Developing New Monetary Economics Using the Monetary Theory of
Schumpeter, Mises, and Wicksell

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Developing New Monetary Economics Using the Monetary Theory of Schumpeter, Mises, and Wicksell

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Abstract
According to Schumpeter, money is a clearing device, a social institution rather than a commodity, and money supply constitutes a critical figure that determines the price level. Schumpeter argues that the value of money is independent of its metal content, but also finds a legally defined ticket inappropriate. He points out that the purchasing power of money cannot be a matter of exchange value, nor of use value, but the purchasing power of a unit of income. According to Mises, Schumpeter tries to build a catallactic ticket theory, which requires a comparison of available tickets and opportunity space, using the sum of money incomes and the product of prices and consumption goods. He finds that the commodities relate only to circulating money, while money relates to production goods as well as consumption goods, more commonly to the turnover of production goods to production goods than to the exchange of production goods for consumption goods. For Mises, the value of money must be based upon utility, but the objective exchange value of money reflects subjective individual valuations. Money is an emergent order and the intangible money emerging today represents an institutional form of money with an accounting system of exchange, moving towards Wicksell’s pure credit economy, in itself making monetary separation suitable. According to Wicksell, a pure credit economy requires that the value of money is made independent of its commodity function. Credit is a remedy to scarcity of money, while bills of exchange increase virtual velocity. He argues that the unit of value should be independent of material things and that the inconvertible paper coin is used as credit medium, implying an abstract medium of account. The New Monetary Economics involves a functional separation of monetary functions making units and media of account distinct from media of exchange. In the Black-Fama-Hall (BFH) system, developed by Yeager and Greenfield, the unit of account is physically defined by the state as a non-convertible nearly comprehensive commodity bundle, which constitutes the critical figure in such a system, while the media of exchange are privately issued. This is contrasted to separation of the functions of media of account from media of exchange, where the media of account are abstract, such as Meulen’s banknote pound. These two approaches to the media of account are analyzed from the perspective of Schumpeter, Wicksell, and Mises.

Keywords: Monetary separation, value of money, medium of account, Schumpeter, Mises, Wicksell
1. INTRODUCTION

In his *Theorie der wirtschaftlichen Entwicklung*, Schumpeter (1911) argues that credit yields innovation, which gives qualitative improvement of the economic process. The banker provides the necessary additional purchasing power the entrepreneur needs in order to realize an innovation. Hence, the banker as well as the entrepreneur matters to economic progress, because the banker provides liquidity, which is required for the innovation to take place. However, credit creation may cause economic cycles by creating an artificial boom that leads to a bust, following Austrian business cycle theory (see e.g. Mises, 1912, 1928; Hayek, 1929, 1931, Huerta de Soto, 2006). Credit creation means injection of liquidity in the real economy beyond what is backed by voluntary saving. Austrian business cycle theory maintains that credit creation unbacked by real saving gives malinvestment that distort the production structure, because the latter no longer corresponds to what consumers voluntarily would maintain (Huerta de Soto, 2006). A monetary regime must keep the credit creation sufficient to meet the financing requirements of innovation, while avoiding cycles caused by excess credit creation.

Money constitutes what Vercelli (1989) calls a technological-institutional paradigm, which breaks down if technology and institution are not compatible. Money evolves and may break up in separate functions. Cesarano (2008) argues that the current expansion of information technology moves actual economies towards a Wicksellian credit economy by making tangible money obsolete. According to Cesarano (1999), Wicksell’s (1906) pure credit economy is a main contribution to the understanding of a payment system devoid of currency. Similarly, Dembinski and Perritaz (2000) argue that information technology drives a break-up of money, meaning that more specialized instruments and institutional arrangements take over the traditional functions of money. This leads us to the New Monetary
Economics, which involves a functional separation of monetary functions making units and media of account distinct from media of exchange. According to Cesarano (1995), the basic feature of New Monetary Economics is non-tangible means of payment with a separation of the medium of exchange from the unit of account. Using a Mengerian approach to new monetary economics, Cowen and Kroszner (1994) argue that media of account evolved prior to media of exchange and that assets used as media of exchange changes over time in an ongoing process.

