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Marx on Credit and Financial Crises: The Industrial Cycles and the English Experience in the 19th Century

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Marx on Credit and Financial Crises: The Industrial Cycles and the English Experience in the 19th Century

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Abstract: This paper presents Marx's theory of the industrial cycles, creating a synthesis and organizing his approach to this topic, which is fragmented throughout Part 5 of Capital Volume III. Marx's theory of the industrial cycles explains why and how the credit system periodically drives capitalist production to endogenous business cycles that lead to crises of credit-driven overproduction and financial fragility. The paper presents the basic theoretical elements needed to understand the credit system in Marx's approach, to later organize Marx's theory, characterizing each phase of the cycle and indicating the causes of the movements observed for the credit dynamics, which directly affects the capitalist reproduction. It also presents Marx's historical interpretation of the 1847 crisis in England, analyzing each phase of the cycle and associating it with Marx's theoretical perspective.

Key Words: Marx; Credit System; Crisis; Industrial Cycles

1 Introduction

This paper aims to present a synthesis of a part of Marx's economic theory that has not yet been fully explored in the Marxist economic literature: the existence of cycles in which the credit system periodically pushes capitalist production to crises. It is a theory of endogenous crises driven by credit, resulting in periodic overproduction and financial panic. Marx calls these cycles *Industrial Cycles* because this is the cyclical pattern of industrial capital accumulation. His approach to this topic is fragmented throughout his writings and can be found in several excerpts from Part V of Volume III of Capital, along with Marx's description of the constituent elements of the Credit System, his critique of the Currency Principle and the Banking School, the discussion of the Bank Charter Act of 1844, among other topics. Considering this fragmented exposition, whose text is a draft to which no final and revised writing was made by Marx and was posthumously published by Engels in a format that hinders its full comprehension, a work of synthesis and systematic organization of what is Marx's conception of this subject is necessary. In this paper, we try to perform this task, linking the explanation of the occurrence of the industrial cycles to the theoretical elements relative to the credit system.

The theory of industrial cycles has so far been little debated in Marxist literature for several reasons:[2] First, it is a condition, in order to understand Marx's cycles theory, to comprehend all of

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[2] The theory of the industrial cycles has been, up to this point, not enough debated and internalized in the Marxist literature. Cipolla (1997) does a brief and limited interpretation of the approach with a focus on the determination of the interest rate, and surveys how different authors have attempted to discuss it, such as Itoh (1980, 1988), Lianos (1987), Crotty (1987), Weeks (1981), Sherman (1991) and Foley (1986). He concludes that the Marxist literature regarding business cycles, crisis, and interest rates doesn't take into account several of Marx's own propositions on the subject, and that a more detailed and thorough consideration of the matter is necessary. The work of Harvey (2006, p. 300-5) stands out as an exception to this rule. The author seeks to synthesize Marx's conception of the phases of the

the theoretical elements that are constitutive of the credit system, since there is a direct relationship between credit and the cycles. This topic is not commonly approached, except for the specialized literature, and is often overlooked. Without understanding these theoretical elements related to Marx's theory of money and credit, and mostly those that affect the interest rate, the determinations of each phase of the cycle can hardly be understood. Second, Marx's texts that present the phases of the cycle and their determinants do not present a final and revised version finished for publication. The necessary parts for their full understanding are, to some extent, fragmented and shuffled, demanding work to present them in an organized and sequential way, as well as expressing the logic and theoretical links between each phase. Finally, another factor is the fact that the description of Marx's industrial cycles is closely associated with the historical experience of England in the 19th Century. Without understanding the historical processes that he analyzes, the understanding of his theory of industrial cycles also becomes partially compromised, given that his theoretical comments are often mixed with historical accounts.

In this work, we try to solve these problems by synthesizing the theoretical and historical elements dispersed in Marx's writings, tackling each of the main aspects that create difficulties in the comprehension of this theory. Therefore, this article is structured as follows: after this introduction, we will present, in a very brief way, the basic theoretical elements necessary for understanding money and the credit system in Marx's approach. Later, we will present the systematization of Marx's theory of the industrial cycle, characterizing each phase of the cycle and indicating the causes of the movements observed from the credit dynamics, which directly affect capitalist reproduction. Lastly, we are going to present Marx's discussion of the causes of the 1847 crisis, describing each phase of the industrial cycle in this historical experience and its relation to Marx's theory. A brief conclusion follows.

2 Money and the Credit System in Marx

In Marx's economic theory, money in its concrete form, its real form, is a complex phenomenon, since there are several determinations to which it is subjected, arising from the

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industrial cycle: *"Marx's representation can be reconstructed from a careful reading of volume 3 of Capital (chapters 26-35). The accumulation process passes through various phases of stagnation, recovery, creditbased expansion, speculative fever and crash"* (HARVEY, 2006, p. 300). Our paper seeks to explain this theory in more detail than Harvey's presentation, which is more summarized. Crotty (2017), when describing the fundamental role of money in Marx's crisis theory, also approaches the topics discussed in this paper, but with a broader perspective. Nevertheless, his interpretation is entirely consistent with the one put forward in this paper. Lastly, another exception is Hilferding (1981), who briefly deals with aspects of the industrial cycle, as presented by Marx, in part 4 of his book.

various relations that form themselves in the scope of the capitalist mode of production. According to Marx (1999), the correct method to arrive at a full understanding of complex social phenomena constituted by multiple determinations, or its *essence,* is reconstructing, in the sphere of abstraction, the several categories and relations that determinate the concrete, going from the simplest and more basilar categories that constitute the phenomena to the more complex ones, that are those whose existence depends on the previous ones. In this sense, it is possible to transpose, through abstraction, the *appearance* level of concrete phenomena, in which they appear as a tangle of simultaneous and diffuse relations, incapable of comprehending, to the essence of phenomena, from which the concrete can be understood as a whole, rationally mediated by its various determinations, unraveled at the level of abstraction.

In this way, to understand what money is for Marx, and how, in the capitalist mode of production, a system of credit that is capable of driving production periodically to crises emerges, it is necessary to reconstruct the various relations to which money is subjected, the various determinations of money which Marx deals with in Capital. We can cite four sets of determinants to money: (i) Money as a form of a commodity, as a category that emerges from the circulation of production in the mercantile relations, i.e., the commodity form of production (Capital Vol. I); (ii) Money-capital: money as a form assumed by capital in its circulation process (Capital Vol. II); (iii) Interest-bearing capital: Loan money-capital, in which capital becomes itself a commodity that is borrowed (Capital, Vol. III); and (iv) Fictitious Capital, the Credit System and Credit Money: determinations arising from the emergence of credit in a capitalist mode of production: commercial credit, banking capital, the Stock Market, fictitious capital, etc. (Capital, Vol. III). We will try to briefly explain the main aspects of each of these determinants, without elaborating the details which would be necessary to fully understand them, which can be found in Marx (1990, 1991, 1992), De Brunhoff (1976), Germer (1997a, 1997b), Grazziotin (2016), among other references that deal with this topic.[3]

The first determinant is simple commodity circulation. This determination is not strict of the capitalist mode of production, but of the commodity circulation in general, when production takes the form of a commodity and circulates in that form. Marx demonstrates how, in the process

[3] The argument of our exposition is analogous to Germer (1997b), in the sense that comprehending that Marx's theory of money is structured in determinations resulted of (i) the sphere of the circulation o commodities (commodity form of production), (ii) the sphere of capitalist production, in which capital is the central concept, distinguished of money, and (iii) the sphere of credit, in which credit money is developed.

of commodity exchange, a commodity emerges to fulfill the function of a general equivalent, as the autonomization of the value of commodities. This commodity becomes a "homogeneous social materialization of undifferentiated human labour" (MARX, 1990, p. 204) and assumes the form of money. Historically, commodities that take the form of money are precious metals, such as gold and silver, because their physical properties converge with the social needs arising from the autonomization of value.

By assuming the form of money, this commodity fulfills a series of necessary functions for commodity circulation: (i) in the function of measure of value, the other commodities have their value expressed with respect to the value of money, in which the exchange value takes the form of a price. For this, a standard of price is established, in which physical quantities of money are equated to a given monetary unit; (ii) in the function of means of circulation, money mediates the exchange, separating the need for simultaneous purchases and sales that exist in simple exchange, and resolving the inherent contradiction of commodities between value and use value. In this function, money coined by a particular national State takes the form of currency, circulating in a certain national sphere and making possible its replacement in circulation by tokens of money; (iii) in the hoarding function, the circulation of money is interrupted, money assumes the form of treasure and its possessor assumes the function of treasurer. Money is treasured to meet the need for purchases and fortuitous future payments, but also as an accumulation of the pure form of value. Moreover, this function enables the endogenous adjustment of the amount of means of circulation, through the change in the form of money between money and treasure; (iv) in the function of means of payment, the temporal separation between the commodity sale and the realization of its price, i.e., the separation between acquisition and payment, arises. Thus, when the payment of a commodity is made in a period after the acquisition, money fulfills the function of means of payment. The seller assumes the function of creditor and the buyer assumes the function of debtor, creating the figure of debt, which is a right over a certain amount of money in the future. This function is the basis for the later development of credit in general, such as credit money and the credit system, through circulation and offset of debts; (V) Finally, money assumes the function of world money, in which it strips itself of its currency or national symbols of value to fulfill the functions of universal means of purchase and payments and absolute incarnation of wealth. Countries keep world money in reserve for international trade and payments and settlement of international debts.

The second set of determinants of money is the circulation of capital. With the emergence of industrial capital and production in a capitalist form, money circulating as capital is money-capital, the money form of capital, and assumes specific functions in its circulation that derive from the fact that it is capital, and not specifically from being money in general. Throughout the circulation of industrial capital, reserve funds are formed, treasures arising from the money-hoarding function, existing as latent money-capital that transitorily exists, fulfilling specific technical functions of capital, related to the different stages of its circuit. Thus, even though money is still money, it also fulfills functions that are directly related to the fact that it is money-capital, capital in its money form. These monetary reserve funds that Marx deals with are related to (i) the circuit of industrial capital (means of purchasing and means of payment fund, accumulation fund, and reserve fund), (ii) the turnover of fixed capital (depreciation fund), (iii) the turnover of floating capital (released additional capital fund) and (iv) the circulation of income provided by the circulation of capital (individual consumer funds).

As one last aspect of the circulation of capital, we can cite the emergence of money-trading capital, which is a part of capital that is autonomous in carrying out strictly technical functions of money circulation. This capital executes, for other capitals, the tasks of payments, receipts, the balance of accounts, clearing operations, and money treasury, which are costs of circulation of money. Its existence is the foundation for bank capital, which arises with the emergence of the credit system, just as reserve funds are at the basis of the emergence of bank credit.

The third set of determinants of money derives from the fact that money capital itself becomes a commodity and can be ceded by its owner to another as a "capital commodity", as loan capital. Instead of being exchanged for an equivalent, the price of the “capital commodity” is interest, which corresponds to a part of the surplus value that can be obtained by the application of the loan capital. Marx demonstrates that a separation of the total profit between interest, which corresponds to the ownership of capital, and profit of enterprise, which corresponds to the capital in function, arises from this form of capital. The interest rate, or the part of profit that belongs to capital given the ownership, is defined by the supply and demand for available loan money-capital.

