

7. Financial Capital and Production Capital

A. Different Functions; Different Criteria

The time has come to make explicit the definitions of finance and production capital, which have been implicit in the previous discussion. Neither refers to the actual capital (which is both paper and real at the same time), but rather to the agents and their purposes. In both cases, the term ‘capital’ is used here to embody the *motives and criteria* that lead certain people to perform – or hire others to perform – a particular function in the process of wealth creation within the capitalist system.⁹⁰

Thus, *financial capital* represents the criteria and behavior of those agents who possess wealth in the form of money or other paper assets. In that condition, they will perform those actions that, in their understanding, are most likely to increase that wealth. In the process, they may acquire deposits, stocks, bonds, oil futures, derivatives, diamonds or whatever. They may receive interest, dividends or capital gains, but in the end, by whatever means, their purpose remains tied to *having wealth in the form of money* (‘liquid’ or quasi-liquid) and *making it grow*. To achieve this purpose, they use the services of banks, brokers and other intermediaries who provide information, perform the contracts and in general embody the drive to make paper wealth grow. It is the behavior of these intermediaries *while fulfilling the function of making money from money* that can be observed and analyzed as the behavior of financial capital. In essence, financial capital serves as the agent for reallocating and redistributing wealth.

By contrast, the term ‘production capital’ embodies the motives and behaviors of those agents who generate *new* wealth by producing goods or performing services (including transport, trade and other enabling activities). By ana-

90. This is somewhat akin to Schumpeter’s distinction of the financial and the entrepreneurial function (1939, Vol. 1, Ch. III). In this case, however, the routine functions of production are being encompassed together with the innovative ones in the concept of production capital (approaching the more conventional distinction between money economy and real economy). Although recognizing the enormous importance of Schumpeter’s distinction when referring to innovation and extraordinary profits, in this case, all agents of direct production, innovative or routinized, will be considered as production capital. The present distinction is therefore more in line with Veblen’s (1904) view of the difference – and even opposition – between the ‘captains of finance’ and the ‘engineers.’

lytical definition, these agents do this with borrowed money from financial capital and then share the generated wealth. If they are using their own money, they are then performing both functions. Their purpose as production capital is to produce in order to be able to produce more. They are essentially builders. Their objective is *to accumulate greater and greater profit-making capacity*, by growing through investment in innovation and expansion. They can be owner managers or employed managers and directors. Their power stems from the power of the specific firm and their personal wealth will depend on the success of their actions as producers.

The object here is to clearly distinguish between the actual process of wealth creation and the enabling mechanisms, such as finance, which influence its possibility and shape the ultimate distribution of its results. This functional distinction is essential to the nature of the capitalist system.⁹¹

Schumpeter defined capitalism as ‘that form of private property economy in which innovations are carried out by means of borrowed money’.⁹² So, the separation between the agents and their roles leads to complementary though very different behaviors.

Financial capital is mobile by nature while production capital is basically tied to concrete products, both by installed equipment with specific operational capabilities and by linkages in networks of suppliers, customers or distributors in particular geographic locations. Financial capital can successfully invest in a firm or a project without much knowledge of what it does or how it does it. Its main question is potential profitability (sometimes even just the *perception* others may have about it). For production capital, *knowledge* about product, process and markets is the very foundation of potential success. The knowledge can be scientific and technical expertise or managerial experience, it can be innovative talent or entrepreneurial drive, but it will always be about specific areas and only partly mobile. Both financial capital and production capital face risks that vary with circumstances from great to minimal. Yet, while financial capital can choose widely how to invest its money, avoiding or withdrawing from risks which it deems too high for the likely returns, most agents of production capital are in path-dependent situations and must find alternative actions within a limited range, often needing to lure financial capital or face failure. As far as truly new ventures are concerned, innovators may

91. Nevertheless, the distinction being made here, between financial and production capital, serves the purposes of the specific model being presented. Hilferding’s (1910:1981) notion of finance capital, as the fusion of industrial and financial capital, is a category in a different theoretical framework. Another level of discourse, which is not attempted here, is the distinction between the changing forms of capital in the process of wealth creation and accumulation, especially of the role of money as motivation and instrument in its different forms and transformations. For such an in-depth analysis, see Wolfgang Drechsler (2002).

