

RETHINKING TIME AND MONEY AT THE BEGINNING OF THE 21ST CENTURY

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I gratefully accept the editors' invitation to present a few reflections upon Dr. Garrison's *Time and Money: The Macroeconomics of Capital Structure*. Since other contributors to this special issue of the *Quarterly Journal of Austrian Economics* will critically discuss several aspects of the book, I will not offer an exhaustive and systematic overview of the book's content. After offering a few preliminary remarks, I will immediately pass on to discussing in somewhat more depth two particular topics. One relates to what I consider to be one rather questionable way in which Garrison's construction deviates from established modes of thought in Austrian economics; the other relates to Garrison's somewhat unbalanced treatment of the Keynesian and Austrian paradigms, an aspect that I consider equally problematic.

Time and money constitute the blind spots of classical or standard economics.¹ Acknowledging this fact and taking it as a starting point for a renewed reflection upon the themes and problems that were of central importance during the important interwar debates remain as important today as ever. The classical model was essentially one of barter. Keynes and Hayek had presented two related challenges to classical economics: the role of money and the role of expectations.² Hayek had been clearly implying that Say's Law applies only to the natural economy and not to the monetary economy. Garrison elaborates on an illuminating metaphor Hayek had suggested in this respect, namely that "money by its very nature constitutes a kind of loose joint in the self-equilibrating apparatus of the price mechanism which is bound to impede its working—the more so the greater is the play in the loose joint" (Hayek 1941, p. 408). As Garrison (p. 52) explains: "The Austrian theory of boom and bust, which presupposes an essential loose-jointedness,

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¹See also, from a somewhat different perspective, Sapir (2000) *Les trous noirs de la science économique* with the telling subtitle: *Essay sur l'impossibilité de penser le temps et l'argent*.

²See also Cochran and Glahe (1999).

identifies a systematic misallocation of resources that could not possibly characterize a tight-jointed system.”

Nevertheless, even as late as in his *Three Elucidations of the Ricardo Effect* Hayek (1978, pp. 165–78) had refrained from treating the intricate questions surrounding the role of expectations in any systematic or satisfactory manner—while all the time recognizing their crucial importance.³ Garrison’s treatment of these questions is outstanding, however, and must be considered a highlight in the Austrian literature. For the first time, Hicks’s (1967) challenge is satisfactorily dealt with (pp. 76–83).

Hicks had objected:

Hayek’s model does engender a process; some kind of lag (or lags) must therefore be implicit in it. Where is the lag to be found? . . . If there are no lags in market adjustment, the time-structure of production is irrelevant to the Cumulative Process; for there will not be time, before equilibrium is restored, for the structure of production to be changed. What then was Hayek’s lag? (1967, p. 207)

In Garrison’s construction there is no lag between earning and spending. There is, however, some scope for the expansion of output in all stages of production. As Garrison (2001, pp. 71–72) points out, the tug-of-war between investors and consumers that sends the economy beyond its production possibility frontier pulls the Hayekian triangle in two directions, that is, the triangle is being pulled at both ends—by cheap credit and strong consumer demand—at the expense of the middle. But it is not strictly necessary to suppose that both tendencies are *not* taking place simultaneously, that is, there is no need to postulate the existence of a lag *in this sense*. The (limited) scope for increased output at all stages translates into the scope for misallocations *among* stages. There is a bias in the direction of investment that is directly related to the particular manner in which the new money is injected. Credit expansion implies an investment bias.

Nevertheless, it cannot be simply assumed, much less taken for granted, that in the face of a monetary expansion, an elasticity of expectations of zero will apply. In this sense, the market process may—and often will—entail the existence of a lag. Mises had already pointed out, responding to an objection by Lachmann, that “without fairly elastic expectations there can be no crisis of the Austro-Wicksellian type” (Mises 1943, p. 251).

