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Property Ownership and Money: A New Synthesis

Frank Decker

Abstract: I expand on the ownership-based approach to money and argue that core elements of conflicting commodity, state, credit, and ownership-based money views can be integrated into a theory of money through a framework based on claims to property and the associated categories of settlement assets and money of account. This new synthesis reveals that, in all major ownership-based societies, individuals have entered into economic dealings by issuing enforceable claims to their property on the basis of ownership and security. Claims to property historically emerged in two forms: (i) debtor-issued claims, including negotiable instruments and book accounts; and (ii) creator-issued claims, such as bank notes and bank deposits. Commodities, coins, and state instruments attain their monetary roles because they allow private claims to be finally settled. Eight archetypes of monetary arrangements, reflecting the historical evolution of monetary systems, are identified and compared. I demonstrate the role of property assets in money creation, the proper significance of money of account, and delineate the role of state-issued payment instruments.

Keywords: money, monetary arrangements, monetary systems, ownership, property rights, security, settlement, state money

JEL Classification Codes: E31, E32, E40, E42, E50, E51, K11, N10, O10, P14

> *Nothing is so easy as to invent a money which may make land circulate as well as houses.*
> *– James Steuart (1767)*

> *[The] effects of an integrated property process mean that Westerners' houses no longer merely keep the rain and cold out … [T]hese houses can now lead a parallel life, doing economic things they could not have done before.*
> *-- Hernando de Soto (2000)*

Commercial dealings in any modern monetary economy, with a civil or common law system, involve property (things that can be owned) and property rights, such as

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ownership, possession, and security. While possession governs the use and control of an object, ownership can be understood as the ultimate residual right left with the owner after other property rights, such as possession, have been granted to others (Goode 2004, 31). Security, on the other hand, can provide a creditor with rights against the property of a debtor, while allowing the debtor to stay in control of the assets that secure the loan. This conceptual separation of ownership, possession, and security, on one side, and the protection and enforcement of property rights through commercial and property law, on another, provide the legal basis of any credit-based monetary economy that enables loans, credit sales, leases, and mortgages.

While the critical role of ownership and security in commercial dealings is self-evident, their role in the origin and nature of money itself has only been recently recognized and placed in a coherent theoretical framework (for "ownership economics," see Heinsohn and Steiger [1996] 2002, 2013; Stadermann 2002, 2006; Steiger 2006; see also de Soto 2000). Ownership economics argues that in all well-functioning monetary systems, both past and present, genuine money (also referred to as "creditor's money") has been represented by a documented claim to property that is created when a creditor, such as a bank (private or central), issues notes to a debtor (e.g., a producer) as part of granting a secured loan (Heinsohn and Steiger 2013, 3). This theory has established, in a "rigorous fashion[,] the essence of money ... as being completely distinct from any kind of material good" (Graziani 2008, 69-70).

The main body of this work focuses on the most important aspect of ownership economics — namely, money created by banks in secured loan contracts (creditor's money), with a particular emphasis on modern central banks. What is paid less attention to are payment instruments created by debtors outside the banking system (such as negotiable instruments and book accounts), and the role that commodities, coins, and state instruments played in the period predating central banking. Unlike other assets, these have played a special role in monetary systems and were considered by contemporaries as "money" or as having assigned "money" attributes. This, in turn, provided the evidence to underpin commodity (Menger 1871; Smith 1776), credit (Mitchell Innes 1913) and state theories of money (Knapp [1905] 1923). I (Decker 2010) have explored some of these issues in an earlier work, as part of a revised monetary history of colonial New South Wales, but a full theoretical evaluation remains outstanding.

My purpose, therefore, is to more fully integrate commodities, private debt instruments, bank instruments (private and central), coins, and state-issued means of payment into an ownership-based theory of money. I also attempt to resolve some of the conceptual difficulties that have long surrounded money. I argue that this synthetic view reveals that in ownership-based societies, individuals enter into economic dealings by issuing enforceable claims to their property on the basis of ownership and security, while at the same time retaining possession or control of their assets. Claims to property include both creditor- and debtor-issued claims. In turn, claims must be quantified in money of account (an abstract unit for the measurement of debts) and are finally discharged by commodities, coins, state debt instruments, or central bank notes, which attain their monetary importance because they are used to settle private obligations.

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In the first section of this article, I provide an outline of Gunnar Heinsohn and Otto Steiger's central concept of creditor's money, while highlighting certain gaps that exist in the theory. In the second section, I introduce the concept of claims to property and review the historical evidence of how claims have been deployed, quantified, and settled since antiquity. This expands the ownership-based money approach to include both creditor- and debtor-issued claims. In the third section, I discuss settlement assets and money of account. In the fourth section, I draw the different elements together, arguing that a framework based on claims to property (with creditor's money as a special case), money of account, and settlement assets allows an integration of core elements of the different commodity, credit, state, and ownership-based money views. I then identify the main archetypes of monetary arrangements found in the evolution of ownership-based monetary systems and compare them. In the last section, I provide some concluding remarks.

Creditor's Money

Before developing the argument, I need to provide a summarized account of Heinsohn and Steiger's central concept of "creditor's money." In these authors' view, money emerged as a consequence of the establishment of societies based on private ownership (as distinct from possession). Taking control of the land and distributing it is the constituting step in establishing this system and an act that also constitutes the state (Heinsohn 1984; Schmitt 1950, 15). The Greek *polis* and the Roman *civitas* are regarded as the prototypes of that process, alongside other examples from the Mediterranean and ancient Near East.

Heinsohn and Steiger (2013, 57-58) argue that once the customary rules governing reproduction and distribution in command systems and tribal communities are overturned by the new system, individuals enter into economic dealings through creditor-debtor contracts on the basis of land ownership. This is supported by the fact that the earliest known loan contracts are of private origin, and not the invention of priests or temple administrators (Bogaert 1994, 15-16). This new type of credit then is no longer based on the rules of reciprocity, but is legally enforceable even against friends and neighbors (Heinsohn and Steiger 2013, 57).

According to Heinsohn and Steiger, commodity credits in kind quickly transitioned to a system where creditors issued money notes:

> Very quickly the creditor learns to work with two different documents. He does not lend barley by weight, but instead a document no. 1 (money), a claim against his land allotment that places a burden on his land (ownership), which he continues to use (possession), i.e., by sowing and harvesting. He records this procedure in document no. 2 (credit contract), in which the debtor, the loan security, the amount of credit and the interest are recorded. (Heinsohn and Steiger 2013, 58)

Heinsohn and Steiger (2013, 58) conclude that in "the process of hypothecating the debtor's allotment of land, both debtor and creditor, in turn, comprehend

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ownership" as a right that is separate from possession. Ownership, therefore, emerges as the underlying foundation of (creditor's) money that in Heinsohn and Steiger's (2013, 13-14) view, also explains the observed absence of money, markets, and genuine economic activity in possession-based systems, such as tribal communities, feudal seigneuries, and socialist command systems.

