The causes of disequilibrium to be discussed in this chapter are not always separated by a sharp line from those discussed in the preceding chapter, and, after the initial stage has been passed, they shade off into one another.1 For a disturbance initially due to monetary factors will soon set up some disturbance on the investment side, and similarly a disturbance due to investment factors is likely, as we shall see, to cause some modification to monetary factors. But there is, nevertheless, the broad distinction that the former are due to changes on the supply side and the latter, generally speaking, to changes on the demand side.

Moreover there is a further characteristic of great importance which differentiates monetary disturbances (whenever, that is to say, the monetary change is of a quasi-permanent nature) from investment disturbances; namely that the former represents a passage from one equilibrium price level to another, whereas the latter (even when the investment change is of a quasi-permanent nature) is an oscillation about an approximately unchanged price level. Thus the former ends up in a new price structure; whereas the latter is calculated to generate an equal and opposite reaction later on. It is this characteristic which makes it appropriate to designate investment disturbances as credit cycles.

I. THE DEFINITION OF THE CREDIT CYCLE

Our fundamental equation has demonstrated that, if costs of production remain constant, the purchasing power of money

1 This is particularly the case where the change in the supply of money for the industrial circulation is due to a change in the requirements of the financial circulation; which latter should perhaps have been classified as a change due to investment factors.
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suffers a seesaw movement up and down according as the volume of savings exceeds the cost of investment or the cost of investment exceeds the volume of savings. On the other hand, if the volume of savings is equal to the cost of investment, then the purchasing power of money fluctuates inversely with the costs of production. Moreover, the effect on the purchasing power of money of a change in the costs of production and the effect on it of a disequilibrium between the volume of saving and cost of the investment are additive and superposable.

We have called increases and decreases in the costs of production income inflation and deflation respectively, and excesses and defects in the cost of investment over the volume of saving commodity inflation and deflation respectively. We now define the credit cycle to mean the alternations of excess and defect in the cost of investment over the volume of saving and the accompanying seesaw in the purchasing power of money due to these alternations. In any given circumstances, however, costs of production are unlikely to remain stable throughout the course of a credit cycle. Indeed, as we shall see subsequently, commodity inflation and deflation are likely in themselves to set up influences tending towards income inflation and deflation. Moreover where the initial stimulus to change comes from monetary changes, we have already seen that these in their turn must set up credit disequilibria. Thus the actual course of events observable at any time will be a complex phenomenon resulting from the combined effects of changes in the costs of production and of the phases of the credit cycle proper. In common usage the term credit cycle has been applied to this complex phenomenon; and it will often be convenient to follow this looser usage—provided that the initial impulse comes from investment disequilibria and the changes in the costs of production are a reaction to these disequilibria and not to some independent or lasting change in the monetary situation.

We shall see that there is an appropriateness in using the term cycle in this connection, because an excess movement in one
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direction tends to bring into operation not only its own remedy but a stimulus to an excess movement in the other direction, so that the swing of the pendulum is positively to be expected unless something occurs to interrupt it. Moreover the time interval between the beginning of an upward swing on one side of the equilibrium position and the beginning of the reaction will sometimes depend on physical facts connected with the average duration of productive processes, whilst the interval between the beginning of a downward swing on the other side of the equilibrium position and the beginning of the reaction may be connected with the length of life of important capital goods and, more generally, with the duration of the existing contracts between entrepreneurs and the factors of production; so that a certain measure of average regularity in the time phases of the so-called cycle is not inconsistent with what we might expect on a priori grounds.

Nevertheless, we should not overstate the truly cyclical character of these phenomena. Credit cycles can be of many distinct types and many disturbances can arise to interrupt their course. Above all, the behaviour of the banking system can always intervene to mitigate or aggravate their severity.

II. THE GENESIS AND LIFE-HISTORY OF A CREDIT CYCLE

It is not surprising that saving and investment should often fail to keep step. In the first place—as we have mentioned already—the decisions which determine saving and investment respectively are taken by two different sets of people influenced by different sets of motives, each not paying very much attention to the other. Especially is this the case over short periods. There are many reasons, as we shall see in volume 2, why the volume of investment should suffer fairly wide fluctuations. The development of an investment boom certainly does not mean that the entrepreneurs who initiate it have deliberately decided that the public are going to save out of their incomes on a larger scale than before.
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Nor is an investment slump to be explained by entrepreneurs having decided beforehand that the public’s savings are going to fall off. There is, indeed, no possibility of intelligent foresight designed to equate savings and investment unless it is exercised by the banking system; for it is the facilities allowed by the banks which are the marginal factor determining the precise degree to which entrepreneurs will be in a position to carry out their enterprises. Yet hitherto the banking system has been mainly preoccupied with a different objective.

