

FINANCIAL EFFECTS OF MONETARY EXPANSIONS

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Abstract: The Austrian Business Cycle Theory (ABCT) has traditionally been focused on the distortions created by monetary expansions on the productive structure of the economy. In this paper, I will try to show that, if central banks increase the monetary base and the agents' preferences do not change, the distortions will not be limited to the productive structure but will also affect the financial structure. This will lead to a series of financial cycles in which both bubbles and crashes, the financial counterparts of booms and crisis, will take place.

Keywords: Bubbles, Business Cycles, Financial Assets, Financial Crisis.

JEL Classification: E14, E32, E44, G01.

Resumen: La Teoría Austriaca del Ciclo Económico (TACE) se ha centrado tradicionalmente en las distorsiones generadas por las expansiones monetarias en la estructura productiva de la economía. En este artículo, se intenta mostrar que, si los bancos centrales aumentan la base monetaria y las preferencias de los agentes se mantienen sin cambios, las distorsiones no se limitarán a la estructura productiva sino que también afectarán a la estructura financiera. Esto conducirá a una serie de ciclos financieros en los que burbujas y *crashes*, los equivalentes financieros de auges y crisis, tendrán lugar.

Palabras clave: Burbujas, Ciclos Económicos, Activos Financieros, Crisis Financieras.

Clasificación JEL: E14, E32, E44, G01.

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I INTRODUCTION

The Austrian School of Economics has historically put its focus on the relationship between monetary expansions, not backed by a voluntary increase of savings, and the productive structure. Thus, the ABCT has analyzed how monetary expansions distort the allocation of resources between consumer and capital goods, generating periods of boom and busts (Mises [1912] 1981, Hayek 2008 and Huerta de Soto 2009). However, little attention has been paid to the distortions created by monetary expansions on the *financial* structure of the economy.

In this paper, I will try to describe the different links between monetary expansions and the financial structure of an economy, argue that the financial effects of monetary expansions play a significant role in the development of business cycles, and explain why the distortions created by central banks go beyond those taken into account by the traditional ABCT. Specifically, I will discuss how financial bubbles and crashes can be linked to the action of central banks, through the impact of monetary expansions in the agents' balance sheets, which generate an excessively fragile financial structure that is, at the same time, reliant on an unsustainable productive structure.

This paper is organized as follows: in section II, I will analyze the financial structure of an agent; section III will describe the functioning of a monetary expansion from a financial perspective. Section IV will address the financial effects of monetary expansions and its impact during the boom. Section V will focus on the crisis. Finally, section VI concludes.

II ASSETS, LIABILITIES AND THE FINANCIAL STRUCTURE

From a financial perspective, assets are the basic unit of analysis: an asset can be defined as any good that is subjectively valued by an agent as a means to satisfy *future* needs. If consumer goods are valued in order to satisfy *present* needs, assets play the same role

regarding what agents consider, in the present, relevant needs that will arise in the future. Both assets and consumption goods must be ranked in a single hierarchy when the agent is deciding how to act (Mises 1996, p. 3).

From this definition, assets can be seen as economic goods that give the right to receive some good(s) in the future¹; if money is to be received, we may speak of financial assets, and cash flow(s) when referring to the future good(s) that assets give right to. Therefore, assets can include: (1) any of the three types of goods that form the traditional taxonomy of the Austrian School of Economics (Mises [1912] 1981, pp. 79-86): consumer goods (either durable consumer goods or hoarded non-durable consumer goods), capital goods and money. (2) Any type of right over a combination of goods used to satisfy *future* needs: for example shares or debt in any productive process². The value of an asset will depend on the subjective value assigned by the agent to the *future* need it *expects* to satisfy from it³.

