The monetary theories of Carl Menger and Friedrich von Wieser: A comparative study

Karl-Friedrich Israel
Université Catholique de l'Ouest
3 Place André Leroy
49000 Angers
kisrael@uco.fr

preliminary draft
comments and suggestions are much appreciated

Conference Paper
Carl Menger: One Century Later. Originalities and Modernities
Nice, November 24-26, 2021

Abstract

Carl Menger and Friedrich von Wieser were two of the leading monetary theorists of their time. Both of them published their final scientific contributions to monetary theory in the form of extended encyclopedia entries in the *Handwörterbuch der Staatswissenschaften* – Menger in the third edition of 1909 and Wieser, his successor, in the fourth edition of 1926. These entries can be regarded as their most elaborate contributions to monetary economics and lend themselves perfectly to a juxtaposition of their theoretical frameworks. It is shown that Menger's adoption of the twin notions of *inner* and *outer* exchange value of money is ambiguous when considered within the broader context of his theory of value and price. Wieser recognized the problem and replaced the two notions by what he called the economy-wide objective exchange value of money. Wieser was thus able to avoid Manger's ambiguity and reached a more optimistic conclusion in terms of the potential for monetary policy to improve the monetary system in practice. If, however, Menger's value theoretic foundations are considered to be correct, then his more cautious conclusion for practical monetary policy seems warranted, in spite of the ambiguity in his analysis of the exchange value of money.

JEL-codes: B53; E13; E31
Keywords: Carl Menger; Friedrich von Wieser; monetary theory; monetary policy

INTRODUCTION

Carl Menger's contributions to the field of economics are manifold and have been discussed widely in the literature in various contexts (Caldwell, 1990; Campagnolo, 2016; Gloria, 2018; Schumpeter, 2003, 2006). As one of the main protagonists of the marginal revolution in economic thought, Menger laid out the intricate link between the theories of value, price formation, and money. His achievement was not merely to point out that goods are evaluated on the margin and that value is subjective, but rather to show that it is possible to reconstruct the main body of economic theory based on that fundamental principle. According to Schumpeter (2003, p. 83) "it can be demonstrated that almost every one of the classical economists tried to start with this recognition and then threw it aside because he could make no progress with it." It was Menger who discovered that the simple fact of the subjectivity of value "and its sources in the laws of human needs are wholly sufficient to explain the basic facts about all the complex phenomena of the modern exchange economy" (Schumpeter 2003, p. 84).

Menger thus put the vital subfield of monetary economics on a new foundation, which inspired the works of his successors, sometimes in different ways (Salerno, Dorobat, & Israel, 2020). In his seminal *Grundsätze der Volkswirtschaftslehre*, published in 1871, he presented a theory of the nature and origins of money as an institution grown out of the spontaneous order of market interactions. His thoughts on money evolved over the years through a series of articles on practical policy matters and general monetary theory (Menger, 1970a [1889,1892,1893], pp. 117-324), up until his encyclopedia entry on *Geld* in the third edition of the *Handwörterbuch der Staatswissenschaften*, published in 1909, in which he emphasized among many other things the historical role of governments in coordinating and improving the monetary system (Ikeda, 2008).

The following article draws on Menger's encyclopedia entry (Menger, 1970b [1909]). It is his last comprehensive publication on monetary theory and policy, and it can be assumed that, after almost four decades of reflections on the topic since the publication of the *Grundsätze* (Menger, 1871), it contains the most developed and elaborate formulation of his analytical framework. Between the first edition of the *Handwörterbuch* (1892) and its third edition (1909), Menger's entry on money has grown from a relatively concise article of about 26 pages (3rd volume, pp. 730-757), organized in 9 subsections, to a more detailed monograph of xx pages (4th volume, pp. xxx-xxx) organized in 14 subsections. This monograph can be taken as Menger's definitive statement on money and lends itself perfectly to a juxtaposition with the theoretical framework of his successor as Vienna's foremost expert on money, Friedrich von Wieser.

Wieser's very last scientific publication appeared shortly after his death. It is the entry on monetary theory in the fourth edition of the *Handwörterbuch* (Wieser, 1926). Wieser's article has a somewhat narrower focus than Menger's, as other authors were solicited to provide separate entries on particular aspects related to the theory of money,[1] but it covers all relevant areas for the following study. Wieser's article, too, can be regarded as the author's definitive

[1] After Wieser's entry on monetary theory ("*I. Theorie des Geldes (Allgemeine Lehre vom Gelde)*", 4th volume, pp. 681-717) there follow Mildschuh's article on the historical development of monetary theory ("*II. Geschichtliche Entwicklung der Geldtheorie*", pp. 718-730), von Bortkirwicz's quantitative exploration of the measurement of the value of money ("*III. Die Messung des Geldwertes*", pp. 730-752), Gutmann's summary of Knapp's state theory of money ("*IV. Die Staatliche Theorie des Geldes*", pp. 752-762) and Haber's entry on modern monetary reformers ("*V. Moderne Geldreformer*", pp. 762-770).

statement on that important subfield of economics. Wieser himself called it his final work on economics ("*ökonomische Schlußarbeit*").[2]

This article focuses on three elements in Menger's monetary theory that, even 150 years after the publication of his *Principles* and 112 years after the publication of his detailed encyclopedia entry, need further clarification, especially as far as their relationship to the further development of monetary theory by Friedrich von Wieser and other economists of the Austrian School is concerned. First, Menger's theories of value and price are briefly reviewed and his conception of money as an alleged measure of exchange value is explained, showing that it diverges subtly from Wieser's conception. Second, Menger's use of the twin notions of *inner* and *outer* exchange value of money is explored. An ambiguity in their use is demonstrated when these notions are put into the context of Menger's theories of value and price. This ambiguity has been solved in Wieser's theoretical framework by collapsing both notions into one, namely the *economy-wide objective* exchange value of money. Lastly, the practical implications for monetary policy are explored that Menger and Wieser have drawn from their respective frameworks. It is concluded that Menger's more cautious stance on the practical possibility of improving the monetary system through government regulation, when compared to Wieser's more optimistic stance, is warranted. This is the case in spite of the detected inconsistency in Menger's theoretical framework and in spite of the many scientific advances that have been made in terms of statistical data availability and analysis since Menger's days.

VALUE, PRICE AND MONEY AS THEIR MEASURE

Menger reconstructed the main body of economic theory around the laws of price formation based on the subjective evaluation of given units or quantities of goods and services by market participants. In the *Grundsätze* he defined value as the "importance that individual goods or quantities of goods attain for us because we are conscious of being dependent on command of them for the satisfaction of our needs" (Menger, 2007 [1871], p. 115). Value is thus not an independent magnitude, intrinsic in a given good, but it is attached to that good by the person who intends to use it in some way for the satisfaction of a need. It is subjective, that is, dependent on the individuals, and it is changing, that is, dependent on the circumstances of the situation in which the individuals find themselves.

