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Debt as the Basis of Currency: *The Monetary Economics of Trust*

By NEIL T. SKAGGS*

ABSTRACT. Even more than most nineteenth-century economists, Henry Dunning Macleod recognized the importance of trust in a properly functioning monetary system. Macleod developed a credit theory of money in which he argued that money originated as a debt claim against society. The value of money depends on the willingness of economic agents to accept it, no matter what material the money is made of. Macleod applied this theory to the evaluation of other systems in which money is not based on debt, showing the dangerous consequences that could arise from pursuing other theories of money creation to their logical conclusions.

I

The Nineteenth Century Ideology

S. HERBERT FRANKEL'S EXCELLENT LITTLE BOOK *Money: Two Philosophies* contains a chapter entitled "The Nineteenth Century Ideology," in which he argues that nineteenth-century thinkers understood that "borrowable money" (Walter Bagehot's phrase) emanated from an organic credit system. Rather than being constructed on some rational plan, such a system grew from individual relationships between and among many different lenders, borrowers, and guarantors. The success of such a system (Walter Bagehot argued) lay in the willingness of those possessing financial wealth to hold assets other than coin. That is, the system was successful because individuals possessing financial wealth were willing to entrust their money to those in need of liquid funds in exchange for promises to repay the loan principal plus interest in the future. For Bagehot (as for Frankel), trust lay at the center of England's financial system.

Bagehot wasn't alone in his view of the situation. As Frankel notes, continental writers also struck the theme. Prominent among them were Georg Simmel and Carl Menger. Simmel recognized the element of trust inherent

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not just in private lending but in a nation's money itself; he compared "money to a bill of exchange drawn on society on which the name of the drawee has not been filled in" (Frankel, 1977, p. 32). Menger, of course, is famous for his argument that money arose as "the unintended result, as the unplanned outcome of specifically *individual* efforts of members of a society" (1963, p. 155; quoted in Frankel, 1977, p. 32). In addition to these well-known contributors to monetary thought, Frankel also saw fit to comment on the ideas of a little-known Victorian writer, Henry Dunning Macleod, who went beyond the belief that a sophisticated monetary system must be based on trust to argue that money *is* credit, although of a more perfect sort than individual credit. It is with Macleod's theory of credit money, and a particular application of that theory, that we are concerned in this paper.

I have examined Macleod's credit theory of money elsewhere (Skaggs, 1997). Here I demonstrate the usefulness of Macleod's notion by examining his dictum that money must be based on debt, and hence on trust. When money is grounded in debt, and the institutional structure of the system generating and trading debt claims is sound, the monetary system should provide the greatest support for economic activity while generating the fewest problems. The following three sections briefly review Macleod's theory of money, examine Macleod's application of it to a particular errant species of monetary theory, and draw conclusions from Macleod's analysis for our own day and age.

II

Macleod's Theory of Credit Money

ACCORDING TO THE STANDARD MYTHOLOGY, money arose in the midst of pre-history when traders, seeking to reduce the transaction costs of exchange, began to accept certain commodities with the intent of exchanging them in the future, rather than from the desire to use or consume the commodities themselves. As more traders became willing to accept these "tradable" commodities, they became increasingly demanded for exchange purposes. Over time, commodities enjoying a narrower sphere of acceptance gave way as media of exchange to commodities generally accepted over wider spheres. By an evolutionary process, a particular commodity eventually came to dominate the trading process. Because the primary function of this

generally accepted commodity was to act as a medium of exchange, the physical qualities of the commodity were important. Durability, divisibility, and portability, among other desirable attributes, made one of the precious metals especially suited to serve as the medium of exchange. Thus, over time, barter societies were transformed into monetary societies by the self-interested behavior of individual traders. Later, in recorded history, credit systems grew around money, as market participants sought to economize the use of commodity money to extend their ability to trade and to reduce transaction costs.

This story, although most closely associated with Carl Menger (1804/1871), can be found in one form or another in the works of many earlier writers, including Adam Smith (1723/1790). No doubt it contains more than an element of truth, and it has exercised an important influence on monetary theory over the past two or three centuries. In its Mengerian version, the story has taught us to consider seriously the way in which monetary institutions evolve without formal direction, an important topic in its own right.

