Currency, bullion and accounts.

Monetary modes in the Roman world

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Finley’s assertion that “money was essentially coined metal and nothing else” still enjoys wide support from scholars¹. The problems with this view have often been noted. Coins were only available in a limited supply and large payments could not be carried out with any convenience. Travelling with large sums in coins posed both practical and security problems. To quote just one often cited example, Cicero’s purchase of his house on the Palatine Hill for 3.5 million sesterces would have required 3.4 tons of silver *denarii*².

Various solutions have been proposed: payments in kind or by means of bullion, bank money, transfer of debt notes or sale credit. Most of these combine a functional view of money (‘money is what money does’) with the basic belief that coinage in the ancient world was the sole dominant monetary instrument, with others remaining ‘second-best’ alternatives³.

Starting from such premises, research has focused on identifying and assessing the possible alternative instruments to effectuate payments. Typical research questions are for instance the commonness (or not) of giro payments, the development (or underdevelopment) of financial instruments, the monetary nature (or not) of ancient debt notes, the commonness (or not) of payments in kind, and so forth. Despite

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numerous and intensive studies into ancient monetary and financial systems, there is very little agreement on any of these questions.\(^4\)

Another popular approach to money in the ancient world, has been that of quantification. The quantity of the available money supply (in coinage, bullion or other forms) is generally considered an important factor of economic development. We will never know the exact amount of coinage minted, but hoard evidence, die studies and mining data at least allow estimating orders of magnitude in the evolution of the currency stock through time. Nevertheless, here too uncertainty remains. Results have been rejected on methodological grounds and particularly the amount and the role of gold currency – poorly documented in hoards – is highly uncertain.\(^5\)

The social nature of money, however, has as yet hardly been systematically analysed. The value of money may or may not be upheld by law and specialised institutions, in normal situations its circulation is based upon the self-evident assumption that it will be generally accepted as a means of payment and discharge of obligations. People accept money because they take it for granted that others in turn will accept it from them at more or less the same rate. Although legal tender laws may provide an ultimate guarantee, the taken-for-granted aspect of money does not derive from government intervention. The enforcement costs would simply be too high if money users refused to comply with this unwritten ‘rule’ of social conduct.\(^6\) In deeply monetized societies social actors are tacitly and explicitly taught that specific social settings (for instance market exchanges) require money for exchanges and transactions to occur and that we can and should accept ‘money’ in exchange for goods and services.

Structural or deep monetization, therefore, may be seen as the result of processes of socialisation (or acculturation), that are mostly context-specific and dynamic. Social rules differ depending on the relevant social context and pose different sets of constraints to social actors. The impact of socialisation as the determinant factor of monetized societies is nicely illustrated by Radford’s famous study of the spontaneous economic organisation of a German P.O.W. camp during the second world war. Radford’s article showed how cigarettes rapidly and spontaneously developed into the


dominant currency used for purchases and the valuation of items. The study is commonly as an example of how money and markets ‘naturally’ emerge if humans are allowed privately to own and exchange scarce resources. What Radford’s study in reality shows is that people who grow up in a monetized culture are socially predisposed to structure their transactions on a monetary basis even when they lack the instruments to which they are accustomed\(^7\).

Socialisation is not a static phenomenon. Secondary or anticipatory socialization may occur later in a person’s life and need not pertain to all social contexts. A good example for us is offered by Aart’s study of the ‘monetization’ of the Batavians, who argues that the Batavian auxiliaries used coins for market exchanges in the Roman(ised) contexts of army camps, *vici* and the *civitas*’s capital (Nijmegen), but mostly for ritual or ceremonial purposes in their rural homesteads. In the latter instance the coins did not function as money, in the former they did\(^8\).

Because socialisation processes are context-specific and dynamic, the self-evident acceptability of money as a social construct is not absolute. Different social settings may require or exclude specific forms of money. Market settings provide the archetypical situations that require money, whereas social reciprocity relations, such as instrumental friendships and patron client relations preclude payments in money (although gifts of money are legitimate). Thus, social institutions determine the degree to which and the settings in which specific forms of money are required or excluded. They create constraints and possibilities to effect transactions that are perceived as ‘objective’ or material realities by social actors. In terms of New Institutional Economics, money should belong in the realm of structure, not performance. Whereas the concept of ‘property (rights)’ serves as the prime institution underlying economic actions, ‘money’ as a social construct may be studied as a social institution structuring the transfer of property rights and entitlements\(^9\).

Therefore, instead of analyzing various exchange media and their circulation to establish whether and to what extent they function as money, we should analyze how social interactions in specific settings are institutionalized into monetary transactions, and which instruments and procedures are available to effectuate these transactions. I

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shall here use the term ‘monetary modes’ to indicate various combinations of instruments and procedures to handle monetized transactions.

By the time of the late Republic Roman society was deeply monetized. In Roman eyes ‘civilised’ society could not function on a non-monetary basis. According to elite authors the use of ‘barter’ was characteristic of barbaric peoples, while civilised people relied on money\(^{10}\). Indeed, for many parts of the empire Romanisation implied monetization\(^{11}\). Papyri confirm that even in small rural villages, money was the norm, barter the exception. The use of metal detectors has drastically altered the old view that coinage was largely absent on rural sites\(^{12}\).

Coinage, however, is merely an instrument to conduct monetized transactions and although it proved very successful it was not the oldest instrument nor was it ever the only one. Institutional monetization means that transactions are \textit{structurally} monetized; that they are expressed and handled in monetary terms, even in the absence of money \textit{stricto sensu}. Thus, the often cited definitions in Roman law that \textit{pecunia} could refer to anything, whether mobile or immobile, objects or rights, reflects the need for legal solutions in cases where transactions or obligations that were structurally or legally ‘monetized’ were handled by instruments other than coins. It does not imply that anything could be used to replace coins at any time if necessary, but that the legal regulations remained the same even when the transacting parties agreed to use other instruments than coins\(^{13}\). Thus, institutionally monetized transactions continue to be monetized transactions even when the actors are forced to use substitute exchange media not enjoying general acceptability or to use credit arrangements.

\textbf{Monetization modes : a model}

Hopkins saw the Roman economy functioning on five intersecting planes: natural economy (moneyless), bronze, silver, gold and credit. In his view the monetary economy was a ‘thin veneer of sophistication spread over and tied to the subsistence economy’. The mass of the population were peasants who ‘produced most of what they consumed and consumed most of what they produced’\(^{14}\). Quantitatively Hopkins is probably right, even though his estimate of 80-90\% may be too high. The ‘veneer-model’ has nevertheless been criticised because it ignores the structural and technological dependence of subsistence production on markets. Peasants working on

\(^{10}\) Tacitus, \textit{Ger.} 5,3-5; Strabo III.3.7; VII.5.5.

\(^{11}\) Chr. Howgego, \textit{op. cit.} [n. 5], p. 19-20.


\(^{13}\) Gaius, III. 124 ; Dig. L. 16, 178 ; 222. See also D.B. Holland, \textit{op. cit.} [n. 1], p. 5-7.

leased plots of land had to pay rents, tools had to be bought on markets, and so forth. Hopkins acknowledges this, but downplays its importance to the point of declaring it irrelevant. De Ligt’s study of peasant markets, clearly showed how these were structurally integrated into the money economy.15

More important for our purposes is that Hopkins’s ‘planes’ view of the Roman money economy, ignores essential aspects of how the Roman monetary system worked. We need a model that expresses the interlocking of institutionalised transaction modes. The model I propose here distinguishes three monetary modes, each divided into submodes.

Firstly the currency mode: This was no doubt the most familiar payment mode and served as the primary mental model for the use of ‘money’ to the Roman mind because coins had a fixed face value in terms of monetary units of value. This is why Roman jurists defined coins as pretium, not merc.16 Within the currency mode, we can distinguish between gold, silver and bronze denominations. Each of these were favoured within specific settings and thus constituted submodes.

Secondly the commodity mode: this relies on the transfer of commodities to extinguish obligations expressed in monetary terms. Within the commodity mode we may distinguish between bullion, which had a historically privileged relation to currency, and other commodities (grain, oil, wine, ...)

Thirdly the account mode: in this mode monetary obligations are extinguished or diminished by transferring or balancing debt claims. ‘Accounts’ here do not presuppose a formalised accounting system, but merely a registration system for debts and credits. The debt notes (nomina) in question are essentially financial instruments, not monetary instruments because they do not enjoy general acceptability as money. However, the account mode provides procedures to use them nevertheless to effect monetized transactions.