Value is expressed in action, which involves the choice of pursuing the satisfaction of some need to some degree and setting aside the satisfaction of other needs. Thus, the value of a good is always expressed in relationship to the values of other goods:

> Wherever men live, and whatever level of civilization they occupy, we can observe how economizing individuals weigh the relative importance of satisfaction of their various needs in general, how they weigh especially the relative importance of the separate acts leading to the more or less complete satisfaction of each need, and how they are finally guided by the results of this comparison into activities directed to the fullest possible satisfaction of their needs (economizing). Indeed, this weighing of the relative importance of needs—this choosing between needs that are to remain unsatisfied and needs that are, in accordance with the available means, to attain satisfaction, and determining the degree to which the latter are to be satisfied—is the very part of the

[2] This information is given by the editors of the 4th edition of the *Handwörterbuch*, Ludwig Elster and Adolf Weber, in a note at the end of Wieser's article (Wieser, 1926, p. 717). In fact, Wieser himself was the third editor of the encyclopedia. According to that note the final editing of his article was undertaken by Hans Mayer, not Wieser himself.

> economic activity of men that fills their minds more than any other, that has the most far-reaching influence on their economic efforts, and that is exercised almost continually by every economizing individual. (Menger, 2007 [1871], p. 128)

To say that value of something is always expressed in relationship to the higher or lower value of something else, to say that value is relative, is equivalent so saying that the pursuit of satisfying any need involves opportunity costs. Its most obvious expression can be found in market exchanges. Every party to an exchange gives something up in order to attain something of higher value. The precondition of any exchange is a perceived value differential: the object given up has relatively low value compared to the object received from the point of view of both exchange parties.

Under bilateral competition on both sides of the exchange, market prices are determined by what Böhm-Bawerk later called the marginal pairs (Böhm-Bawerk, 1884), or more precisely, a range of mutually beneficial prices is determined for which the quantities supplied and demanded coincide (Egger, 1998). A market price reflects a historically realized exchange ratio between two different goods, and in the Mengerian framework it lends itself to a two-way interpretation. When x units of good A are exchanged against y units of good B, then the unit price of good B expressed as a quantity of good A is $\frac{x}{y}$, whereas the unit price of good A expressed as a quantity of good B is given by its reciprocal value $\frac{y}{x}$. Both parties to an exchange are at the same time buyer and seller. The buyer of good A is seller of good B and *vice versa*. Both exchange parties are paying a price.

As the relative values attached to the goods change from the points of view of various sellers and buyers, the market exchange ratio between them changes. When the value attached on the margin to good A relative to that of good B increases, the price of good A in terms of good B increases, and that of good B in terms of good A decreases. Any given quantity of good A can be exchanged against a higher quantity of good B. One might say that the purchasing power of good A in terms of good B has increased, whereas that of good B in terms of good A has decreased. Once an institutional framework for widespread market exchanges exists in society and prices for various goods in terms of other goods emerge, the conceptual distinction between use and exchange value becomes important. Use value is always subjective and derived from the importance of the need that can be satisfied with a good. Exchange value has an objective as well as a subjective side. The objective exchange value of a unit of a given good is represented by the quantities of other goods that can be bought with that unit on the market. It consists of objective and measurable quantities. The subjective exchange value of a unit of a given good is derived from the importance of the needs that can be satisfied with the quantities of the other goods that can be bought with that unit. Whether the current owner sells a given good depends on whether the use value, or the value of keeping the good in possession, is deemed to be lower than its subjective exchange value, that is, the value of the good that can be had in exchange for it at a given moment. Exchanges and the objective expression of historical exchange ratios between goods on markets are thus the result of underlying subjective value assessments.

This basic analytical apparatus does not change once money is introduced. Menger (1970 [1909]) provides a detailed summary of his well-known theory of the origins of money in the first section of his encyclopedia entry. It does not have to be reviewed here. The important advantage that money prices in a developed market economy provide, is a basis for comparison between heterogenous goods of all kinds that is caused by the interplay of continuously updated

subjective value assessments of all market participants. The existence of money within a well-developed exchange economy is thus a contributing factor to rational resource allocation and economic growth. Money is an extremely helpful social institution that vastly broadens the possibilities for exchange and the division of labor, but it does not solve all economic problems by itself.

Menger insists that the monetary unit is not a measurement unit of the exchange value embodied in market goods or the money itself, but merely a measurement unit of historical money prices. The historically realized market prices of various goods expressed in money provide a useful indicator of the respective exchange values of these goods and the development of their exchange values over time (Menger 1970 [1909], p. 65). This point may seem pedantic at first glance, but it is crucial. It is just another way of saying that one money price in isolation does not tell us much. What matters are relative money prices. It is not the quantity of money exchanged against a given good that provides a direct quantitative measure of its exchange value on the market, but rather it is the quantity of money that is exchanged against the good in relation to other quantities of money exchanged against other goods that provides us with a quantitative indicator of its exchange value *vis-à-vis* those other goods, even if that good would rarely or never be exchanged against those other goods in a limited barter economy.

Menger has emphasized at length the fact that money prices provide market participants with a benchmark for comparison. They facilitate, without being perfect, the objective assessment of wealth stocks and income streams of households, businesses and other organizations. They are the basis of business accounting.[3] Money prices not only make the objective comparison of very heterogenous economic goods possible, they also reflect actual and expected qualitative differences between very similar economic goods, as well as other circumstantial differences in time and place that affect their subjective evaluation by market participants. Without revealing the specific underlying causes, money prices thereby provide extremely useful summary statistics of relevant information on various economic goods and their surrounding market conditions.[4]

This emphasis on the practical importance of money prices, which we find also in the works of other writers,[5] is much less pronounced in Wieser's exposition of monetary theory (Wieser, 1926). He characterizes money as being first and foremost a means of payment, both for price payments ("*Preiszahlungen*") in exchange for real goods and services, as well as transfer payments ("*Zessionszahlungen*") which include taxes, fines, donations, and according to Wieser also credit payments.[6] Whereas Menger would argue that both parties to a monetary

[3] This line of argumentation was further pursued by Mises (1912) only three years after the publication of Menger's encyclopedia entry. Mises (1920, 1922) then turned these fundamental ideas into a forceful argument against the feasibility of a socialist economic system.

[4] This point has been explored in much more detail by Hayek (1937, 1945) who interprets the system of market prices expressed in money essentially as a transmitter of dispersed knowledge or information in the economy.

[5] Menger (1970b [1909], p. 71) himself, for example, refers to Malthus' *Principles of Political Economy*.

[6] Wieser (1926, p. 685) states that all payments involved in credit transactions constitute *Zessionszahlungen*, which suggests that interest payments are not price payments, and that the interest rate is not a price. A little bit later, in Section 5 of the article, entitled "*Geldvorrat und Geldbedarf*", we find a contrary statement. He argues that it is almost always inappropriate to regard the buyer of a good as a supplier of money, or the seller of a good as expressing a demand for money, which is contrary to Menger's view of monetary exchanges. Wieser claims that in all cases of transfer payments (*Zessionszahlungen*) it is inappropriate to talk about a given supply or demand for money, the only exception being credit transactions. He writes that in credit transactions "transfer and price payments are combined, in that for the transfer of monetary capital the interest is called for as a price [… *wie denn*

exchange pay a price, one party pays a money price for some commodity, the other pays a commodity price for some quantity of money, Wieser would completely reject that interpretation. The nature of monetary exchanges is such that they separate for any one individual the acts of buying and selling. In a monetary transaction only one party is a buyer, the other is a seller. Only one party pays a price, the other receives it. In exchange for that price payment a real good or service ("*Leistung"*) is provided. The seller of the good is not demanding money in the same way as the buyer demands the good. The seller merely accepts the price payment in exchange for the good, in order to then demand some other good or service in another transaction.

