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MARX'S THEORY OF MONEY: A REINTERPRETATION

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1. Introduction

Marx's theory of money has received relatively little attention. This is undoubtedly due, in part, to the dominance of an essentialist tendency in Marxism.¹ With regard to the theory of money, this essentialism is constituted by the conception that monetary processes are mere reflections of the "real" relations of production. One must pierce through the veil of money in order to discover the essential nature and laws of motion of a capitalist social formation. In this way, Marxian theory has reproduced the Classical/Neo-classical dichotomy between the "real sector" and the "monetary sector".

There has, however, always been an anti-essentialist tendency in Marxism.² Recently, the work of Louis Althusser; Barry Hindess and Paul Hirst; and Stephen Resnick and Richard Wolff have contributed to the re-vitalization of a non-essentialist Marxism.³ Of primary importance in this new approach is the concept of overdetermination. This concept, borrowed from Freud, was used by Althusser to conceptualize the complex and contradictory historical processes that produce revolutionary transformations of the social relations of production.⁴ Resnick and Wolff have developed and generalized the concept of overdetermination. They argue that a social formation should be conceived as constituted by a large number of distinct social processes, including the process by which surplus labor is extracted from the direct producers. The particular development of any process is determined by the complex and contradictory effects of other processes in the social formation, i.e., each process is overdetermined. On the other hand, each process participates in the overdetermination of all other processes in the social formation.⁵

The concept of overdetermination provides the theoretical basis for a more rigorous conceptualization of the concepts of relative autonomy and contradiction. Each process is relatively autonomous because it is overdetermined in a particular way by other processes in the social formation. Each process is internally contradictory because it is subject to the contradictory influences of all other processes in the social formation. Finally, contradictions between processes result from the relative autonomy of each process.

This new approach opens up the space for the development of a Marxist theory of money that rejects the essentialist conception that monetary processes are mere reflections of the underlying process of production. It opens up the space for the construction of a Marxist theory of money that conceives of monetary processes as relatively autonomous and assigns them a role in the overdetermination of other processes in the social formation; most important, the process of crisis formation.⁶ This article should be understood as a first step in the construction of a Marxist theory of how monetary processes influence the process of crisis formation in a capitalist social formation. My primary purpose in this article is to show that there exists a basis in Marx's Capital for the construction of a non-essentialist theory of money.

In the following section I will present a general critique of essentialist interpretations of Marx's theory of money. I will argue that essentialist interpretations of Marx's theory of money are based on an improper interpretation of the place of Part I of Capital I in the structure of Capital as a whole. In the third section I will examine

the theory of commodity-money set forth in the first part of Capital I.⁷ Here I will show that this theory of money is incompatible with Marx's theory of crisis. On this basis, I will conclude that the theory of money presented in Part I of Capital I should be understood as a preliminary theory of money. In Section IV I will turn to the second volume of Capital to consider Marx's discussion of the role of money in simple reproduction. It will be argued that here Marx is implicitly operating with a theory of money that is different from that set forth in Part I of Capital I. In short, Marx's theory of money is "transformed" in the discourse of Capital. A generalization of this transformed theory of money will then make it possible to show that Marx's theory of money is incompatible with essentialist conceptions of the role of monetary processes in the process of crisis formation.

II. A General Critique of Essentialist Interpretations of Marx's Theory of Money

The dominance of an essentialist tendency in Marxism has led Marxists to put too much emphasis on Marx's discussion of money in Part I of Capital I, while his other writings on money, particularly those in Capital II, have been neglected. As will be seen in the third section, if one focuses only on Marx's discussion of money in the first part of Capital I, it is possible to conclude that Marx had an essentialist conception of the role of monetary processes in the process of crisis formation. This conclusion, made possible by ignoring Marx's other writings on money, then serves to reinforce the initial presumption - that Marx's method is fundamentally essentialist.

Duncan Foley's discussion of Marx's theory of money provides a good illustration of the above approach. Foley, basing himself on Part I of Capital I, maintains that one of the major formulations of Marx's general theory of money is that "the monetary sphere can reflect events in the sphere of production but cannot determine events in production, especially employment and output."⁸ Associated with this essentialist interpretation of Marx's theory of money is an essentialist conception of the methodological principles on which Marxian theory is based: "The study of monetary phenomena exemplifies in a particular analytical instance the significance of abstract methodological formulations such as the notion that production is determinate in the last instance."⁹ In this way, an essentialist interpretation of Marx's theory of money, an interpretation based on Part I of Capital I, is used to reinforce the the initial presupposition--that Marx's method is essentialist.

It is the misplaced emphasis on Marx's discussion of money in Part I of Capital I that makes it possible to sustain such essentialist interpretations of Marx's theory of money. A critique of essentialist interpretations of Marx's theory of money must therefore begin with a critique of the conception that an adequate interpretation of Marx's theory of money can be based solely on Marx's discussion of money in Part I of Capital I.

In Marx on Money Suzanne de Brunhoff provides a theoretical justification for the emphasis that Marxists have generally placed on the theory of money set forth in the first part of Capital I. She maintains that the theory of money presented in Part I of Capital I is both a "general theory of money" and a "complete theory of money."¹⁰ By saying

that this theory of money is a "general" theory of money, de Brunhoff means that it is valid for any and all monetary economies including capitalism.¹¹ It is a "complete" theory of money because, according to de Brunhoff, it can be applied directly to capitalism without any significant modifications.¹² Thus, for de Brunhoff, Marx's theory of money begins and ends in Part I of Capital I.