Capital handed over as loan capital and to which interest is paid is called by Marx as interest-bearing capital. The interest-bearing form of capital presents an irrational circulation defined by M - M', in which the advance of money-capital accrues for its owner a higher magnitude than the amount advanced earlier. This circulation hides the necessary mediation of valorization, through the application of capital as industrial capital, generating surplus-value, or as commercial capital, acquiring commercial profit. Thus, the ability to increase and earn interest appears as a natural attribute of money, such as "money that produces more money, self-valorizing value, without the process that mediates the two extremes" (MARX, 1991, p. 515). The consequence is that there is a complete reification of the capitalist relationship: interest seems to be the result of a mere thing (money), and not the result of specific social relations or the work process. Capital reaches its most superficial and fetishized form, in which its returns are seen as a natural attribute.

With interest-bearing capital, with the generalized perception that interest is the natural and innate fruit of all capital, Marx explains how every periodic income of money, whatever its source, can now be seen as "interest on capital". Thus, the category of fictitious capital emerges, as an illusory capital whose value can be obtained by capitalizing the expected future income streams by an average interest rate. The fictitious capital can either represent something that is not originally capital (such as debts, bonds, and other forms of promises of future payment) or something that is truly capital, whose value exists in its real form (such as stocks, which represent real capital assets). The fictitious value of capital presents an autonomous movement, due to the expected future flows of income and the movement of the interest rate, reinforcing the appearance that the valorization of capital is dissociated from the labor process, reinforcing the idea of being the automated capital that values itself, hiding the source of surplus value as surplus labor time.

Finally, the fourth set of determinants of money is related to credit and the development of the credit system in a capitalist mode of production, which is constituted by commercial credit, bank credit, credit money, and the emergence of an organized stocks and bonds market.

Commercial credit arises from the function of money as means of payment, when various producers and merchants buy and sell at term, causing deferred payment for transactions. This function of money is, for Marx, the basis of the credit system. The debts created in this process, legally formalized in various forms, according to their nature, are considered by Marx as bills of exchange, which are nothing more than written promises of payment within a given period. The issuance of bills of exchange in the circulation of goods is the commercial credit itself, and the bills can serve as means of circulation, being passed on through an endorsement on the purchase of commodities, and as means of payment, when they are paid by debt offsetting. This process accelerates the circulation of commodities, but it always depends on the reflux of money out of the sale of these commodities for the settlement of the bills when they fall due.

Bills of exchange, as they function as means of circulation and as means of payment, may already be considered a form of credit money, which is the form of money that is created privately by the agents of production and commerce, through circulation and offsetting of debts. It is an instrument that the credit system generates for itself, overcoming, in circulation, the need for the metallic existence of money, in the form of gold. The most developed forms of credit money are banknotes and deposits, which rely on bank credit and the banking system, and completely replace money in circulation.

To understand bank credit, it is necessary to deal with the emergence of bank capital, which occurs with the development of bank credit capital and with the bankers' function as managers and guardians of the reserve funds formed in the circulation of industrial capital. When these treasuries take the form of loan capital, it is the banking capital's job to manage the mass of available loan money capital, thereby gaining part of the interest in the form of a bank spread, guaranteeing the valorization of its bank capital. The source of money-capital is the deposit, from which current accounts of depositaries in the bank are formed, with their respective balances. This money-capital is lent in the various forms of bank credit, the main forms being the discount of bills and money advance operations (bank loans). The discount operation is nothing but a purchase of private bills of exchange by private banks for their discounted face value. In this operation, commercial credit and bank credit are intertwined, forming a linkage of debts and discounts capable of accelerating the reproduction process. In the case of a bank loan, available loan money-capital is advanced as interest-bearing capital, which can occur in several ways. The part of deposits not used by banks in loans forms the reserve fund of banks, which, with the development of the credit system, is stored in a central bank in the form of private banks' deposits.

With bank credit, credit money is developed in the form of banknotes. Banknotes are nothing but bills issued against the banker himself, payable to the bearer at any time in cash (gold). Banks that issue banknotes are called issuing banks. Like the bills, banknotes circulate as means of purchase and means of payment, replacing the metallic money. In most countries, banknotes have behind them the national credit and are legal tender, guaranteed by the State (MARX, 1991, p. 529). Like credit money, it has a fictitious value as a mere title, and its value comes from being a real-money symbol, a representative title to gold: "credit money is itself only money in so far as it absolutely represents real money to the sum of its nominal value" (MARX, 1991, p. 648).

In addition to the development of commercial and bank credit, an organized stocks and bonds market is developed within the credit system. Stocks are equity-owned securities and, because of their periodically distributed dividends, are fictitious capital, and their fictitious value is defined by the capitalization of those expected yields. These securities originate from joint-stock companies, in which the ownership of capital is completely separated from the capital in function. With stock and bond transactions existing in increasing quantity and magnitude, large, concentrated financial markets are developed, in which purchases and sales of these property titles take place. The consequence is the emergence of a rentier class and capitalist lenders who merely operate on such purchases and sales, living on the yields of their applied interest-bearing capital and the gains and losses associated with purchases and sales, as the price of these securities varies, making the stock market inherently a space for gambling and speculation, in which the outcome of these bets becomes the normal way of obtaining and appropriating capital (MARX, 1991, p. 529).

Therefore, as observed, money and the credit system are complex categories in Marx's theoretical perspective, relying on a large number of determinants and relations that have to be understood separately for a full understanding of these categories to be derived. In this section, the four sets of determinants of money have been briefly presented and summarized, to show that money, in a capitalist-developed mode of production, is subject to this complex series of determinations, and creates a credit system, with complex relations between credit, banks, and capital. The next section tries to address how this system creates a certain dynamic for the process of capital accumulation, explaining each phase of what Marx calls "the Industrial Cycle".

3 The Industrial Cycle and its Phases

Industrial cycles are typical of the capitalist mode of production mainly because of the development of the credit system, which only occurs in this specific mode of production and is related to a certain level of productive forces' development. These cycles are compounded by successive phases of (i) stagnation, (ii) stability, (iii) prosperity, (iv) overproduction and speculation, and (v) crisis. In this approach, the crisis is inherent to the cycle and it is a result of the specific dynamic to which capitalist production is submitted by the credit system, "in which the antagonism of all elements in the bourgeois process of production explodes" (MARX, 1991, p. 681). Therefore, the credit system presents, as a consequence of the capitalist dynamic, the generation of periodic crises. This fact occurs because of the acceleration of capitalist reproduction beyond the capacity of realization of commodities and the return of the money from their sales, occasioning overproduction driven by credit.

Marx presents his theory of industrial cycles in parallel to the discussion of the several crises that occurred throughout the English industry's development period, between 1815 and 1870 (MARX, 1991, 633), as these crises can be explained by the theory of the industrial cycles which he elaborates. We sustain here the hypothesis that, despite Marx exposing in parallel the English historical process and the theoretical aspects of the industrial cycles, his theory cannot be treated merely as a historical-inductive model, which would be formed only by Marx's observed historical experience, but actually as a theory derived of the logical development of his more complex abstract categories, related to the credit system. According to Marx's method (MARX, 1993; 1904), it can be said that Marx's interpretation of the English experience is nothing else than a "return to the concrete", in which concrete is understood not as in the sphere of appearance, as an incomprehensible tangle of relationships that conceal their true foundations, but as a whole composed of multiple determinations, mediated by the abstract categories derived from the concrete itself. Therefore, what Marx does is a historical interpretation based on the categories and relations unveiled by him on the abstraction level.[4]

What is observed is that there were several successive crises during this period, which occurred in 1825, 1837/39, 1847, and 1857 (MARX, 1991, p. 692). There is also a crisis in 1866/67 that has not been incorporated in Book III of *Capital*, given that the manuscripts for this book were written in 1864, but has been analyzed later by this author in other manuscripts, as shown by De Paula, Cerqueira et al. (2015).[5] All of these crises are associated with the industrial cycles, having decennial periodicity and being characterized by successive phases, related to the movements of real capital and money capital accumulation.

> In the slack phase, production falls below the level it attained in the previous cycle and for which the technical basis is now laid. In the phase of prosperity - the middle period - it develops further on this basis. In the period of overproduction and swindling, the

[4] It is necessary to remark that it is not a hypothetical-deductive exercise also, once that Marx's categories are derived from the concrete. His method consists of the passage between appearance to the essence of concrete phenomena through abstraction of its determinants.

[5] Even though the authors' main arguments are both correct, about the growing importance of finance observed by Marx and about the connection between the analysis of this crisis and of the 1847 and 1857 crises in Part V of Capital's Book III, it is important to notice that, due to the lack of knowledge and debate upon Marx's theory of the industrial cycles, the authors do not explicitly associate Marx's writings on the 1866 crisis to this theory. This is also the case on De Deus, De Paula et al. (2016). These aspects highlight the importance of correctly systematizing his cycles theory, which is a yet unexplored part of Marx's work.

> productive forces are stretched to their limit, even beyond the capitalist barriers to the production process (MARX, 1991, p. 620-1).

Therefore, these cycles are characterized by a gradual expansion of production until a crisis is reached. In the crisis phase and during the stagnation that results from it, production falls to an inferior level to that existing previously. However, when the prosperity phase is reached again, the production level is already the same as the existing one at the highest point of the previous cycle and, when credit stimulates overproduction and speculation again, the maximum reached by production surpasses the maximum reached at the previous cycle (MARX, 1991, p. 621).[6] Therefore, the contradictory character of capitalist production presents itself here as accumulation expansion which increases gradually the production capacity, but that necessarily results in crises.

Commenting on the existing cycles in England, Engels points out that, after 1867, this decennial periodicity has ceased to be the usual way in which cycles present themselves. He points out that the development of means of transportation and communication was responsible for a world market structuring that shifted capitalist production dynamics.[7]

Even though the periodicity of crises has changed as a consequence of the development of the capitalist mode of production, the relation stated by Marx between the credit system and the generation of crisis, through impulsion beyond valorization possibilities, is still valid.[8] Therefore, it is necessary to comprehend the dynamics established between credit and the accumulation of money-capital, how the passage between the diverse phases of the industrial cycle occurs, and how these periodic and inevitable crises are created. According to Engels, "each of the elements that counteracts a repetition of the old crises, conceals within it the nucleus of a far more violent future crisis." (MARX, 1991, p. 621).

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[6] "One measure for the accumulation of genuine capital, i.e. productive and commodity capital, is provided by the statistics of exports and imports. And there it is constantly apparent that for the period over which English industry moved in ten-year cycles (1815-70), the maximum for the final period of prosperity *before* the crisis reappeared as the minimum for the period of prosperity that followed next, only to rise then to a new and much higher maximum." (MARX, 1991, p. 633).

[7] On Engels' words, "Since the last general crisis of 1867, great changes have occurred. The colossal expansion of means of communication - ocean-going steamships, railways, electric telegraphs, the Suez canal - has genuinely established the world market for the first time. Alongside England, which formerly had a monopoly of industry, we have a whole series of competing industrial countries; the investment of surplus European capital in all parts of the globe is infinitely greater and more widespread, so that this is far more broadly distributed and local over-speculation is more easily overcome. All these things mean that most of the former breeding-grounds of crises and occasions for crisis formation have been abolished or severely weakened." (MARX, 1991, p. 620).

[8] However, Dornbusch and Frenkel (1984) also identify serious crises in the years 1873, 1882, and 1890, which is consistent with the decennial periodicity initially proposed by Marx.

