Non-Material Austrian Capital Theory

and Loan Markets

May 8, 2005

Abstract

This paper explores the non-material definitions of capital that were used by Carl Menger and especially Ludwig von Mises. Menger introduced the idea that capital is a businessperson's net worth devoted to earning income. Mises appears to have copied this definition, with added emphasis on the role of the entrepreneur. Mises also integrated this definition with a theory of loan interest. In the latter, he stressed time preference and the time structure of interest rates; entrepreneurship and economic calculation; how injections of money affect decision making; and the problem of aggregating the separate, private net worth of different individuals. It is argued that this notion of capital is superior to that of the material definitions used by other Austrian writers. It is superior because (1) it directs one's attention to higher order goods and time, (2) it avoids all possibility of confusing Austrian capital theory with the classical notion that interest is the price of capital goods, (3) it neutralizes any concept of "social capital," and (4) it places the focus on entrepreneurship, the entrepreneur point of view, and the entrepreneur process.

The members of the Austrian school of economics who achieved the most fame in professional economics, Eugen Böhm Bawerk (1959) and F. A. Hayek (1935, 1936, 1941, 1945) used a materialist definition of capital. The material aspects of Böhm theory are well known, although he also debunked the productivity theories of interested that had been promoted by an earlier generation of economists (Mises 1966: 489). In the introduction to his book *The Pure Theory of Capital*, Hayek says that his goal is exploration of "the interrelations between the different parts of the material structure of the process of production" and his discussion of "in general terms what type of equipment it will be most profitable to create under various conditions, and how the equipment existing at any moment will be used..." (Hayek 1941: 3). Ludwig Lachmann asserted that the chief problem of capital theory is to explain why heterogeneous capital goods "are used the way they are; why in a given situation some alternatives are rejected, others selected...[We want to know] what governs the choice or rejection of alternative uses when unexpected change compels a revision of plans" (Lachmann 1978 [1956]: 8). Israel Kirzner maintained that "revisions of plans cannot be understood without reference to the stocks of equipment, raw materials, half-finished products and finished products, that are available at the relevant dates" (Kirzner 1966: 47). Murray Rothbard defined capital poetically as "an intricate, delicate, interweaving *structure* of capital goods" (Rothbard 1962: 836). He defined a capital good as a produced resource (*ibid.*: 258). Rothbard also seems to have focused on capital goods as part of a planning process, although his treatment of this is less straightforward than that of Lachmann and Kirzner.[1] More recently, Peter Lewin (1994), in describing Austrian capital theory

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[1]See, for example, his lengthy quote of Mises on the role that material factors play in planning future action.(*ibid.*: 413)

for a prestigious publisher, completely ignores Mises and does not recognize entrepreneur's net worth as capital. However, he does approve of Menger's definition of capital as all resources.[2]

Böhm and Hayek, the most famous of the Austrian contributors, engaged non-Austrian economists in professional controversies. Indeed, this is part of the reason they achieved the most fame. Naturally when professional historians of economics write about the Austrian capital theory, they tend to stress the materiality espoused by these writers. So it is no surprise that the above-named Austrians have also adopted a material theory.

The aim of this paper is to make a case for shifting away from this definition toward a non-material definition of capital. The paper argues for a return to the non-materiality stressed by the founder of the Austrian school, Carl Menger, and by Ludwig von Mises.[3] The materialist definition diverts one's attention away from the revolutionary Mengerian and early neoclassical insights (1) that the prices of *all* factors of production are determined in the same way and (2)

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[2]In a newer book (Lewin 1999), he follows Ludwig Lachmann in defining the resources (Lachmann's "capital") as they are viewed through the eyes of individuals who have plans to use them in a production process. This leads him to recognize the importance of the acts of capitalization and appraisement. He parts with Lachmann in two ways, however. First, he assumes that "capital" refers to all of the resources. This includes "human capital" (*ibid.*). Lachmann had defined it as the heterogeneous "stock of material resources" (Lachmann 1978: 11). This is a welcome departure that could have led him to the more general view of the market economy as being driven by individuals acting in the role of praxeological entrepreneurs. However, his second departure precluded this insight. Specifically, he considered only the plans of the employers in firms, who receive the residual as a result of their contracts with other owners of resources to help in the production process. This makes his analysis less general than that of Mises. As a result, he is not and cannot be led to the general insight that an understanding of the market economy must begin with the idea of net worth as perceived by the entrepreneurship in the functional sense. It is only by means of this insight that the a theory of the prices of the resources (Lewin's "capital") can be integrated into the modern Austrian theory of value and cost. (For a description of this theory see Gunning 1997).