Critics like Hicks (1967) had been assuming that, in the face of a monetary expansion, an elasticity of expectations of zero applies. On the one hand, Austrian theory can accommodate the insight that the answer to the question of whether and to what extent the elasticity of expectations with respect to the

³See Van den Hauwe (2001, p. 313).

interest rate is greater than zero, is predominantly an empirical issue. On the other hand, Austrians would typically want to argue that the assumption of an elasticity of expectations with respect to the interest rate being greater than zero is a plausible one. It is an implication of the very notion of “market process” that the market works but that it does not work instantaneously.

It should be pointed out that in other respects, too, Garrison succeeds in going considerably beyond simply restating old debates. In chapter 5 of the book he demonstrates the relevance of capital-based macroeconomics beyond its application to the business cycle by discussing a variety of fiscal and regulatory issues (pp. 84–106). In chapter 6 Garrison modifies Hayek’s theory of boom and bust by focusing attention on the risk premium component of the interest rate and then retells it in a way that sheds light on a number of contemporary macroeconomic problems (pp. 107–22).

Garrison clearly brings out the essential difference between the Keynesian and the Hayekian visions of the macroeconomy. At the most basic level this difference relates to the respective judgments about the existence—or non-existence—of a spontaneous order at work. Whereas Keynes’s labor-based macroeconomics essentially leaves us with a macroeconomics of market failure, Hayek’s intertemporal structure of production allows us to understand how it is possible for a market economy to accommodate the trade-off between consumption and investment.

In this framework it is obviously of crucial importance to trace out consistently the consequences of changes in intertemporal preferences and their implications for the intertemporal allocation of resources, that is, the implied capital restructuring and the accompanying auxiliary labor-market adjustments. This brings me to my first critical reflection.

In Figure 4.3 on page 65 Garrison describes the auxiliary labor-market adjustments accompanying a capital restructuring following changes in intertemporal preferences while referring to Hayek’s concept of a “family of discount curves” (Hayek 1935, p. 80; 1941, p. 290) with which Hayek tracks the differential changes in labor demand in five separate stages of production.

As Garrison rightly points out, increased saving has two separate effects on labor demand. The two concepts at play are *derived demand* and *time discount*. On the one hand, labor demand is derived demand: a reduction in the demand for consumption goods implies a proportionate reduction in the labor that produces those consumption goods. On the other hand, like all factors of production in a time-consuming production process, labor is valued at a discount: the reduction in the interest rate lessens the discount and hence increases the value of labor. In the late stages of production, this effect is negligible; in the earliest stages of production, it dominates. The two effects work in opposite directions—with the magnitude of the time-discount effect increasing with temporal remoteness from the final stage of production. Together, they change the shape of the Hayekian triangle (p. 64).

In general and for any given stage of production, the specific factors undergo price adjustments and the nonspecific factors undergo quantity adjustments. Labor is here treated as a wholly nonspecific factor of production, but one that has to be enticed by a higher wage rate to move from one stage to another. Garrison assumes that initially the wage rate falls in the late stage and rises in the early stage but that after the pattern of employment fully adjusts itself to the new market conditions—with workers moving from the late stage to the early stage—*the wage rate returns to its initial level*.

Now this is a result that we would not directly expect. Any student of the Austrian School, from Böhm-Bawerk down to Hayek, is familiar with the reasoning according to which the length of the period of production varies directly with real wages and inversely with the rate of interest.

Garrison assumes that labor is employed in all stages of production but that it is neither so predominantly concentrated in the early stages of production that the wage rate rises when the interest rate falls nor so predominantly concentrated in the late stages of production that the wage rate falls along with the falling interest rate (pp. 66-67). He writes:

Of course, in particular applications, if labor is for some reason believed to be disproportionately concentrated in early stages or in late stages, then Figure 4.3 must be modified to show the corresponding change in the wage rate. (p. 67)

However, after the capital restructuring, the proportional distribution of labor among stages will have changed in the direction of a relatively greater concentration of labor in early, capital-intensive stages of production. This is one reason why we would expect the wage rate to be higher after the restructuring instead of returning to its initial level.