Within the account mode, we may again distinguish three submodes: private account (or debt) rationing, internal account rationing and bank account rationing. Private account rationing occurs between social actors that are directly involved in transactions. Thus for instance merchants or trading partners may prefer to ‘balance’ their accounts on a more or less periodical basis. Alternatively, debt claims on a third party may be transferred from one partner to the other.

Internal account rationing occurs within large organisations that are confronted with various obligations between members or constituent parts of the organisation. A good example is the Roman army. Soldiers rarely received their full pay in cash. Rather each soldier had an account with the military administration from which he could draw cash or with which he could make purchases of army supplied goods (cf. infra).

15 L. DE LIGT, op. cit. [n. 12], p. 24-56, p. 33-74. See also Hollander’s concept of ‘monetary zones’ D.B. HOLLANDER, op. cit. [n. 1], p. 87-135.
The most advanced form of account mode is based on bank accounts and giro transfer. This differs from private account rationing because a third institution (the bank) is involved, which offers its services on a commercial, professional basis. Bankers accept deposits with which they handle payment orders. Each depositor has an account which can be indebted or to which new deposits may be added. Account payments and receipts can then be made by the banker on behalf of his clients. By indenting or crediting accounts, payments and loans between clients may handled. These then no longer need to concern themselves with the insecurity involved in assessing each other’s liabilities as in private debt rationing, because only the banker’s liability matters.

Each of the above monetary ‘modes’ provides instruments and procedures to handle monetized transactions. The efficiency of the monetary system as a whole, defined as the number of monetized transactions it can support, depends on the availability of monetary and financial instruments, the flexibility and efficiency of the procedures used and the ease with which one mode may be substituted for another.

Currency

The currency mode was the most ‘basic’ mode to conduct monetized payments in the ancient world. It was based on a purely monetary instrument the acceptance of which was very wide-spread and was legally enforced: coins. The range of available denominations (in the Augustan system from quadrans to aureus) was sufficiently wide to cover any transaction necessary. Local coinages and imitations provided for regional variations.

Despite some broad definitions of pecunia by Roman jurists, there can be little doubt that coinage was to a Roman mind the only form of ‘real’ money. In a very direct way coins were pretium, not merx. Until late Antiquity, when ghost currency denarii communes became the standard for expressing monetary transactions, coinage provided the standard for handling monetary transactions.

The difficulties involved in using the currency mode were mostly of a material nature. In some parts of the empire, particularly in the first century AD, the supply of small(er) denominations was insufficient. This may be surmised from the massive presence in the western provinces of coins that were cut in half and the large numbers of imitations. To what extent these local strategies solved the problem is impossible to know. By and large, however, local emissions (in the east) and government controlled shipments (in the west) seem to have alleviated the problem.

The main problem that may have posed itself has already been noted at the outset of this paper: the clumsiness of coins to make large payments and to transport over longer distances. I will return to the safety aspects later. The clumsiness was real, but should

\(^{17}\) Dig. XVIII, 1, 1, pr. See also Plinius, N.H. XXXIII, 46: is, qui nunc victoriat us appellatur, lege Clodia percussus est; antea enim hic nummus ex Illyrico adventus mercis loco habeatur.
not be exaggerated. The transport and security costs involved in making large payments, were marginal to the sums in question. A supplementary cost of 1,000 sesterces on a payment of 1 million sesterces (more than enough to hire a pack of mules and a well armed escort for several weeks) would have represented an additional cost of only a mere 0.001%. After the introduction of the aureus under Caesar, 1 million sesterces could have been paid by 10,000 aurei weighing a total of c. 79 kg.

Payments of 3.5 million sesterces, as in the case of Cicero’s house, were infrequent and were mostly limited to a small elite group of aristocrats and government officials. The recorded 65 sums in the tablets of the Sulpicii from Puteoli range from 450 to 130,000 sesterces, with a median of 11,000 sesterces. Even the largest sum would require only 1300 aurei weighing slightly over 10 kgs\(^\text{18}\).

The practical difficulties involved in handling large sums in coins were further alleviated by deposit bankers (argentarii, trapezitai), that were ubiquitous throughout the empire. By far most attested payment orders through bankers, imply the handling of cash payments out of deposited sums, or the receipt of payments on behalf of their clients\(^\text{19}\). Whatever else Roman bankers may have done, their contribution to the currency mode of payments cannot be overestimated. Bankers throughout the empire profoundly determined how monetized transactions occurred. Most notably they created the possibility of absentee payments, relieving their clients from the burden involved in hand-to-hand payments.

Herodes Atticus used accounts with professional bankers to pay the legacy his father had bequeathed to each Athenian citizen, deducting their outstanding debts to him from the 5 minae they received from the bequest. The case does not imply that Herodes Atticus previously had deposit accounts with these bankers as Harris believes, but documents the use of deposit bankers to assist in a huge cash payment operation\(^\text{20}\).

Thus, the contribution of deposit bankers to the monetary system as an economic structure itself may be related to the abundance of metallic currency and the practical difficulties involved in handling large currency payments. Deposit bankers changed the conditions under which the currency supply could be used. Presumably, many ‘bank accounts’ originated from payment orders that for various reasons remained temporarily ‘uncollected’. We will return to the possible other uses of these accounts later.

‘Coined money’ (pecunia numerata) enjoyed some preference even as medium for wealth storage. Galba is said by Suetonius always to have travelled with a coach

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carrying one million sesterces in gold, no doubt guarded by an armed escort. When Cicero considered buying horti in 45 BC, he informed Atticus that he had 600,000 sesterces in cash. Pliny the Younger is often cited as a senator whose fortune consisted partly in credit bonds. But the letter in question deals with the purchase of an estate, for which Pliny needed 3 million sesterces. Although he admits having invested almost his entire fortune in land and the rest (‘a little bit’) in interest bearing loans, he is confident that he can use his mother-in-law’s cash-box (arca) as his own. The implication is that this lady held huge cash reserves.

Duncan Jones estimated the total coinage supply around the middle of the second century at c. 21,000 million sesterces, of which 12,000 million in gold, 7,000 in silver and 2,000 million in bronze. Hopkins guestimated GDP as probably less than 18,000 million sesterces. Using these figures as starting points Wim Jongman argued that the Roman coinage supply in the early Empire was extremely high compared to the Empire’s GDP, possibly even larger that the latter.

I am very sceptical of these guestimates. At the very least notional error margins of 50% should be added. Nevertheless, no matter how faulty the actual figures may be, two general conclusions remain standing: The Roman coinage supply in the early Empire was abundant and most of this (probably over 50%) was in aurei.

The abundance of high value gold coinage may explain why the use of gold bullion as money is – for the high empire – hardly documented. Currency was in abundant supply mainly because so many aurei were minted during the civil wars and (to judge by stray finds) in the first century AD. However, the importance of the imperial gold coinage is also illuminating for the Republican monetary system, when no gold was minted.

21 Suetonius, Gal. 8
22 Cicero, Att. XII, 25, 1 : Unde ergo numerato? HS DC (milia) exprimes ab Hermogene, cum praesertim nesseset erit; et domi video esse HS DC (milia). Reliquiae pecuniae vel usuram Silio pendemus, dum a Faberio vel [cum] aliquo qui Faberio debet repraesentabimus. Approximately 600 kgs of silver denarii or 48 kg of (Caesarian) gold aurei.
23 Plinius, Ep. III, 19, 8. Note that aliquid tamen fenero might hint at payment through delegatio (see infra).
24 R. P. DUNCAN JONES, op. cit. [n. 5], p. 225-228.
25 K. HOPKINS, op. cit. [n. 5], p. 118-120; K. HOPKINS, op. cit. [n. 14], p. 197-203.
26 W. JONGMAN, A golden age. Death, money supply and social succession in the Roman Empire, in E. LO CASCIO (ed.), Credito e moneta nel mondo romano (Incontri capresi di storia dell’economia antica, Capri 2000), Bari, 2003, p. 185-187. Jongman notes that the money supply of the Dutch Republic in 17-18th c. may have exceeded half its GDP, but this is not a very sensible comparison because the Dutch Republic was the single most urbanized and economically developed part of Europe, whereas the Roman Empire comprised both advanced and ‘primitive’ regions.
27 Note for instance that using subsistence minima to estimate GDP is problematic because GDP reflects added values realised in economic transactions.
28 Note that today far more coins are unearthed from the Roman period than from late medieval or early modern times.
low, but even under the most optimistic estimates, it cannot be more than doubled credibly and it is unlikely to have increased much under the Julio-Claudians since hoard evidence indicates that approximately half of the silver money stock when Vespasian came to power still consisted of old Republican *denarii*. So this leaves us with an order of magnitude of about 2,000–3,500 million sesterces in silver coin. Taxes in the fifties BC would have yielded 340 million sesterces, Caesar alone is said to have accumulated debts up to 20 million sesterces, Q. Considius had 15 million sesterces outstanding, Cicero’s house on the Palatine cost 3.5 million sesterces ... Clearly, the stock of silver coins alone cannot have been enough to supply enough money to handle monetized transactions. In the imperial period gold currency provided the solution, in the republican period gold bullion probably fulfilled the same role.