[3]Menger reportedly regarded Böhm Bawerk's theory of capital as a great blunder (Endres 1987: 291). Mises criticized Böhm Bawerk for his materiality (Mises 1974). Moreover, he criticized Hayek for shifting away from a pure time preference explanation of interest (Mises 1966: 528).

that the classical division of factors of production into classes based on physical characteristics is both unrealistic and misleading. In the work of Herbert Davenport (1914), these insights were refined into an image of an economy in which factor prices were regarded as the consequence of an entrepreneurial *process*. Materiality, Davenport showed, is immaterial to understanding how the prices of all factors of production are determined and indeed in understanding the crucial elements of interaction in the competitive market system. Davenport showed that the proper way to understand the pure market economy is to take the *entrepreneur point of view*.[4] Mises developed this approach further.

To Austrian material capital theorists, the main problem requiring explanation is how existing material capital can suddenly become unsuitable to the satisfaction of wants. But this problem is not exclusively a material capital problem. It is part of the more general problem of explaining how all kinds of factors and methods of producing consumer goods suddenly become unsuitable. The entrepreneur point of view assumes that the particular factors and methods of production are chosen by entrepreneurship. It follows that if these methods are at some time (e.g., during a trade cycle) judged to be unsuitable, the reason must be that entrepreneurship made errors. By referring to the capital problem, the Austrian material capital theorists divert attention away from the great discoveries of post-Mengerian subjectivist economics about entrepreneurship. They focus on a particular theory instead of on a general theory of factor prices and methods of production.

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[4]For more on this contribution, see Gunning 1998a and 1998b.

More recent Austrian economists, like Ludwig Lachmann (1978) and Israel Kirzner (1966), have taken account of entrepreneurship more explicitly than Böhm Bawerk and Hayek. However, they have still defined capital goods in terms of their materiality.[5] In so doing, they have disregarded the fact that entrepreneurial appraisals of material capital are identical in principle to the entrepreneurial appraisals of "non-produced" factors, of human work, of various rights that have been acquired contractually, and of technical know-how. In the eyes of entrepreneurship, "land" is no different from what the Austrian material capital theorists call capital. Just as an entrepreneur can err in his decision to produce material capital that he later discovers is unprofitable, he can err in his decision to employ "natural resources" for a particular purpose. Similarly, the entrepreneur can err in his decision to train workers for a particular task, to invest in his own knowledge, to buy certain long term contractual rights, and so on. In short, the same types of errors that material capital theorists attribute to individuals in the case of material capital are made by individuals in their appraisals and decision-making regarding all that they regard as factors of production.

The removal of the reference to materiality has two advantages. First it places the entrepreneurial function of serving consumer interests at the center of the economic process. This enables one to develop a theory of the trade cycle based entirely on the idea that entrepreneurship makes errors in serving consumers's wants. The specific entrepreneurial errors are those of misjudging the evaluation of goods in the near future in relation to the evaluation of goods in the more distant future (i.e., what many Austrians call time preference). That individuals acting in the

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[5]See Lachmann

role of the entrepreneur (i.e., *entrepreneurs* in the functional sense) will make such errors as a consequence of an unexpected increase in the quantity of money can be deduced logically from the human propensity to try to earn money under the conditions of the market economy. We assume (a) that the entrepreneurial process consists of the propensity of entrepreneurs to discover consumer preferences and to satisfy them, including consumer e
evaluations of goods at different times, and (b) that entrepreneurs depend on money prices to calculate profit and loss. The unexpected increase in the quantity of money induces erroneous profit and loss calculations, thereby disturbing the discovery and satisfaction of consumer preferences, most especially their discovery of consumer evaluations of near future goods in relation to more distant future goods.

The second advantage of the non-material theory is that one is not so readily enticed by empiricism. Since there are no necessary material consequences of changes in the quantity of money, there is no question of whether empirical data could disprove the trade cycle theory.[6] This reinforces Menger's original methodological theme that economics consists of untestable laws. It also reinforces Mises's notion of economics as a set of deductions that cannot be proved or disproved but only determined to be logical and/or relevant.

The history of the non-material definition in Austrian economics is spotty. Menger first defined capital as all higher order goods. Later he came to define it as the “money value of property devoted to acquisitive purposes” (Endres 1996: 169). This is basically the definition that will be used in this paper. Davenport developed a similar definition, but Austrian economists have

[6]Thus, one would be inclined to reject Gordon Tullock's argument that statistical tests might be used to determine whether the Austrian theory is correct (Tullock 1988: 74).

not yet recognized his contribution. The only prominent Austrian to follow Menger on the capital concept is Mises. Like Menger, Mises rejected the materialist definition of capital. Moreover, like Davenport, he made entrepreneurship the foundation of his theory of the prices of the factors of production. He did this by defining capital as the entrepreneur's net worth. Since Mises produced a comprehensive treatise on economics, much of the discussion of this paper will be about his theory.

