth of the Venetian ounce, contained 36 carats, this clause of the statute required that grossi be of the fineness of \((\frac{1,152 - 18}{1,152})\), or 0.984, if "ad rationem boni argenti" meant pure silver. But an alternative interpretation of the clause quoted might be that "bonum argentum" meant silver of the standard of the grosso (argento di bolla) and that a margin of error in attaining exactly that standard was allowed, a tolerance (remedy) of 18 carats, or 1.6 percent. It seems best to accept Papadopoli's—and Pegolotti's—figure, 0.965. Craig gives the "remedy" for fineness at the English mint as 10.4 parts in 1,000, reduced in 1350 to 8.3 parts.

A later statement prohibited the mintmasters from accepting "ali­quod argentum factum in Veneciis quod sit peius de denariis sex pro marcha." A reference to 6 "denari parvi" appears earlier in a decree of 1273 which can be rendered as follows: "Motion passed: that silver should not be used to cast ingots unless of the fineness of grossi. And if it is less fine but not worse by more than 6 small denari per mark [that is, 6 denari out of a mark of 192 denari, giving a fineness of 0.969], the masters of the mint of the Commune of the Venetians should pay 11 lire 13 soldi for silver for [making] grosso coins. And if the silver be of higher fineness than a grosso coin, the mintmasters are to pay accordingly."

The same decree goes on to state how much copper should be added to make the kind of silver bars that in later decrees were called "sterling." The fineness of sterling was peggio 86, so that 46 carats of copper were added to the silver of the fineness of grossi (for 46 is to 1,152 as 32 is to 800).

The Venetian standard in 1335 for industrial silver was 0.903, namely, less pure by 72 carats per mark than the grosso \((\frac{1,152 - 40 - 72}{1,152})\). A change in October 1335 permitted industrial silver to be only 18 carats less fine than sterling, namely, 0.910 \((\frac{1,152 - 40 - 46 - 18}{1,152})\). A motion passed in December, however, restored the old standard by requiring that the jewelers' silver be 72 carats less fine than the grosso.

To summarize, the standards of fine silver were as follows:

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<tr>
<td>Grossi</td>
<td>1,112/1,152 = 0.965 fine</td>
<td>Sterling</td>
<td>1,066/1,152 = 0.925 fine</td>
</tr>
<tr>
<td>Industrial</td>
<td>1,040/1,152 = 0.903 fine</td>
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A merchant's list of 1418 gives 0.875 as the fineness of the silver used for silverware in Venice. That indicates a decline somewhat greater than

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3Papadopoli, 1:311; PMV, doc. 25, p. 16.
4Craig, The Mint, 51.
5Papadopoli, 1:334, cap. 112.
6PMV, doc. 20.
7ASV, Zecca, b. 6bis, fols. 23, 25v.
the decline in Venice’s finest silver coins, for which 0.953 is indicated by the figures in that manual.8

ii. THE INCOME FROM THE QUINTO

How much the import tax embedded in the quinto amounted to can be roughly estimated in four ways:

1. For the period 1331–69 the mint charge on the soldini made from the quinto averaged about 30 percent.9 Three percent seems a liberal allowance for the cost of minting, since on grossi the mint charge had been only about 2 percent and additional cost for the smaller coin probably did not exceed 1 percent. Subtracting 3 percent from the mint charge leaves 27 percent as a minimum estimate of the mint charge on unfree silver in excess of costs. Collecting an additional 27 percent on 1/5 was equivalent to collecting 5.4 percent on the whole amount of silver imported.

2. In 1353 the mint was ordered to coin all free silver that might be offered by purveyors for a mint charge of 7.4 percent. The charge seems very high compared with contemporary Florentine charges or with the 5.3 percent charged on the English penny.10 The mint charge on soldini struck from unfree silver was also set very high in 1353, at 33.9 percent. Applying the difference of 26.5 percent (33.9 − 7.4) to 1/5 of all imports amounted to collecting 5.3 percent on total imports.

