

LEGAL TENDER LAWS AND FRACTIONAL-RESERVE BANKING

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This article will explore the economics of legal tender laws, arguing that they are not only a necessary prerequisite of paper money, but also benefit fractional-reserve banking. Such laws make paper money and fractional-reserve banking more widespread than they would otherwise be. Thus, legal tender laws must be understood as a major factor in the development of Western economies which today operate on paper-money standards and feature very large fractional-reserve banking sectors that grow at over-proportional rates.¹

After a brief review of the literature, we will show that legal tender laws entail the twin phenomena of fiat inflation and fiat deflation. This insight will be applied first to the analysis of bimetallism, arguing that fiat deflation in this case *indirectly* promotes the practice of fractional-reserve banking. Turning then to the case of money certificates—in particular, false money certificates—we will demonstrate that legal tender laws have very different effects depending on the *physical characteristics* of the certificates. Debasement of legal tender coins is an inferior inflation technique in comparison to the production of

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¹The conventional explanation for the prevalence of paper money stresses paper's low resource costs and the efficiency of monetary policy. And the usual explanation for the pre-eminence of the banking sector stresses an increased need for financial intermediation in modern economies. This article will not discuss these theories. Our point is that legal tender laws have decisively contributed to the emergence of the present situation, independently of the factors stressed in conventional theory.

legal tender fractional-reserve banknotes.² This is why governments have *directly* promoted fractional-reserve banking through legal tender laws.

LEGAL TENDER IN THE ECONOMICS LITERATURE

A legal tender is an economic good (typically a medium of exchange) that may be used to pay contractual debts even though the contract stipulated payment in terms of another economic good (typically another medium of exchange). Suppose that Paul gives a credit of 1,000 ounces of silver to John. They agree that, after one year, John has to pay back 1,050 ounces of silver to Paul. Legal tender laws might stipulate that all silver debts may be discharged in gold at a ratio of 10 to 1, or they might stipulate that debtors, such as John, can fulfill their obligations by paying with silver-denominated banknotes of the FR Bank, or with copper tokens issued by the public Mint. The important point is that these legal stipulations *overrule* any private agreement. They do not simply restrict the use of private property, as in the case of monopoly privileges; rather, they are an all-out frontal attack at the very heart of liberty and responsibility.

Only a few economists have grasped this fact and its wide-ranging economic and political implications. Such economists have called for a radical reform of our present monetary system, starting with the abolition of legal tender laws.³ Hans Sennholz is especially hard-hitting and on the mark:

According to most dictionaries, legal tender is any kind of money which by law must be accepted when offered in payment of a debt expressed in the country's money unit. Such a legal definition shows no understanding of the moral implications and economic consequences of the principle of legal tender.⁴

²The comparative analysis of the physical characteristics of monetary institutions has been neglected in contemporary economic thought. An exception is Angela Redish, *Bimetallism—An Economic and Historical Analysis* (Cambridge: Cambridge University Press, 2000).

³See, in particular, Henry Hazlitt, "The Search for an Ideal Money," *The Freeman* 25, no. 11 (November 1975); F.A. Hayek, *Choice in Currency* (London: IEA, 1976); and Pascal Salin, *La vérité sur la monnaie* (Paris: Odile Jacob, 1990).

⁴Hans Sennholz, *Money and Freedom* (Spring Mills, Penn.: Libertarian Press, 1985), p. 24.

Legal tender laws have been around for at least 2,500 years, so economists had more than enough time to analyse the impact of legal tender laws on human behaviour in painstaking detail, but no such effort has been made. Economists in an obscure past might have studied the economics of legal tender, but the contemporary literature on monetary economics offers no trace of such analysis.⁵ Many mainstream textbooks do not mention the institution of legal tender at all or barely mention it.⁶ Other books give it a cursory treatment ranging from two lines to two pages, always stressing the unimportance of legal tender laws. They point out that money does not need to have the legal tender quality, and that, even if it has it, this will by no means guarantee its acceptability by the market participants.⁷ Some books mention that, in a past age, legal tender laws have allowed debtors, usually the government among them, to gain at the expense of their creditors. And a few select textbooks stress the rather central point that legal tender laws entail Gresham's Law—legally overvalued money drives legally undervalued money out of the market.⁸ That is all.

The economists of the Austrian School have been far more sensitive to the importance of the subject. They *routinely* stress the connection between legal tender and Gresham's Law.⁹ Some of them have pointed out the fundamental fact that all paper-money systems are built on legal tender laws.¹⁰ Historically, paper money has never

⁵Legal tender laws have been analysed in some detail from a historical and legal point of view. See the Bibliography for works by Breckinridge, Kemp, and Wagner.

⁶See the Bibliography for works by Hutchinson, Mishkin, Niehans, Pesek and Saving, Ritter, Schaling, Taeho, and Weintraub.

⁷See the Bibliography for works by Campbell and Campbell, Chandler, Halm, McCallum, Prather, and Thorn. Also see works by O'Bannon, Bond, Shearer, and Whittlesey, Freedman, and Herman.

⁸See, for example, W.H. Steiner, *Money and Banking* (New York: Holt, 1941), pp. 40f.

⁹See Ludwig von Mises, *Human Action*, scholar's ed. (Auburn, Ala.: Ludwig von Mises Institute, 1998), pp. 432n, 447; Murray N. Rothbard, *Power and Market*, 2nd ed. (Kansas City: Sheed Andrews & McMeel, 1977), pp. 32, 270; Hans Sennholz, *The Age of Inflation* (Belmont, Mass.: Western Islands, 1979), pp. 24, 149f; and Sennholz, *Money and Freedom*, pp. 22–30.