Wieser states that price payments in market exchanges play a role of particular importance, since they provide the measure to the value of money.[7] All other transfer payments presuppose the value of money and its implied *market domination* ("*Marktherrschaft*") by virtue of being the general medium of exchange. Transfer payments are made in money in so far as transferring specific real goods or services is regarded as less convenient than transferring that general market domination which a given sum of money provides due to its widespread use for price payments in exchange for all kinds of real gods and services. The money holdings of individuals in Wieser's terminology represent a certain degree of that general market domination. As market participants we need money to demand and exercise command over the real goods and services necessary for the direct and indirect satisfaction of our needs, but also to be able to transfer to other market participants whenever necessary, without reference to any specific type of want satisfaction, the capability of engaging in payments of all kinds. Hence, Wieser holds that "the term *means of payment* covers all the serviceability of money [emphasis added]."[8]

Wieser then goes on to mention a number of secondary functions of money, all of which are derived from its main function as a means of payment, including money as a store of value, a unit of account, as well as money as a measure of price and value. Wieser, just like Menger, emphasizes that in a developed economy the monetary unit is of course a measurement unit of prices. It is because money is a means of price payments in market transactions that prices have to be measurable in money. It does not, however, provide a measurement unit of value in general. Wieser explains that the use value of goods and services cannot be measured in money as it ultimately depends on the subjective satisfaction derived from them. Then he goes on to state: "Money only measures the exchange value. The latter is not only measured in exchanges, but it is measured in the whole of the economy, in so far as it is organized monetarily."[9] It is here that we find another subtle divergence from Menger who regarded the monetary unit as merely a measure of price, and various prices in combination merely as a more or less reliable indicator of exchange values between various goods.

In the above passage it is not clear what exactly Wieser means by money measuring the exchange value "in the whole of the economy", but it seems as if he is referring to the exchange value of money itself *vis-à-vis* real goods and services. He has the purchasing power of money

---

hier die Zessionszahlung sich mit der Preiszahlung verbindet, indem für die zessionsweise Uebertragung des Geldkapitales der Zins als Preis bedungen wird]" (Wieser 1926, p. 693).

[7] Wieser (1926, p. 685) writes: "*Dabei kommt jedoch der Preiszahlung im Tausche eine besondere Bedeutung zu. Sie ist der ursprüngliche Akt der Zahlung, an dem sich das Geld bildet und der, wie wir später sehen werden, dem Geldwerte sein Maß gibt.*"

[8] "*Durch den Namen des Zahlungsmittels ist der gesamte Gelddienst gedeckt*" (Wieser 1926, p. 686).

[9] "*Das Geld mißt nur den Tauschwert. Diesen mißt es aber nicht nur beim Tausche, sondern es mißt ihn im ganzen der Wirtschaft, soweit diese geldwirtschaftlich angelegt ist*" (Wieser 1926, p. 687).

itself in mind, that what Menger referred to as the external or *outer* exchange value of money. All questions of practical monetary policy are deeply connected to these theoretical concepts.

FROM THE OUTER AND INNER EXCHANGE VALUE OF MONEY TO THE ECONOMY-WIDE OBHECTIVE EXCHANGE VALUE OF MONEY

The *outer exchange value* ("*äußere Tauschwert*") of money, according to Menger (1970 [1909], pp. 73-74), describes the purchasing power of money, or the exchange value of money expressed in quantities of goods, which varies with time and place. The indisputable fact of the variability of the outer exchange value of money limits the functionality of money as a unit of account and as a reliable guide to the rational allocation of resources. This is the root of the economists' quest for a good or a basket of goods that has as stable an outer exchange value as possible. Menger calls this the "problem of identifying a good of universal and invariable outer exchange value" and refers to some of the most renowned economists of his era who were concerned with this problem, including William Stanley Jevons, Léon Walras, and Alfred Marshall. "If there were such a good, it would be possible to eliminate much of the uncertainty currently prevailing in economic life" (Menger, 2002 [1909], p. 63). Such a money good would also allow to compare without any doubt and uncertainty the real economic wealth and income between different entities in different places and at different times. Such a money would indeed provide a true and reliable measure of exchange value.

Menger passes an unequivocal judgment on this quest: "The search for a solution to the above problem, which has often and indeed not without good reason been called the squaring of the circle in economics, turns out, however, to be hopeless."[10] This conclusion is drawn both from practical experience as well as impartial theorizing about economic phenomena. Such a good would have to have a constant exchange ratio to all other goods, and it would thus implicitly require all other goods to have constant exchange ratios between them, too. "Only with stable prices, perhaps with prices uniformly, strictly, and perpetually regulated by government for an administrative district, would goods of stable exchange value in the above sense be thinkable (or more exactly, could any item of trade – including money! – be used for the above purpose)." In a dynamic and developing economy such a state of affairs is unthinkable.

The quest then boils down to finding a second-best solution, that is, a good whose outer exchange value is at least relatively stable. This, Menger holds, coincides with the quest for a money good of as stable an *inner exchange value* ("*innere Tauschwert*") as possible. Since the more stable the inner exchange value, the more stable will be the outer exchange value. Menger does not provide a clear definition of what that inner exchange value of money is. In order to narrow the meaning of the notion down, he explains that any exchange ratio between goods is formed by causal factors that come from both sides of the exchange. No exchange ratio is caused exclusively by factors that lie only on one side of the exchange. However, he argues that any given change in an exchange ratio can be caused by one side exclusively. This is also true for money prices. They are caused by factors that lie on the money side and by factors that lie on the goods side, but any change in market prices can in principle be caused by factors that lie on only one of the two sides. Menger (1970 [1909], p. 81) writes:

> The important question of the nature and extent of the influence that a change in the determining factors of price formation on the side of money exerts on the exchange

[10] "*Die Untersuchung über das obige Problem, dem vielfach und, zwar nicht ohne guten Grund, die Bezeichnung der nationalökonomischen Quadratur des Zirkels zu teil geworden ist, erweist sich indes als aussichtslos*" (Menger, 1970 [1909], p. 74). The translation is taken from (Menger, 2002, p. 63).

> ratios between money and the goods bought (on market prices) is the problem of the so-called inner exchange value of money and its movements.

Menger explains that in everyday life, people all too often assume that changes in market prices do not emanate from causal factors on the money side. People regard money, if only implicitly, as stable, as "an unchangeable measure of value [*eine unveränderliche Wertgröße*]." But this is a mistake.

> That old error is still noticeable everywhere in practical economic life: in everyday language, in the economic calculation of the rentier, in the popular value judgment about perpetual money annuities, even in the balance sheets of the manufacturer and of the merchant […] The fact that all goods regularly tend to be valued in sums of money (by their 'money value') but that money is not valued in quantities of goods traded (by its 'commodity value'), in other words, the fact that in contrast to the eagerly watched changes in the 'money value of goods traded', changes in the 'commodity value of money' remain almost completely unnoticed in common life, is probably the main reason for the above phenomenon. In the economic thinking and behavior of the masses, money, which indeed occupies a distinctive position in the economy in many respects, is regarded as an exceptional phenomenon in the above respect also, that is, as an anomaly of the economy.[11]

This popular view, Menger states, was present in the works of many thinkers of antiquity and the middle ages and was only slowly overcome. Menger (1970 [1909], p. 83) argues that Aristotle already knew about fluctuations in the value of money, but he refers to Jean Bodin as the first "who fought effectively and with great clarity against the popular prejudice which prevented proper understanding." Modern economics has understood and shown that changes in the quantity of money in circulation, changes in the demand for circulating media, changes in the production costs of money metal or changes in the use of money substitutes can exert their own effects on market prices. Menger (1970 [1909], p. 83) holds that the first rigorous scientific formulation of that position can be found in Thomas Robert Malthus' *Principles of Political Economy*.

