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Systemic Appraisal Optimism and Austrian Business Cycle Theory

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ABSTRACT: Austrian business cycle theory (ABCT) has focused on the effect of interest rates set below the natural rate, leading to unwarranted attempts by businessmen to make more elaborate roundabout structures than can be completed by the available foregone consumption. This distorting effect is the main theme of the Austrian capital-based theory of the trade cycle.

But interest rates pushed below the natural rate can have another serious damaging effect. They can distort the appreciation of risk. Austrian economists have claimed that interest rates include a risk premium in addition to valuing future over present consumption. It follows that interest rates below the natural rate can create an unwarranted bullishness that leads to systemic "appraisal optimism." Error prone "marginal entrepreneurs" receive resources which would not have been available to them in ordinary circumstances.

This mistaken optimism leads to reductions in precautionary assets or "reserve assets" (to use Ludwig Lachmann's term), which businesses hold against untoward events. The reduction in precautionary assets helps explain how production is possible above the sustainable production frontier (SPF) for lengthy periods during the boom.

The quantity of precautionary assets also explains to what degree businessmen select projects which are risky or time consuming. For any given

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interest rate, the quantity of precautionary assets determines whether businessmen will make more risky or more time consuming investments.

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RISK AND ABCT

In developing Austrian business cycle theory (ABCT), Austrian economists have tended to focus on capital structure and capital markets, but risk and the related concept of reserve assets or "precautionary assets" developed by Ludwig Lachmann in the 1930s, 1940s and 1950s have received little attention. An analysis which includes these concepts supplements conventional Austrian business cycle theory (ABCT).

To a large degree this paper is a development of Ludwig Lachmann's analysis of "reserve assets" in "Capital and Its Structure" (Lachmann, 1956) and the analysis of commodity stocks in "Commodity Stocks in the Trade Cycle" (Lachmann and Snapper, 1994 [1938]). Although the latter paper is 18 years earlier than "Capital and its Structure," Lachmann's analysis of the topic to be discussed starts logically with the later book. By "reserve assets" Lachmann does not mean the liquid assets deposited by commercial banks with the central bank in a conventional banking system. Rather he means "precautionary assets" held by businesses against risk—untoward events that cause business plan disappointment, or, in macro-economic terms, the ability of the economy to withstand adverse shocks. This article will attempt to explain that precautionary assets should not be identified with inventories or working capital.

It is surprising that so few analyses of ABCT make any reference to risk. For example, there is no mention of risk in the index of Jesus Huerta de Soto's comprehensive analysis of ABCT (Soto, 2006 [1998]). An exception is Roger Garrison's (1994) discussion of Hayek's account of ABCT. Another exception is Evans and Baxendale (2008) in which the authors introduce the concept of the error-prone "marginal entrepreneur," who—when given the

wherewithal—puts incompetent business plans into operation, resulting in a clustering of entrepreneurial error. As they point out, entrepreneurship is no more homogenous than capital. Credit expansion makes it possible for the second-rate businessman to experiment with defective business plans. Thus, in addition to causing an unsustainable attempt to deepen the production structure, credit expansion leads to an over-optimistic assessment of business plans in general—economy wide "appraisal optimism."[1]

The only substantial treatment of the subject is Tyler Cowen's book *Risk and Business Cycle, New and Old Austrian Perspectives* (1997). Cowen argues that Austrian capital theory and ABCT should focus on "risk" rather than "roundaboutness." Cowen argues that a reduction in interest rates will lead businessmen to make unduly risky investments. Businessmen are led to underestimate the actual degree of risk in the business environment. In turn this leads to the clustering of entrepreneurial failure that characterizes the recession. In contrast to Cowen's theory, standard ABCT claims that interest rates pushed below the natural rate lead businessmen to attempt to complete elaborate investments structures for which the available resources are insufficient. Such more "roundabout" time-consuming structures will fail because they cannot be completed. This has been often described and does not need to be rehearsed here in more detail.