The industrial cycle's phases are the following: (1) stagnation; (2) stability; (3) prosperity; (4) overproduction and speculation; and (5) crisis. According to Marx (1991, p. 620), "this industrial cycle is such that the same circuit must periodically reproduce itself, once the first impulse has been given". Therefore, the stagnation phase in which the cycle begins succeeds the crisis of the former cycle. At the same time, every crisis presents itself as the beginning point for new growth, in a new cycle with a superior level of production than the last one. Our goal is to explain what happens at each stage of the cycle and how credit creates this dynamic.

3.1 Stagnation

The stagnation phase, which is the beginning of the industrial cycle, is always a result of the crisis of the former cycle. Therefore, in this "hangover" phase and "melancholic period", commercial activity is very low. Consequently, commercial credit is also low. There is credit restriction and scarcity in commerce, characterized by precaution in credit sales and by the fact that only payments in cash are accepted. Consequently, there is a low number of circulating bills.

> So if there is a disturbance in this expansion, or even in the normal exertion of the reproduction process, there is also a lack of credit; it is more difficult to obtain goods on credit. The demand for cash payment and distrust of credit selling is especially characteristic of the phase in the industrial cycle that follows the crash (MARX, 1991, p. 614)

During this period, due to the deceleration of production and circulation, commodity prices fall and, as a consequence, the largest part of the medium of circulation, which are the banknotes issued by the Central Bank, can be found hoarded as bank reserves. Not only credit is low, but the whole reproduction of capital decelerates. Purchases and sales remain low as a result of the crisis and money remains hoarded in the banks. Consequently, the stagnation period presents a reduction in industrial capital circulation and an excess of available money-capital, indicating a discrepancy between real capital accumulation (productive capital and commodity capital) and money-capital accumulation.

Loan capitals lie idle after the crisis, and this is a result of restricted production accompanied by credit contraction. The low circulation, with reduced transaction numbers and lower prices, requires a lesser medium of circulation, and the excess of money held by the public is hoarded in banks, forming a greater amount of loan money-capital available. Along with that, a result of this retraction of the industrial capital circulation is the lower demand for loan capital. This lower demand expresses itself, first of all, by the reduced numbers of discounted bills and, in second place, by the lower number of loans. The low commercial credit reduces the number of circulating bills and, consequently, reduces the demand for discount operations (MARX, 1991, p. 616). The demand for loan money-capital as means of circulation or as means of payment is also low due to the retraction of circulation, and, when it comes to the demand for investment and increase in production, it is even lower. “The supply of loanable money capital also undergoes a positive increase in conditions such as these” (MARX, 1991, p. 616).

Another aspect that influences the excess of available money-capital is the fact that, during this stage of the cycle, any gold outflow ceases, for, during the crisis, most of the existing foreign debts are settled. “After the settlement of debts abroad, partly by a drain of gold and partly by bankruptcies, no additional money is required to carry out the function of world money” (MARX, 1991, p. 616). Therefore, the stagnation phase is marked by the re-establishment of gold reserves in the Central Bank through imports, and not by the drain that occurs during crises (MARX, 1991, 704-5). “Although it is generally in periods of prosperity that the Bank of England has a strong gold reserve, this is always formed in the slack and stagnant period that follows the storm.” (MARX, 1991, p. 585). With this, the supply of money-capital also increases, since the gold reserves positively impact the private banks' deposited reserves in the central bank.

As a consequence of this high amount of available loan money-capital and the low demand for it during this period of restricted production, the interest rate hits its lowest level during the cycle. “At these moments, when the production process has undergone a contraction, […] there is a low rate of interest, which in this case simply indicates an increase in loanable capital precisely as a result of the contraction and paralysis of industrial capital” (MARX, 1991, p. 616).

3.2 Stability

The stability period is characterized by the slow and gradual acceleration of industrial capital accumulation. The incentive for this takeoff is exactly the low interest rate, which increases the part of the general profit rate which becomes profit of enterprise. These profits impulse the reproduction process and, gradually, production increases and cash returns tend to happen more easily. With rising profits obtained by industrial capitalists and increasing sales, commodity prices and wages start to rise from the lowest point of the cycle, along with the expansion of industrial activity, starting a new accumulation cycle.[9] These easy returns from sales, sustained by rising profits, expand gradually commercial credit. Industrial capitalists and merchants start issuing bills more frequently, buying and selling in longer terms. As a result, more bills are discounted on banks, but in a low quantity, because there is no need for capitalists to use bank credit to obtain revenue during this period. During this "improvement" phase resulting from low interest, "commercial credit only needs a small amount of bank credit, since it still stands on its own two feet" (MARX, 1991, p. 620).

With activity expansion, a larger number of transactions, and gradually rising prices, comes also the need for a greater amount of means of circulation (MARX, 1991, p. 660). During this phase of the cycle, as well as in the stagnation period, more gold imports tend to occur than in the others, since gold is not demanded as an international means of payment.[10] Besides that, bank credit starts growing as well, due to the seek for means of circulation, through the discount of bills, and the seek for money-capital to increase production. Therefore, money is borrowed not seeking means of payment to pay off debts, but rather means of purchase:

> In the period when business revives after the crisis, on the other hand, loan capital is demanded in order to buy, and to transform the money capital into productive or commercial capital. And then it is demanded either by the industrial capitalist or by the merchant. The industrial capitalist invests it in means of production and labour-power. (MARX, 1991, p. 645).

However, available loan money-capital is still abundant in this phase, despite the gradual rise in credit. This increased bank credit is still low relative to the supply of loan capital, mainly because the industrial capital's expansion is sustained basically upon commercial credit given by industrial and commercial capitalists, and bank credit is only demanded in a secondary manner. Besides, this period is characterized by having a higher tendency for precious metal imports, which expands the bank reserves. As a consequence, there is still abundant available loan capital, but,

[9] "[…] the expansion of the accumulation process proper is promoted, because the low rate of interest, which coincides in the first case with low prices, and in the second case with slowly rising prices, increases the portion of the profit that is transformed into profit of enterprise." (MARX, 1991, p. 627).

[10] "Imports of precious metal take place principally at two moments. In the first phase of low interest rates which follows the crisis and is marked by a contraction of production; as well as the subsequent phase in which the interest rate rises but has not yet reached its average level. This is the phase in which returns are brisk and commercial credit high, so that the demand for loan capital does not grow in proportion to the expansion of production. In both of these phases, where loan capital is relatively abundant, the superfluous influx of capital in the form of gold and silver, i.e., a form in which it can function at first only as loan capital, has an important effect on the rate of interest and hence on the entire business climate" (MARX, 1991, p. 704-5).

with the higher demand, the interest rate increases. This rise is slow and the interest rate tends to be, in this phase, below the average level observed in the cycle.

> In this situation, the rate of interest is still low, even if it has risen above its minimum. [...] The ease and regularity of returns, combined with an expanded commercial credit, ensures the supply of loan capital despite the increased demand and prevents the interest level from rising. (MARX, 1991, p. 619).

This stage of the industrial cycle and the following one are the only ones that conjugate effective expansion of industrial capital and abundancy of loan capital, reflected by low-interest rates, for, in general, "the movement of loan capital, as expressed in the rate of interest, runs in the opposite direction to that of industrial capital" (MARX, 1991, p. 620).

3.3 Prosperity

In the prosperity phase, capital expansion is still boosted by the high profit of enterprise resulting from low interest rates. Despite the slow growth of the interest rates in the previous stage of the cycle, Marx asserts that the profit of enterprise is not reduced, because the general profit rate increases in a bigger proportion than the interest rate, making possible a simultaneous increase for both (MARX, 1991, p. 627).[11] With that, the real capital accumulation process is continued and expanded. Remains a tendency of easy returns of money that expands commercial credit: "In such times of prosperity, the reflux takes place smoothly and easily. The retail trader is certain to pay the wholesaler, the latter the manufacturer, and he the importer of raw material, etc." (MARX, 1991, p. 580). Thus, there are no problems with issuing or accepting bills, and this practice becomes the rule of commerce:

> If the reproduction process has reached the flourishing stage that precedes that of over-exertion, commercial credit undergoes a very great expansion, this in turn actually forming the 'healthy' basis for a ready flow of returns and an expansion of production (MARX, 1991, p. 619).

Therefore, commercial credit's expansion is sustained on increased production and on the certainty that bills, on their due dates, will be paid, for prosperity ensures cash returns. "As long as the reproduction process is fluid, so that returns remain assured, this credit persists and extends, and its extension is based on the extension of the reproduction process itself." (MARX, 1991, p. 614).

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[11] This increase in the general rate of profit could be explained, for example, by the increase in capacity utilization and by the intensification of labor (absolute surplus value) at this stage of the cycle, both of which imply an increase in the surplus value produced relative to the total capital, even though the technical aspects of production or the organic composition of capital do not change.

With the acceleration of the real capital accumulation process sustained by commercial credit expansion and maintenance of high profit rates, the demand for loan money-capital in industries increases, in the form of constant and variable capital. As a result, commodity prices and wages tend to rise, [12] and so do the interest rate.

> Yet the demand for variable capital may increase, and thus also the demand for money capital, while this in turn increases the rate of interest. The market price of labour-power then rises above its average, a more than average number of workers come to be employed, while at the same time the rate of interest rises, because the demand for money capital rises in these conditions. An increased demand for labour-power raises the price of this commodity just like any other, without raising profits, which depend principally on the relative cheapness of this particular commodity. At the same time, however, under the conditions we have assumed, this demand raises the rate of interest, by increasing the demand for money capital (MARX, 1991, p. 645-6).

The prosperity phase, therefore, is marked by bank credit expansion resulting in higher demand for loan money-capital. With it, the rate of interest reaches its average level (MARX, 1991, p. 620). Discount and cash advance operations are easily made, and firms' profits are elevated. Facilitated credit increases borrowed capital by firms, increasing their obligations to banks. Operating on a credit basis in general becomes the commerce norm.

> This is also the point when jobbers first enter the picture on a notable scale, operating without reserve capital or even without capital at all, i.e. completely on money credit. Added to this too is a great expansion of fixed capital in all forms and the opening of large numbers of new and far-reaching undertakings. (MARX, 1991, p. 619-20).

At this stage, both movements of real capital and loan money-capital still advance in the same expansive direction, though getting close to the turning point, in which there is a gradual relative scarcity of money-capital, expressed in a rising rate of interest, that surpasses its average level.

The money circulation velocity increases, mainly because of the upward state of credit, in which deposits rapidly become loans. With it, each time more functions of circulation are effectuated by mere credit transfers, with no paper or metallic currency intervention.

In this period, the amount of means of circulation that satisfies the needs of income circulation becomes relatively larger than the amount for capital circulation. This occurs because, with the increase in wages, driven by demand for variable capital, and the increase in profits, due to a higher profit of enterprise, incomes increase and, consequently, consumption also. Thereby,

[12] Here, Marx shows how, specifically in the phase of prosperity, there may be increase in profits occasioning increase in wages. However, an increase in wages is never the cause of an increase in the profit rate, but of its fall: "Higher wages are never a cause of higher profit, even though, taking particular phases of the industrial cycle, they may be one of its results. [...] the rising demand for labour-power and hence for variable capital does not in and of itself increase profits but rather reduces them in proportion." (MARX, 1991, p. 645).

more transactions related to individual consumption are executed, demanding a medium of circulation. Besides, commodity prices also rise regularly during the prosperity period. Therefore, not only do transactions occur more often and in larger quantities, but also in larger magnitudes due to the elevated prices. As a result, the quantity of money in income circulation increases in absolute terms, but is limited to the increase in money circulation velocity that characterizes this period (MARX, 1991, p. 578). “The overall result is that in periods of prosperity the mass of the circulating medium that serves for the expenditure of revenue experiences a decisive growth.” (MARX, 1991, p. 579).

