

La Casa di San Giorgio: il potere del credito

Atti del convegno, Genova, 11 e 12 novembre 2004

a cura di

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The European monetary famine of the late Middle Ages and the Bank of San Giorgio in Genoa

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1. *The Late Medieval Crisis and the Monetary Factor*

Influenced probably by the dramatic events of their own period, some scholars focused on specific crisis phenomena of the late Middle Ages already in the thirties¹. However, the widespread belief that the economy, society, politics, arts and even intellectual life were characterised by a general recession, slump, contraction or even depression in the fourteenth and at least the first half of the fifteenth century stems from the years immediately after the Second World War². France, England and Germany were the first countries where reputable medievalists discovered convincing evidence for what they considered to be the «Krisen der spätmittelalterlichen Wirtschaft» (W. Abel), the «agony of feudal society» (R. Hilton), the «économie contractée» (E. Perroy) or the «age of contraction» (M. Postan). After a brief time lag similar studies appeared in Bohemia, Belgium and Italy. In particular, major reports by distinguished historians as M. Mollat, M. Postan, A. Saponi and Ch. Verlinden given at the international Congresses for Historical Sciences in Paris (August-September 1950) and Rome (September 1955) contributed to the notion, soon to be found in every textbook, that the end of the Middle Ages coincided with a dark period in European history. It seemed that Johan Huizinga's seminal hypothesis from 1919, depicting in the most sombre terms the «Waning of the Middle Ages», could safely be confirmed and extended.

Since then the causes, character, topography, periodisation and effects of the medieval «great depression» have been the subject of an ongoing debate³.

¹ F. GRAUS, *Das Spätmittelalter als Krisenzeit. Ein Zwischenbilanz*, Prague 1969 (Medievalia Bohemica. Supplementum, 1), pp. 11, 12 and 14.

² *Ibidem*, p. 6.

³ Good surveys are B.F. HARVEY, *Introduction: the 'Crisis' of the Early Fourteenth Century*, in *Before the Black Death. Studies in the 'Crisis' of the Early Fourteenth Century*, ed. B.M.S.

The result of the discussions in scholarly journals and at conferences is that we now have a fairly clear and certainly less pessimistic view of the period from 1300 to 1450. J. Munro reflects a widely accepted opinion when he argues that «various data, however, reveal a pattern not of continuous slump but of cyclical movements of booms and slumps woven around a declining trend»⁴. Not that discord and confusion have been banned completely. Despite the impressive and still increasing number of studies little agreement exists about the so-called «prime movers» responsible for the secular contraction or decline. Every conceivable factor has attracted the attention of specialists, although it seems extremely difficult to disentangle dependent and independent variables, endogenous and exogenous mechanisms or even necessary and sufficient conditions: warfare, plague and other epidemic diseases, famine, Malthusian bottlenecks between population and agriculture, changes in climate (the «little Ice Age»), transaction costs, property rights, class relations and class conflicts, lack of investment, declining productivity and even stagnation of technology⁵.

Apart from these theories, a group of historians – sometimes but incorrectly labelled as the monetarist camp⁶ – prefers a monetary explanation.

CAMPBELL, Manchester-New York 1991, pp. 4-11; J. HATCHER and M. BAILEY, *Modelling the Middle Ages. England's Economic Development*, Oxford 2001 (see «The Economic History Review», 2nd Series, 55/1, 2002, pp. 186-187), and K.G. PERSSON, *Pre-Industrial Economic Growth. Social Organization and Technological Progress in Europe*, Oxford 1988, chapter 3, pp. 63-88. Additional information, though not confined to the late Middle Ages, is to be found in J.L. ANDERSON, *Explaining Long-Term Economic Change* (Studies in Economic and Social History), Basingstoke-Hampshire 1991 and J.L. VAN ZANDEN, *Een debat dat niet gevoerd werd: over het karakter van het proces van premoderne economische groei* (A debate that was never held: on the nature of the process of pre-modern economic growth), in «Tijdschrift voor de Economische Geschiedenis in Nederland», 8/2 (1994), pp. 77-92. Unfortunately the interesting book *Debating the Middle Ages. Issues and Readings*, eds. L.K. LITTLE and B.H. ROSENWEIN, Malden (Mass.)-Oxford 1998, has no chapters on the crisis debate of the late Middle Ages.

⁴ J.H. MUNRO, *Patterns of Trade, Money, and Credit*, in *Handbook of European History 1400-1600. Late Middle Ages, Renaissance and Reformation*, eds. TH.A. BRADY, H.A. OBERMAN and J.D. TRACY, Leiden-New York-Cologne 1994, I, p. 153.

⁵ This is an old belief. For example, R.H. HILTON, *Y eut-il une crise générale de la féodalité*, in «Annales, Economies, Sociétés, Civilisations», 6/1 (1951), p. 29 wrote that «le taux relatif d'invention subit une chute brusque après 1300».

⁶ Not every scholar using a monetary explanation follows the ideas presented by M. Friedman and other monetarists. After the breakthrough and successes of monetarism in the

Roughly speaking, the set of monetary explanations can be reduced to three arguments, although some authors combine different arguments, sometimes even linking a monetary factor with, for example, the effects of war and plague, commercial and agrarian changes or population⁷. The oldest theory, already noted by contemporaries in the fourteenth and fifteenth centuries, refers to the frequent debasements of the silver currency by the public authorities. Such monetary manipulation, mostly reductions of the weight or fineness of the coins and sometimes depreciations by raising the official rate of the coins, severely damaged commerce and affected the purchasing power of wage labourers⁸. A second theory regards fluctuations of the gold-silver ratio, linked with the introduction of bimetallism in the second half of the thirteenth century, as the main cause for serious economic difficulties in the subsequent centuries⁹. The most influential has been the third argument in which the worsening and prolongation of the crisis of the late medieval economy are seen as a direct result of a decreased money supply caused by a sharp reduction in both the stock of currency and its velocity¹⁰.

In Italy the debate on the nature of the late medieval economy was launched by C.M. Cipolla in 1949, who drew attention to the effects of the “great killer”, the Black Death and compared the European crisis of the fourteenth century with the world depression of 1929 and 1935. At the international conference on the Renaissance at Florence in 1952, A. Sapori integrated part of the debate in his famous hypothesis of a new periodization for the Renaissance. While he viewed the fourteenth and fifteenth centuries in very

1970s and 1980s, it now seems that new Keynesian and new classical macroeconomics have pushed monetarism off the intellectual stage (A. RABIN, *Monetary Theory*, Cheltenham 2004).

⁷ W.C. ROBINSON, *Money, Population, and Economic Change in Late Medieval Europe*, in «Economic History Review». 2nd Series, 12/1 (1959), pp. 63-76; H.A. MISKIMIN, *Monetary Movements and Market Structure-Forces for Contraction in Fourteenth- and Fifteenth-Century England*, in «The Journal of Economic History», 24 (1968), pp. 470-490.

⁸ See references in notes 21 and 24 and also R. METZ, *Geld, Währung und Preisentwicklung. Der Niederrheinraum im europäischen Vergleich: 1350-1800*, Frankfurt am Main 1990 (Schriftenreihe des Instituts für bankhistorische Forschung, 14), pp. 26-41. A good explanation of the mechanism is given by H. VAN DER WEE, *Monetary, Credit and Banking Systems*, in *The Cambridge Economic History of Europe*, eds. E.E. RICH and C.H. WILSON, Cambridge-London-New York-Melbourne 1977, V, pp. 291-292.

⁹ Examples are provided in J. DAY, *Introduction*, in *Études d'histoire monétaire XII^e-XIX^e siècles. Textes réunis*, ed. J. DAY, Lille 1984, p. 17.

¹⁰ See references in notes 26-34.

negative terms, F. Melis turned the spotlight on innovations, improvements and new developments, all related to economic expansion¹¹. The nature of the late medieval Italian economy was now approached with the question *rinascimento dell'economia* or *l'economia del rinascimento*? Ten years later, Italy's economic situation in the later Middle Ages became a central issue in Italian historiography when Cipolla, R.S. Lopez and H. Miskimin debated the background and extent of the so-called economic depression of the Renaissance¹². According to G. Cherubini¹³ the first scholar to integrate the debate on the late medieval crisis into the general history of Italy was R. Romano, for whom demographic losses, falling grain prices, depreciation of the silver coins and urban revolts by the *popolo minuto* were undeniable indications of an economy in serious trouble. Although he considered these phenomena to be indications of a major turning point in Italian economic history and even the start of a centuries lasting recession¹⁴, the contraction of the fourteenth century was by no means general. There was no such thing as an overall decline of industrial output. The woollen and linen industries in Milan and Florence contracted after 1400, but new urban (Venice!) and rural industrial centres flourished. Famous Florentine banks went bankrupt, but this was hardly a proof of an economic crisis of an entire region or even country since many small banks and firms stayed in business. R.S. Lopez, using port statistics, argued that trade by Genoa and the Genoese economy in general decreased substantially. E. Ashtor, however, has shown how Italians merchants penetrated Levantine markets, and F.C. Lane has demonstrated how Venice became Europe's wealthiest city because of its increasing share in the Levantine trade¹⁵.

¹¹ M. DEL TREPPO, *Federigo Melis and the Renaissance Economy*, in «The Journal of European Economic History», 10/3 (1981), pp. 714-719.

¹² F. GRAUS, *Das Spätmittelalter als Krisenzeit* cit., p. 21; A. HAVERKAMP and H. ENZENSBERGER, *Italien im Mittelalter: Neuerscheinungen von 1959-1975*, in *Historische Zeitschrift*, Sonderheft 7, 1980, pp. 299-447 and 487-494.

¹³ G. CHERUBINI, *La "crisi del trecento". Bilancio e prospettive di ricerca*, in «Studi Storici», 15/3 (1974), pp. 660-670.

¹⁴ More on this is given by A. VON MÜLLER, *Zwischen "Krise" und Krisen: Italiens Gesellschaft um 1400*, in *Europa 1400. Die Krise des Spätmittelalters*, eds. F. SEIBT and W. EBERHARD, Stuttgart 1984, p. 236 and R.C. MUELLER, *Die wirtschaftliche Lage Italiens im Spätmittelalter*, in *Europa 1400* cit., pp. 222-223.

¹⁵ R.C. MUELLER, *Die wirtschaftliche Lage Italiens* cit., pp. 223-228; J.H. MUNRO, *Patterns of Trade* cit., pp. 158-159.

Therefore, it seems that the so-called crisis in late medieval Italy had the same mild character as in the other highly dynamic growth pole of Europe, Flanders and its neighbouring regions¹⁶. For both regions, the fourteenth and fifteenth centuries appear to have been rather a «century of changes and contrasts» (R.-H. Bautier) or an «âge des mutations» (J. Heers, G. Fourquin)¹⁷.

From the beginning Italian economic historians have shown a clear interest in monetary factors. Already in 1948, Cipolla drew attention to the frequent debasements of the domestic silver currency and the resulting “profit inflation” for entrepreneurs who paid their workers in silver and sold their finished products in gold¹⁸. Because of this silver depreciation and the presence of a relatively important gold stock, the Italian economy suffered from the perturbations in the gold-silver ratio, the second argument of the monetary expansion. But what about the third and most important argument in the monetary theory? Was there a significant reduction in either the money stock and its velocity or both?

Before focusing on Italy we must sketch the nature of the argument and examine its European context.

¹⁶ E. AERTS and E. VAN CAUWENBERGHE, *Die Grafschaft Flandern und die sogenannte spätmittelalterliche Depression*, in *Europa 1400* cit., pp. 108-115 and H. VAN DER WEE, *The Low Countries in Transition: from the Middle Ages to Early Modern Times*, in *The Low Countries in the Early Modern World* (Variorum), ed. H. VAN DER WEE, Aldershot–Hampshire 1993, pp. 10-17. E. THOEN, *Economie rurale et démographie en Flandre pendant le bas Moyen Age et le début des Temps Modernes*, in *Recent Doctoral Research in Economic History (Proceedings Tenth International Economic History Congress Leuven, August 1990)*, eds. E. AERTS and H. VAN DER WEE, Leuven 1990 (Studies in Social and Economic History, 21), pp. 31-39. The same author, in his logical, non-quantitative model even speaks of a “curbed” or “restrained” growth (E. THOEN, *Landbouweconomie en bevolking in Vlaanderen gedurende de late Middeleeuwen en het begin van de Moderne Tijden* (Agriculture and Population in Flanders in the Late Middle Ages and the beginning of the Early Modern Times), Ghent 1988).