We must turn now to the question of how robust currency was as ‘general purpose money’. Could any denomination be used in any transaction? What were the transaction costs involved in changing denominations? How easily could currency be changed for bullion and vice versa?

In theory all currency denominations in the Principate were inter-connected at legally fixed rates. One *aureus* equalled 25 *denarii*, or 100 sesterces, or 400 asses and so forth. Although the 3rd century currency crisis clearly put great strains on the system, and may have shattered official rates in practice, the fixed relation between gold, silver and other denominations was given up only in late Antiquity. However, this fixed relationship was not so fixed. Gold, silver and bronze denominations each had their own transaction spheres and although in theory payments could be made in any denomination, the choice was not altogether free.

In Asia the *denarius* was officially valued as 16 *assaria*. However, in Pergamon exchange bankers were licensed by the city in exchange for a commission fee on their profits, to buy *denarii* for 17 *assaria* and sell them for 18. A conflict arose when the bankers, in collaboration with the *agoranomoi*, began charging a fictitious *agio* on sales of fish paid in *denarii*. Hadrian eventually intervened prohibiting the exchange bankers

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30 K. Verboven, *op. cit.* [n. 5] : K. Verboven, *Caritas nummorum. Deflation in the late Roman republic?*, in *MBAHG* 16, 1997, p. 66. R.P. Duncan Jones, *op. cit.* [n. 5], p. 196-206; K. Hopkins, *op. cit.* [n. 5], p. 108-110; K. Hopkins, *op. cit.* [n. 14], p. 225-228. Strictly speaking Hopkins’ figures include gold coinage, but this was marginal before Caesar began minting the *aureus*. My own calculation using the same data and parameters from Crawford’s *Roman republican coinage* work out at a total of approximately 4,000-6,000 million sesterces (resp. annual using loss rate of 0.5 – 2%) in gold and silver currency in 30 BC. But it is better not to push these figures because we lack sufficient hoard data on *aurei* to support the die estimates and because it is likely that average output per die in the case of (soft) gold depended more on the supply of gold than on the wastage rate of the dies. A notional 5,000 million +/- 50% is in my view the safest estimate for the triumviral period, A notional 10,000 million +/- 50% may be a good guess for the Flavian period, after 100 years of Julio-Claudian gold minting and the addition of the Dalmatian mines. A notional 15,000 million +/- 50% for the mid 2nd century, to account for Dacian war booty and subsequent gold mining in that region. The stress each time should be on notional and +/- 50%.


32 *IGRR* IV, 915 (= Melville Jones 374) (Cibyra, AD 74); *IG XII*,5 no. 659 ; 663 ; 664 ; 665 (Syros).
to charge the agio, but decreed that sales of small fish – even in bulk – had to be paid in assaria, which the dealers could then exchange at the rate of 17 assaria for a denarius.\(^{33}\)

An inscription from Ephesus recording an endowment considered the denarius as the equivalent of 18 assaria and made a special provision if the exchange commission (kollubos) would rise. Presumably the endowment was established in denarii, but the handouts were to be paid in assaria.\(^{34}\)

A writing tablet from Alburnus Maior in Dacia, from 167 CE, implies an exchange rate of 20 asses for a denarius, while another implies the existence of a denomination or combination of denominations valued as 1/24 of a denarius.\(^{35}\)

Under the Ptolemies in Egypt surcharges were customary when payments expressed in silver were made in bronze, or payments expressed in gold were made in silver.\(^{36}\) According to the Gnomon of the Idios Logos it was illegal under Roman rule to change ‘a coin ... for more than it is worth in small change’.\(^{37}\) But papyri show that the tetradrachm circulated at rates fluctuating between 24 to 30 bronze obols, while in official transactions a rate of 28 to 30 was customary.\(^{38}\) The nominal value of the aureus was 100 Egyptian drachmae. But a papyrus dating to c. 108 CE notes that the aureus (chrysous) was sold for 11 (silver) drachmae, whereas it used be sold for 15 (silver) drachmae.\(^{39}\)

Scaevola discusses the case of a banker acknowledging to his client that he owed him 380,000 sesterces plus interest and a separate sum in aurei (summa aureorum)

\(^{33}\) OGIS 484 (= Melville Jones 579); cf. R. BOGAERT, op. cit. [n. 20], p. 231-234.

\(^{34}\) Ancient Greek inscriptions in the British Museum, III, 481, ll. 144-148; (and commentary Newton ibid., p. 138, 141)

\(^{35}\) CIL III, p. 950 (p 1058, 2215) (= FIRA III, p. 481-482, no. 157); CIL III, p. 953 (p. 1058) See M. H. Crawford, op. cit. [n. 12], p. 43.


which would be returned without interest. Apparently the banker kept separate accounts for sums in gold and sums in _aes_ or silver⁴⁰.

Paulus asserts that a creditor could not be forced to accept payment in a different ‘form’ of coins if this would be to his detriment. Wolters believes this refers to ‘Provinzialprägungen’. However, Paulus’ is clearly speaking of coins enjoying ‘legal tender’ and it seems unlikely that provincial emissions enjoyed such legal tender empire wide. Whatever the coins Paulus is thinking of, his view implies a difference between face value and exchange value⁴¹.

_Aurei_ were not only more convenient to make large payments, they were also more prestigious⁴². The patrons and _quinquennales perpetui_ of the corporation of fishermen and divers in Rome, received one _aureus_ each at a handout in the early 3rd century. Common magistrates in charge received the formal equivalent of 25 _denarii_⁴³. Claudia Paulinus, governor of Britain in AD 220 honoured his protégé Sennius Sollemnis by paying his salary in gold – a fact which was duly recorded on the inscription set up in his honour⁴⁴.

These few examples – which could be expanded – illustrate how monetized transactions conducted in the currency mode were subject to constraints concerning the preferred metal in which the transaction should be handled. This preference could stem from various reasons, ranging from a purely practical nature (gold is easier to transport, copper to buy a loaf of bread), to status reasons. It did not preclude payment in another metal, but was real enough to provide a ‘market’ for inter-currency exchanges and justified demanding surcharges.

I have argued elsewhere how the success of the Augustan currency system, which successfully integrated coins in various metals from fiduciary bronze to high value gold, was thanks to the tension-buffering capacity of inter-currency commissions and premiums that allowed fluctuations in the demand and supply of denominations in various metals to be smoothed out⁴⁵.

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⁴¹ _Dig._ XLVI, 3, 99. Note that _aliam formam_ covers more than merely the metal (weight and/or purity) of the coins (contra M. H. CRAWFORD, _Finance, coinage and money from the Severans to Constantine_, in _ANRW_ 2.2, 1975, p. 566) ; R. WOLTERS, _Nummi Signati. Untersuchungen zur römischen Münzprägung und Geldwirtschaft_, München, 1999, p. 359.


⁴⁵ K. VERBOVEN, _op. cit._ [n. 31].
The Augustan system held out surprisingly long. It gradually eroded after the Severan era, but it took quite a long time before the currency crisis turned into a monetary crisis. The main event of the third century currency crisis was probably not the devaluation of the silver money (although of course the effects of this should not be underestimated), but the gradual brake-away of the gold coinage from the currency system. Presumably, inter-currency premiums and surcharges first increased, then as gold coin weight standards became more erratic, exchange premiums and surcharges themselves were linked to the weight of individual gold coins used. Gold currency gradually degraded back into bullion although its link with imperial authority may have ensured its special status. The degradation of the gold coinage was reversed by Diocletian and Constantine, but in the currency system which emerged in the fourth century its relation to silver and bronze coinage was fundamentally altered.

**Commodity mode**

The instruments used in commodity mode payments are (obviously) commodities; objects for which there exists an independent demand not derived from their potential use as media of exchange, such as raw materials (iron, bullion, hides, ...), articles of consumption (grain, wine, ...), ostentatious display (jewellery, precious metal objects, ...), utensils and tools (spits, cauldrons, knives, spades, arrow heads ...), and so forth.