Heinsohn and Steiger then argue that "private property owners — not yet acting as bankers — began to create money-like instruments in collateralized credit contracts with interests" (Heinsohn and Steiger 2013, 74-75). Metal rings, plates, spits, nails, miniature axes, sickles, etc. are possible candidates for this emerging creditor's money predating coinage (Heinsohn and Steiger [1996] 2002, 280; 2013, 75). These objects were symbolic representations of the pasture and grain fields of their issuers, and "were redeemable in their property" (Heinsohn and Steiger 2013, 75). In order to limit forgery (Heinsohn and Steiger [1996] 2002, 282) and to increase their acceptability outside the *polis*, these symbolical representations of land property were later replaced by privately issued coins made from precious metal (Heinsohn and Steiger [1996] 2002, 282; 2013, 76). In this view, a coin represents "a coined 'money note' [that] made the collateral directly available" (Heinsohn and Steiger 2013, 76). The authors ([1996] 2002, 284) conclude that "bank-'notes' were for a long time made from metal." This included silver, specified in Old Babylonian loan contracts, which Heinsohn and Steiger interpret as metal pieces representing land property and in the Old Babylonian Sippar took the form of roundlings and Shamash heads (Heinsohn and Steiger [1996] 2002, 258; 2013, 76; see also Silver 1995, 164). It was only later that coinage came under state control, which changed its nature from a creditor claim to a state-issued debt.

Similar principles that link property and commodities, such as gold, to creditor's money have operated in early modern and modern times: "[James] Steuart (1767) knew that the first note-issuing banks in early modern times were created as associations of strong property owners" ("men of property"), and Walter Bagehot ([1873] 1962, 83) had recognized that "debtors require 'property they wish to pledge'" (Heinsohn and Steiger 2013, 79). Bank notes were (creditor's) money,

> [and it] is the hypothecated property of the public, which has received bank notes *qua* credit, that secures this credit, as a supplement to the own capital of the note issuer, and in this way enhances the notes' acceptability with the public and secures the circulation of the notes. In the case of debtor default, notes remain in circulation. If the assets taken as loan security are not of the best quality, the note-issuing bank will need to service requests to redeem these notes out of its own capital. … [A] note-issuing bank is always liable for its notes with its property — its own capital in the broadest sense including profits. (Heinsohn and Steiger 2013, 80-81)

The property of banks included land and precious metals, against which bank notes were redeemed on demand. Heinsohn and Steiger ([1996] 2002, 286) concur with Hans-Joachim Stadermann (2002, 23; 2006, 63), arguing that banks fixed the

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price of metal in their own notes. For instance, in the nineteenth century, banks across the world set the price of gold in their currency units by purchasing and selling gold and commercial bills (Stadermann 2002, 23; 2006, 63). While prices of commodities fluctuated, this was not the case for gold. The statutes of the Bank of England required the bank not only to redeem notes, but also to issue a one pound note to anyone who delivered 7.32239 grams of gold (Stadermann 1994a, 174). This requirement stabilized the price of gold, with the causation flowing from the bank operation to the fixed price of gold (Stadermann 2002, 24). In Heinsohn and Steiger's view, the operation of this system made gold coins equivalent to bank notes, and demonstrated once again that "a coin made from precious metal ... was never something other than a bank-note printed on precious metal rather than paper" (Heinsohn and Steiger [1996] 2002, 287, author's translation).

The monetary standard (money of account) and nominal prices are also a consequence of the money creation process (Heinsohn and Steiger [1996] 2002, 309-310; 2013, 67-68, 108-109). Here, the money-creating credit contract forces an evaluation of the property underwriting the transaction in quantities of money of account that is subsequently applied to all monetary transactions. For instance, if a bank purchases a plot of land (1,000 square meters in size) and pays for it with its own notes (with a total face value of 20,000 units), the price of the land is set (at twenty units per square meter) (Decker 2013, 156, fn. 47; Stadermann 2006, 63). In a similar fashion, the debtor property is evaluated in the units of the issued bank notes if loan security is involved. In turn, the debtor/producer must set absolute prices for the produced commodities in the same money of account in order to generate the proceeds to repay the loan (Heinsohn and Steiger 2013, 107-108).

In contrast to "the neoclassical model of a real barter economy," prices are always set as absolute money prices and based on "*nominal* contracts denominated in money of account" (Heinsohn and Steiger 2013, 107, emphasis original). The monetary standard is set as an abstract standard and "must not be mistaken for a tangible standard derived from a physical standard *good*" (Heinsohn and Steiger 2013, 67, emphasis original).[1] Money of account cannot be a physical good:

> [E]ven today many people lack the capacity to understand that money of account is an abstract unit that is used to *set* asset prices, and that assets do not *have* a value to which one could link money ... [money of account is] no more a commodity than the Celsius scale is temperature. (Stadermann 2006, 240, emphasis original, author's translation)

The same relationships between property, creditor's money, money of account, and prices are seen to operate in modern central banking systems:

[1] Or as Ralph G. Hawtrey (1923, 188) points out, "the unit of account is that which persists even when the standard changes."

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> [Here, the] central note-issuing bank lends (1) central bank notes, in the first instance secured by its own capital, to the commercial bank. At the same time it drafts (2) a credit contract, which is primarily secured by tradable debt securities held by the commercial bank, which represent claims against third-party property, sold to the commercial bank by private and government debtors. (Heinsohn and Steiger 2013, 83)

Despite their status as fiat money, Heinsohn and Steiger argue that central bank notes are still redeemable in property "because commercial banks, which have obtained the notes by way of credit from the central bank, must be able to repay the notes in order to have *their* loan security *released*" (Heinsohn and Steiger 2013, 94, emphasis original).

The status of central bank money as legal tender also creates the opportunity to finance governments through central bank loans or debt purchases, or to allocate central bank funds to private institutions by accepting discount material that no longer has a genuine property basis, such as, for example, instruments that are only acceptable via government guarantees. These mechanisms replace creditor's money that is backed by private property and created in response to private transaction needs, with "debtor's money" representing "a direct monetization of state debt by the central bank" (Heinsohn and Steiger 2013, 37).

In summary, for Heinsohn and Steiger, money in its proper form is always a creditor's money and the result of a secured loan contract between a creditor and a debtor. The essence of money is of an abstract and not material nature, and money is a claim against the assets of the issuing creditor enabled by property ownership and security. Money is neither the result of barter exchanges, nor a creation of the state. It arises as a result of the interaction between private property owners, who organize their economic affairs through creditor-debtor contracts, and form networks of nominal obligations. Heinsohn and Steiger contend that, once property law is established and debt contracts are enforced by the state, money arises spontaneously as the strongest creditors — which develop into banks — begin to issue notes.

While this picture of monetary arrangements based on creditor's money is well evidenced in modern systems based on central banks, I argue that a number of objections could be made in relation to the treatment of debt instruments, commodities, and state-issued means of payment. First, Heinsohn and Steiger's creditor's money is the result of a fairly sophisticated secured loan contract between a creditor and debtor, effectively assuming that notes were issued from the very beginning by creditors in a bank-like fashion. While this is true when banks have become the dominant players, there are many documented cases where unsecured-debtor notes and book debts play a significant role as means of payment. This evidence, in turn, has formed the basis of the credit theory of money as formulated, for instance, by Alfred Mitchell Innes (1913, 402), who claims that "[m]oney, then, is credit and nothing but credit." From this follows that the role of debtor-issued notes and book debt, and their relation to creditor's money, requires further consideration.

Second, Heinsohn and Steiger assume the existence of nominal coins from the earliest beginning of ownership-based systems. However, there is much evidence that

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debt contracts, in the ancient Near East, ancient Rome, and even ancient Athens, for example, were specified in weight units of silver and bronze and discharged by weighing over extensive periods (Kroll 2008, 12-14). This suggests that property ownership can predate coinage by a considerable period of time. A similar situation reemerged in colonial economies where commodities, such as wheat and livestock, were at times declared legal tender and used to discharge obligations (see, for example, Decker 2010, 73). This evidence has been used since Adam Smith (1776) to justify a view that money originated in barter exchanges and is a commodity in its essence (Menger 1871). This raises the question as to how the discharge of obligations via commodities in ancient and colonial economies can be reconciled with an ownership-based theory of money.

