Marxian and post-Keynesian theories of finance and the business cycle

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1. Introduction

The end of the economic expansion that began in the US and the other advanced capitalist countries in the early 1990s presents an opportune moment to review Marxian theories of the business cycle. Much of the orthodox discussion about whether the end of the expansion would lead to a recession is informed by a neo-classical approach to economics, which conceives of recessions as the result of 'shocks' or 'disturbances' which lead an economy to deviate from a normal path of steady growth. By contrast, the Marxian approach sees the business cycles as an intrinsic feature of the way that growth occurs in a capitalist economy. According to this view, economic expansion occurs in protracted spurts which lead to an accumulation of tensions, and a downturn in the business cycle is seen as the mechanism by which such tensions are eliminated, thereby creating the basis for a new period of growth.

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Marx himself was, of course, one of the first people to recognise the existence of business cycles.[2] However, as has often been pointed out, there is no place in which he set out all the different elements of his approach in a consistent form. Since Marx's time, the Marxian theory of the business cycle has generated an enormous literature, and this received a fresh impetus in the early 1970s when the lengthy period of relatively sustained accumulation which had begun after the second world war came to an end. However, much of this literature has been marked by taking just one aspect of Marx's approach, and presenting it as the over-arching explanation for business cycles. Furthermore, relatively little attention has been paid to the financial aspects of the business cycle, even though Marx's own approach involved an interaction of real and financial factors. Indeed, because the downturn in a business cycle was usually associated with a dramatic monetary and financial crisis in Marx's time, he sometimes used the term 'crisis cycle', or even just 'crisis' when he was referring to the analysis of the business cycle.[3]

The aim of this paper is, first, to outline the basis of Marx's approach to the business cycle, and then to look at how more recent authors have attempted to use and develop this approach to understand the modern business cycle. Marx's approach to business cycles can be viewed as consisting of three stages. The first of these is concerned to demonstrate that crisis are a possibility in a monetary or (as Marx usually called it) a commodity economy. This is considered in section 2.

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[2] On the development of Marx's theory of business cycles, see Ernest Mandel, *The Formation of the Economic Thought of Karl Marx*, New Left Books, London 1971, pp. 67-78. Marx's pioneering role in business-cycle analysis was recognised by Joseph Schumpter, who wrote of *Capital:* 'We find practically all the elements that ever entered into any serious analysis of business cycles, and on the whole with very little error.' (Joseph Schumpter, *Capitalism, Socialism and Democracy,* New York, 1963, p. 40). The absence of any reference to Marx is a striking absence from the wide-ranging survey article by Victor Zarnovitz, 'Recent work on the business cycle in historical perspective', *Journal of Economic Literature,* vol. 23, pp. 532-580.

[3] After observing that the dramatic political events of 1848 had followed close on the heel of the economic crisis that broke in 1847, Marx for a time also believed that there was a close link between revolution and crises. However, when the next major world crisis in 1857 failed to lead to the type of political response that Marx had anticipated, he revised his position, and shifted toward a notion of economic crises as a one phase in a recurrent cyclical process of accumulation. For a detailed account of Marx's notion of crisis, and how it shifted, see Michael Heinrich, 'Gibt es eine Marxsche Krisentheorie? Die Entwicklung der Semantik von "Krise" in Marx' Entwürfen einer Kritik der politischen Ökonomie', *Beiträge zur Marx-Engels Forschung. Neue Folge,* Hamburg, 1995, pp. 130-150. Heinrich draws substantially on a new German edition of *Capital,* vol. 3, the rough manuscript of which was originally composed by Marx in 1863-65, and has previously only been available in the version edited by Engels.

The second stage is found in the course of Marx's analysis of production and circulation in a capitalist economy. Having demonstrated that a commodity economy involves the possibility of crises, Marx argues that in a capitalist commodity economy periods of profitable accumulation *necessarily* tend to undermine profitability, and that this blunts both the desire and the ability of capitalist enterprises to promote further accumulation. The different factors that Marx mentions in this connection, together with more recent interpretations by other Marxist writers, are reviewed in section 3.

The third and final stage of Marx's approach is concerned with why a decline in profitability should lead not merely to a slowdown in accumulation, but to a period in which economic activity contracts. The answer has to do with the operation of the capitalist financial system, and the way this interacts with industrial and commercial capital. In order to understand this, it is necessary, first, to analyse the credit system and how the rate of interest is determined, and this is the subject of section 4. It is then necessary to examine how the availability of credit and the rate of interest impinge on the process of accumulation, and this is considered in section 5.

Marx's analysis of the financial system attaches considerable importance to institutional structures, and these have obviously changed considerably since his day. For this reason, the last part also draws on the work of recent post-Keynesian writers, who have developed illuminating insights into the way that contemporary monetary and financial systems function in the advanced capitalist countries.[4] However, as is stressed in the conclusion, by explaining business cycles predominantly in terms of financial instability, post-Keynesians imply that, if such instabilities could be eliminated, it would by possible to overcome the cyclical nature of growth. By contrast, the Marxian approach argues that the business cycle is the result of the interaction of real and financial factors, and that while it might be possible to modify or even ameliorate the business cycle, it can never be completely eliminated.

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[4] Much of Marx's analysis of monetary and financial issues is based on the work of Thomas Tooke and John Fullarton,, two of the leading representatives of the so-called banking school, who might be regarded as precursors of today's post-Keynesians. The banking school, like Marx and Keynes, rejected the quantity theory of money, espoused at the time by the currency school, and more recently by Friedman and other neo-classical economists.

2. Money and the possibility of crisis

The first steps in Marx's analysis of crises and the business cycle are established within the framework of a simple commodity economy.[5] Marx first argues that a commodity economy is necessarily a monetary economy, and then points out that that after a commodity has been exchanged for money, the money that is received might not be used to purchase another commodity, or at least not immediately.[6] This idea that money might be withdrawn from circulation involves money's function as a store of value. Marx refers to this as the abstract possibility of crisis, and it is the basis of his criticism of Say's Law.[7]

A further element of Marx's theory of the business cycle which is established at this stage concerns transactions in which commodities are exchanged not for money, but for a promise or contract to pay at a future date.[8] Money comes into play here when the contract comes to be settled, and it involves money's function as a means of payment. The introduction of contractual payments of this type can give rise to two possible consequences. First, if prices or values should decline before a contract has elapsed, the debtor might be unable to raise the amount of money required to settle the contract. Second, where a contract is only one of an interlinked series of contracts, then a failure to pay by one debtor could spread rapidly, and this could give rise to forced sales of commodities, as debtors strive to obtain the money they need to meet their obligations. This is a second form of abstract possibility of crisis, and it

[5] Marx's notion of a simple commodity economy involves independent producers using their own labour to produce commodities for exchange, but abstracting from capitalist firms employing waged workers. Marxists differ on whether such an economy existed historically prior to capitalism, or whether it is only a theoretical construct.

[6] For an analysis of the importance of money in Marx's analysis of capitalism see Trevor Evans, 'Marxian theories of credit money and capital', *International Journal of Political Economy*, vol. 27, no. 1, Spring 1997, pp. 7-42.

[7] *Capital*, vol. 1, pp. 207-9. Page references to *Capital* refer to the Penguin/NLR edition, Harmondsworth, 1976-1981.

[8] This element is stressed by James Crotty, 'The Centrality of Money, Credit and Financial Intermediation in Marx's Crisis Theory', in Stephen Resnick and Richard Wolff (eds.), *Rethinking Marxism*, Autonomedia, New York, 1985.

introduces the idea that difficulties which arise in one set of transactions could rapidly be transmitted to other parts of an economy.[9]

Having established why it is that crises are possible in a monetary economy, Marx than proceeds to show why he considers them to be a necessary result of production and exchange in a capitalist economy.

3. The falling rate of profit

The basis of the Marxian analysis of the business cycle is that periods of capitalist expansion necessarily lead to a fall in the rate of profit, and that this reduces both the desire and the ability of capitalist enterprises to accumulate. There are, however, a number of different explanations of why exactly this occurs, and these can be grouped in three main headings, as follows.[10]

One of the most widely discussed approaches is that known as the *profit squeeze* position. This is based on the analysis of accumulation in the first volume of *Capital,* where Marx argues that capitalist firms are forced by competition to invest at least part of their profits in order to expand the scale of their operations and so reduce their unit costs of production.[11] To a greater or lesser extent, depending on the degree of mechanisation, however, accumulation involves an increase in the number of workers that are employed, and therefore a decline in the number who are unemployed. This decline in the number of unemployed strengthens the bargaining position of workers, and makes it more possible for them to push up their wages, thereby reducing the amount of value added going to profits. The consequence of such a 'squeeze' on profits is to undermine both the eagerness and the ability of firms to accumulate any further, thereby bringing a period of expansion to an end. A corollary of this position is

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[9] Marx's fullest discussion of this is in *Theories of Surplus Value,* part 2, Lawrence and Wishart, London, 1969, p. 514.

[10] There are a number of survey articles which discuss these different theoretical approaches in greater depth. See for example: Erik Olin Wright, 'Alternative Perspectives in the Marxist Theory of Accumulation and Crisis', *The Insurgent Sociologist,* Vol. 6, No, 1, Fall, 1975, pp. 5-40; Anwar Shaikh, 'An Introduction to the History of Crisis Theories', in *US Capitalism in Crisis,* The Union for Radical Political Economics, New York, 1978, pp. 219-241; Thomas E. Weisskopf, 'Marxist Perspectives on Cyclical Crises', *US Capitalism in Crisis,* pp. 241-260; Ben Fine and Laurence Harris, *Rereading Capital,* Macmillan, London, 1979, pp. 58-89.

[11] See *Capital,* vol. 1, chapter 25, especially section 1.

that a recession, by leading to layoffs and closures, increases unemployment, and helps employers to raise profits at the expense of wages, thereby laying the foundation for a new phase of accumulation.

In the literature that has been published since the early 1970s, it is mainly in the more empirically oriented contributions that the profit squeeze position has been put forward as the main cause of crises. Some of the earliest of these studies were concerned to establish that corporate profitability had indeed fallen sharply, and the profit squeeze argument was put forward to explain this, without going into alternative Marxist explanations.[12] There are also some later contributions which consider several of the different Marxist explanations, but which then conclude on the basis of empirical evidence that the profit squeeze version is the most significant in explaining falling profitability.[13]

The profit squeeze position has, however, been criticised. It is said that while it is couched in terms of class divisions, the analysis is confined to the issue of distribution, and a Marxist analysis should give primacy to contradictions that arise in the sphere of production.[14] The importance of wage pressure in explaining capitalist cycles is also played down by referring to a theoretical argument of Marx to the effect that in the relation between accumulation and wages, it is accumulation that determines wages, and not the other way round.[15] At the same time, the results of the empirical studies have been challenged by arguing that there are significant differences between the empirical measures that are employed and the Marxian concepts which they are supposed to represent.[16]

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[12] For the UK, see Andrew Glyn and Bob Sutcliffe, *British Capitalism, Workers and the Profits Squeeze*, Penguin Books, Harmondsworth, 1972. For the US, see Radford Boddy and James Crotty, 'Class Conflict and Macro-Policy: The Political Business Cycle', *Review of Radical Political Economics*, vol. 7, no. 1, 1975.

[13] See Bob Rowthorn, *Capitalism, Conflict & Inflation*, Lawrence & Wishart, London, 1980, pp. 109-117; and Thomas E. Weisskopf, 'Marxian crisis theory and the rate of profit in the post-war US economy', *Cambridge Journal of Economics*, 1979, pp. 341-378.

[14] This argument is made strongly by David Yaffe, 'The Crisis of Profitability', *New Left Review*, no. 80, July-August 1973.

[15] See *Capital*, vol. 1, Penguin edition, Harmondsworth, 1976, p. 770: 'the rate of accumulation is the independent, not the dependent variable; the rate of wages is the dependent, not the independent variable'.

[16] The main points of contention are a failure to take account of the distinction between productive and unproductive labour, and the way that measures of the capital stock are used.