From the perspective of monetary dynamics, Festré (2002) suggests two theoretical conjectures: The Wicksell-Mises-Hayek conjecture and the Wicksell-Mises-Schumpeter conjecture, where she traces back the thought of Schumpeter and Hayek, respectively, to Wicksell, having Mises as link. This paper explores the Wicksell-Mises-Schumpeter conjecture in order to develop new monetary economics, concerning the determination of the unit and medium of account. From the perspective of economic and monetary evolution, we should put some attention to Schumpeter as monetary theorist, in comparison with Mises and Wicksell. Festré (2002) stresses Wicksell as forerunner of Austrian business cycle theory, developed by Mises and Hayek, but also to Schumpeter’s business cycle theory. Garrison (2001) formalizes Austrian business cycle theory as credit expansion giving unsustainable growth within a capital-based macroeconomic model and using Wicksell’s distinction between the natural rate of interest and the market rate of interest, he finds that credit expansion yields unsustainable growth, because it makes the market rate of interest lower than the natural rate of interest, which reflects consumers’ intertemporal preferences. However, as Wicksell’s pure credit economy is highly relevant to understand the accounting systems of exchange, this paper will study potential contributions of Schumpeter, Mises, and Wicksell to New Monetary Economics. The media of account may be concrete in terms of a commodity
bundle or abstract. These two approaches to the media of account are analyzed from the perspective of Schumpeter, Mises, and Wicksell.

2. SCHUMPETER, MISES, AND WICKSELL ON THE VALUE OF MONEY

Schumpeter develops his monetary thought in “Das Sozialprodukt und die Rechenpfennige” (1917–18) and his posthumous Das Wesen des Geldes (1970). According to Schumpeter (1970, pp. 206ff.), money is a clearing device, a social institution for the settlement of accounts rather than a commodity, and payment by notes and coins is just a special case of settlement of accounts, while money serves to make sense of credit balances. Money provides a unit of account, free of any intrinsic value from any material it is made of (pp. 213f). Hence, Schumpeter clearly considers the medium of account function of money. However, money may also serve to determine the price level. He argues that the economic process determines the commodity quantities and their exchange relations, but not necessarily the absolute price, while money supply constitutes a critical figure that determines the price level (218ff). His argument starts with a definition of the money method as a method of social settlement of accounts, according to which the critical figure changes itself, and it continues with an identification of money as money of account created by such a method, which then creates the terms for the size of the economy, its monetary constraints (p 224).

Concerning the value of money, Schumpeter (1917-18, pp. 640-654) makes a distinction between two incompatible theories of money: (i) a commodity theory of money, where the value is the exchange value of its metal content, and (ii) a ticket theory of money, where the value of money is independent of the value of the material of which money is
made, but is given by the purchasing power of money, a ticket to a commodity reservoir, like the exchange value of a theater ticket is given by the value of the seat to which it gives access.

Schumpeter (1917-18, pp. 644ff) argues that the value of money is independent of its metal content and from the viewpoint of the ticket theory, purchasing power of money cannot be derived from the metal content of money, but he finds ticket theory inappropriate, when subjective valuations of money and commodities are used to derive the purchasing power of money. He points out that the purchasing power of money cannot be a matter of exchange value, because money lacks use value and thereby also exchange value, so he relates the purchasing power to units of income, which functions as entry tickets to the reservoir of commodities, so that tickets give access to a share of the opportunity space of commodities rather than to a specific commodity (pp. 647f). Schumpeter defines the money of value as the purchasing power of the unit of income, which neither is an exchange value nor depends on use value (p. 651). If money supply provides the critical figure, then the definition of money supply becomes crucial. Schumpeter (pp. 57ff) includes:

(i) Commodities that actually circulates as money:
(ii) Money made of a material, whose market price is smaller than the purchasing power of the unit created thereof (metal money with low metal content and paper money);
(iii) Banknotes (no longer claim to money, but medium of exchange);
(iv) Check and giro balances (turning deposits into circulating money through granting of credit);
(v) Amounts paid through discount (clearing of credit balances);
(vi) Credit instruments and claim rights.

Here, Schumpeter clearly goes beyond mere commodity money. Nevertheless, he stresses that only the circulating money that in each economic period goes from the producers to the factor
markets, where the factor owners gain them and then spend the on the consumption good market, is included in the money income and stands money-creating just opposite the stream of consumption goods (p.666).