This is also brought out by Hayek's presentation from which it is clear that the discounted value of the marginal product of the (nonspecific) factor will *necessarily* be higher than it was before (Hayek 1941, p. 290).

Garrison is aware that his reckoning deviates from conceptualizations found in the mainstream literature. Assuming constant returns to scale and fixed proportions, and with no substitutability possible, Samuelson had discussed the fundamental trade-off relation between the wage and profit level in terms of "the Factor-price Frontier":

There is always a tradeoff between the wage and profit level: in the absence of innovation both cannot go up; and whatever the pattern of innovation, both cannot go down, since a simultaneous declining rate of profit and an immiserization of the wage earner would be arithmetically impossible in the stipulated technology. (Samuelson 1962, pp. 195-96)

What does it mean, in this reckoning, to stipulate that some capital goods—say beta—are more "round-about, mechanized time-intensive" than an alternative process, say alpha? According to Samuelson:

This, and no more than this: alpha will be used at very high interest or profit rates in preference to beta; but if the interest were lower . . . society would let alpha wear out and put all its resources into the gross capital formation of beta. (Samuelson 1962, p. 198)

Garrison recognizes that the pattern of change he depicts stands in contrast to the pattern that characterizes Samuelson's analytics (p. 66). He is confident, however, that his conceptualization is consistent with Hayek's (p. 65). Garrison's claim that his reckoning is consistent with the one shown by Hayek (1935, p. 80) seems questionable.

I will argue that in fact Garrison's approach represents a rather radical rupture from traditional and established modes of thought within Austrian economics.

In *The Pure Theory of Capital* (Hayek 1941), a figure similar to the one given in *Prices and Production* (Hayek 1935, p. 80) can be found. In the context of a slightly involved presentation, Hayek there wrote:

The discounted value of the marginal product of the factor (or its price in terms of consumers' goods), indicated by the distance from the base to the line ending at p_1 , will *necessarily* be higher than it was before. (1941, p. 290, emphasis is mine)

Before Hayek Böhm-Bawerk had arrived at the conclusion that "[t]he interest rate in a given economy will rise in inverse ratio to the subsistence fund" (1959, bk. 4, chap. 3, p. 365).

However, in Böhm-Bawerk's numerical examples the wage rate varies directly with the length of the period of production and inversely with the interest rate.⁴ It will be remembered that Stigler commented upon these pages of Böhm-Bawerk's *Capital and Interest* as follows:

This last section on the determination of the interest rate is his very best economic theorizing. It is much more lucid, consistent, and penetrating than the analyses of distribution, production, and discount of the future. (Stigler 1994, pp. 226-27)

Thus, Garrison's suggestion that after a capital restructuring "the wage rate returns to its initial level" (ibid., pp. 64-65) is at odds not only with Hayek's reckoning of these matters but also with Böhm-Bawerk's.

It is this writer's conjecture that the "anomalous" conclusion Garrison reaches in Figure 4.3 (p. 65) with respect to the wage rate returning to its initial level relates to a particular aspect of his construction: the attempt to separate—at least conceptually—the "secular growth" aspect from the "changes in intertemporal preferences" aspect when discussing economic growth. This is a criticizable strategy.

⁴In a similar sense, see Stigler (1994, p. 222).

Garrison recognizes that “Historically, increasing wealth has typically been accompanied by decreasing time preferences” (pp. 54-55). He adds, however:

The macroeconomics of secular growth provides a more realistic baseline for analyzing particular changes in preferences or policies. In putting the graphics through their paces, however, the secular component of growth will be kept in the background. Changes in intertemporal preferences as well as policy changes will be analyzed on the assumption that we begin with a no-growth economy. With this simplifying assumption, the movement of the macroeconomy from one equilibrium to another will sometimes involve an absolute reduction in some macroeconomic magnitudes. Current consumption, for instance, might decrease while the economy’s capacity to satisfy future consumer demands is being increased. In the fuller context of ongoing secular growth, the absolute decrease in consumption would translate into a reduced rate of increase in consumption. More generally, the macroeconomic adjustments required by some particular parametric or policy change are to be superimposed (conceptually if not graphically) onto the dynamics of the ongoing secular growth. (p. 55)

Apparently, Garrison holds the idea that there is no *necessary* or *conceptual* link between economic growth and changes in intertemporal preferences. Both may be conceptually and graphically separated, even if only for purposes of exposition, and then again “superimposed.”