3. Enforcement officials asserted in 1344, when the quinto had been cut in half to a decimo, that the Commune lost 3 grossi on each mark of imported silver that avoided being registered and thus escaped the decimo.11 Three grossi equal about 6.5 soldi a grossi (3 grossi = 3 × [26.111/12] = 6.5), which is 2.167 percent of the price of a mark of silver (6.5/300).12 The quinto’s yield would have been twice that, 4.3 percent.

4. In contrast, the figures concerning the mezzanini of 1349 (analyzed above, in app. A, sec. vi) indicate that out of a total mint charge of 26 percent on the unfree silver, about 14 percent was “cost” and about 12 percent “profit,” but there are indications that the figure for “cost” was padded.

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8Borlandi, ed., Manuale de’ Ricci, 146–48. On the reduction in the fineness of grossi from 0.965 to 0.952 see above, table A.2.
9See above, table A.3.
10See Bernocchi, 3:181, 188; and Feaevarycar, The Pound Sterling, 346.
11ASV, Grazie, reg. 11, fol. 11.
12See above, table C.1.
iii. THE BIMETALLIC RATIO ABOUT A.D. 1250

According to A. Nagl, there was no evidence from which to determine the bimetallic ratio at Florence in 1252.\(^{13}\) In his “Memoria” presented in the same year, Desimoni found evidence that it was 8.3555 to 1 and that at Genoa it was 8.542 to 1.\(^{14}\) Robert S. Lopez follows Desimoni and adds evidence regarding Genoa and the general credibility of the lower ratio. From one contract in Genoa in 1253 he works out a ratio of 8.16 to 1.\(^{15}\) But the figures that Desimoni used were criticized by Robert Davidsohn,\(^{16}\) and Carlo Cipolla gives the ratio at Florence in mid-century as 10 to 1.\(^{17}\) The disagreement arises from the difficulty in determining the silver content of the silver coin on which the Florentine lira was based when the gold florin was first coined. David Herlihy has written on the silver coinage in Tuscany previously,\(^{18}\) and recently M. Bernocchi has presented a full display and analysis of coins and documents.\(^{19}\) Supplemented by statements in later merchant manuals about the fineness of Florentine coins, these sources permit the conclusions that sometime between 1250 and 1260, Florence minted a silver groat called the “fiorino vecchio da denari 12” and that when 1 lire equaled 20 of these and also 1 gold florin, the bimetallic ratio was 8.99 to 1.\(^{20}\) Bernocchi gives figures indicating a ratio of 8.96 to 1.\(^{21}\) If the Florentine lira was based on 240 of the Pisan denari as minted in 1258, the bimetallic ratio was 8.81 to 1. Bernocchi concludes that when the florin was coined, the bimetallic ratio was certainly below 9 to 1.\(^{22}\)

A ratio of 8.5 to 1 for 1252 is supported if we assume that the Florentine lira was based on those silver and billon coins of about that date that had the lowest silver content compared with their value in the money of account. The figure 8.5 represents also about the low point at which a long downward trend ended and gold began to increase in value in Europe. Probably it represented a dip occasioned by the crusade of Louis IX of France that ended with his capture in Egypt. The whole crusade involved...
sending much silver east. Even then, giving the gold florin the legal value of only 1 Florentine lira probably intentionally undervalued gold and thus encouraged the export of florins from Florence.

Giuseppe Felloni, by compiling prices of gold and silver bullion, found that the bimetallic ratio touched its lowest point, at 8.5, in 1253.\textsuperscript{23} The calculations above\textsuperscript{24} concerning the values implied in the Venetian maritime statutes of 1255 contain so many questionable assumptions that they cannot claim to be \textit{proof} that a similarly low ratio was used at Venice, but those calculations and the establishment in Crete of the ratio of 1 perpero to 12 grossi\textsuperscript{25} do indicate that assuming a ratio of about 8.5 to 1 at Venice also about 1252 is, in light of the evidence at present available, more reasonable than assuming a higher ratio.

\textsuperscript{23}“Profilo,” 222, 246–47.
\textsuperscript{24}In chap. 13, nn. 39–47.
\textsuperscript{25}Ibid., nn. 31–35.