To Schumpeter (pp. 668ff), the velocity of money influences the number of times a production period occurs, so in a two-commodity economy, where one commodity is exchanged for the other, the velocity of money is twelve times as high for twelve monthly markets than for one yearly market, so the same money unit may have different velocities, that is expressed in different money incomes or more times in the same money income. The production period can be shorter or longer and to Schumpeter money adjusts to that. He considers the appropriate measure of velocity of money to be the number of times in which the production period occurs, to which the income relates (p. 671). According to Schumpeter, income is the product of money supply and velocity of money (p. 675). Here, of course, the quantity theorem, $MV = PY$, where $M$ denotes money supply, $V$ velocity, $P$ the price level, and $Y$ real income, comes into mind. Schumpeter actually acknowledges that his view that income is the product of money supply and velocity of money expresses the fundamental thought of the quantity theory in other words. What would that mean to the critical figure? Schumpeter (1970, pp. 226ff) stresses that production creates its own real demand, but at what price remains an open issue, while surplus production induces the critical figure to change, but getting new credit balances will change the critical figure, increase credit balances, and liberate the economic process from its money constraints, thus moving the economy in the direction of a pure settlement of account system. Turning to money creation through bank credit, Schumpeter argues that the stream of commodities induces the stream of money, so that bank money is demand-driven (Schumpeter, 1917-18, p. 701), and that credit and money creation is a capitalistic means of progress (p. 707). Turning to bank credit will influence the critical figure (Schumpeter, 1970, p. 230). The fact that bank credit is money-creating causes
money supply to increase. Hence, thinking in terms of the quantity theorem, Schumpeter analysis suggests that the value of a particular money supply is given by its velocity, because it reflects the income units that can be produced by a given quantity of money.

According to Mises ([1912] 1924, pp. 250ff), Schumpeter tries to build a catallactic ticket theory,¹ which requires a comparison of available tickets and opportunity space, using the sum of money incomes and the product of prices and consumption goods. He finds that the commodities relate only to circulating money, while money relates to production goods as well as consumption goods, more commonly to the turnover of production goods to production goods than to the exchange of production goods for consumption goods. He finds that the sum of available tickets does not correspond very well to the opportunity space of commodities.

Starting with the role money plays, Mises (p.21) considers price as the expression in terms of money of the exchange value of each commodity, so money is a price indicator, because all commodities can be turned into money and vice versa through market relations, thus turning money into the expression of objective exchange value. Indeed, this suggests that the value of money is given by convention as language through which market agents signal information by means of money prices, in the same way as language is given by convention, so we can communicate by means of words. According to Cowen and Kroszner (1994, p.17), media of account started the financial evolution starts, because they give traders a commonly understood “language” that enables communication of price information. Mises ([1912] 1924, pp. 24f) points out that the task for monetary theory is to determine the exchange relations between money and other commodities. In other words, it has to explain money as a means of communication determined by convention.

¹ Catallactic means market-based. Both Schumpeter and Mises reject state theories of money and present catallactic theories, although the ticket analogy caused disagreement.
Mises (pp. 35f, 40f) sees three forms of money: commodity money, fiat money, which is the symbol itself, and credit money, which is a claim on money, where in early fifteenth century, when the *mark fine gold* was established as unit of account in the fair of long-distance trade, as it shifted from Geneva to Lyon, but credit money through giro banks emerged as a resolution to the misuse of coins as commodity money. On the one hand, Mises points out the importance of credit money, but he think in terms of commodity money. He argues that a commodity may emerge as a generally acceptable medium of exchange out of trade; market agents acting together, not the state, create money (p.53). This implies that the value of money is to be given by convention by market agents, i.e. money emerges spontaneously, but money could not be understood as any kind of good. Mises stresses that it is neither a consumption good - a good of the first order - nor a production good - a good of a higher order (p. 55). According to Mises (p. 62), money, as social institution, is crucial to our economic order. Hence, Mises considers money as a social institution, like Schumpeter.