¹⁷ R.-H. BAUTIER, *The Economic Development of Medieval Europe*, London 1971 (Library of European Civilization); G. FOURQUIN, *Histoire économique de l'occident médiéval*, Paris, 1979³ (Collection U); J. HEERS, *L'occident aux XIV^e et XV^e siècles. Aspects économiques et sociaux*, Paris 1973 (Nouvelle Clío, 23).

¹⁸ C.M. CIPOLLA, *Studi di storia della moneta*, I, *I movimenti dei cambi in Italia dal secolo XIII al XV*, Padova 1948 (Pubblicazioni della Università di Pavia. Studi delle scienze giuridiche e sociali, 101).

2. *The Monetary Famine of the Fourteenth-Fifteenth Centuries*

The list of historians who refuse to assign cardinal importance to monetary movements and who raise serious doubts on the interference between monetary and real factors is long. These historians (Malthusians, Ricardians, Marxists...) simply cannot accept how money could have had a key function in a society where agriculture employed 80 per cent of the population and where activities in the primary sector represented an overwhelming part in the gross domestic product¹⁹.

Intelligent contemporary observers thought otherwise. Already in 1355 in his famous *Tractatus de origine, natura, jure et mutacionibus monetarum* («Treatise on the Origin, Nature, Law, and Alterations of Monies»), Nicolas Oresme (1323-1382) lamented the endless cascades of debasements. In his eyes currency debasements drove good money out of the country, seriously hindered internal and external trade, increased inflation and the cost of living, thereby making life much more troublesome for a great number of people²⁰. Of course, Oresme lived in France, which was a real champion with respect to debasement policies. Between 1337 and 1360, the kingdom experienced no fewer than 85 changes of the monetary standard, most of them deteriorations. No wonder that in 1354 the abbot of Saint-Rémi in Reims bitterly observed that his abbey was sunk into deep poverty *à cause de la faible monnaie*²¹. One may

¹⁹ E. MEUTHEN, *Das 15. Jahrhundert*, München-Vienna 1980 (Oldenbourg Grundriß der Geschichte, 9), p. 124. Good examples are E. THOEN, *Landbouweconomie en bevolking* cit., pp. 268-270 (who in less than three pages out of a total of more than 1340 dismisses monetary variables) or G. BOIS, *Crise du féodalisme. Économie rurale et démographie en Normandie orientale du début du XIV^e siècle au milieu du XVI^e siècle*, Paris 1976.

²⁰ CH. JOHNSON, *The De Moneta of Nicholas Oresme and English Mint Documents* (Nelson's Medieval Texts), London-Edinburgh-Paris-Melbourne-Toronto-New York 1956. There is a more recent French edition realised by an interdisciplinary team supervised by CL. DUPUY and F. CHARTRAIN: *Traité des monnaies (Nicolas Oresme) et autres écrits monétaires du XIV^e siècle (Jean Buridan, Bartole de Sassoferrato)*, Lyon 1989. A copy unknown to Johnson was kept in the General State Archives in Brussels, *Handschriftenverzameling/Manuscrits divers*, 3471, but is now preserved in the Royal Library Albertina, *Handschriften/Manuscrits*, IV.728. The summary of the argument by Oresme is borrowed from P. SPUFFORD, *Oresmius, Nicolaus*, in *Von Aktie bis Zoll. Ein historisches Lexikon des Geldes*, ed. M. NORTH, München 1995, p. 290. See also J. QUILLET, *Note sur le "Traité de la première invention des monnaies" de Nicole Oresme, in L'or au moyen âge (monnaie-métal-objets-symbole)*, Aix-en-Provence 1983 (Senefiance, 12), pp. 383-388.

²¹ P. SPUFFORD, *Münzverschlechterung und Inflation im Spätmittelalterlichen und Frühneuzeitlichen Europa*, in *Geldumlauf, Währungssysteme und Zahlungsverkehr in Nord-*

also expect that contemporaries showed a particular interest in the consequences in the short run but failed to notice the general trend of the long run²². Apart from some periods of excessive inflation (e.g., 1348-1375, 1410s-1440), the centuries 1300-1500 were characterised by deflation and falling prices²³.

According to Oresme the « main and final cause » (*principalis et finalis causa*) of the debasements had everything to do with medieval rulers who sought to derive fiscal advantages from the coinage in their mints. However, other explanations have been offered. Some debasements would be meant to promote export and to induce a more favourable balance of trade, to stimulate dishoarding, to create profit-inflation for merchants and entrepreneurs, or to cheapen the public debt²⁴. In view of the many reports and complaints

westeuropa 1300-1800. Beiträge zur Geldgeschichte der späten Hansezeit, ed. M. NORTH, Cologne-Vienna 1989 (Quellen und Darstellungen zur Hansischen Geschichte, Neue Folge, 35), p. 110.

²² E. PERROY, *A l'origine d'une économie contractée: les crises du XIV^e siècle*, in « Annales, Économies, Sociétés, Civilisations », 4/1 (1949), p. 178 (this study has been reprinted in English as *At the Origin of a Contracted Economy: the Crises of the 14th Century*, in *Essays in French Economic History*, ed. R. CAMERON, Illinois 1970, pp. 91-105).

²³ J. DAY, « *Crise du féodalisme* » et conjoncture des prix à la fin du Moyen Age, in « Annales, Économies, Sociétés, Civilisations », 34/2 (1979), pp. 308-312; J. DAY, *The Fisher Equation and Medieval Monetary History*, in J. DAY, *The Medieval Market Economy*, Oxford 1987, p. 11; J.H. MUNRO, *Patterns of Trade* cit., pp. 147 and 149; N. MAYHEW, *Numismatic Evidence and Falling Prices in the Fourteenth Century*, in « *The Economic History Review* », 2nd Series, 27/1 (1974), pp. 1-15.

²⁴ C.M. CIPOLLA, *Currency Depreciation in Medieval Europe*, in « *The Economic History Review* », 2nd Series, 15/3 (1963), pp. 413-422, reprinted in *Change in Medieval Society. Europe North of the Alps 1050-1500*, ed. S. THURPP, Toronto-Buffalo-London 1988 (Medieval Academy Reprints for Teaching, 72), pp. 227-236; R. DE ROOVER, *Le Moyen Age face à l'histoire statistique*, in « Annales, Économies, Sociétés, Civilisations », 6 (1951), pp. 31-36; D. GLASSMAN and A. REDISH, *Currency Depreciation in Early Modern England and France*, Vancouver 1986 (The University of British Columbia. Department of Economics. Discussion Paper 86-04), p. 28 (for the period 1500-1700); H. MISKIMIN, *Money, Prices, and Foreign Exchange in Fourteenth-Century France*, New Haven-Londen 1963 (Yale Studies in Economics, 15), pp. 117 and 118; E. PERROY, *A l'origine d'une économie* cit., pp. 176 and 178. The best overview of the discussion is given by J.H.A. MUNRO, *Wool, Cloth and Gold. The Struggle for Bullion in Anglo-Burgundian Trade, 1340-1478*, Brussels-Toronto, 1972, pp. 14-41 (though the author later modified an important part of his argument, he never changed his views on the cause of late medieval debasements).

about the scarcity of money²⁵, perhaps these debasements were just a way to increase the amount of money?

Indeed, French and Belgian historians like M. Bloch²⁶, H. Laurent²⁷ and E. Perroy²⁸, impressed by the complaints in the sources and using some older historiographic work²⁹, had, already in the early 1930s, launched the idea of a « famine de monnaies », a « pénurie du numéraire », a « disette monétaire »: « Tout simplement on avait le sentiment que l'économie était véritablement handicapée par la famine monétaire »³⁰. By choosing the suggestive image of a monetary famine, they made it clear that late medieval Europe had not only its “real” famines that killed people, but also monetary famines that made coins disappear. Since this early generation of monetary historians could not present statistical evidence for their bold assertions, they failed to convert their colleagues³¹. The international debate, as suggested in the beginning of this paper, was dominated by Malthusians and

²⁵ J.H. MUNRO, *Wool, Cloth and Gold* cit., p. 18; H.A. MISKIMIN, *Monetary Movements and Market* cit., pp. 473-475; P. SPUFFORD, *Money and its Use in Medieval Europe*, Cambridge 1988, pp. 341 (note 1), 346, 347.

²⁶ M. BLOCH, *Seigneurie française et manoir anglais*, Paris 1967² (Cahiers des Annales, 16), p. 110 (written in 1936, first edition in 1960).

²⁷ H. LAURENT, *Crise monétaire et difficultés économiques en Flandre aux XIV^e et XV^e siècles*, in « Annales d'Histoire Économique et Sociale », 5/20 (1933), pp. 156-160; ID., *La loi de Gresham au moyen âge*, Brussels 1933 (Travaux de la Faculté de Philosophie et Lettres de l'Université de Bruxelles, 5), pp. VII and 6-8.

²⁸ E. PERROY, *A l'origine d'une économie* cit., p. 174.

²⁹ By E. Babelon, A. Dieudonné, A. Landry et al.

³⁰ M. BLOCH, *Esquisse d'une histoire monétaire de l'Europe*, Paris 1954 (Cahiers des Annales, 9), p. 65.

³¹ F. GRAUS, *La crise monétaire du 14^e siècle*, in « Revue belge de philologie et d'histoire », 29 (1951), pp. 452-454; M.M. POSTAN, *Note*, in « The Economic History Review », 2nd Series, 12/1 (1959), p. 78 (« There was thus no independent, i.e. no purely monetary, reason why the supply of money should have failed to expand in the later middle ages »). M. POSTAN, *The Medieval Economy and Society*, Harmondsworth 1972, reprint in 1981, p. 266 calls the effects of coinage “purely subordinate”. See also the list of quotations from Postan's publications in J.H. MUNRO, *Mint Outputs, Money, and Prices in Late-Medieval England and the Low Countries*, in *Münzprägung, Geldumlauf und Wechselkurse. Minting, Monetary Circulation and Exchange Rates. Akten des 8th International Economic History Congress Section C 7 Budapest 198*, eds. E. VAN CAUWENBERGHE and F. IRSIGLER, Trier 1984 (Trierer Historische Forschungen, 7), pp. 60-62, appendix A.

Marxists who favoured real factors and minimised the role of money or assigned it only secondary significance. This would change when J. Day – in 1978 in the heyday of monetarism – brushed the dust off the old theory of a monetary contraction by presenting his vigorous thesis of « the great bullion famine »³². Day's arguments met with considerable scepticism from many colleagues who blamed him for putting excessive and exclusive emphasis on the monetary variable, but his theory received a good deal of support from other distinguished historians such as J. Munro³³, N. Mayhew, P. Nightingale, M. Prestwich, M. Allen and others³⁴.

The theoretical fundament for those historians who accept the existence of a monetary famine remains the quantity theory of money and more precisely the equation of exchange as published by the mathematician I. Fisher (1867-1947) in 1911, which is, in fact, an algebraic tautology linking a monetary cash and stream variable to developments in the real sphere³⁵. In its well-known form $M V = P T$ the M refers to the money supply or

³² J. DAY, *The Great Bullion Famine of the Fifteenth Century*, in « Past and Present », 79 (1978), pp. 3-54. Additional data were published by J. DAY, *The Question of Monetary Contraction in late Medieval Europe*, in « Nordisk Numismatisk Årsskrift/Nordic Numismatic Journal », (1981), pp. 12-29. Both articles are reprinted in J. DAY, *The Medieval Market Economy*, Oxford 1987, pp. 1-54 and 55-71. The essays have also been translated into French in J. DAY, *Monnaies et marchés au Moyen Age*, Paris 1994 (Comité pour l'histoire économique et financière de la France) as « La grande famine monétaire du XV^e siècle » (pp. 41-82) and « Contraction monétaire et déclin économique aux XIV^e-XV^e siècles » (pp. 101-116). For different meanings of bullion, see J. MUNRO, *Billon-Billoen-Billio. From Bullion to Base Coinage* (An Essay in Numismatic Philology), reprinted in his *Bullion Flows and Monetary Policies in England and the Low Countries, 1350-1500*, Hampshire 1992 (Variorum Collected Studies Series CS 355), no. III. In this context bullion is defined as unminted gold and silver to be brought to the mints for coinage.

³³ J.H. MUNRO, *Monetary Contraction and Industrial Change in the Late-Medieval Low Countries, 1335-1500*, in *Coinage in the Low Countries (880-1500). The Third Oxford Symposium on Coinage and Monetary History*, ed. N.J. MAYHEW, Oxford 1979 (BAR International Series, 54), p. 95 and also his *Bullion Flows and Monetary Contraction in Late-Medieval England and the Low Countries*, in *Precious Metals in the Later Medieval and Early Modern Worlds*, ed. J.F. RICHARDS, Durham (North Carolina) 1983, p. 97, note 1 (this text has been reprinted in J.H. MUNRO, *Bullion Flows and Monetary Policies* cit., no. VI).