Tyler Cowen argues that standard ABCT is mistaken, that increased "roundaboutness" is not a significant factor in the clustering of entrepreneurial error. But here Cowen may be mistaken. There is no reason why there should not be two distorting effects—excessive appetite for risk and excessive roundaboutness—for the existence of one does not exclude the existence of the other. Indeed, it is possible to imagine projects which are low risk and highly roundabout and vice versa. For example the construction of an oil rig may be an elaborate roundabout project, but it may be less risky than the launch of a fashion business, a simple but risky short term project.[2] Although, of course, projects which are complex and time

[1] The term "appraisal optimism" derives from the economic analysis of British nationalized industries and refers to managers having to be unduly optimistic about their business plans if they were to obtain funds for investment from HM Treasury.

[2] I owe this example to Dr. Anthony Evans.

consuming are likely to be riskier than short term, less roundabout projects, this is not necessarily the case.

This second distorting effect results from pushing interest rates below the natural rate and consequently reducing risk premiums so that there is a collective mis-appreciation of the riskiness of business ventures. The low interest rates distort businessmen's assessment of the economic environment so that they take an unduly optimistic view of business ventures and become excessively "bullish." These two distorting effects are related. Thus businessmen may undertake ventures which are both more roundabout and riskier than they would have undertaken otherwise. Again, it should be emphasized that enterprises are not necessarily more risky because they are more roundabout. A deepening of the production structure may be less risky than a broadening. Still the two concepts, capital deepening and riskiness, are associated and there are be trade-offs between them.

PRECAUTIONARY ASSETS, RISK AND ABCT

In *Capital and its Structure*, Lachmann sets out a theory of how businesses deal with the problem of uncertain outcomes in their business plans. Using a military metaphor, he explains that businesses have three sorts of assets: first line assets, second line assets and reserve assets. He distinguishes them as follows:

> By first line assets we mean those capital goods (machines conveyor belts, lifts) whose services provide the input of the production plan right from the start. Second-line assets are those operating assets which, like spare parts, or money for wage payments, are planned to be put into operation at a definite point of time during the plan period.
>
> Reserve assets are those, like the cash reserve or reserve stocks, of which it is hoped that if all goes well they will not have to be thrown in at a definite time. Reserve assets are therefore held against unforeseen contingencies, they are not meant to be brought into operation at a definite time. (Lachmann, 1956, p. 90)

Lachmann's concept of reserve assets reflects the fact that businesses face uncertainty and that their plans are continuously subject to revision. Businesses face Knightian uncertainty—risk which is not probabilistic. Thus, the quantity of reserve assets

or "precautionary assets" held represents the controlling mind's view of the riskiness of the business. The less risky the business is perceived to be, the smaller the stock of such assets. This concept of precautionary assets fits well with Lachmann's reiterated point that often businesses have to reshuffle their capital as the result of their plans not meeting initial expectations. And to cover this possibility, businesses position themselves to be able to revise their plans if necessary.

Precautionary assets represent the ability of businesses to withstand business plan disappointment. They will include, but are not limited to, cash and near cash, forward and futures and options contracts (used as hedges), credit lines, non-specific resources and production goods, commodity stocks, (some) inventories, and (some) human capital. Precautionary assets, (a quantitative concept) represent the degree to which business plans are cautious or reckless (a qualitative concept). For example, an increase in precautionary assets could include a rearrangement of human capital—the firing of an aggressive manager and his replacement by a person with more experience of business downturns. It is impossible to calculate an aggregate of precautionary assets for an economy because expectations about their use depend on the expectations of some businesses which may be falsified or inconsistent with those of others. What may be precautionary assets for some businesses may not be so to others. The concept of precautionary assets is subjective, as it depends on expectations which may be falsified.

PRECAUTIONARY ASSETS AND THE PRODUCTION POSSIBILITIES FRONTIER

Precautionary assets play an important role in the analysis of the boom. Plainly, the perceived riskiness of ventures will affect the amount of precautionary assets which businessmen will think it necessary to carry. And this amount can be affected by the reduction of interest rates below the "natural rate."

Changes in the amount of precautionary assets can help explain an otherwise puzzling feature of ABCT. This is the problem of production above the production possibilities frontier (PPF) in Roger Garrison's diagrammatic description of Austrian capital-based

macro-economics. It will be remembered that in his book *Time and Money* (2001), Garrison uses three "Garrison panels" to show how changes in the money supply shift the apparent supply of savings, which determines the division between consumption and investment. In turn, the proportion of investment (relative to consumption) then determines the slope of the Hayekian triangle. While this schema works well in the case of a moneyless economy, it is more difficult to interpret when misinformation has been fed into the system by an increase in new bank loans in excess of actual foregone consumption.

