

13. The Changing Nature of Financial and Institutional Innovations

So far it has been proposed that the irruption of technological revolutions every 40 to 60 years unleashes a process of transformation that affects every aspect of society. For approximately the first half of the surge, financial capital drives the diffusion process, forcefully pushing the revolution forward. During the second half, it is usually production capital that conducts the growth process propagating the paradigm across the economy. Throughout the successive phases of diffusion, deep and widespread transformations must occur, which demand adequate innovations not only in the production sphere – in products, processes and modes of organization – but also in finance and institutions. These innovations condition the extent to which a technological revolution will deliver its potential and the distribution of its economic and social benefits. In turn, it is the characteristics of the specific revolution that will determine the nature of the problems to solve by the innovations in both those spheres and, through the principles of the paradigm, the manner in which to solve them.

A. Financial Innovations from Phase to Phase

The process of switching from a production-led economy in the deployment period to a finance-led economy in the installation period (and vice versa), profoundly affects the direction and intensity of innovation in the financial sphere itself. In fact, as has been discussed throughout Part II, in each of the phases the behavior of finance capital is strongly influenced by the changing quantity and quality of opportunities for augmenting paper wealth. Sometimes the paper values represent real wealth; at others they may be just a perverse form of redistribution. Generally there is a changing mix of both. The same variety will appear in relation to the nature of innovations.

Table 13.1 proposes a typology of financial innovations, classifying them according to their main purposes and ranking them from the most useful for the ‘real’ economy to the least useful. The top ones provide the life-blood for entrepreneurship and production; the lowest ones take blood out of the economy through manipulating paper wealth.

Table 13.1 A tentative typology of financial innovations

Type and purpose of financial innovations

A Instruments to provide capital for new products or services	<p>For radical innovations (bank loans, venture capital and others)</p> <p>To enable large investments and/or spread risks (joint stocks, bank syndicates and so on)</p> <p>To accommodate the financial requirements of new infrastructures (for both construction and operation)</p> <p>To facilitate investment or trade in novel goods or services</p>
B Instruments to help growth or expansion	<p>For incremental innovations or production expansion (like bonds)</p> <p>To facilitate government funding in different circumstances (war, colonial conquest, infrastructural investment, welfare spending)</p> <p>For moving (or creating) production capacity abroad</p>
C Modernization of the financial services themselves	<p>Incorporation of new technologies (communications, transport, security, printing and so on)</p> <p>Development of better forms of organization and service to clients (from telegraph transfers, through personal checking accounts and high street banking to automatic tellers and E-banking)</p> <p>Introduction of new financial instruments or methods (from checks to virtual money, local, national and international services and various types of loans and mortgages)</p>
D Profit-taking and spreading investment and risk	<p>Instruments to attract small investors (various forms of mutual funds, certificates of deposit, bonds, IPOs, 'junk bonds')</p> <p>New instruments to encourage and facilitate big risk taking (derivatives, hedge funds and similar)</p>
E Instruments to refinance obligations or mobilize assets	<p>To reschedule debts or restructure existing obligations (re-engineering, Brady Bonds, swaps and others)</p> <p>To buy active production assets (acquisitions, incorporations, mergers, takeovers, junk bonds)</p> <p>To acquire and mobilize 'rent'-type assets (real estate, valuables, futures and similar)</p>
F Questionable innovations	<p>Discovering and taking advantage of legal loopholes (fiscal havens, off-the-record deals and so on)</p> <p>Discovering and taking advantage of incomplete information: 'making money from money' (foreign exchange arbitrage, leads and lags and similar)</p> <p>Making money without money (from pyramid schemes to insider trading and outright swindles)</p>

Type A and B innovations are those related to the basic role of finance as an intermediary in relation to production investment, either to initiate activities (A), or for growth, expansion and extension (B). Type C innovations improve the performance of the financial world itself – from banks to investment firms – as a service production activity. Type D innovations, could be seen as a form of marketing for financial services: they make it easier – and apparently less risky – for possible clients, large and small, to engage in investment activities. They also facilitate the profit taking of the original creditors, in cases of venture capital, or of the successive investors in bull markets capturing capital gains. Type E innovations refer to the role of financial services as vehicles for mobilizing existing assets or obligations from hand to hand, that is, as channels for change of ownership. Finally, type F innovations are the various manipulative practices – mainly legal, though often illegitimate – in which financial agents can participate, most of which tend to be socially undesirable but not easily curtailed.

In the USA, in the early 1910s, it became common for banks to set up investment affiliates to be able to buy stock forbidden to them by law, given its high risk for depositors' money. 'Although not illegal in the strict sense of the word, this practice circumvented the spirit of the law, and was called by one writer "a masterpiece of legal humor"²²¹

Although innovations of all types can occur in all phases, the frequency of each type can change significantly. Each phase has characteristics that will bring forth certain types of financial innovation as shown in Table 13.2.