On the other hand, when it comes to capital circulation, it is needed to consider that the prosperity phase is “a period of elastic and easy credit” (MARX, 1991, p. 579). In this sphere of circulation, credit is what regulates the money velocity:

> A larger mass of payments, on the one hand, is settled without any intervention of money; on the other hand, given the vigour of the process, there is a quicker movement of the same quantities of money, as both means of purchase and payment. The same amount of money mediates the reflux of a greater number of individual capitals. (MARX, 1991, p. 579).

Given this, circulation of capital presents at least a relative contraction of the medium of circulation according to Marx, due to the fact that credit saves here the usage of money in a higher degree than it does in income circulation.

> On the whole, the monetary circulation appears ‘full’ in such periods, although its division II (transfer of capital) is at least relatively contracted, while division I (expenditure of revenue) undergoes an absolute expansion. (MARX, 1991, p. 579).

Therefore, prosperity is marked by credit in its plenitude, with returns of commercial credit sustained by the reproduction process itself and with a high demand for bank credit, which brings the interest rate to its average level on the cycle. Beyond this point, the whole capitalist production is pushed forward by a debt system whose monetary base for settlement is ever narrower.

3.4 Speculation and Overproduction

The period of speculation and overproduction is characterized by high leverage, by excess of debts over firms’ own capital. Industrial and commercial capitalists rely more and more on the activities of discounting bills and taking loans, both to receive their future revenues in advance and apply capital on production again. The whole reproduction process is dependent on and sustained by credit during this period. More and more firms and agents that operate exclusively on credit emerge, having inexpressive own capital in relative terms. Bill-brokers are an example:

> [On this speculative period] the London bill-brokers carried on their enormous transactions without any cash reserve, relying on the run off of their bills falling due, or in extremity, on the power of obtaining advances from the Bank of England on the security of bills under discount. (MARX, 1991, p. 605).

At this stage, there is an enormous ampliation of bills' circulation, becoming the activity of discounting bills of crucial relevance in the reproduction process. Like this, through bank credit, the commodity capital returns, whose expectation is positive due to the price inflation that occurs at this stage of the cycle, are received in advance ever more (MARX, 1991 p. 622). In this sense, there is also increasing speculation on the results of future production: the bet that gains will continuously grow is what leverages production, which grows sustained by credit. While the real capital accumulation proceeds, money-capital becomes relatively scarcer.

The consequence of high indebtedness and credit dependency on the firms' operations is the scarcity of loan money capital. Bank reserves become smaller as the demand for money capital for discount and advance operations increases, and this presses the rate of interest, making it rise above its average level (MARX, 1991, p. 620). Therefore, speculation based on future results and supported by credit causes the interest rate to surpass its former level and maintain and elevation trajectory, as the available loan money capital reduction deepens.

With the gradual rise in interest, the discount rate also rises, making it harder to anticipate the money returns with bank credit. Besides, high interest rates have as a consequence reduction in the profit of enterprise. It follows that the highly indebted firms start facing a situation of increasing financial fragility and start looking to roll over their debts, settling them by taking new loans. In case of difficulties in obtaining returns of commodity sales, the practice of drawing bills, with no foundation for its settlement, just to discount it at the bank, is generalized (MARX, 1991, p. 526). The dissemination of such practices is the result of the speculation that characterizes this phase of the cycle.

> It is possible to pay interest at a high rate with a high rate of profit but a declining profit of enterprise. It can be paid - and this is partly the case in periods of speculation - not out of profits but out of the borrowed capital itself, and this situation can last a good while. (MARX, 1991, p. 645)

As it is possible to take credit to solve the situation, the general appearance of the reproduction is not of difficulties or imminent crisis, but of sustained growth. Thus, a characteristic of this phase of excessive speculation is that, while credit is active, despite the pressure exerted on it and reflected by the interest rate increase, the appearance of fast and safe returns remains, even after they ceased to be real (MARX, 1991, p. 580). The returns sustained by credit represent the true ones, hiding the latent crisis and keeping the appearance of rising activity. However, “the banks begin to scent danger as soon as their clients deposit more bills of exchange with them than money” (MARX, 1991, p. 580).

> On the other hand, however, this is so much complicated by simple bill-jobbing, and by dealing in commodities with no other purpose than that of fabricating bills of exchange, that the appearance of very solid business with brisk returns can merrily persist even when returns have in actual fact long since been made only at the cost of swindled money-lenders and swindled producers. This is why business always seems almost exaggeratedly healthy immediately before a collapse […] Business is always thoroughly sound, and the campaign in fullest swing, until the sudden intervention of the collapse (MARX, 1991, p. 615-6).

Another important factor for the keeping of the appearance of solid returns on the overproduction phase and for the existence of a delay between the emergence of problems in reproduction and the true outbreak of the crisis is the existing relation between industrial and commercial capital (MARX, 1992, p. 155-6). Due to the separation between production and consumption, mediated by commercial capital, there may be accumulated stocks of unsaleable commodities. For the industrial capital, there may be the appearance of normal continuity of the reproduction cycle, but overproduction may have already taken the market and the conditions for the crisis may have already been given.

> The production of surplus-value and with it also the individual consumption of the capitalist can thus grow, and the whole reproduction process find itself in the most flourishing condition, while in fact a great part of the commodities have only apparently gone into consumption, and are actually lying unsold in the hands of retail traders, thus being still on the market. One stream of commodities now follows another, and it finally emerges that the earlier stream had only seemed to be swallowed up by consumption (MARX, 1992, p. 156).

The relation between industrial and commercial capital is important mainly in international trade, in which there are sales to exporters and importers. The speculative activity that takes place in international trade specifically has important repercussions to the cycle, since industrial capital’s unbridled expansion creates overproduction, which is nothing but production beyond the collectivity absorption capacity, through commodity realization. In a context of overproduction and market overstock, commodities are unsaleable and their prices drop. This fall in prices and the selling difficulty makes unfeasible the money return for the highly indebted firms and, consequently, are prejudicial for the payment flow of the issued bills. The nations' balances of payments become unfavorable due to the need to settle international trade debts with international means of payment, which is metallic money. As a consequence, there is a gold drain from nations in which there is overproduction, affecting the Central Bank's and private banks' reserves, that is, the monetary base over which the whole credit system is sustained. Therefore, the overproduction process manifests itself in international commerce and, because of the excessive number of bills falling due in this context, provokes a gold drain that shakes the credit structure. This "crisis trigger" presented by Marx is what we are going to explore next. According to Marx, it is in the speculation and overproduction phase of the cycle that continuous loss of international means of payment occurs, affecting the whole system.

> A drain, i.e. a continued heavy export, of precious metal appears as soon as returns are no longer easy, markets are overstocked and the apparent prosperity is maintained only by credit; i.e. when a very pronounced demand for loan capital already exists, so that the rate of interest has reached at least its average level (MARX, 1991, p. 705).

Overproduction on international trade expresses itself in the fact that, between the countries involved in the crisis, the balance of payments becomes unfavorable to all of them, which is a symptom of all having imported and exported excessively, based on credit and the rising prices of the commodities. [13] This excess of importats and exportats is nothing more than a symptom of overproduction (MARX, 1991, p. 622-3).

As a consequence of overproduction, the overstock on markets makes commodities unsaleable, causes prices to drop, and hinders money returns. Consequently, in this phase, the countries have to settle their debts, which occurs, according to Marx, successively between the countries, one after another, provoking the drain of gold demanded as means of international payment, sales of commodities at very low prices or bankruptcy of debtors that end up giving up their own capital to pay for the bills falling due. The unfavorable balance of payments, therefore, corresponds to the adjustment of accounts resulting from excessive credit and causes precious metal outflow. It is a process that occurs successively in each country, as a symptom of the overproduction, and represents a liability structure adjustment of firms.

> In times of general crisis the balance of payments is against every country, at least against every commercially developed country, but always against each of these in succession – like volley firing - as soon as the sequence of payments reaches it; and once the crisis has broken out in England, for example, this sequence of dates is condensed into a fairly short period. It is then evident that all these countries have simultaneously over-exported (i.e.

[13] "As regards the question of imports and exports, it should be noted that all countries are successively caught up in the crisis, and that it is then apparent that they have all, with few exceptions, both exported and imported too much; i.e. *the balance of payments is against them all*, so that the root of the problem is actually not the balance of payments at all." (MARX, 1991, p. 622).

> over-produced) and over-imported (i.e. over-traded) and that in all of them prices were inflated and credit overstretched. In every case the same collapse follows. The phenomenon of a drain of gold then affects each of them in turn, and shows by its very universality: (1) that the drain of gold is simply a phenomenon of the crisis, and not its basis; (2) that the sequence in which this drain of gold affects the different countries simply indicates when the series reaches them, for a final settlement of accounts; when their own day of crisis comes and its latent elements in turn emerge in their own case (MARX, 1991, p. 623-4).

Thus, it is possible to perceive that, for Marx, gold drains/outflows that characterize this phase of the cycle are not merely a national phenomenon, but involve several countries through credit and commerce. It is a symptom of the crisis to come, for it is the sphere in which the overproduction problem first manifests itself: "a drain of metal is generally the symptom of a change in the state of foreign trade, and this change is in turn an advance warning that conditions are again approaching a crisis" (MARX, 1991, p. 704). The demand for gold "arises in the very same moment as the foreign markets are flooded with unrealizable English commodity capital." (MARX, 1991, p. 584). Therefore, it is "the signal of a collapse already commenced",

> [...] a cessation of the foreign demand for our productions, of delayed returns, and, as the necessary sequel of all these, of commercial discredit, manufactories shut up, artisans starving, and a general stagnation of industry and enterprise (MARX, 1991, p. 585)

The metal outflow acts as a decisive factor over a fragilized credit base. Loan money capital becomes scarcer and, as a consequence, interest rates rise. The gold drain impacts the credit system, firstly, "by way of the specific character of precious metal as capital in the money form" and, secondly, "it acts as the feather which, added to the weight already on the scales, is enough to tip the balance decisively to one side" (MARX, 1991, p. 705-6). Thus, money in its metallic existence, being the axis of the credit system, impacts it by falling way just because this base is already fragilized in the speculation and overproduction phase of the industrial cycle.

> Were it not for these reasons, it would be completely impossible to understand how a drain of gold of £5-£8 million, say, and this is the limit of our experience up till now, could exert any significant effect. This small increase or decrease in capital, which appears insignificant even against the £70 million in gold that is the average circulation in England, is infinitesimal against the total volume of English production (MARX, 1991, p. 706).

Therefore, at the extreme tension imposed on the credit system in this phase of the cycle, any gold drain becomes decisive for the crisis outbreak. It is even possible that the gold drain that begins the crisis occurs because of a sudden disturbance of production, such as, for example, excessive imports related to a bad harvest or agricultural product scarcity. Thus, there may be shocks that have nothing to do with overproduction itself, but, if they happen in this tense phase of the cycle, may unchain the crisis (MARX, 1991, p. 706).