Is it appropriate to conceive of this link as *merely historical*—that is, contingent and accidental, so to speak—or is it itself a *necessary, conceptual* link?

As it seems to this writer, Garrison’s suggestion works only in one direction. It may well be true that the notion of a progressing economy as such does not necessarily presuppose *changes* in intertemporal preferences, that is, graphically speaking, a change in the shape of the Hayekian triangle. It seems to be a necessary and sufficient condition for economic growth that saving exceeds capital depreciation. In Dr. Garrison’s words:

Secular growth occurs without having been provoked by policy or by technological advance or by a change in intertemporal preferences. Rather, the ongoing gross investment is sufficient for both capital maintenance and capital accumulation. (p. 54)

On the other hand, however, it is more difficult to conceptualize that changes in intertemporal preferences—and, more particularly a decrease in time preference—can be conceived *independently* of the anticipated growth of wealth over time. In the minds of the actors who change their intertemporal preferences in this sense, the intended increase of wealth over time is necessarily part of the act, so to speak. Foregoing present satisfaction would be pointless if not linked to greater satisfaction in the future.

As Mises wrote:

Saving, capital accumulation, and investment withhold the amount concerned from current consumption and dedicate it to the improvement of

future conditions. The saver foregoes the increase in present satisfaction in order to improve his own well-being and that of his family in the more distant future. (Mises 1998, p. 840)

Even if no conceptual contradiction is involved in the notion of “secular growth with assumed interest-rate neutrality,” it seems difficult to conceive of a change in intertemporal preferences, in the sense that people become more future-oriented, if unrelated to economic growth.

People engage in lengthier production processes *because* these will lead to the output of a *larger* quantity of consumption goods at some point in the future *than otherwise would have been the case*.

This means that a change in intertemporal preferences—say, decreasing time preferences—on the one hand, and economic growth or increasing wealth over time on the other are not only historically and accidentally related, as a matter of contingent fact. To the contrary they are essentially related and this insight follows from the individual’s acting and choosing being taken as the basic starting point of the analysis, that is, it is entailed by methodological individualism.

This was clearly seen by Böhm-Bawerk and Mises. In Böhm-Bawerk we find the idea that

one thing that can be stated with a reasonable degree of certainty is the proposition . . . that as a general rule a wisely selected extension of the roundabout way of production does result in an increase in the magnitude of the product. It can be confidently maintained that there is no area of production which could not materially increase its product over the result obtained by its present method.⁵

Now according to Böhm-Bawerk the only basis of this proposition is the experience of practical life; economic theory does not and cannot show *a priori* that it must be so: “This observation . . . is based on experience, and only on experience” (Böhm-Bawerk 1959, bk. 2, chap. 2, p. 83). As Stigler (1994, p. 201) adds: “the pragmatic proof lies in the fact that such methods would not be used if they were not more productive.”

Why? As Böhm-Bawerk (p. 82) explains: “The disadvantage which attends the capitalist method of production consists in a *sacrifice of time*. Capitalist roundaboutness is productive but time consuming. It yields more or better consumption goods, but not until a later time.” Böhm-Bawerk thus felt that a

⁵Böhm-Bawerk (1959, bk. 2, chap. 2, pp. 84–85). He also distinguishes two facts. One is, that a lengthening of the roundabout methods of production results in an increased quantity of the product; the other is that this increase begins to fall off at a certain point, that is, the lengthening of the production period increases the product, but “in a lesser ratio” or “in constantly decreasing proportion” (p. 85) than the relative increase in the production period.

more “time-consuming” process of production would not be chosen *unless* it was more productive, that is, unless it added sufficiently more value to compensate for the longer “waiting” required.

