

DESTRUCTION AND RECONSTRUCTION OF THE CAPITAL STRUCTURE

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One of the entrepreneurial strategies that, according to Schumpeter, is responsible for the capitalistic process of Creative Destruction is the introduction of a new method of production (Schumpeter 2003, 83).

Austrian economics characterizes a «method of production» as a set of capital goods and original factors of production inserted into an entrepreneurial plan, which is directed to satisfy consumer needs. Therefore, we could say that capital goods do not work in isolation, but as parts of two structures: they develop a role in the individual plan of the entrepreneur and also in the spontaneous social order that unintentionally results from the coordination of the different entrepreneurial plans.

In this context, the introduction of a new method of production implies that at least one entrepreneur tries to modify his plan either by rearranging his combination of capital goods and original factors of production (due to a change in consumer preferences or due to the appearance of some new technology) or by using new capital goods or new original factors of production (due to the discovery of a new technology or due to an increase in savings). Thus, both cases require the entrepreneur to disrupt not only his previous plan, but also the existing links with other plans in the incumbent capital structure.

This obviously raises the question of whether these disruptions lead to a progressive and sustained capital accumulation or if, on the contrary, they cause a necessary destruction of some capital goods.

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At least since Cantillon and Turgot economists have taught that progress and growth depend partially on the quantity of capital, which tends to increase gradually with the level of savings. However, Schumpeter's claim —that the introduction of a new method of production implies a Creative Destruction process— seems to suggest that some capital will be lost with the new investments. We would have, on the one hand, more capital by means of the creation of new plans but, on the other, less capital because of the disruption of the existing plans.

Although this approach may be initially shocking, only by departing from the erroneous idea that all capital goods are homogeneous one could consistently claim that new methods of production do not destroy any capital at all, i.e., only supposing that capital goods combinations and structures are irrelevant in relation to their final output, the view of a non-disturbable capital accumulation could be held. Once heterogeneity of capital goods comes into the picture, it is no longer possible to believe in such a hypothesis.

Capital goods are heterogeneous as long as they perform different functions and are neither interchangeable nor perfectly convertible (Lachmann 1977; 1978). Heterogeneity also implies the existence of complementarities and substitutabilities among capital goods; i.e., some capital goods will work together in the creation of value and other capital goods will replicate the task or take the place of previous ones. These relations of complementarity and substitutability can appear both inside a given entrepreneurial plan and among entrepreneurial plans (in other words, inside the structure of production): a tractor may be a complement of land but tractor industry is in general a substitute for horse farm industry; radio may be a substitutive capital good of television for journalists but radio industry is a complement of car industry.

Complementary capital goods can thus exhibit increasing returns to scale while substitute capital goods will always imply decreasing returns to scale for those capital goods which are displaced.

Thus, it does not follow whatsoever that the introduction of a new method of production entails in any case an absolute

increase in the value of capital goods: as Schumpeter thought, a new method of production, that is, a change in the capital structure, could perfectly involve the destruction and consumption of some capital, turning economic progress from a linear evolution of progressive accumulation into a complex process with many fluctuations in the value and specially in the composition of capital.

But as we have already stated, capital goods can be substitutes or complements inside a given method of production or outside of it. And therefore entrepreneurial investments may focus on complementing or destroying his own capital or in complementing or destroying someone else's capital.

Obviously, the modification of an entrepreneurial plan is generally commanded by looking for the complementarities among capital goods, as long as no entrepreneur wishes to depreciate part of them. However, this increasing complementarity among capital goods usually requires the constitution of some reserves of substitutive capital goods that allow the entrepreneur to rapidly replace a capital good in case it fails. Entrepreneurial plans that involve many complementary capital goods become so increasingly complex and interdependent, that the failure of one of its pieces could mean the paralysation of the whole structure. In order to avoid that contingency, substitutive capital goods are needed to act as spare parts. Usually these «reserve assets» will not take the form of already produced capital goods, but of a general power to acquire in the least possible time the required capital goods: we are referring to the cash holdings of the firm and other short-term assets that will turn rapidly into money.

In this sense, the higher the liquidity of an agent, the higher the ability to adapt himself to internal and external changes. Holding cash, an entrepreneur can go to the market and purchase the specific capital good which he is lacking; or, if it doesn't exist yet, he may pay for its production.

However, sometimes the entrepreneur may decide to invest in substitutive capital goods not in order to replace his complementary goods, but to alter his incumbent plan. This will usually be the case of great innovations that promise huge returns even after

taking into account value losses of the capital goods whose functions are displaced. For example, the introduction of the PC inside the administrative unit of a company made typewriters useless, but nonetheless it was implemented because the expected productivity gains compensated the associated depreciation of capital.