Not only are the decisions made by different sets of persons; they must also in many cases be made at different times. When the increased investment represents an increase of working capital, the act of saving is required, it is true, immediately. But when there is a changeover in the character of production which will lead later on to an increased output of fixed capital, the additional saving is only needed when the process of production is finished. This results from the duration of the process of production, whether of capital goods or of consumption goods. The time occupied in building a house may be no longer than the time occupied between ploughing the wheatfields and eating a loaf of bread raised therefrom. That is to say, the two processes employ the same amount of working capital, and it is only when they emerge from the process of production in a finished form that the first adds to the volume of net investment and therefore needs an act of saving to balance it. Thus when the collective decisions of the entrepreneurs are of such a character that they will result in investment running ahead of saving at some later date, the results will not be apparent until this later date is actually reached, when there will have been time for many reactions to have been set up which cannot be immediately reversed.

The business of saving is essentially a steady process. If there are disturbances in the economic world, these by affecting prosperity may react on the rate of saving. But a disturbance will seldom or never be initiated by a sudden change in the propor-
tion of current income which is being saved. Investment in fixed capital, on the other hand, has been accustomed to proceed irregularly and by fits and starts. We shall examine in Book vi the nature and extent of fluctuations of investment. It is sufficient for our immediate argument to claim the support of common knowledge and experience for the conclusion that the development of disequilibria between the rates of saving and of investment under the existing economic system is nothing to wonder at.

Many writers on the credit cycle have emphasised the irregularity of the rate of investment in fixed capital as being the major cause of disturbance. If we have in mind initiating causes this is probably true. But the most characteristic secondary phase of a credit cycle is due to the growth of investment in working capital. Moreover, whenever we have to deal with a boom or a slump in the total volume of employment and current output, it is a question of a change in the rate of investment in working capital rather than in fixed capital; so that it is by increased investment in working capital that every case of recovery from a previous slump is characterised.

Credit cycles can be analysed into three types, though those which actually occur are generally complex in type and partake of the character of all three. Let us take the case where investment is increasing relatively to saving:

(i) The increased investment may take place, without any change in the total volume of output, by the substitution of the production of capital goods in place of consumption goods; in this case the increase of investment will not materialise until after the elapse of a production period.

(ii) The increased investment may take the form of an increase of working capital corresponding to an increased total output due to an additional production of capital goods being superimposed on the existing output; in this case the increase of investment will begin from the outset, being first of all in the shape of working capital.

1 See volume 2, chapter 27.
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capital and, after the elapse of a production period, in the shape of fixed capital.

(iii) The increased investment may take the form of an increase of working capital corresponding to an increased total output due to an additional production of consumption goods being superimposed on the existing output; in this case the increase of investment will only continue for the duration of a production period.

A phenomenon partaking of the characters of (i), (ii) and (iii) in varying degrees may also be complicated by the presence of some measure both of income inflation (i.e. of rising costs of production) and of capital inflation (i.e. a rise of the price level of new investment goods relatively to their cost of production).

The occurrence either of a commodity inflation or of a capital inflation will tend to cause a profit inflation; and a profit inflation will bring about an income inflation through the eagerness of entrepreneurs to secure the services of the factors of production. But—theoretically at least—it is possible to disentangle from these complications the element of commodity inflation which constitutes a credit cycle. Moreover, a commodity inflation of type (iii) above may be considered as the most characteristic of a credit cycle, because—as we shall see—all credit cycles tend to end up, however they may begin, with an admixture of this type.

The possible varieties of the paths which a credit cycle can follow and its possible complications are so numerous that it is impracticable to outline all of them. One can describe the rules of chess and the nature of the game, work out the leading openings and play through a few characteristic end-games; but one cannot possibly catalogue all the games which can be played. So it is with the credit cycle. We will begin, therefore, by examining the three openings and then proceed to an analysis of the characteristic secondary phase.
A. The primary phase

(i) Let us suppose that circumstances have come about which lead entrepreneurs to believe that certain new investments will be profitable; for example, a new technical discovery, such as steam or electricity or the internal-combustion engine, or a shortage of houses due to a growth of population, or more settled conditions in a country where previously the risks of normal development had been excessive, or a capital inflation due to psychological causes, or a reaction stimulated by cheap money from a previous period of under-investment, i.e. a previous slump.1 If they are to put their projects into operation, they must either attract factors of production from other employments or employ factors previously unemployed.