92. Schumpeter (1939) p. 223.

have brilliant ideas for which they are willing to take huge risks, devoting their whole lives to bringing their projects to reality, but if finance is not forthcoming they can do nothing.

All these distinctions lead to a fundamental difference in level of commitment. Financial capital is footloose by nature; production capital has roots in an area of competence and even in a geographic region. Financial capital will flee danger; production capital has to face every storm by holding fast, ducking down or innovating its way forward or sideways. Yet, though the notion of progress and innovation is associated with production capital – and rightly so – ironically when it comes to radical change, incumbent production capital can become conservative and then it is the role of financial capital (whether from family, banks or ‘angels’) to enable the rise of the new entrepreneurs.

B. The Changing Relationship Between Financial and Production Capital

According to the present interpretation, continuous technical change takes place within discontinuous surges, diffusing successive technological revolutions. The types and amounts of profit-making opportunities vary significantly along the life cycle of each technological revolution. Now is the time to analyze how the relationship between financial and production capital changes along the phases of each surge.

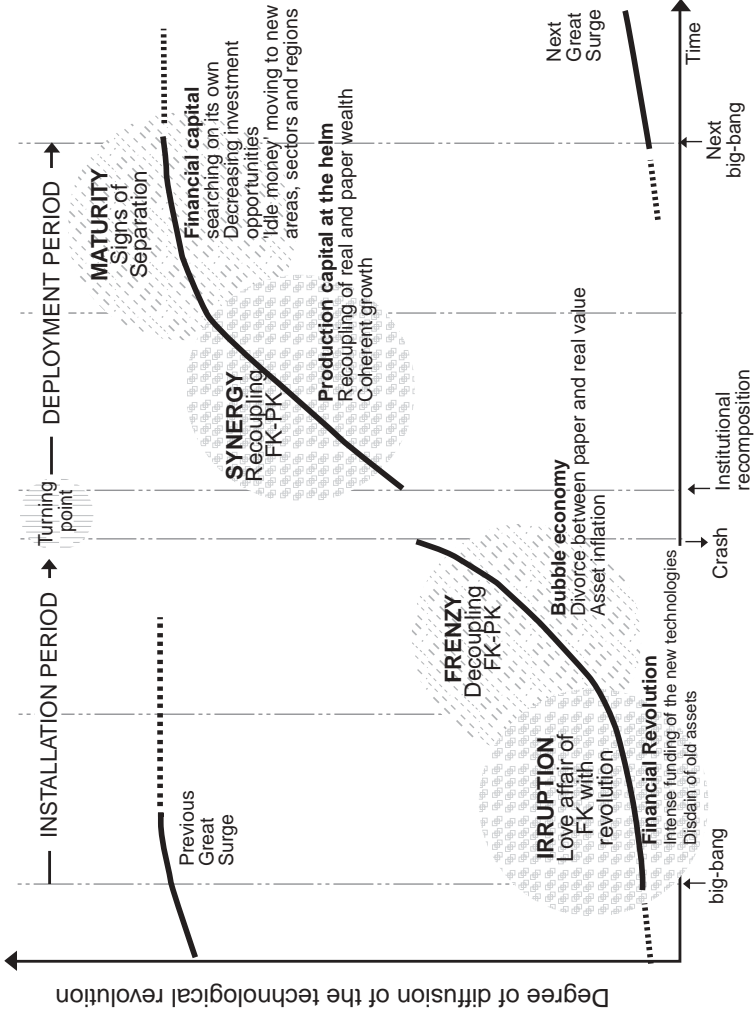
The same sequence that was described in Chapters 4 and 5, from the standpoint of technological change and its assimilation by the economic and social system, will now be viewed concentrating on the behavior of financial capital. Figure 7.1 summarizes the sequence.