¹⁰See, in particular, Sennholz, *Money and Freedom*; and Hans-Hermann Hoppe, "How is Fiat Money Possible?—or, The Devolution of Money and Credit," *Review of Austrian Economics* 7, no. 2 (1994), pp. 49–74. This point also

sustained the free competition of commodity money such as gold and silver; it has always been protected by special privileges, such as legal tender laws. The reason is that paper money does not have any non-monetary use. Therefore, its purchasing power does not have any “rock bottom” below which it cannot fall, which makes it a high-risk investment in most people’s eyes.¹¹

The foregoing considerations would have met with widespread approval among the economists of the nineteenth century. Even David Ricardo, the great champion of paper money, knew that the only sure way to bring paper notes into circulation was to impose them on the citizenry: “If those who use one and two, and even five pounds notes, should have the option of using guineas, there can be little doubt which they would prefer.” In Ricardo’s eyes, such an option could not be granted because consumer preference for gold and silver coins would mean that “to indulge a mere caprice, a most expensive medium would be substituted for one of little value.”¹²

At the beginning of the twenty-first century, this crucial insight has all but vanished from mainstream monetary thought. As we have observed, a number of contemporary textbooks do argue that money does not necessarily have to be a legal tender. Yet, the authors of these books overlook that their points hold true only for the case of commodity money. The exact opposite is true for things like paper money or electronic money, which could not remain in circulation without the infringement of private property rights. Legal tender privileges belong to their essence.¹³

played a role in the discussion of F.A. Hayek’s *Denationalisation of Money*, 2nd ed. (London: IEA, 1978), in which Hayek made the case for the competitive issue of paper money. For a critique of Hayek’s argument, see Murray N. Rothbard, “Hayek’s Denationalised Money,” *Libertarian Forum* 15, nos. 5–6 (August 1981–January 1982).

¹¹See Jörg Guido Hülsmann, *Logik der Währungskonkurrenz* (Essen: Management Akademie Verlag, 1996); and Jörg Guido Hülsmann, “Economic Principles and Monetary Institutions,” *Journal des Economistes et des Etudes Humaines* 10, nos. 2/3 (July/September 2000), pp. 429f.

¹²David Ricardo, “Proposals For an Economical and Secure Currency,” in *Works and Correspondence*, ed. Piero Sraffa (Cambridge: Cambridge University Press, 1951–73), vol. 4, p. 65.

¹³This point was emphasised by nineteenth-century German legal scholar Heinrich Thöl. See Karl Heinrich Rau, *Grundsätze der Volkswirtschaftslehre*, 7th ed. (Leipzig & Heidelberg: Winter, 1863), §295, annotation (d), p. 373.

In what follows, we will extend the economics of legal tender to new grounds. In particular, we will argue that legal tender laws have been directly and indirectly instrumental in promoting fractional-reserve banking.

GRESHAM'S LAW, FIAT INFLATION, AND FIAT DEFLATION

It belongs to the very nature of legal tender laws that they establish an imposed equivalence (fiat equivalence) between the privileged medium of exchange—the legal tender—and other media of exchange.¹⁴ The legislator wishes to impose the use of his pet medium of exchange, but this presupposes that he define the rates at which the market participants have to accept it. For example, if most contracts have so far been denominated in silver and copper, whereas our legislator wishes to impose his own paper slips, he must determine the rates of equivalence between these slips and specific weights of silver and copper.

Consider the case of bimetallism, always keeping in mind that this is just a special case. Bimetallism is the name of the monetary system that exists when the laws establish fiat exchange ratios between different precious metals.¹⁵ Suppose that both gold and silver are legal tender in Prussia, at a fiat exchange rate of 1/20. As long as the market exchange rate is also 1/20, everything is good and fine. However, as soon as the two rates differ, people stop using the metal that, in reality, is more valuable than it is according to the letter of the law. Suppose therefore that the market rate is 1/15. This means that people who owe 20 ounces of silver may discharge their obligation by paying only 1 ounce of gold, even though they thereby pay 33% less than

¹⁴The expression “fiat equivalence” may sound somewhat awkward, but it is more precise than the more familiar term “price control,” for it allows us to cover cases in which prices do not exist in the first place. For example, the introduction of U.S. greenbacks in 1862 was not based on price controls, because the greenbacks did not yet circulate, so there was no price that could have been controlled. Rather, the U.S. government ordered that creditors accept paper slips called “dollars” on equal footing with the coins and banknotes that bore the same name. Thus, there existed a fiat equivalence of greenbacks and specie, but no price control.

¹⁵Bimetallism needs to be distinguished from the case in which coins made out of an inferior metal such as copper are used as *tokens* for gold or silver. Tokens *per se* have nothing to do with legal tender laws.

they would have had to pay on the free market. The economic consequences are patent. To protect themselves from the possibility of being paid in gold, Prussians will stop making contracts that stipulate silver payments. Instead, they will stipulate gold payments in all further contracts.

Under bimetallism, another mechanism operates to the same effect. People will sell their silver to the residents of other countries, say, England, where the Prussian fiat exchange rate is not enforced and where they can therefore get more gold for their silver. Silver vanishes from circulation in Prussia, and only gold continues to be used in domestic payments. The overvalued money (here: gold) drives the undervalued money (here: silver) out of the market. This phenomenon is called Gresham's Law.¹⁶

Thus, we see how legal tender laws entail an *inflation* of the legally privileged money, in the sense that this money is now produced and held in greater quantities than it would be on a free market. We also see how legal tender laws entail a *simultaneous deflation* of the other monies and money certificates, in the sense that these monies and money certificates are used in smaller quantities than they would be used on a free market. In the above example, the legal tender provisions entailed an inflation of gold and a deflation of silver. Because these effects result from an infringement of private property rights that is legitimised by law, we may speak of *fiat* inflation and *fiat* deflation, respectively.