This problem arises particularly in the interpretation of the Garrison panel illustration of the PPF shown in Figure 1. The additional funds injected into the loan market have the effect of pushing production beyond the PPF, which appears impossible at worst or paradoxical at best. One solution is to reinterpret the PPF as the "sustainable production frontier" (SPF). But this in turn raises the issue of what is meant precisely by sustainable production (Hülsmann, 2001) and what resources are available to push production into unsustainable territory.

The problem appears connected to a rarely stated paradox of ABCT. During the boom, when, according to the theory, mal-investments are being made, there is the experience of great prosperity. One obvious explanation is that it is not clear during the boom that the investment plans of many are going to fail. Still, it is puzzling that the exuberance of the boom should often be so great.

The solution of this puzzle is to focus on the consequences of interest rates being pushed below the natural rate in reducing risk premiums. This has the effect of leading businesses to reduce their precautionary assets on the grounds that they are in a less risky business environment than they had thought. The resources released by the reduction in precautionary assets can be used to maintain the boom. It is important to note that the drawdown of precautionary assets can only continue for a limited period. At some stage, precautionary assets will be reduced to a minimum below which businessmen will be reluctant to let them fall. It follows that this reduction in precautionary assets permits aggregate production to move outside the SPF, allowing the boom to develop in an unsustainable fashion.

Figure 1. Precautionary Assets and the Sustainable Production Frontier

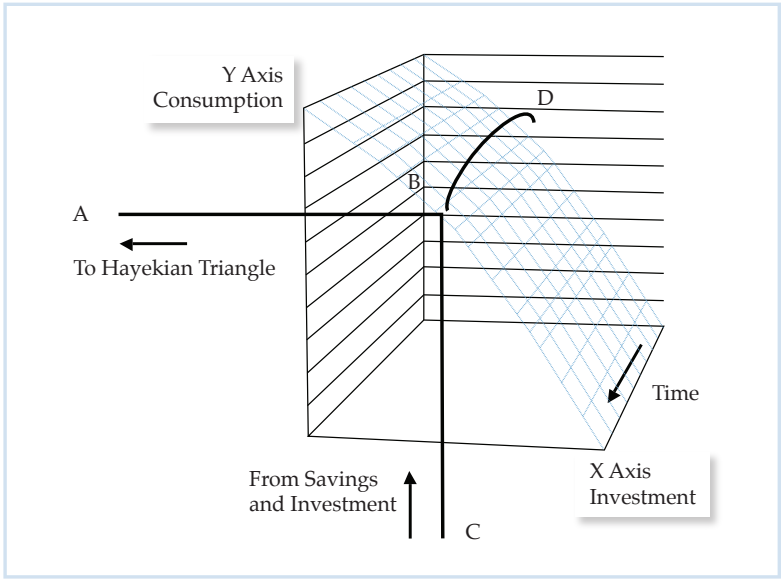

Figure 1 shows how the drawdown of precautionary assets makes it possible for production to exceed the sustainable production frontier. In the figure, a time dimension is added to the SPF, which is assumed to remain unchanged over time. The period represented by the time axis is from the start to the finish of the boom in chronological time. The thick vertical (CB) and horizontal lines (AB) represent, respectively, the share in the SPF of investment and consumption at the end of the period under consideration (i.e. the end of the boom). The curved thick line (BD) represents the production outside the SPF, and the area between the line and the successive SPFs represents the drawdown of precautionary assets during the boom. The drawdown reflects, in turn, the effect of the reduced risk premiums and the approach to the minimum appropriate precautionary assets for that degree of perceived risk. The rundown of precautionary assets may be slow, allowing the apparent prosperity of the boom to continue for some considerable time.