³⁴ See references in notes 23, 59 and 93.

³⁵ I. FISHER, *The Purchasing Power of Money. Its Determination and Relation to Credit, Interest and Crises*, New York 1911, pp. 24-55. A new and thoroughly revised edition was published in 1922.

money stock (the volume of currency, mainly metallic coins, some *moneta di banco* or transferable bank credits), V to the velocity of circulation (or in the words of Fisher, « a sort of average of the rates of turnover of money »), P to the general price level and T to the number or volume of transactions. Within this conceptual framework, it is argued that a decline of the money supply not only caused steady debasements, bullionist legislation and the use of inferior coins, but also imposed serious restraints on the level of transactions and investments, increasing in some regions the introduction of self-sufficiency, payments in kind and other forms of barter. This drastic fall in the money supply was the result of a complex set of factors. The easiest of them to document is the undeniable slump in European silver and – to a lesser extent – gold mining. In England, the output in the mines of Devon and Devonshire was already declining in the early fourteenth century³⁶. A similar decline can be noted for silver mining at Freiberg in Saxony and for the Iglesias silver mines in Sardinia after 1345³⁷. The overall reason seems to have been less the exhaustion of the mines than the occurrence of diminishing returns to be associated with a stagnating technology since the Roman period. A part of the declining production may have been compensated for by the opening of new, mainly gold, mines in Central Europe. Of these, the rich silver veins of Kutná Hora in Bohemia, which was opened by 1290 and ten years later was already accounting for 45% of the European silver production, were certainly the most important. When production at Kutná Hora started to diminish, probably already after 1350³⁸, the total Bohemian silver production gradually declined from an annual figure of 20,000 or even 30,000 kg silver between 1300-1350 to some 10,000 kg in the period of 1350-1420. Between 1420 and 1460 production ceased almost completely³⁹. New silver mines in Bosnia and Serbia only

³⁶ H. MISKIMIN, *Money, Prices, and Foreign Exchange* cit., p. 17.

³⁷ J. DAY, *The Fisher Equation* cit, p. 111; ID., *The Question of Monetary Contraction* cit., p. 29. The Sardinian mines closed around 1365.

³⁸ F. GRAUS, *La crise monétaire du 14^e siècle*, p. 452 (« Il n'y a aucune preuve dans les sources tchèques que les mines de Kutna Hora aient produit moins d'argent qu'auparavant ») argues that decline only occurred after 1400. See also P. SPUFFORD, *Money and its Use* cit., p. 343.

³⁹ J. JANÁČEK, *L'argent tchèque et la Méditerranée (XIV^e et XV^e siècles)*, in *Mélanges en l'honneur de Fernand Braudel*, I, *Histoire économique du monde méditerranéen 1450-1650*, Toulouse 1972, pp. 245-261 and the same, *České stříbro a Evropský trh drahých kovů v první polovině 14. století* (Bohemian Silver and the European Market for Precious Metal in the First

offered “a temporary palliative” as they were conquered by the Ottoman Turks before 1440⁴⁰.

A major slump in the silver extraction of the European mines was not the only explanation offered for the decline of the money supply. For decades now, a number of historians such as R. De Roover, R. Lopez, H. Miskimin and A. Watson have been pointing out that Europe in the fourteenth and fifteenth centuries witnessed a large and probably increasing deficit of its balance of payments with the Islamic world in North Africa and the Near East⁴¹. This deficit was mainly the result of the trade gap in the balance of trade. A specific asymmetrical development in Europe’s income distribution (due to frequent inheritances of land and fortune during the epidemics and an increasing propensity to consume by some parts of the upper classes⁴²) increased the import of costly luxury products such as spices, but also glass, oil, dye-stuffs, cottons, silks (satins, velvets, damasks ...), tapestries, perfumes, ivory, pearls, gems, and so on. The simultaneous decline and even dramatic disappearance of cheap textiles constituting the bulk of export-oriented production⁴³ probably enhanced the trade deficit. Speculative flows also had an impact. Most European rulers and administrations in the fourteenth century adopted a monetary policy that favoured gold. Not only did gold have a higher symbolic value than silver, it was also a more efficient

Half of the Fourteenth Century) in *Historiografie Čelem k Budoucnosti. Sborník k Šedesátinám Akademie Jaroslava Purše*, Prague 1982, pp. 549-563.

⁴⁰ J. MUNRO, *South German Silver, European Textiles, Warfare, and Venetian Trade with the Levant and Ottoman Empire, c. 1370 to c. 1720: a Non-mercantilist Approach to the Balance of Payments Problem*, in *Relazioni economiche tra Europa e mondo islamico secc. XIII-XVIII*, Prato-Firenze 2007 (Istituto Internazionale di Storia Economica “F. Datini” Prato. Atti delle “Settimane di studio” e altri Convegni, 38) (forthcoming), p. 3.

⁴¹ For an overview of the historiography: M. BALARD, *Les relations économiques entre l’Occident et le Monde islamique à la fin du Moyen Age. Quelques remarques*, in *Relazioni economiche tra Europa e mondo islamico* cit., pp. 7-10.

⁴² See references in notes 73 and 74.

⁴³ J. MUNRO, *Industrial Transformations in the north-west European textile trades, c.1290 - c.1340: economic progress or economic crisis?*, in *Before the Black Death* cit., pp. 110-139, and the same, *The Low Countries’ Export Trade in Textiles with the Mediterranean Basin, 1200-1600: A Cost-Benefit Analysis of Comparative Advantages in Overland and Maritime Trade Routes*, in « *International Journal of Maritime History* », 11/2 (1999), p. 1-30; H. VAN DER WEE, *Un modèle dynamique de croissance interséculaire du commerce mondial (XII^e-XVIII^e siècles)*, in « *Annales, Économies, Sociétés, Civilisations* », 25/1 (1970), pp. 102-103 and 109-110.

medium of exchange and was preferred for military and diplomatic purposes. Mint administrations in the Muslim world, however, favoured silver because of its relative scarcity⁴⁴. From 1360 and mainly between 1420-1460, both commercial and speculative motives generated a considerable outflow of silver and, to a lesser extent, gold bullion to the Levant, India, the Far East and Central Asia⁴⁵. It were the *repubbliche marinare* or the great maritime republics of the mediterranean, the classical intermediaries between East and West, that served as the principal pipelines through which Europe's silver was drained off⁴⁶. According to the audacious and not always consistent estimates by E. Ashtor, merchants from northern Italy (especially Venetian but also Genoese), Catalonia and southern France exported each year the value of 400,000 ducats in specie out of Europe, mainly to Egypt and Syria, the equivalent of more than 16,500 kg of silver⁴⁷. Although others have suggested different figures⁴⁸, the order of magnitude of the export is still

⁴⁴ J.H. MUNRO, *Monetary Contraction and Industrial Change* cit., p. 100; the same, *Bullion Flows and Monetary Contraction* cit., pp. 102-103 and 110-112; TH. WALKER, *The Italian Gold Revolution of 1252. Shifting Currents in the Pan-Mediterranean Flow of Gold*, in *Precious Metals in the Later Medieval* cit., pp. 29-52.

⁴⁵ H. MISKIMIN, *The Economy of Early Renaissance Europe 1300-1460*, Cambridge-London-New York-Melbourne 1981, p. 22; J. HEERS, *Gènes au XVe siècle. Activité économique et problèmes sociaux*, Paris 1961 (École Pratique des Hautes Études. VI^e section. Centre de Recherches Historiques. Affaires et gens d'affaires, XXIV), pp. 64-65.

⁴⁶ A. WATSON, *Back to Gold - and Silver*, in «The Economic History Review», 2nd Series, 20/1 (1967), pp. 1-34.

⁴⁷ E. ASHTOR, *Les métaux précieux et la balance des paiements du Proche Orient à la basse époque*, Paris 1971 (École Pratique des Hautes Études. VI^e section. Centre de Recherches Historiques. Monnaies-Prix-Conjoncture, 10), p. 96; the same, *Il volume del commercio levantino di Genova nel secondo trecento*, in *East-West Trade in the Medieval Mediterranean*, ed. B.Z. KEDAR, London 1986 (Variorum reprints), p. 430 (300,000 to 450,000 ducats). See also J. DAY, *The Great Bullion Famine* cit., pp. 6-11.

⁴⁸ J. DAY, *The Question of Monetary Contraction* cit., p. 18 believes that only 300,000 ducats or some 12 tons of silver were exported. These figures do not take into account the export by other merchants than Venetian. Genoese export to the Levant, however, was much smaller than Venetian and certainly declining in the second half of the fourteenth century (see some figures for total export values by Genoese merchants in E. ASHTOR, *Il volume del commercio levantino* cit., p. 429). But even for the Venetian export different figures are quoted. According to R.C. MUELLER, "Chome l'uciello di passaggio": la demande saisonnière des espèces et le marché des changes à Venise au Moyen Age, in *Études d'histoire monétaire XII^e-XIX^e siècles* cit., p. 213 Venice exported some 250,000 gold ducats, « senza gli argenti », to Syria in 1399.

impressive and beyond discussion. Almost completely overlooked in the debate is that Europe also lost important quantities of silver in another direction. Within the Baltic area Hanseatic merchants were responsible for a constant outflow of precious metal to the East. Silver coins but also bars of silver disappeared for the purchase of specialised products on the Russian markets. The silver that arrived in Russia found its way into the local currency, was hoarded, or was used for the import of oriental luxury goods⁴⁹.

Most opponents to this theory do not deny the reduction of M in absolute terms, but refer to a combination of factors that would have curtailed most of its effects. First of all, a series of debasements in different countries and regions expanded the money supply. Indeed, debasements were always followed by huge mint outputs⁵⁰. To remedy the lack of bullion, rulers and public authorities regularly ordered the compulsory melting of golden and silver tableware, ornaments or even jewelry⁵¹. Much

A.M. STAHL, *European Minting and the Balance of Payments with the Islamic World in the Later Middle Ages*, in *Relazioni economiche tra Europa e mondo islamico* cit., p. 3, note 26 quotes figures for 1406-1431 from the Morosini Chronicle with the maximum figures ranging between 500,000 and 600,000 ducats and an average of some 330,000 ducats exported by Venetian galleys mainly to Beirut and Alexandria. As M. Balard, A. Stahl, J. Munro and others have observed, the export of specie was conducted not only by galleys but also by round-bottomed *coche* or cogs. Taking into account exports by both galleys and cogs and using data by Ashtor for the end of the fifteenth century Professor Munro estimates Venetian export for both gold and silver at a maximum of some 18,800 kg (J. MUNRO, *South German Silver* cit., p. 10). Many of these estimates suffer from a certain confusion as they were made by observers at the time mixing up net export of specie with combined values of both export of specie and merchandise. This explains why Professor Lane estimated total Venetian exports of specie to the Levant between very large limits, fluctuating between some 200,000 and 600,000 ducats (F.C. LANE, *Exportations vénitiennes d'or et d'argent de 1200 à 1450*, in *Études d'histoire monétaire XII^e-XIX^e siècles* cit., pp. 38 and 41, table I), a figure also used by M. BALARD, *Les relations économiques* cit., p. 8.

⁴⁹ A. ATTMAN, *The Bullion Flow between Europe and the East 1000-1750*, Göteborg 1981 (Acta Regiae Societatis Scientiarum et Litterarum Gothoburgensis, 20), p. 65; M. NORTH, *Geldumlauf und Wirtschaftskonjunktur im südlichen Ostseeraum an der Wende zur Neuzeit (1440-1570)*, Sigmaringen 1990 (Kieler Historische Studien, 35), pp. 118-119.

⁵⁰ This is clearly shown by many authors, but most recently in a controversial article by A.J. ROLNICK, F.R. VELDE and W.E. WEBER, *The Debasement Puzzle: an Essay on Medieval Monetary History*, in «The Journal of Economic History», 56/4 (1996), pp. 790, 793, 794-795, 795, 797, 806.

⁵¹ A.J. ROLNICK, F.R. VELDE and W.E. WEBER, *The Debasement Puzzle* cit., p. 792.

more important, however, is the argument of the population fall because of the combined effects of famine, plague and warfare. In 1300 or on the eve of the Black Death Europe probably had a population of 70 to 73.5 million. By the end of the century, this number was fallen to 42 or 45 million⁵². Postan and other Malthusian historians have argued that this drastic depopulation process of at least 35% and even 40% must have increased the *relative* money supply, i.e. the proportion of silver per head. As such, « a fall in population would counteract the effects of falling supplies from the mines ». Postan and others have also contended that the output of bullion in the thirteenth century exceeded by far the needs of the money economy at that time. By 1300 or 1320 the sizes of these « accumulated stocks of bullion relative to annual increments from mining »⁵³ « must have been truly enormous »⁵⁴. Since the stocks were immediately available to be used in the monetary circulation, they would have largely compensated for the lower output figures of the mines.