BIMETALLISM AND FRACTIONAL-RESERVE BANKING

What are the further implications when gold is being substituted for silver in a bimetallist regime? First of all, notice that gold has a much higher purchasing power per weight unit than does silver. As a consequence, the new currency cannot be conveniently used to purchase books or groceries, and it is entirely unsuitable to pay for a cup of coffee or for an ice cream. The typical solution for this sort of problem

¹⁶After Thomas Gresham, a sixteenth-century financial agent of the English Crown in the city of Antwerp. However, Gresham's Law had been described long before then. For example, it can be found in Aristophanes's poem "The Frogs"; and in Nicholas Oresme, "A Treatise on the Origin, Nature, Law, and Alterations of Money," in *The De Moneta of Nicholas Oresme and English Mint Documents*, ed. Charles Johnson (London: Thomas Nelson and Sons, 1956), p. 32. Oresme also noticed the deflationary impact.

is the use of money substitutes. The market participants will abandon the use of the precious metals and resort to token coins or banknotes in their daily exchanges.

This tendency is reinforced by the fact that the currency substitution process takes time. The passage of a legal tender law has *immediate* repercussions on the way people evaluate the monies that are concerned, while it takes time to substitute one of them for the other. In our example, while it takes time to export silver, people will immediately stop using it in daily exchanges and use the overvalued gold; in other words, the passage of the legal tender law increases the demand for both silver and gold at the given supply. This will entail a precipitous drop of money prices being paid for other goods (a tremendous increase of the purchasing power of silver and gold). Hence, legal tender laws force the market participants to adjust to a more or less severe decline of the price level.

A lower price level does not have any inconveniences *per se*. However, the process that leads to the lower price level entails ruin and hardship for debtors and businessmen who have not anticipated the event. Most debtors will not be able to pay back nominal debt contracted at a higher price level out of income that can be obtained at the new lower price level. The usual result is bankruptcy. And entrepreneurs who lack sufficient foresight will find themselves in very similar circumstances. They have bought factors of production at the old higher price level based on the assumption that they would be able to sell at such higher prices. But the currency substitution forces them to sell their products at the new lower price level. The result is reduced profits, or even losses and bankruptcy.

Under such circumstances, businessmen will be more inclined than ever to use media of exchange that can be immediately substituted for the silver that is now suddenly held back. One solution is the import of gold. But when the quantities involved are large, such imports will require a considerable logistical effort that cannot be organised at short notice. Gold imports could, therefore, be a short-term remedy only under circumstances that are so special that we need not deal with them. By contrast, a suitable technical device for the immediate replacement of the vanishing silver circulation in our example is credit money and fractional-reserve banking. Demand deposits and banknotes can be produced overnight in almost unlimited quantities, and this at virtually zero costs. This is precisely what businessmen are looking for in a situation of a large decline of the

price level. Therefore, they start using fractional-reserve banking to a greater extent than before.

One could object that businessmen are *always* looking for ways to increase nominal receipts. Why should the mere passage of legal tender laws for bullion entice them to make maximum use of fractional-reserve banking? After all, the legal tender laws in our example applied only to the precious metals that are used as money (the bullion). They did not concern money certificates such as banknotes or demand deposits. Furthermore, we must ask how it is possible that fractional-reserve banks further decrease reserve ratios without jeopardising their liquidity? Would we not rather have to assume that they *already* operate at optimal (that is, minimal) reserve ratios? Let us address these objections in turn.

First of all, notice that legal tender laws, even if they only apply to the metals, do give fiduciary media a temporary competitive edge over bullion coins and genuine money titles. With or without the legal tender legislation, legalised fiduciary media have specific advantages and inconveniences as compared with sound money. They can be obtained at lower cost, but their use also entails higher risks for the market participants. Each product, therefore, offers a particular combination of costs and benefits, and the market participants use them according to their personal preferences. Some individuals and groups do not use fiduciary media at all, and some use them only occasionally.¹⁷ Now, when legal tender laws induce a decline of the price level as in our above scenario, the comparative benefits of fiduciary media increase. Payments in terms of fiduciary media allow for the maintenance of expected income streams, whereas cash payments can now only be obtained at large (bankruptcy-inducing) discounts. Thus, sellers have an incentive to accept far more fiduciary media in payment for their goods and services than they otherwise would have accepted.

But how can the fractional-reserve banks possibly increase their issues without becoming bankrupt in turn? This is, indeed, the central question. We can offer the following answer: The illiquidity of the banking system *can* be avoided in the case of collusion among the market participants. If the market participants decide to make more ample use of fiduciary media in order to help out their fellow businessmen

¹⁷It is safe to assume that legalised fiduciary media would play only a marginal role in a free market, but this question is of secondary importance for our present purposes. See Hoppe, "How is Fiat Money Possible?" pp. 57f.

—and thus, indirectly, themselves—the demand for fiduciary media *ipso facto* increases, making it possible for the banks to diminish their reserve ratios without becoming illiquid.

There is, of course, no law of nature that the business community will establish such a voluntary payment cartel to confront an unanticipated decline of the price level. There is, moreover, no guarantee that such a spontaneous cartel will be able to weather the powerful forces that vie for its destruction (free rider problem). But we can assert that the incentives for the establishment of such a spontaneous payment cartel are overwhelming in a strong decline of the price level. Whether the pro-cartel incentives are greater than the antagonistic forces is a question that must be answered separately for each concrete historical setting. At the very least, we can say that the British and American experiences with bimetallist regimes do not contradict our theoretical considerations. In both countries, fractional-reserve banking flourished in the wake of bimetallist legislation.