This depreciation does not mean that replaced capital goods cannot perform any function in the economic system. In the worst case, they still have a scrap value derived from the marginal utility of their components. Usually, however, replaced capital goods are only displaced from their higher-value function, becoming then available for satisfying the satisfaction of lower-ranked ends. Entrepreneurial plans need to be readapted at the macro-level, i.e., at the level of the structure of production of the economy, seeking the second most valuable destinations for the displaced capital goods.

Therefore, the Schumpeterian Creative Destruction not only entails a *destruction* of entrepreneurial plans by the *creation* of new methods of production, but also the *subsequent creation* of new entrepreneurial plans that, on the one hand, incorporate the replaced capital goods and, on the other, perform a coordinative task among all of these modified plans. Consequently, it would be more properly labelled as Creative Destruction and Reconstruction.¹

However, this process of reconstruction of the capital structure is in no way an automatic one due to the particular features of capital goods, which make them mostly specific and highly inconvertible. Every capital good has been created to perform a given and predetermined function within an entrepreneurial plan. After its substitution, it becomes idle and available for being employed within other entrepreneurial plans. But this replacement process could be blocked because of the difficulties to adapt all

¹ Spanish economist Jesús Huerta de Soto has labelled this process as coordinated social Big Bang: «As the entrepreneurial act coordinates, it creates new information which in turn modifies within the market the involved actors' general perception of ends and means. New maladjustments ensue, and entrepreneurs begin to discover and resolve them, and in doing so produce coordination in an ongoing process of creativity and ever-expanding knowledge and resources». (Huerta de Soto 2009, 10).

the specificities of the displaced capital good into any profitable entrepreneurial plan.

Economic profitability, as the ultimate regulator of feasible entrepreneurial plans, conditions the degree of capital consumption after the introduction of a substitutive capital good inside a plan or inside the capital structure. If no profitable plans that encompass the substituted capital good can be designed, it will remain idle, maximizing the consumption of capital; if, otherwise, some entrepreneur finds a profitable employment for it, it will be relocated inside the structure of production, avoiding part of the capital consumption.

Therefore, it is essential that the price of a capital good is flexible enough after it has been substituted for another capital good. If its price can move downward rapidly enough, many entrepreneurial plans which were not profitable at its higher prices will become feasible at the new lower prices, minimizing capital losses. If, however, prices are sticky, substituted capital goods may not be relocated for a long period—until economic growth makes profitable their use at those higher prices—, eroding the potential for wealth creation.

Under conditions of free market competition, capital goods prices tend to fall quite fast, because if their owners are not aware of any better use, they will try to sell them at the higher bid prices, which will be determined by the entrepreneur who expects a higher discounted marginal productivity for those capital goods.

Obviously, there could be some speculative ties-up of the substituted capital good, as long as its owner asks for a higher price than the one offered by the other entrepreneurs. However, an idle capital good represents an opportunity cost to its owner—the non-earned interest rate—which will force him to sell it sooner than later to the highest bidder. This is especially true in the case of highly leveraged entrepreneurs who do not have the option of waiting for better prices as the repayment of the debt pressures them to liquidate their assets.

I IMPLICATIONS FOR THE BUSINESS CYCLE

The previous analytical framework has many applications in several fields of the economic science: firm organization,² economic development, capital structure and also the business cycle. We will focus on the latter topic of regular processes of boom and bust.

An economic boom is a period during which economic agents are increasingly borrowing short in order to lend long (Fekete 1984). Families, firms and especially financial companies finance the acquisition of long-term maturity assets by issuing short-term maturity claims. Doing this, they depress the long-term interest rates and push up short-term rates, i.e., they flatten the yield curve.

One typical example of this process is the banking business of maturity transformation, consisting on, for example, lending long-term loans such as mortgages with the creation of very short-term obligations such as demand deposits (Huerta de Soto 2006). Other cases that have become quite widespread during the so-called «subprime crisis» are the purchase of assets-backed securities by investment banks such as Bear Stearns, Lehman Brothers or Goldman Sachs with the funds obtained from daily repo operations, or the acquisition of long-term mortgage-backed securities by the government sponsored enterprises with the issuance of agency debt with much shorter maturities.

In all these cases, short-term savings are removed from short-term capital investments and delivered to finance long-term projects, with the well-known effect of lengthening the different stages of the structure of production for more time than that which consumers are willing to wait to consume. In other words, the artificially lowered long-term interest rates encourage entrepreneurs to start plans that are not sustainable with the real level of savings.

² 2009 Nobel Prize Oliver Williamson has been a pioneer in exploring this field: «Williamson emphasizes asset specificity —the degree to which resources are specialized to particular trading partners— as the key determinant of the firm's boundaries, defined as the set of transactions that are internal to the firm (or, put differently, the set of assets owned by the entrepreneur)» (Klein 2009).