All of these objections have been more or less succesfully refuted by monetary historians. Debasements expanded the amount of currency in circulation only for a little while; in the longer run they drained even more the bullion supplies⁵⁵. When bullion was scarce, all kinds of objects were indeed brought to the mint, not only in the late Middle Ages⁵⁶, but such extreme measures failed to solve the secular problem of the bullion famine. Moreover, if one takes into account these relatively modest amounts that

⁵² J.C. RUSSELL, *Late Ancient and Medieval Population*, in « Transactions of the American Philosophical Society », New Series, 48/3 (1958), p. 148, table 152; ID., *Population in Europe 500-1500*, in *The Fontana Economic History of Europe*, ed. C.M. CIPOLLA, I, *The Middle Ages*, London 1977, 4th print, p. 36, table I and p. 40; B.H. SLICHER VAN BATH, *The Agrarian History of Western Europe, AD 500-1850*, London 1966, p. 87; J.A. VAN HOUTTE, *Europäische Wirtschaft und Gesellschaft von den großen Wanderungen bis zum Schwarzen Tod*, in *Handbuch der Europäische Wirtschafts- und Sozialgeschichte*, ed. H. KELLENBENZ, II, *Europäische Wirtschafts- und Sozialgeschichte im Mittelalter*, Stuttgart 1980, pp. 16 and 18.

⁵³ M.M. POSTAN, *Note cit.*, p. 78, note 1.

⁵⁴ M. Postan as quoted by N.J. MAYHEW, *Numismatic Evidence cit.*, p. 2.

⁵⁵ H.A. MISKIMIN, *Monetary Movements and Market cit.*, p. 479.

⁵⁶ E. AERTS and E. VAN CAUWENBERGHE, *Organisation und Technik der Münzherstellung in den Südlichen Niederlanden während des Ancien Régime*, in *Die historische Metrologie in den Wissenschaften*, eds. H. WITTHÖFT, G. BINDING, F. IRSIGLER, I. SCHNEIDER and A. ZIMMERMAN, St. Katharinen 1986 (Scripta Mercaturae Verlag), p. 348, note 37.

were added to the currency, one must also accept that considerably larger quantities of gold and silver were – so to speak – withdrawn from circulation to be used for artistic purposes⁵⁷. In many cities, such as Genoa, this custom led to a series of legislative regulations deploring that *una grande quantitate de moneta la quale se tegneria morta e occupa in vestimente e ioie*⁵⁸. The second objection concerns the decrease in population. Devastating depopulation characterised the second half of the fourteenth century, but it remains uncertain whether it increased the European per capita stock of bullion. Recent figures for England suggest it did not. Despite the fall of population from 2.5-3 million in 1351 to 2.5 or even 2 million in 1422, new estimates of the English currency show a decrease of the money supply per capita from 5-7 shillings in 1351 to 1-2 shillings in 1422⁵⁹. For quite some time, the belief in the existence of large accumulated stocks constituted a key element in the theories defended by the real school. These reserves were supposed to have been indestructible and everlasting. In the last thirty years, however, historians have realised that the lifetime of a gold or silver piece was not infinite⁶⁰ and that several factors contributed to the disappearance of entire series of coins from circulation: apart from incidental events such as shipwrecks, coin hoards that were never retrieved and simple losses, there was physical deterioration of the coins due to natural processes (wear and tear, losses when reminting and melting down older coins) and fraudulent practices (such as clipping, cutting, filing, washing and sweating). Although it will

⁵⁷ F. LECERCLE, *L'or feint - Les paradoxes de l'or dans la théorie de la peinture*, in A. TOURNON and G.-A. PEROUSE, *Or, monnaie, échange dans la culture de la Renaissance*, Actes du 9^e Colloque International de l'Association 'Renaissance, Humanisme, Réforme' Lyon 1991, Saint-Etienne 1994, pp. 187-197; J.H. MUNRO, *Political Muscle in an Age of Monetary Famine: a Review*, in «Revue belge de Philologie et d'Histoire», 64/4 (1986), p. 746; R. VAN UYTVEN, *Splendour or Wealth: Art and Economy in the Burgundian Netherlands*, in «Transactions of the Cambridge Bibliographical Society», 10/2 (1992), p. 112.

⁵⁸ Quoted by J. HEERS, *Gènes au XV^e siècle* cit., p. 65. For the origins of this sumptuary legislation that for Genoa started in the second half of the twelfth century, C. KOVESI KILLERBY, *Sumptuary Law in Italy, 1200-1500*, Oxford 2002. For sumptuary acts in fourteenth-century England: H.A. MISKIMIN, *Monetary Movements and Market* cit., p. 487.

⁵⁹ M. ALLEN, *The volume of the English currency, 1158-1470*, in «The Economic History Review», 2nd Series, 54/4 (2001), p. 607.

⁶⁰ C.C. PATTERSON, *Silver Stocks and Losses in Ancient and Medieval Times*, in «The Economic History Review», 2nd Series, 25/2 (1972), pp. 202-235 (a very original approach with rather arbitrary estimates).

never be possible to calculate this kind of loss precisely⁶¹, all available evidence⁶² tends to support the current theory that a considerable part of the currency « vanished into thin air »⁶³.

In addition there are other factors in favour of the money theory. Many historians still prefer to work with a very crude version of the quantity theory by assuming that V and T remain unchanged⁶⁴. However, « a sophisticated Quantity Theorist cannot be accused of believing that V is a fundamental constant of nature »⁶⁵. Indeed V was important, probably even more important than M⁶⁶. As J.K. Galbraith once put it « allowance had to be made not only for the supply of money but for the rate at which it was spent. Money that was spent immediately on its receipt obviously had a different effect on prices from money that was stored away in the mattress »⁶⁷. Research for the sixteenth, seventeenth and eighteenth centuries has demonstrated convincingly how an increase or decrease of V had a serious impact on P⁶⁸. The behaviour of V explains why there is no such

⁶¹ P. SPUFFORD, *Money and its Use* cit., p. 345.

⁶² For an overview of the results: E. AERTS, *Metal Loss in the Monetary Circulation of the Southern Low Countries (Fifteenth-Eighteenth Centuries)*. *Sources and methods*, in *Studia Historica Oeconomica. Liber alumnorum Herman Van der Wee*, eds. E. AERTS a.o., Leuven 1993, pp. 41-58.

⁶³ As N.J. MAYHEW, *Numismatic Evidence* cit., p. 3, so elegantly put it.

⁶⁴ E.g. W. LETWIN, *Monetary Practice and Theory of the North American Colonies during the 17th and 18th Centuries*, in *La Moneta nell'economia europea secoli XIII-XVIII*, ed. V. BARBAGLI BAGNOLI, Prato-Firenze, 1981 (Istituto Internazionale di Storia Economica "F. Datini" Prato. Atti delle "Settimane di studio" e altri Convegni, 7), p. 452, note 30; J. DAY, *The Fisher Equation* cit., p. 112; R. METZ, *Geld, Wahrung und Preisentwicklung* cit., p. 225.

⁶⁵ P. SAMUELSON in collaboration with P. TEMIN, *Economics*, Tokyo 1976¹⁰, p. 287.

⁶⁶ M. PERROY, *A l'origine d'une conomie* cit., pp. 170 and 171; E. FOURNIAL, *Histoire montaire de l'occident mdival*, Paris 1970, p. 117 writes « ce qui compte, en effet, c'est moins l'importance du stock montaire que la rapidit de la circulation du numraire ». This in contrast to the Cipolla-thesis which emphasizes the money supply (J.H. MUNRO, *Wool, Cloth and Gold* cit., p. 17).

⁶⁷ J.K. GALBRAITH, *Money. Whence It Came, Where It Went*, Harmondsworth 1976, p. 220.

⁶⁸ A. CHABERT, *Encore la rvolution des prix au XVI^e sicle*, in « Annales, conomies, Socits, Civilisations », 12/2 (1957), pp. 269-274; J.A. GOLDSTONE, *Monetary versus Velocity Interpretations of the "Price Revolution": A Comment*, in « The Journal of Economic History », 51/1 (1991), pp. 176-181; E. KERRIDGE, *Trade and Banking in Early Modern England*, Manchester 1988; J.C. RILEY and J.J. McCUSKER, *Money Supply, Economic Growth, and the*

thing as a direct, linear or proportionate relation between M and P⁶⁹ and why links between V and P can be stronger than between M and P. Precisely because of this, it is advisable to use the Cambridge cash-balances version of the Fisher equation which is, according to M. Friedman, both conceptually and empirically more satisfactory. The Cambridge approach operates with the income version of the classical quantity theory that tends to express the variables in the Fisher equation in terms of income rather than in transactions. M still represents the money stock but V is defined as the number of times that the money stock is used in making income. T which is difficult to quantify is replaced by y or the real national income in constant prices. In addition, the variable k is introduced, which is the ratio of the money stock to income. This ratio refers to the cash balances that are simply the amount of money that people do not want to spend but desire to hold. Between the cash balances and the income velocity of money there is an inverse relation: in fact k is equal to the reciprocal of V ($k = 1/V$). Thus, the Fisher equation may be safely rewritten as $M = k P y$ ⁷⁰.

Indeed, monetary historians do not believe that V remained constant. Instead and for a variety of reasons, they accept a sharp drop in the velocity in the late Middle Ages. Increasing hoarding and thesaurisation⁷¹, especially

Quantity Theory of Money: France, 1650-1788, in « Explorations in Economic History », 20 (1983), pp. 274-293; J.C. RILEY, *Monetary Growth and Price Stability: France, 1650-1700*, in « Journal of Interdisciplinary History », 15/2 (1984), pp. 235-254; see also the remark by M. MORINEAU in a conference discussion as published in *La Moneta nell'economia*, p. 155.

⁶⁹ R. METZ, *Geld, Währung und Preisentwicklung* cit., p. XXXIV. See already the opinion of F. Simiand as quoted by P. HARSIN, *François Simiand 1873-1935*, in P. HARSIN, *Recueil d'Études*, Liège 1970, p. 109.

⁷⁰ See M. FRIEDMAN, *A Theoretical Framework for Monetary Analysis*, New York-London 1971 (National Bureau of Economic Research Occasional Paper, 112), pp. 6-10 and *Studies in the Quantity Theory of Money*, ed. M. FRIEDMAN, Chicago-London 1956. For the use of the Cambridge approach, see E. AERTS, *La circulation monétaire française aux XVI^e et XVII^e siècles*, in « Revue Historique », CCLXXX/2 (1988), p. 398, J.H. MUNRO, *Introduction*, in his *Bullion Flows and Monetary Policies* cit., p. X, and ID., *Patterns of Trade* cit., pp. 149-150.

⁷¹ P. SPUFFORD, *Money and its Use* cit., pp. 346-347; J.H. MUNRO, *Monetary Contraction and Industrial Change* cit., p. 103; ID., *Introduction*, in his *Bullion Flows and Monetary Policies* cit., p. XII. J. DAY, *The Fisher Equation* cit., p. 113 believes that V increased because of rising military expenditures. I do not share his opinion. See, for example, the most recent estimates (derived from estimates of M, P and T) of velocity in England: N.J. MAYHEW, *Population, Money Supply, and the Velocity of Circulation in England, 1300-1700*, in « The Economic History Review », 2nd Series, 48/2 (1995), p. 244, table I.

among lower social groups, due to the generalised spread of warfare during the fourteenth century, helped to increase k and decrease V . Rising transaction costs associated with growing insecurity and insafety, commercial blockades and embargoes, the contraction of the number of transactions, of exchanges and of trade in general⁷² must also have depressed the turnover of money. Finally, the general decline of income due to agricultural and industrial crises led to declining investment and consumption, creating an inverse multiplier effect whereby a decrease of consumption and investment caused a more than proportionate decline of the overall income velocity of money.

Again, supporters of the real theory evoked countervailing forces that should explain why V during most of the the fourteenth and fifteenth centuries did not contract but probably expanded. One of these forces would have been the spirit of “unbridled hedonism” that pushed people to consume and to spend their cash balances⁷³. There is no reason whatsoever to deny the traces of such an attitude among the wealthiest groups in late medieval society⁷⁴. No less a person than the famous Giovanni Boccaccio (1313-1375) observed how in Florence the outbreak of the plague (1348) incited people to drink with an entire disregard of rule or measure (*bevendo senza modo e senza misure*) and to satisfy their appetites with everything they could (*sodisfare d’ogni cosa all’appetito che si potesse*)⁷⁵. However, manifestations of excessive and even conspicuous consumption remained limited to the more affluent groups. Their luxurious way of life temporarily enhanced income velocity but was simultaneously responsible for the purchase and import of non-European products, thus aggravating the outflow of precious

⁷² J.H. MUNRO, *The ‘New Institutional Economics’ and the Changing Fortunes of Fairs in Medieval and Early Modern Europe: the Textile Trades, Warfare and Transaction Costs*, in «Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte», 88/1 (2001), pp. 1-47.