In addition to the basic form of the profit squeeze position, there are two other lines of argument which have some features in common with it. The most similar of these involves extending the analysis to include the prices of primary commodities, which are one of the main source of export earnings for many Third-World countries. If the process of accumulation results in the demand for primary commodities increasing more rapidly than their supply, then this will help to raise the price of those commodities, thereby resulting in a distributional shift that benefits third-world producers, but which squeezes the profits of firms in the advanced capitalist countries. Accumulation can then be seen as giving rise to a squeeze on profits as a result of strengthening the bargaining position, on the one hand of the working class in the advanced capitalist countries, and, on the other hand, of primary-commodity producers in the third world.[17]

The other position that shows some similarity with the profit squeeze analysis is also concerned with the way that accumulation strengthens the position of workers, but it focuses on the labour process, that is, on the sphere of production rather than that of distribution. This perspective emphasises that under capitalist social relations, the immediate process of production is the site of a constant struggle between capital and workers, as management seeks to impose capitalist discipline and to achieve the highest possible intensity of labour. After a period of accumulation based on a particular type of labour process, workers will feel surer of their position as a result of lower unemployment, and they will also have become familiar with the organisation of the labour process and therefore in a position to exploit any points of vulnerability so as to resist the demands of management, something which results in a lower intensity of labour. A lower intensity of work means that less value will be produced in a given period of time, and, supposing that wages are given, profits will decline. In this approach, periods of crisis or recession are seen as part of the mechanism by which capital seeks to re-establish its command over labour, an important aspect of which is the

[17] For an application of this approach to the decline in profitability in the late 1960s and early 1970s, see Tadao Kawakami, 'The Crisis of the Capitalist World: A Marxist View,' *Cambridge Journal of Economics*, 1979, pp. 189-202; Makoto Itoh, *Value and Crisis*, Pluto Press, London, 1980, pp. 150-165; and Bob Rowthorn, *Capitalism, Conflict and Inflation*, pp. 113-115.

restructuring of the labour process and the introduction of forms of new technology which give greater control over the process of production to capitalist management.[18]

A second broad line of argument in the Marxian debate about crises is usually known as the *underconsumptionist* position. Marx initially analyses capitalist production as if firms will automatically be able both to buy the inputs they require and to sell their finished products. In the second volume of *Capital,* Marx turned his attention to the complexities of capitalist circulation, a process which involves the intertwining of different capitals through the dual flow of commodities and money. Marx proceeded by considering the simplest possible framework within which it is possible to pose the issue of circulation, a model with two departments, where the first produced means of production, and the second, means of consumption. This is the basis of Marx's famous reproduction schema, and he used these to show how economic reproduction required that certain proportions were maintained between the two departments, both in terms of use values and of money.[19]

The reproduction schema pose the issue of where the demand arises which provides the means of realising the value and surplus value that—potentially—has been created in the process of production. The crux of the underconsumptionist position is that it looks upon reproduction as being limited by the final demand for means of consumption. Workers wages are considered to provide the purchasing power which realises the value of one part of the total social product, but there then remains the issue of how the remaining part of the value that has been created, that corresponding to surplus value, is to be realised. Investment in expanding the scale of production is recognised as one means of achieving this, but, because of the restricted consumption of the working class, it is argued that this doesn't make much

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[18] This perspective was most developed by Marxists in Italy. Some of their contributions are translated in the Conference of Socialist Economists Pamphlet No. 1, *The Labour Process and Class Strategies,* Stage 1, London, 1976. The main English language work on the capitalist labour process is Harry Braverman, *Labor and Monopoly Capital,* Monthly Review Press, New York and London, 1974. This is a major work of Marxist scholarship, but, unlike the Italian literature, it looks upon workers basically as the passive respondents of strategies initiated by capitalist management.

[19] The key requirement in this two sector approach, is that the personal consumption of workers and capitalists in the department producing means of production should balance the requirements for means of production in the department producing means of consumption. For a sophisticated elaboration of the Marxian reproduction schema using matrix algebra, see Shinzaburo Koshimura, *The Theory of Capital Reproduction and Accumulation*, DPG, Ontario, 1975.

sense beyond a quite limited point. The underconsumptionist position therefore hinges on the impossibility of realising all the surplus value that is produced.

One of the most distinguished proponents of this position is Rosa Luxemburg, who linked the problem of realising surplus value with a vivid analysis of capitalism's rapacious colonial expansion.[20] However, despite the praise which has been accorded to Luxemburg's concrete analysis of imperialism, her theory of underconsumption has been subject to considerable criticism. The most serious point that is made against her is that she confuses levels of analysis, and that while, at the level of a two sector reproduction scheme, it might appear implausible that different capitals could realise each other's surplus value, this is not the case when one moves to the more concrete level of analysis embodying many individual capitals in competition.[21]

Luxemburg's analysis is primarily concerned with a long-term tendency for capitalism to stagnate, rather than with the shorter-term dynamics of the business cycle. This is also true of more recent writings based on an underconsumptionist perspective, such as the influential analysis of post-war US capitalism developed by Paul Baran and Paul Sweezy in the 1960s.[22] However, perhaps prompted in part by the influence of Keynes' ideas, some Marxian writers have drawn on an underconsumptionist perspective to analyse the business cycle. One approach along these lines is based on the claim that, at the beginning of a cyclical upturn, profits rise far more rapidly than wages, and it is argued that this leads to a problem of realisation since it is wages that are the main source of final demand for consumption goods. A decline in demand, it is said, will result in a decline in capacity utilisation, and, given a high level of fixed costs, this will lead to higher unit costs and, consequently, a lower rate of profit.[23]

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[20] Rosa Luxemburg, *The Accumulation of Capital*, Routledge and Kegan Paul, London, 1963.

[21] See Roman Rosdolsky, *The Making of Marx's Capital*, Pluto, London, 1980, pp. 63-72.

[22] Paul A. Baran and Paul M. Sweezy, *Monopoly Capital, An Essay on the American Economic and Social Order*, Monthly Review Press, New York, 1966.

[23] See Howard Sherman, 'A Marxist Theory of the Business Cycle', *Review of Radical Political Economy*, vol. 11, no. 1, Spring 1979.

A short-run version of the underconsumptionist analysis is open to the same basic objection that has already been referred to in relation to the long-term version above. Underlying this objection is the view that capitalism is not driven by the satisfaction of consumer demand, but rather by the constant pressure to accumulate. The importance of Marx's reproduction schema, however, is that they demonstrate that there is no *necessary* problem of underconsumption, and that, at least in theory, the process of accumulation can ensure that all the surplus value that has been produced can be realised. Nevertheless, by introducing the notion of effective demand, the analysis of reproduction highlights the fact that the process of realisation is not assured, and that it is sometimes not possible to realise all the value that has been produced.

Marx raises at least two important reasons why realisation might be a problem. One of these is that capitalism involves a constant tendency to cheapen commodities, and that if values have fallen in the interval between production and realisation, it might not be possible to realise their original value. Indeed, crises are seen as one of the mechanisms by which market prices are adjusted to new, lower values.

The second reason why realisation might be problematic—and something that is related to the first reason—is that the renewal of fixed capital is a discontinuous process. Firms do not usually spend that part of their income which corresponds to depreciation gradually, as it accrues; rather, they build up such funds over a period of time, and then throw it into circulation all at once. While the credit system socialises this process to some extent, making unspent depreciation funds available to firms that do wish to invest, Marx believed that there is a link between the renewal of fixed capital and the business cycle. Firms are most likely to invest in new fixed capital when the prospects for an upturn appear strong, and least likely to invest at the end of an upturn, when markets appear saturated, or during the downturn which follows.[24] More than this, however, Marx believed that there was a link between the duration of the business cycle and the economic life of fixed capital, that is the length of time before which it was either physically exhausted, or more significantly, before which technological

[24] This factor is the basis of the theory of the business cycle elaborated by Michael Kalecki (see 'A theory of the business cycle', in Jerzy Osiatynski (ed.), *Collected Works of Michal Kalecki,* vol. 1, Clarenden Press, Oxford, 1990, pp. 298-318).

development and changes in productivity had made it obsolete.[25] Following along this line of argument, crises are seen as a mechanism which forces firms to scrap existing fixed capital, and to adopt new techniques which enable the costs of production to be reduced.

A third broad line of approach in the Marxian debate is that associated with the *tendency of the rate of profit to fall.* This is presented in the third volume of *Capital,* which combines the analysis of capitalist production and capitalist circulation, and incorporates the existence of many individual capitals in competition. The basis of this position is that competition forces capitalist firms to invest in plant and equipment so as to raise productivity and reduce their costs of production. This means that as accumulation proceeds, the proportion of capital which is advanced for the elements of constant capital (plant, equipment, raw materials) tends to rise, and the proportion advanced to employ living labour tends to fall. Marx refers to this as a tendency for the organic composition of capital to rise, where organic composition is his term for the ratio of constant capital to variable capital. Since, in Marx's theory, it is living labour that produces surplus value, the source of profit, and if, as a result of accumulation, the total capital invested increases more rapidly than the employment of living labour, there will be a tendency for the rate of profit to fall.[26]

Marx clearly considered this tendency to be a major contradiction for capitalist production. Nevertheless, his analysis of it is immediately followed by a discussion of what he calls the counter-tendencies to which accumulation also gives rise. Marx refers to a number of counter-tendencies, but the one that is of greatest significance is that the same process which lies at the root of the tendency—the pressure from competition to reduce the costs of production—also has an impact on the cost of producing means of production. Consequently, while the production process might involve an increasing mass of means of production per worker, a cheapening in the cost of producing means of production could mean that, in terms of value,

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[25] See, for example, *Capital,* vol. 2, p. 264. This feature of Marx's analysis is particularly stressed by Ernest Mandel. In *Late Capitalism,* he links the accelerating pace of technological innovation after the second world war to a shortening in the duration of the business cycle.

[26] See *Capital,* vol. 3, chapter 13.

the ratio of constant capital (means of production) to variable capital (living labour) does not increase, or at least not by as much.[27]

A number of recent writers have argued forcefully that the tendency of the rate of profit to fall is the key to explaining capitalist crises.[28] However, this position has been questioned by writers who argue that, at a theoretical level, there is no reason why the tendency should necessarily prevail over the counter-tendency. It has also been argued that empirically, data for capital/output ratios indicate that there has not been a tendency for the organic composition of capital to rise.[29] One response to the theoretical objection, has been to try and show, with the aid of algebra, that mechanisation will necessarily result in a lower rate of profit, even after allowing for a cheapening in the cost of producing means of production.[30] The empirical criticism has also been challenged on the grounds that the capital/output ratio does not correspond to the Marxian concept of the organic composition of capital.[31] A rather different response has been effectively to side-step the quantitative dimension of the debate, and to argue that the tendency and the counter-tendency refer to two, qualitatively distinct, types of social process, and that it is the contradictory tensions provoked by these two processes, not their net quantitative impact, that periodically disrupts economic reproduction.[32]

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[27] See *Capital,* vol. 3, chapters 14 and 15. Ben Fine and Laurence Harris argue that Marx's concept of the value composition of capital refers to the ratio of the value of constant capital to variable capital after allowing for changes in the value of means of production resulting for increasing productivity. (*Rereading Capital,* pp. 59-61)

[28] See Paul Mattick, *Marx and Keynes,* Merlin Press, London, 1971; David Yaffe, 'The Marxian Theory of Crisis, Capital and the State', *Economy & Society,* vol. 2, no. 2, 1973. These writers are primarily concerned with longer-term trends. For a discussion of how this perspective might be applied to the shorter-term business cycle, see Weisskopf, 'Marxist Perspectives', pp. 245-246.

[29] This argument is made in relation to Britain by Bob Rowthorn, *Capitalism, Conflict and Inflation,* pp. 102-106.

[30] See Anwar Shaikh, 'Political Economy and Capitalism: Notes on Dobb's Theory of Crisis', *Cambridge Journal of Economics,* June 1978.

[31] See Ernest Mandel, Introduction, *Capital,* vol. 3, pp. 36-38. The main points are that constant capital is mistakenly identified with fixed capital, thereby overlooking the importance of raw material costs; the need to take account of the total investment in constant capital (a stock), and not just the part of the value transferred to the commodity (a flow); and that using the total wage bill as a measure of variable capital fails to take account of the growing importance of unproductive labour, which is paid, at least in part, out of surplus value.

[32] See Fine and Harris, *Rereading Capital,* pp. 82-3.