For students of monetary history, three episodes are of particular interest in this regard. First, consider the British currency reform of 1720, when Isaac Newton was Master of the Mint. British citizens replaced their silver currency with a gold currency, and the resulting decline of the price level was a major factor in stimulating the use of fractional-reserve banknotes in the United Kingdom. Second, in 1792, the U.S. Congress approved a bimetallist scheme decreeing the exchange rate between gold and silver to be 1 to 15. The market rate was 1 to 15.5, however, and after a few years, the artificially undervalued gold had all but disappeared from circulation. As in the earlier example in Britain, some people derived great profits from helping Americans exchanging gold for silver, and fractional-reserve banking flourished. Third, a few decades later, this operation was repeated in the other direction. The U.S. Coin Act of 1834 fixed the legal exchange ratio between gold and silver at 1 to 16, and now the entire silver currency of the country was replaced with a gold currency, respectively with gold-based fractional-reserve banking, and fractional-reserve banking received another shot in the arm.

Let us assume that a spontaneous payment cartel has been established to prevent prices from falling as a consequence of legal tender laws. The next question is: Why should this cartel last any longer than the liquidity crisis it seeks to overcome? We have already pointed out that, in our scenario, a decline of the price level might only be a *temporary* phenomenon, because gold imports would eventually fill the

gaps opened by the diminished silver circulation. Why should we expect the payment cartel to outlast this emergency? Why should people *keep* using fiduciary media, rather than return to using sound money?

The first answer is that, at least to some extent, people will, in fact, return to the use of sound money as a consequence of the gold imports. But we should also expect, second, that there will be some “ratchet effect” from government interventionism.¹⁸ Fractional-reserve banking will diminish as the liquidity crisis wanes, but it will have a greater market share than it would have had without this event. Why? The new system, even if it is only temporary, will create a *habit* of collusion, and it is likely that businessmen will come to expect those higher prices for their products that they can only hope to obtain in terms of fiduciary media. Thus, they create the very conditions that make a continued collusion advisable for some of them, and necessary for many others.

The circulation of Bank of England notes during the Napoleonic Wars provides a good illustration. The Bank suspended redemption in 1797, but even though its notes were not legal tender, they continued to be used in all parts of Great Britain. It appears that individuals who demanded payments in specie were ostracised.¹⁹ Things were very similar after the War of 1812 in the United States. Many private and state-chartered banks had issued fractional-reserve notes, thus increasing the price level. A stronger role of cash payments would have entailed bankruptcy for large strata of the business community. As a consequence, there was collusion between established businesses, which went hand in hand with ostracism, even downright violence, against those who asked for specie.²⁰

THE CASE OF MONEY CERTIFICATES

So far, we have dealt exclusively with the case of legal tender privileges for specific physical substances that are used as money. We

¹⁸For a discussion of the “ratchet effect”—how each crisis leads government to increase its level of intervention, and then not fully return to its former levels after the crisis ends—see Robert Higgs, *Crisis and Leviathan* (New York: Oxford University Press, 1987).

¹⁹See Edwin Cannan, *The Paper Pound of 1797–1821*, 2nd ed. (London: King & Son, 1925).

²⁰See Murray N. Rothbard, *The Panic of 1819: Reactions and Policies* (New York: Columbia University Press, 1962).

now must turn to the case of legal tender privileges for money *certificates*.²¹ Such privileges establish a legal equivalence between the certificates and the physical substance used as money, along with an obligation for creditors to accept the certificates up to their full nominal amount.

We will first analyse the general consequences that follow when legal tender privileges are accorded to money certificates. We will then compare the implications of two different types of money certificates: those that are physically integrated with the money stuff (e.g., bullion coins), and those that are physically separate from the money stuff (e.g., cheques and credit cards), and which, therefore, can be used as money substitutes. For the sake of convenient exposition, this comparative analysis will start with the assumption that the law grants legal tender status to *all* money certificates being traded in the market. Finally, we will turn to the more relevant case of monopoly, in which legal tender privileges are accorded to just one money certificate.

General Considerations

Suppose Brown sells his car for 1,000 ounces of gold to Black. If the notes of the Yellow Bank have legal tender status, then Black can discharge his obligation by paying with Yellow Bank money certificates of a corresponding amount, even if his contract with Brown stipulates payment in commodity money.

This seems to be unproblematic as far as genuine money certificates are concerned. What difference could it make to a man whether he owns 1 ounce of gold bullion or a genuine certificate for 1 ounce of gold? But it does make a difference. In our above example, the demand for Yellow bank certificates is higher than it otherwise would have been. The least thing we can say, therefore, is that legal tender laws inflate one type of monetary service (banknotes) at the expense of other ones. Banknotes are in higher demand than they would have been on the free market.

People usually have a good reason when they use bullion rather than coins, or coins rather than banknotes, or the notes of the A-Bank rather than the notes of the B-Bank. There was a reason why Brown

²¹We could afford to limit our discussion to the case of bimetallism because it is the only relevant case—nobody has as yet proposed to grant legal tender privileges to “paper” *per se*.

stipulated payment in gold rather than in Yellow Bank notes. Certificates are a matter of trust, and trust cannot be ordained. Where trust is lacking or unequal, there is no true equivalence between the different monetary objects. It follows that privileging a certificate through legal tender laws disrupts the balance that would have been established on the market. There is then an inflation of certificates and a deflation of bullion. Certificates enjoy a wider circulation than they would have had in the mere light of the trust that the market participants put into them. If the law compels Brown to accept banknotes that he does not desire, he might, at some time, decline certain exchanges that he would have made on a free market. Legal tender laws therefore tend to reduce social cooperation and to impoverish society.