Third, in order to fit coinage into their definition of creditor's money, Heinsohn and Steiger must assume that such money was originally issued by private individuals in secured creditor-debtor contracts in a bank-like fashion. While the private origin of coins is considered by some as plausible (Seaford 2004, 134), once under state control, coins were predominately issued based on state expenditure needs (Howgego 1995, 34). The fact that the state can issue payment instruments or tokens to meet expenditure needs and receive these back as taxes is the basis of the state theory of money (Knapp [1905] 1923), including the concept of money as a government liability ("outside money") (Gurley and Shaw 1960, 72-73) and the "taxes drive money view" (Wray 1998). While Heinsohn and Steiger view state money as "debtor's money," their analysis focuses on the negative attributes of that money, including the role of debtor's money in totalitarian regimes, war mobilization, financial crises, and hyperinflations. However, state instruments and coins were also part of the "normal" operation of ownership-based monetary systems in particular in the period predating modern central banking.

Fourth, Heinsohn and Steiger assume that creditor's money has the "capacity to finally settle contracts" (Heinsohn and Steiger 2006, 492). As I (Decker 2010) have previously pointed out, creditor's money in the form of typical nineteenth-century private bank notes was legally redeemable in coins and lacked the capacity to fully and finally settle contracts. State-issued coins and debt instruments had a critical role as "settlement assets" (Decker 2010), which is not explicitly recognized by Heinsohn and Steiger.

In the following sections, I attempt to resolve these issues and show how private debt instruments, commodities, coins, and state-issued instruments can be integrated into an ownership-based theory of money. This is based on a framework centered around claims to property, with the associated categories of settlement assets and money of account.

Claims to Property

In another work, I (Decker 2015b) expand Heinsohn and Steiger's concept of "creditor's money" into the more generalized concept of "claims to property." Claims to property not only include creditor-issued claims like bank notes, but also debtor-

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issued claims like promissory notes and book entries, which were historically used by debtors to discharge payment obligations. Creditor-issued claims involve three parties: (i) a note-issuing creditor, (ii) a debtor entering into a contract with the creditor, and (iii) a third party that receives the creditor-issued notes (creditor's money) from the debtor to fulfil a payment obligation. By contrast, debtor-issued claims only involve two parties: (i) the note-issuing debtor and (ii) the third party receiving the notes. Building on another publication (Decker (2015b), in what follows I develop this concept in more detail. I first look at the legal basis of claims to property and their enforcement. Then I review the historical role of debtor-issued claims as means of payment alongside creditor-issued claims. Finally, I discuss the quantification and settlement of claims, highlighting the role that commodities, coins, and state-issued means of payment play in this context.

The Legal Basis of Claims to Property and Their Enforcement

Following the division and allocation of property, the legal basis of a debt becomes the ability of the creditor to enforce claims and recover assets from the property of the debtor, including the debtor as a person. The central role that creditor -debtor relations played in ownership-based systems is evident right from the beginning, especially considering that the earliest known legislation of the Near East,[2] Athens,[3] and Rome[4] deal with the issues of debt, loan security, and enslavement for debt as a result of creditor actions.

Ancient and modern legal systems have provided two main mechanisms for recovering property from defaulting debtors. These are general debt recovery actions and loan security over identified assets. For instance, the law of Athens (c. 435–322 BC) provided that, on non-payment, a creditor can bring a case for eviction and take possession of a debtor's property. Thus, the "debtor's property continued to be subject of forfeiture" until the debt was repaid (MacDowell 1978, 142). Roman law incentivized debtors to release their property through the legal action *manus iniectio*. That is, if payment, following a successful judgment, was not made within the required time, the creditor could imprison his debtor and after a mandated period kill him or alternatively sell him as a slave abroad (Kaser 1996, 143). In later times, personal execution was complemented by execution against the debtor's property (Kaser 1996, 626). English law allowed creditors to imprison insolvent debtors, a procedure to induce the release of property that was only abolished (with some exceptions) by the Debtors Act of 1869. Modern insolvency laws provide for the liquidation of a debtor's assets, the distribution to preferential creditors, and the

[2] Cancellation of debts, periodic release of people who were enslaved for debt (Westbrook 2003a, 16).

[3] Freeing of debt-bondsmen, abolition of debt-bondage, cancellation of existing debts (Finley 1981, 157).

[4] Maximum interest rate, treatment of defaulting debtors in twelve tables (Kaser 1971, 167; 1996, 143).

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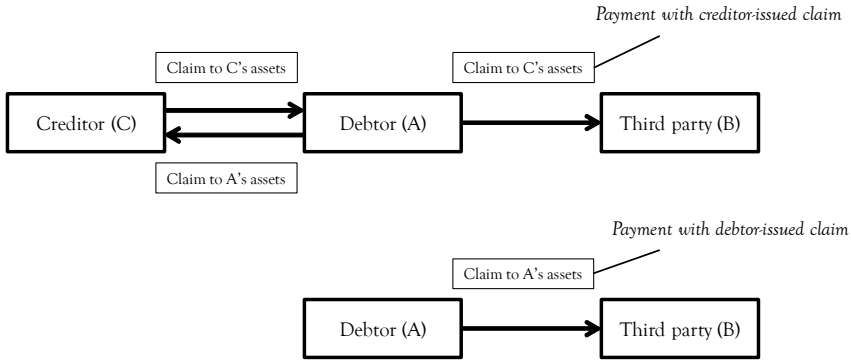
distribution of the remaining proceeds to unsecured creditors in proportion to the quantity of their claims (Goode 2004, 829).

Loan security, on the other hand, enables creditors to more quickly recoup amounts owed, and provides protection against competing claims from unsecured creditors. Evidence for the taking of loan security is available about the very beginning of ownership-based systems. Solon's reforms (c. 594 BC) in Athens mention mortgage stones (*horoi*), which evidence the hypothecation of land. About 250 *horoi* have been found and documented (Millet 1985, viii). Security is also well evidenced in ancient Near Eastern law (Westbrook 2003a, 2003b), and Roman law became the model for modern security law regimes (for an overview, see Decker and McCracken 2015).

From this, it follows that obligations assumed by note-issuing creditors (such obligations can be bank notes and bank deposit liabilities) as well as by debtors (such obligations as promissory notes, bills, secured and unsecured loan contracts, or book debts) ultimately have a property basis. This includes secured as well as unsecured claims (Figure 1). A "claim to property," therefore, is best defined as a "potential of forfeiture" or burden placed on a creditor or debtor property. It is the potential to recover from the underlying property that makes the claim valuable. As a consequence, claims can endogenously and elastically be created to meet payment obligations, while allowing the involved parties to remain in possession of their assets. This holds for both debtor- and creditor-issued claims. By contrast, Heinsohn and Steiger (2013) base their theory on secured creditor-issued claims, with a debtor as the counterparty.

Figure 1. Creditor and Debtor-Issued Claims to Property



Notes: Creditor-issued claims to property: A fulfils payment obligations toward B by forwarding notes created in a credit contract with C (claims to C's assets) backed by claims against A's assets. Debtor-issued claims: A issues notes directly, which are backed by A's assets.