But this standard myth is not without competitors. Not long before Menger first stated his well-developed version of the standard myth, Henry Dunning Macleod developed a quite different story explaining the development of money. According to Macleod, money arose only after credit became widely used. In fact, money arose as the social analog to previously existing private credit. This order of events imposed a different meaning on money. Although taking the form of a particular commodity, money was perceived not as merely a valuable commodity that circulated as a medium of exchange but as a claim against the services of the society that accepted the commodity as money. The primary function of money, viewed in this light, is that of a measure of value, although it also serves as an exchange medium. Thus, Macleod's story more or less turns Menger's story upside down.¹

Like Menger, Macleod began his discussion of the development of money with an examination of barter exchange. Macleod thought the primary problem inherent in barter was the frequent need to trade one good or service for another of substantially different value. The trader of a more highly valued good might not wish to acquire multiple units of the good or service offered by a second trader. However, whereas Menger saw in this inequality of values the source of money, Macleod perceived the

source of credit. By accepting a debt claim against the second trader—a promise to remit specified services in the future—the trade could be effected (Macleod, 1855, p. 23; 1882, pp. 42–43). The debt could then be eliminated by the performance of services at a later time (1855, pp. 23–24).

If the debt claim were put in writing, another avenue for reducing transaction costs would emerge. In many instances it might be convenient for the debtor to provide a good or service to a third party, to whom the creditor in the initial transaction is in debt. If the debt claim were expressed as a written obligation, it could be transferred to the third party, enabling the initial creditor to fulfill his obligation to the third party without transferring any commodity or performing any service (1855, p. 24).

Macleod defined any written obligation transferred in the payment of debts as “currency,” stating that currency “is nothing more than the evidence of services having been rendered for which an equivalent has not been received, but can at any time be demanded” (1855, p. 24). Currency merely facilitates the transfer of debts from one person to another, “and whatever means be adopted for this purpose, whether it be gold, silver, or paper, is a currency” (1855, p. 25). The value of such currency derives wholly from the subjectively perceived ability of the issuer of the obligation to perform the promised services. A debtor who issues an excessive quantity of claims against himself would see the value of his currency depreciate because an overissue of promises creates doubt regarding the issuer’s ability to perform the services promised. Such a currency, having value only so long as people agree to receive it, depreciates to the extent by which the perceived value of the currency falls below its professed value (1855, pp. 25–26).

In addition to its tendency to depreciate, Macleod believed that a paper currency (written obligations) would have another inconvenience. The recipient of such a written obligation might want to spend only a portion of his currency at any point in time. Thus, convenience demands that “the quantity of the currency should bear some relation to the amount of the debt.” But it would be “laborious and tedious” for the issuer to issue numerous pieces of paper acknowledging a fraction of the debt; “so the next improvement would be to have the currency made of a substance which might be divided into any number of fragments, and each fragment represent a proportional part of the debt” (1855, p. 27). An ideal currency would be uniform in texture, easily divisible into minute fragments, and

not subject to decay. Metal obviously meets these criteria, and it was inevitable that people would discover its usefulness for this purpose.

A socially sanctioned metallic currency, although no different in principle than a privately issued paper currency, “depends upon a wider basis of credit” (1855, p. 30). Despite this fact, the essential nature of the currency remains unaltered: the value of the currency still depends on the credit of the economy, that is, on the willingness and ability of members of the society to perform the services promised in exchange for units of the currency. On this view, the currency—either metallic or paper—is purely representative of services promised, having no intrinsic value.

Thus Macleod was the very opposite of a theoretical metallist, one who believes “that it is logically essential for money to consist of, or to be ‘covered’ by, some commodity so that the logical source of the exchange value or purchasing power of money is the exchange value or purchasing power of the commodity, considered independently of its monetary role” (Schumpeter, 1954, p. 288). Indeed, recognizing the expense of maintaining a full-bodied metallic currency, Macleod argued that “if it were possible to have a paper currency, based upon the same credit, and which should be as generally received as the metallic currency, it would be a preferable form” (Macleod, 1855, 30).²