Two factors play a key role when valuing assets: time and uncertainty. Time, because assets are acquired in the present to satisfy future needs; and uncertainty because, unless we assume a fully predictable world, we have to take into account the impossibility of predicting the actual outcome of any investment. Thus, when analyzing an asset we can distinguish two components:

1. Time horizon: each asset is transformed into goods (or money) at different time periods, either one (e.g. a promise to make a single cash payment in a particular future date) or several. It can be known in advance (a debt) or depend on other factors (e.g. shareholders will receive cash only when the company has recorded a profit and it is later distributed). In any case, it is uncertain.

¹ The future good can be a different good from the present one (e.g. the output of a productive process) or the same one (hoarding). In both cases, we can speak of goods being used to satisfy future needs.

² Bearing in mind that rights cannot be considered as being valuable *independently* from the goods that are represented by them, see Böhm-Bawerk ([1881] 1962).

³ Following how Menger ([1871] 2007, pp. 147-148) describes the value of capital goods.

2. Risk: the subjective probability that an asset will not satisfy the need for which it was acquired. We speak of subjective, as opposed to objective probability, as the success or failure of any investment depends on valuations, which are subjective and cannot be predicted (Mises 1996, pp. 189-198).

From a financial perspective, any agent can be described as having a balance sheet composed of assets and liabilities⁴. On the asset side, we find all the individual assets owned by the agent, including any combination of capital goods needed to carry out a productive process. On the liability side, we find the different sources from where the resources, employed to acquire the assets, come. We can distinguish two main types of liabilities: (1) savings, which represent all resources produced but not consumed by the agent and that, therefore, have been invested and (2) financial liabilities, that represent different types of promises the agent has made, to other agents, in exchange for present goods or assets. The most relevant financial liabilities are shares and debt⁵ and, for the sake of simplicity, we will only use those two in this paper.

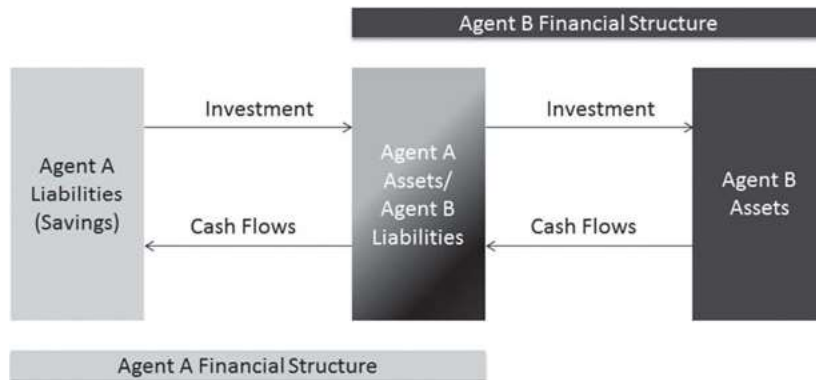
Any financial liability, then, can also be described as somebody else's asset and, therefore, its time horizon and risk can also be appraised. The value of any financial liability will depend on the value of the promise made by its issuer which, at the same time, depends on the assets the issuer owns, as they will represent the source of its future income (Fisher 1963, p. 40).

In Figure 1, we can see a graphical description of the financial relationship between two different agents: *A* and *B*. *A* has net savings (has not consumed all of its resources) which he used to acquire the liabilities of *B*. Thus, *B*'s liabilities are, at the same time, *A*'s assets.

⁴ We are describing an *economic* balance sheet; it should not be confused with an *accounting* balance sheet.