Part one of this paper elaborates on the concepts of capital and interest in the writings Menger. Part two discusses these concepts in the writings of Mises. Part three describes the significance of regarding capital as private net worth. Part four develops Mises's theory further by showing the relationship between Misesian capital, loan markets, interest, and the trade cycle.

No serious effort in this paper is made to describe the trade cycle based on the material concept of capital. Nor is any effort made to deal with various intermediate writers like Ludwig Lachmann (1978) and Israel Kirzner (1966) who, although they employed a material definition of capital, focused mainly on the process of incorporating that capital into entrepreneurial plans. None of this work is relevant to the argument that Menger and Mises provided the concept of capital that was most able to encompass the fundamental subjective-theory-of-price idea that the objects of entrepreneurial calculation, whether material and non-material, are the fundamental building blocks of economic theory.

1. MENGER

The Subjective Theory of Value (Prices)

There are two reasons why it is correct to characterize Menger's theory of capital as non-material. First, he defined capital as a higher order good (Menger, 1981, 303-305). To see the significance of this, we must return to the time of classical economics when economics was based on a tripartite classification of the factors of production. Considered in its simplest form, Menger's approach was an effort to advance the classical theory of the prices of the factors. The classical theory was patently materialistic, since the factors themselves were material. In addition, the theory divided the factors into classes based on whether human effort was involved (labor vs. non-labor) and historical origin (i.e., whether they were produced or "natural"). These different classifications gave rise to separate theories of wages, rent, interest and profit. In his *Principles* (1981), Menger sought to replace this classification with one in which each factor was assumed to have an "order" in relation to the final consumer good (the first-order good) that he posited would ultimately be produced with the factors. Thus, he distinguished between second-order goods which were needed to produce the final consumer goods, third-order goods which were needed to produce each second-order good, fourth-order goods which were needed to produce each third-order good, and so on. This classification scheme was totally independent of any assumption of materiality, of whether the factor was human or non-human, and of historical considerations.

The second reason why Menger's theory is non-material is that his examples of higher order goods included not only all of the classical types of factors but also such things as firms,

monopolies, copyrights, customer good-will (*ibid*.: 54-5), and entrepreneurial activity (*ibid*.: 172). He aimed to show that economists use the same procedure to derive the market prices of each of these distinguishable factors or production (*ibid*.: 165-74).

This means of derivation – which later became known as the subjective theory of value (i.e., of price) – is worth discussing briefly. Menger asserted that for a thing to have "goods character," there must be a want for it and someone must have knowledge of how it can be employed in the satisfaction of the want (*ibid*.: 51). He went on to point out that the *prices of higher order goods, or factors of production, are derived from the prices of the first-order goods they are expected to help produce*. According to the theory, the prices of all the factors can be traced to consumer evaluations and the knowledge of how to satisfy consumer wants.

Capital and Time

Menger based his classification of the orders of goods not only on logical priority but also on time priority. If a person possesses the second-order goods necessary to produce a first-order good, other things equal, he can produce a first-order good sooner than would be possible if he had to first produce or otherwise acquire the second-order goods (*ibid*.: 155). He thus tied the orders of goods to the passage of time.

We can see the importance of the time aspect of Menger's theory by considering his approach to economic development. This, he asserted, consists of the gradual extension of the orders of goods needed to produce fundamental first-order goods. As Menger saw it, the old classification system did not help one understand the choice between producing a good in a short time by means of a structure of production with few orders and in a longer time by means of a

structure of production with many orders. Partly for this reason, he rejected it. He then proceeded to develop a new definition that was equivalent to the notion of a structure of higher order goods. According to this definition, to produce capital is equivalent to producing a higher-order good, which was equivalent to making choice that would yield more net worth in the future than would otherwise be possible.

Capital as the Present Worth of Business Assets

Menger changed this definition of capital in a paper he wrote much later than his *Principles*. Hayek claims that in a that paper, Menger aimed

> to rehabilitate the abstract concept of capital as the money value of the property devoted to acquisitive purposes against the Smithian concept of the 'produced means of production.' His main argument [was] that the distinction of the historical origin of a commodity is irrelevant from an economic point of view...(Hayek 28n, in his introduction to Menger 1981).