The irruption phase, just after the big-bang, presents the maximum intensity and variety of innovations. In the first place, it will provide a crop of type A innovations, involving venture capital in whatever form is adequate for the particular revolution, as well as forms of funding trade in the new products. At the same time, new ways of financing development in the periphery (type B) are likely to accompany the last period of diffusion of the old industries and some incursions into the new. That is also a time when type C innovations will abound. The financial world is keen to incorporate technological advances in communications, security, printing and so on as well as organizational changes that will allow higher productivity and wider coverage for their services.

In the 1860s and 1870s, the 'ticker tape' (1867) and the telephone (1878) were capable of providing a quantum jump in speed of information and decision making. Wall Street took them up immediately, but the London Exchange delayed their introduction by around five years (in 1872 and 1882 respectively). R.C. Michie explains that whereas the New York Stock Exchange was owned by its members and they were all interested in fast access to information from wherever they were, the owners of the London Exchange were a

221. Reported by Sobel (1965) p. 183.

small group of a much larger membership. For them, facilitating access to outsiders reduced the value of the institution and the income they derived from it.²²² So, as with every other aspect being discussed, the institutional setting will influence both the speed and the manner in which innovations are adopted.

Yet, the irruption phase is also a time when the revolution is still only a minor part of the economy, while the bulk of the industries of the old paradigm are mature and offer few good investment opportunities, so idle money piles up and fosters innovations of types D, E and F. So Irruption witnesses the maximum variety and intensity in financial innovation.

Table 13.2 The shifting behavior of financial capital from phase to phase of each surge

Phase	Prevalent types of innovation						Prevalent characteristics of finance during the phase
	A	B	C	D	E	F	
<i>Irruption</i>	☐	☐	☐	☐	☐	☐	Maximum intensity of real financial innovation
<i>Frenzy</i>				☐	☐	☐	Escape control, attract funds, speculate, inflate assets
<i>Synergy</i>	☐	☐	☐				Adaptive innovations to accompany growth
<i>Maturity</i>		☐			☐	☐	Accompany outspreading, escape control and manipulate

In fact, the whole of the installation period is one of intense experimentation and innovation not only in technology but also in financial practices. The intense connection with the technological revolution from the very early phase builds up a reservoir of appropriate financial innovations capable of dealing with the various peculiar aspects of each paradigm for the whole duration of the surge. Ironically, the many distortions that intensify in the frenzy phase will serve to indicate the type of regulation necessary to avoid them. And this applies not only to the various institutions and instruments of the financial world, but also to the accountancy practices and disclosure rules of the production companies in which the investment is made.

It should be noted that Table 13.2 refers to the prevalent direction of *innovation*, that is, to the phase in which certain types of financial instruments or practices tend to be profusely ‘invented’, introduced and imitated. The application of those practices can last a long time and can often define the normal way of operation in later periods. The most appropriate of the practices developed during the early phases of the revolution will often generalize in the

222. Michie (1987) pp. 250–51.

deployment period, when the new paradigm becomes the 'common sense' for investment and operation across all the sectors of the economy.

When Frenzy arrives, type A practices will still be very strongly helping to spread the new technologies. However, the limit to the absorptive capacity of the still incipient technologies and ways of production generates a profitability gap. The resulting urge to mimic the high profitability levels of the new industries attracts increasing numbers of hopeful investors (and of doubtfully profitable companies) into what becomes the casino economy, moving the pendulum towards type D, E and F innovations. As the bubble builds up, there is a search for new (or renewed) ways of making money out of moving assets from hand to hand or out of manipulating money, generating asset inflation and increasing the real or apparent wealth of the participating investors, without augmenting the wealth of society.

The most notable shift in innovative behavior in finance occurs after the burst of the bubble, between Frenzy and the 'golden age' of early Deployment. In the synergy phase, type A, B and C innovations will tend to prevail, in the form of adaptive innovations to accompany the full deployment of the paradigm. These innovations support a 'back to basics' trend, towards safe price/earnings ratios and towards making money by participating in the real profits made by the productive activities that are being financed.