At this stage in his argument, Macleod still viewed the metallic currency as merely that: a debt obligation accepted by the entire society but having no intrinsic value. The economy is one of credit-aided barter, of exchange of direct equivalents (1855, p. 31). The metallic currency is measuring something other than itself—namely, services, which Macleod apparently valued in terms of labor (1855, p. 22). But even in his early writings Macleod rejected the labor theory of value (1855, chapter 2), and in later works he elaborated a subjective theory of value that was similar in many respects to Menger’s (Salerno 129–32; cf. Macleod 1892, chapter 2). Thus, although the exact measure of services envisioned by Macleod is unclear (to us and perhaps to him), Macleod’s intent is clear enough: claims against personal services lie at the root of the currency system. In contrast to a barter system, in a monetary economy

commercial transactions É proceed upon the tacit assumption of the geometrical axiom, that things which are equal to the same thing are equal to each other. Now money is that third thing which is used as the common measure, to which everything else is referred, and the superiority of [this] method is so obvious and decided, that it

has universally superseded [barter exchange] among civilized nations, and currency has followed this change, and represents this common measure of value (1855, pp. 31–32).

Using money as a measure of value³ benefits the issuers of private currencies, who achieve wider acceptability than they would if currencies were denominated in terms of particular goods or personal services.

Although conceding an “intrinsic” value to money, Macleod states clearly that the source of that value lies in its acceptability by the community, not in the value of the commodity serving as money. “Gold and silver derive their chief value from their peculiar fitness to form a currency, and they are less useful for general purposes than almost any other metal” (1855, p. 35).⁴

The genius of Menger’s theory of the origination of money—how self-interested barter leads naturally to a medium of exchange—is lacking in Macleod’s discussion of the transition from privately issued currencies to socially sanctioned money. But Macleod’s insistence on the priority of the measure-of-value function of money over the medium-of-exchange function bears up well under historical scrutiny.⁵ Macleod based his argument on his reading of the Greek classical literature and the Hebrew Bible, wherein numerous passages indicate that different Mediterranean peoples used particular goods as measures of value before generally acceptable media of exchange came into existence (cf. 1855, pp. 134–39). Had such evidence not existed, Macleod still was compelled by the nature of his theory to conclude that the primary function of money is as the measure of value. For, “Its first quality is, to measure and record the services done by the person who earns it” (1856, p. lxxi), thus recording the claim of the producer of services against the services of other members of society. Furthermore, money is but one among many media in the circulating currency, differing only in degree, not in kind, from other credit instruments. As a generalized debt claim, money possesses superior liquidity based on the greater confidence a person has in the ability of the economy to provide the expected services than in the ability of an individual to do so (1855, p. 29), but it is nevertheless of the same species as other currencies (credit instruments).

Of what practical importance is Macleod’s insistence that money is social credit? Does the distinction between claims backed by promises to remit valuable goods and services and claims backed by the value of a commodity—or by nothing more than legal tender laws—make any real dif-

ference? Macleod's distinction is important, for two reasons. First, the belief that money and circulating currencies are grounded in the creation of value has important implications for how we view the role of bank credit creation in economic development and growth. Interestingly, Macleod saw a greater role for credit-financed economic growth than did most of his contemporaries. Only within the last few decades have economists once again thought along the lines pioneered by Macleod (cf. Skaggs, 1997; 1998). Second, because Macleod's theory explicitly ties the creation of currency to the creation of goods and services of value to the society, adherence to Macleod's views would have prevented many of the "honest" monetary mistakes that have been made over the past few centuries.⁶ Macleod emphasized both points throughout his books; we now turn to an investigation of the second point.

III

Application: Macleod's Attack on Lawism

AS WE HAVE SEEN, MACLEOD'S FUNDAMENTAL PROPOSITION is that currency must be based on debt. Money differs from other currencies only in that it represents social rather than personal debt. Macleod averred that only currency based on debt holds its value.

Maintaining the value of the pound sterling had become the *sine qua non* of British monetary policy by the time Macleod wrote. Yet, coexisting with this monetary orthodoxy Macleod also perceived a widespread sympathy for expanding the money supply in such a way as to promote greater production without affecting prices. The supporters of such supposedly noninflationary plans to expand the money supply would have recoiled in disgust had they been recruited to support a revived version of John Law's famous Land Bank scheme. Yet, Macleod argued, ideas enjoying respectability in the nineteenth century were nothing more than reformulations of Law's "fatal delusion."

Macleod demonstrated that schemes to expand the money supply by basing paper money on something other than the economy's measure of value have arisen repeatedly. He dubbed all such schemes "Lawism," in honor of the persuasive Scotsman who brought the finances of France to utter collapse early in the eighteenth century.⁷

Macleod recognized three varieties of Lawism:

1. To base Paper Money upon the security of Land.
2. To issue Paper Money based upon the discount of Mercantile Bills.
3. To issue Paper Currency on Public Securities or Public Debts (1891, pp. 658–59).