Anthony Endres has provided a more extensive discussion. According to him, “Menger's capital is conceived in an individual, financial, ownership sense.” Menger attempts “to outline the standard accounting view of capital as the money value of property devoted to acquisitive purposes as opposed to the Böhm Bawerkian (and English classical) emphasis on social capital” (Endres 1996: 197, 305). Endres also describes Menger's view that the concept of capital implies monetary calculation and that it is a *fund*. Capital to Menger, he writes, “is the sum in terms of money value of the present worth of business assets productively combined in a specific process aimed at turning out saleable goods” (*ibid*.: 306). Our view of Menger’s later paper endorses Endres’s interpretation.

One can surmise that Menger's aim was to place his definition in opposition to its classical definition as a material factor of production. It follows that if we write about Mengerian capital theory, we must have in mind something very different from the material capital theory that is associated with Böhm Bawerk and Hayek.

Entrepreneurship

Menger apparently did not see the inconsistency between (1) his later idea that capital is the present worth of business assets, calculated in terms of money by a businessperson, and his remarkable claim in *Principles* that "[e]ntrepreneurial activity must definitely be counted as a category of labor service" (Menger 1981: 172). He had defined entrepreneurial activity to include "(1) obtaining *information* about the economic situation and (2) economic *calculation* – all the various computations that must be made if a production process is to be efficient (provided that it is economic in all other respects)" (*ibid*.: 160). Yet if entrepreneurial activity represents the application of the knowledge needed to determine whether a thing has goods character, it can hardly be a good itself. In short, Menger's treatment of the concept of the entrepreneur was unsatisfactory. Further development of the non-material theory had to await the further elucidation of the entrepreneur role.

The Theory of Interest

Menger's theory of interest goes through a change that is similar to his theory of capital. Endres again provides the most definitive treatment of this subject to date. In *Principles*, writes Endres, "[i]nterest represented a payment by individuals who, with the institutionally appropriate

rights of disposal, effectively locked scarce capital goods into a production process over a definite period of historical time" (Endres 1997:173). He goes on to point out that "[f]or Menger, disposal rights cannot be sold without transferring capital goods." Menger repeated this association of interest with capital goods in correspondence with Böhm Bawerk (*ibid*.). However, in his 1888 paper several years later, interest became the return on loanable funds, thus corresponding to his changed idea of capital as the present worth of business assets (Endres 1987: 174).

2. MISES

Capital, to Mises, refers to the appraiser's estimates of the value of those items that he believed could be used to generate money income.[7] Although he did not express it in this way, it is evident that he was referring to what modern economists call near money as well as to all other marketable assets. Like Menger, he pointed out that economists "erred in classifying 'capital' as an independent factor of production along with the nature-given material resources and labor" (Mises 1966: 493). Similarly, referring to land, i.e., "the non-human original factors of production," he writes that

> [t]he modern theory of value and prices is not based on the classification of the factors of production as land, capital, and labor. Its fundamental distinction is between goods of higher and of lower orders, between producers' goods and consumers' goods.(*ibid*.: 636)

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[7]Mises also used the term "capital" to refer to material, produced means of production. This apparent inconsistency is discussed in the Appendix.

He goes on:

> The law controlling the determination of the prices of the factors of production is the same with all classes and specimens of these factors (*ibid*.).[8]

Capital as Net Worth Calculated by Entrepreneurship

Mises's primary notion of capital was what modern accounting would call *net worth*. To see this, we can consider his remarks following his introduction of the term capital goods as material factors of production. He first defines capital goods. These are

> tools and half-finished products, or goods ready for consumption that make it possible for man to substitute, without suffering want during the waiting period, a more time-absorbing process for another absorbing a shorter time (*ibid*.: 260).

He then proceeds to distinguish between capital goods and capital.

> From the notion of capital goods one must clearly distinguish the concept of capital. *The concept of capital is the fundamental concept of economic calculation, the foremost mental tool of the conduct of affairs in the market economy*. Its correlative is the concept of income...The whole complex of goods destined for acquisition is evaluated in money terms, and this sum – the capital – is the starting point of economic calculation...That amount which can be consumed within a definite period without lowering the capital is called income. If consumption exceeds the income available, the difference is called capital consumption. If the income available is greater than the amount consumed, the difference is called saving. Among the main tasks of economic calculation are those of establishing the magnitudes of income, saving, and capital consumption (*ibid*.: 260-1, italics added).[9]

It is essential to understand precisely what Mises means by "capital" in these statements. "Lowering the capital" or "capital consumption" refers not to the appraised value of the material

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[8]See also *ibid*.: 640.