Concerning the value of money, Mises (pp. 74ff, 85f) stresses that the objective exchange value of money, its purchasing power, reflects subjective individual valuations of the commodities that can be bought for the money, and he points out that the modern organization of settlements and the institution of credit have liberated trade from the constraints made by the volume and weight of the money material. In contrast to commodity money, fiat money and credit money are independent of money material (p. 81). Hence, like Schumpeter, Mises stresses that credit economizes on money material. Nevertheless, the value of money is to Mises derived from its function as generally accepted medium of exchange, even if its original source of value is gone. We may, therefore, conclude that Mises is no metallist. For Mises (pp. 257ff), the value of money must be based upon utility, referring to Wieser’s (1914) distinction between the modern theory of money, based upon utility, and the
metallistic one, arguing for a catallactic theory of the value of money is derived from the exchange objects, the commodities. Hence, the utility consumers obtain from these commodities is the value they attribute to money necessary to buy them. A higher velocity would increase that value, but in contrast to Schumpeter, Mises stresses the subjective valuations of the commodities that can be bought for the income units generated, not the income units themselves.

Hence, both Schumpeter and Mises regard money as a social institution, take settlement of accounts, and credit into account, and they both develop catallactic theories, where the value of money is derived from the value of commodities that can be bought for that money. The purchasing power of money is its value. The difference is that Schumpeter considers the access to a share of the entire commodity space, reflected in income, while Mises considers subjective valuations of the commodities. This idea of measuring the value of money as the value of the commodities that can be bought with that money goes back to Wicksell.

Actually, Wicksell ([1906] 1966, p. 5) argues that monetary separation, the separation of the functions of money, is feasible, when he points out that a class of commodities, such as precious metals, has been used as medium of exchange, while some other commodity, such as cereal, has been used as measure of value. In his view, money is no store of value, because it implies that savings are not used to serve production, while credit has replaced private hoarding, so that savings return to circulation through the banks (pp. 8ff). In Wicksell’s analysis, money is a quantity in two dimensions: quantity of value and velocity, their product being a measure of the efficiency of money, which implies that relative commodity prices differ from the exchange value of money or the concrete commodity price.

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2 Wieser, disciple of Carl Menger and together with Eugen von Böhm-Bawerk constituting the second generation of Austrian economics, had Schumpeter as well as Mises and Hayek as his disciples and may, therefore, be seen as the common origin of Austrian economics along Mises-Hayek lines and evolutionary economics along Schumpeter lines.
levels (p. 20). Velocity may be influenced by credit. Wicksell argues that credit is the foremost lever to increase velocity of money and, since capital formation mostly occurs through the intermediation of money, a small money supply may intermediate a large quantity of capital formation (pp. 25ff). The reason is, of course, the high velocity caused by credit.

Wicksell’s monetary theory consists of three parts: the theory of money itself and its substance, the theory of velocity or the theory of credit and banking, and the theory of the value of money or purchasing power towards goods and services and the way by which a medium of exchange is created that is an invariable measure of value (p. 29). The velocity and value of money are of most interest here, but we consider monetary separation and do not need to concern ourselves with the preservation of the asset uniting monetary functions, money.

Starting with velocity, the velocity of money determines the commodity prices, the exchange value of money, while credit is a remedy to scarcity of money, and bills of exchange increase virtual velocity, because the credit creates claims that can be mutually exchanged (pp. 68, 70, 72, 75ff). Modern banking involves an accounting system of exchange to Wicksell. He argues that bank lending prevents cash balances from remaining idle and that payments are made through giro transfer from the balance sheet of one customer to the balance sheet of another one, so with one bank or a connected bank system, the virtual velocity may become infinite (pp. 91ff). During the era of the gold standard, Wicksell argues that international payments can be settled without gold through bills of exchange or mutual redemption of banknotes of other banks (pp. 133ff), thus using credit rather than commodity money. Wicksell develops the notion of a pure credit economy, arguing that credit can easily replace gold, that gold in minted form is unnecessary and harmful, and that there is a demand for settlement of bills of exchange (pp. 136ff). His pure credit economy requires that the value
of money is made independent of its commodity function, attributing the unit of account both to the medium of exchange and the measure of value (p. 141).