It is true that, in the case of genuine money certificates, the quantitative dimension of these effects is negligible. However, such effects do exist, and, from a moral point of view, this case is not categorically different from other cases in which the quantitative impact of legal tender laws is incomparably greater.

Legal tender privileges have a huge quantitative impact when they are given to *false* certificates. The mere legalisation of false money certificates could not *per se* lead to large-scale inflation as long as the market participants are free to abandon the use of the false certificates and switch to better ones, or demand payments in bullion.²² Even the introduction of monopoly privileges does not open the floodgates for inflation, because the monopoly does not impair the ability of the market participants to choose among the remaining monetary products and, most of all, to *evaluate* them as they see fit. Yet, all these barriers to inflation collapse when false money certificates benefit from legal tender laws.

Consider the following example: Before the institution of legal tender laws, the Red Bank has operated on a 20 percent reserve ratio. The government subsequently makes its notes legal tender, thus artificially increasing the demand for Red Bank notes; in other words, the owners of these notes redeem them less frequently. Suppose that, as a consequence of the reduced demand for redemption, the cash reserves of the Red Bank increase by 2,000 ounces of gold. At the reserve ratio of 20 percent, this means that the Red Bank can issue additional banknotes for 10,000 ounces of gold.

²²See Jörg Guido Hülsmann, "Has Fractional-Reserve Banking Really Passed the Market Test?" *Independent Review* 7, no. 3 (Winter 2003).

We see, then, that the operation of the market process is distorted. In a free market, there is a tendency for the best available products to be used, but legal tender laws combined with false certificates incite a race to the bottom. Since all money certificates are equal before the law, and because the legal tender provision overrules private contract, no money user has an interest in paying the higher price for a genuine certificate. As a consequence, no producer has an interest in fabricating such certificates; each producer now tries to operate at the lowest possible costs. Sooner or later, everybody pays with debased coins and fractional-reserve notes. Bullion disappears altogether from public use; it is held back—hoarded—or sold abroad.

These are the general effects that result when legal tender privileges are given to false money certificates. But there are also very important effects that depend on the type of certificate. There are huge differences between certificates that are physically integrated with the money stuff (typical case: debased coins) and those that are not (typical case: fractional-reserve banknote). We now turn to these effects.

The Case of Debased Coins

There is no evidence that private minters have been unable to withstand the competition of other governments in truly free markets.²³ However, there is a solid historical record documenting how governments have abused the trust that citizens put into them. There was, in fact, hardly a dynasty that did not in this way abuse its monopoly of coinage. Ancient Greeks and Romans, medieval princes, dukes, and emperors, and democratic parliaments have recklessly debased the coins of their country, knowing that the law imposed the bad coins on their subjects at a nominal value determined by the government.

Legal tender laws eliminate all *technical* obstacles to an infinite debasement of coins. Any coin, however much it is debased, must be accepted in payment of its full nominal amount. Thus, it is possible to debase coins to such an extent that they contain not a trace of the

²³“Private” minters in the sense that is relevant here include minters that operate from outside the jurisdiction of the government under consideration. For example, in the U.S., foreign coins circulated with official sanction from 1793 to 1857. These coins came from Great Britain, Portugal, Spain, France, Brazil, Mexico, Chile, Peru, Columbia, and Bolivia.

precious metal anymore. They can then be made out of an inexpensive metal, which allows the fabrication of great quantities before production ceases to be profitable. Consider the case of the Spanish *maravedi* coins. Originally, in the high middle ages, they were silver coins, but then the Spanish kings debased them to such an extent that, by the end of the sixteenth century, they were pure copper coins without a trace of silver. The example shows that legal tender privileges for debased coins represent a significant source of revenue for the government. Nevertheless, they have three great disadvantages from the government's point of view.

First, as we have pointed out above, the production of debased coins takes time. It is impossible for the government to replace the entire existing stock of coins in one stroke. It follows that the gradual introduction of the new debased coins makes the money supply heterogeneous. Old sound coins circulate side by side with new debased coins, but legal tender laws ordain that they be exchanged at nominal parity. When the market participants realise what happens, they will hoard the old coins and use only new coins for payments. But this means a more-or-less drastic reduction of the money supply available for exchanges—a sudden, big, fiat deflation that entails at least temporary trouble, not only for private fortunes, but also for public finance. The problem vanishes only when the coins are so debased that they are entirely nominal (zero content of precious metal). This is one of the reasons why government mints, even when their coins enjoyed legal tender privileges, have traditionally been as secretive about debasement as have private counterfeiters.

Second, legal tender privileges for debased coins benefit debtors at the expense of creditors.²⁴ This goes a long way toward explaining why governments establish such privileges in the first place, since governments can rid themselves of a big chunk of their debts by defrauding their creditors. The problem is that such tricks backfire. One problem is that the fixed revenues of the government are henceforth paid in debased coin too. Another problem occurs when the government establishes a reputation as a bad debtor, making it difficult, if not impossible, for it to obtain any *further* credit.