⁷³ H.A. MISKIMIN, *Monetary Movements and Market* cit., pp. 486-488; ID., *Money and Money Movements in France and England at the End of the Middle Ages*, in *Precious Metals in the Later Medieval* cit., pp. 79-96.

⁷⁴ Well documented support for this thesis is given by, among others, J. HEERS, *Gênes au XV^e siècle* cit., p. 65, note 2; J.H. MUNRO, *Bullion Flows and Monetary Contraction* cit., p. 104, note 23 and p. 108, note 36, and by R. VAN UYTVEN, *Splendour or Wealth* cit., p. 104.

⁷⁵ *A documentary history of modern Europe*, eds. T.G. BARNES and G.D. FELDMAN Washington D.C. 1979, I, pp. 29-33; J.M. RIGG, *The Decameron of Giovanni Boccaccio*, London 1921, introduction to the first day (*prima giornata, introduzione*), vs 21.

bullion. Moreover, hedonistic spending does not contradict hoarding and thesaurisation⁷⁶. Apart from different social groups having been involved in both phenomena, all authors refer to the “wide extremes” and “sharp contrasts”⁷⁷ of the highly polarised society⁷⁸. Did bank money increase monetary velocity? M. Postan, J. Hatcher, J.L. Bolton and others have correctly assumed that the use of credit instruments became more widespread and more sophisticated in the fourteenth and first half of the fifteenth centuries⁷⁹. In addition to the generalised use of different types of bills of exchange (including *cambio secco*, *cambio fittizio* and *ricorsa* or *cambium-recambium*)⁸⁰, there was the expansion of local deposit and transfer banks such as the *banchi del giro*, *banchi de tapeto*, *banchi di scritta* or *banchi de scripta*⁸¹. In such banks, payments were usually made not in specie but by transfers between accounts. Most banks also allowed regular customers overdrafts on the *conto corrente* and invested a part of the deposits by using the principle of the fractional reserve. So by many means they created bank money, credit and increased velocity⁸². Still, the effects of these so-called

⁷⁶ See note 71.

⁷⁷ J.H. MUNRO, *Economic Depression and the Arts in the Fifteenth-Century Low Countries*, in « Renaissance and Reformation », 19 (1983), pp. 238 and 240.

⁷⁸ R. VAN UYTVEN, *Splendour or Wealth* cit., p. 105.

⁷⁹ M. POSTAN, *The Medieval Economy* cit., p. 268; M.M. POSTAN, *Note* cit., p. 78; M. PERROY, *A l'origine d'une économie* cit., p. 171. For the works of Hatcher and Bolton: P. NIGHTINGALE, *Monetary Contraction and Mercantile Credit in Later Medieval England*, in « The Economic History Review », 2nd Series, 43/4 (1990), p. 560, notes 6 and 7.

⁸⁰ For an overview see E. AERTS, *La lettre de change sur la place financière de Bruges à la fin du Moyen Age*, in *À la bourse. Histoire du marché des valeurs en Belgique de 1300 à 1990*, ed. G. DE CLERCQ, Paris - Louvain-la-Neuve 1992, pp. 33-47 and 442-444.

⁸¹ R. DE ROOVER, *Early Banking before 1500 and the Development of Capitalism*, in « International Review of the History of Banking », 4 (1971), pp. 2-5; R. DE ROOVER, *New Interpretations of the History of Banking*, in « Journal of World History », 2 (1954-1955), pp. 51-55; M. NORTH, *Die Hanse und das europäische Zahlungssystem: Kreditpraktiken im internationalen Vergleich*, in *Vergleichende Ansätze in der hansischen Geschichtsforschung*, ed. R. HAMMEL-KIESOW, Trier 2002 (Hansische Studien, 13), p. 150; W. VON STROMER, *Funktion und Rechtsnatur der Wechselstuben als Banken*, in « Bankhistorisches Archiv. Zeitschrift für Bankengeschichte », 1 (1979), pp. 3-34.

⁸² R. DE ROOVER, *Money, Banking and Credit in Mediaeval Bruges. Italian Merchant-Bankers, Lombards and Money-Changers. A Study in the Origins of Banking*, Cambridge (Mass.) 1948 (The Mediaeval Academy of America, 51), pp. 283 and especially 320.

innovations in banking, credit and international finance must not to be overestimated. Successive bank failures and repeated ‘runs’ on the local banks limited the expansion of *moneta di banco*⁸³. Outside of Italy such banks were only found in major urban centres and were almost completely absent in great parts of Europe, including England and a large area within the Hanseatic world⁸⁴. Even in the great commercial cities, only some 10% of the male population at most had a bank account⁸⁵. The same argument holds for the late medieval bills of exchange, which were restricted to a *piazza di cambio* and to a very small group of wealthy, chiefly Italian merchant-bankers⁸⁶. Even in Bruges, the leading *piazza di cambio* and commercial capital of northern Europe, the bill of exchange was by no means the only or even the most popular financial document used in commercial circles⁸⁷. Although J. Munro has shown that English merchants used bills of exchange

⁸³ P. SPUFFORD, *Money and its Use* cit., p. 347.

⁸⁴ R. DE ROOVER, *The Commercial Revolution of the Thirteenth Century*, in *Enterprise and Secular Change. Readings in Economic History*, eds. F.C. LANE and J.C. RIEMERSMA, Homewood Ill. 1953, p. 82. This absence explains why England in 1436 managed to realise a major breakthrough in the development of modern negotiability: see the work by J.H. MUNRO, *The International Law Merchant and the Evolution of Negotiable Credit in Late-Medieval England and the Low Countries*, in *Banchi pubblici, banchi privati e monti di pietà nell'Europa preindustriale. Amministrazione, tecniche operative e ruoli economici*. Atti del convegno Genova, 1-6 ottobre 1990 («Atti della Società Ligure di Storia Patria», n.s., XXXI/1-2, 1991), pp. 71-75; *Die Anfänge der Übertragbarkeit: einige Kreditinnovationen im Englisch-Flämischem Handel des Spätmittelalters (1360-1540)*, in *Kredit im Spätmittelalterlichen und Frühneuzeitlichen Europa*, ed. M. NORTH, Cologne-Vienna 1991, pp. 57-60; *English “Backwardness” and Financial Innovations in Commerce with the Low Countries, 14th to 16th Centuries*, in *International Trade in the Low Countries (14th-16th Centuries). Merchants, Organisation, Infrastructure. Proceedings of the International Conference Ghent-Antwerp, 12th-13th January 1997*, eds. P. STABEL, B. BLONDÉ and A. GREVE, Leuven-Apeldoorn 2000, pp. 142-150; *The Medieval Origins of the Financial Revolution: Usury, Rentes, and Negotiability*, in «The International History Review», XXV/3 (2003), p. pp. 547-549, 551, 552, 562.

⁸⁵ P. SPUFFORD, W. WILKINSON and S. TOLLEY, *Handbook of Medieval Exchange*, London 1986, p. XXX; P. SPUFFORD, *Money and its Use* cit., p. 396, note 1. See also E. AERTS, *Prof. R. de Roover and Medieval Banking History*, in «Revue de la Banque», 8/9 (1980), p. 259 and D. NICHOLAS, *The Metamorphosis of a Medieval City. Ghent in the Age of the Arteveldes, 1302-1390*, Leiden 1987, p. 129.

⁸⁶ R. DE ROOVER, *Early Banking before 1500* cit., p. 7; J.H. MUNRO, *Patterns of Trade* cit., p. 153.

⁸⁷ J. MURRAY, *Bruges, Cradle of Capitalism, 1280-1390*, Cambridge 2005, pp. 230 and 236.

more widely than was thought by R. De Roover⁸⁸, other regions in Europe were much more conservative⁸⁹ and used transerable bonds called letters obligatory, the direct ancestor of the promissory notes. Like bills of exchange, these documents were not negotiable, and their circulation was rather limited before their systematic endorsement and discounting in later centuries⁹⁰. All specialists agree that bank money was not able to compensate for the scarcity of specie⁹¹. In the medieval economy the « money supply was the supply of metallic coin with only insignificant exceptions »⁹². Moreover, P. Nightingale has presented clear evidence of how a drastic drop in mint outputs and a growing scarcity of coins led to a serious credit contraction at the end of the fourteenth century⁹³.

The result of the debate during the last decades is that the money supply in the course of the fourteenth century was declining to the point where contemporary observers could no longer fail to notice the shortage of bullion. Not only did men die, coins died as well⁹⁴.

⁸⁸ J.H. MUNRO, *Die Anfänge der Übertragbarkeit* cit., pp. 45-46.

⁸⁹ M. NORTH, *Die Hanse und das europäische Zahlungssystem* cit., pp. 145 and 147.

⁹⁰ H. VAN DER WEE, *Monetary, Credit and Banking Systems*, in *The Cambridge Economic History of Europe* cit., V, pp. 324 and 325.

⁹¹ « Contrairement à l'opinion courante, les instruments de crédit et les ordres de paiement ... n'étaient pas susceptibles, avant la diffusion de la pratique d'endossement et d'escompte vers le milieu du XVII^e siècle, de suppléer à l'inélasticité d'une circulation métallique » (J. DAY, "Crise du féodalisme" cit., p. 307). See also J.H. MUNRO, *Wool, Cloth and Gold* cit., p. 15; ID., *Monetary Contraction and Industrial Change* cit., p. 103; ID., *Bullion Flows and Monetary Contraction* cit., p. 108.

⁹² P. SPUFFORD, W. WILKINSON and S. TOLLEY, *Handbook of Medieval Exchange* cit., p. XXX.

⁹³ P. NIGHTINGALE, *Monetary Contraction and Mercantile Credit in Later Medieval England*, in « The Economic History Review », 2nd Series, 43/4 (1990), pp. 560-575; ID., *England and the European depression of the mid-fifteenth century*, in *Journal of European Economic History*, 26, 1997, pp. 631-656.

⁹⁴ To use the expression of the late David Herlihy. See the quotation by J.H. MUNRO, *Monetary Contraction and Industrial Change* cit., p. 99 and the same, *Bullion Flows and Monetary Contraction* cit., p. 100. N. SUSSMAN, *The Late Medieval Bullion Famine Reconsidered*, in « The Journal of Economic History », 58/1 (1998), pp. 126-154 has argued on theoretical grounds, applying the monetary approach to the balance of payments, that Europe could not have suffered a deficit in its balance with the Near East and a bullion famine simultaneously: a shortage of money implied an increasing demand for money, creating a *surplus* on the balance and an inflow of money. This reasoning is correct but only if one accepts the assumptions of

3. *The Chronology of the Monetary Famine in Europe and in Genoa*

It is not easy to map more or less precisely the spread of the late medieval monetary famine in Europe. Miskimin has already warned us about sharp variations of the money stock between different countries⁹⁵. Even in one country there were regional differences in the various mint outputs⁹⁶. The older supporters of a bullion famine thesis (such as W.C. Robinson) believed that the monetary contraction started very soon in the fourteenth century⁹⁷. Mayhew's figures regarding English currency showed a sharp fall in the first half of the century⁹⁸. Allen's new estimates specified that the decline occurred between 1320 and 1330 (see figure I with polynomial trend). Since some gold output needs to be added to the figure for 1330, it may well be possible that the real decline started just after 1330⁹⁹. The oldest complaints of a scarcity of silver in different regions in France are recorded in the first half of the fourteenth century, but some mines already had a serious output decline at the end of the thirteenth century¹⁰⁰. Attempts to open new mines met with very uneven success. "The first signs" of local and transitory scarcity of silver coins everywhere in Europe appear in the middle of the century¹⁰¹. Still, however alarming these warnings may have been, many mints in different parts of Europe managed

the approach. In other theoretical models, an increasing demand for money may be easily associated with a deficit in the balance and an outflow of money.

⁹⁵ H.A. MISKIMIN, *Le problème de l'argent au Moyen Âge*, in « Annales, Economies, Sociétés, Civilisations », 17/4 (1962), p. 1129 (this study has been reprinted in his *Cash, Credit and Crisis in Europe, 1300-1600*, Aldershot-Brookfield 1989, Variorum Collected Studies Series, 289, n. IV).

⁹⁶ As clearly shown by N. SUSSMAN, *The Late Medieval Bullion Famine* cit., pp. 144 and 151.