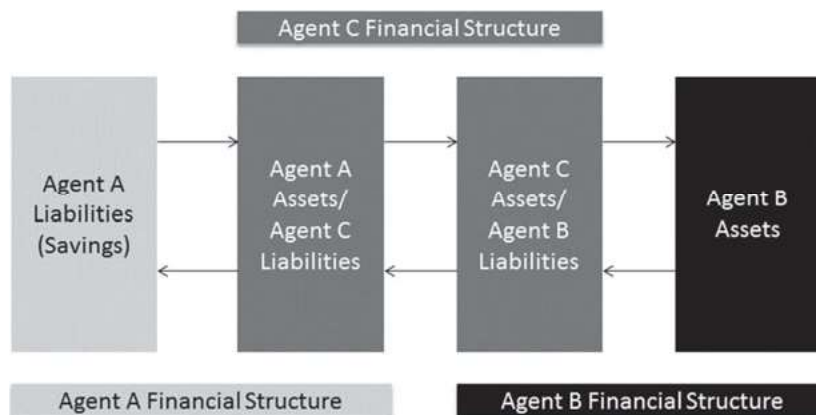
⁵ Therefore, shares and debt can be found both on the asset and the liability side of any agent, the difference being who the issuer is (whose promise it is): in the latter, the agent itself; in the former, a different one.

FIGURE 1
FINANCIAL INTERLINKS FOR TWO AGENTS



A situation in which A is investing indirectly, via another agent C, in B's liabilities can also be described (Figure 2):

FIGURE 2
FINANCIAL INTERLINKS FOR THREE AGENTS



We can also assume that agents modify the cash flows they receive from their assets, transforming them into different sets of cash flows that they will distribute to the holders of their liabilities. Any transformation will create a *mismatch* between the received and the promised cash flows.

As we said earlier, we will assume agents only employ two types of assets and financial liabilities: equity and debt. Both can be used to finance productive processes⁶, and both will receive their cash flows from the income generated by those productive processes, but in a different way: debt holders have the right to receive a fixed payment (interest), from the processes they are financing, along with the rest of productive factors. The frequency of the payments is agreed when the debt is issued, and all debts have a specific maturity(ies) in which the debtor has to return the borrowed sum (the principal). On the other hand, equity holders have the right to receive all the residual income from the productive processes, after paying for all productive factors and the interest and principal due to debt holders. Therefore, equity cash flows are not fixed, but depend on the difference between the income of the productive process and its costs (including financial costs); finally, equity has no maturity⁷.

If, at some point, a debtor is unable to satisfy the interest due or the repayment of the principal, he is bankrupt and debt holders will take control of his assets. It is important to highlight that the bankruptcy process is *costly*, as it implies a re-assignment of legal rights and it comes at a time when the agent is destroying value: his costs (including interest) are higher than his revenues.

III MONETARY AND CREDIT EXPANSIONS FROM A FINANCIAL PERSPECTIVE

A monetary expansion is defined as the process by which the central bank (or any other agent run by the State) increases the monetary

⁶ Strictly speaking, only corporations can use equity as a liability.

⁷ For simplicity, we are not taking into consideration hybrid instruments that mix some of the features of debt and equity.

base of the economy, but in a time in which the agents have not changed their set of preferences regarding saving and investment (Huerta de Soto 2009, pp. 277-288). This definition assumes that the money or money substitutes employed in the economy are a liability of the central bank.

The central bank, like any other agent, has its own balance sheet (Bagus and Howden 2009a, 2009b and 2014 and Buiter 2008). On the asset side, we find all those individual assets that generate income or are regarded as valuable so, in general, there is no significant difference between the central bank's asset side and that of any other agent. However, on the liability side we do find something which makes it different: one of the financial liabilities is used as money: otherwise, it could not control the monetary base⁸. Basically, the central bank can modify the monetary base (in a narrow sense) by modifying the stock of one of its liabilities.