Third, legal tender privileges for debased coins disrupt the international exchanges and, thus, jeopardise long-term investments in the

²⁴Strictly speaking, this holds true only in case the debasement has not been anticipated. Of course, in practice, this is very often the case.

country where the privileges are enforced. Nicholas Oresme, a first-hand observer of this process in the fourteenth century, remarked that foreign merchants and capitalists avoid such a country like a pest, because “merchants, other things being equal, prefer to pass over to those places in which they receive sound and good money.” Even patriotic local entrepreneurs cannot, under such circumstances, maintain their operations if they have to buy their supplies abroad. Oresme went on to emphasise this point:

Furthermore, in such a kingdom, internal trade is disturbed and hindered in many ways by such changes, and while they last, money rents, yearly pensions, rates of hire, cesses, and the like, cannot be well and justly taxed or valued, as is well known. Neither can money safely be lent or credit given. Indeed, many refuse to give that charitable help on account of such alterations.²⁵

There is also a fourth implication of granting legal tender privileges for debased coins, especially if these privileges, as we have so far assumed, are granted indiscriminately. This implication is that coins can no longer be produced on a competitive basis without destroying the currency. When a coin producer can debase his product indefinitely and heap it on the other market participants, the race to the bottom has no stopping point short of the resolute rejection of any further monetary exchange by the citizens, that is, short of the total disintegration of the market. This is why legal tender privileges have never been granted under such conditions.

The Case of Fractional-Reserve Banknotes

None of the aforementioned disadvantages exist when legal tender laws protect fractional-reserve certificates, most notably fractional-reserve banknotes.²⁶ The reason is that banknotes are *not* physically integrated with the money stuff, but are used as money substitutes.

If the monetary authorities of a dukedom decide to debase the coinage by one third, then every single new coin contains 33 percent less fine metal than old coins contain. This affects every single owner

²⁵Oresme, “A Treatise on the Origin, Nature, Law, and Alterations of Money,” p. 33.

²⁶Much of what we say below could conceivably be applied to demand deposits. In practice, however, legal tender privileges have never been extended to individual bank accounts.

of new coins and, as we have pointed out, makes the dukedom's currency heterogeneous, thus entailing a deflation. But if the bank reserves of that dukedom are reduced by one third, then this affects all banknote holders in the same way. The currency does not become heterogeneous and, equally importantly, the power of any individual banknote to provide its owner with the certified amount of bullion is not necessarily impaired. Indeed, if the banknotes are inflated with sufficient restraint, it might be possible to redeem them at any time for as much bullion as before.²⁷ Nothing disrupts the smooth operation of the market as long as the reserves of the fractional-reserve banks are large enough to satisfy any ongoing demands for redemption.

It follows that, when legal tender privileges are applied to banknotes (or any other money certificates that are not physically integrated with the money stuff), they do not entail the deflationary tendencies that they entail in the case of debased coins. They do not jeopardise international exchanges. They do not hurt the government's creditors. And, most importantly, they do not stand in the way of a competitive production of banknotes.

It is true that fractional-reserve banking protected by legal tender laws is a race to the bottom. Every banker has an incentive to reduce his reserves—to inflate the quantity of his notes—as far as possible. But there *is* a logical stopping point before the total dissolution of monetary exchanges. Every single banker can stay in business only as long as he is able to redeem his notes. Because his customers have the right to demand redemption of his notes into bullion, and because they exercise this right, he must keep his note issues within more-or-less narrow prudential limits. Although the monetary system as a whole is highly inflationary, the inflation is still limited.

These facts are absolutely crucial to an understanding of the monetary history of the West. The reason why governments abandoned debasement and started cooperating with fractional-reserve banks was the technical superiority of this type of fiat inflation. It allowed the

²⁷From the point of view of regular market participants, fractional-reserve banknotes are, therefore, far superior to debased coins. It follows that, if legal tender privileges are granted to both debasers and fractional-reserve bankers, Gresham's Law will operate to drive the banknotes out of the market. They will be used only in foreign countries, where they circulate without legal tender protection, whereas the debased coins will be the only currency of the domestic market.

governments to obtain additional revenue that they did not dare extort from their citizens through taxation, yet without hurting their creditors, without disrupting the insertion of their countries into the international division of labour, and without abolishing competition in banking altogether.

These were great advantages, at any rate for the government. From the ordinary citizens' point of view, the matter looked somewhat less glorious. The inflation of banknotes drew as many resources out of the rest of the economy as debasement would have drawn out of it, if not more. Further, it established a permanent partnership between governments and banks. Fractional-reserve banking leverages the inflationary impact of legal tender laws quite substantially. And, inversely, legal tender laws are a boon for fractional-reserve banking, which without them would be much more limited. The presence of legal tender laws is, therefore, a reliable indicator of the presence of fractional-reserve banking in trouble. All great inflationary experiments of the past illustrate this point.

Monopoly Legal Tender

So far, we have analysed the economic impact of legal tender laws on the assumption that these laws are applied indiscriminately to *all* money certificates, but this case plays no practical role whatsoever. Our assumption merely helped us prepare the analysis of the only relevant case, in which only *one* type of money certificate is legal tender. We now turn to the theoretical analysis of this case.²⁸

Suppose that three different coins are produced in the Country of Oz: the ducat, the thaler, and the guinea. The government makes the ducat alone legal tender, but it does not outlaw the use and production of thalers and guineas. If all three coins are genuine money certificates, then this law will have virtually no impact. It is true that people who

²⁸When it comes to applying these considerations in historical analysis, one has to keep in mind that legal tender laws for money substitutes can have varying scopes. Before the twentieth century, they often concerned only *government* debts, as in the case of the first two chartered banks of the United States (1791–1811 and 1816–1836), or they concerned only debts among bankers, as in England after 1833. In the twentieth century, the notes of the privileged institutions (central banks and/or public treasury) were typically legal tender for *all* debts private and public. In Germany, such laws became effective in 1910, in Great Britain and France in 1914, and in the U.S. in 1933.

do not trust ducats, or do not like them for some other reason, can now be coerced into accepting them. Further, the threat of this coercion will, in some cases, diminish the readiness of such people to take part in the division of labour, but such cases are truly rare.