The writers who argue that the tendency of the rate of profit to fall is the key factor in explaining the business cycle frequently stress statements by Marx to the effect that it is capital itself which is the barrier to capitalist expansion. According to this view, a crisis is the result of an over-accumulation of capital, that is, that too much capital has been accumulated in relation to the amount of surplus value which can be generated.[33] One of the functions that a crisis is seen to achieve is that, by leading to bankruptcies or the premature obsolescence of some of the components of fixed capital, it effects a partial writing-off, or devaluation, of capital. This contributes to laying the basis for a new period of accumulation, because, by reducing the amount of capital over which a given amount of surplus value has to be distributed, it helps to raise the rate of profit.[34]

In addition to the three approaches to the business cycle that have been outlined, there is one further line of argument, known as the *disproportionality* position, and it is mentioned here last, because although it is sometimes held to be a separate approach, in fact, it is usually linked to one of the three positions already mentioned.[35] The proportionality in question refers to the reproduction schema, and the problem of maintaining a viable balance between the main branches of the economy as they expand at different rates. Hilferding is sometimes said to have held a disproportionality position because, first, he presents disproportions as the immediate cause of a crisis, and, second, in places he gives the impression that it is only the anarchy of the market which leads to the emergence of such disproportions. For example, while speculating on the implications of a single cartel embracing a whole capitalist economy, he appears to suggest that, were the allocation of resources organised across a whole economy, it would be possible to maintain the correct proportions between the main branches, thereby eliminating the possibility of crises.[36] But if Hilferding does tend towards such a

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[33] Note, however, that Makoto Itoh also refers to his variant of the profit-squeeze argument as an over-accumulation analysis, by which he means an over-accumulation of capital in relation to the supply of labour power.

[34] See *Capital*, vol. 3, pp. 362-3.

[35] For a different view see Makoto Itoh and Costas Lapivitsas, *Political Economy of Money and Finance,* Macmillan, 1999, chapter 6. They argue that there are four different views of crisis, which can be classed in two groups. One group consists of excess supply theories, and includes the underconsumptionist and disproportionality approaches; the other group comprises excess capital (or overaccumulation) theories, and includes explanations based on the tendency of the rate of profit to fall as a result of a rising organic composition of capital and the wage squeeze (labour shortage) approach.

[36] Hilferding, *Finance Capital,* p. 297.

position in some places, it is also true that in other places, he states that disproportions do not arise simply from the accidental mismatch of commodity circulation, but rather from tendencies associated with specifically capitalist production, of which he mentions, amongst other factors, a rising organic composition of capital.[37]

Each of the three main approaches that have been outlined has been advanced as an exclusive explanation of the cause of capitalist crises. There have, however, also been important contributions to the debate which, in different ways, have sought to combine more than one position. One, rather formal, approach has been presented by Ben Fine and Laurence Harris, who argue that the various positions refer to different theoretical levels of abstraction, some of which refer to underlying causes and others to forms of appearance. According to them, each of the main approaches constitute partial explanations which must be combined in order to grasp the complex structure of reality as a whole. They consider that the underlying cause of crises is to be found in the contradictions that arise *between* the factors which result in the tendency of the rate of profit to fall and those which result in the counter-tendencies; by contrast, the ability of workers to push up their wages in the later stages of an upturn, and the problems of realisation which result in unsold commodities are not underlying causes, but rather forms in which the underlying contradictions appear.[38]

A slightly different approach has been to elaborate a stylised account of a complete cycle in which a number of the factors outlined above are seen to come into play at successive moments. Two of the most developed approaches along these lines are those by Hilferding and Mandel. Hilferding, as mentioned above, states that the underlying cause of crisis is the tendency of the rate of profit to fall. However, his account of the business cycle is most distinguished by the sophisticated way in which he attempts to show how, as accumulation proceeds in the course of an upturn, changes in the level of prices and in turnover times lead to an over-accumulation of capital in department one, which result in the development of disproportions and, eventually, a slump in sales. For Hilferding, the changes in prices involve

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[37] See, for example, *Finance Capital*, pp. 257, 260-261, 263.

[38] Fine and Harris, *Rereading Capital*, pp. 80-89.

both the deviation of market prices from prices of production, and the ability of workers to raise their wages above the value of labour power.[39]

Ernest Mandel has frequently criticised what he calls monocausal explanations of crisis, and, perhaps more than any other recent Marxist, he has attempted to elaborate accounts of the operation of the business cycle which incorporate features from more than one of the positions outlined above. However, despite his plea for multicausal explanations, Mandel does usually place particular emphasis on the tendency of the rate of profit to fall. Nevertheless, he also stresses that capitalist reproduction can only proceed under the dual conditions that surplus value is both produced and realised, and that the need to fulfil both conditions explains why a crisis cannot be avoided simply either by cutting or by raising wages.[40]

The need to achieve a viable balance between the production and realisation of surplus value is also an important feature of the rather different type of approach developed by the French Regulation school. Michel Aglietta's analysis of the business cycle is based on the tendency of the rate of profit to fall, but, in some respects like Fine and Harris, he insists that this is not simply an issue of a tendency being quantitatively larger than a counter-tendency. Rather he argues that it concerns the contradictory forces which arise from a single social process—the production of relative surplus value—and the need to maintain certain dynamic balances, including the extension of the wage relation, and proportions between the two main departments which permit the newly created value to be realised.[41] However, while Aglietta's general analysis involves a complex combination of factors, he tends to focus on one

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[39] *Finance Capital,* pp. 257-266. Hilferding's analysis is also interesting for considering how the emergence of large-scale units of capital—'monopolies'—could led to a more moderate business cycle. He argued that since large firms could shift part of the cost onto smaller firms, they would not be forced to cut back their own operations as much as might have been the case, and that their continued demand for labour and other inputs could ameliorate—though not eliminate—the sharp slumps that had characterised earlier crises. (*Finance Capital,* pp. 288-298)

[40] Ernest Mandel, *Marxist Economic Theory,* London, 1968, chapter 11; *Late Capitalism,* New Left Books, London, 1975, chapter 14; *The Second Slump,* New Left Books, London, 1978, pp. 165-180; *Cash, Crash and Crisis,* Rasch and Röhring, Hamburg, 1989, pp. 61-78.

[41] Aglietta, *Theory of Capitalist Regulation,* pp. 353-356. One of Aglietta's theoretical innovations, which he relates to changes in the amplitude and periodicity of the business cycle, concerns the way that the depreciation of fixed capital has been transformed, from something that occurs in concentrated periods during a slump, to an ongoing process effected by means of permanent obsolescence (pp. 106-108).

particular factor when it comes to explaining specific periods of crisis. Thus, he considers that the 1929 crisis was primarily due to problems of realisation which resulted from a failure to develop forms of mass consumption that were commensurate with the enormous transformation of production which had occurred with the widespread introduction of Fordist techniques of mass-production in the 1920s. By contrast, he considers that the fall in the rate of profit which culminated in the 1974 crises was primarily due to factors associated with the process of production and the generation of surplus value. A similar type of approach has been adopted to different phases of the current crisis by Alain Lipietz. He too argues that the period of crisis which begun with the recession of 1974-75 was caused by factors associated with the process of production. However, he believes that the recession of 1980-82 led to a thoroughgoing restructuring of production, and that the relatively slow growth of important parts of the capitalist world economy in the upturn which began in 1983 is to be explained primarily in terms of a lack of demand, whether from the debt-strapped condition of the Third World, or the fiscal conservatism of Western Europe.[42]

A very different approach to some of these issues has recently been put forward by Robert Brenner. He has developed an analysis of the end of the post-war boom that employs Marxist categories, but which, in contrast to the approach of all the other authors reviewed here, focuses on contradictions *between* different national economies.[43] Brenner is highly critical of explanations of the end of the post-war boom that employ arguments based on the ‘wage squeeze’ approach, which he argues cannot explain the simultaneous slowdown in accumulation in all the main capitalist economies. In Brenner’s view, the decline in the rate of profit in the advanced capitalist countries from the mid 1960s was principally due to US companies facing greater international competition, notably from Japan and West Germany, but that because of massive investments in fixed capital, corporations were reluctant to withdraw from overstocked branches of production, leading to widespread international over-capacity and lower rates of return. One of the innovative features of Brenner’s work is that he employs figures which distinguish between the rate of profit in branches producing

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[42] Alain Lipietz, ‘The Debt Problem, European Integration and the New Phase of World Crisis’, *New Left Review,* no. 178, November-December 1989.

[43] Robert Brenner, ‘The economics of global turbulence’, *New Left Review,* no. 229, May/June 1998; revised version published as *The Boom and the Bubble. The US in the World Economy,* London, 2002.

internationally traded and domestically traded commodities to support his argument.[44] He also attempts to incorporate the effect of changes in the exchange rate on the profitability of different nationally based capitals. In this way, for instance, he shows how the decline in the value of the dollar in the early 1990s contributed to the growth of exports and profitability of corporations based in the US in the early stages of the most recent period of expansion; by the same token, the rise in the value of the dollar from 1995, he argues, was one of the key factors in depressing US profits in the later part of the expansion.

Brenner's analysis has provided a focus for a great deal of recent discussion about the condition of the US and other advanced capitalist economies.[45] The theoretical focus of both Brenner's analysis and most of the subsequent discussion has, however, not concerned the business cycle, but rather longer-term considerations (in particular, why the post-war boom came to an end and whether conditions had been created by the 1990s for a new long period of more rapid accumulation in the US). Brenner's historical account of economic developments since the 1970s does, of course, incorporate the existence of the business cycle, but his approach is to explain each phase of expansion and recession in terms of specific conjunctural factors.

From this summary of the main positions that have been advanced by Marxist economists to explain the origins of the business cycle, it can be seen that, although there is disagreement about the exact cause, the advocates of all the main positions are agreed that periods of profitable accumulation result in the emergence of factors which tend to undermine the basis

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[44] Brenner's figures appear to show that the entire decline in rate of profit in the US is explainable by a decline in the rate of profit in the manufacturing sector, which would tend to led support to his overall argument (See, for example, *The Boom and the Bubble*, p. 20). However, a serious question mark over the validity of Brenner's interpretation has been raised by Gérard Duménil and Dominique Lévy. They present figures for the rate of profit in the US on an even more disaggregated basis than Brenner. Crucially, they show that the difference between the manufacturing and the non-manufacturing sector is explained by one particular sub-sector of industry, that they refer to as 'highly capital-intensive industries', which include mining, transport (notably railways) and public utilities. This sub-sector has a much higher capital-labour ratio than other sectors, and a much lower rate of profit. According to Duménil and Lévy, if this sub-sector is excluded, the rate of profit in the manufacturing sector evolves with a similar pattern to that in non-manufacturing. See 'Manufacturing and Global Turbulance. Brenner's Misinterpretation of Profit Rate Differentials', *Review of Radical Political Economics*, vol. 34, no. 1, 2002, pp. 45-48.

[45] For reviews see James Crotty, *Challenge*, May-June 1999, pp. 108-119; John Foster, *Monthly Review*, June 1999; Ben Fine, Costas Lapavitsas and Dimitris Milonakis, 'Addressing the World Economy: Two Steps Back', *Capital and Class*, no. 67, Summer 1998, pp. 47-90; and the collection of articles in *Historical Materialism*, no. 4, Summer 1999.

of that profitability. This is not considered to arise either from external disturbances or from incorrect policy decisions, but rather from the contradictions that arise within the process of capitalist reproduction. The next issue to consider is why a decline in profitability should lead, not simply to a slower period of accumulation, but to a sharp downturn in economic activity, a matter which concerns the operation of the financial system.

4. Credit and the rate of interest

For Marxian economics, the credit system is an essential feature of capitalist reproduction. Marx considered that the development of capitalist production would have remained stunted if it had not been for the availability of credit, and that the expansion of the credit system was, in turn, the result of the rapid growth of capitalist production. In short, there had been a symbiotic relationship between the development of capitalist production and capitalist finance. The role of the credit system is particularly important in relation to the business cycle, since it is responsible for facilitating the rising momentum which gathers pace in the course of an upturn, and, in conjunction with the development of the underlying contradictions discussed in the previous section, it is responsible for co-determining the timing of the downturn. The key link between the accumulation of industrial and commercial capital on the one hand, and the operation of the financial system on the other, is the availability of credit and the rate of interest.

In Marxian theory, unlike in neo-classical economics, the rate of interest is conceived of as something qualitatively distinct from the rate of profit.[46] Thus, while the rate of profit is considered to be determined by the amount of surplus value generated in the sphere of production, the rate of interest is seen as a monetary phenomena, which is determined by the forces of supply and demand in financial markets.