The love affair of the irruption phase

In the period immediately following the big-bang that announces a technological revolution, financial capital begins a passionate relationship with the emerging production capital. The new revolutionary entrepreneurs soon outstrip the profit-making potential of all the established production sectors and there is a rush of financial capital towards them, readily developing new appropriate instruments whenever necessary. The agents of financial capital (brokers, banks and other financial institutions) are quick to adopt whatever innovations facilitate and widen their range of operations, in particular those associated with communications and transport.

Thus, the role financial capital plays in this period is to help spread the revolution. As discussed in Chapter 3, the functional separation between production and financial capital facilitates the movement of investment money

Figure 7.1 The recurring sequence in the relationship between financial capital (FK) and production capital (PK)



towards a new breed of technological entrepreneurs, who might not have had any financial connections before. This movement is all the more likely at this time, given that the revolution crystallizes partly because the opportunities for profitable investment with the now old paradigm have been approaching exhaustion. So there is 'idle money' in search of profitable use.

Old production capital is facing diminishing returns to innovation as well as market saturation. By comparison with the new sectors, its profits become uninteresting and financial capital tends to flee from them. This deepening techno-economic split was behind the 'stagflation' experienced by the advanced countries in the 1980s. Soon, however, it becomes clear to financial capital that no matter how high the rate of growth of the new sectors they are still only a small fraction of the economy. Yet the habit of obtaining high yields has caught on and become the normal level of expectations. In order to achieve the same high yield from all investments as from the successful new sectors, financial capital becomes highly 'innovative'. Imagination moves from real estate to paintings, from loans in far away countries to pyramid schemes, from hostile takeovers to derivatives or whatever.

Decoupling in the frenzy phase

After the growing confidence acquired in the previous phase, financial capital becomes convinced it can live and thrive on its own. Brilliant successes in a sort of gambling world make it believe itself capable of generating wealth by its own actions, almost like having invented magic rules for a new sort of economy. Production capital, including the revolutionary industries, becomes one more object of manipulation and speculation; the decoupling between financial and production capital is almost complete.

Nevertheless, this is a time of innovation for production capital; the new paradigm opens vast opportunities for new products, processes and services as well as for rejuvenating the old. It is also – and especially – the time of fast development of the infrastructure of the new paradigm, which facilitates a host of other related innovations. So during this period, financial capital generates a powerful magnet to attract investment into the new areas, hence accelerating the hold of the paradigm on what becomes the 'new economy'. Financial capital then acts as the agent of massive creative destruction.

The entrepreneurs of new firms as much as the management of the old (whether modernizing or not) are forced to do whatever is necessary to attract the players in the casino and then worry as much – or more – about the performance of their stock valuations as about their actual profits. Financial capital reigns arrogant and production capital has no alternative but to adapt to the new rules; some agents with glee, others with horror.

In a world of capital gains, real estate bubbles and foreign adventures with money, all notion of the real value of anything is lost. Uncontrollable asset

inflation sets in while debt mounts at a reckless rhythm; much of it to enter the casino. Thus grows the vast disproportion between paper wealth and real wealth, between real profits or dividends and capital gains. But the illusion cannot last forever and these tensions are bound to end in collapse. This can happen in a series of partial crises in one market after another, in one huge crash or a combination of both; however it happens, the bubble needs to burst.

Collapse and recession: The turning point

The painful processes of implosion that mark the end of the frenzy phase bring paper values in line with real values and, through their consequences, are likely to bring reluctant financial capital back to reality. What follows can be a time of reckoning and acceptance, when regulation of various sorts is put in place or generalized, in particular that which puts order in the behavior of financial capital and tends to re-establish the proper connections with production capital. An adequate institutional readjustment is needed, all the more urgently given the difficult recessive situation that usually follows. The basic task of institutional recomposition involves creating the conditions for expanding markets and putting production capital in control. The length of the recession will depend on the social and political capacity to establish and channel the institutional changes that will restore confidence and will put the accent on real wealth creation.

