The Control and Manipulation of Money, Part 1
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31 May 2012

Synopsis: This is the first in a series of papers on money and currency. It begins with a definition of money and its primary use. It also discusses commodity money (gold and silver) and gives some historical examples of debasement of metallic coinage.

Money only has one purpose: to serve as a common denominator that facilitates transactions. Under the barter system, in which items are traded directly, a horse could be exchanged for so many bushels of corn. The difficulty is that the owner of the horse may not actually need as many bushels of corn as the horse will bring; if he trades for more corn than he needs, he has to find some other way to dispose of the excess corn. The owner of the corn may have difficulty finding someone who has a horse to trade for corn, and may find he cannot obtain the type of horse he needs, but must be satisfied with the one that is offered. The concept of money solved the barter problem: the owners of the horse and the corn can both sell those items for money to other parties. The former owner of the horse can then buy as much corn as he needs from the new owner of the corn using money from the sale of the horse; the former owner of the corn can use the money from the sale of his corn to buy the particular horse he needs. The former owner of the horse may find he money left over for something else. Money therefore, is simply a method to resolve all transactions into a common medium; it facilitates transactions because every potential transaction can be expressed in terms of the common exchange, that is, by the concept of price. Price is nothing more than the means to assign a value to an object in terms of money.

The utility of money as a convenient method of exchange is clear enough. But, what is it that induces the owners of the horse and corn, which are items of true value, to trade those items for money? The answer is simple: those owners must have confidence that the money has some recognized value. This is in fact the most important aspect of money: the people must have confidence that they will be able to trade it for what they want; otherwise, no price can be established. The owners of the horse and corn will exchange them for money only if they know the money obtained can be traded for what they want.

Throughout history, several different forms of money have existed. The first type is when the money itself was made of some material that was recognized to have universal value. The best form of money had the following attributes: a) not degradable; b) divisible into small amounts; c) permanent (not consumed in transactions or use); d) uniform everywhere; e) easily recognized; f) homogeneous; g) reasonably rare (so only fairly small quantities were required for transactions); and h) reasonably compact. The combination of these attributes led societies to adopt various metals as the monetary standard, usually silver, gold, and copper. These three metals also had the properties that only small amounts were added to the supply over time from mining new supplies, and could be alloyed with other metals to improve durability.

The one great attribute of metallic money, if constrained to always operate on the basis of weight, is that it cannot be directly faked. An ounce of silver is an ounce of silver. People knew that trading tangible items of value for gold and silver entailed minimal risk because everyone else would be willing to trade that gold and silver for other items of tangible value. So, metallic coins were invented, and it may be said that this is the type of money in which the medium itself was inherently valuable; i.e., it was a commodity. This type of coinage worked because those materials were recognized as being of value in their own right. Metallic coins can be counterfeited by altering the weights, but only if a series of clever ruses are employed [1]. The first of these tricks is that a government assumes a monopoly power of coinage, or appoints certain organizations to have that monopoly power. That way, only the authorized mint can decide what units of coinage will be created. The second trick is to define a unit of measure by a name unrelated to the weight of the metal, such as a *denier* or a *shilling*. Hence the basic monetary unit is called by some generic name unrelated to the weight, although it may be originally defined as a certain weight. The third

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trick is to reduce the weight of metal in the coins while calling it the same name. Thus the person with the monopoly over the minting of the coins keeps the difference between the defined weight and the weight actually put into the coins. The fourth trick is to issue an edict that all the coins bearing the name of the unit are to be regarded as equal in value; the full-weight ones and the light-weight ones alike. Edicts and laws of this type are known as legal tender laws. It requires the people to pretend that the amount of metal in every coin is the same, since each coin is called by the same name. Ultimately the smart people (like the governments and their monopoly minters) keep part of the actual money for themselves, while the dumb people (like you and me) must accept the debased coin as if it possessed the full weight as originally defined. Over time, it took more of the light weight coins to buy the same tangible object, and we say that the light weight coins were "inflated" through debasement compared to their original definition. A few historical examples of debasement of metallic coinage will serve to illustrate the concept.

The most recognizable silver unit is the English *pound*. The *pound* was defined by King Offa of Mercia in 757 AD as a physical Mercian pound of pure silver that came to be known as the "tower pound". It weighed 349.9144 grams, which is equivalent to 5400 troy grains (15.4325 troy grains per gram). There were 20 *shillings* to a *pound*, and 12 *pennies* to a *shilling*. Thus a penny was defined as 1/240th of a "tower pound" and was equivalent to 22.5 troy grains of pure silver. The *pound* and *shilling* were accounting units used to keep track of large amounts of pennies. Since coins were only needed for small local transactions at that period in history, only pennies were actually minted. Here is the history of the debasement of the English silver coinage [2, 3]:

757: penny = 22.5 troy grains pure silver
1158: Henry II introduced "sterling" silver at 0.925 pure, which improved the durability of the coin. There were still 240 pennies to the tower pound (5400 grains); at 0.925 pure, the penny contained 20.812 troy grains pure silver.
1257: 242 pennies per tower pound at 0.925 pure; penny = 20.664 troy grains pure
1300: 243 pennies per tower pound at 0.925 pure; penny = 20.555 troy grains pure
1411: 360 pennies per tower pound at 0.925 pure; penny = 13.875 troy grains pure
1464: 450 pennies per tower pound at 0.925 pure; penny = 11.100 troy grains pure
1526: The tower pound at 349.9144 grams (equal to 5400 troy grains) was replaced by the troy pound at 373.2417 grams, consisting of 5760 troy grains. The penny was redefined as 540 pennies per troy pound at 0.925 pure (equivalent to 506.3 pennies per tower pound at 0.925 pure); the penny was then 9.866 troy grains pure
1543: 540 pennies per troy pound at 0.833 pure; penny = 8.885 troy grains pure
1544: 540 pennies per tower pound at 0.500 pure; penny = 5.333 troy grains pure
1551: 540 pennies per tower pound at 0.250 pure; penny = 2.666 troy grains pure

In 1552, the coinage was reformed in response to the debasement of the past decade. The *shilling* became the normal coinage since the penny was now a small unit, and was defined as 1/60th of a physical pound of pure silver. The *shilling* thus consisted of 96 troy grains of pure silver and a penny was therefore 8 troy grains of pure silver. The physical coin was heavier, since copper and other metals were added for durability. Here we see the monetary *pound* debased, now having only 1920 grains of pure silver (since there are still 20 *shillings* per monetary pound). In 1601, the penny was defined as 7 and 23/31 (7.7419) troy grains of pure silver; in 1816 it was reduced to 7 and 3/11 (7.2727) troy grains of pure silver. In 1870, the *shilling* was defined as 87.27272 troy grains at 0.925 pure, which is 80.7272 troy grains pure; thus a penny was defined as 6.7272 troy grains pure.

There were three main periods of debasement of the English silver coin: a) 757 to 1526 = 769 years, debased by a factor of 2.329; b) 1526 to 1551 = 25 years, debased further by a factor of 3.700; followed by a reform upward in 1552; and then c) from 1552 to 1870 = 318 years, debased further by a factor of

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1.189. All total, it was debased a factor of 3.344 from its original definition (excluding the reduction and reform 1526 - 1552).

The coinage of France has some parallel to that of England, but the debasement thereof was much more rapid [2 - 5]. King Charles I (Charlemagne) (about 800 AD) defined a carolingian pound (*livre tournois*) to be 489.506 grams, which is by conversion equal to 7554.3 troy grains. The *livre* was divided into 20 *sou* or *solidi*, and each *sou* was divided into 12 *denier*. Thus a *denier* is the analog of an English *penny* in the sense that it is 1/240th of a pound, although it has a different weight (being 31.476 troy grains). Similar to the case in England, and for the same reason, the French only coined *deniers*, and relegated *sou* and *livre tournois* to mere accounting units until the late medieval era. It is believed that the French coinage was reasonably stable until the reign of Philip I (1060 - 1108). The record of the debasement of the French *denier* from the reign of Philip II Augustus (1180 - 1223) is as follows, given by year and troy grains of pure silver:
800: 31.476; 1200: 6.301; 1226: 5.787; 1291: 4.629; 1301: 3.858; 1321: 3.536; 1351: 2.121; 1361: 2.572; 1390: 2.186; 1411: 1.993; 1426: 1.864; 1446: 1.671; 1456: 1.543; 1488: 1.350; 1512: 1.157; 1541: 0.964; 1561: 0.900; 1573: 0.835; 1580: 0.739; 1602: 0.681; 1615: 0.601; 1636: 0.532; 1643: 0.526; 1651: 0.484; 1676: 0.429; 1701: 0.353; 1726: 0.274; 1759: 0.260; and 1795: 0.289 troy grains pure silver. During the French Revolution, the *livre* (i.e., 240 *denier*) was converted to *francs*; 80 *francs* to 81 *livre*. The *livre* was at that time 240 *deniers* at 0.260 troy grains which comes to 62.4 troy grains; hence a *franc* was 63.18 troy grains of pure silver.

In the first 400 years of its existence, the French *denier* was debased a factor of 4.995; for the next 559 years to 1759, was further debased by a factor of 24.23; all total, debased by a factor of 121.051 from its original definition.

The Scottish penny started off about the same as the French *denier*, but it was debased at a very rapid rate. By 1600, the Scottish penny was about 0.645 troy grains, that is, about 1/12th the weight of the English penny.

The silver coinage was debased by nearly every nation in Europe, except for the Arabs in Spain, who were very careful to maintain the value of their coins. Also, the gold coins minted throughout the medieval era generally retained their full weight. The reason is simple: the gold coins, being of much greater value than silver, were used generally in transactions between great lords or important merchants in international dealings. Meanwhile, the silver coins were used for local trade. It was easy for the minters to debase the local coinage used by the dumb local people, since it did not have to be readily converted to any other standard, and the king could simply issue an edict requiring that it be accepted at full face value. But the gold coin had to maintain its value because the issuing king could not force another nation's merchants to accept it; it would be accepted only at full weight. Thus the large traders and their associates avoided any losses that would have occurred due to a reduction in the value of the coin.

References:

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2. Encyclopedia Britannica, Vol. 16, pp. 483, 726, 727 (1904)
3. www.economics.utoronto.ca/munro5/MONEYLEC.htm
4. www.histoirepassion.eu/spip.php?article36
5. Henri Pirenne, *Economic and Social History of Medieval Europe*, London: Routledge & Kegan Paul Ltd., 1936, pp. 108 - 114

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