Along with the modern understanding of the causal factors at work in price formation and the insight that some causal factors on the side of precious metal money change over time, economists have embarked on the quest for the second-best alternative. They are looking for a money good whose exchange ratio to other goods is at least not changed by causal factors lying on the side of that money good itself:

> They are looking for a good whose outer exchange value (whose exchange ratio against all other goods), though it could after all be exposed to local differences and change, would still be subject only to effects of causes on the side of the latter (the other goods, not the good in question of stable inner exchange value); they are looking for a good of universal and invariable 'inner exchange value'. (Menger, 1970 [1909], pp. 83-84)

Finding such a good, Menger believes, would be of almost equal importance as finding a good with stable outer exchange value, but is "incomparably easier" in his eyes (Menger, 1970 [1909], p. 85). In fact, Menger believes that in theory any changes in price coming from causal

[11] On this point Menger (1970 [1909], p. 82) refers once again to Alfred Marshall who makes a similar observation in his *Principles of Economics*.

factors from the money side could in principle be offset by changes in other causal factors from the same side. He gives the following example: "The price of wheat […] will neither fall nor rise if an increase in supply has its effect cancelled by an increase in demand. Such inner balancing of positive and negative price-determining factors, making stability of the 'inner exchange value' of a specific good possible, is not inconceivable theoretically; a good of stable inner exchange value is not utterly unthinkable." And then he adds:

> But it seems to me that even in practice the search for a good of stable 'inner value' should not be ruled out from the start. The fact that the quantities of certain goods reaching the market may be regulated at will offers us the possibility of neutralizing the influences that would otherwise come from their side and modify their exchange ratios with other goods. With free trade, there are no goods whose 'inner exchange value' is invariable; but there may be goods whose 'inner exchange value' could possibly be kept unchanged if the quantities reaching the market were regulated for this purpose. This holds in particular for that object of trade that is primarily to be considered in the present context, money; for it is within the power of states and associations of states to regulate the quantity circulating in internal trade (by restriction of coinage or by promoting or restricting the efficiency of money-substituting institutions!). Even with respect to international trade, the possibility of regulating the inner exchange value of money does not seem to me to be utterly ruled out. The idea of an object of trade whose 'inner value', to stick with the metaphor, would always be held 'at the same level' is in no way self-contradictory, no economic squaring of the circle, especially with regard to money, where to some extent this happens automatically even mow. It is not unthinkable to try to counteract the effects of the price-modifying influences that money left to itself would have on the prices of goods by influencing the quantity of money in circulation, especially of money substitutes [*Urkundengeld*], and thus to create circulating media of constant value in the sense explained here.

This is where an ambiguity emerges in Menger's exposition that has previously been pointed out (Salerno et al., 2020). He very openly rejects the possibility of setting up a money with stable outer exchange value, and he emphasizes the inextricable link between the outer and the inner exchange value of all things. But how then can the inner value be stabilized if the outer value cannot? In fact, if we take another look at Menger's value theoretic foundations, it becomes clear that inner and outer value are indistinguishable and that one cannot locate the source of the change solely on one side of an exchange. The value of a good is always expressed relative to that of another good and the supply of one good is expressed as a demand for another good. When the inner value of good A increases relative to that of good B, it means that the inner value of good B decreases relative to that of good A. From which side does the change emanate? It cannot be decided, because value in Menger's conception is always expressed in relative terms. It then becomes clear that the exchange rate between the two goods, their outer values expressed in the quantity of the other good, is indistinguishable from the relative relationship of their inner values. The distinction between *inner* and *outer* exchange value within the broader Mengerian framework is artificial. And it does not come as a surprise that Menger (1970 [1909], pp. 87-91) moves on to criticize all practical attempts to measure and identify changes in the inner value of money. The inner value has no clear and independent meaning that can be distilled from its observable outer value.

Let us take up Menger's example of the wheat price that does not change in so far as an increase in the supply of wheat is met with an equally strong increase in demand for wheat. That "inner" increase in demand for wheat is indistinguishable in practice from an "inner" decrease in the

reservation demand for money, or an "inner" increase in the exchange supply of money. Likewise, the increase in the supply of wheat is indistinguishable from an increase in the demand for money, as the supply of goods and services coincides with an exchange demand for money. Menger is correct in pointing out that no empirical method has been found to reliably identify the source of any given change, but even in theory the problem is much harder than Menger portrays it to be, which can be seen in the light of his own value theoretical foundations. For all practical intends and purposes it does not matter where the change comes from. The implications are the same. The relative value of wheat to money in Menger's example does not change. To say that the inner value of wheat has not changed, is to say that the outer value of wheat with respect to money and the outer value of money with respect to wheat have remained the same.

Wieser (1926, p. 696) recognizes the problem with these concepts and does not adopt them. He makes a direct reference to Menger's notions of *inner* and *outer exchange value* as a later addition to his monetary theory that was an attempt to cope with the conceptual difference in the objective and subjective value of money. Wieser claims: "a complete theory of value can neither leave the objective value aside, nor the personal."[12] However, he does not adopt Menger's terminology, because it is inadequate. Instead of referring to an inner and outer exchange value of money, he draws, in a first step, the distinction between an individual ("*einzelwirtschaftlicher"*) and an economy-wide ("*gesamtwirtschaftlicher"*) exchange value of money, and then, in a second step, the distinction between an economy-wide subjective and an economy-wide objective exchange value of money.[13]

This twofold distinction is convoluted, as "subjective" and "individual" seem to have essentially the same meaning. Likewise, the predicates economy-wide and objective are close in meaning. However, Wieser believes these terminological distinctions to be necessary in order to cope with the fact that one and the same objective exchange value of money can coincide with very different levels of wellbeing or want satisfaction in different societies. A poor and underdeveloped economy could have the same objective exchange value of money as a rich economy. In Wieser's terminology this would mean that any given economy-wide objective exchange value of money can coincide with both a relatively high economy-wide subjective value of money (in the poor society) and a relatively low economy-wide subjective value of money (in the rich society).

Wieser (1926, p. 695-696) argues that the individual value of money is determined by the law of marginal utility. The poor and needy household tends to attach a high value to money, whereas an affluent household tends to attach a low value to money. He explains that the individual exchange value that households attach to money puts constraints "in every direction" on their willingness to pay for real goods and services, which in turn determines to a large extent the money prices of goods and services and hence the objective exchange value of money.[14] While this chain of causation and determination is very important, there is a circular

[12] "*Eine vollständige Wertlehre darf den objektiven Wert so wenig beiseite lassen, als den persönlichen*" (Wieser 1926, p. 696).
[13] On these distinctions see Section 6 of Wieser (1926, pp. 695-699).
[14] Wieser (1926, p. 696) writes:

> *Immer wird die Geldeinheit nach Maß des realen Grenznutzens angeschlagen, den zu decken sie nach den persönlichen Verhältnissen bestimmt ist, immer darf sie nur zur Erwerbung solcher realer Werte ausgegeben werden, deren Verwendung diesen Grenznutzen realisiert, indem sie ihn mindestens deckt oder vielleicht noch übersteigt*. […] *Was insbesondere den einzelwirtschaftlichen Tauschwert des Geldes betrifft, so nimmt er, weil er nach allen Richtungen die einzuhaltende Ausgabengrenze vorschreibt,*

element in Wieser's reasoning as presented in this part of the article, because the individual exchange value that households attach to money is itself not independent of money prices and hence the objective exchange value of money.[15] But this is not to dispute Wieser's broader point that the subjective evaluations of individual market participants determine the formation of objective market prices, or what Wieser (1926, p. 697) from then on calls the economy-wide objective ("*volkswirtschaftlich-objektiver"*) exchange value of money. This notion becomes central to is analysis.