Claims to property either issued by debtors or by creditors are not created "out of nothing." By contrast, secured and unsecured claims monetize property assets —

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most importantly, immobile assets like land, but also chattels, claims to future property, and even some intangible assets like the discounted value of future cash flows (goodwill). This monetization or "melting down" of property (Steuart 1767, Vol. I, 376), together with the associated legal arrangements to recover assets from insolvent debtors, are at the core of any ownership-based system. This does not preclude debtors and creditors from issuing claims without sufficient property backing. However, I argue that property assets create the foundation of the system. Institutional arrangements, such as insolvency law, loan collateral, guarantees, sureties, bank capital, and collateral/asset-based central-bank money creation, require property to either enable the recovery of claims or to act as a buffer for unforeseen losses. Without these arrangements, the system could not function or would descend into a system based on coercion or command.

The key difference of my approach to other "credit money" approaches, such as that of Mitchell Innes (2013), is the emphasis on property backing of debtor- and creditor-issued claims. Consequently, I am at odds with Joseph Schumpeter ([1911] 1934, 109, 146), who believed that money is created by banks "out of nothing" ("aus Nichts") and that its essence is the independence of preexisting commodities or assets. Stadermann (1994b, 139-140) suggests that Schumpeter's views might have been influenced by his experience of the inflation years (the second revised edition of his *Theory of Economic Development* was published in 1926) and that Schumpeter failed to recognize the extraordinary circumstances under which commercial bills were discounted by the German Reichsbank at the time of the hyperinflation. Due to the ever increasing state expenditure, the value of discounted treasury bills increased from 2,738 million Mark in 1914 to 189,801,000 trillion in 1923. At the same time, private enterprises were supplied with central bank funds through commercial bill-discounting and loans advanced by special Lombard loan agencies. By December 1922, half of all German commercial bills had been on the balance sheet of the Reichsbank (1926, 111). This meant that central bank loans to private companies were no longer subject to any market discipline. By 1923, the value of discounted commercial bills had increased to 39,530,000 trillion Mark (Haller 1976, 148-154). Enterprises with access to the central bank counter used Reichsbank credit to purchase other firms or to expand their production facilities on an unprecedented scale. Due to the rapidly deteriorating value of the Mark, these loans could subsequently be repaid at a fraction of their original cost. During this period, banks could indeed create funds "out of nothing," but, in doing so, they contributed to the destruction of the monetary and social system of the Weimar Republic.

Claims to Property as Means of Payment

Property ownership, security, and the associated enforcement of claims, create the backing that makes creditor- and debtor-issued claims to property valuable. The legal separation of ownership and possession then allows property owners to meet payment obligations by issuing claims against their property, while staying in possession and continuing with the use of their production assets, such as land, livestock, and slaves.

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For instance, a debtor receives a loan of barley seeds, which is documented in an account book or promissory note, acknowledging the debt. This debtor-issued claim to property is ultimately backed by the legal right of the creditor on non-payment to levy execution against the debtor's land. During the period of the loan, the debtor stays in possession and continues with the agricultural use of the land. The debtor then delivers barley at harvest time. This is again documented as an off-setting account entry (or promissory note), removing the burden from the property of the debtor. Alternatively, the debtor can approach a creditor, such as a bank, and obtain a creditor-issued claim by having the note discounted.

At a more general level, it is clear that most economic dealings do not produce one-off transactions, but create circular, self-liquidating payment flows. Transactions are at some stage likely to be matched by other off-setting transactions, making claims to property particularly useful in economic dealings (Decker 2010, 78; 2015b). There are, in fact, numerous historical examples attesting to the payment use of debtor-issued claims, alongside creditor-issued ones, in all major ownership-based systems.

Prominent legal examples from the ancient Near Eastern include merchant accounts, promissory notes, and debit notes in the Neo-Sumerian period (Lafont and Westbrook 2003, 212), transferable loan contracts in the Old Babylonian period (Westbrook 2003b, 405), and debt notes in the Neo-Babylonian period (Oelsner, Wells and Wunsch 2003, 950), with the setting off of debts frequently practiced (Renger 1995, 301-302). Likewise, in early modern England, "domestic commerce ran on credit" (Kerridge 1988, 33), with manufacturers, shopkeepers, and tradesmen "involved in complex webs of debt and credit" (Wrightson 2002, 293). Private individuals kept book accounts (Kerridge 1988, 33) and periodically set off debts. Only remaining balances were settled in specie: "Men went on setting over debts one against another until they encountered someone able and willing to pay cash and so end the credit chain" (Kerridge 1988, 40).

Trade relied on a system of factors and middlemen for precisely the reason that it greatly increased the opportunities for mutual set-offs to occur (Rogers [1995] 2004, 111). It has been estimated that "in the period 1538–1660 the ratio of money (coins) to debts by bond, bill obligatory and book was on average 1:9," with the inclusion of "moneylenders, usurers," bankers, and inland bills of exchange changing "the general ratio to something like 1:20" (Kerridge 1988, 98-99). In later periods, merchants or industrialists (as a result of their central role in the payment system) transformed into "bankers," with 783 country banks in England and Wales in 1810 discounting private bills and notes (Pressnell 1956, 11, 14, 292). Similar developments took place elsewhere in Europe. Bills, notes, and book accounts were also extensively relied upon in the colonies of the British Empire (Decker 2010, 65-71; 2011, 73).

The system in ancient Greece and Rome has long been regarded as different. It was held that the Greeks and Romans had no negotiable instruments and that all money consisted of coins (for a discussion, see Harris 2008, 193, 174). This has led authors to believe that elastically created credit money was a special characteristic, or even the "essence" of modern capitalism (see, for example, Ingham 2004, 108). This must come as a surprise, given that it was the Greeks and Romans who created the

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prototypes of ownership-based societies and laid the foundations of property law as we know it today. If individuals in the ancient Near East and early modern Europe monetized their assets by issuing claims to their property, why not the Greeks and Romans?

These long-held assumptions have now been challenged (Cohen 2008; Harris 2008), and there is a "growing consensus that complex forms of credit and cash-less payments were essential at least from the Hellenistic period onwards" (von Reden 2010, 94). Edward E. Cohen (2008, 78-79), for example, argues that the money supply in ancient Athens was made elastic and substantially increased through bank deposits. W.V. Harris shows, for ancient Rome, that *nomina* (outstanding loans) were payment instruments of critical importance. *Nomina* were transferred and used as a means of payment, and there was even a market for *nomina*. He argues that "debt was in fact the lifeblood of the Roman economy" (Harris 2008, 184, 192-193; see already Mrozek 1985). As I (Decker 2015b) have stipulated in a different publication, these findings have long been supported by the legal evidence, including evidence for the use of account books (*codex accepti et expensi*, which recorded incomes, expenditures, as well as claims and debts; Thilo 1980, 166), the enforcement of *chirographa* and *syngrapha* (written debt notes used in Rome by people of Greek civilizations), and written debt notes as a standard form of documenting loan contracts in later periods of the Roman Empire (Kaser 1975, 369, 377).

This system of private book accounts and notes was enhanced with the emergence of banking, which became widespread, with evidence that ancient banks practiced "fractional reserve banking" and that bank funds were created by book entry exceeding the amount of coin reserves (Cohen 2008, 77; Harris 2008, 187). This revised view of the Greek and Roman monetary systems suggests that claims to property emerged alongside ownership as critical means of payment in all major ownership-based systems.