Suppose now that debasement is legal in Oz. If all three coins were legal tender, their producers would set out for a race to the bottom, as we have seen above. But since only the ducat is legal tender, there is no race to the bottom. Rather, the ducat now comes to play the role of a *standard of debasement*—it sets a pace of debasement that the other two coins must slavishly follow. Assume, for example, that the ducat is debased to such an extent that it only contains 30 percent of its nominal content of fine silver. It makes no sense for the other producers to debase the thalers and guineas even further, say, to 20 percent, because everybody would refuse to accept these inferior coins as payment for the full nominal amount. But neither would it make sense for thalers and guineas to contain *more* silver, say, 40 percent of the nominal amount, because debtors could still pay with ducats. Nobody would then use thalers and guineas either; they would be exported abroad or hoarded as soon as they leave the mint.

Thus, we see how monopoly makes legal tender privileges workable when applied to debased coins. This is why, historically, legal tender laws were applied to debased coins only as a monopoly—of course, as a monopoly of the government’s mint. But notice that the other disadvantages of legal tender privileges for debased coins still remain: heterogeneity of the coin supply and fiat deflation, economic destruction of the creditors, and disruption of the international division of labour. We have seen that these problems did not exist when legal tender laws benefited fractional-reserve notes (and other debased money certificates that were not physically integrated with the bullion). Let us now see how monopoly affects the workings of a fractional-banking system.

Suppose again that we find ourselves in the Country of Oz. This time, nobody in Oz makes coins, but three banks issue notes called the pound, the mark, and the franc. The government makes the pound alone legal tender, but it does not outlaw the use and production of marks and francs. If all three banknotes are genuine money certificates, the impact of this law is, again, insubstantial. By contrast, if fractional-reserve banking were legal in Oz, a legal tender monopoly for the pound would entail a pound-inflation, very much as in the above case in which there was an inflation of debased ducats.

Yet, the similarities stop here. Whereas the ducat in our above example played the role of a standard of inflation, the pound in our present example does not play any such role. Legal tender privileges for the banknotes of one bank do not prevent a race to the bottom, in the course of which each of the other banks attempts to reduce its reserves as far as possible. Assume, for example, that the pound bank reduces its reserves to 30 percent of its nominal issues. This in no way prevents the mark bank and the franc bank from reducing their reserves even further, say, to 20 percent. Quite to the contrary, there are very powerful incentives for the banks to do precisely that. Fractional-reserve banking systems labour under moral hazard. Each bank has an incentive to be especially reckless in diminishing its reserves (issuing further notes without coverage) because it can rely on the other banks as some sort of a safety net. This incentive is just as present if only one bank enjoys legal-tender privileges. All the other banks then have the tendency to rely on this bank, the notes of which all market participants are obliged to accept in lieu of specie. Thus, we see that, when legal tender privileges are accorded to just one bank, the cartelisation and centralisation of the banking industry crystallises quite naturally around the privileged bank, thus turning it into a central bank.

Notice that the privileged bank then comes into the awkward position that, due to its very privilege, it has to keep larger reserves than all other banks, and is therefore likely to operate less profitably, at least on that account. This was, in fact, the constant complaint of the Bank of England during most of the nineteenth century. It was the only bank to enjoy legal-tender privileges for its notes. Yet, all other banks relied on it for cash, so it was forced to keep larger reserves than it would have wished.

Although a central bank is, in many respects, more powerful than the other banks, its fortunes are not independent of the latter. There is still the ultimate reality of moral hazard inherent in the fractional-reserve principle. It is easy to see that moral hazard has the tendency to explode the entire banking system. If the other banks are reckless in reducing their reserve ratios, then the central bank sooner or later must follow suit, lest it provoke a general banking crisis right away. On the other hand, the central bank cannot indefinitely go on reducing its reserves without sooner or later jeopardising its own liquidity, and, thus, the liquidity of the entire banking system.

As we see, then, the fractional-reserve principle sets the banking system on an expansion path. Smart managers might be able to prevent many crises on that way, but such managers are rare, and even they

cannot prevent that redemption demands will sooner or later exceed available money reserves. The history of nineteenth-century national banking cartels, as well as the history of international banking cartels until 1971, is very much the history of smart managers inventing ever-new institutions to delay the final bankruptcy.

CONCLUSION

In this article, we have developed the economic analysis of legal tender laws. We have shown that such laws tend to entail a decline of the price level and, therefore, *indirectly* benefit monetary schemes that allow for a rapid expansion of the money supply, such as fractional-reserve banking. We have further demonstrated that legal tender laws produce very different effects when they are *directly* applied to protect the use of inflationary banknotes than when they protect the use of debased coins. From the point of view of a government bent on financing its operations through inflation, legal tender laws are better applied to banknotes than to coins.

These facts have a number of interesting implications. Consider that banking has come to play a paramount role in modern economic life. The usual explanation stresses the efficiency gains that a larger banking sector allegedly entails for the entire economy. In light of the foregoing considerations, this explanation, whatever its intrinsic merits, must certainly be amended. We have demonstrated that fractional-reserve banking is a superior inflation technique than its historic predecessor. Governments, therefore, had an incentive to promote fractional-reserve banking and paper money, rather than cultivate the old techniques of debasement. We can, thus, account for the present prominence of fractional-reserve banking even if it provided no net benefit for the economy at large. The fact is that it serves the government purse, and it serves it better than any previous inflation technique.

Moreover, we can account for the *gradual* growth of fractional-reserve banking by the fact that it has first been promoted indirectly, namely, through bimetallist regimes. Only later did it receive direct support in the form of legal tender privileges for the banknotes of the central banks. This, in turn, accelerated its growth and generated the structural features of the financial system prevailing in the West: preponderance of fractional-reserve banking and paper money.