Lachmann and Snapper's 1994 paper "Commodity Stocks in the Trade Cycle" gives some confirmation of this analysis from

the period before the Second World War. Lachmann and Snapper show that in the period between the 1870s and the late 1930s, commodity stocks, which may constitute an important part of precautionary assets, were at their lowest point at the end of the boom and were at their highest just before the recovery. Lachmann and Snapper were arguing against Keynes' theory that commodity stocks had to be run down before the recovery could begin, and used a statistical analysis of commodity stocks to prove their point. Lachmann concluded:

> The main conclusion emerging from the statistics we have presented appears to be that our stocks are inversely correlated with the cycle. As a rule they reach their lowest level very shortly before the outbreak of the crisis, while their peak level is to be found towards the end of the depression. (Lachmann and Snapper, 1994, p. 67)

While Lachmann and Snapper's study should not be taken as a universal truth in all business cycles, the concept of precautionary assets is a tool in the Austrian economist's tool box of explanatory concepts which may have value in explaining features of some business cycles.

PRECAUTIONARY ASSETS, RISK AND "ROUNDABOUTNESS"

One puzzle is what determines the split between increased roundaboutness and increased riskiness for any given reduction in interest rates below the natural rate. One possible solution to this problem is that the choice between roundabout and risky investments of equal potential return will depend on the level of precautionary assets. Thus a businessman will choose a risky investment rather than a roundabout investment if he considers his business to be well-placed to absorb plan disappointment. For example a businessman whose business has a large cash balance will be more likely to take a risk than if he has little cash. On the other hand, if his stocks of precautionary assets are low, then the businessman will prefer more roundabout investments.

Precautionary assets have the role of protecting businesses against risk, and with precautionary assets high businesses can afford to be less risk averse. As precautionary assets fall, the

attention of businessmen focuses increasingly on less risky but more roundabout ventures.

PRECAUTIONARY ASSETS AND THE STRUCTURE OF THE CYCLE

Consider an economy in a state of inter-temporal equilibrium and systemic appraisal neutrality (i.e., neither optimistic nor pessimistic) and that the central bank permits an injection of funds into the loan market (not matched by an equivalent increase in savings). This leads to a reduction in the market rate of interest below the natural rate. Businessmen, misinformed that savings are greater and the business environment less risky than is actually the case, reduce their precautionary assets. When it becomes clear in the crisis that they have underestimated the riskiness of their projects, it is natural for them to rebuild their precautionary assets as a priority before they feel secure enough to expand their businesses again. Businessmen seek to bring precautionary assets back to levels which accord with actual rather than misperceived risk; for without this cushion they might not be able to survive further shocks.

Risky investments will be concentrated at the beginning of the boom when stocks of precautionary assets are high. As holdings of precautionary assts are diverted into maintaining production in excess of the sustainable production frontier, businesses gradually realize that their resilience to adverse shocks has been reduced, and shift their attention to what they perceive to be less risky but more roundabout investments. It may also help explain how the boom could become self-reinforcing. As the boom progresses, precautionary assets are reduced as they are used to sustain the exuberance of the boom and businessmen's confidence and optimism increases. Ten years after the start of a boom, businessmen may be more optimistic than they were five years earlier merely because the boom has lasted so long and fears of recession have faded.

CONCLUSION AND THE ROLE OF PRECAUTIONARY ASSETS IN MAINTAINING ECONOMIC STABILITY

The theory outlined above describes a second distorting effect which supplements (but does not replace) standard ABCT. It explains

the degree to which a market economy can absorb untoward unexpected events and how induced systemic appraisal optimism is one consequence of credit expansion. It also explains how during the boom production can rise above the sustainable production frontier and why for a time the boom can be so irrationally exuberant.

The theory also suggests that the quantity of precautionary assets have an important role in economic stability. Because of induced appraisal optimism, businessmen may become less risk averse, come to feel that their precautionary asset holdings are higher than necessary, and reduce them. Following the crisis, it is natural for businesses to rebuild their precautionary assets. Until these stocks are rebuilt, the economy will lack resilience and remain unduly vulnerable to untoward events.

The resilience of market economies to shocks depends on the quantity of the precautionary assets held relative to actual risk. Interest rates pushed below the natural rate have a tendency (amongst other things) to lead businessmen to deplete their precautionary assets, making the economy more vulnerable to shocks. Following a prolonged boom in which precautionary assets have been reduced to very low levels, the economy's shock absorbers will have a reduced ability to dampen the extremes of the economic cycle.

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