⁹⁷ M. PERROY, *A l'origine d'une économie* cit., p. 170.

⁹⁸ N.J. MAYHEW, *Numismatic Evidence* cit., pp. 7 and 9, fig.1.

⁹⁹ M. ALLEN, *The volume of the English* cit., p. 603, table I and p. 607, table II. This beginning coincides with the first ordinances to prevent the export of coin and bullion (H.A. MISKIMIN, *Monetary Movements and Market* cit., pp. 473 and 474).

¹⁰⁰ E. FOURNIAL, *Histoire monétaire de l'occident* cit., p. 113. The best and most recent evidence has been recorded by M.-C. BAILLY-MAÎTRE and P. BENOIT, *Les mines d'argent de la France médiévale*, in *L'argent au moyen âge. XXVIII^e Congrès de la S.H.M.E.S.*, Clermont-Ferrand, 30 mai-1er juin 1997, Paris 1998 (Série Histoire Ancienne et Médiévale, 51), pp. 37 and 38.

¹⁰¹ P. SPUFFORD, *Money and its Use* cit., p. 348.

to achieve huge output figures in the 1350s and 1360s. Therefore, it seems safer to start the period of a lasting and long-run silver shortage somewhere in the 1370s. Both P. Spufford and J. Day even believe that growing scarcity took the shape of a grim famine only in the 1390s¹⁰². New – although still incomplete – evidence for France shows that silver mint output did not start to decline from 1390, as believed by Day, but rather from c. 1370 and then again from c. 1390 (see figure II with again a polynomial trend with a much lower coefficient of determination)¹⁰³. This coincides more or less with the findings by J. Munro, who discovered a major monetary contraction in both England and the Low Countries from from about 1370 to the 1470s¹⁰⁴. Part of Munro’s meticulous calculations for Flanders and the Low Countries are summarised in figure III¹⁰⁵. The chronology also seems applicable to at least an important part of northern Europe. After 1370, the trend in the silver production of the mint in Lübeck was definitely decreasing and the income from the mint in Hamburg also showed a similar pattern after 1373¹⁰⁶.

In the light of the available evidence, Italy seems to fit better in the chronology as suggested by Day¹⁰⁷. Major cities in the north experienced a serious shortage of bullion from 1390 on and were forced to take a series of measures to ease somewhat the monetary stringency on the markets. A premium was offered for payments in cash, the official value of large silver and gold coins was raised, inflow of bullion was promoted such as making import duty-free, and strict embargo’s were proclaimed on the export of coins and bullion. In Milan, the crisis was felt in 1391, and the sudden

¹⁰² P. SPUFFORD, *Money and its Use* cit., p. 349. J. DAY, “*Crise du féodalisme*” cit., p. 312 and the same, *The Question of Monetary Contraction* cit., p. 15 sees 1395 as the start of the bullion famine.

¹⁰³ N. SUSSMAN, *The Late Medieval Bullion Famine*, pp. 135 and 136, table I. Those who want to compare figures I and II should be aware that figure I estimates total currency in circulation while figure II shows only mint outputs.

¹⁰⁴ J.H. MUNRO, *Introduction*, in his *Bullion Flows and Monetary Policies* cit., p. XI; ID., *Monetary Contraction and Industrial Change* cit., pp. 104, 139, table 2 and 149, table 10; ID., *Bullion Flows and Monetary Contraction* cit., pp. 121, 136-147, tables 4-9.

¹⁰⁵ Based on *Ibidem*, p. 144, table 8.

¹⁰⁶ M. NORTH, *Geldumlauf und Wirtschaftskonjunktur* cit., p. 111, table 30 and p. 114, table 31.

¹⁰⁷ What follows is largely based on J. DAY, *The Great Bullion Famine* cit., pp. 23-32.

decline of bullion stocks caused serious monetary and economic difficulties. The crisis lasted at least until the 1420s with the years 1409-1410 as the high point. In Florence, silver minting ceased in 1392 and was recommenced only ten years later. Output in the early fifteenth century must have been on a much lower level than in the fourteenth century¹⁰⁸. Venice was in a more comfortable position as the Venetian merchants had access to some rich silver mines in Central Europe and the Balkans¹⁰⁹. But even Venice turned out not to be immune for the bullion dearth when silver extraction in Serbian and Bosnian mines stopped at the end of the 1420s or in the early 1430s and when, as we have seen, these mines were seized by Ottoman Turks a few years later¹¹⁰. As A. Stahl, the specialist on the Venetian *Zecca* recently reported, the volume of minting, especially for silver, declined in the first half of the fifteenth century¹¹¹.

For Genoa the crisis can be followed from the output of the *zecca* or the local mint. In the case of the Genoese mint, one must keep in mind that not all documents have been preserved and that most of the data are derived indirectly from balance sheets containing profits (*ricavi*) and costs (*costi*)¹¹². Still they represent «a reliable index of the movement of stocks»¹¹³ and probably provide the best quantitative evidence available at present for the money supply. Figure IV presents the official value in *lire* of the mint output in Genoa between 1341 and 1450¹¹⁴ and shows that, in terms of money of account, output started to decline from about 1370 and stayed low until 1415. The same pattern can be seen in figure V with respect to the production of larger coins like the gold *genovini* and silver *grossi*¹¹⁵. An

¹⁰⁸ A.M. STAHL, *European Minting and the Balance* cit., fig. 4.

¹⁰⁹ L.B. ROBERT, *Money and Prices in Thirteenth-Century Venice*, in «Journal of Medieval History», 20 (1994), pp. 373-390; F.C. LANE, *Exportations vénitienes d'or* cit., p. 35.

¹¹⁰ E. ASHTOR, *Les métaux précieux et la balance* cit., pp. 41-42; P. SPUFFORD, *Money and its Use* cit., pp. 333 and 349-350.

¹¹¹ M. STAHL, *European Minting and the Balance* cit., p.2.

¹¹² G. FELLONI, *Ricavi e costi della zecca di Genova dal 1341 al 1450*, in ID., *Scritti di storia economica* («Atti della Società Ligure di Storia Patria», n.s., XXXVIII/1-2, 1998), I, p. 538. Scattered information is given by J. DAY, *The Great Bullion Famine* cit., pp. 28-29.

¹¹³ J. DAY, *The Question of Monetary Contraction* cit., p. 15.

¹¹⁴ Based on the figures by G. FELLONI, *Ricavi e costi della zecca* cit., pp. 549 and 550.

¹¹⁵ *Ibidem*.

estimate of total output of both gold and silver coins also confirms the hypothesis that the first bullion famine can be traced in Genoa between about 1370 and 1415 (figure VI) ¹¹⁶.

Most of the evidence for the monetary famine is based on output figures calculated or estimated from documents kept by the mint workshops. It should be stressed that estimates of money supply are, of course, not that same as coinage statistics. A number of variables explain why the relationship between monetary circulation and minting activity could differ substantially ¹¹⁷. Estimates of currency in circulation, combining output data and coin hoards, may remedy this imperfection. Unfortunately, such estimates usually remain isolated snapshots, as it were, of a given moment, and do not provide an insight into the diachronic evolution. With this serious reservation, the few estimates confirm the general picture and show a substantial decrease of the total currency in the fourteenth and fifteenth centuries ¹¹⁸.

Finally, the first great bullion famine at the end of the fourteenth and the beginning of the fifteenth century was not confined to the European continent. Its undulations also reached the Near East (Egypt, Syria) and were even felt in China ¹¹⁹.

¹¹⁶ Figure VI is based on data provided by J. DAY, *The Question of Monetary Contraction* cit., p. 23, table 1.

¹¹⁷ J. DAY, *The Question of Monetary Contraction* cit., p. 14; J.H. MUNRO, *Bullion Flows and Monetary Contraction* cit., pp. 98, 109, 112; A.M. STAHL, *European Minting and the Balance* cit., p. 2, and especially N.J. MAYHEW, *Population, Money Supply* cit., pp. 241 and 242.

¹¹⁸ M. ALLEN, *The volume of the English* cit., p. 607, table 2 and p. 608, fig. 1; N.J. MAYHEW, *Numismatic Evidence* cit., p. 7, table 2 and p. 9, figure 1 for England in the fourteenth century; E. AERTS and H. VAN DER WEE, *The Lewven Coin Find of 1851 and the Currency of the Burgundian Netherlands in the Middle of the 15th Century: a Case Study*, Leuven 1980 (Postgraduate Workshop on Quantitative Economic History. Mimeographed Discussion Paper 80.03) and E. AERTS, *Der Geldumlauf der Burgundischen Niederlande in der Mitte des 15. Jahrhunderts. Ein Quantitativer Versuch*, in *Geldumlauf, Währungssysteme* cit., pp. 25-44 for the Southern Low Countries in the fifteenth century.

¹¹⁹ E. ASHTOR, *Les métaux précieux et la balance* cit., pp. 44 and 102; M. CARTIER, *Mesure de la valeur et structure des prix dans la Chine médiévale et pré-moderne*, in *Études d'histoire monétaire XII^e-XIX^e siècles* cit., p. 154.

4. *The Monetary Famine and the Bank of the Casa di San Giorgio*

I do not intend here to describe and explain the origins of the famous Casa and Bank of San Giorgio. Other, more qualified, authors have already demonstrated convincingly that the beginnings of the bank may be linked to the radical reform of Genoa's public debt after the last great war with Venice¹²⁰. With this conversion or rather consolidation, a great number of different debts were grouped together and placed with a reduced interest rate under the protection of the city's patron, San Giorgio. Creditors and *compere* ("purchases", meaning loans to the city government) were united into one consortium to which a certain amount of tax revenue was assigned: the *Casa* or *Officium comperarum et bancorum Sancti Georgii*. Formally established by decree of the French governor of Genoa on 18 January 1408, « la plus puissante institution financière de l'Occident »¹²¹ and « a landmark in the fiscal history of Europe »¹²² opened its doors on 2 March 1408¹²³. Apart from this major explanation, the hypothesis has been proposed that the prevailing bullion shortage also had some influence¹²⁴. Can the origins of the *Casa di San Giorgio* be associated with the declining

¹²⁰ E.g. G. FELLONI, *Il banco di San Giorgio ed il suo archivio: una memoria a più valenze*, in ID., *Scritti di storia economica* cit., I, pp. 461-468; ID., *I primi banchi pubblici della Casa di San Giorgio (1408-45)*, in *Banchi pubblici, banchi privati e monti di pietà nell'Europa preindustriale. Amministrazione, tecniche operative e ruoli economici*. Atti del convegno Genova 1-6 ottobre 1990 (« Atti della Società Ligure di Storia Patria », n.s. XXXI/1-2, 1991), pp. 225-246, reprinted in his *Scritti di storia economica* cit., pp. 603-621; E. MARRENGO, *Il banco di San Giorgio*, Genova 1911; D. GIOFFRÈ, *Il debito pubblico genovese. Inventario delle Compere anteriori a San Giorgio o non consolidate nel Banco*, Milano 1967; J. HEERS, *Gènes au XV^e siècle* cit., pp. 97 and 110-112; H. SIEVEKING, *Studio sulle finanze genovesi nel Medioevo e in particolare sulla Casa di S. Giorgio*, in « Atti della Società Ligure di Storia Patria », XXXV/1-2 (1905-1906), the original German version was published in Freiburg, 1898-1899. Most useful is the BSFI (Bibliografia di Storia della Finanza Italiana) by G. De Lucca and A. Moioli (Dipartimento di Storia della società e delle istituzioni, Università degli Studi di Milano).

¹²¹ J. HEERS, *Gènes au XV^e siècle* cit., p. 110.

¹²² According to Professor Epstein in the best and most recent general synthesis of Genoese history: S.A. EPSTEIN, *Genoa and the Genoese, 958-1528*, Chapel Hill NC 2001, preface.

¹²³ G. FELLONI, *I primi banchi pubblici* cit., pp. 604 and 611; ID., *Strumenti tecnici ed istituzioni bancarie a Genova nei secc. XV-XVIII*, in ID., *Scritti di storia economica* cit., I, pp. 641 and 644.

¹²⁴ G. FELLONI, *Banca privata e banchi pubblici a Genova nei secoli XII-XVIII*, in ID., *Scritti di storia economica* cit., I, p. 598; ID., *I primi banchi pubblici*, pp. 603 and 604.

money supply? Indeed, many authors have made an explicit link between money supply and credit institutions. Following R. De Roover, J. Day has contended that, because of the inelastic supply of metallic circulation, a sharp reduction of the precious metal stock was accompanied by an extension or at least by attempts at an extension of the amount of bank money¹²⁵. Clearly the shortage of metallic coin and credit «and that at all levels»¹²⁶ must have had its effects in Genoa.