Although commodities never originate as monetary instruments, they can acquire monetary features if their acceptability in handling monetized transactions\(^{46}\) becomes common and socially prescribed. When this happens ‘commodity money’ comes into existence. Historically this may be observed in a wide variety of cultures and epoch, among which most notably the ancient Near East and Egypt, and the dark age Greek world.

In some cases the *monetary* nature of commodity money ultimately prevailed upon its *commodity* nature. This is clearly visible for instance in Chinese ‘spade’ and ‘knife’ money from the Warring States Period (5\(^{th}\) c. – 221 BC) which is shaped like knives and spades, but cannot be used as such\(^{47}\). Similarly, iron spits (*obeloi*) from dark age and archaic Greece, seem to have been produced from deliberately inferior iron\(^{48}\). For our purposes, it should be noted that in this view (my view) ‘monetization’ first occurs in the emergence of new social relations when transactions become institutionally monetized. The monetization of commodities is a response to these changes in the structure of social relations.

How routinely were commodities used to handle monetized transactions in the Roman world? Before answering this question we should realise that ‘deep

\(^{46}\) That is transactions in which values and obligations are expressed in quantities of reference commodities or (in some cases) money *stricto sensu*, cf. infra for the use of bullion.


monetization’ does not imply full monetization. Deep monetization refers to the institutionalisation of money in social fields that are structurally important for the social system. It does not imply that all societal contexts required exchanges to be structured through money.

No pre-industrial economy ever came near to being fully monetized. Gift exchange, command economics and redistribution remained important structuring principles that governed the flow of resources in ancient and other pre-industrial societies. Money maybe drawn into gift-exchange practices (as gifts and free loans) and command and redistribution systems, but the presence of money as such does not imply that transactions were monetized. Thus for instance the large number of Roman Republican denarii found in hoards in Romania does not imply that the indigenous economy there was monetized⁴⁹.

Although monetized transactions may in some cases be handled in kind rather than by currency or account practices, not every transaction in kind is a hidden monetized transaction. Barter is a clumsy way of doing business, but the line between gift-exchange (based on ideally enduring personal relations) and tit-for-tat barter transactions (based on reciprocal wants) is not clear cut. Sahlin’s distinction between generalised reciprocity, balanced reciprocity and negative reciprocity is worth keeping in mind here⁵⁰. In small face-to-face communities informal barter (swapping things) no doubt occurred side by side with gift-exchange, whereas gift exchanges between unrelated groups may be little more than disguised barter transactions⁵¹.

Roman jurists long discussed the difference or similarity between barter (permutatio) and purchase (emptio venditio). By the late 2nd c. AD the restrictive view prevailed which strictly separated permutatio (barter) from emptio venditio⁵². However, this discussion mainly served legal purposes. Emptio venditio was a legally binding consensual contract. If a transaction in kind qualified as a purchase, then it was subject to the legal rules regulating emptio venditio.

There is little doubt that in the Roman World of the late Republic and early Empire commodities played an accessory, but important role in various payments (sales, wages, rents, ...) and wealth storage. Grain in particular was a common tax-payment medium and was often given as rations or as supplement to a wage in money. In Egypt its use for wealth storage is recorded⁵³.

⁵¹ Cf. the Carthaginian trade on Africa described by Herodotus, IV, 197.
⁵³ On grain and other commodities as ‘means of payment’ see CHR. HOWGEGO, op. cit. [n. 5], p. 22-29 ; D.B. HOLLANDER, op. cit. [n. 1], p. 59-75.
Does the use of kind imply a ‘brake on the level of monetization’ as Howgego believes, or are commodities simply alternative instruments to handle monetized transactions? If they do belong to a different ‘transactional order’, how is this related to monetized transactions? Is there an articulation of monetary transactions modes with non-monetary transaction modes (gift-exchange, barter, taxes and retributions in kind, ...)?

Von Reden argued that in Ptolemaic Egypt grain served as a substitute for coinage to compensate the scarcity of metals. The use of grain as a monetary medium was much older in Egypt than the introduction of coinage by Alexander and the first Ptolemies. But whatever the prehistory of grain as a standard of value and medium of exchange, under the Ptolemies it was integrated into a coherent monetized system that hinged upon metal coinage⁵⁴. Under Roman rule monetization progressed and the role of currency seems to have increased, but the use of commodities to handle transactions was never wholly abandoned. Egyptian banks are recorded holding deposits and making ‘payments’ in kind and the absence of similar attestations elsewhere for Roman argentarii is probably due to the nature of our source material⁵⁵.

Clearly, the Roman empire was not fully monetized. Taxes could be levied in money or in kind, but particularly since the third century AD they could also be expressed in kind and paid in money (adaeratio). Adaeratio does not indicate a return to a non-monetised economy, since contrary the system presupposes that the value of products could routinely be expressed in monetary terms⁶. Nevertheless, taxes (expressed) in kind are fundamentally non-monetary obligations. The practice of adaeratio shows a concern to provide an easy transfer mode to change from payments in kind to payment in money. It shows that the institution of taxes in kind was itself linked to the monetized economy and thus that the imperial fiscal system was both flexible and coherent, but it does not support the claim that the imperial fiscal system was essentially a monetary system.

To interpret grain and similar commodities used for tax payments and other transactions as ‘commodity money’ is misleading. Obviously commodities like grain were used in ways that limited the need for (other) monetary instruments, but they are rarely attested as monetary instruments themselves of which the acceptance could be

⁵⁴ S. VON REDEN, op. cit. [n. 36], p. 73 : ‘The relative scarcity of precious-metal coinage on the one hand and the attempt of the state to promote monetization ideologically and practically prompted a variety of strategies to create money beyond the available supply of precious metals. One was the introduction of a bronze coinage as a medium of payment, another the use of grain as a store of wealth. Beyond these strategies a large number of credit operations were deployed whose major function seems to have been to compensate for the scarcity of coinage and to increase its speed of circulation’. See also S. VON REDEN, op. cit. [n. 19].


taken for granted. Those on the receiving end could not rely on the possibility of using the grain or other commodities to make payments and discharge obligations. Grain or other commodities were never used as a standard of value. Monetized transactions in the Roman World were as a rule expressed in currency units even though by late Antiquity this had become a ‘ghost currency’ (the *denarius communis*)\(^{57}\).

We should clearly distinguish between ‘commodity money’ as a monetary instrument on the one hand and the transfer of movables or property as a procedure to extinguish monetary obligations on the other hand. The latter was known in Roman law (and still is in modern law) as *datio in solutum*. This was a legally recognized and binding procedure to extinguish monetary obligations and could therefore be used to support monetized transactions\(^{58}\). *Datium in solutum* clearly contributed to upholding the monetary structure of the Roman economy, but to describe the goods used in such procedures as ‘commodity money’ is to ignore the most fundamental characteristic of any monetary instrument, namely its general and socially prescribed acceptability as money. *Datium in solutum* depended on the agreement of parties involved. No creditor could be forced to accept payment in kind, no debtor could be forced to pay in kind.

The most spectacular, but also atypical, instance of *datio in solutum* as a procedure to extinguish monetary obligations is the *aestimatio* decree which Julius Caesar issued in 49 BC. Although the details of the decree are not known, it appears that a debtor could apply to the *praetor* (or governor in the provinces) for a permission to pay off his debts by a transfer of property at pre-war prices. If the *praetor* agreed, the creditor was obliged to accept the transfer at the estimated pre-war value\(^{59}\).

Caesar’s *aestimatio* decree and the resulting payments in kind, are exceptional measures. We simply don’t know how common payments by *aestimatio* were in ordinary times. An off-hand remark of Cicero concerning the payment *numeratio* (in cash) or *aestimatione* (in kind) of *horti* he wanted to buy suggests that it was an acceptable option – even though Cicero preferred to pay cash. But the case also shows that it was up to the vendor (or creditor ?) to decide\(^{60}\).

Although there is plenty of proof that transactions in kind were a familiar feature throughout the Roman empire, there is very little to suggest that monetized transactions could routinely be handled by using kind as was once suggested by Pekáry\(^{61}\). Of course

\(^{57}\) Cf. W.V. Harris, *op. cit.* [n. 2], p. 196; Chr. Howgego, *op. cit.* [n. 5], p. 30-31.


money could be raised by pledging property or possessions, or if necessary by selling, but the purpose in that case is to obtain coins and thus to resort to the currency mode. Transactions in kind (whether as barter, gift-exchange, wage rations, ...) were in most cases structurally different from monetized transactions. Accordingly, the commodity mode for handling monetized transactions remained a marginal phenomenon.