Marx established the basic principles of his approach by first considering a relatively simple model, in which some capitalists, rather than investing their money capital themselves, lend it

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[46] Marx's analysis is found in *Capital,* vol. 3, part 5; for an elaboration by Hilferding, see *Finance Capital,* chapters 5 and 6; for more recent interpretations see Laurence Harris, 'On Interest, Credit and Capital', *Economy and Society,* vol. 5, no. 2, 1976, pp. 145-77; Ben Fine, 'Banking Capital, and the Theory of Interest, *Science and Society,* vol. 49, no. 4, Winter 1985-86, pp. 387-413; and Carlo Panico, *Interest and Profit in the Theories of Value and Distribution,* Macmillan, London, 1988, chapter 2.

to other capitalists who employ it in either industry or commerce to produce a profit.[47] After making use of the capital, the industrial or commercial capitalist must repay the original sum together with a share of the profit, and it is this share of the profit which constitutes interest. Marx calls money capital which is lent in this way ‘interest-bearing capital’, and he refers to the capitalists who employ their capital in this way as ‘money capitalists’, although in modern language the term ‘financial capitalist’ would probably be more appropriate. For Marx, the category of interest is therefore bound up with the existence of a division within the capitalist class between, on the one hand, financial capitalists and, on the other, industrial and commercial capitalists.

Marx then proceeds to use this model of interest-bearing capital to analyse the determination of the rate of interest. In this analysis he distinguishes between two different rates of interest, the average rate and the market rate. The average rate refers to the average over a complete business cycle, and therefore concerns the level around which the market rate tends to fluctuate.

According to Marx, there are no underlying laws which determine the average rate of interest.[48] This is because what is at stake is how a given amount of profit comes to be divided between two groups of capitalists, an issue which pertains only to the sphere of circulation, and which is decided by the relative balance between the supply and demand for interest-bearing capital. However, since interest is paid out of profit, there are limits within which this process can operate. The lower limit is not specified by Marx—he actually says that there is no limit to how low it might fall, although logic suggests that no supply would forthcoming if it were not positive. The upper limit is given by the average rate of profit.[49]

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[47] *Capital*, vol. 3, chapter 21. Itoh and Lapavitsas argue (*Political Economy of Money and Finance*, chapter 3) that the idea of a capitalist who produces entirely on the basis of borrowed funds is unrealistic, and that it would be more fruitful to develop the analysis on the basis of the hoards of idle money (non-invested profits, depreciation funds etc.) that are formed in the course of the circuit of capital. My interpretation of Marx is that he introduces these funds at the subsequent, more concrete stage of his analysis, when he develops the notion of ‘loanable money capital’ (see below, page 22).

[48] *Capital,* vol. 3, pp. 484 - 488.

[49] More precisely, Marx says that the upper limit is the average rate of profit less a deduction to meet what he calls the wages of superintendence—a payment in respect of the management functions which the borrower has to exercise in order to generate a profit. In discussing the upper limit, Marx sometimes refers simply to the term

Furthermore, although Marx says there are no laws governing the average rate of interest, he does mention several factors that can influence it. Of particular contemporary relevance given the increasing integration of international capital markets are some brief references to the tendency for interest rates to be equalised internationally.[50] Another factor which crops up at a number of points is that institutional structures can affect the average rate of interest through their influence on the relative strength of the supply of money capital. The specific ways mentioned by Marx include, (1) the growth of a class of rentiers; (2) the development of financial institutions which are able to gather together the savings of other classes; and, somewhat later in his analysis, but of relevance here, (3) the operation of the 1844 Bank Act, which, by unnecessarily tying up reserves, led to interest rates that were higher than they might otherwise have been.[51] A final factor, which Marx touches on briefly, is that the idea of a customary rate can be of significance in determining the average rate of interest. The context in which Marx refers to this concerns the rate inherited from a pre-capitalist environment, but it is an indication that he considered convention could be a factor of some significance.

While Marx considers that there are no laws determining the average rate of interest, he contrasts this with the case of the market rate of interest.[52] Marx believed that the deviations of the market rate of interest around the average rate exhibited certain regular characteristics over the course of the business cycle. Marx's analysis of these movements draws on a distinction which plays a key part in his theory of money, the distinction between money as an expenditure of revenue, and money as a transfer of capital. The first, sometimes referred to as the money form of revenue, concerns expenditures to satisfy individual consumption, whether by workers or capitalists. The second, sometimes referred to as the money form of

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profit, as if it might be the relation between the *mass* of profit and the *mass* of interest which determines the limit; at other points, however, he appears to consider that it is the average *rate* of profit and the average *rate* of interest that are at issue. According to Ben Fine, it is the mass of interest that is conceptually most appropriate at this stage of the analysis ('Banking Capital', p. 403).

[50] *Capital,* vol. 3, pp. 480 and 490.

[51] *Capital,* vol. 3, pp. 483-484 and p. 546.

[52] See, for example *Capital,* vol. 3, p. 484 : 'The prevailing average rate of interest in a country, as distinct from the constantly fluctuating market rate, cannot be determined by any law.' What follows is based on pp. 482, 575 and 577 - 80.

capital, concerns a situation where the money is advanced as capital. According to Marx, the two forms of money are associated with pressures which pull the rate of interest in opposing directions over much of the business cycle, but that it is the money form of capital which has the stronger influence.

So far as expenditures of revenue were concerned, Marx—obviously thinking of the forms of money and credit in existence at the time when he was writing—believed that credit did not play a significant role. However, such expenditures are considered to have some influence on the rate of interest, since, because they increase during an upturn in the business cycle, they tie up money which might otherwise have contributed to the supply of money capital. The money form of revenue is therefore associated with upward pressure on the market rate of interest during an upturn, and, conversely, with downward pressure during a recession.

However, Marx thought that such pressure was overshadowed by that associated with the money form of capital. The important point is that while transfers of capital also increase during the course of an upturn, they are largely accomplished using forms of commercial credit, such as bills of exchange, and money itself is employed principally as a means of payment. In the early stages of an upturn, the return of business confidence results in a ready willingness to expand the supply of commercial credit; there is therefore relatively little need for money as a means of payment and the market rate of interest consequently remains low or even falls. In the later stages of an upturn as reproduction begins to assume a more speculative character, Marx believed that the need for money as means of payment would tend to increase, and that this would put upward pressure on the market rate of interest. Then, at the moment of crisis, commercial credit collapses, there is a desperate need for money as a means of payment, and the market rate of interest soars to its highest level. In the subsequent recession, the rate of interest might decline as the immediate pressure eases, but a reluctance to extend commercial credit could result in a need for money to serve as a means of purchase, thereby preventing the rate from falling as low as in the early stages of an upturn.

The basis of Marx's theory of the rate interest, therefore, is that there is an average rate that lies somewhere between zero and the average rate of profit, and a market rate which fluctuates around the average rate in a manner that is related to the business cycle, rising at first slowly, and later sharply during a business expansion, and falling during a recession.

Once Marx has established the basic principles of his approach in terms of interest-bearing capital, he then proceeds to introduce a number of features which make the analysis more concrete. Two of these are of particular significance.

First, Marx introduces banks. This takes account of the fact that the owners of money capital do not necessarily lend their capital directly to an industrial capitalist, but rather can deposit it with a bank which acts as an intermediary. Now banks already figure in Marx's analysis before the discussion of credit: insofar as they specialise in managing certain activities associated with the circulation of money for industrial companies, they perform a function which parallels that of commercial capital in regard to the circulation of commodities. This function, which encompasses activities such as book-keeping, maintaining the payments system, and managing company's reserve funds, is denoted by Marx as 'money dealing'. Banks are therefore conceived of as combining the function of money dealing with that of managing the money capital that is available for loan. It is the second function, however, which places banks in such a special position, and Marx writes strikingly of money capital becoming freed from the control of individual capitalists and emerging as the common capital of the class, concentrated and organised in the hands of bankers who thereby come to act, in opposition to industrial and commercial capitalists, as the representatives of social capital.[53]

The second feature of Marx's concretisation is to go beyond the concept of interest-bearing capital, and incorporate the fact that the money capital which banks lend accrues from several different sources. The main sources which he mentions include: (1) the reserve funds of industrial and commercial companies which banks hold by virtue of their function as money dealers; (2) the deposits made by money capitalists (that is, what was previously discussed as interest bearing capital); and (3) the savings and unoccupied money of other classes which the banks can gather together to form sums that are sufficiently large to function as capital.[54] The money capital which is collected together by banks from all these different sources is referred to by Marx as loan capital, or loanable money capital.

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[53] *Capital,* vol. 3, pp. 490-491 and p. 528.

[54] *Capital,* vol. 3, pp. 528-529. On profits which are not immediately invested, and revenues which are not immediately spent, see also pp. 635-636.

As Marx develops his analysis of credit, particularly in relation to the business cycle, he does so in terms of loan capital. Nevertheless, Marx is not entirely consistent in his use of terms. Although his initial discussion of interest rates is supposedly framed in terms of interest bearing capital, in fact he sometimes tends to slip between referring to interest bearing capital and loan capital. Ben Fine argues that the two rates of interest should be regarded as corresponding to different levels of abstraction, and that rate of interest on interest-bearing capital pertains to a relatively abstract level of analysis, which underlies, and, in some sense, is a determining factor in establishing the more concrete—and observable—rate of interest on loanable money capital.[55] A slightly different interpretation, put forward by Duncan Foley, suggests a parallel between the rate of interest relating to interest bearing capital, and the rate of interest in the market for commercial paper, a short-term market where capitalist firms borrow and lend money capital to each other without the intervention of any intermediaries.[56] What both these interpretations have in common, however, is the idea that, even though other sources of funds might be of some significance, the principal influence in determining the rate of interest in a capitalist system of credit is the supply and demand for money capital.

Once Marx has established his theory of interest, he turns to another important form of capitalist finance, which he calls fictitious capital.[57] The basis of this is that, once the credit system has established a rate of interest, it is possible to look upon any stream of income as the return upon a notional amount of capital. The value of this notional capital will be the amount that, at the going rate of interest, would generate a return equal to the stream of income. Marx considers two forms of financial assets of this type. One is the shares of joint stock companies; the other is bonds issued by the government. In the case of shares, a sum of capital is advanced to a company, and, in return, the former owner of the capital becomes entitled to receive a share of the profit that is subsequently produced. In such a situation, the company has acquired a productive asset, and the former owner of the money capital holds a financial instrument entitling them to a part of the future profits. The important point for Marx, however, is that the real amount of capital obviously cannot be doubled through this

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[55] 'Banking Capital', pp. 404 - 407.

[56] *Money, Accumulation and Crisis,* p. 34.

[57] *Capital,* vol. 3, pp. 595 - 599.

type of transaction, and for this reason he calls the financial asset 'fictitious capital'.[58] The same argument holds in the case of government bonds. The government spends the money, and the person who put up the capital acquires a financial asset. Again, the value of the money is not duplicated and the bond corresponds to Marx's notion of fictitious capital.

Fictitious capital assets can be traded, but what is sold is only the entitlement to receive the future payments. However, because the value of such payments can change, and because the rate of interest, which determines the value at which the payments will be capitalised, can also change, the market valuation of fictitious assets can be subject to rapid changes, giving rise to the possibility of making substantial gains—or losses. This is significant for Marx's analysis of the business cycle, because he believed that the final stages of an upturn were generally associated with extensive speculation in financial assets, and that this gave rise to—and was fuelled by—an increasing demand for bank loans. At the moment of crisis, the urgent need for money as a means of payment would give rise to widespread sales of fictitious assets and, consequently, a sharp fall in their price; this would then enable those capitalists that were in a stronger position to buy up a large amount of the assets, thereby promoting a process of financial centralisation.

Although Marx's analysis of credit and interest addresses many issues that are of relevance today, there are also some respects in which it is limited by the institutional structures which existed when he was writing. One of these is the forms of credit which he considers.[59] The main form of lending which he analyses is discounting, or short-term advances to industrial and commercial capitalists, usually to finance raw materials, labour costs, and unsold stocks of finished products—although he does touch on the fact that capitalists also use such short-term credit to finance speculation, especially in the final stages of an upturn when they might be trying to compensate for an unanticipated inability to sell their goods. A second source of demand for bank loans discussed by Marx is that from operators in financial markets, and, as

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[58] See *Capital*, vol 3, p. 597: 'The shares in railway, mining shipping companies, etc. represent real capital … But the capital does not exist twice over, once as the capital value of the ownership titles, the shares and then again as the capital actually invested or to be invested in the enterprises in question. It exists only in the latter form, and the share is nothing but an ownership title, *pro rata*, to the surplus-value which this capital is to realize.'