But then it can also be maintained, reasoning in terms of a variant of Say’s Law, that the increased supply of (future) consumption goods will create its own demand, and that therefore the real wage *must* be higher, at least in long-run equilibrium. Actors forego present consumption and engage in increased saving—and more roundabout production processes—now *because* this lengthening of the production structure yields a greater amount of consumption goods at some point in the future.

People engage in lengthier production processes because this leads to output of a greater quantity of consumption goods at some point in the future than otherwise would have been the case.

Thinking in terms of a variant of Say’s Law arguably this greater supply must be matched by a greater demand. Therefore, it is difficult to see how it would be possible that real wages—*ceteris paribus*—do not rise.⁶

Does this mean there exists a “necessary” or “apodictic” link between increasing real wealth over time and the lowering of time preferences?

The answer seems to be in the affirmative in the following sense. If at a moment in time, say T_1 , actors do not engage in a more roundabout process despite the increases of product this would entail, and at a later moment, T_2 , they do engage in this process, then *ceteris paribus* the inference that intertemporal preferences have changed—in the sense of decreased time preference—between T_1 and T_2 seems legitimate since *ceteris paribus* such a change provides the best possible explanation of the actors’ decision now to lengthen the production structure. At T_1 the value of the increase of the product that could be acquired by a lengthening of the structure of production was not deemed sufficient to compensate for the longer waiting required, whereas at T_2 it was deemed sufficient. At T_2 “the cost of waiting” no longer outweighs the expected value of the increase of the product whereas at T_1 it still did. Therefore the conclusion seems warranted that the actors’ time preferences have been lowered during the time period intervening between T_1 and T_2 .

Inversely, *if* time preferences are lowered, the expected value of the increase in the product to be derived from some possible more roundabout production process will now, at the margin, outweigh the implied “cost of waiting,” whereas before it did not, and actors will, *ceteris paribus*, engage in the lengthier production process. In the aggregate and over time this will be accompanied by a higher wage rate.

We can even go further. Even if the notion of secular growth with assumed interest rate neutrality involves no conceptual contradiction, it is doubtful

⁶Or more correctly, to the extent Say’s Law obtains. Say’s Law is a conditional proposition, not an unconditional proposition.

whether we would ever expect to encounter the corresponding phenomenon in historical reality. As people earn more, they save more, but it does not follow that the (social) proportion or ratio of consumption to saving and investment would remain exactly the same. The latter situation would rather seem to be like a purely conceptual possibility, very unlikely to be met in historical reality where it seems possible to occur only because of *coincidence* or *accident*. More likely we would encounter the situation characterized by a decrease of what Rothbard has labeled the *effective time-preference rate*, that is, the (social) *proportion* of consumption to savings-investment will be lowered.

Garrison might object that his construction is still justified on the ground that it serves convenience of exposition even if it may lead to somewhat counterintuitive propositions, such as the wage rate returning to its initial level after a capital restructuring. Nevertheless, this method is at odds with the traditional Austrian causal-realistic or causal-genetic method which recommends that the logic of exposition should follow as closely as possible the logic of how the phenomena themselves develop.

The causal-genetic method was characterized by Piaget in a somewhat different context:

The ideal in causal deduction . . . is a deductive argument applied to the production of phenomena. This argument is all the more satisfactory if deductive steps correspond to the links between the subject matter of the theory so that the order of the explanation reflects that of the antecedents and consequences involved in the actual and temporal unfolding of events. In other words, causal explanation will succeed insofar as each transformation involved in the relations between the objects corresponds to a transformation or operation in the deduction, this last being copied from reality. (Piaget 1968 p. 161)⁷

My second fundamental criticism relates to a certain lack of balance in the way in which Garrison treats the Austrian and Keynesian “visions” respectively.

With respect to Keynesianism we are taught by Garrison (p. 185) that the *General Theory* was ultimately an exercise in comparative institutional analysis—or, as some economists would now say, in constitutional economics.