To this conclusion, however, we must note a major exception, viz. bullion. The role of bullion is more complicated. Gold, silver and copper had served as monetary instruments since the 3rd millennium BC. The oldest institutionally monetized transactions known relied on gold, silver and copper, as standards of value and exchange media. Coinage derived from this practice in the late 7th c. BC. In many parts of the eastern Mediterranean and the Near and Middle East the practice continued for many more centuries. Although historically unrelated, Italian monetary history as well began with uncoined bronze (aes rude).

The role of uncoined gold and (to a lesser extent) silver as wealth storage devices is abundantly documented. In the late Republic, the Roman treasury kept large amounts of gold, probably in the form of ingots or foreign coins. Private persons too were in the habit of keeping much of their wealth in uncoined gold and silver, sometimes in ingots, but mostly in the form of plate or jewellery.

Gold and silver objects were commonly stored together with coins in locked cupboards (armaria). Cicero describes how the slave doctor Strato stole some money and five pounds of gold from an armarium of his mistress Sassia. Only three out of 205 late Republican coin hoards from Italy contained gold bars and/or jewellery, only one contained a silver bar and one silver ornaments, but this may well be a coincidence.

The question whether bullion could be brought to the Mint to sell or to commission it to be coined has been extensively debated, but the lack of any clear evidence of this practice makes it doubtful that such procedures were common or standard practice.

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64 Plinius, N.H. XXXIII, 55-56 ; Suetonius, Iul. 54, 3 ; Orosius VI, 15, 5.
66 Cicero, Clu. 179. See J. Andreau, op. cit. [n. 65] for archaeological examples.
Like any valuable asset, precious metal objects and ingots could be sold. Prices no doubt fluctuated but in view of the fact that currency itself primarily consisted of precious metals, these fluctuations could be expected to remain limited. The value of gold and silver objects moreover was highly uniform. It was commonly expressed by weight, not in sesterces or denarii. This indicates that the costs of making the objects were small compared to the value of the material. It also indicates that the market value of – and therefore the demand for – the objects was primarily determined by their substance, not their function. A gold spoon or goblet was bought because it was gold, not because it was a spoon or a goblet. In addition to being easily and uniformly valued, precious metal objects were easy to store, easy to transport, imperishable, sanctioned by tradition, and last but not least prestigious. In view of all this, it easy to understand why gold and silver enjoyed status as preferential commodities over and above other assets.

Lo Cascio argued that the primary role of gold as a wealth storage device, lay in its use as security for loans. Ulpian discusses the case of a creditor who gave his debtor a gold bowl or ingot to sell and use the coins. If the sale was concluded a monetary loan was established. The passage illustrates how gold could be easily although not automatically transferred into a monetary debt. The case reminds us of the anecdote told by Plutarch about Antonius Creticus, who would have given a silver bowl to a friend who needed money. Another passage in the Digest mentions the deposit of 10 pounds and two discs of gold in a sealed bag, which were apparently intended to guarantee or pay debts. A tablet from the archive of the Sulpicii from Puteoli records a loan of 5000 sesterces guaranteed by over 10 pounds of silver in a sealed bag.

Clearly, gold and silver bullion could easily be used to raise cash, by selling or pledging, perhaps even having it coined at the Mint. But, this again is leading us back to the currency mode. Was gold or silver bullion also used directly as exchange media?

For the Republic there is a wide consensus that gold bullion was used for large payments and that both gold and silver plate and bullion served as money in crisis.
situations. Caelius is said to have borrowed gold from his mistress Clodia. The way in which Cicero presents the case implies that it was used directly for payments without first selling or pledging it. Rabirius Postumus gave gold to his friend Cicero when the latter had to flee Italy. Lucilius refers to a quaestor paying out gold. An interesting passage in a letter from Cicero to Atticus refers to gold being used in a large transaction on which an exchange-commission (kollubos) had to be paid.

Legislation regarding monetary questions often associates uncoined gold and coinage. The lex Cornelia de falsis applied both to forgery of coins and uncoined gold. The decree that Caesar issued in 49 BC against hoarding forbade anyone to hold more than 60,000 sesterces in coinage or gold bullion. The senatorial decree of 63 BC prohibiting the export of gold or silver clearly targeted both coins and bullion.

When the senate forbade the export of gold and silver in 63 BC, Cicero ordered his quaestor to go to Puteoli to enforce the decision. The implication is that merchants used uncoined gold to balance their affairs. It should be noted, however, that the use of gold bullion or plate to balance a trade sheet, does not imply that the gold in question was subsequently used as money rather sold for money. It has recently been observed, that shipwrecks rarely yield substantial amounts of gold, arguing against the use of gold bullion by traders.

For the early Empire, however, there is little reason to assume that gold or silver bullion (or plate) was still commonly used to handle monetized transactions. The abundance of aurei and the ubiquity of deposit and exchange bankers offered practical alternatives. Of course, this does not mean that bullion was not occasionally used, for instance to effect a datio in solutum. Gold and silver plate certainly remained highly favoured items for wealth storage, that could be easily be sold or pledged to raise cash when necessary. But whereas under the Republic uncoined gold had served as a strong monetary instrument, enjoying wide and socially prescribed acceptability, the introduction of the aureus effectively outstripped uncoined gold from its monetary aspects. As we noted before, this situation lasted until the 3rd century currency crisis broke away gold coin from the rest of the currency system.

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76 Cicero, Cael. 30-31.
77 Cicero, Rab. Post. 47.
78 Lucilius, Sat. 12.
79 Cicero, Att. XII,6,1; see D.B. Hollander, op. cit. [n. 1], p. 22 for the suggestion that the transaction involved foreign (hellenistic) gold coins.
80 Dig. XLVIII, 10, 9 Lege Cornelia cauetur, ut, qui in aurum uitii quid addiderit, qui argenteos nummos adulterinos flaverit, falsi crimine teneri.
81 Dio XLII, 38, 1. See K. Verboven, op. cit.[n. 5], p. 52; M.W. Frederiksen, op. cit. [n. 59].
82 Cicero, Vat. 12
83 Cicero, Vat. 12.
**Account mode**

The account mode of handling monetized transactions is based on the transfer of debt claims to extinguish obligations expressed in monetary terms. The practice is much older than coinage and may lie at the origin of money itself. It is clearly attested already in the old Babylonian period in the 20th c. BC. The instruments used in the account mode are registrations of debts. Underlying the account mode (but not synonymous with it), therefore, are credit arrangements.

Credit is extremely important for a monetized economy to work smoothly. It allows the handling of monetized transactions in the absence of currency or bullion by introducing a time lag between the receipt and the final settlement. This can take on two forms: The supplying party may accept a delay of payment by the receiving party ("sale credit") or the receiving party may turn to a third party (person or institution) to borrow the money. The supplying party is then paid immediately, but the receiving party will have to pay back the third party creditor at a later date. In both cases (sale credit and third party credit) an interest fee may be charged, but this is not always the case.

Monetization and increased debt rates tend to go hand in hand. Thus, for instance, Hollander recently argued that the Catilarian crisis was caused in part by increased monetization of the Italian countryside. The reason for this is not just that new consumption patterns emerge (they do), but mainly that exchanges which had until then been conducted on the basis of gift-exchange or share-cropping, are restructured into monetized transaction. Social actors involved in these transactions must get the where-with-all to pay, in which they are not always successful.

Debit/credit notes in themselves are not money, they attest procedures to conduct monetized transactions when money (coinage, bullion) is temporarily absent or insufficient. By doing so credit allows an optimal use of an existing stock of money (currency and/or commodity money). In terms of monetary theory it increases the "velocity of circulation of money", by reducing the amount of money lying idle.

Debt claims resemble money in the sense that they signify rights to future goods or services, but differ from money *sensu stricto* because the rights/claims they attest cannot be transferred freely. The crucial feature of money we distinguished at the outset, viz. its socially institutionalised acceptability is lacking. Whereas money is the

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87 Cf. K. VERBOVEN, op. cit.[n. 5] ; K. VERBOVEN, op. cit [n. 30]; HOWGEGO, op. cit. [n. 5], p. 29. For his view on the role of credit see *ibid.* p. 3, 13.
anonymous embodiment of unspecified rights, debt notes merely represent specified claims on specified persons or organisations.

This restriction, however, is not absolute. Throughout history various procedures have been developed to make debt claims transmissible, culminating in modern anonymous debt bonds. When these procedures become simplified and commonly used debt notes may acquire a large degree of acceptability making them ever more money-like. The borderline between financial instruments and monetary instruments then becomes blurry. This is what happened in the case of bank notes which emerged as anonymous transmissible debt notes but evolved into a particular form of currency protected by legal tender laws.