The objective economy-wide exchange value of money sets into relation the quantities of real goods and services that can be purchased with a given sum of money. In contrast, the economy-wide subjective ("*volkswirtschaftlich-subjektiver"*) exchange value of money is given by the average of the subjective value of money for individual households and other entities that depends on the degree to which their needs are satisfied. It is derived from society's average subjective marginal value of money and thus sets into relation the importance of the satisfaction of the need that the additional goods bought would satisfy with a given quantity of money.

Wieser (1926, p. 697) then points out that it is not common practice to use the terms of the subjective economy-wide and the objective economy-wide exchange values of money side by side, separating his own position from the commonly accepted one.[16] He claims that economists are usually referring only to the objective exchange value of money, but when it comes to analyzing changes in that value over time they refer to causes stemming "from the goods side" and those stemming "from the money side." Wieser decidedly rejects that approach by pointing out that very often causes cannot clearly be associated with either one of these two sides. In these cases, and all others, he holds, the causes are really not what matters. What matters are the effects of the changes in the objective exchange value of money. In so far as one analyzes the effects of changes in the economy-wide objective exchange value of money with respect to the provision of real goods and services one transitions to the notion of the economy-wide subjective exchange value of money.

Moreover, Wieser (1926, pp. 693) rejects the view that the value of money could be analyzed in terms of demand and supply, like the value or price of any other good. He holds that the seller of a good does not demand money, the buyer of a good does not supply money. They

---

entscheidenden Anteil an der Bildung der Preise, die ihrerseits dem objektiven Tauschwert das Maß geben.

[15] Mises (1912) suggested a solution to that problem that essentially followed Wieser's lead in explaining the value of money provided in earlier works (Wieser, 1904, 1909). Wieser (1926, p. 698) states that "the objective value of money is the basis for the further historical development of the price level […] There is a law of price continuity." A little bit later in the article Wieser (1926, p. 700) states: "The original value of money is use value. In its beginning money must have value in use, otherwise nobody would accept it in exchange, and it could not perform its function as a medium of exchange. [*Der ursprüngliche Geldwert ist Stoffwert. In seinen Anfängen muss Geld Stoffwert haben, sonst würde niemand bereit sein, es im Austausch hinzunehmen, und es würde seinen Umlaufsdienst nicht verrichten können.*]" This is the core of what later has been dubbed the regression theorem of the origin and value of money which is mostly associated with Mises and Menger (Hansen, 2019). For a detailed account of Wieser's analysis of the origins of money, see the second part of Festré and Garrouste (2016).

[16] This is interesting, because it poses the question of what the commonly accepted position is. Is it Menger's? And does Wieser explicitly separate his own position from Menger's? In fact, the criticism that Wieser raises is applicable to Menger's monetary theory as presented above. The editors of the fourth edition of the *Handwörterbuch* also explicitly state at the beginning of the series of entries on money that they thought it would be a good idea to let an opponent of the commonly accepted doctrine present his views first, and the first author in the series is Wieser. If this interpretation is correct, then Wieser explicitly distances his own position from that of Menger as being the commonly accepted own.

demand and supply other real goods, just like in the original state of barter, money being only the intermediary as a means of price payments. It is not appropriate either to interpret the real goods exchanged against money as the price of money.[17] The price or the value of money is then not formed in terms of supply and demand for money, but according to Wieser, in terms of nominal and real income. In Section 7 of his article he formulates the law ("*Bildungsgesetz"*) of the objective value of money by stating "that the height of the objective value of money is determined by the proportion between the nominal income of the household and the real income, for which it is expended." He then adds: "If a tenfold nominal income of a household corresponds to the same real income, then the general price level is ten times higher, and the objective value of money is ten times lower."[18]

Wieser explains more explicitly than Menger, why there are already within the market systems forces that tend to balance the relationship between nominal and real income, thereby stabilizing the value of money. For instance, there are according to Wieser (1926, pp. 706-707) two main factors that prevent an appreciation of money in response to real economic growth. First, real economic growth goes hand in hand with increased economic activity ("*größere Lebhaftigkeit des Verkehrs"*) and thereby tends to increase the velocity with which the existing means of payment change hands. Second, the increased economic activity also stimulates the issuance of new means of payment in the form of credit money that is backed by the increased economic activity and real income, not by the money commodity itself. In that sense, Wieser argues, the increased real income leads to the creation of additional nominal income without the value of money having to appreciate. He mentions a third historical factor, namely the increases in the production of precious metals that were made possible by growth and technological progress as well as the discovery of additional sources of precious metal in the new world. He argues that the additional stock of precious metal was helpful in increasing nominal income along with real income, but "one would have known how to help oneself without it."[19] In fact, Wieser even emphasizes the inflationary effects of the additional gold influx from the new world, in so far as it does not go hand in hand with an increase in real income, as being detrimental and a disadvantage of a gold backed currency (Wieser 1926, pp. 702-704). For Wieser, this is a main argument why a gold-backed currency is suboptimal. It can generate unwarranted influxes of base money with inflationary consequences.

However, Wieser (1926, pp. 707-709) makes the additional observation that the depreciation of commodity money in the modern era cannot fully be explained by the external inflation of the precious metal stock but must have been driven also by other developments that had set in earlier. He argues that it was first the expansion of the monetary economy into peripheral areas and then the enormous intensification of the economic process ("*Intensivierung des volkswirtschaftlichen Prozesses"*), that in spite of an overall increase in real income, tended to lead to a depreciation of money, because it led, at the same time, to an overproportionate increase in nominal income. This coincided with the effect of the influx of precious metals.

PRACTICAL IMPLICATIONS FOR MONETARY POLICY

[17] As pointed out earlier, the only exception where Wieser would accept the notions of demand and supply of money is in credit transactions, with interest being the price that is formed as a result.

[18] "*… daß die Höhe des objektiven Geldwertes durch das Verhältnis bestimmt wird, in welchem das Geldeinkommen des Haushaltes zu dem Realeinkommen steht, zu dessen Beschaffung es zu verwenden ist. Wenn das zehnfache Geldeinkommen im Haushalt dem gleichen Realeinkommen gegenübersteht, dann wird sich der allgemeine Preisstand zehnmal so hoch und der objektive Geldwert zehnmal so niedrig stellen*" (Wieser 1926, p. 699).

[19] "*Die erhöhte Gewinnung der Edelmetalle bot die willkommenste Hilfe, um die Zahlungsmittel zu erweitern, sie war höchst erwünscht, aber man hätte sich schließlich auch ohne sie zu behelfen gewußt*" (Wieser, 1926, p. 707).