Settlement Assets and Money of Account

With property divided and rules for enforcing obligations as well as recovering property from insolvent debtors in place, a question arises as to how claims to physically different property assets can be reduced to a common economic measure (quantified) and settled. As I discussed earlier, Heinsohn and Steiger argue that this is resolved in the act of (creditor's) money creation. The associated creditor-debtor contract must be quantified in an abstract nominal unit, the money of account (Steuart 1767, Vol. I, 526). At the same time, the nominal prices of the underlying property assets (collateral and interest proceeds) are set. Creditor's money issued by a central note-issuing bank is then used to fully settle balances. In this section, I argue that similar relationships also hold for (i) debtor-issued claims settled in commodities by weight and (ii) claims that are redeemable in specie, such as nineteenth-century private bank notes. This requires a review of the proper significance of settlement assets and money of account as well as an examination of how absolute prices are set in this context.

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There is a large body of historical evidence about debtor-issued claims specified in weight units of a designated commodity. Such, for instance, is the Babylonian system of *shekel* (of c. 8.3g), *mina*, and *talent*, with the Akkadian term *siqlu* (*shekel*) meaning *weight* (Renger 1995, 288). Another prominent example is the use of weight units of bronze (*aes rude*) in ancient Rome, with property subject to a lawsuit evaluated in asses (one *as* equals one *libra*, or 327g bronze) (Kaser 1996, 83, Twelve Tables II). Old Babylonian loan contracts denominated in *shekel* were discharged by a delivery of the associated quantity of silver (by weight) or with an alternative commodity at the market or statutory rate (Schorr 1913, 75-78; Westbrook 2003b, 404). The underlying commodities were fungibles. This principle is also reflected in the standard type of loan contract (*mutuum*) in Roman law, requiring the counting, weighing, or measuring of fungibles (Kaser 1971, 170, 530). Here the requirement was to return a specified count, measure, or weight of a commodity at some future time, but not the return of the original objects (which in other loan types had to be carefully used and restored). This explains the prominent role of fungibles in loan contracts. The loaned commodity was interchangeable and could become the property of the borrower, who could use it as he/she saw fit.

Despite the dominance of account entries and debtor-creditor contracts in the sources, the historical association of monetary units with standard weight units has posed significant theoretical difficulties. Traditionally, silver is simply identified as money serving as the standard commodity ("numéraire") that, combined with the unit quantity ("étalon")(Walras 1954), provides the unit of account. In the neoclassical model of a barter exchange economy with relative prices, this standard commodity is always the price "1." In this view, it is the commodity that is the unit of account and that gives money its value. The unit of account is a physical object.

How can the principles of ownership economics, requiring an abstract money of account and the setting of absolute prices as part of nominal obligations, be maintained in this situation? As I discussed earlier, Heinsohn and Steiger uphold these principles by assuming that the silver specified in Old Babylonian loan contracts constitutes metal pieces (roundlings, Shamash heads) akin to nominal coins representing land property (Heinsohn and Steiger [1996] 2002, 258; 2013, 76). However, this argument cannot be upheld when the reference to weighing is clear. By contrast, I argue that, even when contracts imply a weight standard and settlement occurs by weighing out the designated commodity, silver is still assigned a price in the designated unit for measuring debts like any other asset. In this context the significance of *shekel* is that of an abstract money of account, a scale or number of units, and not the amount of silver.

In the case of one *shekel* (8.3g) of silver, the price in *shekel* was "1." Property assets were then assigned prices in the number of weight units of a designated commodity — for instance, silver — as evidenced in the Ur III Dynasty merchant accounts or price lists contained in the Eshnunna law code (Postgate 1992, 193-201, 204). In the case of the Ur III merchant accounts, prices were set and confirmed in units of *shekel* each time the quantity and price of incoming and outgoing goods were entered into the merchant's account books. It is clear that this was done by book

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entry and not through actual barter exchanges, as one "can hardly suppose that each of the individual receipts was physically converted to silver" (Postgate 1992, 203). This is consistent with the fact that the evidence for barter is very limited: "The core contracts that are found in any modern legal system are present in the ancient Near East: sale, hire, deposit, loan, pledge, suretyship, and partnership … *[B]arter of goods is rarely attested*" (Westbrook 2003a, 68, emphasis added).

In a similar fashion, price relationships were established in loan contracts that stipulated the price of the debt in *shekel*, together with the amount of the commodity borrowed (Schorr 1913, 89), and represented a claim to and evaluation of the general property of the debtor. Also, secured loan contracts required a price evaluation of the underlying security, such as, for example, land, labor services if slaves were pledged, or proceeds from the land if antichretic pledges were used.

In its essence, *shekel* is an abstract unit (a money of account) and not a neoclassical standard good. As long as obligations involving silver as a commodity were frequently entered into and discharged at the stipulated price and quantity, silver would trade on par with the underlying account book entry, loan agreement, or price of goods documented in *shekel*. This is, of course, a special case where a contract specifying a nominal monetary obligation was equivalent to an exchange of goods that did not stipulate a price (i.e., ten bushels of wheat documented in an account book as one *shekel* implies that ten bushels of wheat were equivalent to 8.3g of silver as long as the price of silver in *shekel* was maintained).

The real nature of these relationships as nominal obligations were only revealed when the weight standard changed or the supply of silver dried up and the required volume of obligations could no longer be settled at the designated rate of one *shekel* equaling 8.3g of silver. Litigation concerning debt contracts payable in wheat is a case in point. Consider, for instance, the colonial case of *McArthur v. Thompson* (27 October 1806, NSW) concerning a note promising to pay fifty-five bushels of wheat without stipulating a price. How should this note be interpreted when the price of wheat had risen tenfold due to a devastating flood since the note was drawn? The court decided to apply the pre-flood price of wheat and, therefore, interpreted the note as a nominal money obligation quantified in a monetary unit, and not as a contract for the delivery of wheat. Consequently, subsequent government proclamations sought to clarify that notes were to be drawn payable and dischargeable in specie, not in goods (Decker 2010, 99-104; 2011, 75-76).

In my view, supply constraints and price fluctuations associated with commodities may also have been a contributing factor leading to the introduction of state-issued coinage in the first instance. While the reasons for the introduction of coinage are considered "irrecoverable" (Seaford 2004, 134), there is some evidence that state-issued coinage addressed situations where shortages in the supply of silver caused periodic monetary crises. These could be mitigated by the introduction of token coinage or debased silver coinage, both issued by the state (Heinsohn 1984, 140; Heinsohn and Steiger 2013, 76-77; Seaford 2004, 137-139). Obligations and prices continued to be expressed in the same money of account (e.g., *shekel* or *drachme*), but the discharge happened by counting out a corresponding number of

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coins and not by weighing out a certain quantity of a given commodity. This means that obligations could be discharged based on the principles of nominalism, i.e., with designated "chartal" objects (Knapp [1905] 1923, 7, 26), which, "if added together according to the nominal value indicated thereon, produce a sum equal to the amount of the debt ... regardless of both their intrinsic and their functional value" (Mann 1971, 76).

The legal significance of this step is that designated chartal objects have a nominal price with reference to an abstract money of account and are not used for their intrinsic value, but for their ability to discharge obligations. Legally, chartal objects are, therefore, neither bought nor exchanged. Rather, they are either "borrowed or received by way of gift or in discharge of an obligation" (Goode 1983, 4). This includes private and tax obligations. Due to this special role, chartal objects are considered money proper by the legal and state theories of money (Knapp [1905] 1923; Mann 1971).