Roman law did not allow impersonal debts. Therefore debt notes (nomina) could not circulate anonymously and were unsuited to function as money. However, presumably already in the second century BC, Roman law devised ways to transfer debts, by defining so-called nomina transcripticia as constituting legally enforceable obligations (obligationes litteris). These were essentially forms of book credit consisting of a record in the creditor’s accounts. Legally, nomina transcripticia constituted a ‘renewal’ of debt(s) (novatio) that extinguished the previous debts. The procedure allowed various solutions to simplify or execute payments. For instance it allowed business partners to ‘balance’ their accounts, by writing off reciprocal obligations and recording the remainder as a new debt.

Nomina transcripticia could be used to formalize the transfer of debts through delegatio debitoris. This was an arrangement by which a debtor A (the delegans) ordered a debtor of his own B (the delegatus) to repay his debt by paying a third party C (cui delegatum). Delegatio was considered as a valid payment which discharged the delegans (debtor A) of his obligations, even if it later turned out that the delegatus (debtor B) was insolvent. Nomina transcripticia were not strictly required, but formalized delegationes by creating a new debt between the delegatus and the cui delegatum.

Apart from payment, delegationes could also be used to organise permutationes. These were arrangements to transfer funds over long distances, that basically consisted

88 Gaius II, 127-130; Dig. XLVI, 2, 11. Cf. M. KASER, op. cit. [n. 52], p. 453-455; for an in depth study see R.M. THILLO, Der Codex accepti et expensi im Römischen Recht. Ein Beitrag zur Litteralobligation, Göttingen, 1980. See also here for Roman accounting, on which also G. MINAUD, La comptabilité à Rome, Lausanne, 2005 (p. 127-128 for the obligatio litteris).

89 Note however that Roman law explicitly recognized compensatio, so balancing accounts through nomina transcripticia was not legally required, see M. KASER, op. cit. [n. 52], p. 539-541.


91 Cf. Dig. XVII, 1, 26, 2; XLVI, 3, 56; L, 17, 180.
of an ‘exchange of nomina’.\(^{92}\) Permutatio usually involved three persons: a creditor, being in one location X (for instance Rome), a debtor in a distant location Y (for instance Alexandria) and a third party who needed (for whichever reason) to transfer funds from X (Rome) to Y (Alexandria). The creditor (the delegans) could use a delegatio to order his debtor (the delegatus) to pay his debt to the third party or his agents in location B (Alexandria). In some cases only two persons were involved, for instance when the permutator owned property or had interests in both places. Thus Atticus arranged a permutatio for Cicero in Rome by ordering his agent in Ephesus to pay Cicero a sum when he arrived there.\(^{93}\)

Delegatio depended in principle on the consent of the delegatus (debtor B), but this could be circumvented by appointing creditor C (cui delegatum) as procurator (in rem suam) for recovering the debt in the name of his initial debtor A (the delegans). Creditor C was then able to summon and if necessary to sue his new debtor B (the delegatus), formally on behalf of the delegans (debtor A), but in fact on his own behalf.\(^{94}\)

The solution was far from perfect, because if the delegatus (debtor B) decided to pay his debt to the delegans (debtor A), the debt was extinguished while creditor C had already lost his original claim on the delegans (debtor A). This could be avoided by a conditional stipulatio that made the delegans and his heirs liable if the delegatus paid the debt to his original debtor.\(^{95}\) But if the delegans was not financially sound or trustworthy (which may have been the reason why he decided to resort to delegatio debitoris in the first place) creditor C continued to bear the full risk of the debt. Moreover, if the delegans (debtor A) died before the debt was paid, the appointment of creditor C to procurator in rem suam became invalid.\(^{96}\) Vice versa, if creditor C died, the heirs of the creditor did not inherit the appointment to procurator in rem suam. Last but not least, creditor C could not himself delegate the debt claim further because he was not its formal creditor. So delegatio debitoris supported only a single transfer.

Nomina transcripticia offered a solution to these problems. Both A’s debt to C and B’s debt to A were cancelled by the establishment of a nomen transcripticum recording B’s new debt to C, which in turn could be subject to a delegatio. However, nomina transcripticia required the formal consent of all parties involved.

Delegationes, therefore, were never freely transferable titles to goods and services. When Cicero’s son was studying in Athens, Cicero turned to Atticus for advice: should young Cicero carry the money with him to Athens or could a permutatio be arranged


\(^{93}\) Cicero, Att. V, 13,3 ; 15, 2; cf. K. VERBOVEN, op. cit. [n. 90], p. 138-139. See here for other examples.

\(^{94}\) M. KASER, op. cit. [n. 52], p. 545-548 ; A. BERGER, op. cit. [n. 58], p. 387.

\(^{95}\) M. KASER, op. cit. [n. 52], p. 546-547.

\(^{96}\) Cf. A. BERGER, op. cit. [n. 58], p. 387 (s.v. ‘Cessio’)
with someone in Athens? Atticus managed to arrange a *permutatio* through an Athenian friend, Xeno, who agreed to pay out the money in instalments. It is interesting to note that carrying the money along was considered a possible option at all, despite Atticus’s excellent contacts in Athens. Hardly a year later, it appeared that Xeno had been negligent in providing Cicero jr. with enough money and Cicero had to ask Atticus to intervene.\(^{97}\)

*Delegationes* always appear to have required preliminary negotiations and agreements. They could never be taken for granted. Consequently to consider them as ‘credit money’, as Mrozek and others scholars do, is misleading.\(^{98}\) They remained financial instruments, not monetary instruments.

Nevertheless, neither should we exaggerate the difficulties involved. The transaction costs involved may have been relatively high, but could be reduced by establishing relations of mutual trust between the parties involved\(^{99}\). *Delegationes* required networks of trust and co-operation to function. Provided these were in place *delegationes* were effective procedures to handle monetized transactions. The procedures needed to arrange *delegationes* and *nomina transcripticia* became quite common.

By the late Republic *nomina* could even be sold. Cicero considered selling a *nomen* to a certain Vettienus at half its nominal value.\(^{100}\) Ulpianus compares the bequest of a debt to the sale of a debt to prove the validity of the former.\(^{101}\) There can be no doubt therefore that *delegationes* and *nomina transcripticia* supported the deep monetization of Roman society.

Various legal technicalities were involved in the above procedures, but they all hinged on manipulating debit and credit items (*nomina*) in account books. Such ‘private debt management’ was a corner stone of the Roman financial and monetary system. Between large households and regular business partners, credit exchanges were as common in the Roman world as they were in pre-industrial Europe and its Colonies.\(^{102}\)

The mechanisms available to sell or otherwise ‘activate’ *nomina* explain the ease with which Roman aristocrats contracted debts and invested in loans. The basic

\(^{97}\) Cicero, *Att. XII*, 24, 1 (quaero, quod illi opus erit Athenis permutarine possit an ipsi ferendum sit); 27, 2; 32, 2; XIII, 37, 1; XIV, 16, 4; XV, 15, 4; 17, 2; XVI, 1, 5. Cf. K. Verboven, *op. cit.* [n. 90], p. 139.


\(^{101}\) Dig. XXX, 1, 44, 5 : *Eum, qui chirographum legat, debitum legare, non solum tabulas argumento est uenditio: nam cum chirographa ueneunt, nomen uenisse uidetur.*

principle was that of *concurratio nominis*: to make sure that debts and credits evened out. It was inevitable that debts owed sometimes became due before claims held could be recovered. *Delegationes* or selling of claims then provided ways to avoid having to contract new debts (*versurae*) at unfavourable terms. In 44 BC Cicero ran into difficulties because – for some reason – his *concurratio nominis* had failed. Atticus’s help was called for, who had to find an emergency loan of 200,000 sesterces for a period of 5 months, until another debt to Cicero would become due.

Closely related to private debt management are credit sales. They are extremely common in pre-industrial economies and often take place informally for various down to earth reasons. In early modern Europe daily purchases were commonly conducted on a short-term credit basis (the tally-stick) and paid at more or less regular intervals. It allowed customers to delay payment until they had income and it avoided unnecessary strains on the supply of small change. For large payments, vendors always had to wait for the physical delivery of the purchase sum. If the money had to come from the estates of the purchaser (or vice versa from his urban residence), time lags of a few days to a few weeks were inevitable. Significantly the second century jurist Pomponius wrote that an object sold became the buyer’s property as soon as the price was paid or the vendor had agreed to receive payment later.