Turning to the value of money, Wicksell states that an invariable value of money refers to its exchange value, which he defines as its purchasing power towards goods and services (p. 145). Here, the crucial part is the purchasing power of money, so the price level and the value of money correlate. Hence, Wicksell, like Mises and Schumpeter, stresses the importance of the purchasing power of money. The commodities that can be bought for money give value to that amount of money. Wicksell continues that indirect marginal utility is the only scientific value of money (p. 147). Changing relative prices of commodities is, according to Wicksell (pp. 148ff), difficult to resolve by some average price level, but to multiply a commodity bundle with its prices at two different times would be satisfactory, suggesting a commodity bundle medium of account. A practically satisfactory approach, according to Wicksell, would be to calculate the sum of the products of the quantities at some time and the their respective prices at that time and a later time, to obtain the money supply corresponding to a given set of commodities at the earlier time and the later time, and using their relation to obtain a measure of price change (pp.152ff). This means that a commodity bundle is defined and then the price for the bundle are calculated at two different times to check whether the value of money is invariable, but there are, nevertheless, some problems. Wicksell points out that changing relative prices means that there is no average price level that would have no consequences for the economy, because the effects differ among people (p. 154).

The quantity theory of money is, according to Wicksell, the only specific theory of the value of money, saying that the purchasing power of money varies inversely with its quantity; there is proportionality between money supply and the price level, while a hyperbola describes the relation between money supply and the exchange value of money, but he argues
that the quantity theory must be rejected if the velocity of money adjusts to the demand for liquid balances; when money supply changes with other economic changes, its influence on the price level and the value of money is either abolished or concealed (pp. 158ff). Here, we see that the velocity of money is crucial to the value of money to Wicksell as well as Mises and Schumpeter.

However, Wicksell considers the shortcomings of the quantity theory and tries to build what he calls a rational theory. He asks why a price increase must follow an increased money supply, and argues that we should first consider changes in metallic money supply and then changes in the velocity of money (pp. 179f). Wicksell considers an example of the discovery of a gold field, which increases gold supply, causing a higher price level in gold-producing countries initially, but a deteriorating trade balance gives gold outflow, in turn causes the price level in non-gold-producing countries to increase (pp. 181f). Nevertheless, credit may have an influence.

Wicksell argues that credit may cause the price level to increase, so money supply increases, while successive issues of paper coins cause the value of money to deteriorate, unless they are moderate and neutralized by an increased demand for liquid balances (pp. 185ff). He states that means of credit used in circulation, such as bills of exchange, checks, and banknotes, can be regarded either as money or as means to increase the velocity of money, and he argues that credit is the main cause for increases of the velocity of money and that the inconvertible paper coin is seen as credit medium, but should be seen as a coin by convention, because it is often eventually not redeemed. (pp.189ff). Furthermore, banking and credit implies to Wicksell that the price level provides the link between the natural rate of interest and the market rate of interest, so that the prices of consumption goods increases when the market rate is lower than the natural rate, while he finds the equilibrium to be stable at relative prices, but indeterminate at the general price level when there is a wedge between
the natural and the market rates of interest (pp. 218ff). Consequently, the interest rates influence the price level and thereby the purchasing power of money. Wicksell concludes that having the banknote as unit of value independent of material things would be the ideal for the monetary system (p. 251f), thus implying an abstract medium of account.

Summing-up, there is a Wicksell-Mises-Schumpeter conjecture, involving the purchasing power of money, the capacity of money to buy commodities rather than being a commodity, so the value of money is derived from the commodities it can buy, but also the velocity of money, and money as social institution that is influenced by credit and banking, thus going beyond money as commodity.

3. THE MEDIA OF ACCOUNT IN NEW MONETARY ECONOMICS ALONG THE WICKSELL-MISES-SCHUMPETER CONJECTURE

There are within New Monetary Economics, commodity bundle media of account. Cowen and Kroszner (1994, pp.79f) mention three systems:

(i) Directly convertible bundle plan: the medium of account specified by a the sum of several different commodities;

(ii) Irving Fischer’s compensated dollar scheme: the dollar being redeemable in terms of gold at a changing redemption ratio;

(iii) BFH system: prices posted in commodity bundles and constant purchasing power exchange media are issued by the private sector on a competitive basis, while the government defines the unit of account in terms of a broad commodity bundle.
In the Black-Fama-Hall (BFH) system, developed by Yeager and Greenfield (1983), the unit of account is physically defined by the state as a non-convertible nearly comprehensive commodity bundle, while the media of exchange are privately issued, subject to competition. Yeager and Greenfield (1989) argue that the unit of account, defined by a commodity bundle, whose total price is set at one unit, provides what Schumpeter (1970) refers to as a critical figure, which make the price level determinate.