Although Menger regarded the complete stabilization of the outer exchange value of money as an economic squaring of the circle, he did not dismiss the stabilization of the inner exchange value of money as a viable and potentially attainable policy goal. He did not dismiss the theoretical or even practical possibility that any change in the demand for money could be offset by an equivalent change in the supply of money or money substitutes, thus neutralizing all disturbing effects on the outer exchange value of money that emanate exclusively from the money side. He did not dismiss that policy goal in spite of the fact that changes in the demand for money are, within the context of his own theoretical framework, inextricably linked to the changes in the demand and supply of goods and services and that these changes are often inseparable, even in theory.

The limiting factor for Menger, as far as practical policy conclusions are concerned, was thus not his own theory of value and price formation, but rather the state of scientific knowledge as he saw it and above all the uncertainty surrounding our ability to reliably identify changes in the inner value of money on the basis of observable (outer) market prices. He was persuaded that these changes can never be detected with certainty, but only with certain probabilities, and the assumptions needed to draw statistical inferences are unrealistic and hard to test. He writes:

> The above presupposition (the presupposition that in summary accounts of interlocal differences and of movements of prices of suitably chosen commodities or of qualities consumed, the effects of the negative and positive factors of price formation on the side of the traded goods cancel out, so that the price-changing influences on the side of money find unequivocal expression) is so far-fetched, however, and also so hard to test that even the most sensible methods of applying this idea cannot lead to entirely satisfactory result. All methods of identifying interlocal differences and the movement of the inner exchange value of money that are based on this presupposition are even basically arbitrary and unsupported. (Menger, 1970 [1909], pp. 90-91)

Menger refers in a footnote (p. 90) to an attempt by Lexis (1888) who suggests that changes in the inner value of money could potentially be inferred on the basis of the fact that overall expenditure on various goods is typically rather stable as quantities demanded tend to increase when unit prices fall and *vice versa*. One of Lexis central ideas is that the closer market demand for various goods and services is to unit price elasticity, which implies unchanging overall expenditures on goods as a result of price changes, the more reliably observable changes in overall expenditure can be interpreted as indicating changes in the inner value of money. While being an interesting theoretical idea, it is not really solving the problem either.

In fact, Menger does not see any practical solution that would make it possible to reliably react to changes in the inner value of money and that would justify full political control of the base money stock, that is, an unbacked paper money standard. Although there is the theoretical possibility of such a system improving upon a commodity money regime, he recommends a gold backed money as being more reliable in practice. Such a monetary system should be streamlined by government regulation that renders the endogenous provision of unbacked money substitutes or fiduciary media possible. These fiduciary elements would to some extent allow for an automatic adjustment to changes in the demand for money and could thus have a stabilizing effect on the inner value of money. Menger does not explain the reasoning behind that claim. But Wieser later on went partly into such an explanation.

Wieser's practical conclusions are in fact very similar to those of Menger, but for different reasons. In several passages of his encyclopedia article, Wieser (1926, p. 701) demonstrates an affinity to Georg Friedrich Knapp's state theory of money. For example, he discusses Knapp's polemical critique of a strict metallism that holds that the value of money depends on the use value of an underlying commodity and argues that Knapp contributed greatly to monetary theory by showing that the metallist position is wrong. Knapp did not however, in Wieser's assessment, provide a positive theory of where the historical value of money comes from. He skipped that crucial step and simply assumed that value to exist. From that point onward, his contributions as far as the potential of the state to influence and preserve the value of money in historical continuity, even without an underlying commodity, cannot be denied in Wieser's view. In fact, Wieser conceived of his own theoretical framework as providing the missing link, filling the gap that Knapp left. In a sense, Wieser puts Knapp on a more solid theoretical foundation.

Wieser points out that it was the great historical advantage of the emergence of gold as the world's money that exchange rates between different national currencies were stabilized. Knapp had then shown that, in principle, it does not require the backing of gold to maintain that stability. In Wieser's own words:

> Knapp became the leader on this new path with his state theory of money. The functional theory of money [Wieser's own theory], however, may claim for itself that it has found a firmer theoretical foundation than Knapp was able to provide, in order to come to an end with the exaggerations of rigid metallism. It does not argue with a mere appeal to state command, which it allows to apply only in its narrower sphere of domestic exchange, but it argues with an appeal to the law of the exchange value of money, which is independent of the material value of the money good, and with the appeal to the equilibrating tendency of the international balance of payments, which must in the long run secure an equilibrium for the foreign exchange market.[20]

Foreign exchange markets and the international stability of the monetary order is then also the main reason why Wieser does not recommend his ideal monetary system, which consists of a pure paper standard, for practical implementation during the interwar period. Wieser (1926, pp. 716-717) describes his ideal monetary system for a closed and well-ordered economy as follows:

> There can be no doubt that wherever people are already accustomed to notes - and where would they not be! - paper money will continue the exchange value of the old money in historical continuity. The new paper money will not only pay all existing metal money debts, but will also buy as much on the market as the old metal money. The advantages of such a monetary order are obvious. The mass of existing monetary metal

[20] In the original:

> *Knapp wurde mit seiner staatlichen Theorie des Geldes der Führer auf diesem neuen Wege. Die Funktionstheorie des Geldes darf es aber für sich in Anspruch nehmen, daß sie eine festere theoretische Grundlage als Knapp sie zu geben vermochte, gefunden hat, um mit den Übertreibungen des starren Metallismus zu Ende zu kommen. Sie argumentiert nicht mit der bloßen Berufung auf den staatlichen Befehl, den sie nur in seinem engeren Bereiche des inländischen Verkehres gelten läßt, sondern sie argumentiert mit der Berufung auf das Gesetz des Tauschwertes des Geldes, der vom Stoffwert unabhängig ist, und mit der Berufung auf die Ausgleichstendenz der internationalen Zahlungsbilanz, die dem Devisenmarkt auf die Dauer sein Gleichgewicht sichern muß*. (Wieser, 1926, pp. 715-716)

> will be freed for other uses, the continuous costs of innovation will be spared, the new money will be free from the danger of depreciating, which threatens from the richer yield of gold production, and likewise the monetary system will be free from the restrictions which would be to be feared from the exhaustion of gold production; for the state can meet the increasing monetary needs of an increasing circulation with a corresponding increase in its note issue. Could the monetary system be more accurately and simply ordered? The notes issued by the state would render the same service to their owners as the deposit in a bank account, and would render their service even more simply. It would not be necessary to go to the bank to have it debit and credit the note, but by handing over the note, the recipient would be legitimized to exercise, according to the amount of the note, dominion over the market and over payments in the national economy. The note would perform its service like the loose sheet of an unbound bank book, whereby, moreover, the number of circulating pieces of paper increases with the increasing intensification of the national economic process according to the measure of the increasing coverage in real values and in line with the law of price continuity.[21]

Such a system would be the hypothetical ideal for the entire world as a whole. However, in a divided, yet interconnected, world in which peace is not secured the tools for foreign exchange policies would not be properly used by all countries to stabilize national currencies, if they are based entirely on paper. Such a system would continually be disturbed. In the interest of international stability, a gold anchor is still needed, not for a lack of scientific knowledge on how to manage an unbacked monetary base, but for reasons of war and peace. As Wieser (1926, p. 717) saw it: "A world paper money is a utopia today. Under the given societal conditions, the world money has to continue to be based on gold."