The nature of our evidence for the ancient world makes it difficult to find instances of day-to-day customer credits, but they are implicit in Egyptian papyri and we may be fairly sure that they occurred also elsewhere. The abundance of gold and to a lesser extent silver, may have reduced the need for credit sales somewhat, but small change was often in short supply, as may be surmised from the various ‘ad hoc’ solutions we can observe in the numismatic material, such as cutting coins in half, minting imitations and stamping countermarks.

For large payments sale credit is well documented. When Cicero bought a roadhouse (*deversorium*) from a certain Canuleius in 49 BC through mediation from the *argentarius* (?) Vettienus, the latter notified him that the sale was completed and payment was due in seven months. When the Roman knight C. Canius bought a property on Sicily the affair is succinctly presented by Cicero as: ‘He bought it … it was noted in the accounts, the deal was struck’.

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104 Cicero, *Att.* XV, 15, 3 ; 17, 2 ; 20, 4.
105 Dig. XVIII, 1, 19 : *Pomponius libro trigensimo primo ad Quintum Mucium. Quod uendidi non aliter fit accipientis, quam si aut pretium nobis solutum sit aut satis eo nomine factum uel etiam fidem habuerimus emptori sine alla satisfactione*.
107 Cicero, *Att.* X, 5, 3; 11, 5 ; 13, 2; 15, 4
108 Cicero, *Off.* III, 58-60; *Emit ... Nomina facit, negotium conficit* ; cf. R.M. THILO, *op. cit.* [n. 88], p. 300-304 ; W.V. HARRIS, *op. cit.* [n. 2], p. 176
from his friend Silius, he considered it self-evident that payment could be made in instalments providing interest would be paid\textsuperscript{109}.

As in the case of delegationes, nomina transcripticia provided a way to formalise sale credit. Once registered as debts and credits in the account books of vendor and buyer, sale credit notes could be used in private debt management practices\textsuperscript{110}.

Since the late second century BC, credit facilities at auctions were provided by professional bankers ((coactores) argentarii). These were not sale credits stricto sensu – the argentarii paid the vendor and noted the amount as due by the buyer\textsuperscript{111}. Nevertheless, the implication of the argentarii signifies the professionalization of sales based on credit arrangements.

So, although sale credit and private debt management did not increase the available money supply, they hugely increased the amount of monetized transactions that could take place and thereby greatly increased the degree to which Roman society could be structurally monetized.

Private debt management practices, however, in the ancient world as well as in early modern Europe were tied up with the social fabric of credit. By far most credit transactions occurred between family, friends or business partners. This does not imply that no interest was charged or that the creditor(s) did not profit in other ways, but they required networks of personal connections based on trust to function\textsuperscript{112}. This requirement was alleviated by deposit bankers and financial intermediaries. Before turning to these, however, we should first consider the role of internal account rationing.

Whereas private debt management and sale credit are essentially solutions to handle monetized transactions between formally independent actors, account money was a decisive factor in the internal monetization of large organizations, like the army or large landed estates.

The Roman army was the most important monetizing factor in the western provinces. Although requisitions in kind were common, the camp administration was

\textsuperscript{109} Cicero, Att. XII, 22, 3; 25, 1. The purchase was connected with Cicero’s plan to build a shrine for his deceased daughter Tullia, see D. R. SHACKLETON BAILEY (text and commentary), Cicero’s Letters to Atticus. Cambridge, 1965 – 1970, V p. 404-413 ; J. BEAUJEU (texte établi, traduit, annoté), Cicéron. Correspondance VIII, Paris, p. 275-299.

\textsuperscript{110} Gaius II, 127-130. Cf. also Cicero, 2 Verr. I, 137 : on tabellas obsignare as an alternative to nummos numerare.


\textsuperscript{112} Cf. MULDREW C., The economy of obligation : the culture of credit and social relations in early modern England, Basingstoke, 1998 ; K. VERBOVEN, op. cit. [n. 90], p. 31, 176-177; S. VON REDEN, op. cit. [n. 19], p. 227-252
conducted in money, army pay was expressed in money and most purchases were expressed and paid in money\textsuperscript{113}.

The Rhine army, for instance required approximately 89 million sesterces a year in the first century and 59 million in the second. The troops stationed Britain required about 34 million sesterces before Domitian’s pay rise and about 45 million afterwards. These are minimum estimates, not taking into account donatives\textsuperscript{114}.

Only part of this money was actually paid out. Part of the soldier’s salary was deducted to pay for food, clothing and other stuff, part of which came from requisitions and taxation in kind. However, papyri show that even the balance was not automatically paid in cash. Rather each soldier had an account with the camp’s financial administration from which he could draw money when he wanted or with which he could be make purchases in the camp. Since Domitian each soldier had a compulsory ‘savings account’ in which he could deposit money until the end of his service. In this way army life was profoundly monetized far beyond what would have been possible if currency had been the only available form of money.

Similar internal monetization may be found on large estates. Papyri show that although country estates in Egypt were run on a monetized basis, in the sense that obligations, income and expenditures were expressed in money, not all transactions were actually made in cash. Salaried workers were allowed to ‘buy’ estate products, the price of which (in money) was then debited against their wages (in money). Transactions between separate parts of the estate (often located at some kilometres distance from each other) each having their own account books were likewise conducted through internal account rationing\textsuperscript{115}. Unfortunately we have few sources documenting how the vast landed estates in the other provinces were managed. Reliefs on inscriptions document payment in coin, probably of tenancy leases, but these don’t preclude account rationing for other purposes\textsuperscript{116}.

Both cases show the potential of internal account money. Although internal account money in these instances was valid only within the organisation, it shows all the features of genuine money and allowed life in the camps and on country estates to be structured on a monetary basis. Thus the Roman army and estate management practises

\begin{itemize}
\item \textsuperscript{115} Cf. S. VON REDEN, \textit{op. cit.} [n. 36], 70-71 ; D. RATHBONE, \textit{Economic rationalism and rural society in 3rd century A.D. Egypt}, Cambridge, 1991, p. 326-330; Chr. HOWEGO, \textit{op. cit.} [n. 5], p. 16-17
\item \textsuperscript{116} J.F. DRINKWATER, Money-rents and food-renders in Gallic funerary reliefs, in A. KING & M. HENIG (edd.), \textit{The Roman west in the third century} (BAR Int. Ser. 109 (1)), Oxford, 1981, p. 215-233
\end{itemize}
served as socialising agents that spread the disposition and habits that underlay deep monetization.

Interestingly, Rathbone argued that at least in a number of cases the Appianus estate used professional deposit bankers (trapezitai) to manage account payments between separate entities of the estate. This brings us to the question of bank money or the existence (or not) of open account money systems.

Private debt management resembles clearing operations between banks. From an economic point of view the difference lies mainly in the fact that bankers are a separate category of specialists, who provide their services on a professional basis. Banks obviate the need for personal networks between payer and payee, without which private account exchanges cannot take place.

Deposit bankers were ubiquitous throughout the Roman empire. Deposits, payment orders and checks (although non transmissible) are well attested in Ptolemaic and Roman Egypt. The situation was probably not very different elsewhere, at least in Italy and the more urbanized provinces. Roman law defined various specific rules applying only to deposit bankers on the grounds of ‘public utility’. Contrary to payments by delegatio, for instance, deposit bankers were legally obliged to carry out payment orders from their clients.

We already argued that one important contribution of deposit bankers to the monetary system was to facilitate the use of currency. In that role deposit bankers contributed to what we called the ‘currency mode’. However, their contribution to monetization may have stretched further.

The corner stone of modern banking is fractional reserve banking: using deposited sums to extend bank loans. The practice rests on the assumption that most clients are most of the time content to leave most of their money at the bank. The banker takes the calculated risk to use part of the deposits for his own business purposes.

Papyri show little trace of trapezitai practicing fractional reserve banking. But if this impression is correct for Egypt, it cannot be extended to other parts of the Roman world. Several passages in the Digest confirm that deposit bankers used deposited sums

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119 Cf. Dig. XVI, 3, 8 (fraud by bankers); Dig. XLII, 5, 24 (depositors as privileged creditors).
120 By the so-called receptum argentar iti, see A. Petrucci, Profili giuridici delle attività e dell’organizzazione delle banche romane, Torino, 2002, p. 57-65; J. Andreau 1987, op. cit. [n. 19], p. 597-602 ; J. Andreau 1999, op. cit. [n. 19], p. 43-44.
to do business and paid interest to their clients. Harris notes that ‘fractional reserve’ banking must have been common in the late Hellenistic age, since the Ephesus debt law of 85 BC accords trapezitai a period of 10 year to repay their debts.