3.5 Crisis

As soon as the gold drain hits the Central Bank's reserves, and consequently also the private banks' reserves, bankers get cautious because of the reduction of their available loan capital, start restricting credit and increasing interest rates. So, when the crisis outbreaks, interest rates hit their maximum level during the cycle. Credit scarcity puts the whole reproduction process to a halt, creating stagnated real capital (productive capital and commodity-capital), idle and with no application.

> [The interest rate] reaches its maximum again as soon as the new crisis breaks out, credit suddenly dries up, payments congeal, the reproduction process is paralysed and, save for the exceptions mentioned earlier, there is an almost absolute lack of loan capital alongside a surplus of unoccupied industrial capital (MARX, 1991, p. 620).

The industrial capital reproduction, which kept its appearance of safe returns exclusively by the advance operations allowed by bank credit, now loses its illusory support base with the ongoing credit scarcity and high interest. The elevation of interest rates reduces the profit of enterprise and completely absorbs it in certain branches of industry and for certain individual capitals (MARX, 1991, p. 634-5), in a way that "the rate of profit as good as disappears, and with it the demand for industrial capital" (MARX, 1991, p. 645). With the low (or nonexistent) profit, there is a crisis and complete stagnation of the accumulation of capital process, immediately reducing the demand for constant and variable capital. It is the general stoppage of the reproduction process. In crisis "everyone has goods to sell and cannot sell, even though they have to sell in order to pay" their debts. As a consequence, "factories stand idle, raw materials pile up, finished products flood the market as commodities." (MARX, 1991, p. 614).

This general paralyzation of reproduction happens because, during the crises, there is an over-abundance of industrial capital, a surplus of productive capital (MARX, 1991, p. 614). This is nothing else than the overproduction resulting from the excessive boost given by the credit system to industrial capital. Its consequences are the overstock of unsaleable commodities, the fall of commodity-capital prices, and the impossibility of paying bills when they fall due.

> As soon as any stagnation occurs, as a result of delayed returns, overstocked markets or fallen prices, there is a surplus of industrial capital, but in a form in which it cannot accomplish its function. A great deal of commodity capital; but unsaleable. A great deal

> of fixed capital; but in large measure unemployed as a result of the stagnation in reproduction (MARX, 1991, p. 614).

At this moment, the discrepancy between the movements of real capital accumulation and money-capital accumulation reaches its extreme level: there is an overabundance of real capital and total scarcity of money-capital.

Thus, the fall in commodity-capital prices is a mere symptom of overproduction. What causes it is the excessive industrial capital accumulation. This fall has as its consequence the impossibility of settling bills on their due dates since capitalists cannot obtain the necessary and expected money return out of their sales and pay them. The flood on the market drops prices, contracting the potential money-capital represented by such commodities. The money-capital that could be obtained in its sale becomes insufficient to settle the bills issued for its production or acquisition.[14] This means that a commodity-capital with a lower price "represents less money capital for its owner and his creditors (also as security for bills of exchange and loans) than at the time it was bought and when the discounts and loans made with it as security were concluded." (MARX, 1991, p. 622).

With the paralyzation of the excessive industrial capital, commercial credit also stagnates. It naturally contracts itself, since industrial capital is paralyzed, idle, without being able to complete its metamorphosis (MARX, 1991, p. 614). In general, the confidence in regards to payments is affected, because the reproduction process becomes uncertain and it is not known whether, by selling on credit, the payment will be received (MARX, 1991, p. 614). Nevertheless, this aspect isn't so relevant in this period, since the demand for commercial credit diminishes absolutely because of the excess of real capital: "the spinner who restricts his production and has a lot of unsold yarn in store does not need to buy cotton on credit; the merchant does not need to buy any goods on credit, as he already has more than enough." (MARX, 1991, p. 614).

During the crisis, bank credit scarcity hits an extreme level and banks no longer sustain the money returns of baseless bills of exchange. It becomes harder to discount bills, and that can only

[14] Marx emphasizes the fact that the fall in commodity prices just compensates for the price inflation that occurred in the former period: "on the eve of the crisis, and during it, the commodity capital is contracted in its capacity as potential money capital [...] If this is the supposed sense of the contention that the money capital of a country is reduced in times of pressure, it is identical with saying that commodity prices have fallen. Such a collapse in prices, incidentally, only balances their earlier inflation." (MARX, 1991, p. 622).

be done at a very high cost because of the high discount rates practiced by the banks.[15] With credit restriction, only payments in cash are accepted (bank notes or gold), occasioning a violent seek for means of payment (MARX, 1991, p. 621). There is a large quantity of bills falling due and the debtors do not possess the money to pay them off. These bills represent real transactions that occurred in the context of overproduction, and their returns aren't sufficient for their payment.

> In a system of production where the entire interconnection of the reproduction process rests on credit, a crisis must evidently break out if credit is suddenly withdrawn and only cash payment is accepted, in the form of a violent scramble for means of payment. At first glance, therefore, the entire crisis presents itself as simply a credit and monetary crisis. And in fact all it does involve is simply the convertibility of bills of exchange into money. The majority of these bills represent actual purchases and sales, the ultimate basis of the entire crisis being the expansion of these far beyond the social need. (MARX, 2014b, p. 647).

In the crisis, this amount of unsettled bills is nothing but fictitious capital with no foundation for its realization. "A tremendous number of these bills represent purely fraudulent deals, which now come to light and explode; as well as unsuccessful speculations conducted with borrowed capital" (MARX, 1991, p. 621). They are nothing but the representation of "commodity capitals that are either devalued or unsaleable, or returns that are never going to come in" (MARX, 1991, p. 621).

The credit scarcity has as a consequence the emergence of financial panic, which is related to the incessant seek for means of payment to settle the bills on their due dates. This panic emerges when the Central Bank increases its bill's discount rate during the crisis period. From that, the fear for the future is generalized, and "everyone, therefore, and the credit-jobber above all, seeks to discount the future and have as many means of credit as possible at his disposal at the given moment." (MARX, 1991, p. 705).

During the financial panic that characterizes crises, the main goal of speculators is to "obtain means of payment for bills on themselves that fall due, on account of the shortage of credit that has set in, and not to have to unload their commodities below their proper price" (MARX, 1991, p. 557). Therefore, in times of crisis, what is needed is money in the function of means of payment. Consequently, there is no reduction in the demand for loan money-capital during the crisis, but changes its character: it is not a demand for means of purchase, but a demand for means

[15] "The first difficulty is to discount a bill or obtain an advance by depositing commodities as security. It is the difficulty of transforming capital or a commercial token of value for capital into money. And this difficulty is expressed, among other things, in a high rate of interest." (MARX, 1991, p. 562).

of payment. Loans aren’t taken, nor are bills discounted, in order to reset production or expand productive capacity. What is tried to be obtained are means of settling debts (MARX, 1991, p. 645).

> In times of pressure, the demand for loan capital is a demand for means of payment and nothing more than this; in no way is it a demand for money as means of purchase. The interest rate can then rise very high, irrespective of whether real capital - productive and commodity capital - is abundant or scarce (MARX, 1991, p. 647-8).

At the same time that the seek for means of payment reaches its maximum, a difficulty for those capitalists who need them is imposed: the crisis period is characterized by immense money hoarding, be it in the form of gold or bank notes. This occurs both because of the capitalists’ fear about the future, who decide to hoard their money-capital, and because of the bank credit restriction imposed by the bankers. Apprehensive that bills to be discounted won't be paid on their due dates or that their loan money capital won’t return to their pockets, bankers stall discounts and loans. Thus, the more bank notes are needed, the harder it is to obtain them. About that, Marx (1991, p. 660-1) cites the banker Wright, who states that “during an alarm, the country requires twice as much circulation as in ordinary times, because the circulation is hoarded by bankers and others”.

In this way, financial panic during the crisis is the “musical chairs” of the money markets: there are more bills to fall due than money to pay them off, and the existing means of payment are all hoarded by bankers and private firms, who fear the future. Those who cannot obtain means of payment must sell their goods for ridiculous prices or give in their own capital to pay off their debts. When the music stops, bankruptcy is declared by many.

When it comes to the means of circulation during the crisis, it can be said that diminishes enormously the circulation of money as means of purchase and increases the circulation of money as means of payment. “In times of crisis an advance is obtained in order to pay, not to buy; to settle past transactions, not to start new ones” (MARX, 1991, p. 590). The global amount of means of circulation may vary, depending on how much the decrease in circulation of money in the function of means of purchase may be compensated by the increase in circulation of money as means of payment. Thus, in this phase, the means of circulation may vary indefinitely, remaining stable, increasing, or decreasing (MARX, 1991, p. 591).

Besides, it is needed to notice that, in the crisis period, the division of the means of circulation between income circulation and capital circulation is reversed relative to the prosperity period. The income circulation contracts itself enormously, since prices and wages drop, there are fewer occupied workers and there is a reduction in the quantity of transactions (MARX, 1991, p. 580). Capital circulation, on the other hand, increases relatively due to the scarcity of credit: a larger quantity of means of payments circulates in the form of bank notes to pay off bills that fall due (MARX, 1991, p. 580).

Lastly, it is needed to point out the implications of the crisis in the Stock Markets, in stocks, bonds, and securities prices. Like commodity-capital, stocks and bonds, which are fictitious capital (securities) and forms of interest-bearing capital, also represent potential money-capital. In the crisis, their prices fall drastically for two reasons: the first one is the increase in the interest rate and the second is the increase of their supply (MARX, 1991, p. 624-5). Due to the general credit scarcity, the possessors of those titles put them for sale in order to obtain money as means of payment for their debts.

Stocks, besides that, may have their prices reduced even more in case there is a fall in the expected income paid in the form of dividends. Therefore, if those titles represent effective capital whose surplus-value realization is affected by the disturbances in the reproduction process and whose distributed incomes are reduced, there is another aspect that causes their market price to drop. The market price variation of these securities in the stock market may be summarized as follows:

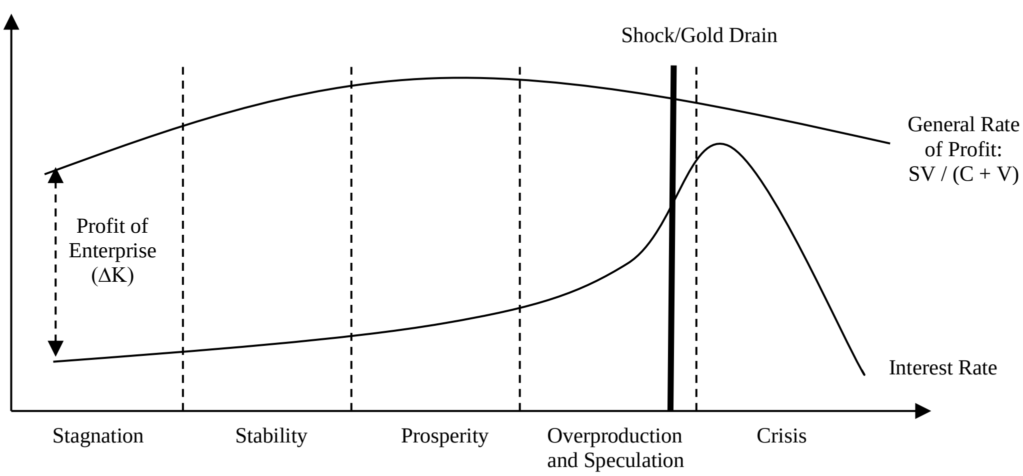
> In times of pressure on the money market, therefore, these securities fall in price for two reasons: first, because the interest rate rises, and second, because they are put up for sale in massive quantities, to be converted into money. This fall in price occurs irrespective of whether the yield these securities ensure for their owner is constant, as in the case of government bonds, or whether the valorization of the real capital that they represent may be affected by the disturbance in the reproduction process, as in the case of industrial undertakings. In the latter case, we simply have a further devaluation besides that already mentioned. Once the storm is over, these securities rise again to their former level, in so far as the undertakings they represent have not come to grief and are not fraudulent. Their depreciation in a crisis is a powerful means of centralizing money wealth (MARX, 1991, p. 598-9).