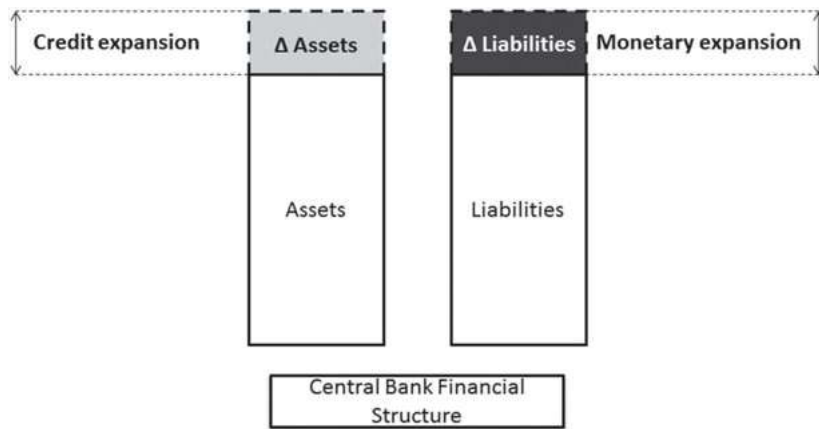
Let us assume the central bank increases the monetary base but does not reduce, at the same time, some others of its liabilities so that, overall, its balance sheet increases⁹. If financial liabilities are growing, assets will too; therefore, any (broad) monetary increase must be matched by an increase in the central bank's assets. In the standard case, the central bank starts acquiring debts of (starts lending to) private banks with the newly created money¹⁰. In this situation, we can see that the monetary expansion is, at the same time, a credit expansion (Figure 3):

⁸ Stating that the central bank can control the monetary base (quantity) does not mean it can also control its *value*.

⁹ In the case of an unchanged balance sheet, there would still be some effects in the economy: the monetary base in a narrow sense would have increased but, at the same time, the stock of other central bank liability (most likely used as a monetary substitute) would have decreased. So, overall, the monetary base in a broad sense would have not changed significantly but its *composition* would be different. Anyhow, we will focus in a situation in which the central bank liability side increases during the monetary expansion.

¹⁰ In the same way, Huerta de Soto (2009, pp. 135-211) shows how private banks can grant *credit* by expanding their balance sheets.

FIGURE 3
RELATIONSHIP BETWEEN MONETARY
AND CREDIT EXPANSION



Ceteris paribus, the higher demand of bank debts, by the central bank, will increase their price and reduce their expected return (Borio 2012). From the perspective of private banks, they will see how the prices of their liabilities will increase, which is the same as a lower interest rate for their debts and, therefore, a lower funding cost or Weighted Average Cost of Capital (WACC).

Starting from this reduction of the interest rate for private banks' debt, *ceteris paribus*, the ACBT focuses on its effect on the *productive* structure. In the next section, I will address the impact on the *financial* structure.

IV FINANCIAL EFFECTS OF MONETARY EXPANSIONS DURING BOOMS

Following the previous section, let us assume the central bank has increased its balance sheet by expanding both its assets (credit expansion) and financial liabilities (monetary expansion); we will

further assume that bank debts are the most significant type of asset it has bought¹¹.

Once the WACC of private banks decreases, due to the higher demand for their debts, they will start transmitting this effect to the rest of the economy. Unless they unilaterally decide to reduce some of their liabilities, they will have to invest the cash received by acquiring new assets¹². Again, the prices of those assets, selected by private banks, will increase at the same time their expected return decreases. If banks decide to channel their lower funding rate by increasing their lending to other agents (i. e. acquiring some new debts from them), the latter will see how their funding cost is decreased *ceteris paribus* (Hayek 2008, pp. 85-86).

Bearing in mind that there are other financial intermediaries apart from banks, such as a shadow banking system (Sieroñ 2016), which may also lend to other agents before directly reaching the final producers, we can see how the new credit, that has appeared on the back of the central bank action, can be channeled through the whole economy.

Given that productive projects are initiated only when the expected revenue is more than enough to compensate for the expected costs, including financial costs, some projects that would have previously been discarded are now started, after the funding cost of some specific agents has been reduced by the action of the central bank (Huerta de Soto 2009, p. 279).

This process follows the pattern of the Cantillon effect (Cantillon 2010, pp. 147-159): the new credit is distributed in a non-uniform way. Specifically, agents will select which assets to acquire with the new liabilities they have received, direct or indirectly, from the central bank. This process cannot be homogeneous, as it will be determined by the agents' expectations and their new funding costs.