A critique of de Brunhoff's conception that the theory of money presented in Part I of Capital I is both general and complete must be based on an interpretation of the place of Part I in the structure of Capital as a whole. In what follows I will argue that the primary function of Part I of Capital I is to set forth, and to analyze in a preliminary fashion, some of the conditions that are necessary to establish the peculiarly capitalist form of exploitation. Associated with this, a preliminary theory of money is presented in the first part of Capital I; not a general or a complete theory of money.

The first major problem of Capital is the problem of specifying the general nature of the capitalist class process, i.e., the problem of defining the general concept of the capitalist class process. I use the concept "class process" to refer to the process by which surplus labor is extracted from the direct producers.¹³ The problem of defining the general concept of the capitalist class process is the problem of establishing the general features of this class process that distinguish it from other forms of the class process, e.g., the feudal class process, the slave class process, etc.

The capitalist class process is defined by reference to definite conditions (or processes) that must exist if the capitalist class process is to exist. We may call these conditions the conditions of existence

of the capitalist class process. Their specification constitutes the definition of the capitalist class process.¹⁴ In Capital, Marx specifies three conditions of existence of the capitalist class process. First, there must be generalized commodity production and circulation. Second, the circulation of commodities must be mediated by money. Third, labor power must be bought and sold as a commodity. If these three conditions are present, the capitalist class process exists. Otherwise, it does not.

Of course, it was not sufficient for Marx to merely state these conditions of existence. In addition to this, it was necessary to theorize these conditions of existence, even if, as I will argue, these theories are of a provisional nature. Marx accomplishes these tasks in the first two parts of Capital I. Part I, entitled "Commodities and Money", analyzes the first two conditions of existence of the capitalist class process.¹⁵ In this process two major theories are presented: a theory of value and a theory of money. In Part II of Capital I, Marx analyzes the third condition of existence of the capitalist class process.¹⁶ Associated with this, a theory of capitalist exploitation is presented.

The fact that the primary function of the first part of Capital I is to establish the conditions necessary for a clear specification of the capitalist class process has definite implications for an interpretation of the theory of money set forth in this part of Capital. Since the presentation of a theory of money is not the primary object of the first part of Capital I, the development of this theory of money is constrained; or better, it is developed in such a way so as to allow for the clearest possible specification of the capitalist class process.

Although Marx does present a theory of money in Part I of Capital I, the development of this theory takes a back seat to the problem of defining the capitalist class process.¹⁷

The foregoing argument helps to explain why, if one focuses only on the first part of Capital I, it is possible to interpret Marx's theory of money in an essentialist way. The theory of money set forth in Part I of Capital I assigns a purely passive role to monetary processes. The quantity of money in circulation passively adjusts to the requirements of the production process. We might even say that money is neutral, although not in the precise way in which money is neutral in Neo-classical economic theory. But it would be better to say that money is "neutralized". This is because money is not ultimately conceived of as neutral but it is provisionally neutralized because of the specific function that the theory of money must play at this point in the discourse: it must set the stage for a clear definition of the capitalist class process. It is only after this task has been completed that the theory of money can be further developed and, once the capitalist class process has been defined, it can be developed in the context of the capitalist class process. Associated with this, it is only after the capitalist class process has been defined that money can be "de-neutralized".

It should now be clear why we cannot accept de Brunhoff's contention that the theory of money presented in Part I of Capital I is a general theory of money. This theory of money is developed specifically with reference to the problem of defining the capitalist class process; not with reference to the problem of developing a theory of money to apply

to any and all social formations in which money is used. The opening paragraph of Capital I clearly indicates that Part I of Capital I is concerned strictly with capitalism: "The wealth of those societies in which the capitalist mode of production prevails presents itself as 'an immense accumulation of commodities,' its unit being a single commodity. Our investigation must therefore begin with the analysis of a commodity."¹⁸ In addition, the very possibility of constructing a theory of money that would apply to any and all social formations in which money is used must be thought highly questionable.

It should also be clear why we cannot accept de Brunhoff's argument that the theory of money presented in Part I of Capital I is a complete theory of money, i.e., that this theory can be applied to a capitalist social formation without any significant modifications or alterations. De Brunhoff's argument fails to take into account the fact that, in Part I, the development of a theory of money is subordinated to the problem of specifying the capitalist class process. Further, it seems unlikely that a theory of money completely adequate to capitalism could be developed without any reference to capitalism.

III. Marx's Preliminary Theory of Money

Marx's initial formulation of a theory of money is set forth in the first part of Capital I. In this section I will examine this theory of money. I will then show that this theory of money is incompatible with Marx's theory of crisis. The incompatibility of this theory of money with Marx's theory of crisis is further evidence that the theory of money

money set forth in Part I of Capital I should be conceived as a preliminary theory of money.

In the first part of Capital I Marx assumes that commodities will exchange against each other on the basis of the socially necessary abstract labor time required to produce them, that is, according to their values. Specifically, Marx assumes that there will be a tendency for the exchange-value of commodity x in terms of commodity y to be equal to the value of commodity x divided by the value of commodity y. It is possible for commodity production to take place on the basis of barter exchange. However, Marx argues that, historically, one commodity is singled out to function as the measure of value and as the medium of circulation. This commodity is, by definition, money.

With the emergence of money the exchange-values of all commodities (with the exception of the money-commodity) come to be expressed in terms of the money-commodity, as prices. Associated with this, Marx assumes that there will be a tendency for the price of any commodity to be equal to the value of that commodity divided by the value of the money-commodity. This corresponds to Marx's conception of the function of money as the measure of value. This conception implies that prices, and therefore the price level, are determined by value relations and not by the quantity of money.