Evidently, the fall in stocks and bond prices, even though it doesn't have any effect on the real capital value that they represent, impacts directly the solvency of their owners. By selling these securities, the money-capital acquired is inferior to the potential money-capital that was represented by these before the crisis, when they had higher market prices. At the same time, the price of these securities affects the capacity of their owner to take new loans secured by these assets, because the money-capital which they represent becomes too low (MARX, 1991, p. 626).

During the crisis, the depreciation of the stocks acts in a way of powerfully centralizing the financial wealth. Big money lender capitalists, rentiers, and speculators can buy these stocks and bonds at very low prices, once their sellers need to obtain money for payments. If the stocks are acquired, then there is a concentration of capital after the crisis. When the situation is normalized and the interest rate falls, these stocks and bonds recover their prices. If their buyers keep them after the crisis, then the property of capital will have been concentrated after the cycle. If they are sold, then their buyers will have obtained a larger money-capital merely for speculating with the security's price.

Lastly, Figure 1 below presents a summary of the stages of the industrial cycle, the interest rate's trajectory, and the profit of enterprise, as the difference between the general rate of profit and the interest rate, which drives capital accumulation throughout the cycle. The movement in the general rate of profit is explained, in its ascend, by the increase in surplus value produced relative to total capital, and by the rise in wages in its descent. It is also possible to notice that, at the speculative and fragile stage, a crisis might emerge both from the rise of the interest rate or the fall of the general rate of profit for any reason (higher wages and profit squeeze, or the fall in the profit rate due to the rise in the organic composition of capital), as argued by Crotty (2017).

FIGURE 1 – Profit of Enterprise and Interest rate's trajectory throughout the industrial cycle



Marx summarizes the description of the interest rate dynamics as follows:

> If we consider the turnover cycles in which modern industry moves - inactivity, growing animation, prosperity, overproduction, crash, stagnation, inactivity, etc., […] we find that a low level of interest generally corresponds to periods of prosperity or especially high profit, a rise in interest comes between prosperity and its collapse, while maximum interest up to extreme usury corresponds to a period of crisis. […] Yet low interest can also be accompanied by stagnation, and a moderate rise in interest by growing animation (MARX, 1991, p. 482-3).

4 Industrial Cycles in England during the 19th Century

From now on, we are going to deal with the historical experience interpreted by Marx, taking into account his industrial cycles theory. The years in which crises occurred during the 19th Century in England were 1825, 1837-39, 1847, and 1857. Besides that, Engels comments on a crisis that occurred in 1866, but without getting into more detail.[16] Out of these, the most examined by Marx is the one from 1847, which he exposes in detail throughout several excerpts of Vol. III of Capital (MARX, 1991). The other crises are occasionally commented on, but not sufficiently to allow us to map and understand all of the phases of their cycles. Therefore, in this section, we are going to describe the industrial cycle that ended with the crisis of 1847, associating Marx's description with his theory of the industrial cycles.

Briefly, it can be said that the phases of the cycle are related to the period in the following way: in 1842, starts to ease the 1837-9 English industry's crisis, characterizing this stage as the stagnation phase; between 1843 and 1844, during the stability phase, increases gradually the foreign demand for English industrial products; between 1845 and 1846 is the period of greater prosperity, in which rapid speculation and overproduction begin to happen; in 1846 occurs gold drain related to the external shock of a bad harvest and need for imports of agricultural products, and in 1847 begins the crisis. To understand the passage from a period of stable growth and prosperity to a crisis, there are two crucial factors: the international commerce between England and Asia and the speculation in railway stocks.

Firstly, we'll present the aspects related to the international trade. In 1843, the English economy started to recover from stagnation due to the opening of the Chinese market to English commerce after the Opium War (MARX, 1991, 534). This opening became the pretext for the expansion of the English industry aimed at exporting, particularly of the textile industry. The period's perspective is summarized by Engels by citing a manufacturer of the cotton industry, who stated the following: "how can we ever produce too much? We have 300 million people to clothe" (MARX, 1991, p. 534). Consequently, this opening of an external market generated large-scale

[16] In later drafts, Marx deals with the 1866 crisis, as shown by De Paula, Cerqueira, et al. (2015). However, the association made by these authors between Marx's writings on this crisis and his industrial cycles theory is fragile. Actually, this is another crisis that is the final stage of an industrial cycle, driven by the credit system, that bursts out with the bankruptcy of the bill-broker firm Overend & Gurney Co., belonging to Samuel Gurney and Chapman, and is a crisis in which it is necessary to suspend the Bank Charter Act 1844 again, as in 1847 and 1857.

industrial expansion, which was only possible because of the easy and cheap credit that existed in that period.[17] According to Gardner, the cotton manufacturer cited by Marx:

> "Immediately after the China treaty, so great a prospect was held out to the country of a great extension of our commerce with China, that there were many large mills built with a view to that trade exclusively, in order to manufacture that class of cloth which is principally taken for the China market, and our previous manufactures had the addition of all those" (MARX, 1991, p. 618).

The operations of international trade were driven by commercial credit, in a chain of bills drawn against several capitalists, including producers, exporters, and importers.[18] The bills created on these transactions were easily discounted by banks, providing the owners of such bills with money-capital at hand way before the actual sale of the commodity. Adding on to it, they were normally extended before maturity because international trade demanded a long time before the money returned.[19] Therefore, grew largely the quantity of issued bills of exchange based on trade between England and Asia, mainly China and India, and, using bank credit, these bills were discounted, replenishing money capital and restarting the production process.

In some time, this consignation system against advancements of commodities destined for India and China started generating speculative activity: its main goal was no longer selling commodities, but discounting the bills created on the process: "bills were no longer drawn because commodities had been sold, but rather commodities sold in order to draw bills which could be discounted and converted into money" (MARX, 1991, 536). Therefore, the objective of the capitalists involved in international commerce had been inverted. What mattered was to obtain loans and discounts based on shipped commodities, commodities still to be shipped, or even commodities not yet produced, thus obtaining money-capital at hand regardless of the sales'

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[17] About that, Engels comments the following: "The bank rate was low: 1.75 to 2.75 per cent in 1844, below 3 per cent until October 1845, then rising for a short period to 5 per cent (February 1846) before falling again to 3.25 per cent in December 1846. In its vaults, the Bank had a gold reserve of unheard-of dimensions. All domestic share prices stood higher than ever before." (MARX, 1991, p. 534).

[18] "Mr A [exporter] in London instructs a Mr B [commercial capitalist] to buy from the manufacturer C in Manchester commodities for shipment to D [importer] in East India. B pays C in six months' drafts to be made out by C on B. B secures himself by six months' drafts on A. As soon as the goods are shipped, A makes out six months' drafts on D against the mailed bill of lading". (MARX, 1991, p. 536).

[19] "The shipper and the co-signee were thus both put in possession of funds - months before they actually paid for the goods; and, very commonly, these bills were renewed at maturity, on pretence of affording time for the returns in a 'long trade'." (MARX, 1991, p. 536).

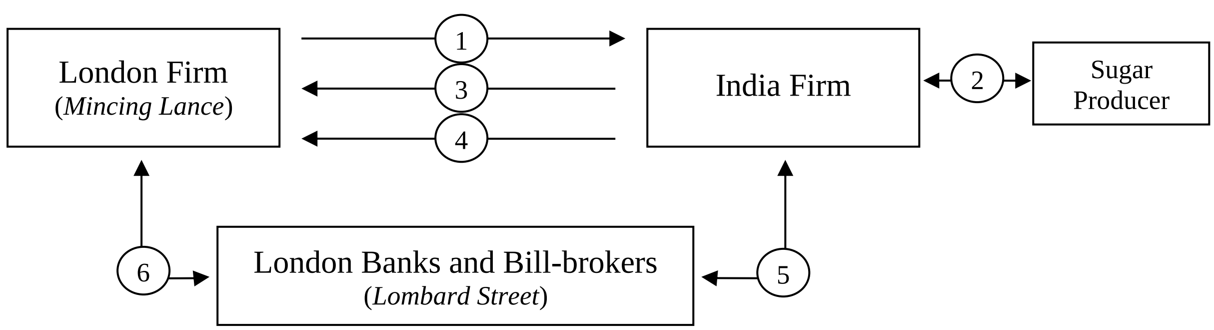
realization.[20] Therefore, this system backed itself exclusively on obtaining loans and discounting bills, which are both forms of obtaining bank credit.

Speculation in international trade was not restricted to exports, but happened also in import operations, leveraging production in Asia. Many of these imports occurred not for being lucrative, but for the importing firms of London to obtain money to pay for their bills falling due. Thus, it was an arrangement whose final objective was merely to obtain bank credit and enable future payments, making them possible by credit. An example of such operations can be found in the following publication of the *Manchester Guardian*:

> "What took place in reference to the export of goods at home, was taking place in the purchase and shipment of produce abroad. Houses in India, who had credit to pass their bills, were purchasers of sugar, indigo, silk, or cotton, - not because the prices advised from London by the last overland mail promised a profit on the prices current in India, but because former drafts upon the London house would soon fall due, and must be provided for. What way so simple as to purchase a cargo of sugar, pay for it in bills upon the London house at ten months' date, transmit the shipping documents by the overland mail; and, in less than two months, the goods on the high seas, or perhaps not yet passed the mouth of the Hoogly, were pawned in Lombard Street - putting the London house in funds eight months before the drafts against those goods fell due" (MARX, 1991, p. 536-7)

A detailed illustration of this example can be seen in Figure 2 below:

FIGURE 2 – Speculation in International Commerce



Source: own elaboration.