In the fourteenth and fifteenth centuries the town was a major commercial and financial centre with a famous secular tradition in banking, starting already in the twelfth century¹²⁷. Numerous commercial and financial innovations, taking shape within urban institutions and commercial groups sooner than elsewhere in Italy, had contributed to Genoa's golden age in the thirteenth century¹²⁸. Before the Black Death, the city had a population of some 54,000. After the plague, in the years 1350-1354, the urban population was reduced to some 35,000 and probably still fluctuated around that level in 1400. According to J. Heers, the population figure then again increased to more than 85,000 in the middle of the fifteenth century¹²⁹. Around 1400, the demographic size of the town was comparable to that of Barcelona, Bruges, London or Rouen. Numerous local *campsores e bancheri*, of course, did what their name suggested – changed money – but, following the example

¹²⁵ J. DAY, “*Crise du féodalisme*” cit., pp. 307-308. Other examples of the link between bullion flows and credit in ID., *Money and Credit in Medieval and Renaissance Italy*, in ID., *The Medieval Market Economy*, Oxford 1987, pp. 146-147 and P. NIGHTINGALE, *Monetary Contraction and Mercantile*, pp. 560-575.

¹²⁶ P. SPUFFORD, *Money and its Use* cit., p. 348.

¹²⁷ R. DE ROOVER, *Early Banking before 1500* cit., p. 2; G. FELLONI, *Banca privata e banchi pubblici* cit., pp. 584-586; ID., *Ricchezza privata, credito e banche: Genova e Venezia nei secc. XII-XIV*, in *Genova, Venezia, il Levante nei secoli XII-XIV*, Atti del convegno internazionale di studi, Genova-Venezia, 10-14 marzo 2000, a cura di G. ORTALLI e D. PUNCUH, Genova-Venezia 2001 («Atti della Società Ligure di Storia Patria», n.s., XLI/1; edito anche dall'Istituto Veneto di Scienze, Lettere ed Arti, Venezia), pp. 308 and 309.

¹²⁸ A. GREIF, *On the Political Foundations of the Late Medieval Commercial Revolution: Genoa during the Twelfth and Thirteenth Centuries*, in «The Journal of Economic History», 54/2 (1994), pp. 283 and 284.

¹²⁹ G. FELLONI, *Ricchezza privata, credito* cit., p. 296; ID., *Struttura e movimenti dell'economia genovese tra Due e Trecento: bilanci e prospettive di ricerca*, in ID., *Scritti di storia economica* cit., II, p. 971; J. HEERS, *Gènes au XV^e siècle* cit., pp. 44 and 45.

of the *cambiatori* in other progressive cities in Italy and elsewhere¹³⁰, they also performed genuine banking functions. They accepted cash deposits, developed transfer banking by making current transfers between accounts of customers (*giri di partite*), were involved in maritime insurance, advanced loans, conducted financial operations for the city government and traded in bullion, which they also delivered to the mint¹³¹. The profession was completely free and was not bound by any corporative association. This and also, of course, the financial opportunities explain their high number: 13 in 1340, 30 between 1356-1358, and 21 in 1390-1391¹³².

As a direct result of the European bullion famine, Genoa like many other places in Europe at the end of the fourteenth century, witnessed a progressive dearth of precious metal (see section III and figures IV, V and VI). Silver, in particular, was difficult to find. Unlike its arch-enemy Venice Genoa did not have access to large silver supplies. The territory itself had no mines and later attempts to exploit mineral veins in the Ligurian Apennines were not very successful. Some silver was found in Cologne and in Spain (the region of Carthagen and Murcia) while bags and sacks with small silver pieces (*blanchae*) were imported from Seville, Cadiz, Malaga and Valencia¹³³. But these inflows were not enough to meet the needs of trade and business. This explains why African gold was regularly sold in Seville and Cadiz in exchange for silver¹³⁴. In 1399, the importation of money over

¹³⁰ E. AERTS, *Prof. R. de Roover and Medieval Banking* cit.; pp. 255-256; W. BLOCKMANS, *Handelstechniken in Flandern und Brabant im Vergleich mit denjenigen der Hanse, 14.-15. Jahrhundert*, in *Brügge-Colloquium des Hansischen Geschichtsvereins 26.-29. Mai 1988. Referat und Diskussionen*, ed. K. FRIEDLAND, Cologne-Vienna 1990, pp. 25-32; R. CARANDE, *Comercio, banca y crédito medievales según De Roover*, in « Moneda y Credito. Revista de Economía », 40 (1952), pp. 20-22; R.A. GOLDTHWAITE, *Local Banking in Renaissance Florence*, in « The Journal of European Economic History », 14/1 (1985), pp. 5-55. See also the references quoted in note 81.

¹³¹ G. FELLONI, *Ricchezza privata, credito* cit., pp. 313 and 314; J. HEERS, *Gènes au XV^e siècle* cit., pp. 91-95.

¹³² G. FELLONI, *Ricchezza privata, credito* cit., pp. 312 and 313.

¹³³ J. HEERS, *Gènes au XV^e siècle* cit., pp. 66, 70 and 71; ID., *Les hommes d'affaires italiens en Espagne au moyen âge: le marché monétaire*, in ID., *Société et économie à Gènes (XIV^e-XV^e siècles)*, London 1979 (Variorum reprints), pp. 75 and 82.

¹³⁴ J. HEERS, *Portugais et Génois au XVe siècle; la rivalité atlantique-méditerranée*, in ID., *Société et économie*, pp. 144 and 146.

land was exempted from customs duties, followed in February 1400 by a more general decree stipulating fiscal exemption for all imports of coins and bullion. Both measures were intended to remedy the monetary scarcity in the city (... *volentes providere indigentie peccuniarum que nunc est in civitate* ...) ¹³⁵. Encouraging the inflow of bullion appeared to be inadequate. Even a centre of the entrepôt trade like Genoa needed bullionist chryshedonic legislation to limit the outflow ¹³⁶. This is why in January 1402 the government put a ban on the export of all minted gold ¹³⁷. The monetary famine affected particularly the *monete grosse*, larger coins with a considerable purchasing power, such as golden *fiorini* or *genovini* ¹³⁸, *ducati* and *scudi* or silver *grossi*. The growing scarcity of these coins resulted in a sharp increase of their rates as expressed in *monete piccole* or small change with an intrinsic value much less than their face value (such as *sessini*, *soldi* or *soldini*, *denari minuti* and their fractions) ¹³⁹. This debasement of the *monete piccole* marked an abrupt end to a period of remarkable monetary stability. Indeed, for more than fifty years within the monetary and financial system of Genoa, the golden *fiorino* had a stable exchange rate fixed at 300 *denari* or 25 *soldi* or 12.5 *grossi*. J. Day and J. Heers explain this stability by the expansion of bank money within the Genoese economy. Not only the numerous bankers but also merchants themselves put current accounts in stable bank money, called “good money”, at the disposal of a limited circle of clients ¹⁴⁰. However, the system was not capable of coping with a major crisis such as the lack of precious metal in the decades from 1390/95 to 1415.

¹³⁵ J. DAY, *Les douanes de Gênes, 1376-1377*, Paris 1963 (École Pratique des Hautes Études. VI^e section. Centre de Recherches Historiques. Ports, routes, trafics, 17), I, p. XII, note 5.

¹³⁶ ID., *The Question of Monetary Contraction* cit., p. 19.

¹³⁷ ID., *Les douanes de Gênes* cit., I, p. XIV, note 3.

¹³⁸ One should not forget that « nella stessa patria del genovino si tenda a chiamare “fiorino” la moneta locale d’oro ed a riservare il termine “genovino” al denaro di biglione » (!) (G. FELLONI, *Genova organizza la sua zecca e le sue monete cominciano a correre per il mondo*, in ID., *Scritti di storia economica* cit., I, p. 698).

¹³⁹ ID., *I primi banchi pubblici* cit., pp. 603 and 611, note 15.

¹⁴⁰ J. DAY, *Les douanes de Gênes* cit., I, p. XIII; ID., *Money and Credit in Medieval and Renaissance Italy*, in ID., *The Medieval Market Economy*, Oxford 1987, p. 150; ID., *Gênes au XV^e siècle* cit., pp. 53 and 95.

The monetary *strettezza* (stringency or tightness) implied a strong demand for money, especially good money that was hard to find. Since everyone wanted and needed his money, few were prepared to deposit, spend, lend or invest. The creation and expansion of bank money ceased. Already in September 1398, deposit bankers in Genoa had great difficulties in paying cash (*in pecunia numerata*) to their depositors. The city government, therefore, authorised them for one month to make a 4% charge on withdrawals in cash to discourage people from collecting their money. A maximum amount was also stipulated for withdrawals in one day¹⁴¹. As in other places in Europe, the government and the public blamed the money-changers and bankers for what was going wrong and accused them of exporting bullion and selling it abroad for higher prices. People readily believed that bankers were responsible for the continuous rise of the rates of the large coins. Many thought that they also worsened the overall quality of some coin types¹⁴². Even historians such as R. De Roover assumed that bankers and money-changers supported debasements since frequent debasement of the currency would have favoured their business¹⁴³. But this thesis has been seriously challenged¹⁴⁴.

Nevertheless that private bankers were forced to ask exorbitant discount rates on heavy coins and, generally speaking, were powerless vis-à-vis the forces of the money market, helps to explain the founding of a public city bank. Genoa did not invent the idea but adopted a principle already applied in Catalonia where the first public bank of Europe in the Middle Ages was founded in Barcelona in 1401. This *Taula de la Ciutat* was very successful, but its imitation in Valencia in 1407 was not¹⁴⁵. Other places followed the example of Barcelona, Valencia and Genoa or at least tried to provide a public alternative to the private bankers¹⁴⁶. In Genoa, the bank was a kind of division

¹⁴¹ J. DAY, *Les douanes de Gênes* cit., I, p. XIV; P. SPUFFORD, *Money and its Use* cit., p. 349.

¹⁴² R. DE ROOVER, *Early Banking before 1500* cit., p. 5; G. FELLONI, *I primi banchi pubblici* cit., p. 604.

¹⁴³ R. DE ROOVER, *Money, Banking and Credit* cit., pp. 188, 238-239, 318-319, 341, 350, 353.

¹⁴⁴ E. AERTS, *Prof. R. de Roover and Medieval* cit., pp. 257-258.

¹⁴⁵ *Moneta, credito e banche in Europa: un millennio di storia*, ed. G. FELLONI, Genova 1997, p. 116; H. VAN DER WEE, *Monetary, Credit and Banking* cit., p. 314.

¹⁴⁶ E.g. a municipal exchange service (*Stadtswechsel*) as in Nuremberg in 1428 (W. VON STROMER, *Funktion und Rechtsnatur der Wechselstuben* cit., p. 18).

or agency of the *Casa*. Its aim was to eliminate the premium on good large coins by providing stable bank money guaranteed by the presence of virtually all cash deposits at every moment. This was certainly not the case with private banks. Bankers had learned that their daily business did not require all of the deposits to be available at all times but that a fractional reserve of 20-30% was sufficient¹⁴⁷. The rest of the deposits could be lent or invested. One of the results of this was that a sudden run on a bank could never be answered adequately. For the *Banco di San Giorgio*, as for other public banks, confidence was of the utmost importance. Therefore, the charter of the bank stipulated that no loans to private individuals or even overdrafts on current accounts were permitted (*nemo expenderet in dicto bancho ultra suum creditum*)¹⁴⁸. In practice, exceptions were made for owners of shares (*luoghi*) in the public debt. The bank developed the same bank functions as the private bankers, accepting deposits and making transfers between accounts. It also dealt with *luoghi* and with the interest (*paghe*) on these shares. The situation in Genoa was original in the sense that private bankers did not compete but brought their deposits and cash reserves to the bank. There is ample evidence for different private bankers to illustrate this thesis. A recent study on the Lomellini bank shows clearly how Nicolò Lomellini between 1408 and 1419 used the *Banco di San Giorgio* quite frequently for deposits, transfers and credit facilities¹⁴⁹. Since bank deposits and a great deal of the banking operations in general came under the direct control of the urban authorities, the confidence of the public increased rapidly. As such, the performance of the Genoese public bank stood in sharp contrast with the *Taula*: in Barcelona the bank acted as an instrument for the municipal treasury; in Genoa the bank worked in the first place for private customers.

Italy's first public bank ceased all activity in 1445¹⁵⁰. Private bankers were left behind alone. But not all the lessons from the past were forgotten:

¹⁴⁷ J. DAY, *Money and Credit in Medieval* cit., p. 151; R. DE ROOVER, *Money, Banking and Credit* cit., p. 318; ID., *New Interpretations of the History* cit., p. 52.

¹⁴⁸ Quoted by J. DAY, *Money and Credit in Medieval* cit., p. 150.