From the introduction of coinage followed the legal principle that negotiable instruments (bills and notes) had to be redeemed in specie (for an overview, see Decker 2010, 22-23). This included promissory notes payable to bearer on demand issued by banks (bank notes). The money of account specified in these notes was legally linked to the prevailing mint standard or currency proclamations. For instance, proclamations by the governments of American, Canadian, and Australian colonies stipulated what was to be legal tender in the payment of debts and demands, and set rates for various local and foreign coins (see, for example, Decker 2011; Michener and Wright 2006). For example, an obligation of one pound Pennsylvania currency was to be discharged by 2.667 Spanish dollars, with one Spanish dollar rated at 7s. 6d. Pennsylvania pounds.

Mint standards and currency proclamations, therefore, defined a three-way relationship between the unit for the measurement of debts (pound sterling, Pennsylvania pound, mark, guilder, etc.), the objects for final settlement (Spanish dollars, English guineas, etc.), and a standard quantity of gold and silver implied in the specification of the listed coins. The colonial evidence makes it particularly clear that the unit or money of account was separate from the object of discharge, which could take many forms (Decker 2010, 61-63; Michener and Wright 2006, 24-25). The money of account, such as a pound Pennsylvania, New York, or New South Wales currency, cannot be equated with a neoclassical standard good.

From this, it follows that, when a nineteenth-century bank issued a note payable in specie as part of a loan contract with a debtor, a price relationship was established between (i) the nominal amount shown on the bank note, (ii) the price of the underlying bank and debtor property backing the note, (iii) the nominal price of coins mandated for discharge, and (iv) the price of the associated quantities of gold and silver consistent with the relevant currency proclamations and mint standards.

However, neither the legal requirement to redeem notes in specie, nor legal tender provisions can by themselves maintain price parity between the instrument (one pound note), the asset specified for settlement (one pound coin), and the implied quantity of metal (7.32239 grams of gold). As numerous examples of

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depreciated state note issues show, bills and notes are subject to valuations in their primary and secondary markets. This not only holds for debt instruments payable at future dates, but also for bank notes payable on demand. Issuers must carry out market transactions to maintain their notes at par with the ratings of local and foreign coins. As was the case for the Bank of England under the gold standard, parity will only result if an issuer frequently redeems its notes and purchases coins or bullion with its own notes. In most banking system, this price setting process occurs daily as part of the interbank settlement and the refinance operations with a central bank. Similarly, state-issued notes require market interventions if prices are to be maintained within a desired range.

Therefore, the role of the state in monetary matters should not be overemphasized. While government proclamations can establish a money of account and stipulate a price for a standard quantity of a commodity, the maintenance of the stipulated price relationships critically depends on the actions of private individuals and banks. These must constantly renew and discharge their nominal monetary obligations in the units of the proclaimed money of account and constitute nominal price relationships between coins, commodities, private obligations, and bank notes on an ongoing basis.

Based on their central role in the payment system, the units expressing the price of bank debt exert a strong normalizing force over all other nominal obligations and become the de facto standard for specifying debts. The latter can deviate from the mint standard. This is reflected in the fact that, historically, the overriding policy consideration has been the consistent treatment of nominal monetary obligations even if currency and mint standards had to be sacrificed. In the case of England, the suspension of specie payments in the wake of the Napoleonic wars protected creditors as well as debtors from the impact of financial panics. When the gold price, as expressed in the notes of the Bank of England, had risen above parity of £3 17s. 6d. to £4 19s. 6d. in 1811, proposals to calculate rents on a gold basis were strongly resented. This also led to the passing of Lord Stanhope's Act (51 Geo. III, ch. 127) that made the Bank of England notes, for all practical purposes, a legal tender. This maintained the time-honored principle that someone who contracted in pounds must take what was, by general consent, considered a pound when payment was made – at the time, the Bank of England notes (Mann 1971, 86). The units on the Bank's notes and in its account books (the "paper pound sterling"), which quantified debts in loan contracts and discount operations, were actually England's money of account.

This confirms the more general principle holding that the requirement of note issuers to specify a money of account in note-generating loan contracts implies that a monetary standard is foremost the result of a self-organizing process. The early colony of New South Wales provides a particularly instructive example of this. Contrary to government proclamations mandating a "£ sterling" standard, Sydney merchants issued and redeemed small notes denominated in "£ currency," thereby creating their own monetary standard. Courts subsequently enforced "£ currency" obligations, and English copper coins became the designated settlement asset for "£ currency" obligations and received their price from the notes (Decker 2011, 77-81, 87). The "£

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currency" became the dominant standard for domestic transactions in the early colony because the note-issuing merchants had a central role in the payment system, acted as de facto clearing houses and cooperated in the issue of currency notes. It required the creation of a note-issuing bank (the Bank of New South Wales) to abolish the "£ currency" standard and establish a monetary system based on "£ sterling." It was found that only a bank could succeed in creating a note issue through its discount and purchase operations that was maintainable at par with sterling bills on London.

Claims to Property, Settlement Assets, and Money of Account as Foundations of an Integrated Theory of Money

In my view, the above discussed cases reveal a broader economic principle. Ownership -based systems are built on the principle that property owners can monetize assets by issuing claims to their property and enter into networks of nominal obligations that are enforced by property law. I find evidence that both debtor and creditor-issued claims played a prominent role in all major ownership-based systems (ancient and modern), explaining why credit instruments are often regarded as "money" or assigned money attributes.

Historically, claims to property were documented as promises to deliver a designated asset corresponding to a nominal sum specified in the prevailing money of account. Fungibles, state-issued coins, and state-debt instruments were used to finally discharge such promises because the latter must be "discharged with something other than the issuer's own liability" (Decker 2010, 176). The adoption of a common money of account (based on weight units, mint standards, government currency proclamations, or created by a dominant private note-issuer) then allowed alternative forms of discharges, and, in many instances, property owners avoided transactions in settlement assets altogether by creating new claims or setting off their mutual claims.

This suggests a reinterpretation of the monetary role that fungibles have played historically. Commodities like silver, which are commonly identified as early forms of "money," attained a special role not because of their role in barter exchanges, but due to the fact that they became the preferred or legally mandated asset to settle debts. This classification as "settlement asset" (Decker 2010, 175) recognizes the economic importance of commodities and, at the same time, the lack of historical evidence for systems based on barter exchanges (Dalton 1982; Decker 2010, 88-91; Heinsohn and Steiger 2013, 3-6; Westbrook 2003a, 68).[5] A similar argument can be made in relation to state-issued coins and state debt instruments. While raising funds for governments, in a private context, these instruments are critical for the final settlement of private claims.

Creditor-issued claims become dominant means of payment for three reasons. First, the debtors are freed from the obligation to redeem their own notes on

[5] One could argue that barter exchanges occur precisely in systems, in which ownership and security are not available.

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demand, which is now carried out by specialized bankers, for which they are compensated with interest (Steuart 1767, Vol. II, 131).[6] Second, banking further increases the opportunities for set-offs to occur. Third, banks can set and stabilize the price of a designated commodity or asset as measured in their own notes, for example, as exercised under the gold standard (see Stadermann 2002). Collateralization alone cannot stabilize the price of a note. The rise of bank money implies that private bills and notes were no longer used as means of payment directly, but became discount material. The acquisition of funds now required access to the bank counter, eligible bills and notes, loan security and interest. Banks now created the allocation rules of who would receive the freshly created funds.