By Maturity, in contrast, decreasing opportunities are being chased by more and more idle money coming from the 'cash cows' of the well-established industries. Thus creativity in finance moves toward type E innovations for concentration of ownership and power, as well as toward new foreign investment practices of type B. These can be relatively sound investments or very unsound ways of stuffing the peripheries with loans, like geese, and building unpayable sovereign debts, likely to default in the next installation period. When in 1837, Mississippi, Louisiana, Maryland, Pennsylvania, Indiana and Michigan repudiated their debts, 'anger was expressed that foreign banks and investors should now, in hard times, ask for payment of debts so foolishly granted and incurred.'²²³

Other innovations in this phase imaginatively search doubtful means of propping up profits. These are likely to be of the F type, trying, for instance, to increase opacity to stockholders or to fiscal authorities. In the 1960s in the USA, the importance of profit squeezing through accountancy practices and legal loopholes became so large that there were frequent complaints about the supremacy of financial managers over those of production and marketing. In the years before the First World War, in the USA, 'Wall Street was under constant scrutiny from one government agency or another' and so were banks and insurance firms. The uncovering of the so-called 'Money Trust' by the Glass

223. Galbraith (1990:1993) p. 62.

group made the need for regulation clear. Among the consequences was the Glass–Owen Act, creating a timid forerunner of the Federal Reserve System, as another attempt to create a sort of central bank in the United States.²²⁴

Many of those manipulative practices will overflow into the irruption phase, after the next big-bang, as parts of the rationalization and the survival tactics of the existing production structure that continues battling for profits and markets behind the astounding economic success of the technological revolution.

B. Financial Innovations from Paradigm to Paradigm

As financial innovations change in nature and purpose, following the life cycle of each revolution, they are deeply molded by the nature of the specific techno-economic paradigm being deployed. This involves not just the adaptation of financial instruments and services to the specific changes in the production sphere, but also the application of the paradigm as a generic technology and as new organizational and operational principles in the financial firms themselves.

The local banks of the first industrial revolution could handle savings and loans and even some international trade operations, but would not have been able to engineer the gathering of the huge sums involved in the building of the railways of the second – much less of the third – surge. These required a new manner of attracting and handling finance, which was found through joint-stock companies and limited liability. The enormous financial empires of the *belle époque* could easily manage the financing of major engineering works all over the world and support great industrial concerns, with thousands of workers and major transactions, such as US Steel and General Electric in the USA or Siemens and AEG in Germany. Those financial giants probably would have found it difficult to even envisage the task of providing the myriad of small consumer credit arrangements necessary for furthering the markets of the fourth surge.

In fact, one of the major transformations in the economy brought by the mass-production revolution was the conversion of daily living into an activity supported by the equivalent of ‘home capital goods’. People’s salaries became more than the source of subsistence, in terms of food, health and shelter. They became the form of purchasing, by installments, a whole range of durable goods, from the automobile, the refrigerator and the washing machine to home entertainment equipment such as radio, records, TV and tape plus, obviously, the house to put them in. The expression ‘capital goods’ is used here not only to refer to their extended terms of payment and the financial processes needed

224. Sobel (1965) pp. 200–201. But even that ended up under the control of financial capital: ‘Not until the New Deal would the system gain real independence from Wall Street’. (Ibid.)

to support them, but also to the prolonged productive use of the services provided. Nevertheless, none of the production activities that took place in the home went to the market. Something analogous can be said about the other major product of the mass-production revolution: weapons and military equipment. Financing government investment, for equipping the sophisticated weaponry of the Cold War, as well as the many public services (utilities, transport, education, health or others, depending on the country), can be said to have become a *new* activity, given its significantly greater volume, compared with the previous surges and its much more varied and complex quality. So, the fourth surge led to a new economy that had government as a fundamental economic actor, while it opened to consumers forms of financing previously reserved for 'capital goods'. This facilitated massive demand and, through it, fueled the industries that served as the engines of growth.

In the late 1920s in the USA, Edwin A. Seligman, a professor at Columbia University, was already signaling the deep transformations that would follow from the diffusion of these accessible forms of credit. In the preface to his book *The Economics of Instalment [sic] Selling: A Study in Consumers' Credit, with Special References to the Automobile*, he states:

I am convinced that an entirely new chapter is here opening up both in theory and business life. After more than a century devoted to the elaboration and the technique of banking and commercial credit, designed to fit the industrial revolution, we now stand at the brink of another revolution in economic science and economic life, scarcely inferior to its predecessors.²²⁵

The current revolution presents what might be an even greater challenge for the financial world. To begin with, knowledge, experience and information have become capital goods. This time, it is not the way of purchasing that defines them as such, but the fact that – although intangible – they can create new value, which can also be intangible. A growing portion of the economy, in terms of investment and trade, will be related to intangibles and will require appropriate instruments as well as conceptual creativity. How can knowledge capital be measured? Can it serve as collateral? What is the value of a product that is infinitely reproducible at almost zero cost? All those questions need to be solved in practice for the system to flow. In addition, on the lower extreme of the spectrum, the fast-growing number of cottage industries, be they artisan or high-tech, is posing further challenges to the banking system. These involve not only adequate financial instruments for investment and operation of micro firms, but also the need for new schemes for equalizing the irregular incomes that may be typical of an increasing proportion of self-employed per-

225. Seligman (1927) p. v.

sons in the population. At the upper extreme, globalized operations in production, trade and finance are all profoundly shaped by the potential of the information and telecommunications revolution as well as by its flexible networks paradigm. Globalization already involves an unprecedented scale of transactions in terms of volume and frequency, but especially a quantum jump in complexity. Suffice it to mention the difficulty implied in dealing with multiple moneys and changing exchange rates, both for daily operations and for calculating asset values. The power of data processing and the virtual and instantaneous nature of transactions have been rapidly transforming financial instruments and ways of functioning, while security problems have grown to serious proportions. There is surely much more to come.