The second function that Marx ascribes to money is the function of money as the medium of circulation. Money is literally the medium through which a commodity must pass in order for a commodity producer to exchange his/her commodity for another commodity. Marx represents this process by the formula C-M-C where: the first C represents the commodity

that a particular producer produces; M represents the sum of money for which the commodity is sold; and the second C represents the commodity that is bought with this money. Since Marx generally assumes exchanges of equal values, at least in the first two volumes of Capital, the values of the three terms are equal, i.e., no surplus value results from this process. Therefore, insofar as the aim of this process is concerned, there is no difference between barter exchange and monetary exchange. In both cases the aim of the process is the exchange of one commodity for another.

However, Marx does argue that there is a fundamental difference between barter exchange and monetary exchange. The existence of money opens up the possibility of hoarding. Associated with this, Marx ascribes a third function to money that, following contemporary usage, we may call the store of value function of money. Based on the function of money as a store of value, Marx indirectly associates hoarding with crisis: "If the interval in time between the two complementary phases of the complete metamorphosis of a commodity [C-M/M-C] become too great, if the split between the sale and purchase become too pronounced [i.e., if hoarding takes place], the intimate connexion between them, their oneness, asserts itself by producing--a crisis These modes therefore imply the possibility, and no more than the possibility of crisis. The conversion of this possibility into a reality is the result of a long series of relations, that, from the standpoint of simple circulation, have as yet no existence."¹⁹ This passage is important for two reasons. First, it indicates that Marx associated hoarding with crisis, even if only at a very general level. This point will be pursued

later in this section and in the next section. Second, it indicates that Marx refused to develop a theory of crisis on the basis of simple circulation, i.e., prior to the specification of the capitalist class process. Yet, as pointed out above, Marx develops his first formulation of a theory of money prior to the specification of the capitalist class process. It should therefore not be surprising that Marx's first formulation of a theory of money abstracts from the possibility of crisis. Indeed, as I will show below, Marx's first formulation of a theory of money rules out the possibility of crisis altogether.

Before turning to a discussion of Marx's first formulation of a theory of money, it is necessary to explain a few points of terminology. First, Marx divides the total quantity of money into two parts. A portion of the total quantity of money actually functions as the medium of circulation over a given period of time, i.e., it passes from hand to hand in the process of commodity circulation. The remaining portion of the total quantity of money stagnates in hoards, i.e., it does not enter circulation over the period in question.²⁰ Based on this distinction between the quantity of money in circulation and the quantity of money that is hoarded, Marx conceives of the "velocity of money in circulation" as the average number of times that those pieces of money that are actually in circulation change hands. The pieces of money that are hoarded have no velocity and are therefore not considered when the velocity of money in circulation is theoretically calculated. Despite the unconventional nature of this terminology, and despite the fact that it can easily be translated into conventional terminology, we will get a clearer understanding of Marx's theory of money if we provisionally retain his terminology.

We are now in a position to consider Marx's first formulation of a theory of money. As an entry-point into this theory, Marx poses the following question. What determines the quantity of money that actually functions as the medium of circulation? Marx's general answer to this question is: the quantity of money in circulation is determined by the requirements of production. Let's consider this answer in more detail.

Given the function of money as the measure of value, the price of each and every commodity may be assumed to be equal to the ratio between its value and the value of the money-commodity. Let these prices be represented by the row-vector P. Further, for our purposes, we may assume given levels of output for each of the commodities produced.²¹ Let these outputs be represented by the column-vector Q. Then PQ is what Marx refers to as the "sum of the prices to be realized." Now, in his initial discussion of the determinants of the quantity of money in circulation, Marx implicitly assumes that the velocity of money in circulation is equal to one. Given this assumption, Marx maintains that the quantity of money in circulation will adjust to the sum of the prices to be realized. That is, the quantity of money in circulation is determined by, and is always equal to, the sum of the prices to be realized. If we let M_c represent the quantity of money in circulation, then this statement can be expressed by the equation:

$$M_c \equiv PQ$$

where, PQ is the independent variable and M_c is the dependent variable.

According to Marx, the quantity of money that is hoarded will always adjust to insure that the quantity of money in circulation is

equal to the sum of the prices.²² For example, if the sum of the prices increases, the requisite dishoarding will take place to insure that the quantity of money in circulation adjusts to the sum of the prices. On the other hand, if the sum of the prices decreases, hoarding will take place to insure that the quantity of money in circulation adjusts to the sum of the prices. It is evident that, in this process, hoarding and dishoarding play a purely passive role-- that of insuring that the quantity of money in circulation always adjusts to the sum of the prices to be realized.²³

Marx's argument does not change substantially when he takes into account the velocity of money in circulation. He then maintains that the quantity of money in circulation will adjust to the sum of the prices divided by the velocity of money in circulation.²⁴ If we represent the velocity of money in circulation by c , Marx's argument can now be expressed by the equation:

$$M_c \equiv PQ/c.$$

As above, changes in the sum of the prices will lead to corresponding changes in the quantity of money in circulation. In addition, changes in the velocity of money in circulation will lead to offsetting changes in the quantity of money in circulation. Again, the quantity of money hoarded will passively adjust to insure that the quantity of money in circulation is always equal to the sum of the prices divided by the velocity of money in circulation.