Let us begin with type (i) above where factors previously producing consumption goods are now turned on to producing capital goods. In this case no effect will be produced on prices until after an interval of time equal in length to the process of production of the consumption goods which were previously, but are no longer, being made. For during this interval earnings are as before and the output of available goods is also as before. But after the expiry of the appropriate interval, whilst earnings will be unchanged, the amount of available output will fall off to an extent corresponding to the amount of consumption goods previously, but no longer, made—with the result that the consumption price level will rise, unless there is a corresponding increase in the proportion of earnings saved. The upward-price phase of the credit cycle will have made its appearance.

It is to be observed that prices will necessarily have risen more than in proportion to a rise, if any, in the costs of production. It is not necessary to assume that the changeover from one kind of production to another is achieved without an increase in the cost of production (i.e. in earnings)—that is to say, without any

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1 War expenditure, not covered by taxation, is most conveniently regarded for the purposes of the present argument as a sudden increase of investment; cf. volume 2, chapter 30.
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income inflation. Indeed the changeover will often, perhaps usually in the contemporary world, come about by the new entrepreneurs attracting factors of production to themselves by bidding up the rate of earnings. In this case earnings being increased from the very start out of proportion to output, the consumption price level will rise proportionately to the amount of income inflation. But however large or small the amount of the income inflation, the effects of the commodity inflation will be superimposed on it and will essentially consist in a rise of prices relatively to costs and earnings. After the necessary interval of time has elapsed, the available output coming on to the market will be diminished and real earnings must fall, i.e. the consumption price level must rise more than earnings. Income inflation, however great, leaves the equilibrium of earnings, costs and prices just where it was; it is only commodity inflation which can disturb this equilibrium. The commonest form of type (i) in practice is an income inflation, possibly slight in degree, brought about by the insistence of new producers, followed by a commodity inflation after an appropriate interval. In any case the characteristic conclusion of the primary phase of a credit cycle consists in a rise of the consumption price level out of proportion to costs.

(ii) Type (ii), however, is the more usual, namely, that in which the increased investment is accompanied by an increase in the total volume of production; i.e. where there is from the outset a growth of working capital not balanced by additional saving. For the increased production of capital goods is more likely to be additional to, than in substitution for, the previous production of consumption goods; if only because the factors of production engaged on the latter are not easily turned over to the former at short notice. This assumes, of course, that the factors of production are not fully employed at the moment when the cycle begins its upward course; but then that generally is the case, whether as the result of the slump which had ensued on the previous cycle or for some other cause. In this case the earnings of
the factors of production increase from the outset, without there being any increase in available output. Prices rise, therefore, at once relatively to earnings and costs; the difference between this case and case (i) being that the upward-price phase of the credit cycle begins immediately.

(iii) Let us next take type (iii) where factors of production previously unemployed are put to work on producing, not fixed-capital goods as in type (ii), but particular categories of consumption goods. The course of events is exactly as in type (ii) for a period of time equal to the duration of the process of production, after which the available output coming on to the market is increased by the same amount—assuming that the rate of efficiency wages is unchanged—as total earnings had been increased at the earlier date, so that prices fall back again to their previous level.

It is to be noticed that expansions of types (ii) and (iii) cannot come about without a substantial change in the monetary situation, since they involve an increase in aggregate earnings as well as in profits. Thus it requires the acquiescence of the banking authorities; though if the banks have got into the habit of concentrating their attention on the volume of the total deposits to the exclusion of other factors, the monetary adjustment may come about without arousing their notice. For an increased volume of money may be furnished for the industrial circulation as the result of a decrease of the financial circulation, i.e. of the savings deposits, since it is particularly likely that in the earliest phases of a boom there will be a unanimity of bull sentiment leading to a decrease of the ‘bear’ position. Failing this, a slight rise in bank rate, which is insufficient to counteract the tendency towards commodity inflation, may serve to increase monetary facilities sufficiently to look after the increased earnings; either by increasing the velocities of circulation as a result of the enhanced cost of maintaining balances (and a very slight change of velocities will usually be enough), or—if we are concerned with a country which belongs to an international system—by attracting
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gold from abroad.\textsuperscript{1} An expansion, however, of type (i)—where the volume of liquid goods coming on to the market is diminished because more productive effort has been concentrated on capital goods—can come about with only a slight alteration in monetary factors, and therefore requires more positive action on the part of the banks if it is to be avoided.