We have pointed out that the theoretical analysis of legal tender laws is a completely neglected field. Our study has demonstrated that

this neglect is unjustified. Further theoretical and applied (historical) research is likely to substantiate this result and to yield other interesting findings in this field.

BIBLIOGRAPHY

- Breckinridge, S.P. *Legal Tender—A Study in English and American Monetary History*. New York: Greenwood, 1969.
- Campbell, C.D., and R.G. Campbell. *An Introduction to Money and Banking*. New York: Holt, Rinehart & Winston, 1972.
- Cannan, Edwin. *The Paper Pound of 1797–1821*. 2nd ed. London: King & Son, 1925.
- Chandler, L.V. *The Economics of Money and Banking*. 6th ed. New York: Harper & Row, 1953.
- Halm, G.N. *The Economics of Money and Banking*. Homewood, Ill.: Richard D. Irwin, 1961.
- Hayek, F.A. *Choice in Currency*. London: IEA, 1976.
- . *Denationalisation of Money*. 2nd ed. London: IEA, 1978.
- Hazlitt, Henry. “The Search for an Ideal Money.” *The Freeman* 25, no. 11 (November 1975).
- Higgs, Robert. *Crisis and Leviathan*. New York: Oxford University Press, 1987.
- Hoppe, Hans-Hermann. “How is Fiat Money Possible?—or, The Devolution of Money and Credit.” *Review of Austrian Economics* 7, no. 2 (1994).
- Hülsmann, Jörg Guido. “Economic Principles and Monetary Institutions.” *Journal des Economistes et des Etudes Humaines* 10, nos. 2/3 (July/September 2000).
- . “Has Fractional-Reserve Banking Really Passed the Market Test?” *Independent Review* 7, no. 3 (Winter 2003).
- . *Logik der Währungskonkurrenz*. Essen: Management Akademie Verlag, 1996.
- Hutchinson, H.D. *Money, Banking, and the U.S. Economy*. 7th ed. Englewood Cliffs, N.J.: Prentice Hall, 1992.
- Kemp, Arthur. *The Legal Qualities of Money*. New York: Pageant Press, 1956.
- McCallum, B.T. *Monetary Economics: Theory and Policy*. New York: Macmillan, 1989.

- Mises, Ludwig von. *Human Action*. Scholar's ed. Auburn, Ala.: Ludwig von Mises Institute, 1998.
- Mishkin, F.S. *The Economics of Money, Banking, and Financial Markets*. New York: Harper Collins, 1995.
- Niehans, J. *The Theory of Money*. Baltimore: Johns Hopkins University Press, 1978.
- O'Bannon, H.B., D.E. Bond, and R.A. Shearer. *Money and Banking: Theory, Policy, and Institutions*. New York: Harper & Row, 1975.
- Oresme, Nicholas. "A Treatise on the Origin, Nature, Law, and Alterations of Money." In *The De Moneta of Nicholas Oresme and English Mint Documents*, edited by Charles Johnson. London: Thomas Nelson and Sons, 1956.
- Pesek, B.P., and T.R. Saving. *Foundations of Money and Banking*. New York: Macmillan, 1968.
- Prather, C.L. *Money and Banking*. 9th ed. Homewood, Ill.: Richard D. Irwin, 1969.
- Rau, Karl Heinrich. *Grundsätze der Volkswirtschaftslehre*. 7th ed. Leipzig & Heidelberg: Winter, 1863.
- Redish, Angela. *Bimetallism—An Economic and Historical Analysis*. Cambridge: Cambridge University Press, 2000.
- Ricardo, David. "Proposals For an Economical and Secure Currency." In *Works and Correspondence*, edited by Piero Sraffa. Vol. 4. Cambridge: Cambridge University Press, 1951–73.
- Ritter, L.S. *Principles of Money, Banking, and Financial Markets*. New York: Basic Books, 1986.
- Rothbard, Murray N. *The Panic of 1819: Reactions and Policies*. New York: Columbia University Press, 1962.
- . "Hayek's Denationalised Money." *The Libertarian Forum* 15, nos. 5–6 (August 1981–January 1982).
- . *Power and Market*. 2nd ed. Kansas City: Sheed Andrews & McMeel, 1977.
- Salin, Pascal. *La vérité sur la monnaie*. Paris: Odile Jacob, 1990.
- Schaling, E. *Institutions and Monetary Policy*. Aldershot, U.K.: Edward Elgar, 1995.
- Sennholz, Hans. *The Age of Inflation*. Belmont, Mass.: Western Islands, 1979.
- . *Money and Freedom*. Spring Mills, Penn.: Libertarian Press, 1985.
- Steiner, W.H. *Money and Banking*. New York: Holt, 1941.

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- Taeho, K. *International Money and Banking*. London: Routledge, 1993.
- Thorn, R.S. *Introduction to Money and Banking*. New York: Harper & Row, 1976.
- Wagner, Adolph. *Die russische Papierwährung*. Riga: Kymmell, 1868.
- Weintraub, R.E. *Introduction to Monetary Economics*. New York: Ronald Press, 1970.
- Whittlesey, C.R., A.M. Freedman, and E.S. Herman. *Money and Banking: Analysis and Policy*. New York: Macmillan, 1963.

In a loan contract, the availability of money is transferred to the borrower, who must return it at the end of the term and pay the interest. The borrower is free to use it in any way. In a deposit contract, the money is in custody and the depositor can withdraw it on demand, it is available to him at all times. The borrower - the bank - must keep a 100% cash reserve, if the reserve is smaller it is known as fractional reserve banking. (This is sometimes shortened to FRB for convenience.)