According to Cowen and Kroszner (1994, pp.17ff), financial evolution starts with media of account, because they give traders a commonly understood “language” that enables communication of price information, comparisons of exchange ratios, and calculation of profit and loss, without having a single commonly accepted medium of exchange, followed by the emergence of generally accepted media of exchange as the most saleable or liquid of assets, the greater liquidity of the medium of exchange eventually uniting the media of account and exchange into a single asset called money. However, this is not the end of history. They find that new media of exchange with superior pecuniary returns evolve as a consequence of progress of information and communication technologies, favoring electronic or book-keeping entry assets (Cowen and Kroszner, 1994, pp. 21ff), and by using return-bearing assets as media of exchange, market participants induce a separation of the media of account from the media of exchange (pp. 30f).

Yeager (2000, p.50) argues that money is an example of institutional evolution from a commodity to a clearing device. Yeager (p. 51) views clearing as a decentralized record-keeping process, in which coins, notes, and bank accounts are memoranda or tickets, i.e. “receipt vouchers for the values of goods and services delivered and generalized claims on whatever the market will offer for a sale at prices that transacting parties will agree on.” Hence, Yeager view of money is similar to the one expressed by Schumpeter, but also Mises and Wicksell. Clearing, as a decentralized record-keeping, puts conveyance of information at
the very core. While Cesarano (1999, pp. 193f) argues that the Mengerian selection process for commodities with the highest salability was guided by the search for informationally more efficient ways of settling transactions, Yeager (1998, pp. 22f) views money as a record-keeping device, like language, a mechanism to facilitate trade and stresses that money prices convey information that gives coordination. In particular, he refers to Schumpeter’s (1917-18) view of money as a claim ticket on goods to be delivered in exchange, when he argues that the decentralized record-keeping of money is more efficient than would be the centralized explicit record-keeping of language, but also when he argues that money is a technical device to facilitate trade. In the latter case, he explains that although the Menger’s story describes the genesis of money, it cannot be taken to characterize money as developed institution. In addition, Yeager argues that an invariable value of money is necessary for calculation and coordination, like an invariable meaning of words, and money resembles language more than it resembles gold (p. 24). The fact that money is a clearing device means that an invariable value of money is of crucial importance. The Wicksell-Mises-Schumpeter conjecture means that the value of money is given by its purchasing power and is derived from the value of the commodities it can buy, not from any intrinsic value of money material.

Now turning to New Monetary Economics, we should focus on the value of the unit and medium of account rather than the value of money. New monetary economics assigns a central role to the unit of account (Cesarano, 1994). The BFH system, which Greenfield and Yeager (1983) propose, using ideas from Fischer Black, Eugene Fama, and Robert Hall, separates a commodity-defined unit of account, determined by the government, from media of exchange subject to competition. Rather than letting the value of the unit of account be determined by the supply of and demand for the medium of exchange, it has a non-monetary foundation and is defined physically as the total market value of definite quantities of specific commodities, thus giving a stable value in terms of a commodity bundle fixed by definition.
Greenfield and Yeager point out that the BFH system’s unit of account has its general purchasing power fixed by definition, thus being a stable unit for pricing, invoicing, accounting, economic calculation, borrowing and lending, and writing contracts. A separation between unit of account and medium of exchange, gives according to Yeager (1983) a stable measuring rod for economic coordination and calculation, while avoiding macroeconomic disorder by giving the medium of exchange a market price of its own. The bundle of commodities would include most commodities (Woolsey and Yeager, 1994).

In the BFH system, indirect convertibility pegs the price level, since it requires banks to redeem checks with an amount of gold, or some other redemption medium, giving arbitrage that reverse any deviation of the price of the bundle from its defined price (Woolsey, 1992). Media of exchange are redeemed in some redemption medium, some commodity or security, in amounts equal in value to the quantity of the medium of account of the commodity bundle defining the unit of account (Woolsey and Yeager, 1994), a medium of settlement equal in value to the commodity bundle (Cowen and Kroszner, 1994). A note denoted ten units of a medium of exchange has the value of ten commodity bundles, if it is redeemed indirectly in the quantity of some redemption medium having the same current market value as ten commodity bundles (Yeager, 2001). According to Woolsey and Yeager (1994), the BFH system has a built-in stability, because the bundle consists of most goods and services preventing significant relative price changes, and the banks would contract credit when the market price of the commodity bundle defining the unit of account, is above par.