The happy marriage of the synergy phase

Once the appropriate conditions have been created, the period of deployment begins. In this early phase, the recoupling of financial and production capital can lead to a happy and harmonious marriage, where production capital, based on the by now prevailing paradigm, is clearly recognized as the wealth-creating agent and financial capital as the facilitator. When this is effectively achieved, innovation and growth can take place across the whole productive spectrum and financial wealth may take its share in the profits in what is clearly a positive sum game. Less harmonious frameworks (as suggested before, rather than a golden age, a gilded age), still under the *aegis* of financial capital, can occur, maintaining some of the previous tensions. But the ferocious competition of the frenzy phase has by this time led production capital to form oligopolies and to begin favoring the expansion of markets. So whatever the institutional set-up, the renewed link between financial capital and actual production will increasingly involve real growth and real dividends.

Hence, the role of financial capital when the period of deployment begins is to strengthen production capital across the economy and to give support to the real growth process. This is the time when the theoretical notion of financial capital as an intermediary comes closer to being realized in practice.

Trouble again in maturity

In the late phase of deployment comes disappointment. Some of the erstwhile fastest-growing and highly profitable sectors of production capital begin to reach limits to growth in both productivity and markets. Technological outstretching and geographic migration are some of the routes followed by production capital, still supported by financial capital. The profits that continue to flow from this ailing part of the economy and from the still dynamic firms and sectors, find a decreasing spectrum of outlets for fruitful investment and become 'idle money'. Thus financial capital is under pressure from eager money growing faster than good opportunities and begins to look around for other profitable or exciting things. These include loans to distant places and radically new technologies. The first will later lead to debt crises; the second, to the next technological revolution.

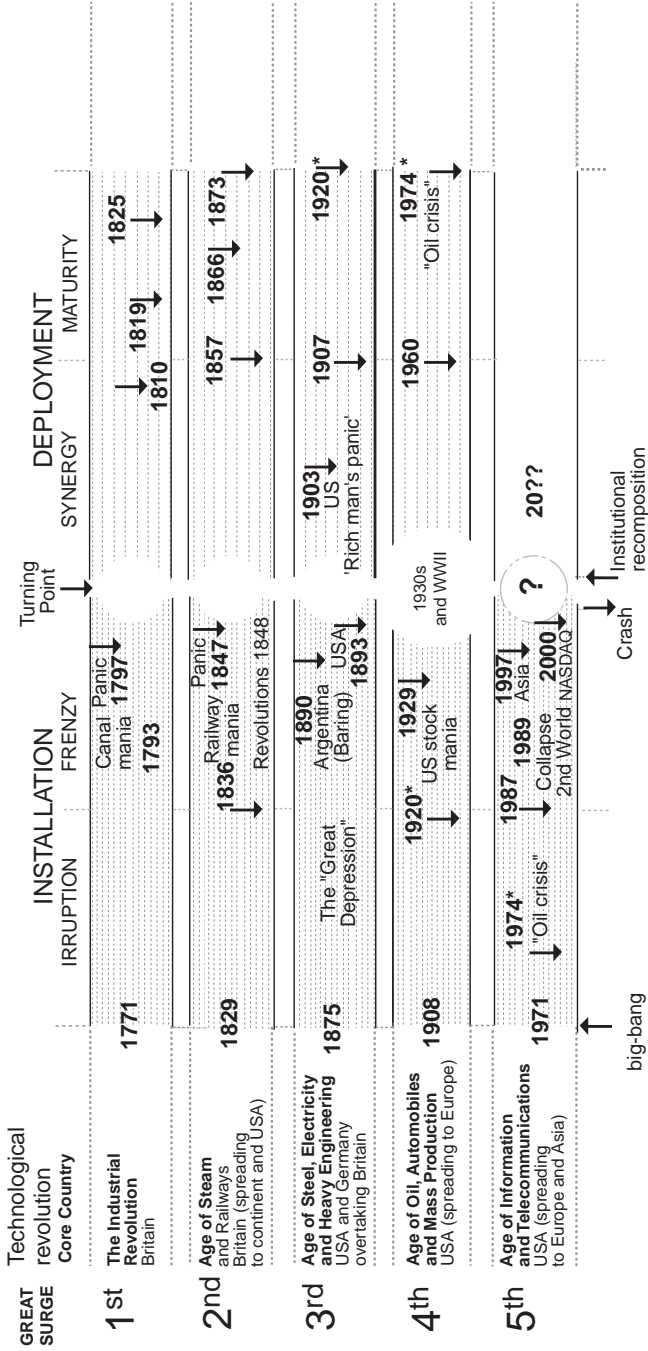
C. Recurrent Phases and Financial Crises