¹¹ A more detailed set of assumptions could include the maximum maturity of those debts, the minimum level of collateralization required and any other quality restriction (e.g. minimum ratings).

¹² For the sake of simplicity, we rule out the possibility of banks voluntarily hoarding cash. This would be an extraordinary situation, given that the interest on cash is zero but the bank still has to pay interest on its debts; it will only take place when the objective is to strengthen the balance sheet in periods of stress (crisis).

Now, we can distinguish four effects of the credit expansion in the productive and financial *structures* of the economy:

1. **More capitalized production projects will be initiated**, as the funding cost is lower after the monetary expansion (Huerta de Soto 2009, p. 260 and Cachanosky and Lewin 2014). This is the main effect studied by the ABCT.
2. **There will be a higher level of inter-connection between agents**, the reason is that the credit expansion implies the agents' assets and liabilities have increased (and therefore their balance sheets), and each liability must be the asset of some other agent(s).
3. **Leverage is higher**, *ceteris paribus*: as long as the central bank and the banking system invest mainly in debt, i.e. lending, the credit expansion implies an increased demand for debts and a lower expected return (rate of interest) which will make it a cheaper funding source relative to equity¹³.
4. **General increase of assets' prices**. The monetary expansion generates an unsustainable widening and lengthening of the productive structure at the peak of the boom. Traditional ABCT explains how it is possible that the monetary value of all productive stages increases after the monetary expansion takes place: entrepreneurs, misled by the cheaper credit, start productive projects that only now look profitable but, at the same time, consumption has not decreased (Huerta de Soto 2009, pp. 277-289).

What is the impact of these changes on *assets*? First, the total *cash flows* to be distributed among the different financial assets will increase *ceteris paribus*: the higher monetary income received by the productive processes implies that the remuneration for their liabilities will grow too. There will be differences, more capitalized stages will see their income grow more than the rest, but the total cash flows to remunerate both stockholders and debt holders

¹³ This does not mean the price of stocks will not be affected by the credit expansion, on the contrary, equity prices will also raise during the boom phase (García Iborra 2017).

will be higher¹⁴. Second, the *monetary value* of assets will grow because of (i) the higher cash flows just mentioned and (ii) the lower discount rate, brought about by the lower funding costs. Third, the higher value of assets will make agents wealthier, and more prone *ceteris paribus* to take even more debt on their balance sheets (Kindleberger and Aliber 2011, p. 30) reinforcing the previously mentioned increase of leverage¹⁵.

These four effects are typical of financial bubbles and can help to understand why those periods are interpreted, in hindsight, as periods of «manias» of extreme optimism (Kindleberger and Aliber 2011). In this respect, it is useful to distinguish between the concepts of boom and bubble: «boom» can be used to describe the distortions generated in the productive structure; «bubble» refers to the distortions in financial markets. Although both concepts are related, and their origin can be traced to the credit expansion, they do not have to develop at the same time, i.e. the asset bubble may start before or after the productive structure is fully distorted by the credit expansion.

V

FINANCIAL EFFECTS OF MONETARY EXPANSIONS DURING CRISIS

Following Huerta de Soto (2009, pp. 289-305), we know that the unsustainable productive structure will reach a critical point, in which the demand for consumer goods will reduce the profitability of producing the capital goods which are farthest away from consumption, generating losses in the highest-order stages that may eventually disappear. The central bank may delay this re-adaptation but, in order to do so, it needs to increase the *rate* of growth

¹⁴ Given that debt holders only have a right to receive fixed payments, their cash flows will not increase, but the higher income generated by the productive processes means they are more protected against possible bankruptcies and, therefore, in a better financial position (less risky).