[59] See Panico, *Interest and Profit*, pp. 67-70.

was referred to above, he considered that their demand for credit could play a significant role in determining the market rate of interest, especially at a time of crisis. A third source which Marx refers to is government borrowing, which he undoubtedly considered important, but did not elaborate upon.

There remain two forms of credit which are important today which Marx does not consider. One of these is long-term loans to finance investment in fixed capital.[60] Although Marx did not discuss this, it subsequently figured as a central feature of Hilferding's analysis of finance capital. Hilferding, building on Marx's approach, distinguishes between circulation or commercial credit on the one hand, and production or capital credit on the other.[61] For Hilferding, circulation credit is effected primarily through bills of exchange, and, in a way that anticipates some of the more recent arguments about the endogenous nature of the supply of credit money, he considers that it is possible for this form of credit to be expanded without having a marked influence on the rate of interest. Capital credit, by contrast, is employed to expand the scale of production, and for Hilferding—reflecting the situation in Germany and the United States at the time he was writing—this includes not just circulating capital, but also, and most significantly, elements of fixed capital. Hilferding, like Marx, considers that it is the demand for capital credit which is the key factor in determining the rate of interest.

The other form of credit that Marx did not examine is lending to households, which is now important in relation to both housing provision, and the purchase of consumer durables. Laurence Harris considers the issue of consumer credit, and argues that since such credit is important in facilitating the mass consumption of consumer durables, the interest on such credit should be considered as a necessary part of the goods' price. However, he argues that such credit should be analysed as part of the activities of merchant's capital, and as such, what is called interest in this context should be analysed in relation to the profit of merchant's

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[60] Although lending to finance fixed capital is easily encompassed within Marx's notion of interest bearing capital, in his more concrete analyses of the functioning of the credit system he did not address this—most probably because it was not encountered in Britain in the period which he examines in detail.

[61] *Finance Capital,* pp. 82-98.

capital, rather than the rate of interest involved in relations between financial and industrial capitalists.[62]

A slightly different way of approaching the matter has been suggested by Duncan Foley. He doesn't seek to exclude the demand for consumer credit from the factors which influence the rate of interest; instead, he argues that it is capitalist firms which are most important in determining the rate of interest, partly because of the quantitative significance of their own involvement with the credit markets, but also because it is the behaviour of such firms that is the key determinant of the overall state of the economy, and this in turn determines the demand for credit both by the personal sector and by the state.[63]

While there are some important contemporary forms of bank lending which Marx does not discuss, the most significant way in which his analysis is limited to nineteenth century institutional structures is that it refers to a monetary system that is based on commodity money. This framework implies that there is a finite limit to the supply of loanable money capital. However, in a monetary system based on credit money, the amount of money that can be created is subject to much more flexible limits. The question then is how the rate of interest is determined.

Marxist studies have not addressed themselves in any depth to the issue of how interest rates are determined in a system of credit money.[64] Amongst non-Marxist economists, the standard

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[62] 'On interest, credit and capital', pp. 158 - 62. For a more detailed analysis of the distinction between the profit earned by merchant's capital and the interest earned on loan capital, see Ben Fine, 'Banking capital', especially pp. 396-97.

[63] Duncan Foley, *Money, Accumulation and Crisis,* Harwood Academic, New York, 1986, p. 33.

[64] Mandel only refers very briefly to the issue in his major works. In *Marxist Economic Theory* (p. 262) he follows Sayers, and says that the central bank can control either the amount of currency or the rate of interest, and that while it controlled the first in the nineteenth century, it now controls the second. In *Late Capitalism* (pp. 453-455), his only explicit reference to interest rates is to define the nominal rate as the sum of the rate of inflation plus the real rate of interest, and argue that the real rate must be positive to ensure that a supply of loan capital will be forthcoming; he discusses the difficulties central banks face in trying to constrain the expansion of commercial bank credit, but without saying whether this concerns quantitative controls or the rate of interest. An interesting point that Mandel does make in *Cash, Crash & Crisis* (p. 84) is that the growing reliance of capitalist reproduction on the expansion of bank credit has resulted in a trend since the late 1960s for the relative profitability of banking capital to improve. Aglietta, for whom credit money is one of the key new structural forms associated with the Fordist regime of accumulation, scarcely mentions interest rates, and on the two occasions where he does (*Theory of Capitalist Regulation,* pp. 359-60 and 374-77) he simply states that short-term interest rates rise rapidly in the final stage of a business cycle expansion. Harvey's *Limits to Capital* includes a sophisticated interpretation of Marx's theory of credit and interest, but in terms of its applicability to

neo-classical approach, associated in particular with Fisher and Friedman, considers that the nominal rate of interest is determined by the sum of the real rate of interest and the rate of inflation. The real rate of interest is thought to be determined by real factors, and it is not seen as something that is conceptually distinct from the rate of profit. This is, in effect, a reversion to the concept of a natural rate of interest which Marx criticised when developing his monetary theory of interest. The main features of Marx's criticism have already been mentioned: he considered that a series of real factors in the sphere of production determine the rate of profit, but that interest is a purely monetary phenomenon confined to the sphere of circulation. Interest concerns the way that a given amount of profit is distributed between those who lend money capital, and those who operate with borrowed money capital, and, because this is determined by the balance of forces in the sphere of circulation, there is no long-term value ('natural rate') to which it tends. The other leg of the neo-classical approach is to argue that the rate of inflation is determined by the central bank. This is based on adopting the quantity theory of money, and the view that the amount of money created by commercial banks is controlled by the central bank.[65]

There is, however, a substantial body of work that is sharply critical of the neo-classical approach. This is generally associated with the post-Keynesian tradition, and, like Marx, it considers that the rate of interest is a monetary phenomenon, and that institutional structures play an important role in its determination.[66] Nevertheless, it should be borne in mind that, although the post-Keynesians refer to the process of production, they do not conceive of it as generating fundamental social contradictions, as Marx does, and their analysis is primarily concerned with developments in the sphere of circulation.[67]

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the present, he merely states (p. 307) that in the permanent absence of convertibility, the quantity of central bank money and the central bank rate of interest become policy instruments, and then proceeds, essentially, to apply Marx's analysis of interest to the contemporary world.

[65] For a fuller discussion of approaches based on the real rate of interest, see Colin Roger, *Money, Interest and Capital: A Study in the Foundations of Monetary Theory,* Cambridge University Press, 1989.

[66] Paul Davidson, *Money and the Real World*, 2nd edition, Macmillan, London, 1978; Hyman Minsky, *John Maynard Keynes,* 1975; and Basil Moore, *Horizontalists and Verticalists; The Macroeconomics of Credit Money,* Cambridge University Press, 1988.

[67] This was, of course, also true of Keynes, despite the fact that the working title for what became the *General Theory*, was initially 'A Monetary Theory of Production', (see Dudly Dillard, 'A Monetary Theory of

The post-Keynesians reject the view that there is a real rate of interest that is determined by real forces. They argue that the rate of interest is determined in nominal terms, and that decisions about whether to invest in real or financial assets are made by weighing up the nominal rates of return on each. The idea of a real rate of interest is therefore only considered to have any meaning as a residual which is calculated, after the event, by subtracting the rate of inflation from the nominal rate of interest.[68]

The idea that the central bank controls the money supply is also criticised by the post-Keynesians. The crux of their argument is that in a system of credit money, it is principally commercial banks that are responsible for the creation of money, and that commercial banks will be eager to extend credit, so long as there is a demand for it. The central bank, it is argued, might impose reserve requirements on the commercial banks, but, in practice, these do not limit the ability of the banks to create credit. There are, however, two approaches that are employed to explain why this is the case, and these are linked to differing views about how interest rates are determined.[69]

The post-Keynesians regard the central bank as the main determinant of short-term interest rates, but differ about the extent to which the central bank can control rates. One approach is simply to argue that short-term nominal rates are determined by the central bank. This position, which is adopted by Kaldor and Moore, argues that banks extend loans to meet the demand for credit from capitalist firms, and that, because the central bank is responsible for the stability of the financial system as a result of its function as lender of last resort, at the end of the day, it always provides commercial banks with the reserves that they need to hold. The rate of interest at which the central bank lends the reserves is seen to determine the bank's base rates, and these in turn are considered to exercise a decisive influence over short-term

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Production: Keynes and the Institutionalists', *Journal of Economic Issues,* vol. 14, No. 2, June 1980, pp. 255-273).

[68] See Moore, *Horizontalists and Verticalists,* pp. 256-261, and Paul Davidson, 'A Post-Keynesian View of Theories and Causes for High Real Interest Rates', *Thames Papers in Political Economy,* Spring 1986.

[69] See Robert Pollin, 'Two theories of money supply endogeneity', *Journal of Post Keynesian Economics,* vol. 13, no. 3, 1991.

market rates of interest. The central bank is therefore seen to exercise direct control over the rate of interest but not over the amount of credit that is created.[70]

Moore, however, whose analysis is more elaborated than Kaldor's, considers that there are limits within which the central bank is able to set interest rates. He argues that there is a substantial range over which interest rates are largely independent of underlying real forces, and he says that it is only within this range that the central bank is able to set rates. The link between real forces and the range of possible interest rates is established through the impact of interest rates on aggregate demand.[71] For Moore, the demand for credit is related to the real cost of borrowing, and if the central bank sets its rate at too high a level, it will discourage borrowing and result in deficient aggregate demand, and hence unemployment. On the other hand, if its sets the rate of interest below the rate of inflation, this will lead to an excessive, credit-driven expansion of demand. According to Moore, the actual rate that is set will depend, therefore, on both the government's policy stance and the underlying state of the economy.[72]

While the supporters of this first approach see the central bank as setting interest rates—albeit within a certain range—the approach employed by the second group of post-Keynesians considers that the central bank's control over interest rates is more limited. One person who takes this position is Hyman Minsky.[73] Like Kaldor and Moore, he argues that banks will meet the demand from capitalist firms for credit, but he believes that the central bank will not necessarily provide the reserves that the banks then need to hold. In this situation, says Minsky, the banks turn to liability management, shifting their liabilities into forms which carry lower reserve requirements. Indeed, according to Minsky, this has been one of the main forces driving the rapid process of financial innovation that began in the late 1960s. However, in order to make it possible to shift liabilities from one form to another, it can be necessary to

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[70] Nicholas Kaldor, *The Scourge of Monetarism,* 1982; Basil Moore, 'The Endogenous Money Stock', *Journal of Post-Keynesian Economics,* vol. 2 no. 1, 1979 and, for a fuller statement, *Horizontalists and Verticalists*.

[71] Moore, *Horizontalists and Verticalists,* pp. 264-267.

[72] It should be noted, however, that Moore also states that in an open economy where capital is mobile, the rate will be strongly influenced by the nominal rates ruling in other countries' financial markets.

[73] See, for example, Hyman P Minsky, *Stablising an Unstable Economy*, 1986

offer higher rates of interest. Furthermore, while banks might be able to free reserves through liability management, the pressure of demand for reserves in the money market can also push up short-term market rates of interest. According to this approach, therefore, while banks are able to meet their reserve requirements through liability management, this can lead to higher rates of interest.

Minsky's conclusion is shared by Dow and Saville, although they arrive at it by different means. Dow and Saville conceive of interest rates as being set in a rather footloose system that is open to all sorts of short-term pressures and suggestions.[74] They argue that short-term interest rates are determined in the money markets, but that there is a range of rates within which market operators hold only a weak view about what the correct level of rates should be. The reason for the existence of such a range is that investment and saving are not very sensitive to changes in the rate of interest, and within this range, the rate is not affected by what Dow and Saville refer to as fundamentals. However, if changes in the rate of interest exceed the range, investment and saving might begin to respond. Dow and Saville argue that fundamentals therefore play a role in setting the limits to a range of interest rates, although this range is only imprecisely defined, and that within the range, markets are prepared to follow a firm lead from the central bank. Unlike Moore, however, Dow and Saville stress that the link between the central bank rate and short-term market rates rests on confidence and expectations, and that the central bank is only able to set short-term interest rates so long as it can take market opinion with it. This approach is therefore able to account for situations where short-term market rates rise above the central bank rate, thereby obliging the central bank to raise its rate in order to avoid becoming a source of cheap finance—what was referred to as 'round tripping' when it occurred in Britain in the early 1980s.