We shall examine each of Macleod's examples in turn.

John Law (1671–1729) was interested in money and credit because of his concern for the poor and their lack of employment (cf. Vickers, 1959, p. 113), which he related to the scarcity of money in circulation (1966, p. 13). Law believed that, if the money supply could be expanded in a non-inflationary manner, trade would flourish and his countrymen would find employment. Thus he set about formulating a plan by which the quantity of silver money in Scotland could be augmented with paper money without affecting prices. Law, whose understanding of credit and banking drew exceptional praise from Macleod, argued that expanding bank credit as a means of enlarging Scotland's trade was impracticable because bank credit is limited by the money held in reserve, which was insignificant. Only an extension of money would aid the economy. Such an operation would be safe, Law argued, because "any other goods which have the qualities necessary in Money, may be made Money equal to their value with safety and convenience" (1966, p. 112; quoted in Macleod, 1891, p. 658). Land, thought Law, possessed one particular quality to a greater degree than did silver: because land was in fixed supply, although the demand for its products would rise in a growing economy, the (real) value of land would appreciate over time.

Law's plan was to have the government issue notes in exchange for mortgages up to the amount of the fee simple at twenty years purchase, that is, up to the present value of the production of land evaluated at an interest rate of 5 percent. These notes, backed by the value of the land, would not depreciate, but would be used to hire workers to improve the quality of farms and increase production. The income produced would generate demand for products of all types.⁸

Although unsuccessful in persuading the Scottish government to implement his plan, Law later put it into effect in France, with disastrous results. To Macleod, the collapse of Law's Mississippi scheme was virtually inevitable because of the errant view of money on which it was based. "The

slightest reflection will show that Law's scheme of basing Paper Money on land and commodities involves this palpable absurdity: 'That a person can buy commodities, and also have the Price, or Value, of them in Money, as well' (1891, p. 664). Elaborating on the absurdity of Law's scheme, Macleod continues:

According to Law's scheme, everything whatever may be turned into money, land, plate, jewelry, corn, cattle, furniture, pictures, statues, horses, cattle [sic], carriages, &c.

Now, when a person has gratified his tastes, and procured any of these articles as an equivalent for the services he may have rendered, his Debt is extinguished—there is no Debt due to him: he has no claim for further remuneration. But the practical result of Law's scheme is that a person may obtain these articles in satisfaction of his claims: and also have the Value of them in Paper Money as well. That is, he may buy an article and also keep the Price of it—which would certainly be a marvelously Royal road to become wealthy

Because he has only to buy certain articles: keep them: issue their value in Paper Money: buy fresh articles with that: keep these fresh articles: issue Paper Money on them: and buy fresh articles with that: and so on ad infinitum

But the natural, inevitable and necessary consequence of creating vast masses of Paper Money which represent no debt is that they are poured into the existing Channel of Circulation, or the previously existing quantity of Debt: and reduce the value of the whole Circulating Medium, or Currency, to nothing (1891, pp. 664–65).

Macleod noted that the "first form of Lawism" had been practiced not only by Law himself but by the directors of the Ayr Bank (whose collapse Adam Smith had discussed); the French revolutionary government, in its issuance of assignats; and the Bank of Norway in the first quarter of the nineteenth century (1891, pp. 665–67). In all cases, collapse or massive depreciation took place.

As Macleod noted, no respectable nineteenth-century Englishman would have supported another trial of Law's system. But, he charged, some who would express only disdain for Law's scheme were willing to support other plans that were, from Macleod's perspective, identical. In fact, the official policy of the directors of the Bank of England during the Cash Restriction of 1797 to 1821, and of the Bank of Ireland in the same period, was nothing but Lawism in different guise. Their operating rule—the infamous Real Bills Doctrine—permitted them to put into permanent circulation paper currency that was not representative of debt.

The directors of both banks "admitted that before the Restriction, they could not make unlimited issues on the discount of good mercantile bills:

and that if they persisted in increasing their issues in the face of an adverse exchange, it would, in no very long time, have compelled them to stop payment" (1891, p. 668). However, after the suspension of convertibility, the directors argued that, as long as they issued their notes only in discount of "good" mercantile bills, overissuance, and consequent depreciation of the exchanges, was impossible.