C. Institutional Innovations: From Old to New Economy

Appropriate financial innovations need to be supported and regulated by adequate institutional innovations attuned to the same paradigm. Without their corresponding legal frameworks, neither local banks nor joint-stock companies would have been safe and reliable for participation to occur. Without welfare and unemployment insurance schemes, masses of consumer durable goods would have had to be returned due to consumer default with each economic downturn. Without recognized labor unions, salaries would not have been enough to serve as solvent demand much beyond food and basics. Without a massive tax system, government demand would not have been forthcoming. Without a legal compartmentalization of the various financial roles, from savings and loans to investment, the functioning of the economy of the fourth surge could have been unstable. Information technology has probably made such compartments impractical, but other forms of regulation can probably make financial 'super-markets' safe for users. It now seems improbable for the world economy to reach a path of stable growth without a protective network of global, national and local regulation. An adequate set of institutions is needed to complement, shape and guide the transformations that take place in the economic sphere. Yet, it cannot be a blissful return to what worked in the previous paradigm; it must be the complex design of what will work with the new one. Globalization is not just a much more active international economy; it is a fundamentally different set-up.

Each technological revolution does then indeed lead to a 'new economy'. However, it is not, as was widely believed at the end of the 1990s (as at the end of the 1920s), one without cycles and with eternal bull markets in the stock exchange. What is indeed true is that technology is behind the transformations. But this is not, as often held, an unprecedented phenomenon. Equivalent leaps in productivity and similar new product explosions have occurred with each surge. That is what makes development a pulsating process.

The new economy that emerges with each technological revolution consists of radical changes in the patterns of investment, production, trade and consumption. These new patterns and the distinct categories of goods and services involved lead to new market behaviors and require appropriate forms of dealing with them. The different nature of the new products and technologies does change certain aspects of the functioning of the economy for that particular surge, but it does not overcome its capitalist nature or its basically cyclical character.

In the current information revolution, several authors have developed interpretations of the new economy based on the strong contrast between tangible and intangible goods, between 'atoms and bits'.²²⁶ Some claim that this new economy is different enough to require a new *economics*²²⁷ for its study and management. This may very well be so and is wholly within the logic of the present model. For the previous paradigm, John Maynard Keynes developed a new economics, providing both a different understanding and a whole new set of policy tools. Although the debate still rages,²²⁸ these policies, where applied, pretty much achieved their purpose of tempering the business cycle and supporting smooth growth, full employment and consistent investment, for the duration of the deployment period of the fourth great surge.

That set of policies and that vision of economics lost effectiveness when the economy of the mass-production revolution, for which it was designed, became exhausted at the end of the 1960s. Once productivity stopped growing and investment opportunities dwindled, the whole basis of the model broke down and *stagflation*, that unusual combination of inflation with unemployment, rendered its main policy tools impotent. This made it easier for finance capital to make a systematic assault on state intervention and regulation and for the monetarists to move to pre-eminence in the economics profession.²²⁹ Soon, the successful flourishing of the microelectronics revolution and the wave of real competition that characterizes the early installation period, facilitated the unearthing of the *laissez-faire* philosophies and the neo-classical theories in economics, championed by the Thatchers and the Reagans. The process of creative destruction taking place in the economy was accompanied by the demolition of the old edifice of state intervention and regulation, which had stopped being effective in that specific form. In the frenzy phase, the reign of market fundamentalism was supreme, to the benefit of the new technological entrepreneurs and especially of the violently growing financial capital, but to

226. See, for example, Negroponte (1995).

227. See, for example, Soete (2000).

228. While Milton Friedman and Anna Schwartz (1963:1971) held it never could work, there are Keynesians, such as Dow (1998), who hold that the policies were never properly applied.

229. See Hodgson (2001) and Chang's (1997) discussion on 'The Economics and Politics of Regulation'.

the detriment of those left out at the other extreme of the polarized global economy, particularly the bulk of the developing world.

The recession that follows the collapse of the bubble once again creates conditions for the emergence of a new economics and of new policies. As discussed above in relation to financial innovations, these policy tools will have to closely conform to the characteristics of the current technological revolution and its paradigm. The nature of the new economics and of the tools it provides for government action – and for designing its scope – will have enormous bearing on the direction given to the potential of this technological revolution.