Although Dow and Saville have a different view from Moore about the relation between the central-bank rate and short-term market rates of interest, both approaches conceive of the central bank as having a certain space within which it can set interest rates, the boundaries of which are determined by the impact of real factors, albeit slightly differently conceived.

[74] J. C. R. Dow and I. D. Saville, *A Critique of Monetary Policy,* Clarendon Press, Oxford, 1988, pp. 51-68.

If the post-Keynesian approach to interest rates is compared with the analysis which Marx developed for a system based on commodity money, it can be seen that there are a number of important similarities. The post-Keynesian rejection of the view that short-term interest rates are determined by real factors is similar to Marx's rejection of the idea of a natural rate on interest. Furthermore, like Marx, the post-Keynesians consider that there is a range within which interest rates can vary whose limits are set by real factors. However, Marx was discussing what he called the average rate of interest, and he saw real factors setting a limit through the average rate of profit. The post-Keynesians, by contrast, are concerned with what Marx called the market rate of interest, and, of most significance, they see real factors as establishing limits through the process of realisation (Moore) or the responsiveness of real variables to changes in the interest rate (Dow and Saville).

In relation to the business cycle, Marx considered that market rates of interest would rise in the later stages of a period of expansion, as the demand for loan capital increased more rapidly than the supply. As will be shown below, the post-Keynesians also consider that interest rates rise in the later stages of an upturn, although there are two different positions that are put forward to explain this. The rise is seen primarily as the result of a policy decision by the central bank in response to concern at a rising rate of inflation, or some other indicator that expansion is advancing too rapidly. In addition, however, the type of approach outlined by Minsky, and by Dow and Saville, also points to the possibility that pressure in the money markets could push up market interest rates, thereby obliging the central bank to raise it's rate if it is to avoid the emergence of a differential.

As far as long-term interest rates are concerned, there is a general agreement among post-Keynesian economists that these are determined in financial markets and that expectations play an important role in the process. For Moore, long-term interest rates reflect expectations about future short-term rates, which for him amounts to the same as future central bank policy.[75] For Dow and Saville, long-term rates, like short-term ones, are determined by expectations which are weakly held over a certain range, and they argue that, in principle, the authorities could therefore act to take a lead in long-term markets as well as

[75] Moore, *Horizontalists and Verticalists*, p. 258.

short-term ones, although in practice they do not usually do so.[76] The post-Keynesians therefore incorporate the role of expectations more fully than Marx does in his analysis, for, while he refers to expectations, and acknowledges the existence of a range of interest rates, his analysis of fictitious capital is generally couched in terms of a given stream of income that is capitalised simply at the going rate of interest.

5. Interest, net profit and the business cycle

In the previous section, it was shown how Marx considered that the rate of interest was influenced by the process of accumulation over the business cycle. However, for Marx the influence does not work in just one direction, and the rate of interest is also considered to be a key factor in determining the dynamics of the business cycle. An important link in Marx's analysis is the concept of net profit.

Marx uses the concept of net profit in two slightly different ways. He first introduces it by considering an industrial capitalist who functions entirely on the basis of borrowed capital.[77] Net profit refers to the part of the gross profit retained by the industrial capitalist after the payment of interest. Marx calls this, 'profit of enterprise', and he goes on to argue that the division of gross profits into interest and profit of enterprise is made by all capitalists, and not just those who function at least partly on the basis of borrowed capital. The reason for this is that individual capitalists have the option of investing their capital in a financial asset and earning interest, and profit of enterprise corresponds to the additional return that can be obtained from investing the capital in some type of real activity.[78] This first use of the concept of profit of enterprise therefore shows how changes in the rate of interest can affect capitalists' plans to invest.

However, Marx also uses the term profit of enterprise to discuss the amount of profit that is actually retained by capitalists as the rate of interest changes in the course of the business

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[76] Dow and Saville, *Critique*, p. 54.

[77] *Capital*, vol. 3, pp. 493-496.

[78] *Capital*, vol. 3, pp. 498 and 501. Marx stresses that this choice only exists for individual capitalists, and that the rate of interest would fall sharply if large numbers of capitalists followed this course.

cycle.[79] Used in this sense, however, it might be argued that what is significant is the amount of profit that remains after meeting the interest payments on the capital that is actually borrowed, not the profit that would remain if interest were paid on the total capital employed. In order to avoid this ambiguity, I shall use the term net profit (rather than profit of enterprise) to mean what remains out of gross profits after meeting the interest payments that are actually made.

Using the notion of net profit it is possible to draw together comments made by Marx in a number of places which describe how financial variables interact with the process of real accumulation during the different phases of the business cycle.[80] In the phase of stagnation which follows a crisis, there is, due to the collapse of investment, an increased supply of loan capital together with a reduced demand for credit, and the rate of interest is therefore relatively low. As a result of the reduced level of economic activity, gross profits are likely to be depressed, but because the rate of interest is low, net profits do not suffer as much, and this is one of the factors which eventually contributes to a tentative recovery in investment.

In the phase when improvement sets in, the expansion of commercial credit ensures that the supply of loan capital remains relatively large in relation to demand, and the rate of interest continues to be low, and may even fall further. The increase in economic activity contributes to higher gross profits, and the favourable rate of interest ensures that net profits increase particularly strongly, thereby giving a strong further impetus to investment.

In the phase of prosperity, when strong expansion is underway, the supply of loan capital continues to increase, but the demand for it begins to expand to an even greater extent, partly because capitalists turn more to external sources to finance an increased employment of labour power and raw materials, and also because wages and raw material prices begin to rise, and the result is that the rate of interest starts to edge upwards. Nevertheless, at this stage, gross profit is still growing, and so net profit remains strong.

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[79] *Capital,* vol. 3, chapters 31 and 32.

[80] This draws principally on *Capital,* vol. 3, chapters 31 and 32.

It is in the final phase of the upturn that more serious tensions begin to emerge. These lead to a strong increase in the demand for credit and the rate of interest begins to rise more rapidly. As a result of their increased indebtedness and the rise in the rate of interest, capitalist enterprises now find that increased interest payments begin to squeeze their net profits. The factors which Marx mentions as contributing to the increased demand for credit include: the fact that investment projects which have been begun must be seen through; that wage and raw material costs begin to rise more rapidly; that speculation develops both in commercial and in financial markets; and that as a result of financial pressure, some capitalists borrow in order to pay interest. In this phase of the cycle, it is the expansion of credit which makes it possible for economic reproduction to continue, even though the underlying contradictions discussed above are becoming increasingly marked. In an oft quoted phrase from Marx, 'the reproduction process, which is elastic by nature, is now forced to its most extreme limit'.[81] Credit makes it possible to break through the limits of capitalist production—but only by exacerbating the potential impact of the crisis when it does finally break.

The onset of the crisis phase of the cycle occurs when this credit-based expansion can no longer be sustained. This moment is characterised by a widespread inability to sell commodities, a breakdown of commercial credit and a desperate need for money as a means of payment in order to meet contractual commitments. The pressure to transform commodities into money gives rise to forced sales, and prices fall—a development which makes it impossible to repay any credits advanced against sales that were expected at the previous price. The need for money results in a large increase in the demand for bank advances, and interest rates shoot up to their maximum level, with capitalists apparently willing to pay virtually any price in order to secure a means of meeting their payments. The very high rates of interest then lead to a sharp fall in net profits, and interest payments might even exceed the entire gross profit in the case of some branches or regions. The outcome of the process is that workers are thrown out of work, investment projects have to be abandoned, and there is a wave of bankruptcies. This leads to a sharp decline in the level of economic activity, and the economy enters a period of stagnation.

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[81] *Capital,* vol. 3, p. 572.

This process is intensified by parallel developments in financial markets. The rise in interest rates leads to a fall in the value of fictitious capitals, something which is particularly serious for dealers who used borrowed money to buy shares or other assets at high prices in the final, speculative phase of the upturn, since selling the assets will not realise sufficient value to repay the loan. Such dealers are also likely to be desperately searching for additional bank loans, which adds to the pressure on interest rates. More seriously, however, the inability of many capitalists to repay their loans leads to a crisis of the banking system, and—before the emergence of the role of the central bank as lender of last resort—this resulted in an abrupt contraction of credit, and the economic downturn consequently takes the form of a very abrupt deflation.

It remains to consider a little more precisely what it is that triggers the onset of the downturn. There are two factors which can be identified in Marx's writing.[82] The first is a semi-autonomous monetary and financial crisis. Marx quotes extracts from an enquiry into the 1847 crisis to show how banks, fearing for their own liquidity, suddenly curtailed the supply of credit to industrial and commercial capitalists, thereby leading to a scramble for means of payment. He also discusses how the rate of interest is sometimes suddenly raised, in particular as the result of a balance of payments deficit. The second way in which Marx conceives of a crisis being triggered is that a decline in gross profits could mean that some capitalists might not meet their payment commitments, and, in a situation where the credit system was already over-stretched, this could set off the collapse.

This account shows how Marx conceived of the business cycle in terms of an interaction of real and financial factors, and it is striking how much of the modern cycle it is able to capture. However, it must be repeated that the above account draws on many disparate comments, in some cases very cursory ones. It is, of course, also the case, that there have been many changes in the form of the business cycle since Marx's time.[83] Perhaps the most important of these has been the emergence of the central bank as lender of last resort, which has meant that

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[82] See Crotty, 'Money, Credit and Financial Intermediation', pp. 72-73.

[83] For a discussion of the changes in the business cycle since Marx's time, which stresses in particular the growth of large-scale firms with major investments in fixed capital, see Itoh and Lapivitsas, *Political Economy of Money and Finance,* chapter 6, section 4.

crises are no longer automatically followed by a collapse of credit and a savage deflation. Another important change has been the growth of state expenditure, something which is not directly susceptible to the business cycle, and which for much of the post-war period was employed consciously as a means of counteracting business cycle downturns.

One of the people who has written most extensively about finance and the business cycle in the post-war period is Hyman Minsky. Minsky has combined extensive analysis of recent changes in the structure of the financial system with the development of a theory of the business cycle known as the 'financial fragility hypothesis'. Minsky developed his analysis on the basis of a reinterpretation of Keynes' work, and he argues that financial relations have to be integrated into the analysis of employment and income in order to explain how a capitalist economy functions.[84]

According to Minsky, it is borrowing by business to finance investment and the ownership of capital assets that is the key to the business cycle, and while he acknowledges the importance of borrowing by households and by the government, he considers that these only modify, and do not cause cyclical behaviour.[85] Once capitalist firms have borrowed in order to finance investment decisions or positions in capital assets, a central determinant of the stability of the economy is the relation between firms' cash flow and the payment commitments they have entered into. The cash flow that is considered relevant here is gross profits, net of tax, but before interest payments. The key issue, then, is whether the future profitability of the business sector will support it's payment commitments. There are three steps in Minsky's analysis of this.

In the first step, Minsky develops a three-fold classification of firms' ability to meet their payment commitments, which he calls hedge, speculative and Ponzi finance.[86] A firm which has undertaken hedge finance is one where the gross profits are expected to exceed payment

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[84] For the most theoretically elaborated statement of his position, see Hyman P. Minsky, *John Maynard Keynes*, Columbia University Press, 1975.

[85] Hyman P. Minsky, 'Finance and Profits: The Changing Nature of the American Business Cycle', in US Congress, Joint Economic Committee, *The Business Cycle and Public Policy, 1929-80,* Government Printing Office, Washington DC, 1980, p. 18.

[86] Minsky, 'Finance and Profits', pp. 22-23.

commitments for all the outstanding period of the payments. A firm that has embarked on speculative finance is one where the total expected gross profits are greater than the total payment commitments, but where in the near-term, gross profits are sufficient to meet interest payments, but not sufficient to meet total payment commitments. The firm is using short-term credit to finance long-term assets. Speculative finance therefore rests on the assumption that firms will be able to refinance part of their maturing debt, although, since they can meet their interest payments, their total borrowing will not increase. Finally, a firm that has engaged in Ponzi finance is one that is involved in speculative finance, but where the near-term gross profits are not sufficient to meet even interest payments, and where the firm is therefore obliged to borrow more money just in order to pay interest on its outstanding debt, and where the size of its total debt will therefore increase. Having established this three-fold classification, Minsky then uses it to assess the financial stability of an economy: the greater the weight of hedge financing, the more stable will be the economy.