Macleod argued that a policy of discounting all good bills presented to the Bank of England was appropriate so long as the Bank's notes were convertible into coin on demand, for such a discount amounted to nothing more than an exchange of debts. When a bill matured and was repaid in Bank notes, both debts were eradicated. Should the bill's acceptor default on payment and the Bank suffer a loss, the Bank notes would remain in circulation. However, the check of convertibility into the measure of value (gold) would prevent such an accidental overissue from affecting prices. Excess notes would be returned to the Bank for conversion into coin, thus reducing the currency and the Bank's capital by the amount of its bad loan (1891, pp. 671–72).

The situation changes when Bank notes are no longer convertible into coin or bullion. Discounts of good bills—by which Macleod meant an "advance upon a successful operation"—still have no effect on the value of the currency. However, discounts of "bad" bills—used to finance operations that fail—eliminate the debt of the borrower (through default) while leaving the additional notes as part of a permanently larger circulating currency. The accretion over time of bad loans increases the circulating currency in "proportion between its amount and the work it has to do" (1891, p. 671), thereby reducing its value. In fact, this holds true even if the borrower manages to repay the Bank from his previously accumulated capital because "every loss of capital to an individual is a loss of capital to the whole community" (1891, p. 673).

Given Macleod's general clarity of thought on issues concerning money and credit, this is a surprisingly poor critique of the Real Bills Doctrine. Macleod completely misses the point, well established by Henry Thornton in 1802, that inflationary overissue can occur entirely through the discount of good bills (even on Macleod's definition of the term). Macleod argues as if only notes issued in the financing of unsuccessful projects can affect prices. Ironically, had Macleod followed his own principle to the letter, he would not have fallen into this trap. Macleod argued that any exchange of

debt (a bill) for debt (Bank notes) would not affect the value of the currency. But when Bank notes are inconvertible, they represent debt only in an accounting sense, not in any immediate economic sense. To the extent that the directors expected to have to convert their notes into gold sometime in the future, some expected debt existed. However, the government's antipathy toward resumption of cash payments while the Napoleonic wars raged pushed the prospect of redemption in the measure of value well into the future. In short, the Bank was not buying debt with debt but was, to some extent, buying debt with currency. Only a physical limitation of the amount of currency thus issued (a limitation in violation of the Real Bills Doctrine) could keep the currency from depreciating.

The third example of Lawism dissected by Macleod is that of issues of currency "backed by" public debt. "The Bank of England was the first example of this form of Lawism." The newly formed Bank advanced its capital to the government in exchange for an annuity, which was "the full equivalent for its advance." But in addition the Bank was permitted to issue notes to the full amount of the advance. "The Bank purchased an annuity of £100,000 a year from the Government for a sum of £1,200,000: and then they were allowed to have the price of the annuity as well. Thus, the Bank was allowed to perform an operation which some persons think impossible, they eat their cake and had it too" (1891, p. 676).

Such behavior, if taken to the full limit of the government's debt, would have greatly depreciated the currency. That a large depreciation did not follow owed solely to the fact that the government restrained itself in using the Bank as a source of finance. Macleod noted that issuing currency against public debt "might be done to a certain limited amount without producing mischief: but, as a general principle, it was utterly vicious. Because it is of the essence of a true principle that it should be capable of being carried out to any extent, under all circumstances" (1891, pp. 676–77).

The same principle was followed to a greater extent in the United States. Many states permitted banks to issue notes to the full extent of their holdings of specified public securities. Perceiving that they might earn revenues both from the securities and from the issuance of notes, many banks rushed to deposit securities and issue notes in 1834, 1835, and 1836. The result was an immense rise in prices, and a subsequent increased demand for specie, that caused a suspension of payments in 1837 (1891, pp. 677–79).

Macleod's individual criticisms of the three forms of Lawism were not unique; many nineteenth-century economists criticized separately each of the three forms. Nor, in the case of the Real Bills Doctrine, was Macleod's critique especially perceptive. However, Macleod deserves credit for perceiving the common thread among all three. Each, in its own way, violated Macleod's principle of a sound currency: Where there is no debt, there is no currency.