The framework so far presented does not claim that all financial collapses are of the same nature or that they all follow a strict causal sequence connected with the diffusion of technological revolutions. What is suggested is that among the many mechanisms at play in any particular crisis, there are causal chains that have their origin in the role of technological life cycles in providing changing amounts and qualities of investment and profit opportunities. They may thus act as background causes for what appears to be happening merely in the financial sphere.

There is one type of collapse, though, which is directly connected with technological revolutions. It is the crash – or series of mini-crashes – that tends to close the casino bubble at the end of the frenzy phase, when the decoupling between financial and production capital is extreme, when paper values are mainly related to the asset inflation game and break loose from the expected dividends or other measures of actual performance. This is the crisis that most directly enters the causal links being discussed here and it is both its occurrence and its outcome – or even its possible absence – that can play a determining role in shaping the institutions of the world to come after it. At the same time, the specific way in which this crisis is overcome will strongly influence the directions taken by the potential of the paradigm during the ensuing deployment period.

Figure 7.2 locates the main financial crises of the two centuries being analyzed in the corresponding phases of each technological wave. The purpose is to help the reader identify the isomorphs, locate the approximate dates of the parallel phases being discussed, as well as to open the record for the analysis of the various crises.

Figure 7.2 Five successive surges, recurrent parallel periods and major financial crises



Note: * Phase overlaps between successive surges.

Source: Dates of crises are from Kindleberger (1978:1996), Appendix B.

The figure shows the truly major collapses located about two or three decades after the big-bang of each revolution. Apart from the relatively regular timing, it is interesting to note that these particular bubbles have tended to bear the name of the infrastructure of the corresponding revolution: canal mania, railway mania and now the Internet bubble, so that in these cases the ‘main objects of speculation,’ as defined in the Kindleberger model,⁹³ happen to be of a technological nature.

Other regularities are worth noting:

- collapses are less likely during Irruption and Synergy,⁹⁴ though frequent at the passage from the installation to the deployment period and vice versa;
- there is a bunching of crises in the turbulent economy of the frenzy phase and in the decelerating economy of the maturity phase; and
- the passage from the early to the late phase of each period is sometimes marked by a financial crisis.

There is a certain amount of circularity in all these observations, because the phases have been dated taking the occurrence of crises into account. It is in the nature of the model being presented that these features should roughly hold.

* * *

Having briefly defined the characteristics of the recurring sequence, the next chapters enter into a detailed analysis of the behavior of financial capital in each of the phases of propagation of the technological revolution. This will be done following the discussion about changing investment opportunities put forward in Part I. As up to now, a stylized narrative will be used.

The narrative will not begin in the irruption phase, with the big-bang of the technological revolution. Instead, it goes back a decade or so to begin with the description of the maturity phase, which is the time when the previous paradigm begins to confront the limits to its potential. This choice is fundamental because the model requires starting from the period of gestation of the next technological revolution. That is the time when the conditions are created for financial capital to play a role in sowing the seeds for its emergence. From then on, the narrative follows the changing performance of financial capital

93. Kindleberger (1978) pp. 6 and 38–41. Following Minsky, Kindleberger identifies the elements that combine for each of the big mania-type panics: an exogenous shock that sets off the mania, a specific object of speculation (commodities, real estate, bonds, stocks and so on) and a particular source of monetary expansion.

94. The crisis of 1903 only lasted about four months. It was called ‘rich man’s panic’ because it hit mainly the biggest investors. Sobel (1965) pp. 981–2.

with each phase of diffusion of the paradigm. As far as possible, the arguments will be illustrated with examples from parallel phases of different surges.