Fractional reserve banking boosts the monetary system by reducing the amount of currency lying idle, but does not in itself increase the money supply or change the way in which this supply may be used. Although the depositor in theory has an immediate claim on his deposits, fractional reserve banking is based on the assumption that he will not demand back the deposited sums.

Bank or giro money is created when a banker executes payment orders not by means of cash payments, but by transferring sums between bank accounts. This allows payments to take place without the physical use of currency. Combined with fractional reserve banking, which allows the banker to lend out deposited sums without affecting the account of the depositors, giro transfers create (account) money over and above the available currency supply.

Giro payments are simple in the case of payments between accounts held by the same bank, but for payments between clients of different banks, it requires bankers to open accounts with other bankers. These accounts can then be indebted whenever a payment on behalf of a client of the other banker is made. At regular intervals (monthly, yearly) inter-bank accounts are balanced and ‘cleared’ by writing off reciprocal debts. This is the so-called ‘clearance system’. In modern economies central banks and specialized clearance agents act as clearance centres, tying the system together. But both were absent until well into the 19th century and did not exist in the ancient world.

Some papyri show that bankers held accounts of their colleagues and could therefore have used clearing techniques. Giro payments, however, are poorly documented. Sitta von Reden recently argued that ‘no giro transfer of money from one account to another, or between accounts in different banks, is so far attested in Ptolemaic Egypt’. Positive ‘evidence’ for Roman Egypt as well is largely lacking. By and large Egyptian trapezitai appear to have handled primarily cash payments.

However, in view of the ubiquity of private debt rationing and payment orders through banks, it seems odd that private bankers would not have availed themselves of similar techniques as existed for state banks dealing with state funds. Two passages from Terentius and Plautus seem to refer to a giro payment. Andreau also showed that among the tablets of the Pompeian banker Caecilius Iucundus refer to cash payments through Iucundus, 12 to payments between accounts.

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122 See for instance Dig. XVI, 3, 28-29.
123 SIG², 742, ll. 55-61.
124 S. VON REDEN, op. cit. [n. 19], p. 254.
Probably, therefore, the existence as such of giro transactions should not be doubted. Much less clear however, is the volume of these and their reach. The question depends on the number of people having bank accounts and the importance of the sums they deposited, which is something we will never know. Only one instance is recorded of a Roman senator holding a bank account, Scipio Aemilianus in the second century BC. Of course this may be due to the hapzardness of our sources, but it should be set off against the vast material indicating estate and fortune management through procurators and specialised slave paymasters (dispensatores) and accountants (ratiocinarii), which indicate that most aristocrats managed their financial affairs themselves.

The rarity and ambiguity of the available evidence, suggest that the contribution of giro transactions was limited. This may have been due in part to the fact that giro ‘money’ could not rely on general acceptance because the number of people having bank accounts and the number of banks having clearance agreements was too small. Combined with the lack of clearing centres or national banks and the lack of a legal framework ensuring the continuity of a bank’s operations when the banker died, this situation limited the potential for bank money to develop. Consequently, the acceptance of giro payments remained limited to specific groups (bank account holders) for intra-group payments.

Interestingly, Egyptian papyri indicate that deposit bankers were deeply involved in the management of their clients’ lending and borrowing affairs. They appear to have acted as notaries and financial mediators to assist in private account transfers. In this respect, however, deposit bankers (trapezitai, argentarii), were not the only specialised businessmen whose assistance in financial matters could be called upon. Following Andreau’s lead, I have argued elsewhere that the most important financial intermediaries were not deposit bankers but faeneratores.

Geldgiro, Girobanknotariat mir Einschluss des Archivwesens, Strassburg, 1910, but this is misleading because it applies the concept in a non technical sense to refer to any payments into or from any bank account, including cash payments. Groeschler (supra) and Rathbone believe the so-called nomina arcaria in the archive of the Sulpicii found near Pompeii refer to account payments (D. Rathbone & P. Temin, Financial intermediation in first-century AD Rome and eighteenth-century England, in K. Verboven & K. Vandorpe & V. Chankowski-Sable (edd.), Pistoi dia ien technèn, Bankers, loans and archives in the ancient world. Studies in honour of Raymond Bogaert, Leuven, 2008, p. 400-401); but against this see K. Verboven, The Sulpicii from Puteoli. Argentarii or faeneratores?, in P. Defosse (ed.), Hommages à Carl Deroux III. Histoire et épigraphie, droit (Collection Latomus 270), Bruxelles, 2003 and K. Verboven, op. cit. [n. 40], p. 219-223.

Polybius XXXI, 27, 6-7. Harris believes that Tiberius extended loans worth 100 million sesterces through banks to senators and knights to combat the credit crisis of 31 AD, because Tacitus text reads per mensas (W. V. Harris, A revisionist view of Roman money, in JRS 96, 2006, p. 189). But to read mensae here as deposit banks is certainly incorrect. Dio states that Tiberius gave 100 million to the public treasury so that some senators would extend interest free loans to those who needed them (Dio LVIII, 21, 5), the implication is that the mensae were ‘financial boards’ headed by senators such as functioned in the 4th and 3rd century BC.

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127 Cf. Fr. Léroux, op. cit. [n. 121].

128 K. Verboven, op. cit. [n. 40].
Financial assistance by *faeneratores* or *daneistai* in private debt management is well attested. They served as intermediaries between lenders and borrowers and commonly arranged *delegationes debitoris*. Papinianus for instance thought that a master was fully liable for *delegationes* accepted by a slave who was appointed only to lend money at interest (*pecuniis faenerandis*). In this view, accepting *delegationes* was inherent to the *negotiatio faeneratica*\(^{129}\).

Whereas deposit bankers mostly belonged to the ‘working classes’, many credit intermediaries belonged to the business elite and were socially closer to the aristocracy. This may explain why members of the elite rarely used deposit bankers to handle their financial affairs\(^ {130}\). The expertise and social proximity of high ranking credit intermediaries, combined with their own social networks made private debt rationing more attractive and profitable for the aristocracy than passively depositing their money with a professional banker and allowing the banker free use of the deposited sums. Conversely, for businessmen credit mediation was more profitable and less risky than deposit banking\(^ {131}\).

In times of peace and stability, personal networks, deposit bankers, financial intermediaries and legal procedures ensured the reliability of debt and account management practices, which limited the need for currency or physical alternatives as bullion. In times of crisis, however, credit and account money became risky and preference for material media of exchange increased.

This is particularly visible in the third century, when despite the currency and financial crisis, people did not resort to barter, gift exchange or redistributive systems. Gold bullion may have stepped in to handle large payments, but as an alternative for day-to-day consumer credit it was unsuited. The gargantuan increase of low quality denominations and ‘barbarous’ imitations indicates a desperate need for transactional media that served hand-to-hand transactions; a preference for currency over debt management and sale credit. No matter how profound the currency crisis was, the social construct of money survived and lay a powerful constraint on economic transactions.

**Conclusion**

I have argued here that in order to understand the Roman monetary system, we need to abandon the functionalist approach that has prevailed until now. In stead we need to think of money as a social construct that structures exchanges and relations between social actors. Money in the conventional sense of the word is merely an instrument used to handle monetised transactions. It is the embodiment of generalised rights. Its acceptance is socially prescribed and ‘taught’ in socialisation. Instead of focusing on

\(^{129}\) Dig. XIV, 3, 19, 3. See K. VERBOVEN, *op. cit.* [n. 40], p. 227-228 and here for other examples.


\(^{131}\) K. VERBOVEN, *op. cit.* [n. 40], p. 229.
‘money’, I have proposed an approach based on the concept of ‘monetary modes’, i.e. sets of instruments (monetary, financial and other) and procedures to handle monetized transactions.

By the late Republic the Roman monetary system had developed into a complex, extensive and flexible system integrating various modes of handling monetised transactions, ranging from currency, over bullion to debt and account management. The Imperial monetary system ultimately rested on a large stock of gold currency, which replaced the Republican stock of gold bullion. Metallic currency was the yard stick for monetized transactions. It was the only form of money *stricto sensu*, that enjoyed a general and socially prescribed acceptability. Nevertheless, this does not imply that monetized transactions were mostly cash transactions. Sale credit and private debt and account transfers, aided by financial intermediaries and deposit bankers, allowed to overcome the practical disadvantages of metallic currency.

An essential aspect of this system was that it was fairly easy to change from one monetary (sub)mode to another. Transaction costs in the form of exchange premiums, interest charges and commission rates were relatively low, while the volume of exchanges was sufficiently large to allow specialised middlemen (bankers and financial intermediaries) to operate. The system emerged in the late Republic, was consolidated by the Augustan currency system and finally broke down in the course of the 3rd c CE.