Wieser closes his analysis by an admission, stating that in a closed economy with the most rational public management of a paper money system, the value of money could be protected from all influence of inflation. Yet, even in such a system the money could not be stabilized in

---

[21] In the original:

> *Es kann kein Zweifel darüber bestehen, daß überall dort, wo man im Verkehre bereits an Noten gewöhnt ist – und wo wäre man das nicht! – das Papiergeld auf dem Markte den überlieferten Tauschwert des alten Geldes in geschichtlicher Kontinuität fortsetzen wird. Das neue Papiergeld wird nicht nur alle bestehenden Metallgeldschulden bezahlen, sondern auch auf dem Markte so viel kaufen wie das alte Metallgeld. Die Vorteile einer solchen Geldordnung sind einleuchtend. Die Masse des vorhandenen Währungsmetalles wird zu anderer Verwendung frei, man erspart die fortlaufenden Kosten einer Neuerung, das neue Geld ist der Gefahr der Depreziation entzogen, die von der reicheren Ergiebigkeit der Goldproduktion droht, und ebenso ist das Geldwesen von den Beengungen frei, die von der Erschöpfung der Goldproduktion zu befürchten wären; denn der Staat kann dem steigenden Geldbedarfe eines steigenden Verkehres mit entsprechender Erhöhung seiner Notenausgabe entgegenkommen. Könnte das Geldwesen zutreffender und einfacher geordnet sein? Die vom Staate ausgegebenen Noten würden ihren Besitzern den gleichen Dienst leisten wie die Gutschrift im Bankbuche, und würden ihren Dienst noch in einfacherer Weise leisten. Man brauchte sich nicht erst an die Bank zu wenden, damit diese ihre Lastschrift und Gutschrift vollziehe, sondern, indem man die Note übergibt, legitimiert man den Empfänger dazu, nach Maß des Betrages der Note Marktherrschaft und Zahlungsherrschaft in der Volkswirtschaft auszuüben. Die Note würde ihren Dienst wie das lose Blatt eines ungebundenen Bankbuches leisten, wobei sich überdies die Zahl der umlaufenden Blätter mit zunehmender Intensivierung des volkswirtschaftlichen Prozesses nach Maß der zunehmenden Deckung an realen Werten und im Sinne des Gesetzes der Preiskontinuität vermehrt.* (Wieser, 1926, pp. 716-717)

It is interesting to note that Wieser here makes a reference among other things to the classical cost-saving argument for paper money that can also be found in Menger's and even in some of Mises' works. For brief discussion of that argument, see Israel (2019, 2021).

the sense that it would always have the same purchasing power. It would nonetheless be possible to improve the monetary system substantially by just focusing on the directly observable and measurable level of money prices, instead of the hidden inner value of money. By rejecting the latter, Wieser, along with other theorists like Irving Fisher (1911, 1923), paved the way to price level targeting in monetary policy.

CONCLUSION

Menger's many contributions to economics lead into an ambiguity that appears in his last scientific publication in the *Handwörterbuch der Staatswissenschaften*. His twin notions of the inner and outer exchange value of money and the claim that the outer exchange value cannot be stabilized by monetary policy, unlike the inner exchange value that potentially could be stabilized, is inconsistent with his underlying value theoretical framework. The inner and outer exchange values of a good are indistinguishable. If one of them cannot be stabilized, neither can the other. If one accepts Menger's value theoretic foundations as well as his staunch rejection of the possibility of stabilizing the outer exchange value of money, one has to reject any attempt to stabilize the inner exchange value of money too.

Because of the ambiguity in his conceptual framework, Menger did not get to this conclusion right away. He first discussed the practical possibility of measuring the evolution of the inner exchange value of money admitting that it was practically impossible to do in a reliable and satisfactory way. Therefore, he considered a gold-backed monetary system that allows for fiduciary elements, that is, the issuance of unbacked money substitutes by commercial banks, as the best practical solution. This mechanism would provide an endogenous response to increases in the demand for money and to some extent perform the job that a government-controlled paper money could not reliably perform. Although such a fractional-reserve banking system would not perfectly neutralize all fluctuations in the inner value of money, it would get the monetary system closer to that ideal. Menger, reached that conclusion, in spite of the highlighted conceptual ambiguity, out of intellectual humility and caution. It would have been pretentious in his eyes to assume that the money stock would be controlled in just the right way by any political authority, although political regulation still plays an important role in improving the monetary system in his view.

Wieser on the other hand was somewhat more optimistic, describing the ideal monetary system as a one-world paper money system that is coordinated in such a way that the economy-wide objective exchange value of money is stabilized. Wieser gets rid of Menger's ambiguity and puts the focus directly on observable money prices. He believes it to be possible to stabilize the price level. However, the fact that geopolitical conflicts were present and could break out at any time makes a gold anchor for money necessary for international stability in his view. Only in a pacified world without war, his ideal monetary system would be feasible. Wieser does not see an intellectual limitation in the way of optimally controlling the monetary stock, nor does he discuss any potential incentive problems. In fact, he assumes that the political control of the money stock would be exercised in the pursuit of stability. Yet, even if that was the case, the mere possibility of accommodating various unexpected economic situations by monetary policy measures in the pursuit of price stability, reduces the immediate costs of a whole range of fiscal and regulatory political measures that would disturb the demand for money and thus makes them more likely, not only in times of war but also in times of peace. So, even if the purchasing power of money would be stabilized, money and the institutional framework within which it is created could still have potentially very disturbing effects on the

overall economy. While these considerations go beyond Menger's and Wieser's analytical focus, they suggest that Menger's cautious stance was appropriate.

REFERENCES

Böhm-Bawerk, E. von. (1884). *Kapital und Kapitalzins: Positive Theorie des Kapitales*. Wien: Wagner.

Caldwell, B. J. (Ed.). (1990). *Carl Menger and his Legacy in Economics - History of Political Economy Annual Supplement to Volume 22*. Durham and London: Duke University Press.

Campagnolo, G. (2016). *Carl Menger: Entre Aristote et Hayek aux sources de l'économie moderne*. Paris: CNRS Éditions.

Egger, J. B. (1998). Clarifying and Teaching Bohm-Bawerk's ``Marginal Pairs''. *The Journal of Economic Education*, *29*(1), 32–40.

Festré, A., & Garrouste, P. (2016). Wieser as a Theorist of Institutional Change. *Journal of the History of Economic Thought*, *38*(4), 463–483.

Fisher, I. (1911). *The Purchasing Power of Money*. New York: Macmillan.

Fisher, I. (1923). The Business Cycle Largely a `Dance of the Dollar'. *Journal of the American Statistical Association*, *18*(144), 1024–1028.

Gloria, S. (2018). Menger contre Walras. *Revue Économique*, *69*(4), 593–613.

Hansen, K. (2019). The Menger-Mises Theory of the Origin of Money - Conjecture or Economic Law ? *Quarterly Journal of Austrian Economics*, *22*(1), 26–48.

Hayek, F. A. von. (1937). Economics and Knowledge. *Economica*, *4*(13), 33–54.

Hayek, F. A. von. (1945). The Use of Knowledge in Society. *American Economic Review*, *35*(4), 519–530.

Ikeda, Y. (2008). Carl Menger's monetary theory: A revisionist view. *European Journal of the History of Economic Thought*, *15*(3), 455–473.

Israel, K.-F. (2019). How cost efficient is the eurosystem? *Economics Bulletin*, *39*(1), 115–126.