[9]It is noteworthy that the first part of this quotation, which determines the meaning of the subsequent statements, is not a part of the 1949 edition. This clarification in Mises's discussion of capital was not noticed by Jeffrey M. Herbener, Hans-Hermann Hoppe, and Joseph T Salerno, who claim that the 1949 edition is in many respects superior. See Mises 1998: xvii and xxiv.

capital goods. Because Mises writes of the correlative concept of income, it refers to the appraised value of all of the appraiser's assets. Mises writes as much:

> The calculating mind of the actor draws a boundary line between the consumer's goods which he plans to employ for the immediate satisfaction of his wants and the goods of all orders -- including those of the first order -- which he plans to employ for providing by further acting, for the satisfaction of future wants (*ibid*.: 260).

If a person uses up some of the natural fertility of his land or if he chops down the natural trees on his land, then this also must be regarded as capital consumption. “The capital” consists of “the whole complex of goods destined for acquisition,” without regard to whether they were produced (*ibid*.: 261, as quoted above). In addition, it must include firms, monopoly rights, and customer good will, as Menger had enumerated. As pointed out above, in accounting, the term most often used to refer to what Mises has in mind is net worth (assets minus liabilities), or equity. Because he also emphasized entrepreneurial appraisement, one can write that Mises's concept of capital is net worth as calculated by entrepreneurship.

Net Worth not an Aggregate Concept

An important point that does not stand out in this discussion of Mises's writings on capital is that capital as *net worth is not an aggregate concept*. His discussion of income, saving and capital consumption might appear to suggest a concern with macroeconomic aggregates. Upon closer examination, however, it is evident from his reference to economic calculation that his notion of capital as net worth is a purely private one. We can see this in his statements about the vacuousness of the notion of social capital. He writes:

> People began to meditate upon a concept of *social capital* as different from *private capital*. Starting from the imaginary construction of a socialist economy, they were intent upon defining a capital concept

> suitable to the economic activities of the general manager of such a system. However...in a socialist economy there are capital but no capital (*ibid*.: 264).

Mises's point, which is derived from his critique of socialism, is that because prices are not freely determined on markets in a socialist system (and, indeed, may not exist at all), there is no way to calculate private net worth. In addition, there is no entrepreneurship to calculate it. The socialist manager can designate some goods as capital goods; but there is no capital, by definition.[10]

3. THE SIGNIFICANCE OF REGARDING CAPITAL AS PRIVATE NET WORTH

One advantage of regarding capital as private net worth is that it negates any conception of social, or aggregate, capital. Private net worth is not an objective concept. Two individuals acting in the entrepreneur role may appraise a set of assets at different amounts of money. The notion of a supply or demand of the aggregate of private net worth is meaningless. In discussing loan markets, one should focus not on "capital in the aggregate" but on loanable funds as perceived by entrepreneurial borrowers and lenders. One should ask why individuals possessing what they regard as net worth are likely to make funds available for loans and why they are likely to want to borrow in the loanable funds markets (or, more simply, in loan markets). To explain interest rates in the market economy, one must try to comprehend how the decisions of the holders of private net worth impact on loan markets.

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[10]Mises continues the discussion at *ibid*.: 521. In the author's view, the concept of social capital is dealt with much more clearly by Davenport (1908: 141-55).

The Entrepreneur Role

Before turning to this issue, it is worth reviewing the entrepreneur role in somewhat greater detail. As is clear from the works of Davenport (1914), Knight (1921), and Mises (1966: 303); the entrepreneur as a function is properly regarded as the agency that acts in behalf of individuals acting in the consumer role. Consumers have demands for goods and entrepreneurs compete in their efforts to earn profits by satisfying those demands. It is essential to recognize that consumer demands are not timeless. Consumers possess time preference. They aim to consume at different times. For example, we can broadly say that young people plan for a long life of personal consumption while old people plan for a short life. Other things equal, the former would lend their money for longer periods of time than the latter. As an agency that tries to satisfy consumer demands, entrepreneurship must try to account for individuals' time preferences. The entrepreneurs (i.e., the individuals who perform the function of entrepreneurship and who, therefore, act in the entrepreneur role) do this directly by trying to predict future demands for goods and indirectly by taking account of the rates of interest that are offered on different types of loans and by trying to predict future rates of interest.

Entrepreneurship in Loan Markets

The entrepreneur function has a dual role in loan markets. First, it is responsible for their existence. Without loan market entrepreneurship, a person's saved money, or loanable funds, could not reach a borrower. Second, without producing entrepreneurs to bid for loans, the loan market would only be a market for consumer loans. Producing entrepreneurs bring their

knowledge of time-specific consumer demands and costs of production to bear when making their bids.