These malinvestments consist of the continuous addition of new capital goods to the incumbent structure of production, some of which *substitute* close to consumption capital goods for far from consumption capital goods, while the others *complement* these last ones (Hayek 1967). In both cases, the relative prices of the new capital goods are fostered up due to the lower interest rates and due to the larger amounts of fiduciary credit which they are able to attract, hence increasing their profitability in relation to the profitability of the old capital goods that get replaced. At the end, the structure of production becomes more illiquid and leveraged than before: it takes much more time to transform all the inputs into all the desired outputs. There has been a destruction of one structure of production compatible with agents' time preference with the creation of a different one incompatible with their rate of impatience.

But this second capital structure, characterized by its longer maturity period and by its higher degree of complementarity, is not only incompatible with agents' real preferences, but it is also more sensitive to any change. Higher short-term indebtedness and higher investment in long maturity assets mean lower free cash holdings available to rapidly readapt the entrepreneurial plans. Any shift in expectations—which will finally come about because of the divergence between the plans of the savers and the plans of the consumers—will tend to destroy huge amounts of capital initiating an economic crisis.

Crises are periods when previous malinvestments are revealed and when entrepreneurs realize that they had destroyed capital in the process of producing capital goods which were expected to have a higher value than that which they really have. That is the consequence of both having discounted their future cash flows at a weighted average cost (wac) artificially lowered by the maturity mismatching process and by having erroneously forecast cash flow receipts which could never exist due to the unsustainable nature of the structure of production induced by the fiduciary credit.

The role of entrepreneurs during a crisis is thus to reconstruct this unsustainable capital structure, trying to minimize capital losses by reassigning malinvestments to their most highly valued

use in the new context of no fiduciary credit expansion and by creating new complementary capital goods that perform the task of linking the blossoming projects. Hence, almost paradoxically, during an artificial economic boom capital is being destroyed while during an economic crisis capital is being subsequently recreated to ease the reorientation of erroneously produced capital goods.³

The question is then how to achieve a rapid readjustment that allows us to accelerate recovery. Attending to our previous exposition, there are two main conditions to fulfil. First, it seems clear that if we have to reallocate capital goods by creating new structures in which they could fit, it is necessary to increase savings. The more savings, the more new plans can be implemented and the more old plans can be maintained. With savings, it is possible to refinance the term of the debts and to speed up the maturity of the previous investments, thus reducing the maturity mismatch. Less consumption goods are demanded and more can be produced, which tends to coordinate consumers' and savers' intertemporal plans.

Secondly, it is also essential that relative prices, and specially capital goods prices, adapt flexibly to the new conditions of the economy. Malinvestments can only be reallocated fast enough if capital goods prices do not remain higher than their discounted marginal productivity at their new higher-valued uses. Rigid prices will cause capital goods to remain idle until the appearance of new complementary capital goods that foster up their discounted marginal productivity. But idleness has a high opportunity cost which the owners of malinvestments will only accept to suffer while they expect the productivity downturn of the unsustainable plans to reverse soon. So, in the absence of some kind of guaranteed prices, prices tend to fall sooner than later in a crisis.

³ «The boom squanders through malinvestment scarce factors of production and reduces the stock available through overconsumption; its alleged blessings are paid for by impoverishment. The depression, on the other hand, is the way back to a state of affairs in which all factors of production are employed for the best possible satisfaction of the most urgent needs of the consumers» (Mises 1998, 573).

Therefore, everything the government does against these two principles —savings and flexible prices— will tend to prolong the economic crisis and everything the government does in order to ease them will favour the recovery: governmental deficits, price controls and blind bail-outs will deepen the crisis, while tax reductions based on budget surpluses and curtailing income endowment programs to owners of capital goods will tend to shorten it.

II CONCLUSION

The introduction of a new method of production, i.e. the rearrangement of an already existing entrepreneurial plan or the creation of new entrepreneurial plans, entails not only a destruction of capital by its substitution for other capital, but also the subsequent creation of other capital goods which complement the new ones and which coordinates the disrupted plans within the new structure of production.

Although it is not possible to predict apodictically whether Creative Destruction will successfully expand our wealth in the long run, we can be certain that production plans are only modified after a methodical judgment and analysis of their profitability has been made by the entrepreneur. He is the agent who, with his local and particular knowledge, selects those projects that offer the highest expected value.

However, we can be sure about the negative effects of one specific process of Creative Destruction: the one caused by the fiduciary credit expansion engendered by the financial strategy of borrowing short and lending long. Its unavoidable distortions in the form of uncoordinated plans among savers, consumers and investors guarantee that part of the new methods of production that replace the old methods of production will lose their functionality inside the system before they have become profitable. In other words, capital will be destroyed in net terms during an inflationary boom.

This partially destroyed structure of production can and eventually will be reconstructed during the crisis, a readjustment

process which may be accelerated with more savings and price flexibility. Therefore, governments should refrain from incurring in budget deficits and bailing out enterprises in order to avoid their total or partial liquidation and thus the bargain prices of their assets. Otherwise, more of the old capital will be destroyed and the new one will be prevented from appearing.

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