Marx's first formulation of a theory of money has been criticized by Wicksell.²⁵ But what's important for our purposes is that this theory rules out the possibility of realization crises. This can be most easily

seen if we re-write the above equation as:

$$M_c \equiv PQ.$$

PQ is a measure of Aggregate Supply while M_c is the corresponding measure of Aggregate Demand. It can therefore be seen that Marx's first formulation of a theory of money implies that Aggregate Supply determines Aggregate Demand. If, for example, Aggregate Supply increases, the quantity of money in circulation will also increase so that Aggregate Demand will be brought into equality with Aggregate Supply. On the other hand, if the velocity of money in circulation decreases, Aggregate Demand will not fall because the reduction in the velocity of money in circulation will be compensated for by an increase in the quantity of money in circulation. In short, Marx's first formulation of a theory of money implies that Aggregate Demand will always adjust to Aggregate Supply. Consequently, realization crises are ruled out.

It is now evident that a contradiction exists in the first part of Capital with regard to Marx's conception of the role of hoarding. On one hand, Marx associates hoarding with crisis. On the other hand, in his discussion of the determinants of the quantity of money in circulation, Marx assigns hoarding a purely passive role. In the latter case, hoarding functions in such a way as to eliminate the possibility of realization crises.

In her work Marx on Money de Brunhoff clearly recognizes this contradiction in the first part of Capital. However, her insistence that Marx presents a "complete theory of money" in the first part of Capital prevents her from resolving this contradiction in any way.²⁶ In order to resolve this contradiction, it is necessary to recognize that the

theory of money that is set forth in the first part of Capital is a preliminary theory of money. This theory serves to help provide the theoretical basis for a clear specification of the capitalist class process. Once this task is accomplished, the theory of money is developed with reference to the capitalist class process and, associated with this, the initial theory of money is transformed. We now turn to Marx's discussion of the possibility of crisis in simple reproduction in order to illustrate the transformation that Marx's theory of money undergoes in the discourse of Capital.

IV. Money and Crisis in Simple Reproduction

In his analysis of simple reproduction Marx assumes that a stock of fixed capital is in existence at the beginning of the period. The value of fixed capital will decrease over the period, as it is used in production, by the value of depreciation over the period. The value of depreciation of fixed capital becomes embodied in the commodities produced during the period as a component part of their value. Let the value of the depreciation of fixed capital be represented by d .

A stock of circulating constant capital is also assumed to be in existence at the beginning of the period. This value will become embodied in the commodities produced as another component part of their value. Let's represent the value of constant circulating capital used in production by k . Taken together, the value of the depreciation of fixed capital plus the value of constant circulating capital will constitute a component part of the value of produced commodities that Marx represents by C (for constant capital). In our notation, $C = d + k$.

In the production process "living labor" is added to this "dead labor". The total value of the produced commodities is then equal to the sum of the dead labor plus the living labor or, if we represent the living labor by L, the total value of the produced commodities is equal to C + L. The living labor is itself sub-divided into necessary labor and surplus labor or, alternatively, into the value of variable capital (V) and surplus value (S). Therefore, the total value of produced commodities can be represented by:

$$W = C + V + S.$$

Or, alternatively:

$$W = d + k + V + S.$$

If we assume that the prices of commodities are regulated by the proportion between their values and the value of the money-commodity, these value magnitudes can be translated into money magnitudes by dividing each term by the value of the money-commodity (V_m). We then get:

$$W/V_m = C/V_m + V/V_m + S/V_m$$

and

$$W/V_m = d/V_m + k/V_m + V/V_m + S/V_m.$$

To simplify the notation, while indicating that magnitudes are now measured in terms of money, let's write:

$$\$W = \$C + \$V + \$S$$

and

$$\$W = \$d + \$k + \$V + \$S.$$

Marx discusses the conditions for simple reproduction with the use of the first of these two equations (although he generally works with value magnitudes). He divides total production into two departments: Department I produces elements of constant capital while Department II produces consumption goods. The \$ value produced in Department I and Department II, respectively, can then be represented in the following way:

$$\$W_1 = \$C_1 + \$V_1 + \$S_1$$

$$\$W_2 = \$C_2 + \$V_2 + \$S_2.$$

Now, simple reproduction requires that the level and composition of production remain unchanged from one period to the next. This, in turn, requires that the level and composition of demand remain unchanged from one period to the next. We can now consider the conditions that are necessary in order for simple reproduction to take place.

Let's begin with the production condition for Department I. If the production of constant capital during the period is to exactly replace the constant capital used up during the period, then it must be true that $\$W_1 = \$C_1 + \$C_2$.²⁷ Simple reproduction imposes this condition on the production of constant capital. A greater production of constant capital will create the conditions for accumulation while a smaller production of constant capital implies disaccumulation. Simple reproduction rules out both of these possibilities.

The production condition that must hold with regard to Department II follows directly from that of Department I. The total \$ value produced (\$W) is equal to $\$W_1 + \W_2 . But,

$$\$W_1 + \$W_2 = \$C_1 + \$V_1 + \$S_1 + \$C_2 + \$V_2 + \$S_2.$$

Since we have from Department I that:

$$\$W_1 = \$C_1 + \$C_2,$$

it follows that:

$$\$W_2 = \$V_1 + \$V_2 + \$S_1 + \$S_2.$$

Thus, either equation ($\$W_1 = \$C_1 + \$C_2$ or $\$W_2 = \$V_1 + \$V_2 + \$S_1 + \$S_2$) is sufficient to specify the production condition that must hold in order for simple reproduction to take place since one implies the other.

Henceforth, we will assume that this production condition holds since we want to focus on the demand conditions that are necessary in order for simple reproduction to take place. We now turn to the conditions of demand that must hold in order for simple reproduction to take place.