Property ownership, therefore, results in a system of nominal obligations, whereby economic actors set and reset absolute money prices as they enter into or fulfil loan contracts or other obligations expressed in money of account. While this leads to a system of relative prices, the latter can only ever be maintained temporarily (Stadermann and Steiger 2001, 373-376). New (absolute) prices must be set whenever new money and new obligations are created. As Hans-Joachim Stadermann and Otto Steiger (2001, 367) point out, in a system of nominal obligations, "relative prices" and a "theory of value" are of limited interest.

A monetary system based on state-issued coins or physical commodities as settlement assets is inherently unstable. The volume of state-issued coins is determined by state expenditure, whereas commodities are subject to supply constraints. Therefore, the available volume of settlement assets might not match the amount needed for private transaction needs. Once a shortage sets in and contracts can no longer be settled, a panic follows and otherwise solvent individuals are faced with bankruptcy. Private banks with privileged positions (such as the Bank of England) and clearing house associations developed into lenders of last resort in response to this problem. The theoretical significance of this step is that it turned central bank money – created in loans with commercial banks and secured by eligible property – into the leading settlement asset. Settlement assets and bank-issued creditor's money merged (Decker 2010, 177). This ensured that all principal property classes of an economy could be converted into settlement assets in a crisis, again demonstrating the nexus been property and money creation. The underlying basis of settlement could, therefore, be decoupled from state expenditure decisions and commodity supply constraints and be based on the property of the private sector.

This suggests that the line of development leads from (i) the distribution of property assets and (ii) the subsequent establishment of ownership (ii) to (iii) the creation of debtor and creditor-issued claims to property, the specification of which constitutes money of account and defines settlement assets (Figure 2). Settlement with physical assets involves the transfer of possession alongside ownership. This constraint was initially moderated by state-issued token coins and debt instruments, allowing settlement through the transfer of (non-physical) claims against the state (or the

[6] Facilitated by a change in the legal meaning of the bearer clause that allowed enforcement of claims by bearers in their own names (see Decker 2010, 29).

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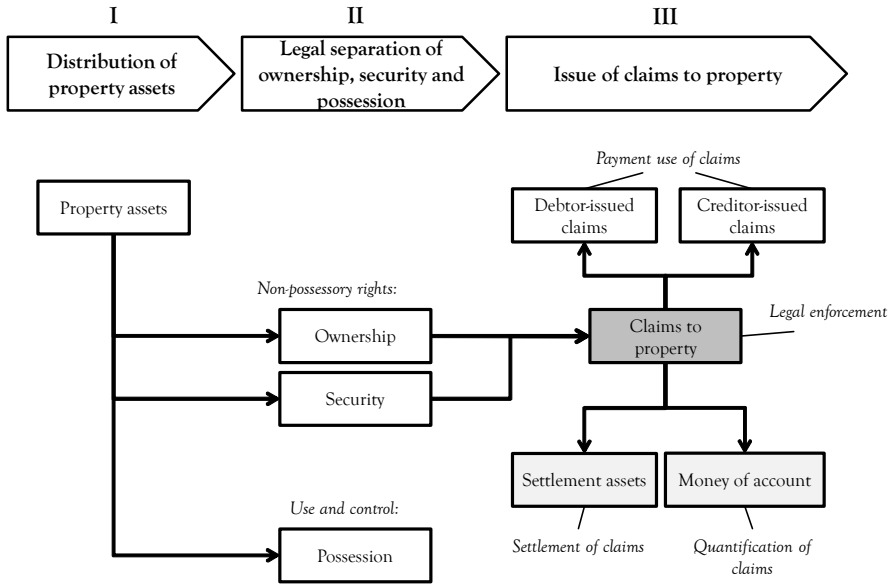
community as a whole), and then fully overcome by making creditor-claims issued by central banks the mandated settlement asset.

Figure 2. Creation of Monetary Institutions Based on Property Ownership



A framework based on claims to property and the associated categories of settlement assets and money of account, therefore, allows one to integrate commodities, coinage, state-issued instruments, debtor-issued claims, as well as creditor-issued claims into an ownership-based theory of money. This synthesis also permits a more differentiated and specific analysis of monetary arrangements than has previously been possible. Table 1 identifies and compares eight archetypes of monetary arrangement in ownership-based systems. Type I deals with the earliest monetary arrangements and must remain speculative. It is considered likely that iron spits performed monetary functions that predated coinage and were counted rather than weighed (Laum 1924, 116-117; Seaford 2004, 108; von Reden 2010, 22). However, little information is available about the specific details. While speculative, Type I could describe a situation conjectured by Heinsohn and Steiger (2013, 75), whereby creditor's money was issued by private individuals in the form of symbolic representations of property, embodied in objects like spits. Based on my discussion of settlement and money of account above, an alternative interpretation could be that spits performed the role of a settlement asset, assuming that private claims to property could be documented in writing.

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Table 1. Eight Archetypes of Monetary Systems Based on Ownership

No.	Type	Settlement assets	Creditor's money	Examples
I	Ancient economies — symbols	Spits, miniature tools	Spits, miniature tools	Ancient Greece
II	Ancient economies — commodities	Commodities	Merchant accounts	Ancient Greece Ancient Rome Ancient Near East
III	Ancient economies — coinage	State-issued coinage	Bank deposits	Ancient Athens Ancient Rome
IV	Colonial economies	State-issued coinage State-issued notes Commodities State debt	Merchant notes Bank notes Bank deposits	Colonies of the British Empire (1700s and 1800s)
V	Private note-issuing banks	State-issued coinage	Bank notes Bank deposits	Nineteenth-century Banks of New York and New South Wales
VI	Central banking with redeemable notes	Central bank notes/ deposits (property-based) State-issued coinage	Bank notes Bank deposits	Bank of England German Reichsbank Federal Reserve (Gold standard 1800s)
VII	Modern central banking	Central bank notes/ deposits (property-based)	Central bank notes/ deposits Commercial bank deposits*	Bank of England German Bundesbank Federal Reserve (1900s and 2000s)
VIII	State banking	Central bank notes/ deposits (monetized state debt)	Commercial bank deposits*	German hyperinflation (1923) German Third Reich (1933–1945)

*Note: * indicates claims to central bank notes/deposits.*

Type II describes early monetary systems without coinage, such as the early Roman Republic and the ancient Mediterranean and Near East (Kroll 2008). Obligations were specified in weight units and finally discharged with a commodity by weighing out the required number of units. Type II is an example of an ownership-based system that operated without coinage and other state-issued instruments for extended periods, highlighting the limited monetary role of the state other than debt enforcement. While there is evidence for the widespread use of debtor-issued claims, including assignable loans, the existence of creditor-issued claims (e.g., deposit account entries created through loans) is less certain. Deposit banking is believed to be a Greek invention, coinciding with the emergence of coinage (Bogaert 1994, 16-19). While private enterprises like the Egibi in the Neo-Babylonian period carried out an impressive number of banking operations, Raymond Bogaert (1994) argues that deposits were accompanied by precise instructions and were not available as a productive resource — i.e., the bank-like deployment of unused reserves. However, it is clear that a type of deposit legally existed that did not require the restoration of the same good, but was repayable in the same quality and quantity (Oelsner, Wells and Wunsch 2003, 961). On this basis, Morris Silver (1995, 115) argues that it should have been possible to make productive use of deposits, especially given the sophistication of other credit instruments. The creation of creditor's money per book entry in loan contracts by merchants or private individuals should, therefore, be considered a possibility.