¹⁴⁹ G. FELLONI, *Nicolò Lomellini: un banchiere genovese degli Alberti*, in *La vita e il mondo di Leon Battista Alberti*, Atti del convegno internazionale di studi, Genova 19-21 febbraio 2004, in corso di stampa.

¹⁵⁰ G. FELLONI, *L'archivio della Casa di San Giorgio di Genoa (1407-1805) ed il suo ordinamento*, in ID., *Scritti di storia economica* cit., I, p. 455; ID., *I primi banchi pubblici* cit., p. 604; ID., *Strumenti tecnici ed istituzioni* cit., p. 642.

in 1447 and 1448 the city administration for the first time required the private bankers to have deposits of caution money so that customers could always be paid in periods of liquidity crises ¹⁵¹.

5. Conclusions

A complex set of variables explains why Europe in the fourteenth and fifteenth centuries was faced with cyclical movements in which metallic coins were scarce. The first phase of such as “bullion famine” commenced in 1320 and was followed by a second in 1370 (the north) or 1390 (the south), and a third and probably most serious one in 1440. Explanations for these periodic collapses of the money supply were the declining output of European mines, the constant outflow of precious metal, and the sharp drop in the velocity due to increased hoarding and thesaurisation. Although the *caestia di danari* in major Italian towns was probably less serious than in northwest Europe (England, France, Germany and the Low Countries) ¹⁵² even Italy did not escape the general European pattern. It is surprising, however, how difficult it is to substantiate this late medieval bullion famine for towns that were the most advanced in Europe’s economic history. Indeed, the quantitative evidence for the local mint factories of Genoa or Venice is of much poorer quality than for those in the north. From scattered evidence it seems that the money supply in Genoa was already declining from 1370 on, long before the decline started in Venice and even before money became scarce in Milan and Florence. Genoa showed itself more vulnerable than its rival Venice. The volume of Genoese trade and export declined, the population in the second half of the fourteenth century stagnated and the town lacked access to large silver supplies. A number of measures were meant to remedy the scarcity: the importation of bullion of coins was encouraged, the export restricted and the currency debased.

However, all those measures seemed inadequate when the situation deteriorated at the end of the fourteenth century. During these last years of the century, the creation of bank money was stopped; private bankers had trouble finding cash and were blamed for losing their grip of the situation.

¹⁵¹ J. HEERS, *Gênes au XV^e siècle* cit., p. 58.

¹⁵² F.C. LANE, *Exportations vénitiennes d’or* cit., p.40. J. HEERS, *Portugais et Gênois* cit., p. 145 even expresses doubts about a bullion scarcity in fifteenth-century Italy.

In this context, the idea of a public bank controlling private bankers matured. Developed from a specialised function within the famous *Casa di San Giorgio*, Genoa's most important public institution, the *Banco di San Giorgio* would soon answer to Machiavelli's description of the *Casa* as a «state within the state». As with the Wisselbank of Amsterdam two centuries later, the *Banco* provided stable bank money based on maximum confidence so that problems with debased currency and floating exchange rates could be avoided. Confidence was guaranteed since virtually all cash deposits were present at all times. For quite a number of years the bank stabilised the currency. When the bank closed its doors in 1445, a new period of severe bullion shortage had just commenced. How the Genoese and the Genoese economy managed to overcome this last medieval "monetary famine" is another story.

Figure I - Total silver currency in England (1290-1422)

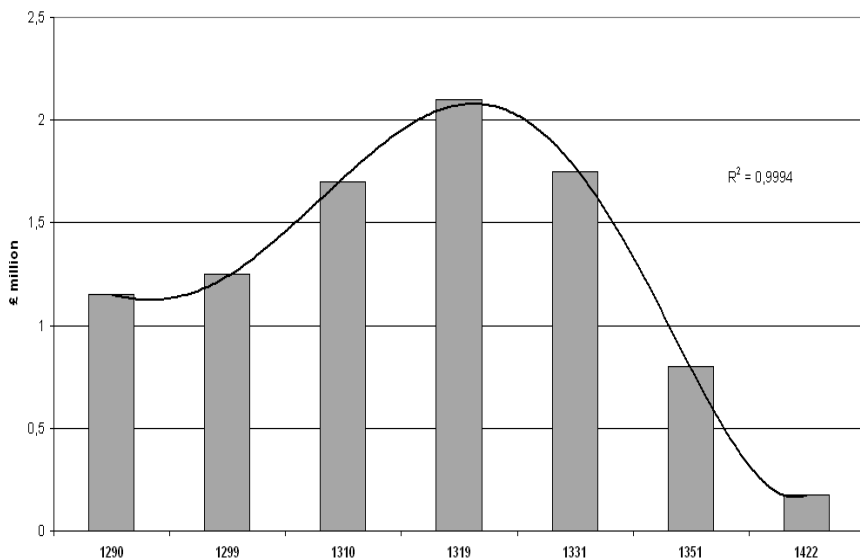


Figure II - Total silver mint output in France (1362-1415)

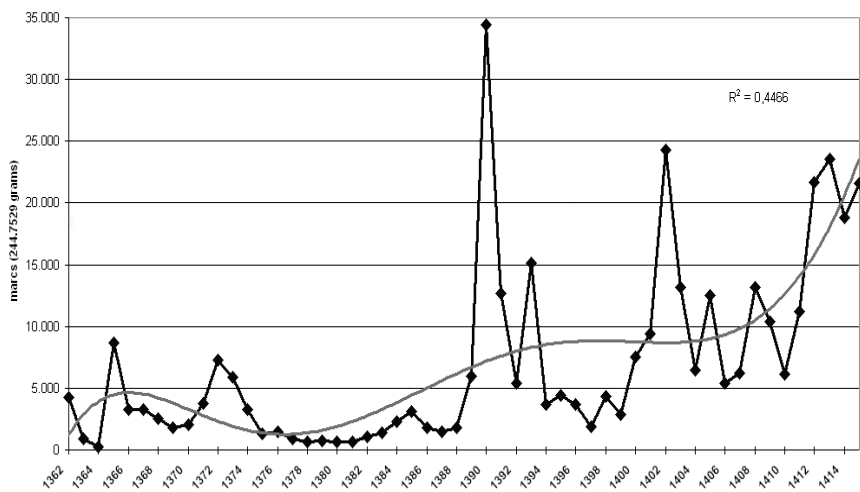


Figure III - Official value in money of account of mint output in Flanders and the Low Countries (1335-1419)

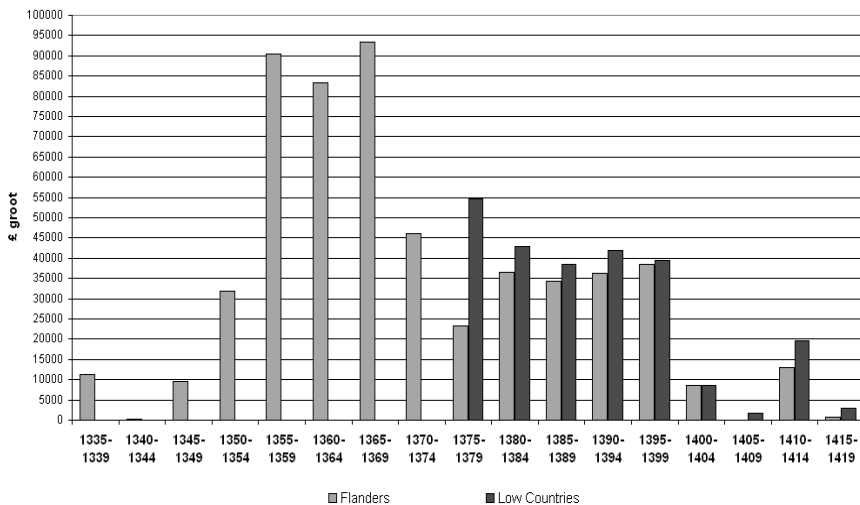


Figure IV - Official value in money of account of mint output in Genoa (1341-1450)

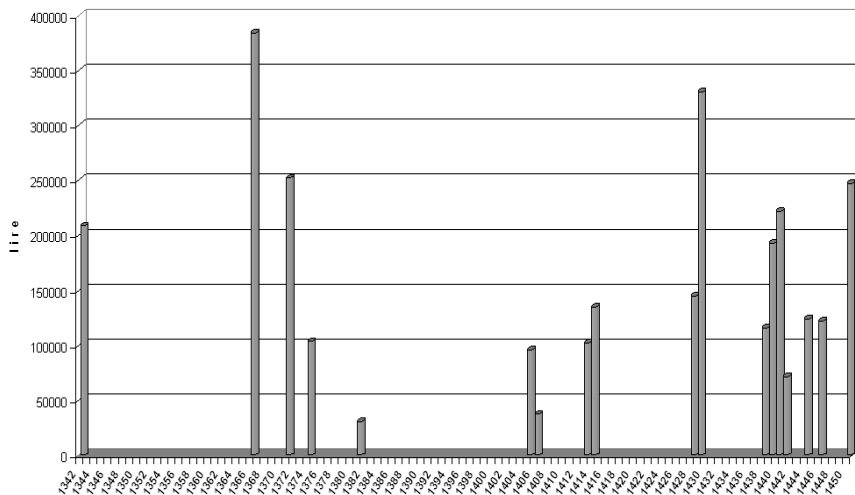


Figure V - Weight of output of *genovini* and *grossi* in Genoa (1341-1450)

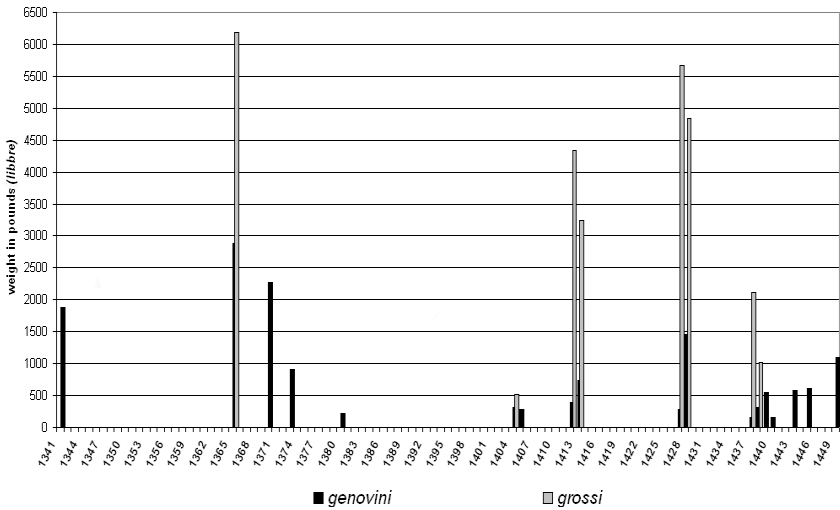
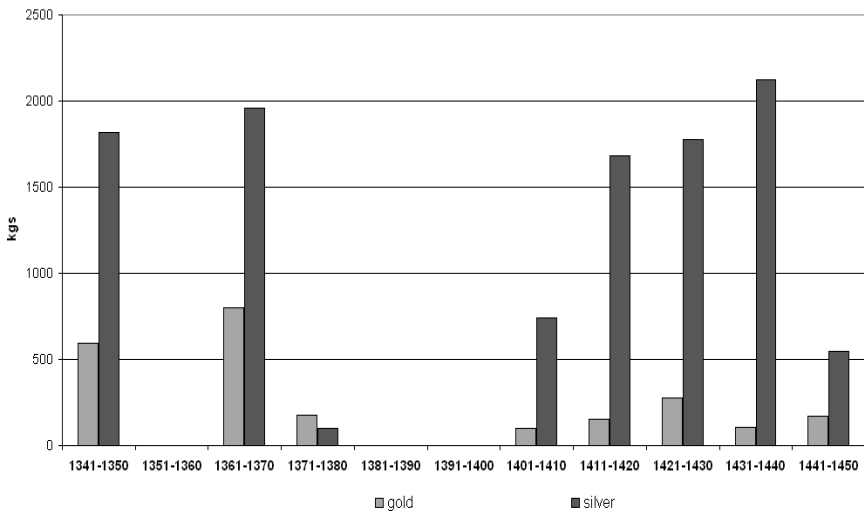


Figure VI - Level of mint output in gold and silver in Genoa (1341-1450)



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Associazione all'USPI
Unione Stampa Periodica Italiana

Direttore responsabile: *Dino Puncub*, Presidente della Società
Editing: *Fausto Amalberti*

Autorizzazione del Tribunale di Genova N. 610 in data 19 Luglio 1963
Stamperia Editoria Brigati Glauco - via Isocorte, 15 - 16164 Genova-Pontedecimo