¹⁵ Assuming they do not anticipate the upcoming crisis; something that is also assumed by the standard ABCT on the distortion of the productive structure: individuals are not omniscient.

of the monetary base (Hayek 2008, p. 178) thus exacerbating the financial and productive effects that were highlighted in the previous sections. Regardless of the reaction of the central bank, the distorted productive structure after the boom is unsustainable, and will eventually have to be re-adapted to the agents' preferences. The more this process is delayed the harsher the re-adaptation will be, as more capital goods will have to be re-assigned from their previous usages in the higher-order stages to those closer to consumption. Given that capital goods are heterogeneous, specific and complementary (Lachmann 2007, pp. 2-3), i.e. they cannot be costlessly re-adapted to new productive roles, the longer the boom is maintained the higher the losses that will have to be recorded¹⁶.

Now let us analyze the financial impact of credit expansions during crisis; we can distinguish four different effects that will characterize them:

1. Chain effects I: Direct and indirect exposures to an unsustainable productive structure. During the boom, the relative weight of the stages that represent productions of capital goods has increased in relation to the production of consumption goods. Therefore, the relative weight of liabilities financing the production of capital goods has also increased. At the same time, and as we saw in the previous section, the links between the agents' balance sheets have increased: the new liabilities issued by banks, financial intermediaries and companies producing both consumer and capital goods have been acquired, as assets, by some other agents.

Thus, we may conclude that the global exposure to financial liabilities that, directly or indirectly, depend on the production of capital goods, has increased. It is important to highlight that the exposure can be direct, when the agent has acquired an asset that represents the liability of an agent directly involved in the production of capital goods, or indirect, if the agent owns a liability of a

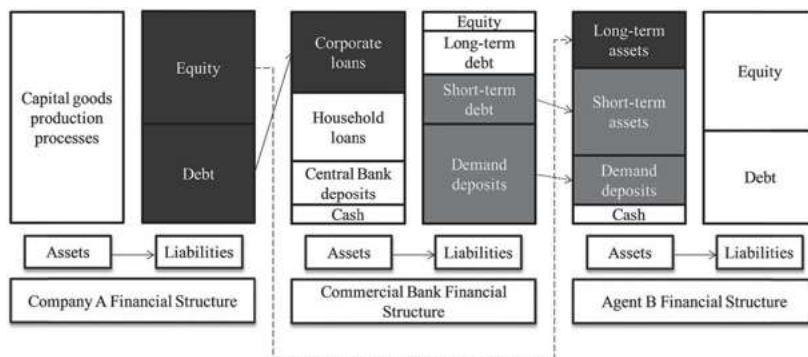
¹⁶ Another effect of further and more aggressive rounds of monetary expansions is the negative effect on the purchasing power of money that may lead, in extreme cases, to hyperinflation. However, addressing this effect is beyond the scope of this paper.

financial intermediary (including banks) that, at the same time, owns in its balance sheet liabilities of capital goods' producers.

When the crisis starts, the losses generated in the capital goods' stages will, therefore, affect not only those agents which are producing them but also all those which, directly or indirectly, are exposed via their balance sheets.

In Figure 4 we can see an example of how an agent (*B*) can have a direct exposure to those productive processes initiated during the boom; in this case via its long-term assets that represent the equity of a company dedicated to the production of capital goods (*A*). At the same time, *B* is indirectly exposed through its short-term assets and demand deposits that represent the liabilities of a commercial bank which is lending to company *A*.

FIGURE 4
DIRECT AND INDIRECT EXPOSURE TO CAPITAL
GOODS PRODUCTION



2. Chain effects II: The role of leverage. Another effect of credit expansions is the relatively higher weight of debt versus equity financing: the higher demand of debt, as an asset for private banks and the central bank, makes it cheaper as a liability, *ceteris paribus*, in relation to equity. The higher leverage endured by the system as a whole will make it more fragile to negative shocks in the productive processes, which are the ultimate source of income.

Thus, the necessary correction of the productive structure that the crisis brings about will come at a time in which the financial structure is more fragile *ceteris paribus*.

As it was stated earlier, debt requires a fixed payment and, if the issuer does not have the means to honor it, it will lose control of its assets in a process that will impose costs to all parties involved.