The BFH system resembles Schumpeter’s pure settlement of accounts system. The bundle of commodities with specific weights would represent the value of a ticket to that bundle, the ticket themselves being the medium of exchange, referring to Schumpeter, but from the perspective of Mises, such a bundle would not take into account different individual valuations of commodities and the thereby individual differences in utility that the bundle
would give. Referring to Wicksell, the unit of account would represent the indirect marginal utility derived from such a bundle of commodities. Yet, there may be individual differences in utility derived from a commodity. However, individuals coordinate in markets and some market valuation of commodities is achieved through individuals’ interactions in the market. Bearing the language analogy of money in mind, the market valuations of commodities represent shared meanings of commodity that have emerged on the market, like the meaning of words emerge through social interaction. Indirect convertibility and arbitrage would reverse deviations of the bundle from its defined value caused by changing commodity prices. There is built-in stability in the system and banks would keep credit consistent with a bundle value at par, provided the commodity space is constant (Woolsey and Yeager, 1994).

Nevertheless, the time dimension still matters and we need to find a stable value for a bundle of commodities over time, when commodities enter and exit or gain and lose industrial use. We should focus on the services obtained from commodities, which may change due to innovation, keeping in mind that what matters is the economic value in terms of services we may obtain from the various commodities to be included in the bundle defining the unit of account, not their physical quantities (Marmefelt, 2011). This opens up for an abstract unit of account, which may evolve spontaneously in markets. Steuart (1810) points out that the money of account, an abstract unit of account, must be a yardstick of unvarying length. According to Meulen (1934, p. 236), a precious metal would provide a yardstick made of gutta-percha. Instead an abstract unit of account can be derived from a sequential process, ultimately to the original commodity value, along the lines of Kitson (1895). The evolution of an abstract unit of account and separation of monetary functions is a process that Cowen and Kroszner (1987) consider analogous to the origin of money, along the lines of Menger and Mises. Meulen (1934, pp. 240f) creates a banknote pound as invariable unit of value by substituting banknotes for gold coins and then letting the price of gold in banknote pounds
fluctuate according to market conditions for gold. This banknote pound would be what Wicksell calls an inconvertible paper coin, a note by convention not being redeemed in gold. Meulen considers an ideal system of exchange, where credit brings into commerce the present value of a future profit, while money is the token by which that is performed, and money’s essential function is purchasing power; transfer of intrinsically precious metals being replaced by the transfer of documentary promises with increasing civilization (pp.62f).

Concerning the separation of monetary function, he argues that exchange medium and standard of value are distinct in reality, mentioning the *mark banco* as a value measure that was a certain weight in fine silver, in which deposits were valued and credited to the depositors’ accounts (p.67). Turning to credit, he makes the case that credit evolved with the bills of exchange and goldsmith’s receipts, eventually leading to the ideal system of credit, where the banker has obtained confidence to circulate a gradually increasing quantity of notes on a given gold basis and is therefore able to monetize greater quantities of productive capacity, the sole essential is that notes are issued to a reliable person, redeeming debt in due time (pp.71-83). The role of credit is to preserve production. Meulen argues that credit may give the productive capacity necessary to satisfy human desires and that production ought to be the cause of monetary demand (pp. 215f).

Meulen’s abstract medium of account is consistent with the monetary theories of Schumpeter, Mises, and Wicksell, in that money is not seen as a commodity, but a social institution, whose value depends on production, which in turn yields income. There real economy is the source of value. The role of bank credit in preserving production is in line with Schumpeter’s demand-driven bank money and notion of credit and money creation as a capitalistic means of progress, while Meulen’s banknote would measure Schumpeter’s critical figure, because when credit money increases, so does its total value, in banknote pounds or units of account. In addition, such a banknote is essentially Wicksell’s banknote as unit of
value independent of material things that would be the ideal for the monetary system and would represent the utility derived from the commodities, along Mises’s lines, of a bundle at a particular time. The productive capacity gives the commodity space to consumers in the consumption goods market and income to factor owners in the factor market.