With regard to Department I, the demand for constant capital ($\$D_1$) must equal the \$ value of constant capital produced ($\$W_1$). If it does not, there will be a tendency for the production of constant capital to either expand or contract. As a result, the \$ value of constant capital produced will be pushed out of line with the \$ value of constant capital used up during the period and simple reproduction will be jeopardized. In short, it must be true that:

$$\$D_1 = \$W_1 = \$C_1 + \$C_2.$$

With regard to Department II, the demand for consumption goods ($\$D_2$) must equal the \$ value of consumption goods produced ($\$W_2$). Since, however, we have assumed that $\$W_2 = \$V_1 + \$V_2 + \$S_1 + \$S_2$, it follows that $\$D_2$ must equal $\$V_1 + \$V_2 + \$S_1 + \S_2 . This will be the case if workers spend all of their wages on consumption goods and if capitalists spend a \$ value equal to the \$ value of surplus value on consumption goods.

In short, it must be true that:

$$\$D_2 = \$W_2 = \$V_1 + \$V_2 + \$S_1 + \$S_2.$$

To summarize, the demand conditions for simple reproduction are that : $\$D_1 = \W_1 ; and $\$D_2 = \W_2 . It will, however, be noted that together these two equations imply that $\$D_1 + \$D_2 = \$W_1 + \W_2 or, more simply, that $\$D = \W . This states that total demand must equal total production if simple reproduction is to take place. It will clarify the following analysis if we express the demand conditions corresponding to simple reproduction as:

$$(1) \quad \$D = \$W$$

$$(2) \quad \$D_1 = \$W_1$$

$$(3) \quad \$D_2 = \$W_2.$$

The first equation states the aggregate demand condition while the second two equations state the sectoral demand conditions.

With regard to the first equation, it is evident that, if we assume a constant velocity of money in circulation, a definite quantity of money must actually function as medium of circulation if total demand is to equal total production. Total demand ($\$D$) is identical to the quantity of money in circulation times the velocity of money in circulation (M_c). If total demand ($\$D$) is to equal total production ($\$W$), then M_c must equal $\$W$ and the quantity of money in circulation must equal total production divided by the velocity of money in circulation ($\$W/c$). In short, in order for simple reproduction to take place, it must be true that:

$$M_c = \$W/c.$$

If this condition holds, total demand will equal total production. Otherwise, it will not.

There is an alternative way of expressing this condition. If we assume that the total quantity of money is constant, then a definite quantity of money must be hoarded if simple reproduction is to take place. Specifically, if we let M equal the total quantity of money and M_H equal the quantity of money hoarded, then an alternative way of expressing this condition is:

$$M_H = M - \$W/c. \quad 28$$

In sum, a definite quantity of money must actually circulate if simple reproduction is to take place. If we assume a constant velocity of money in circulation, the quantity of money that must circulate remains constant from one period to the next. If, in addition, we assume a constant total quantity of money, a definite quantity of money must be hoarded in order for simple reproduction to take place. The quantity of money that is hoarded must also remain constant from one period to the next.

Now Marx's first formulation of a theory of money, as discussed in the previous section, implies that the first condition always holds. In this case, $\$W$ is the sum of the prices (PQ) while $\$D$ is equal to the quantity of money in circulation times the velocity of money in circulation ($M_c c$). It is evident that, if we assume as Marx did in the first part of Capital, that the quantity of money in circulation is determined by, and is therefore always equal to, the sum of the prices divided by the velocity of money in circulation, then $M_c c$ will always equal PQ . This, in turn, implies that $\$D$ will always equal $\$W$.

It can therefore be seen that Marx's first formulation of a theory of money rules out the possibility of realization problems and realization crises. Indeed, as long as we assume that the production condition holds, the only type of problem that could beset simple reproduction is a disproportionality problem. This would be the case if $\$D_1$ were less than (greater than) $\$W_1$ which, since $\$D = \W , would imply that $\$D_2$ is greater than (less than) $\$W_2$ by the same \$ value. It is difficult, however, to see how this disproportionality problem could turn into a disproportionality crisis unless it were accompanied by some reduction in total demand. We can therefore conclude that Marx's first formulation of a theory of money is incompatible with his theories of crisis. It is this incompatibility that necessitates the transformation of Marx's theory of money in the discourse of Capital. The transformation of Marx's theory of money is evident in his discussion of the possibility of crisis in simple reproduction. We now turn to this discussion.

In order to clarify the analysis, it will be useful to divide social production into three departments instead of two. Let Department I now represent the production of fixed capital only. Let Department II represent, as before, the production of consumption goods. Finally, let Department III represent the production of elements of constant circulating capital. Then, using the equation explained above where $\$W = \$d + \$K + \$V + \$S$, we can write:

$$\text{Department I: } \$d_1 + \$k_1 + \$v_1 + \$s_1 = \$W_1$$

$$\text{Department II: } \$d_2 + \$k_2 + \$v_2 + \$s_2 = \$W_2$$

$$\text{Department III: } \$d_3 + \$k_3 + \$v_3 + \$s_3 = \$W_3.$$

The production conditions for simple reproduction become somewhat more complicated but are not substantially altered. First, the \$ value of fixed capital produced must equal the \$ value of the depreciation of fixed capital ($\$W_1 = \$d_1 + \$d_2 + \d_3). Second, the \$ value of constant circulating capital produced must equal the \$ value of constant circulating capital used up over the period ($\$W_3 = \$k_1 + \$k_2 + \k_3). Finally, the \$ value of consumption goods produced must equal the \$ value of variable capital plus the \$ value of surplus value ($\$W_2 = \$V_1 + \$V_2 + \$V_3 + \$S_1 + \$S_2 + \$S_3$). As above, we will assume that the production conditions that are necessary for simple reproduction hold.