Both the London firm and the India Firm are wholesale commercial capitalists, specialized in international trade. The example can be explained as follows, according to the sequence presented in Figure 2, represented by the arrows: (1) the London firm sends a purchase request to the India firm for a certain quantity of sugar, to be paid in 10 months by the English firm, who

[20] Charles Turner describes how bill-brokers advance money based on goods of the East Indian commerce: "The brokers have been in the habit not only of advancing upon goods after their arrival to meet the bills drawn against those goods, which is perfectly legitimate, and upon the bills of lading, but they have advanced upon the produce before it was shipped, and in some cases before it was manufactured." (MARX, 1991, p. 539).

issues a bill of exchange; (2) the India firm buys sugar from an Asian sugar producer; (3) the Indian firm ships the sugar to London; (4) the India firm, by overseas mail, sends to the London firm a bill of lading related to the commodity's shipment; (5) the India firm discounts the drawn bill against the London firm in London banks, obtaining money-capital at hand before the sugar was actually sold to consumers; (6) the London firm, possessing the bill of lading, pledges the sugar to obtain loan from the English banks, therefore being able to pay for their bills falling due even before the sugar has arrived in England. This is the whole goal of sugar imports: obtaining credit in order to pay for future obligations. According to Marx, the pledge based on the bill of lading occurs around 2 months after the 10-month bill of exchange, used to buy the sugar, has been issued, meaning that the London firm has money at hand 8 months before the bill falls due. About these operations, the *Manchester Guardian* makes the following comment:

> "And all this went on without interruption or difficulty, as long as bill-brokers had abundance of money "at call", to advance on bills of lading and dock warrants, and to discount, without limit, the bills of India houses drawn upon the eminent firms in Mincing Lane [(wholesale trade center in London)]." (MARX, 1991, p. 537).[21]

A characteristic of this speculative arrangement, based on bank credit associated with international commerce, is that, if bills were coming to maturity and needing payment, or if there were losses on these operations, the speculation wouldn't cease, but increase. According to an excerpt taken by Marx from the *Manchester Guardian*, "the poorer men became, the greater need they had to purchase, in order to make up, by new advances, the capital they had lost on the past adventures" (MARX, 1991, p. 536). Like this, eventual problems were solved by expanding production to issue discountable bills of exchange, or to take loans based on pledges of bills of lading. In cases in which business problems were occasioned by overproduction, with huge quantities of goods flooding external markets, unsaleable, what the system would do would be to deepen the problem by expanding production even more, in a more speculative way. In the case in which it was needed to pay for the bills coming to maturity, and, for that, goods were imported and the bills of lading were used to take secured loans, overproduction was aggravated in Asia, because products were imported with no capacity to afford them. International trade between England and

[21] Not only banks offered these money advance loans, but also bill-brokers. According to a comment of *The Economist*, "as the capital of the country rapidly accumulated, and became more economized by the establishment of banks, the funds at the disposal of these 'discount houses' became so large that they were induced to make advances first on dock warrants of merchandise' (storage bills on commodities in docks), and next on bills of lading, representing produce not even arrived in this country, though sometimes, if not generally, secured by bills drawn by the merchant upon his broker." (MARX, 1991, p. 630).

Asia became an exemplary case in which credit was the source of maintenance of money returns when the realization of commodities, which is the real source of value realization, wouldn't happen anymore, foreshadowing the crisis to come, with overproduction in both English and Asian industries.[22]

Another important aspect for comprehending the 1847 crisis is the existence of speculation related to railway production. The prosperity period resulting from foreign trade created high profits and a certain incapacity to absorb the whole surplus value only in industrial production.[23] Engels comments that, from 1844, the construction of a railway network became the source of satisfaction of "the thirst of the manufacturers and merchants for speculation" (MARX, 1991, p. 534).

> "Stock was underwritten to the limits of possibility, i.e. as far as there was money to cover the initial payments. As for the rest, a way would be found! When the further payments did fall due […], the capital invested in railways in 1846-7 amounted to £75 million - recourse to credit was necessary, and the main business of the firm generally had to suffer" (MARX, 1991, p. 534).

What happened is that capitalists applied their surplus in railway stock, given that it was an industrial branch that expanded rapidly, and ended up without enough liquid resources to pay for their forthcoming obligations, depending on bank credit to settle them. This way, they compromised their own activity by taking the money out of it and speculating on the possibility of not honoring their obligations. Thus, capitalists that invested their surplus in railway stocks became directly dependent on banks' loan capital, be it through bank loans or discount operations, to keep their activities going. If they wanted to maintain the same scale of production and honor obligations, they would necessarily require credit (MARX, 1991, p. 541).[24] The consequences of

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[22] An important observation regarding the speculation and overproduction in international trade is the one made by Engels, who affirms that the whole system of money advance related to foreign commerce had as a base the long delay in transportation, communication, and payment (MARX, 1991, 537). With the development of the transportation system (sea traffic by the Suez Canal, and not by the Cape of Good Hope, and the existence of steamships) and the communication system (telegraph now informs, on the same day, the situation of the English market or the Indian market), the method loses its basis. Therefore, it is necessary to consider these structural transformations in the world market and their effects over the industrial cycles.

[23] Engels comments that "all the newly erected factory buildings, new steam engines, and spinning and weaving machines were not sufficient to absorb Lancashire's streaming surplus-value." (MARX, 1991, p. 534).

[24] About that, Marx cites Hodgson, Director of the Royal Bank of Liverpool, who states the following: "Almost all mercantile houses had begun to starve their business more or less by taking part of their commercial capital for railways. Loans to so great an extent by commercial houses to railways induced them to lean too much upon banks by the discount of paper, whereby to carry on their commercial operations" (MARX, 1991, p. 617-8). Likewise, Marx cites Gardner: "In Manchester there have been immense losses in consequence of the speculation in railways" (MARX, 1991, p. 618).

this are stated by Marx through some selected parts of parliamentary reports that investigated the causes of the crisis:

> "In April 1847 almost all mercantile houses had begun to starve their business more or less by taking part of their commercial capital for railways. Loans were made on railway shares at a high rate of interest, say, 8 per cent, by private individuals, by bankers and by fire-offices. Loans to so great an extent by commercial houses to railways induced them to lean too much upon banks by the discount of paper, whereby to carry on their commercial operations" (MARX, 1991, p. 538).

Until April 1847, the railway stock subscriptions didn't represent any problems for the banks. Actually, they contributed to increasing the quantity of existing money-capital deposits in them.[25] Railway funds were formed, representing deposited money-capital related to railway stocks. However, in April 1847, just before the beginning of the crisis, capitalists who needed bank credit to settle their obligations were discounting bills or taking loans bailed on railway stocks to obtain money as means of payment. With it, gradually these railway funds started to diminish, being very low in resources just before the crisis. Besides, it is necessary to remark that these railway stocks bailed in loans started compounding the bank capital of a large number of banks, which led to the fact that, during the crisis period, the price drop of those stocks strongly affected the supply of loan money-capital by these banks. A banker cited by Marx, commenting on this subject, affirms the following:

> "most of the banks had rather a large amount of railway money in their hands in the beginning of the year. […] In the summer that melted gradually away, and on the 31st of December it was materially less. One cause of the pressure in October was the gradual diminution of the railway money in the bankers' hands; between the 22nd of April and the 31st of December the railway balances in our hands were reduced one-third; and the railway calls have also had this effect throughout the Kingdom; they have been gradually draining the deposits of bankers" (MARX, 1991, p. 538).

Beyond speculation in international trade and railway stocks, the existence of firms that had excessive immobilized capital in factories in foreign countries was also a factor that generated solvency problems and, when these problems were too serious, bankruptcies. An example is the case exposed by Charles Turner, a big East India merchant in Liverpool, in which a firm had enough capital to settle its debts, but it was unrealizable, since "the whole of their capital was locked up in estates in the Mauritius, or indigo factories, or sugar factories." (MARX, 1991, p. 618). This firm

[25] As confirmed by several other bankers' statements, Gardner comments that the stocks subscriptions "had had hardly any effect at all in producing the pressure in April; I should imagine that up to April, and up, perhaps, to the summer, they had increased the power of bankers in some respects rather than diminished it; for the expenditure had not been nearly so rapid as the calls; the consequence was, that most of the banks had rather a large amount of railway money in their hands in the beginning of the year." (MARX, 1991, p. 538).

contracted excessive obligations, as other ones that were also involved in excessive speculation, and its solvency became necessarily dependent on bank credit.[26]

One last element needs to be considered before we deal with the 1847 crisis specifically: the expansion of advance and discount operations in ever lesser solid bases performed by the bill-brokers. According to Marx, these brokers made enormous bank operations "without any cash reserve, relying on the run off of their bills falling due, or in extremity, on the power of obtaining advances from the Bank of England on the security of bills under discount." (MARX, 1991, p. 605). Marx brings the statement of Mr. Neave, Governor of the Bank of England, about the leverage degree of these firms, who needed to suspend their activities when the crisis broke out:

> "Two bill-broking houses in London suspended payment in 1847; both afterwards resumed business. In 1857, both suspended again. The liabilities of one house in 1847 were, in round numbers, £2,683,000, with a capital of £180,000; the liabilities of the same house, in 1857, were £5,300,000, the capital probably not more than one-fourth of what it was in 1847. The liabilities of the other firm were between £3,000,000 and £4,000,000 at each period of stoppage, with a capital not exceeding £45,000" (MARX, 1991, p. 606)

Therefore, the elements for the burst of the crisis were given: (1) unbridled speculation in international trade with the so-called East Indias, which generated overproduction driven by credit; (2) speculation with railway stocks subscriptions, making the firms' payment of bills coming to maturity dependent on bank credit and making these stocks an important component of the bank capital for most of the English banks; and (3) the immobilization of firms' capitals and the speculation by bill-brokers.

The crisis began with a gold drain that destabilized the credit system: the bad harvest of 1846 in England (MARX, 1991, p. 535). As we have seen, it was not a process of gold drain generated by an unfavorable balance of payments which is directly related to the overproduction, even though both the English market and the Asian market had excessive products, but it was an eventual disturbance in production that led to a gold drain during the most tense phase of the industrial cycle, when speculation was advanced, shaking the reserves of the Bank of England and affecting the credit system in general. The bad harvest created the need to increase the imports of food, mainly wheat and potatoes, which needed to be paid for with precious metals (MARX, 1991, p. 535). As a consequence, 9 million pounds in gold were sent to foreign countries, while 7.5

[26] Statement of Charles Turner: "they had large means, but not available. The whole of their capital was locked up in estates in the Mauritius, or indigo factories, or sugar factories. Having incurred liabilities to the extent of £500,000-600,000, they had no available assets to pay their bills, and eventually it proved that to pay their bills they were entirely dependent upon their credit" (MARX, 1991, p. 618).

million of it were taken directly out of the reserves of the Bank of England, limiting its actions in the money market, especially given the money issuing restrictions imposed by the Bank Charter Act of 1844, which limited the Bank of England's banknotes in circulation according to the existing gold reserves. The private banks, "whose reserves were with the Bank of England and in practice identical with its own, now had likewise to restrict their accommodation of money" (MARX, 1991, p. 535). Thus, the gold drain started a process of credit scarcity, that had as a consequence the stoppage of an enormous payment chain formed by credit operations and speculation.

Thus, in this period, the several factors earlier described, by weakening the activity of industrial capital based on unsustainable obligations towards money returns, caused an increase in demand for money-capital as soon as credit became scarce.[27] As in every crisis, the demand for money-capital is the demand for money in its function of means of payment, to settle contracted and due debts. However, with the gold drain, credit has been restricted, generating an available money-capital scarcity.

> There was a dearth of money capital brought about by the excessive size of operations, in comparison with the means available, and brought to a head by a disturbance in the reproduction process that resulted from the harvest failure, the over-investment in railways, overproduction particularly in cotton goods, swindling in the Indian and Chinese trade, speculation, excessive imports of sugar, and so on (MARX, 1991, p. 539).