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Type III reflects ancient systems where fungibles were replaced by state-issued coins, such as in ancient Athens and Rome (Bogaert 1994). Creditor's money is in the form of bank deposits (for bank deposits in ancient Athens, see Cohen 2008).

Type IV describes colonial economies and includes systems wherein banks issue notes in addition to creating deposits. Commodities, coins, and state paper issues can perform the role of settlement assets, as in the colonies of the British Empire. Also, merchant note issues are evidenced (Decker 2010).

Type V is a system where private note-issuing banks dominate the payment system and stabilize the price of gold or another commodity through their discount operations. Interbank settlement is conducted in specie by tale. There is no central bank. The classical example is the banks of New York around 1850. Types VI represents the same system, but with a central bank as the lender of last resort, such as the Bank of England in the nineteenth century and the associated country banks (for an overview, see Pressnell 1956).

Types VII represents systems with central banks as lenders of last resort, issuing notes that are no longer redeemable in gold. Here, central bank notes and deposits are also settlement assets. In Type VII, the discount material is acquired in open markets and transactions are conducted as between unrelated third parties. Central bank notes are created in response to transaction needs of the private sector at market interest rates, based on central bank capital and sound commercial bank collateral. The central bank in this model behaves like a private note-issuing bank of a type V. The notes are "creditor's money," a derivative of property and created as part of a self-organizing process within a property and commercial law framework. Transactions are fundamentally based on private arrangements with minimal direct interference from the state. Post-WWII, the German Bundesbank represented this prototype.

In Type VIII, these principles no longer hold. Type VIII represents a system that relies on state intervention. The central bank monetizes state-issued debt instruments or provides loans directly to the state. Here, central bank notes have become monetized state liabilities, the supply of which is determined by government decisions, and central bank capital is no longer a consideration. This is not inconsistent with property ownership. In Type VII, as in Types III, IV, and V, the private banking system can still create funds based on property collateral and set its own allocation rules. However, once state debt is monetized in substantial quantities, or the discount material of selected private institutions is turned into eligible central bank collateral through government guarantees or central bank purchases, the nexus between property ownership and money creation is being destroyed. Creditor's money is progressively displaced by debtor's money. The classical case study is the German hyperinflation of 1923 (Haller 1976).

Types VII and VIII are often difficult to distinguish and the transition between both systems can be a gradual one. In fact, a central bank can issue notes of both types, which can be in circulation at the same time and undistinguishable from one another. For example, one could argue that the large scale government asset purchases, performed by the Federal Reserve in the wake of the 2008 financial crisis (and similar purchases by the Bank of England, the European Central Bank, and the Bank of Japan), represent a "silent" transition from Type VII to Type VIII. Of both

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arrangements, Type VII is the one that is most consistent with private property ownership. Here, central bank money creation is closely linked to asset creation in the private sector, ensuring that funds are allocated to the parties with property assets, who are the most likely to engage in productive activities. The allocation rule is clear: Private entities with property receive funds. Consequently, Type VII systems are more likely to promote endogenous money creation and economic development. This question is particularly relevant when assessing the status of transiting and developing economies, which often adopt state-money systems of Type VIII, rather than systems of Type VII. For instance, after 1948, the German Bundesbank focused on private commercial bills as discount material. This has been considered as one of the contributing factors to Germany's post-war "economic miracle." By contrast, the monetary policies of transitioning economies, such as Poland, focused on foreign currency assets and held back domestic development (Schulz 2009).

This leaves systems without property ownership. I (Decker 2015a) have shown elsewhere that tribal communities, feudal systems, and socialist command systems knew possession, but not ownership. As the creation of claims to property requires a separation of ownership and possession, they have no legal basis to exist in possession-based systems. The situation is different for state-issued coins and instruments. It is conceivable that tokens resembling coins could be issued in possession-based command systems (by adopting some of the concepts from ownership-based systems) and used as a mechanism to allocate labor as well as extract dues and services. An example is the use of objects that resembled "coins and bank notes" in state socialism — in their essence, mere "vouchers" (Heinsohn and Steiger 2013, 10). Evidence for the use of state-issued coinage does not necessarily imply the existence of an ownership-based economic system.

Concluding Remarks

Various means of payment have historically been assigned money attributes. The most important classes are (i) commodities, (ii) state-issued instruments and coins, (iii) negotiable instruments, and (iv) bank-issued notes and deposits. These classes became the underlying basis of the commodity (i), state (ii), credit (iii and iv), and ownership theories of money (iv), with each theory arguing that a particular class is to be considered money proper, while the other classes are either not money or of a subsidiary nature. By contrast, here I offered a new synthesis. Core elements of these conflicting money views can be synthesized into an integrated theory of money through a framework based on claims to property and the associated categories of settlement assets and money of account.

I argued that a synthetic view shows that commodities, coins, and state instruments — the basis of commodity and state theories of money — attain their monetary roles because private claims to property must be discharged with something other than the issuers' own liabilities. Claims to property historically emerged in two forms: (i) debtor-issued claims, including negotiable instruments and book accounts, and (ii) creator-issued claims, such as bank notes and bank deposit entries. What debtor- and creditor-issued claims have in common is that they place a burden on

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creditor and debtor property, which becomes subject to legal execution in the event of default. This makes both debtor- and creditor-issued claims valuable and a suitable means to fulfil a payment obligation. In this sense, one can integrate the major instances of what has historically been considered "money" into a single framework.

Nevertheless, there are good reasons to consider bank-issued claims (creditor's money) as money in its proper form. Bank note and deposit creation provide an ideal mechanism for the ready monetization of private assets due to the flexibility of discount, lending, and repurchase operations. Moreover, banks can fix the price of a selected asset as expressed in their own units if notes are frequently issued and redeemed, for example, as exercised under the gold standard. In this way, bank-issued claims attain a degree of price stability that no other payment instrument can match.

Thousands of years of monetary history show that once property ownership is introduced, economic actors will seek ways to monetize their property assets. This is done on the basis of ownership, with the monetized assets remaining in the possession of the creditor and debtor. The resulting economic relationships manifest themselves as networks of executable contracts enforceable by law and backed by the power to execute against a defaulting debtor's assets. Contracts set nominal (absolute) prices in the prevailing money of account, which define the money amounts to be raised and repaid. From this follows that proposals to establish fully backed "monies" ("Vollgeld" or "sovereign money") based on gold or state debt, with an associated prohibition of commercial bank deposit creation, should be approached with extreme caution. Such measures would undoubtedly drive the creation of funds back into the domain of negotiable instruments and private book accounts.

Much has been made of the monetary role of the state (Keynes 1930; Knapp [1905] 1923). I argued that the role of the state should not be overemphasized. Even a monetary standard can be defined and maintained by the actions of private individuals. The most successful central banks have operated like private note-issuing banks. The critical domain of the state is the maintenance of property law, the enforcement of debt contracts, and the provision of institutional arrangement establishing an effective lender of last resort. In addition, the state must periodically act as a "proprietor of last resort" (Heinsohn and Decker 2010). Once there are too many defaulting debtors and undercapitalized banks, an institution is required that provides, not additional state money, but unencumbered property against which fresh bank funds can be created, and reinstalls lawful ways to restore the citizen's capacity to enter into debt. It is central to the survival of ownership-based systems that this function is carried out in an effective, transparent, and equitable manner.

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