The demand conditions follow those outlined above. First, the demand for fixed capital must equal the \$ value of fixed capital produced ($\$D_1 = \W_1). But this implies that the demand for fixed capital must also equal the \$ value of the depreciation of fixed capital over the period. ($\$D_1 = \$W_1 = \$d_1 + \$d_2 + \$d_3$). Second, the demand for constant circulating capital must equal the \$ value of constant circulating capital produced during the period ($\$D_3 = \W_3). It follows that the demand for constant circulating capital must also equal the \$ value of constant circulating capital used up during the period ($\$D_3 = \$W_3 = \$k_1 + \$k_2 + \$k_3$). Finally, the demand for consumption goods must equal the \$ value of consumption goods produced ($\$D_2 = \W_2). This will hold if workers spend all of their wages on consumption goods and if capitalists spend a \$ value equal to the \$ value of surplus value on consumption goods ($\$D_2 = \$W_2 = \$V_1 + \$V_2 + \$V_3 + \$S_1 + \$S_2 + \S_3). As above, we can represent the demand conditions for simple reproducing as follows:

$$(1) \quad \$D = \$W$$

$$(2) \quad \$D_1 = \$W_1$$

$$(3) \quad \$D_2 = \$W_2$$

$$(4) \quad \$D_3 = \$W_3$$

The first equation expresses the aggregate demand condition while the last three equations express the sectoral demand conditions.

It was shown above that the first condition requires that a definite quantity of money circulate (assuming a constant velocity of money in circulation) and that a definite quantity of money be hoarded (assuming, in addition, a constant total quantity of money). In addition, it was shown that Marx's initial formulation of a theory of money implies that this condition always holds and that this, in turn, implies that the only type of problem that can arise in simple reproduction is a disproportionality problem. However, as I will show, in his discussion of the possibility of a realization crisis in simple reproduction, Marx shows that under certain circumstances, condition (1) will not hold. Therefore, Marx's discussion of the possibility of crisis in simple reproduction contradicts his initial formulation of a theory of money. Associated with this, Marx establishes the basis for a different theory of money by establishing a clear relationship between hoarding and crisis.

Before we proceed, we must consider the further usefulness of Marx's distinction between the quantity of money that circulates, on the one hand, and the quantity of money that is hoarded, on the other hand. Above, we defined "money that circulates" as those pieces of money that change hands at least once over some specified period of time. On the other hand, we defined "hoarded money" as those pieces of money that do not change hands at all over the specified period of time. This approach, however, leads to a very restrictive definition of the concept of hoarding. For example, suppose that a particular piece of money changes hands ten times in one period, assuming that this is the average velocity of money

in circulation. Now suppose that the same piece of money changes hands once at the beginning of the next period and is then held until the end of the period. Because of our restrictive definition of hoarding, we would not be entitled to say that hoarding took place or that the quantity of money hoarded increased. Instead, we would have to say that, assuming other things constant, the velocity of money in circulation decreased.

There is nothing technically wrong with the above approach. However, it does seem somewhat arbitrary to use the concept of hoarding to refer only to the act of holding pieces of money for the duration of the period, and not to the act of holding money for nine-tenths of the period in question. It therefore seems wise, at this point, to jettison the firm distinction that Marx makes between the quantity of money in circulation and the quantity of money that is hoarded. Associated with this, it seems better to define the velocity of money with regard to the entire money supply, i.e., in the conventional way, instead of, more narrowly, with regard to the quantity of money in circulation. If we do this, total demand will be identical to the (total) quantity of money times the average velocity of the money supply as a whole. In turn, an increase in hoarding will now be reflected in a decrease in the average velocity of money and, assuming a constant money supply, a decrease in total demand. Similarly, a decrease in hoarding will be reflected in an increase in the velocity of money and, assuming a constant money supply, an increase in total demand. We can now turn to Marx's discussion of the possibility of crisis in simple reproduction.

Marx's discussion of the possibility of crisis in simple reproduction focuses on the unstable nature of the demand for fixed capital goods.²⁹

Clearly, if the demand for fixed capital is less than the \$ value produced (and used up) during the period, then the potential for crisis exists, especially if this is not compensated for by a greater demand for other types of commodities. The crisis would first become evident in the fixed capital goods sector and would spread more or less rapidly to other sectors of the economy. However, the most interesting aspect of Marx's analysis is the causal relationship he establishes between hoarding and crisis. In order to clarify this relationship it is necessary to first discuss the relationship between hoarding and the replacement of fixed capital from the perspective of an individual capitalist. We can then generalize to the capitalist class as a whole.

The defining feature of fixed capital is that it wears out gradually over a number of periods. Consequently, the individual capitalist will go through a number of periods during which the replacement of fixed capital is unnecessary for continued production on the same scale. Nonetheless, the capitalist will accrue funds from the sale of commodities during the period which represent the \$ value of the depreciation of fixed capital during the period. According to Marx, the individual capitalist will hoard this money until the fixed capital has to be replaced in one shot.