Israel, K.-F. (2021). The fiat money illusion: On the cost-efficiency of modern central banking. *World Economy*, *44*(6), 1701–1719.

Lexis, W. (1888). Ueber gewisse Wertgesamtlieiten und deren Beziehungen zum Geldwert. *Zeitschrift Für Die Gesamte Staatswissenschaft*, *44*(2), 221–262.

Menger, C. (1871). *Grundsätze der Volkswirtschaftslehre*. Wien: Braumüller.

Menger, C. (1970a). *Carl Menger Gesammelte Werke Band IV: Schriften über Geld und Währungspolitik*. (F. A. von Hayek, Ed.). J. C. B. Mohr.

Menger, C. (1970b). Geld. In F. A. von Hayek (Ed.), *Carl Menger Gesammelte Werke Band IV: Schriften über Geld und Währungspolitik* (pp. 1–116). Tübingen: J. C. B. Mohr.

Menger, C. (2002). Money. In M. Latzer & S. W. Schmitz (Eds.), *Carl Menger and the Evolution of Payments Systems: From Barter to Electronic Money* (pp. 25–107). Cheltenham, UK, and Northampton, MA, USA: Edward Elgar.

Menger, C. (2007). *Principles of Economics*. Auburn, AL: Ludwig von Mises Institute.

Mises, L. von. (1912). *Theorie des Geldes und der Umlaufsmittel*. München und Leipzig: Duncker & Humblot.

Mises, L. von. (1920). Die Wirtschaftsrechnung im sozialistischen Gemeinwesen. *Archiv Für Sozialwissenschaft Und Sozialpolitik*, *47*, 86–121.

Mises, L. von. (1922). *Die Gemeinwirtschaft: Untersuchungen über den Sozialismus*. Jena: Gustav Fischer Verlag.

Salerno, J. T., Dorobat, C. E., & Israel, K.-F. (2020). Two views on neutral money: Wieser

and Hayek versus Menger and Mises. *European Journal of the History of Economic Thought*, *27*(5), 682–711.
Schumpeter, J. A. (2003). *Ten Great Economists: From Marx to Keynes*. Taylor and Francis e-Library.
Schumpeter, J. A. (2006). *History of Economic Analysis*. Routledge - Taylor and Francis e-Library.
Wieser, F. von. (1904). Der Geldwert und seine geschichtlichen Veränderungen. *Zeitschrift Für Volkswirtschaft, Sozialpolitik Und Verwaltung*, *13*.
Wieser, F. von. (1909). *Der Geldwert und seine Veränderungen*. München: Schriften des Vereins für Socialpolitik 132.
Wieser, F. von. (1926). Geld (Theorie des Geldes). *Handwörterbuch Der Staatswissenschaften*, *4*, 681–717.

APPENDIX

The structure of Menger's (1970 [1909]) encyclopedia entry on money:

I Der Ursprung allgemein gebräuchlicher Tauschmittel
1. Einleitung
2. Die Schwierigkeiten des naturalen Tauschhandels
3. Die verschiedene Gangbarkeit (Marktgängigkeit) der Güter
4. Die Entstehung der Tauschmittel
5. Die Wirkung der Entstehung allgemeingebräuchlicher Tauschmittel auf die Warenmärkte und auf die Preisbildung

II Der Streit der Wirtschaftstheoretiker und der Juristen über die Natur des Geldes und dessen Eigenart im Kreise der übrigen Güter
1. Der Streit der Wirtschaftstheoretiker
2. Die Unterscheidung zwischen „Geld" und „Ware" in der Jurisprudenz

III Die Entstehung des Metallgeldes
IV Die Vervollkommnung des Metallgeldes durch Ausmünzung der Metalle
V Die Vervollkommnung des Geld- und Münzwesens durch den Staat
VI Das Geld als Mittel für einseitige und subsidiäre Vermögensleistungen
VII Das Geld als Zahlungsmittel
VIII Das Geld als Mittel für Thesaurierung, Kapitalisierung und interlokale und intertemporäre Vermögensübertragung
IX Das Geld als Vermittler des Kapitalverkehrs
X Das Geld als Preismesser (Preisindikator)
XI Das Geld als Massstab des Tauschwertes der Güter
1. Einleitung
2. Ob die Schätzung der Güter in Geld als eine Messung ihres Tauschwertes zu betrachten sei?
3. Die praktische Bedeutung der Bewertung der Güter in Geld
4. Dass der in Geld ausgedrückte Tauschwert der Güter unter verschiedenen örtlichen und zeitlichen Verhältnissen kein entsprechender Massstab der Mittel und Ergebnisse der Wirtschaften sei
5. Das Streben nach einem Gute von universellem und unwandelbarem äusseren Tauschwerte
6. Versuche einer Messung der örtlichen Verschiedenheit und der Bewegung des äusseren Tauschwertes des Geldes
7. Über die örtliche Verschiedenheit und Bewegung des sogenannten inneren Tauschwertes des Geldes
8. Die populäre Auffassung über die Beständigkeit des inneren Tauschwertes des Geldes
9. Die wissenschaftliche Auffassung über den inneren Tauschwert des Geldes und seine Bewegung
10. Die Idee eines universellen und unwandelbaren Masssrabs des inneren Tauschwertes der Güter.
11. Die Frage, ob bestimmte Preisbewegungen (bzw. örtliche Verschiedenheiten der Preise) auf Ursachen zurückweisen, die im Gelde, oder auf solche, die in den Kaufgütern liegen
12. Ob der innere Tauschwert des Geldes und seine Bewegung gemessen werden können

XII Aus seiner Entwicklung und seinen Funktionen sich ergebender Begriff des Geldes
XIII Ob der Zwangskurs zum Begriffe des Geldes gehört und das letztere durch den Zwangskurs seine Vervollkommnung erfährt?

a) der juristische, b) der ökonomische Gesichtspunkt der Betrachtung
XIV Der Bedarf der Volkswirtschaft an Geld

The structure of Wieser's (1926) encyclopedia entry on the general theory of money:

1. Ursprung des Geldes.
2. Dienste und Wesen des Geldes.
3. Die Münze.
4. Geld und Kredit.
5. Geldvorrat und Geldbedarf.
6. Der einzelwirtschaftliche und der volkswirtschaftliche (subjektive und objektive) Tauschwert des Geldes.
7. Das Bildungsgesetz des objektiven Tauschwertes.
8. Metallismus, Nominalismus, und Funktionstheorie des Geldes.
9. Das Gesetz der Veränderung des objektiven Geldwertes.
    a. Der Einfluss der Vermehrung des Geldvorrates (Inflation, Depreziation).
    b. Die Lehre von der Appreziation als Folge der Vermehrung des Geldbedarfes.
    c. Die Bestimmung des Geldwertes durch die Entwicklung der Geldwirtschaft und die Intensivierung des volkswirtschaftlichen Prozesses.
10. Der Geldwert in der Weltwirtschaft.
    a. Der internationale Tauschwert des Geldes.
    b. Der internationale Kurswert des Geldes (der intervalutarische Wert) bei freier Goldwährung.
    c. Der internationale Kurswert des Geldes bei freier Silberwährung.
    d. Der internationale Kurswert des Geldes bei Papiergeldinflation.
    e. Der internationale Kurswert des Geldes bei gesperrter Währung.
11. Stabilisierung des Geldwertes.