The second step in Minsky's analysis is in some respects the most crucial for his theory. Following Kalecki, he argues that investment determines profits, and that, in turn, profits serve, first, to encourage firms to increase their investment, and second, to encourage financial institutions to lend firms more money. In the course of a business expansion there is therefore a self-reinforcing process involving profits, investment and borrowing. However—and this is the crux of the theory—Minsky argues that as the expansion progresses, the growth of profits leads both borrowers and lenders to become less cautious, and, as a result, debt increases more rapidly than either the capital stock or profits, a development which causes the ratio of payment commitments to profits to rise, even if the rate of interest is unchanged. A further consequence is that there is a tendency for firms that have employed hedge finance to shift towards speculative finance, and for firms engaged in speculative finance to tip into Ponzi finance. One result of this is that the proportion of debt that is contracted on a short-term basis rises. The overall outcome is that a business expansion results in endogenous processes that lead to the emergence of what Minsky describes as increasing financial fragility.[87]

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[87] Minsky, 'Finance and Profits', pp. 34-42; 'Capitalist Financial Processes and the Instability of Capitalism', in Hyman P. Minsky, *Can "It" Happen Again? Essays on Instability and Finance*, M. E. Sharpe, New York, 1982, p. 78-81.

The third step in Minsky's analysis is concerned with the onset of a financial crash. For Minsky, the factor that augurs the end of a period of expansion is a rise in interest rates, which he believes can occur either as a result of the policy of the central bank, or, as discussed above, because the demand for credit to finance investment outstrips the available supply. In an economy where hedge financing predominates, this will not necessarily have a great impact on the economy. However, if the weight of speculative and Ponzi financing are significant—as Minsky says they will be after a period of expansion—the situation is different. Firstly, the demand for credit by firms engaging in speculative and Ponzi finance is largely interest inelastic, so rising rates will not reduce the demand for credit, and, in the case of Ponzi finance, a rise in interest rates will actually give rise to an increased demand for credit. Secondly, if such an inelastic demand for credit is then faced by restrictions on the supply of credit, the result will be a sharp rise in the rate of interest. Finally, the effect of a sharp rise in interest rates can be very marked in an economy where many firms have become involved in speculative and Ponzi finance. According to Minsky, the firms involved in such finance are only able to obtain further credit on the basis that the discounted value of their expected future gross profits exceeds the discounted value of their future payment commitments. However, if interest rates rise, then the discounted value of profits from the more distant future—which is what these firms' financial viability rests on—will be the most reduced in value, and the firms might find that their net present value has turned from being positive to negative.[88]

Minsky describes two ways in which the situation might come to a head, the financial market effect and the cash flow effect. The financial market effect is that the burden of debt commitments leads to a break in asset values, as firms are forced to sell, or try to sell, assets in order to reduce their liabilities. The cash flow effect is that gross profits fall, with the result that the proportion of payment commitments to gross income rises—although it should be remembered here that, within Minsky's framework, profits are determined by the amount of investment and the availability of finance. According to Minsky, both effects are necessary for there to be a deep recession.[89]

[88] Minsky, 'Finance and Profits', pp. 26-28.

[89] Minsky, 'Finance and Profits', p. 29; 'Capitalist Financial Processes', p. 77-78.

It can be seen from this brief summary, that although Minsky stresses that capitalism consists of an integrated system of finance and production, his theory of the business cycle is based entirely on developments in the sphere of finance. This makes it rather one-sided. However, using this focus on financial structures, Minsky has employed his analysis to explain why the character of the business cycle has differed at various periods in the development of the US economy.

In the period prior to the 1930s, Minsky argues that short-term debt grew rapidly in the course of a business expansion, and, with the emergence of financial instability, that the volatility of profits and investment would result in a sharp debt-deflation, and an abrupt downturn in the economy.

In the period from the second world war until the mid-1960s, he argues, using the Kaleckian framework, the growth of state expenditure served to stabilise the level of profits, thereby giving rise to much more moderate cycles. He also highlights the role of the central bank as a lender of last resort, which ensured that the process of debt-deflation could be avoided. However, Minsky goes on to argue that the relatively mild cycles of the initial post-war period also had a destabilising result, in that they led firms and financial institutions to take greater stability for granted, and to engage in debt finance on the basis of much smaller margins of safety.

In the period since the mid-60s, Minsky says that there has been a rapid growth of corporate debt and an increase in the proportion of payment commitments to gross profits. Minsky also identifies a series of financial innovations which have made it easier for banks to expand the supply of credit, and he argues that it is the combination of these developments which have led to a new period in which there has been a return to more volatile business cycles. According to Minsky, it is only because of the intervention of the central bank that cyclical downturns in the US in 1966, 1969-70 and 1974-75 were not followed by a collapse of debt and a spiralling deflation that would have resulted in the onset of a really deep depression. [90]

[90] Minsky, 'Finance and Profits', pp. 15-16 and 41-42; 'Capitalist Financial Processes', p. 82; see also Hyman P. Minsky, *Stablizing an Unstable Economy,* Yale University Press, 1986, especially chapter 3, 'The Impact of Lender of Last Resort Intervention'.

Another economist who has developed an analysis of the post-war US business cycle on the basis of a close study of the financial system's behaviour is Albert Wojnilower. Wojnilower's main contribution is a remarkable empirical study of the role of credit crunches in the post-war period, in the course of which he develops a number of theoretical observations.[91]

Wojnilower outlines three main propositions. The first is that the demand for credit is interest inelastic, most especially in the final stages of a business cycle upturn. His analysis is concerned mainly with borrowing by business, although he does also refer to borrowing by the personal sector and the government. However, in his account of business borrowing, he says very little about what the borrowing is used to finance. At one point there is a reference to financing plant and equipment, although the relative ease with which firms appear able to curtail their borrowing is more suggestive of financing elements of circulating capital, that is wage and material costs, and, as Martin Wolfson has pointed out, there is no mention of the possibility that firms might sometimes be forced into involuntary borrowing.[92] Based on his own observations, he comes to the conclusion that firms will continue to borrow funds so long as credit is available, irrespective of the rate of interest. Nevertheless, Wojnilower appears to believe that interest payments might be financed by credit, for at one point he argues that a rise in interest rates can lead to an increase in borrowing.

The second of Wojnilower's propositions is that it is interruptions in the supply of credit—'credit crunches'—which are responsible for downturns in the business cycle. According to Wojnilower, there are two ways in which a credit crunch can occur: as a result of regulatory constraints or as a result of a serious financial default. The main regulatory constraint in the post-war period was the ceiling on interest-rates. A period of economic growth would require an expansion of bank lending, and interest rates would tend to rise, either because of the policies of the central bank, or because commercial banks were trying to attract deposits away from other institutions. Once the ceiling was reached, banks could not raise their rates to

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[91] Albert M. Wojnilower, 'The Central Role of Credit Crunches in Recent Financial History', *Brookings Papers on Economic Activity,* No. 2, 1980, pp. 277-326; the original article was updated in 'Private Credit Demand, Supply and Crunches: How Different are the 1980s?', *American Economic Review,* vol. 75, no. 2, May 1985, pp. 351-56.

[92] This last point is made by Martin H. Wolfson, *Financial Crises: Understanding the Post-war US Experience,* M. E. Sharpe, New York, pp. 35-36.

attract further deposits, and they would therefore abruptly curtail any further expansion of credit. Direct controls on the expansion of credit would, of course, have the same effect. Serious financial defaults, such as the bankruptcy of the Penn Central Transportation Company in 1970, or of the Franklin National in 1974, also lead banks to curtail the expansion of credit, either because developments in financial markets make it difficult for the banks themselves to obtain funds, or because the banks simply adopt a far more cautious attitude to lending. According to Wojnilower, banks attempt to continue providing credit to their larger corporate customers with whom they have a standing relation, and it is therefore lending to the personal sector that suffers first. But once banks curtail their lending to business, many firms are unable to continue their activities on the same scale, and there is consequently a sharp downturn in economic activity.

Wojnilower's third proposition is that following each downturn, both the authorities and the financial institutions took steps to eliminate whatever had been responsible for causing the previous crunch, but that the elimination of such constraints then encouraged an excessive expansion of credit which contributed to a rising level of inflation. Thus, in the course of the 1960s and 70s, the monetary authorities first raised, and then abolished interest-rate ceilings, and many of the other commercial-bank regulations which had been introduced in the 1930s were lifted. Similarly, private banks were active in developing new forms of liabilities, such as Certificates of Deposit and euro-market deposits, in order to overcome any restrictions on their ability to fund increased lending. Wojnilower therefore believes that credit crunches were an important impetus to the process of financial liberalisation, although he also warns that the removal of these constraints has left the financial system open to the possibility of a far more serious financial failure in the future.

Wojnilower's analysis, like that of Minsky, is primarily a financial theory of the business cycle. Furthermore, both emphasise the importance of institutional change and financial innovation in explaining the ability of the banking system to expand the supply of credit in each new upturn in the post-war period. They also both point to the risk that the massive expansion of credit which this has permitted could lead to a grave financial crisis and a major depression. However, while Wojnilower highlights the significance of credit crunches in the post-war period, his analysis is even more exclusively focused on developments in the financial system than Minsky's, and he attributes the onset of a downturn in the business cycle exclusively to a curtailment in the supply of credit. Wojnilower does not discuss how firms use the finance they obtain, or of the relation between their payment commitments and their profits. Thus, although Wojnilower stresses the interest inelasticity of borrowing, he does not relate this to involuntary borrowing, such as the need to continue financing investment projects that have been begun, or to meet payment commitments that cannot be paid out of the income from profits. This is reflected in the fact that, while Wojnilower considers that a crisis in financial markets is one of the two main causes of a credit crunch, and he believes that it is a credit crunch that leads to a cut-back in the activity of industrial and commercial firms, he doesn't discuss the curtailment of credit in terms of a financial crisis for firms, something which would imply a rather more abrupt, forced reduction in their activity than is suggested by Wojnilower's account.

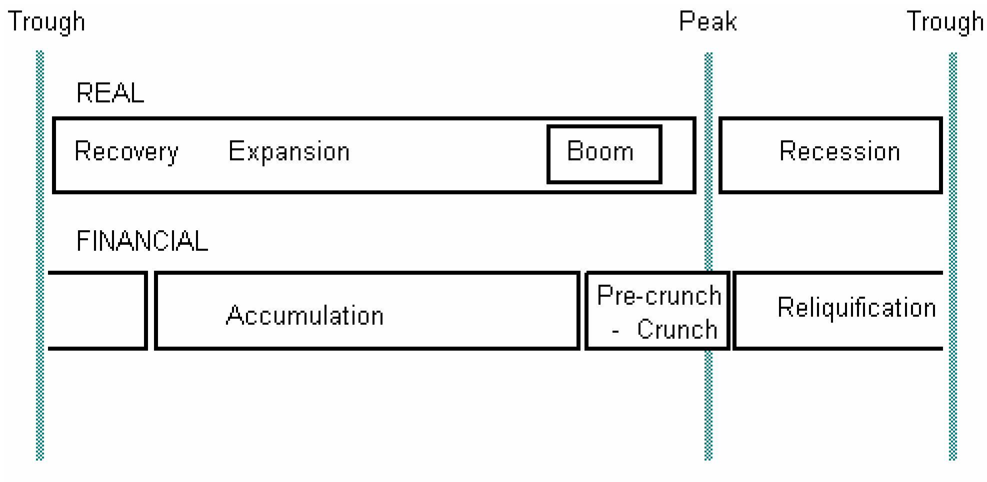
One further contribution to the discussion of finance and the business cycle that is worth mentioning is that of Otto Eckstein and Allen Sinai.[93] Their contribution is of interest principally because they develop a very careful classification of the stages in the post-war business cycle. Their classification is based on that of the US National Bureau of Economic Research, which follows an approach that was initially developed by Wesley Mitchell.[94] Eckstein and Sinai argue that much business cycle analysis has given insufficient attention to financial factors. They stress that the business cycle is the result of an interrelation of real and financial behaviour, and they propose to rename the stages of the business cycle identified by the National Bureau in order to draw greater attention to the importance of financial factors.

Eckstein and Sinai put forward a five stage classification of the business cycle: (1) recovery/expansion; (2) boom; (3) pre-crunch/crunch; (4) recession; and (5) reliquification. Following the approach of Mitchell and the National Bureau, they point out that the duration both of a complete cycle and of the stages can vary. However, they also consider that in their classification, some of the stages might overlap, and that occasionally a stage might be missed. Figure 1 attempts to show the stages adopted by Eckstein and Sinai, and how they involve a correspondence between real and financial developments.