The hoarding of the capitalist has as its counterpart fluctuations in the individual capitalist's demand for fixed capital. Thus if we assume that an individual capitalist purchases fixed capital for \$100,000 and that it lasts for ten years, then the capitalist will hoard \$10,000 each year for ten years so as to be in a position to replace the fixed capital at the beginning of the eleventh year.³⁰ The capitalist's demand for fixed capital is : \$100,000 in the first year; \$0 in each of the next

nine years; \$100,000 in the eleventh year, etc. The associated pattern of hoarding will be: -\$90,000 in the first year (\$100,000 is dishoarded at the beginning of the period but \$10,000 is hoarded during the period, so net hoarding is -\$90,000); \$10,000 in each of the next nine years; -\$90,000 in the eleventh year, etc. It is clear that for any ten-year period the individual capitalist's demand for fixed capital is \$100,000 while net hoarding is zero. However, we are concerned with the yearly fluctuations.

Each capitalist involved in simple reproduction follows a similar pattern. The pattern of demand for fixed capital for the economy as a whole (and the associated pattern of hoarding and dishoarding) will depend on how the individual patterns mesh with one another. It is of course possible for the demand for fixed capital to remain stable from one year to the next. Suppose that there are a total of ten capitalists, each with a \$ value of fixed capital initially equal to \$100,000 with a life span of ten years. Then if Capitalist I's fixed capital expires just before year 1 begins and if it is replaced in year 1, and if Capitalist II's fixed capital expires at the end of year 1 and if it is replaced in year 2, etc., then the demand for fixed capital will remain stable at \$100,000 per year. It can easily be seen that this implies that net hoarding will be equal to zero in each year. In year 1, net hoarding of Capitalist I is -\$90,000 while net hoarding of the other nine capitalist is \$90,000, etc.

If the various individual patterns for the replacement of fixed capital mesh in this manner, it follows that the demand for fixed capital will remain constant from one period to the next. The demand for fixed capital in each period will equal the \$ value of depreciation in each

period (which is constant) and, by virtue of our assumption that the \$ value of fixed capital produced equals the \$ value of depreciation, the \$ value of fixed capital demanded ($\$D_1$) will equal the \$ value of fixed capital produced ($\$W_1$). There will be no problem insofar as we are concerned with the fixed capital goods sector. If, in addition, we assume that the \$ value of constant circulating capital demanded ($\$D_3$) equals the \$ value of constant circulating capital produced ($\$W_3$) and that the \$ value of consumption goods demanded ($\$D_2$) equals the \$ value of consumption goods produced ($\$W_2$), then simple reproduction will take place. Together, these three conditions imply that total demand equals total production, and, assuming a given money supply, this, in turn, implies a definite velocity of money.

However, as Marx points out, it is unlikely that the patterns of hoarding and dishoarding for the replacement of fixed capital will mesh in such a way that net hoarding in each period is equal to zero. Or, to put the same point differently, it is unlikely that the demand for fixed capital will remain stable from one period to the next. It is for this reason that Marx suggests that even simple reproduction is not immune to crisis.³¹

Suppose we begin by assuming that in some period all of the conditions necessary for simple reproduction hold. As shown above, this implies a definite velocity of money (assuming a given money supply). Suppose that, in the next period, hoarding for the future replacement of fixed capital outweighs dishoarding for the current replacement of fixed capital. Now, if we look at this from a monetary point of view, it is evident that the velocity of money has decreased and that total demand is now insufficient

to realize the sum of the prices. Alternatively, we could say that the demand for fixed capital is insufficient to purchase the \$ value of fixed capital produced. In any case, it is evident that the realization problem facing the capitalists who produce fixed capital goods will be generalized to other sectors of the economy since the inability to sell limits the ability to buy. Consequently, if the initial increase in hoarding was substantial, a realization crisis will result.

We can also consider the opposite case. Again, suppose initially that, in some period, all of the conditions necessary for simple reproduction hold.³² Suppose that, in the next period, dishoarding for the current replacement of fixed capital is greater than hoarding for the future replacement of fixed capital. This implies that the velocity of money has increased and that total demand is greater than the sum of the prices. Alternatively, we could say that the demand for fixed capital is more than sufficient to purchase the \$ value of fixed capital produced. This will produce a tendency toward expansion in the production of fixed capital goods and the expansion will be generalized to other sectors of the economy.

It should now be clear how Marx's theory of money is transformed in the discourse of Capital. In the first part of Capital I hoarding plays a purely passive role--it serves to adjust the quantity of money in circulation to the requirements of the production process. On the other hand, this conception is implicitly rejected in Marx's discussion of simple reproduction in Volume II of Capital. Starting from a situation where the conditions necessary for simple reproduction hold, Marx shows that net hoarding (in the economy as a whole) will lead to a realization

crisis. On the other hand, net dishoarding will produce a tendency toward expansion. In this way, hoarding sheds its passive role and Marx establishes a causal relationship between hoarding and crisis.

As soon as the causal relationship between hoarding and crisis is established, it becomes clear that, in Marx's view, monetary processes contribute to the development of crisis in simple reproduction. If we begin with a society undergoing simple reproduction then, assuming a constant money supply, anything that leads to a substantial increase in hoarding will lead to a crisis.³³ More generally, again assuming a constant money supply, anything that leads to a substantial reduction in the velocity of money will lead to crisis. Finally, it should be clear that large reductions in the money supply, if not offset by increases in the velocity of money, will lead to crisis.

V. Conclusion

In this article I have demonstrated that Marx's theory of money is transformed in the discourse of Capital. In Part I of Capital I, Marx sets forth a preliminary theory of money; not a complete theory of money. Marx's preliminary theory of money makes possible a clear specification of the capitalist class process. However, in order to do this, the preliminary theory of money treats monetary processes as if they were the passive reflection of the production process. For this reason, the false conception that the theory of money presented in Part I of Capital I is a complete theory of money leads to the false conclusion that Marx had an essentialist conception of the role of monetary processes in a capitalist social formation.