We may note in passing that where the price of consumption goods is raised, not by a falling-off in their supply, but by an increase in the volume of employment not (immediately) compensated by an increase of their supply, the volume of employment will, as a rule, increase gradually, and entrepreneurs, entering into plans for increased production, will be inclined to place their orders ahead for some part of the half-finished goods which they are going to require. Thus the price of working capital, i.e. the wholesale standard, will tend to increase sooner and faster than the consumption standard. Such anticipatory price movements, however, are still part of the primary phase.

We have taken as our standard case an increase of investment uncompensated by increased savings. But the same arguments apply, \textit{mutatis mutandis}, when a credit cycle has been initiated by a drop in saving uncompensated by decreased investment. This is not very likely to occur in practice on an important scale, because the influences which determine the volume of saving are of such a kind that they are not so likely to change suddenly as are those which determine the volume of investment. If, however, saving does fall off for any reason, this will mean a larger expenditure on the same available consumption goods as before, so that, as in the other cases, prices move upward. Nor is there any theoretical reason why a credit cycle should not start with a downward phase, due to investment falling off whilst saving keeps up. This might result from some blow to the confidence of entrepreneurs in particular types of enterprise, or by a capital deflation

\textsuperscript{1} In countries (such as most of those on the continent of Europe), where the volume of money partly depends on the volume of suitable bills available to be discounted at the central bank, an increase in the volume of output has a direct tendency to produce some corresponding increase in the volume of circulating money.
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which left unaffected the readiness of the public to save. Most often of all, perhaps, an upward phase is brought about as a reaction from a previous downward phase and a downward phase as a reaction from a previous upward phase, boom succeeding slump and slump succeeding boom; though the precise date at which the reaction commences will be usually determined by some independent change in the environment due to non-monetary factors.

B. The secondary phase

The price movements so far considered belong to the primary phase of the credit cycle. They are brought about, not as the result of attempts to take advantage of the occurrence of profits, but because entrepreneurs see advantageous opportunities for increased activity in particular directions. The secondary phase, however, is of a different character. We have emphasised the point that it is of the essence of a commodity inflation that prices rise out of proportion to the increase, if any, in the costs of production. Consequently those entrepreneurs who have liquid consumption goods emerging from the process of production are able to sell them for more than they have cost, or are costing, to produce, and so to reap a windfall profit. The high prices also act as an inducement to retailers and wholesalers to reduce their stocks—which they can now realise at an unusually satisfactory price—below their normal level. To the extent that this occurs it operates, indeed, by reducing investment in one particular kind of working capital, as a partial offset to the excessive investment in other directions. But the almost inevitable result of profits on current output and the visible depletion of stocks is to encourage manufacturers of consumption goods to strain their efforts to increase their output. We thus have, under the influence of the windfall profits accruing from the price rise consequent on the primary phase of the credit cycle, a secondary stimulus to an increased volume of production—which, this time, is of an all-round character and affects all types of goods which are the object of general consumption.
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This secondary phase is even more likely than the primary phase to involve some measure of income inflation as well as of commodity inflation. For the attempt to increase still further the volume of employment will probably have the effect of stiffening the attitude of the factors of production and enabling them to obtain a higher rate of remuneration per unit of output. Moreover, in certain cases specialised factors of production will be fully employed, with the result that the emergence of profit will cause entrepreneurs to bid against one another for such supply of these factors as is available, thus raising the rate of remuneration in these particular cases. With the progress of income inflation the surplus bank resources which gave the stimulus to entrepreneurs to extend their activities fade away (because of the increasing demands of the industrial circulation), but so long as any element of commodity inflation is still present the stimulus continues. Furthermore, in so far as a further rise of prices is expected, there may set in a tendency to hoard liquid goods, which aggravates the excess of investment over saving, and so precipitates the very rise in question.