Let us use an example to illustrate the effect of the excessive leverage in the system: we assume that company *A* is producing capital goods that are profitable only due to the credit expansion. *A* has been financed exclusively with equity that has been acquired, in different proportions, by agents *B*, *C* and *D*; these three agents have, in turn, both equity and debt as liabilities (Figure 5):

FIGURE 5
EXAMPLE OF CHAIN EFFECT VIA DEBT (I)

Company A					
Assets			Liabilities		
Capital goods production processes			1,000 Equity		1,000
Agent B			Agent C		
Assets		Liabilities	Assets		Liabilities
A Equity	250	Equity 25	A Equity	300	Equity 145
Other assets	75	Debt 300	Other assets	300	Debt 455
Agent D					
Assets		Liabilities			
A Equity	450	Equity 150			
Other assets	200	Debt 500			

Once the crisis starts, the value of *A*'s assets will decrease, as they represent non-profitable productive processes, leading to a lower value of its equity. Assuming the value of «other assets» remains unchanged, we can calculate the impact on the value of the equity issued by *B*, *C* and *D* (Figure 6):

FIGURE 6
EXAMPLE OF CHAIN EFFECT VIA DEBT (II)

% Change of A equity value	B Equity value	C Equity value	D Equity value
-10%	0	115	105
-25%	-38	70	38
-40%	-75	25	-30
-50%	-100	-5	-75

A negative equity value implies that the losses suffered by an agent are bigger than his equity value and that, therefore, he is bankrupt. The higher leverage of agent *B* makes him the first to default, as its equity is completely wiped out by a fall of just 10% in the value of *A*'s equity. *C* reaches the bankruptcy point only when the value of *A*'s equity has decreased by 50% (he is the least leveraged agent) and *D* at -40%.

When an agent is bankrupt, his creditors will absorb losses by the difference between the value of total assets and equity. Thus, creditors of *B*, *C* and *D* would all be hit by any decrease, in the price of *A* shares, higher than 50%.

If, in turn, these creditors were also financed by a mix of equity and debt, it is possible they would also default, and we would assist to a bankruptcy chain, due to the interconnection of balance sheets. Only when the agents are able to absorb the losses, without passing them to their creditors, will the chain stop. The higher the equity financing, which acts as a «cushion» against defaults, the lower the impact of the losses derived from the production of capital goods. We can see that by increasing the equity of each agent by 25%, and recalculating the equity value of *B*, *C* and *D* (Figure 7):

FIGURE 7
EXAMPLE OF CHAIN EFFECT VIA DEBT (III)

% Change of A equity value	B Equity value	C Equity value	D Equity value
-10%	6	151	143
-25%	-31	106	75
-40%	-69	61	8
-50%	-94	31	-38

In this second case, *C* does not even default when the value of *A* shares falls by 50%, and *D* is only bankrupt in that scenario. The lower the leverage the less fragile the system is to shocks but, as we have seen: *credit expansions inevitably lead, not only to shocks in the productive structure, but also to fragile financial structures.*

Up to this point, we have assumed that the value of «other assets» remains unchanged; but in a situation in which agents *B*, *C* and *D* are facing the possibility of bankruptcy, they may be forced to liquidate them in order to raise cash and meet their financial obligations (interest and debt redemptions). Given that the pressure to force the selling of assets is *systematic*, the value of those other assets may also be depressed, even if their cash flows are not linked (direct or indirectly) to those productive processes that have proved themselves unprofitable¹⁷. This so called «secondary depression» (Huerta de Soto 2009: 349) will be *temporary*, and will stop as soon as investors become aware they are profitable investments; thus, although this process may lead to an apparent indiscriminate and self-reinforcing liquidation of assets, there is a backstop provided by the entrepreneurial search for profitable investments¹⁸.

¹⁷ Even taking into account the higher discount rates that prevail during the crisis.