My argument that the theory of money set forth in the first part of Capital I should be conceived as a preliminary theory of money is further supported by the demonstration, given above, that this theory of money is incompatible with Marx's theory of crisis. This incompatibility necessitates the transformation of Marx's preliminary theory of money in the discourse of Capital. Marx's transformed theory of money can be inferred from his discussion of the possibility of crisis in simple reproduction. Here Marx shows that, under the conditions specified above, net hoarding will lead to crisis in simple reproduction. Hoarding no longer plays the passive role assigned to it in the first part of Capital I. Instead, hoarding becomes the proximate cause of crisis in simple reproduction.

Marx's analysis of the causal relationship between hoarding and crisis in simple reproduction can be generalized in such a way that the relationship between other monetary processes and crisis may be recognized. Thus, a reduction in the velocity of money, whatever its cause, may lead to a crisis or exacerbate an existing crisis. Further, a reduction in the money supply may lead to a crisis or exacerbate an existing crisis.

My interpretation of Marx's theory of money and my argument for a recognition of the role of monetary processes in the process of crisis formation should not be interpreted as a rejection of Marxian crisis theory. Instead, this article should be understood as a first attempt to provide the theoretical basis for the inclusion of monetary processes in Marxist accounts of crisis.

NOTES

1. A social theory may be characterized as essentialist whenever it maintains that one aspect of the social formation, e.g., the economy, completely determines all other aspects of the social formation. In essentialist interpretations of Marx, the economy is often treated as the essence of the social formation as a whole. In this conception, the economy is the base that manifests itself in the superstructures of the social formations, i.e., the political-legal and cultural aspects of society. In the crudest formulations, the economy is seen as determining but is itself undetermined. For a more extensive discussion of essentialism in Marxian theory see Resnick and Wolff [1979, 1982b].

2. See Resnick and Wolff [1982b].

3. See Althusser [1970]; Althusser and Balibar [1971]; Hindess and Hirst [1975, 1977]; Resnick and Wolff [1979, 1982a, 1982b].

4. See Althusser [1970].

5. See Resnick and Wolff [1979].

6. Most discussions of Marxian crisis theory are characterized by the absence of any discussion of the role of monetary processes in crisis formation. See Wright [1978] for an excellent discussion of Marxist theories of crisis. However, Wright specifically abstracts from the monetary processes involved in crisis formation. See Harvey [1982] for some general suggestions of how one might go about integrating money and crisis in Marxian theory.

7. In this article I will restrict myself to the case where the material of money, e.g., gold, is produced as a commodity and therefore has value and exchange-value independently of its function as money.

8. See Foley [1975:3].

9. Ibid. [1975:36].

10. De Brunhoff [1976:19; 25,26].

11. Ibid. [1976:51].

12. Ibid.

13. See Resnick and Wolff [1982a].

14. See Hindess and Hirst [1977:52].

15. The first three chapters of Capital I are entitled respectively: "Commodities"; "Exchange"; and "Money or the Circulation of Commodities".

16. The last chapter of this part is entitled "The Buying and Selling of Labor-Power."

17. The logic of this strategy is, I think, generally accepted with regard to the theory of value set forth in Part I of Capital I.

18. Marx [1967a:35].

19. Ibid. [1967a:113, 114].

20. Ibid. [1967b:325].

21. This, of course, does not imply a "full-employment level of output."
22. Marx [1967a:134].
23. See de Brunhoff [1976:40].
24. Marx [1967a:121, 122].
25. "We need not dispute that up to a point the velocity of money [in the conventional sense] can sometimes be automatically accelerated or retarded, but the idea that this will always happen to the desired extent leads to absurd results, for it presupposes that merchants and bankers would quite passively submit to seeing their safes filled to overflowing when gold is plentiful, and exhausted when it is scarce, perhaps to the last sovereign, without taking any steps to restore the normal position." Wickseil [1956:150].
26. See, for example, her statement that: "The circulation of commodities is interrupted, as well as preserved and regulated, by hoarding." De Brunhoff [1976:42].
27. This condition can be translated into the more familiar condition that $\$V_1 + \$S_1 = \$C_2$ by substituting $\$C_1 + \$V_1 + \$S_1$ for $\$W_1$.
28. This equation makes it clear that simple reproduction requires that the total quantity of money be at least as great as $\$W/c$. If it is not, total demand cannot equal the total \$ value produced unless the velocity of money in circulation accelerates.
29. For a brief discussion of this aspect of Marx's theory of crisis, see Robinson [1968:19, 20].

30. Marx's presumption here is that whatever is saved will be hoarded.

31. Marx [1967b:466-469].

32. It is important to point out that Marx's reproduction schemas are not equilibrium systems, i.e., the conditions that are necessary for simple reproduction are not conceived as norms toward which the system is moving. De Brunhoff makes this mistake in Marx on Money. See de Brunhoff [1976:68, 69]. The reproduction schemas make it possible for Marx to specify the economic conditions that are necessary for the smooth reproduction of the capitalist class process. There is no presumption of a tendency for the capitalist class process to be smoothly reproduced over time. The reproduction schemas specify the economic conditions that are necessary for smooth reproduction so that further analysis can point out the obstacles to smooth reproduction.

33. Note that Marx's conception of the function of money as the measure of value, and his associated rejection of the quantity theory of money, precludes the possibility that the realization problem will be solved by an immediate reduction in prices.

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