IV

Conclusion: On the Merits of Thinking of Money as Credit

LIKE ADAM SMITH'S MONETARY AND BANKING THEORIES (Santiago-Valiente, 1988), Macleod's theory of money and credit is normative. The essential message of Macleod's theory is that basing currency on debt—anchoring it in trust—limits the issuance of currency to an amount proportionate to “the work it has to do.” Rather than a potential evil to be regulated or suppressed, Macleod saw credit, properly based on the economy's measure of value, as incredibly beneficial to economic development. His vision of what might be accomplished with the aid of credit was expansive. Macleod argued that the rapid economic development of Scotland between Adam Smith's day and his own owed more to the Scottish banking system than to any other single factor (Skaggs, 1998). In a system with unused resources—the typical economy, Macleod thought—judiciously issued credit could perform the same work as savings accumulated from past profits. Expected future profits could serve just as well as realized past profits as the basis of finance. The key was to extend credit only to those whose prospects of success were genuine—borrowers who could be trusted.

Other nineteenth-century economists held views on credit similar to, although generally less expansive than, Macleod's. What sets Macleod's theory apart from the rest is his insistence that money, the economy's measure of value, should also be viewed as credit. In this Macleod was arguing that originally there had been, and still there should be, a link between the amount of money a person acquires and the value of the services that person provides to society. An individual's possession of money indicates society's debt, in goods and services, to that individual. Macleod's theory represents an attempt to link explicitly the creation of money to the creation of valuable goods and services.

At a practical level, Macleod adhered to the gold standard, not because he believed gold imparted value to money but because of the natural and technological limits restricting the quantity of gold in circulation. At base, all monetary theories—commodity, quantity, credit—recognize that the value of money depends on its quantity relative to the real quantity of goods and services to be exchanged. Had Macleod been able to envision a system in which a supercomputer recorded value units in the accounts of producers and transferred those units from person to person as business was transacted, he surely would have preferred it to the gold standard (cf. 1855, p. 30). Lacking such a technological solution, he advocated a system in which money represented the claims of miners against the production of the economy.

In the wake of the 1970s and 1980s, decades when inflation and financial collapse taught Americans the value of a sound financial system, the issue of trust has re-emerged in policy discussions. The nineteenth-century ideology now appears less quaint than it did when Frankel wrote in the mid-1970s. We (economists, if not all politicians) now understand clearly that regulatory systems that create moral hazard violate the public's trust. And by its palpable concern for price stability, the Federal Reserve has shown its commitment to reestablishing a relatively constant measure of value. Under a fiat money standard, the value of money hinges on political decisions. The centralization of decision making in such systems makes credibility—a synonym for trust—even more important today than when gold reigned supreme.

Notes

1. Modern critics of the standard (Mengerian) story can be found among economic anthropologists and institutional economists. Randall Wray (1993), drawing on anthropological insights and evidence, and on institutionalist theory, has argued that money and markets developed together. In fact, no barter-based market economies ever existed. This puts him at odds with both Menger and Macleod, although much of his argument is closer to Macleod's position.

2. Despite his rejection of theoretical metallism, Macleod was a practical metallist who believed that "the monetary unit 'should' be kept firmly linked to, and freely interchangeable with, a given quantity of some commodity" (Schumpeter, 1954, p. 288). His reasoning is straightforward: The value of the currency "follows exactly the same rules as the relative values of any other commodities" (1855, p. 110), being determined by demand and supply. Physical limitations on the production of gold curtail the extent of fluctuations

in its value caused by variations in supply. Anchoring the value of paper currency to gold serves to limit the quantity of paper currency that can be sustained in circulation.

3. Measure, not standard. A standard of value implies an invariable measure, which is impossible because value depends on the ratio of quantities (1855, p. 11).

4. "The person who takes Money in exchange for a product only does so because he **believes** or has confidence that he can exchange it away again for something he does want whenever he pleases. It is therefore what is called **Credit**" (1822, p. 44).

5. Compare Wray (1993) and sources cited in its bibliography.

6. Macleod was not interested in attacking avowedly inflationist policies. From his perspective in the second half of the nineteenth century, inflationism was a straw man.

7. The essence of **Lawism**, as we designate the scheme, is to base Paper Money upon some other article of value than money: not redeemable in specie: but which shall at the same time maintain an equality in value with specie: and with Paper Credit redeemable in specie" (1891, p. 656).

8. Law well understood the concept of a circular flow; see Murphy (1993).

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