If we disregard the various intermediaries and speculators on the grounds that they are part of the entrepreneurial component of loan markets, we can place the demanders of loanable funds into two classes: the producing entrepreneurs and the consumers who intend to borrow in order to finance immediate consumption. On the supply side, if we further disregard money and credit creation, the ultimate suppliers are individuals acting in the consumer-saver role.

It is essential to realize that there is no such thing as a supply of or demand for *instantaneous* loanable funds. Supplies and demands are for loans of definite periods of time. Thus, to describe a market economy's supply of loanable funds and demand for loanable funds in the absence of some statement about the time periods at which people want to borrow and lend is incomplete and misleading. The same is true of interest rates. When economists write about the interest rate in real markets for loanable funds, they must have in the backs of their minds not a single rate but multiple rates for different time periods.

Then there is uncertainty. A lender always bears some amount of uncertainty. Uncertainty can sometimes be reduced through loan insurance (i.e., through pooling) but only at the expense of a lower net rate of interest. It can also be reduced by setting off different uncertainties against each other, as in the case of loans to firms that tend to do well during recessions. But the bulk of entrepreneurial activity aimed at dealing with uncertainty is concerned with shifting it from those who prefer not, or cannot afford, to bear it to those who prefer and/or can afford to bear it. Stockholders at financial institutions, guarantors, endorsers, etc. take on burdens that others prefer not to bear by pledging their assets as guaranty.

The "loanable funds market" is properly viewed a set of ongoing relationships among consumer lenders, consumer borrowers, producer borrowers, guarantors, speculators, producing entrepreneurs, and loan market entrepreneurs. In addition, in describing real loan markets we must take account market participants' perceptions of money and credit creation and destruction. Finally, even though we have disregarded all of the entrepreneurship involved in creating loan markets, we must still recognize that all the operators in the loan markets are entrepreneurs. We have shown how to make a valid statement that the ultimate suppliers of loanable funds are consumer-savers. However, in a market economy, such individuals are also entrepreneurs. Everyone possesses what she appraises as her net worth. She decides whether to make some available for loan or whether to borrow. She accounts for her own preferences for goods at different times. And she thinks about the money income she can hope or expect to earn by employing her assets in various ways, including lending them to various borrowers. This means that she tries to take account of the preferences, including the time preferences, of others in making her decisions about how to manage her net worth. The entrepreneurship of the consumer-saver is highlighted by the possibility that she will not be able to sell her assets or convert her liabilities at money prices that reflect what she regards as her best estimate of their future value. She or others may make errors or have incomplete information.

It should be clear from this discussion that if nothing else is true about real loan markets, the economist must engage in an extremely complex analysis to get a handle on them.[11]

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[11]Mises writes that [g]ross interest rates as they appear in reality have nothing else in common than those characteristics which catallactic theory sees in them. They are complex phenomena and can never be used for the construction of an empirical or a posteriori theory of interest (*ibid*.: 546).

Attempting to represent them with simple demand and supply equations and a single interest rate can only be useful for understanding very general principles regarding loanable funds.

4. LOANABLE FUNDS, INTEREST, AND THE TRADE CYCLE

Beginning with Mises's 1912 book, the primary goal of Austrian economists in dealing with loanable funds markets and interest has been to explain the trade cycle. In the most modern explanation of this phenomenon, Mises followed the lead of other professional economists in simplifying his analysis of loan markets by employing a single interest rate, which he called the "gross market rate interest" (*ibid*.: 538; 546). He broke down the interest rate into three components: a time preference component, an entrepreneurial component, and a price premium component (*ibid*.: 538-45). The time preference component reflects the assumption that regardless of the particular technological methods of production and the particular factors that are available to satisfy wants, each individual has a distinct preference for goods both in the near future and in the more distant future. Another way to say this is that the time preference component reflects the assumption of the individual as a consumer saver. The price premium component reflects the assumption that individuals take account of the future purchasing power of money when they lend and borrow. It refers to the additional interest payment that lenders demand based on their expectations of the purchasing power of money. The entrepreneurial component takes account of everything else, including knowledge of the physical productivity of

different factors and methods of production. It reflects the assumption that individuals are entrepreneurs.

This very simple image provides a sufficient foundation for Mises to present his theory of the trade cycle. The theory begins by recognizing that the planning horizons of producing entrepreneurs depend on time preference. Other things equal, if consumers have lower evaluation of near future goods in relation to distant future goods,[12] producing entrepreneurs will employ methods of production which take a longer time to complete. Correspondingly, they will demand longer-term loans. With this in mind we can deduce that if we abstract from the price premium component of interest rates, a shift from a higher to a lower evaluation of near future goods would induce loan market entrepreneurs to cause a lower gross rate of interest. This (1) change in rate along with (2) producing entrepreneurs' direct knowledge of the consumers' shift in evaluation of near future goods would cause those producers to shift to methods of production that require a longer time to complete.