As a consequence, there has been an increase in interest and discount rates, In April 1847, when began the first financial panic, the rate increased from 3% to 7%. Later there has been a slight recovery, when the rates decreased a little. However, in October, the crisis erupts and the rates increase even more. Engels describes this raise: "The Bank's official minimum lending rate rose to 7 per cent in October, and in November to 10 per cent, so that the great majority of bills could be discounted only at colossal and usurious rates of interest, if at all" (MARX, 1991, p. 535). According to the parliamentary reports analyzed by Marx, credit scarcity was general while, at the same time, enormous demand for means of payment existed:

> These circumstances caused the imports of the country to be very largely in excess over exports, a considerable drain upon the banks, and an increased application to the discount brokers for the discount of bills. They began to scrutinize the bills. The facilities of houses

[27] "Dearer corn, rising cotton prices, the unsaleability of sugar on account of overproduction, railway speculation and crash, the flooding of foreign markets with cotton goods, the forcible export and import trade with India described above, for the purpose of speculation in bills of exchange. All these things, overproduction in industry as well as underproduction in agriculture, i.e. quite different reasons, led to a rise in the demand for money capital, i.e. for credit and money" (MARX, 1991, p. 550).

> then began to be very seriously curtailed, and the weak houses began to fail. Those houses which relied upon their credit went down (MARX, 1991, p. 544).

The consequence of this situation is the general stoppage of the payments chain and "the bankruptcy of a few leading firms and very many medium and small ones" (MARX, 1991, p. 535). A depreciation in market prices of public debt bonds and stocks, including railway stocks, also happened. This situation was characterized by generalized financial panic, with major consequences for capitals that have been involved in speculative activity.

Financial panic characterizes itself by uncertainty regarding future debt payments and results in money hoarding to a higher degree. With the increase in interest rates promoted by the Bank of England in the period in which capitalists presented an insolvent structure of payments, fear concerning the future, and concerning payment expectations, is generalized. The banker Mr. Pease reveals the effects of financial panic over uncertainty related to payments and the resulting general hoarding, mainly by the banks:

> "As the Bank was obliged still to raise its rate of interest, everyone seemed apprehensive; country bankers increased the amount of bullion in their hands, and increased their reserve of notes, and many of us who were in the habit of keeping, perhaps, a few hundred pounds of gold and bank-notes, immediately laid up thousands in our desks and drawers, as there was an uncertainty about discounts, and about our bills being current in the market, a general hoarding ensued" (MARX, 1991, p. 546).

A passage of the parliamentary report about the causes of the 1847 crisis expresses exactly the same thing, namely the bankers' concern in regards to the payment of discounted bills and bank loans taken during the period in which financial panic and uncertainty are generalized, causing bank notes to be hoarded:

> "This increased the alarm that had been previously felt; and the bankers and others finding that they would not rely with the same degree of confidence that they had previously done upon turning their bills and other money securities into bank-notes, for the purpose of meeting their engagements, still further curtailed their facilities, and in many cases refused them altogether; they locked up their bank-notes, in many instances to meet their own engagements; they were afraid of parting with them. The alarm and confusion were increased daily; and unless Lord John Russell had issued the letter to the Bank, universal bankruptcy would have been the issue" (MARX, 1991, p. 544-5).

The letter to which the Report refers is John Russel's letter, which, on October 25th, 1847, suspended the Bank Charter Act of 1844 (Peel Banking Act). This Act established a direct relationship between the gold reserves in the Bank of England and the quantity of banknotes that could be issued by it. With the gold drain resulting from international trade, "fear of exhaustion of the Bank's reserve added monetary panic to the 1847-8 crisis" (MARX, 1991, p. 550). While this

Act was in force, the Bank Department of the Bank of England was about to go bankrupt during the crisis. With its suspension, the Bank no longer had this quantitative restriction to issue banknotes, as Engels affirms: “It was now able to put its supply of banknotes into circulation without any obstacle; and since the credit of these banknotes was actually guaranteed by the credit of the nation, and thus unimpaired, the monetary tightness was decisively eased.” (MARX, 1991, p. 535).

The consequences of the crisis for capitals involved in the system of speculative loans and discounts of bills of exchange related to commerce with India and China were drastic. The high interest rates and the restriction of the Bank of England made the act of discounting bills hard and costly. At the same time, there was overproduction and overstock in markets, which led to a price drop of commodities and the impossibility of paying the bills. Answering a question at the parliamentary commission, Mr. Lister, Director of the Union Bank of Liverpool, explains what happened in commerce:

> “They were bills upon all kinds of produce, corn and cotton and sugar, all foreign produce of all descriptions. There was scarcely any thing perhaps with the exception of oil, that did not go down. [...] It arose from a very large import, and there not being an equal consumption to take it off.” (MARX, 1991, p. 541).

There was reciprocal saturation in both markets. Not only England was flooded by commodities coming from Asia, through import schemes as the one explained before, but also Asia was flooded by English commodities (MARX, 1991, p. 542). Therefore, “one major cause of the 1847 crisis was the colossal saturation of the market and the boundless fraud in the East Indian trade.” (MARX, 1991, p. 618).

On the other hand, the crisis impacted capitals involved in speculation in railway stocks, once they depended on bank credit, which stalled immediately. One of the reasons for the credit scarcity in this case was the price drop in railway stocks, which was an important component of the bank capital, because firms were taking loans secured by these stocks. With this, potential money-capital that belonged to the bank decreased and, consequentially, the loan money-capital supply. Thus, as if the gold drain wasn’t enough to impact the banks’ reserves, this was also an important factor for the credit restriction.[28]

[28] A document published by the House of Lords informs about the price drop of bonds in the 1847 crisis. The railway stocks had a total loss of 19.57 million pounds in their market price and public debt bonds had a reduction of 93.8 million pounds. (MARX, 1991, p. 536).

In short, speculation related to bills of exchange, loans for international trade, and railway stocks can be attributed as the main causes of the 1847 crisis. However, all of these factors are motivated by the easy and cheap credit existing in the prosperity phase of the cycle. As a consequence of this credit, crisis and overproduction occur, manifesting themselves in the form of a money crisis, in which demand for means of payment increases at the same time that money hoarding and bank credit scarcity are also predominant. The reports and statements on the 1847 crisis are coherent with Marx's theory of the industrial cycles and with the relationship between credit, overproduction, and crisis.

After the most critical phase in 1847, began a period of stagnation, the first phase of a new industrial cycle. In the English case, this new cycle would end up in the 1857 crisis. Marx's comments about this cycle are scarce, but it is possible to summarize some relevant aspects. After the most intense period of the crisis, there were still some bankruptcies of firms in irreparable situation and production fell considerably: "after the crisis of 1847, production in the English industrial districts was cut by a third" (MARX, 1991, p. 616). In the stagnation phase, "there was a limitation of transactions and a great superabundance of money" (MARX, 1991, p. 616). Interest rate fell to 5% in December 1847, and business stability returned in 1848-9. "The rate of interest was very low on account of the 'almost perfect destruction of commerce and the almost total want of means of employing money" (MARX, 1991, p. 617).

The prosperity phase of this cycle began in 1850 and is characterized by Engels as "a previously unheard-of industrial prosperity" (MARX, 1991, p. 535). The causes of this prosperity and the main forms of speculation that occurred during the cycle, however, are not pointed out. Marx just comments, ridiculing the naivety of bankers, about how credit is capable of sustaining fictitious returns even when the conditions for a crisis are already given by overproduction:

> […] bank directors, merchants, in short a whole series of experts summoned to give evidence, with Lord Overstone at their head, all congratulated one another on the blooming and healthy state of business - just one month before the crisis broke out in August 1857 (MARX, 1991, p. 616).

This crisis also presented an outbreak in international trade, this time in the commerce between England and the United States (MARX, 1991 p. 623). The result is the same as pointed out before: money crisis, with high demand for means of payment and money scarcity. Lastly, it is needed to consider that, in the 1857 crisis, it was also necessary to suspend the Bank Charter Act 1844, once there was a small number of big banks that were threatening to take their gold reserves out of the Bank of England. In this case, the banking department of the Bank of England would have gone bankrupt. Thus, on November 12th 1857, the Bank Act was again suspended.

5 Conclusion

This paper had the goal of presenting a systematic approach to Marx's industrial cycles theory, characterizing each stage of the cycle and presenting the existing relations between the credit system and the accumulation of industrial capital. To do that, we have presented, first, the determinants of money in Marx's monetary theory, intending to introduce the basic theoretical elements to comprehend the dynamic of the industrial cycles described by Marx. Secondly, we have presented a systematization, based on Part V of Volume III of Capital (MARX, 1991), reorganizing the arguments there presented to rebuild this part of his theory, which is still nowadays very little explored and debated in Marxist literature. Lastly, we have presented the historical experience of England analyzed by Marx, mainly the 1847 English crisis, to describe each phase of the industrial cycle that resulted in this crisis and to understand the relations between credit, speculation, overproduction, and crisis in this specific historical case.

The industrial cycle described by Marx is not only a theory of endogenous business cycles, but a theory of credit-driven overaccumulation crisis, and a theory of endogenous financial fragility similar to Minsky's (2008). The credit system leads to cycles in the interest rate, explained by the relative supply and demand for loan money-capital, that generate periods of higher or lower profits of enterprise, leading to different paces of capital accumulation at each stage. At a certain point, the overproduction and speculation stage, industrial capital accumulation becomes too strongly backed by credit, relying on it to support accumulation levels above those that could be sustained without it, leading to overaccumulation of real capital (in commodity or productive forms) and accumulation of debts that become unbearable at the crisis stage, as soon as the fragility of the credit system turns into credit restriction and scarcity and the profit of enterprise becomes too small.

Marx's description of the cycle has the following phases: stagnation, stability, prosperity, speculation/overproduction, and crisis. It could be summarized as follows: in the stagnation phase, which is the phase that follows the former cycle, there is a stoppage in industrial capital's circulation, excessive available money-capital, and low demand for commercial and bank credit, being the interest rate at its lowest observed level during the cycle. In the stability phase, there is a gradual recovery of business, driven by the higher profit of enterprise resulting from the low interest rate. With this, commercial credit gradually expands. However, bank credit is still not in high demand, causing a gradual increase in the interest rate, but still below the average level of the cycle, which is only reached at the prosperity phase, when there is expansion of industrial capital and commercial and bank credit. In the speculation and overproduction phase, capitalist reproduction is no longer based on the realization of commodities, but on credit, gradually moving beyond its limits. Industrial and commercial capitals are ever more dependent on credit for their accumulation and reproduction, mainly discount of bills of exchange and loans, speculating with the future capacity of realization of the produced commodities. In Marx's description, the crisis phase begins with the outflow of international reserves, being a result of the need to pay for the international debts of commerce, which shakes the credit system and starts a bank credit restriction. Consequently, the demand for loan money-capital in its function of means of payment greatly increases, given the capitalist's need to pay for debts coming to maturity, which causes the interest rate to reach its peak during the cycle and the crisis to erupt.

This systematic presentation shows how there is in Marx, undeniably, a theorization regarding endogenous crises of overaccumulation driven by the credit system, in which there is a periodic generation of overproduction and financial panic, with a run to the means of payments, credit restriction by the bank capital and insolvency for the payment of debts related to the capitalist reproduction. Once the relevance of this theoretical conception is verified, it is of high necessity to incorporate it into the theoretical Marxist debates on the causes of crises in capitalist economies, and to deepen this theoretical approach, incorporating into it the contemporaneous development of the international credit and financial systems in advanced capitalism.

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