C. The collapse

Now whether or not the primary phase contains within it the seeds of a reaction, the secondary phase necessarily does. If the primary phase is caused by an increased production of capital goods, the higher price level will continue so long as this capital output continues—which, in appropriate conditions, might be a long time, though the incentive to an increased output of capital goods should diminish, just as the incentive to the production of consumption goods increases. But if it is caused by an increased production of consumption goods, then, after an interval governed by the length of the process of production, the supply of such goods coming on to the market will be increased fully in proportion to earnings. Thus there will no longer be any occasion for the higher price level, and prices will drop back to their former figures. Only in so far as income inflation has
occurred can a higher level be maintained. Now, since the secondary phase necessarily stimulates the production of consumption goods, it follows that even where the primary phase is caused by an increased production of capital goods, the secondary phase brings with it the seeds of a reaction, which will germinate as soon as the increased supply of consumption goods is ready for the market. Thus, sooner or later, consumption goods will be coming on to the market which can no longer be sold at the previously ruling price; so that the downward price phase of the cycle now commences.

This downward price movement, whilst obliterating in whole or in part the windfall profits which had been ruling previously, should not, taken by itself, involve entrepreneurs in an actual loss; and, indeed, so long as any element of over-investment continues, some degree of profit will still remain. For, provided saving does not exceed investment, entrepreneurs can always sell consumption goods for an aggregate sum which is at least equal to their cost of production. Thus there is no theoretical necessity for a reaction leading to windfall losses; when the over-investment comes to an end, the boom may just cease. We shall examine a particular case of this in detail in chapter 20.

Nevertheless, there are many reasons why in actual fact the downward price phase is likely to usher in, not merely the end of windfall profits, but the beginning of windfall losses.

First of all, on the investment side new influences will be coming into operation. Some entrepreneurs will, as a result of inaccurate forecasting, have been led into producing in conditions of subnormal efficiency in which they cannot cover their costs of production unless prices are such that entrepreneurs as a whole are making a windfall profit. The fall of prices will, therefore, cause these entrepreneurs to cease such production—which will, by reducing investment in working capital, reduce the total rate of investment. The sight of falling prices, and perhaps of a declining volume of output also, may change financial sentiment in two ways—‘bear’ views may develop,
with the result of augmenting the demand for money in the
financial circulation and so reducing the supply of money for the
industrial circulation, thus causing the banks to force a reduction
of investment, and the capital inflation (which, as we have seen,
is influenced more by opinion than by the volume of money) may
disappear, perhaps giving place to a capital deflation (i.e. a fall
of $P'$), thus removing one of the stimuli to over-investment.

Meanwhile, on the monetary side also the position will be
changing. Apart from the cessation of the bullish unanimity
which had temporarily augmented the industrial circulation at
the expense of the financial circulation, the other short-period
factors, which had permitted a certain augmentation of the
earnings bill, will have come to the end of their tether. It may be
that their tendency will be actually reversed—for example, velo-
cities of circulation may tend back to normal; and, if the commo-
dity inflation has spread to other countries, or for other reasons,
the existing level of bank rate may cease to draw gold or may
even cease to retain the existing stock. More probably, however,
the potentialities of the factors of expansion will become ex-
hausted rather than—in the first instance at least—reversed. For,
as the credit cycle proceeds, the windfall profits of entrepreneurs
will be continuously stimulating them to bid against one another
for the services of the factors of production, so that the profit
inflation will gradually pass over into an income inflation and, in
proportion as it does so, more and more money will be required
for the support of the industrial circulation.

A point will come, therefore, when the effort to expand or to
maintain the volume of the industrial circulation will drive the
effective bank rate to a level which is, in all the circumstances,
deterrent to new investment relatively to saving. At this point
the slump sets in. The reaction from the boom will not merely
have brought back prices and profits to the normal, but an era of
business losses and subnormal prices will have commenced.

All this presumes of course that the banking system has been
behaving according to the principles which have in fact governed
it hitherto, and that it lies either outside its purpose or outside its power so to fix and maintain the effective bank rate as to keep saving and investment at an approximate equality throughout. For if it were to manage the currency successfully according to the latter criterion, the credit cycle would not occur at all.

I have in this chapter described the genesis and life history of the credit cycle in the most general possible terms. It is obvious that the actual course of events can follow innumerable courses differing from one another in detail. But a great many different cases can, I think, be fitted into the above generalised framework.