Beginning with this knowledge, we now assume that the evaluation of near future goods in relation to distant future goods does not change but that there is an unexpected increase in the amount of money. Assuming that this money enters the system through the loan markets, the short-term effect would be similar to part of the effect of a decrease in the evaluation of near future goods. The lower rates of interest caused by the efforts to loan the greater amount of money would signal producing entrepreneurs to shift to longer-time production methods.

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[12]Mises referred to this ratio of evaluations as “originary interest” – an individual’s “discount of future goods against present goods” (*ibid.*: 524).

There is a difference between the initial effects in this case and the initial effects in a case where a shift in the evaluation of near future goods makes more saving available. The *direct* knowledge possessed by producing entrepreneurs of a shift in the evaluation of near future goods, which results from their estimations of future demands, is not a factor in this case. Mises also notes the propensity for the gross market rate of interest to rise due to the price premium. But this occurs only after the producing entrepreneurs have shifted to the longer-time production methods.

There is also a difference in the final effects. Since we assume that there is no actual change in the evaluation of near future goods,[13] the producing entrepreneurs would have been deceived into making errors.[14] When the new money reaches consumers, the consumers will change their spending-saving plans. This will cause entrepreneurs to set in motion the actions needed to correct the situation. The proportion of money consumers lend relative to the consumer spending will return more or less to a level at which it is adjusted to the evaluation of near future good in relation to the evaluation of distant future goods.[15] As this occurs, the producing entrepreneurs who had invested in more time-consuming methods of production would come to regard their investments as errors, or malinvestments. The final realization could be delayed by a further increase in bank money that is pumped into loan markets. However, lenders and borrowers would eventually attach a price premium to rates of interest that matches their expectations about

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[13]Actually, there could be a change in the evaluation of near future goods due to a number of factors, including the distribution of the gains and losses from the entrepreneurial errors among consumers (*ibid*.: 549).

[14]Their deception is due to the fact that "the market rate of interest fails to fulfill the function it plays in guiding entrepreneurial decisions" (*ibid*.: 547).

[15]Mises writes vaguely that "forces come into operation which tend to adjust [the market rate of interest] anew to the ratio which corresponds to that of originary interest" (*ibid*.: 551).

the increased future prices. To continue to delay the final realization, bankers would have to increase the money in such a way that borrowers always expect that prices would rise slower than they actually do (*ibid*.: 555).[16] This seems impossible.

Note that this presentation of the trade cycle theory does not even mention capital goods. We could imagine a market economy without any capital goods but in which it was possible to shift "labor" and "land" use in such a way that they are more or less suitable to satisfying consumers' wants for goods through time. The same analysis would apply. In principle, Mises could have presented his theory without ever mentioning material capital. In fact, however, the tradition of using material capital in explanations of the trade cycle seems to have beckoned him to include capital goods in his discussion.[17] This was not only unnecessary but, in the author's opinion, misleading (see appendix.).

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[16]Moreover, the change depends on precisely how the new money is "pumped in." Expectations about inflation are, in fact, expectations about the increases in particular prices. With the exception of speculators on the price premium (the overall rate of inflation), entrepreneurs are interested in *particular* prices. It is conceivable that even those entrepreneurs who correctly anticipate the price premium would fail to realize that the prices of the particular goods that are important to them would rise faster or by more or not so fast or by as much. Also, since everyone is not only an entrepreneur but also a consumer-saver, a change in expectations may change the evaluation of near future goods in relation to distant future goods. Precisely how expectations affect the evaluation of near future goods presumably varies from individual to individual.

[17]Part of the reason why Mises includes capital goods in his discussion is that he assumed that these were present in the imaginary construction of the evenly rotating economy. The only reason the author can give for the latter assumption is that he wanted to deal on its own terms with an argument made by Schumpeter that interest would disappear in the evenly rotating economy (*ibid*.: 530-531). However, this does not explain Mises's use of the concept in other contexts. There are several places in which one could easily substitute the term higher order goods without a loss of meaning. Yet Mises did not do this. See pages 547 and 553, for example. Morever, he writes about the accumulation of new capital and the consumption of capital, by which he apparently means capital goods (*ibid*.: 548-50). Thus, while he defined capital as private net worth, he did not fully abandon the material definition, as Davenport did.