[93] Otto Eckstein and Allen Sinai, 'The Mechanisms of the Business Cycle in the Post-war Era', in Robert J. Gordon (ed.), *The American Business Cycle, Continuity and Change,* University of Chicago Press, 1986.

[94] Wesley Clair Mitchell, *Business Cycles and their Causes,* University of California Press, Berkeley, 1941.

Figure 1. Eckstein and Sinai's stages of the business cycle



Source: Elaborated on basis of Eckstein and Sinai, 'The Mechanisms of the Business Cycle in the Post-war Era'.

Recovery is the period when output begins to rise after the lower turning point of the cycle, and it continues until the pre-recession level of activity has been reached, the exact timing of which will depend on whether output, employment or some other variable is seen as the most important. This merges into the period of *expansion*, during which the growth of output, employment and investment results in a rise in the level of economic activity that continues up to the peak of the business cycle. *Accumulation* refers to a financial process which occurs at the same time as the expansion, and it concerns the acquisition of physical and financial assets, both by households and by businesses. During this stage, financial constraints are minimal, and financial institutions have ample funds which they are eager to lend.

The *boom* occurs during the period of expansion, usually in the final stages, although sometimes it does not continue right up to the end of the expansion. It is a period of unsustainable growth, where the rate of growth is well above the trend rate, and where the levels of output are close to capacity limits.

The *pre-crunch* period refers to financial developments which occur towards the end of the expansion. It is marked by a deterioration in the financial balances of businesses and households, and by an increase in the demand for credit that begins to put upward pressure on the rate of interest. At this stage, accelerating inflation might intensify the demand for credit. In addition, the central bank usually adopts a more restrictive policy, resulting in a further increase in interest rates. For most of the post-war period, the combination of higher interest rates and regulatory restrictions resulted in banks rationing credit. More recently, however, the deregulation of interest rates and new deposit innovations have removed limits to the rise in interest rates, and the pre-crunch has taken effect through the affordability of credit and the impact of higher debt service charges.

The *crunch* is the point at which the tensions of the pre-crunch come to a head and is defined by Eckstein and Sinai as ‘a credit crisis stemming from the collision of an expanding economy with a financial system that has been depleted of liquidity.’[95] It is responsible for precipitating the downturn, and it can last into the early stages of the recession. The crunch is characterised by a sharp rise in interest rates as a result of a scramble for funds and a fall in stock prices as investors sell financial assets in order either to raise funds or to try and avoid capital losses. According to Eckstein and Sinai, three conditions are necessary for a full-blown crunch to occur: (1) pressure from a strongly expanding real economy for funds; (2) a shortage of loanable funds due to diminished cash flows and reduced savings; and (3) a restrictive monetary policy. Whether the crunch acts through a sharp restriction on the availability of credit, or, as more recently, through a reduction in household incomes and company cash flows due to a huge increase in the cost of debt servicing, the result is that there is a sharp reduction in expenditure: households reduce their spending, especially for durable goods, and firms lay off workers, reduce their inventories and cutback their investment in fixed capital.

Recession is the period of economic contraction which lasts from the peak of the business cycle through to the following trough. Once the decline in output and employment begins, firms are able to reduce their inventories. Eckstein and Sinai consider that fiscal and monetary policy can play an important function in accelerating or delaying the timing of the lower turning point.

Reliquification is the period in which businesses and households reverse the deterioration in their financial balances which occurs in the pre-crunch, crunch, and early stage of a recession. The processes they mention which achieve this mainly refer to businesses: the laying off of workers; drastic cuts in investments in fixed capital; and the dumping of inventories.

[95] ‘Mechanisms of the Business Cycle’, p. 61.

However, it is clear that they also consider important a reduction in purchases of consumer durables and a revival of saving by the personal sector. The length of time required for reliquification to be accomplished can vary considerably, and it can last into the period of recovery. However, Eckstein and Sinai make the point that until a minimum degree of reliquification has occurred, an upturn in the business cycle is difficult to achieve.

There are a number of features that might be noted about the approach of Eckstein and Sinai. One of these is that businesses and households are considered in much the same sort of way—both involve units that engage in a certain level of expenditure which incurs certain financial consequences—and unlike the other approaches discussed above, they do not consider the business sector to be the key to the cyclical process. This is perhaps related to a second feature, which is that there is no reference to profits, let alone any recognition that the income of businesses might be formed in a rather different way from that of households. Thus, while the rising share of incomes that is consumed by debt charges plays an important part in their analysis, the possibility of a decline in incomes is only considered once the recession has taken hold. Another feature of Eckstein and Sinai's approach is that, while they stress the importance of integrating real and financial developments, it is in fact financial factors that figure most prominently in their account of the cycle. Here, like other writers, they acknowledge the importance of the financial crunch in bringing about a downturn in activity. However, there are two ways in which their contribution covers new ground. First, they show how the deregulation of financial institutions and the process of financial innovation have combined to transform the mechanism by which a crunch acts. Second, while a number of writers have noted the role of financial crunches in the business cycle, Eckstein and Sinai also stress the importance of financial reliquification, and they consider it sufficiently significant in preparing the basis for an upturn that they incorporate the process as one of the stages in their classification of the cycle.

If Marx's analysis of the business cycle is compared with that of the other writers who have been considered, it is possible to identify a number of differences between their approaches.

One issue is the relation between real and financial factors in the cycle. Marx's position is most clearly based on an analysis both of real accumulation and of developments in the financial system. Eckstein and Sinai also claim that they wish to integrate real and financial factors although their conception of real factors essentially boils down to no more than the real expenditure of businesses and households, and, since expenditure is primarily determined by financial factors, their approach gives priority to financial factors. By contrast Minsky and Wojnilower quite explicitly set out models in which financial considerations are responsible for determining the dynamics of the cycle.

A second issue is which sectors of the economy are considered to be the key to the cycle. Marx's whole approach is based on the view that it is the accumulation of capital by private firms which underlies the cycle, and Minsky also explicitly identifies capitalist firms as the key to the cycle. It is also implicit in Wojnilower's approach that what firms do is most important. Only Eckstein and Sinai adopt an approach in which the behaviour of households is seen to be as important as that of firms in explaining business cycles.

A third issue concerns the nature of the demand for credit. Marx considers borrowing to finance circulating capital, the purchase of financial assets and to finance meeting existing payment commitments. Minsky is even more comprehensive and in addition considers the financing of fixed capital. In the case of both writers, commitments to existing projects and to the need to meet payment commitments are seen to result in necessitous borrowing at the time of a crisis, and a failure to be able to borrow and thereby meet payment commitments is seen as a key factor in explaining why a financial downturn can be so abrupt. Wojnilower does not explain what credit is used for, and although he does say the demand is interest inelastic, especially near the peak of the cycle, there is no explicit consideration in his analysis of payment commitments, and the consequences of failing to meet them. Eckstein and Sinai include a full catalogue of every sort of borrowing—for fixed capital and circulating capital, for acquiring financial assets, and for meeting payments; however, when it comes to discussing a crunch, necessitous borrowing to finance payment commitments does not play a significant role. The issue of necessitous borrowing and payment commitments is important because it implies that a failure to obtain the necessary finance could lead to a rapid chain reaction of broken commitments that spreads very rapidly through an economy.

A fourth issue, and one of the most important, concerns the causes of the onset of a crisis. There are three different factors which are mentioned by the different writers: a fall in gross profits, a lack of availability of credit, and high interest rates. Marx is the only writer who attributes an independent role to profits. He considers that net profits decline as a result of a fall in gross profits *and* a rise in debt payments resulting rising interest rates, and in his analysis, at the moment of crisis there is also a collapse of credit. Minsky too considers that profits are a central factor in the business cycle, because it is profits that determine the ability of firms to meet their payment commitments. However, for Minsky the squeeze on net profits occurs primarily because of a rise in payment commitments, following increased borrowing and higher interest rates. It is also true that a decline in gross profits is seen as one of the two ways in which a downturn might be triggered, but the fall in profit is not seen as the result of developments in the sphere of material production, as in Marx; rather he considers that profits are determined by the level of investment, and they fall because a cutback in the availability of finance leads to lower investment. Furthermore, the main way that Minsky sees a downturn being triggered is by a collapse in financial asset prices as firms try to sell their assets in order to meet payment commitments. Wojnilower does not discuss profits, and he is unequivocal that the cause of a downturn is a quantitative constraint on the supply of credit. Eckstein and Sinai also do not see profitability as an independent determinant of the cycle. They too see the crunch operating for most of the post-war period through quantitative constraints on the supply of credit, although they argue that as a result of deregulation and financial innovation, a quantitative restraint on the supply of credit has been largely replaced by interest rates rising to exceptionally high levels, something which has its impact by sharply raising the amount that firms or households must pay to service their borrowing.

A fifth and final issue is the process of debt deflation and the sharpness of the downturn. For Marx, the collapse of credit led to a very abrupt fall in the value of financial assets, and this was followed by what could be a quite lengthy period of stagnation. Minsky also elaborates a model that results in a similar outcome, and he says that this corresponds to the situation that existed prior to the 1930s. However, Minsky, Wojnilower and Eckstein and Sinai all draw attention to the role of the state in the post-war business cycle. This involves, firstly, the central banks role as lender of last resort, which has prevented the occurrence of the type of financial collapse which occurred in the period when Marx was writing. Secondly, it involves state expenditure, which Minsky and Eckstein and Sinai see as being able to influence the depth and duration of a recession.

6. Conclusion

This paper has attempted to set out how Marx and subsequent Marxist writers have analysed the business cycle. Although there have been important changes in the nature of capitalism since Marx's time, it is striking how much of his analysis is still pertinent. Marx argued that in a monetary economy there existed the possibility of a breakdown in economic reproduction since, after selling a commodity for money, that money need not necessarily be spent. He also stressed how the use of money as a means of a payment leads to the development of a whole series of interlocking payment commitments, so that a failure to meet one payment can threaten the viability of a whole interlocking system of payments.

For Marx, a breakdown in reproduction was, however, not just a possibility; rather, he believed that there were systematic features of capitalist accumulation that inevitably led towards this. Marx's own writings discuss a number of different aspects of this process, and some subsequent Marxists have tended to emphasis one aspect at the expense of others. Underlying Marx's view of the business cycle is the idea that capitalist accumulation promotes increases in productivity and a cheapening of commodities, and that crises are a periodic mechanism by which market relations are brought back into alignment with the new set of value relations. However, an important part of Marx's approach also involves a discussion of the conditions under which commodities can be sold, and he sees the imbalances associated with changing value relations manifesting themselves in a widespread inability to sell commodities. He also believed that in the course of an upturn, there was a tendency for wages and the prices of primary commodities to rise, but that such rises would be offset by falls during the subsequent period of recession. The important feature of all these factors is that they result in the rate of profit to fall in the course of a period of expansion.

Although the factors which lead to a fall in the rate of profit have received the most attention in the Marxist discussion of the business cycle, Marx's own analysis of the cycle also involved a central role for the financial system. Marx argued that the expansion of credit was a necessary feature of a period of accumulation. However, he also argues that capitalist firms thereby become committed to meeting a series of payment commitments. Furthermore, the later stages of an upturn are accompanied by an increase in interest rates, and, consequently, the interest payments that have to be paid rise. For Marx the combination of a fall in the rate of profit and a rise in the rate of interest squeezes the income of industrial and commercial firms, and is responsible for triggering a crisis, which leads to a collapse of credit and a sharp deflation.

Marx's account of the financial mechanisms of the crisis are framed in terms of the institutional structures of his time, and for this reason a number of more recent analyses of the business cycle by post-Keynesian writers were also considered. These approaches point to the development of fragile financial relations in the course of a business expansion, particularly in the later stages of an expansion. They then see a combination involving the demand for credit outstripping the supply, together with a more restrictive monetary policy by the state leading to a rise in interest rates, which culminates in a credit crunch, and a downturn in economic activity. However, the post-Keynesians show how the emergence of the central bank as a lender of last resort has meant that the type of savage deflation observed by Marx has been avoided, and they also argue that the growth of government expenditure has made it possible for the state to exercise some influence over the timing of the cycle, although not to eliminate it. Nevertheless, these approaches focus almost exclusively on the sphere of finance, and they therefore do not involve any conception that contradictions in the sphere of production might lead to a fall in profitability. Whatever insight these articles might offer about the current structure of finance, a weakness which they all share is the implication that if financial instabilities could be eliminated, this would make it possible to overcome the cyclical nature of accumulation.