Following the Wicksell-Mises-Schumpeter conjecture, money must maintain its capacity to buy commodities, in order to preserve its value. Now, turning to the medium of account and the quantity thereof defining the unit of account, Meulen stresses that a stable unit of value is preserved when we fixed upon and standardize the worth of some commodity is at some particular time, and that value represents the measurement of worth, not weight (p 241). In other words, the unit of account would represent a purchasing power, a capacity to buy the bundle of commodities at a particular time. Then weights of the bundle commodities must adjust to maintain that value, as the commodity space changes over time. This idea has a foundation in Wicksell’s ([1906] 1966, p. 165) analysis of the thaler countries (Northern Germany) and gulden countries (Southern Germany and Austria), where the thaler and the gulden had the same purchasing power in their respective countries, although the silver content was 50-100 percent higher in the former. This means that silver had different weights. Marmefelt (2011) proposes a bundle of commodities, which defines the unit of account, as a population, subject to population dynamics, involving entry and exit, where the share of each commodity in the bundle varies discretely over time through social learning, while the defined price of the bundle is given by the entire population of bundle commodities, so that the worth of the bundle remains constant for different commodity spaces. Meulen’s banknote pound would then be the original bundle and the worth is maintained through adjusted weights as well as entry and exit.

Summing-up, the Wicksell-Mises-Schumpeter conjecture, stressing the capacity of money to buy commodities is consistent with New Monetary Economics; in the commodity
bundle medium of account of the BFH system for a constant commodity space and in an abstract medium of account for a commodity space that changes over time, which in turn is more in line with the financial evolution, supposed in the Wicksell-Mises-Schumpeter conjecture.

4. CONCLUSION

New Monetary Economics, which involves a functional separation of monetary functions making units and media of account distinct from media of exchange. This paper explored the Wicksell-Mises-Schumpeter conjecture in order to develop new monetary economics, concerning the determination of the unit and medium of account. The Wicksell-Mises-Schumpeter conjecture was found to involve firstly, value of money as the purchasing power of money, the capacity of money to buy commodities rather than money being a commodity, so the value of money is derived from the commodities it can buy, secondly the velocity of money influencing the value of money, and thirdly, money as social institution that is influenced by credit and banking, thus going beyond money as commodity. Schumpeter defines the value of money as the purchasing power of the unit of income, Mises stresses that the objective exchange value of money, its purchasing power, reflects subjective individual valuations of the commodities that can be bought for the money, and Wicksell states that an invariable value of money refers to its exchange value, which he defines as its purchasing power towards goods and services, and argues that indirect marginal utility is the only scientific value of money. Money is a clearing device, which means that an invariable value of money is of crucial importance to calculation and coordination; while the Wicksell-Mises-Schumpeter conjecture means that the value of money is given by its purchasing power and is
derived from the value of the commodities it can buy, not from any intrinsic value of money material.

Turning to New Monetary Economics, we should focus on the value of the unit and medium of account rather than the value of money. The BFH system, which Greenfield and Yeager propose, separates a commodity-defined unit of account, determined by the government, from media of exchange subject to competition, and its unit of account has its general purchasing power fixed by definition, according to physical weights of commodities in a nearly comprehensive bundle of commodities. The BFH system resembles Schumpeter’s pure settlement of accounts system. For a constant commodity space, the BFH system has built-in stability in the system and banks would keep credit consistent with a bundle value at par. However, as the commodity space changes over time an abstract unit of account would be more appropriate. Meulen’s abstract medium of account is consistent with the monetary theories of Schumpeter, Mises, and Wicksell, in that money is not seen as a commodity, but a social institution, whose value depends on production, which in turn yields income. Meulen stresses that a stable unit of value is preserved when we fix upon and standardize the worth of some commodity is at some particular time, so the unit of account would represent a purchasing power, a capacity to buy the bundle of commodities at a particular time. The bundle of commodities, which defines the unit of account, can be seen as a population, subject to population dynamics, involving entry and exit, so that the worth of the bundle remains constant for different commodity spaces. The worth is maintained through adjusted weights as well as entry and exit.

Consequently, the Wicksell-Mises-Hayek conjecture, going beyond commodity money, suggests that an abstract medium of account would be more appropriate than a concrete bundle of commodities. The worth of a bundle is fixed for some time and then weights have to adjust to maintain that worth stable.
REFERENCES


Steuart, J. (1810). *Principles of Banks and Banking of Money*. London: Davis