5. CONCLUSION

The combined aim of this paper has been to introduce the Austrian theory of non-material capital and to show how it can be used (a) to explain interest and (b) to present the Austrian theory of the trade cycle. The advantage of this theory over a theory that stresses material capital goods is that it places the emphasis on higher-order goods and time rather than on a specific class of higher-order goods. This emphasis is consistent with the subjective theory of value (price) introduced by Menger and followed in large part by Mises. The emphasis makes it more difficult to commit the classical error of differentiating between factors of production on the basis of their historical origin or their materiality. The fact that this emphasis has not been present in the writings of the overwhelming number of modern economists who label themselves Austrian is an indication of how far from Menger this type of economics has swayed. Mises's work provides a justification for returning to the non-material definition. However, in the opinion of this author, even Mises did not sufficiently emphasize the need to do this. This helps to explain why modern Austrian economists are inclined to continue to use the materialist definition.

APPENDIX

Mises on Capital Goods

Mises not only employed the term "capital" in his treatise, he also employed the notion of "capital goods." As pointed out above, he defined these as

> tools and half-finished products, or goods ready for consumption that make it possible for man to substitute, without suffering want during the waiting period, a more time-absorbing process for another absorbing a shorter time (Mises 1966: 260, as quoted above).

Why use two notions of capital? Mises wrote :

> When [the modern theory of value and prices] distinguishes within the class of factors of production the original (nature-given) factors from the produced factors of production (the intermediary products) and furthermore within the class of original factors the nonhuman (external) factors from the human factors (labor), it does not break up the uniformity of its reasoning concerning the determination of the prices of the factors of production (*ibid*.: 636)[18]

Thus his reasoning was pragmatic. In his view, we could use the term "capital" and the term "capital goods" to mean two entirely different things, without ambiguity.

How then did he use the term "capital goods?" He used examples of capital goods to show the relationship between action and time. For example, he points out that to buy a capital good instead of producing it saves time (*ibid*.: 493). In fact, however, the purchase of "naturally" fertile land or forested land also saves time, as does the purchase of skilled labor. There is nothing special about "capital goods" in this example or in any of his other examples.[19] The arguments he

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[18]See also his remark that "we may acquiesce in the terminological usage of calling the produced factors of production *capital goods*" (*ibid*.: 263).

[19]The other examples are discussed in Gunning 1998c.

uses to show the relationship between capital goods and time can also be used to show the relationship between all higher order goods and time. One only needs to substitute one of the other kinds of higher order goods.

Why, then, did he insist on using the term "capital goods?" Perhaps he was following others in the economics profession. Among other things, Mises wanted to "explode the objections against the time preference theory" raised by Knight (*ibid*.: 492n). In a 1934 paper, Knight had argued that the concept of time preference and a period of production are mere details which have no fundamental importance for understanding the market interest rates. Knight argued that because individuals capitalize all expected streams of consumption wealth into a present value, the important fact is the size of this value, not the times at which the various income streams are expected to be realized. Among other things, he used this argument to critique the Austrian theory of the trade cycle, as presented by Hayek (Knight, 1934: 286).[20] Knight also recognized the fact that the subjective value theory had debunked the classical classifications of the factors of production. However – and this is a point that Mises must have recognized – Knight continued to use it in his professional writings to refer to material goods (Knight 1921: 124-5n).

To refute Knight, Mises had to show why time preference is important, regardless of the factors of production that the current generation of entrepreneurs had inherited from their predecessors. So he pointed out that "[w]e are the lucky heirs of our fathers and forefathers whose saving has accumulated the capital goods with the aid of which we are working today"

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[20]Knight's disaffection with time preference was not a reaction to the Austrian theory. In his first major work, Knight asserted that time preference, or discount, has only an indirect effect on the interest rate and only over a long period of time. It is negligible "in relation to the total demand for capital" (Knight, 1921: 330n).

(Mises 1966: 492). Because of this, we are better off. However, entrepreneurship must still adjust to the evaluation of near future goods in relation to distant future goods. Unfortunately, Mises's discussion seems less clear on the issue than the author is suggesting here.[21] Referring back to Mises's justification for using the term "capital goods," it seems appropriate to remark that although Mises himself did not necessarily break up the uniformity of *his* reasoning by using the term "capital goods," the fact that no other Austrians to the author's knowledge have followed Menger and Mises in their definition of capital as net worth suggests that readers of his passages were not as careful as he might have hoped they would be.

[21]Besides Knight, Mises cited writings in professional journals by Hayek and Machlup on capital. See "capital" in the index of *Human Action*.

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