¹⁸ Some authors such as Fisher (1933) or DeLong (2012), despite correctly describing the financial effects of excessive leverage, fail to see the relevance of the entrepreneurial action in an uncertainty environment, and demand government support in bidding for those assets. On the other hand, value investing (Graham and Dodd 2009) specifically targets those situations as good investment opportunities.

3. **Decrease of saleability.** One way to pay for debts is by selling assets to raise cash. However, during the crisis we have:

- (i) A relatively higher share of assets that are, directly or indirectly, financing the production of capital goods which, in turn, represent rights to own heterogeneous, specific and complementary goods, that require significant discounts to be profitably used in the new productive structure that the crisis is bringing about.
- (ii) An excessive level of leverage that forces investors to liquidate assets in order to meet their financial obligations.

The combination of these two effects will create a situation in which secondary markets for assets will be much less active than during the boom, and sellers will not be able to find buyers at levels close to those that were prevailing during the boom or with only some non-significant discounts.

Although this situation can be confused with a «malfunctioning» of financial markets, or with a «liquidity crunch», it is just reflecting the real value of those assets generated during the boom relative to the actual preferences of agents, once the monetary expansion ceased producing its effects on the productive structure.

4. **Higher demand for money.** The need to repay debts will increase, *ceteris paribus*, the demand for money and, therefore, its purchasing power (Fisher 1933). This will also include fiduciary money although, in this case, we have to take into account the offsetting effects of further increases in the monetary base, if recorded, and the depreciation of some of the central bank assets, specifically those directly or indirectly linked to the production of capital goods initiated during the boom.

This factor will further decrease the price (monetary value) of assets on top of those previously stated.

The combination of these four effects will be the main features of the *crash*. Just as bubbles are the financial distortions created by the monetary expansions, crashes can be described as the financial counterparts of crisis: periods of «panic» in which the prices of financial assets fall abruptly, investors desperately try to liquidate

assets, and «irrational» behaviors show up again (Kindleberger and Aliber 2011). However, as we have described, we can trace all of these features back to the initial decision to expand the monetary and credit base of the economy and that will eventually lead, after a period of boom and bubbles, to the irremediable crisis and crash.

VI CONCLUSION

In this paper, I have tried to show how monetary and credit expansions not only produce effects on the productive structure but also on the financial structure. Specifically, they generate (i) a more inter-linked financial structure in which agents' balance sheets become more dependent on each other and, overall, more exposed to those productive processes that have appeared only because of the lower discount rate generated by the monetary action of the central bank and, (ii) a more fragile financial structure as debt, from an issuer standpoint, becomes cheaper versus equity *ceteris paribus*. The combination of these two effects will lead to bubbles, during the boom phase, and crashes, when the inevitable crisis appears.

Bubbles are a period in which, in general, cash flows for all assets will be higher while the discount rates will decrease, leading to a general increase of their prices. Both effects are caused by the credit expansion that generates an unsustainable productive structure and an excessively low funding cost. The unavoidable appearance of the crisis will also have a financial counterpart: the crash; here, the excessive leverage, accumulated during the boom, and the financial exposure to excessively capitalized productive projects, will generate losses throughout the economy that agents will find difficult to absorb, given how much debt they have taken on their balance sheets and will, eventually, lead to defaults and indiscriminate asset liquidations.

By adding a financial perspective into the traditional ABCT, we can expand the range of phenomena the theory can explain: for example, why it is not a coincidence that there is an excessive

leverage during the crisis¹⁹, why the prices for all types of assets can be negatively affected, even if they have no direct exposure to the productive processes that have to be abandoned, and the theoretical reasons for behaviors that may seem «irrational» but only reflect the consequences of credit and money manipulation.

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¹⁹ Some authors such as Fisher (1933) or Fostel and Geanakoplos (2014) correctly described the process of liquidation that follows from a scenario of excessive leverage and a sudden reduction of the cash flows generated by financial assets; however, they fail to explain why those factors can take place at the same time.

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