Let it be recognized first that the quality of Garrison’s discussion of Keynesianism is unsurpassed; almost to the extent that one is tempted to say that, in some respects, his treatment of Keynesianism—in chapters 7, 8, and 9—is superior to his discussion of Austrian theory.

We thus learn that liquidity preference plays only a secondary role in Keynes’s account of the business cycle—contra Krugman—but that an increase

⁷Of course, from an Austro-praxeological perspective we would not want to indulge in psychologism. Therefore, Piaget’s characterization must be interpreted, in the present context, to have only metaphorical relevance.

in liquidity preference that follows on the heels of a collapse in investment demand may certainly be an aggravating development. The scramble for liquidity is a secondary problem. The primary problem, which manifests itself as a collapse in investment demand attributable to increased uncertainty aversion, is *business pessimism*.

Neither is the issue of the stickiness or flexibility of the wage rate essential to an adequate understanding of the problem identified by Keynes. As a theoretical matter the extent of the wage rate's flexibility is very much a subsidiary issue.

According to Keynes, cyclical unemployment is but one of the two components of involuntary unemployment. The other is secular unemployment. To fight this component of unemployment, policy tools will not suffice; social reform is necessary. Fiscal policy is only the second-best solution to the primary problem.

However, involuntary secular unemployment is not unemployment in the sense of Marshallian partial equilibrium analysis. The labor market clears. Keynes's secular unemployment is involuntary in that the market itself provides no effective mechanism through which individuals can eliminate the fetish of liquidity or its consequences. The most fundamental component of Keynes's involuntary unemployment is thus the comparative-institutions employment differential deriving from the decentralization of the investment sector and the fragmentation of the saving-investment decision under capitalism. This fault would be absent from socialism—the latter term meaning capitalism minus its faults.

The comparative-institutional dimension of the Austrian approach, however, is largely left out of the picture.⁸ This blind spot in Garrison's approach becomes particularly conspicuous in chapter 11, where he sets out to compare Austrian theory with monetary disequilibrium theory.

It has now almost become commonplace to state that the Austrian theory is not a theory of depression per se but rather a theory of the unsustainable boom (p. 240). Moreover according to this view there need be no direct rivalry between a theory of the unsustainable boom and a theory of depression.

⁸On this issue, see de Soto (1998). In a recent article I insisted upon the difference between Mises's approach and that of the Rothbardians and argued that Mises's policy recommendation fully agrees with the precepts of Hayek's legal theory (Van den Hauwe 2000, p. 585). I now realize that this view is not fully adequate. In fact it seems that Hayekians and Rothbardians can reach similar conclusions when evaluating fractional reserve banking. Hayekians and Rothbardians also have in common a fierce rejection of positivism in legal (or ethical) matters; moreover, both Rothbardians and Hayekians hold the view that ethical or legal-theoretic questions are, in general, rationally decidable. Mises to the contrary, as is well known, explicitly rejected natural law. When discussing fiduciary media, he even wrote:

Thus, according to Garrison, whereas Austrian theory may best account for some nineteenth-century downturns and for the downturn at the end of the 1920s easy-money boom, monetarist theory may best account for the prolonged contraction that followed the initial downturn in 1929, which seems to be wholly attributable to an unexpected and ill-advised monetary contraction (pp. 228-29).

This fact, the argument runs, is not always clearly perceived. Dr. Yeager, for instance, is perceived as taking the Austrians and the monetarists as offering rival theories of depression:

Yeager misidentifies the proximate consequence of credit expansion, taking the depression itself (rather than the intertemporal discoordination and hence the inevitable crisis and downturn) to be the focus of the theory. It is true that the depression that is likely to ensue can be deeper and longer-lasting than the initiating cause would imply. (p. 240)

The traumatic experience of the Great Contraction-Depression thus continues to haunt the economics profession.⁹ But what constituted this Great Contraction? In that respect Friedman and Schwartz wrote:

The deposit-currency ratio has been of major importance primarily during periods of financial difficulties. In each such period, the public's loss of confidence in banks led to an attempt to convert deposits into currency which produced a sharp decline in the ratio of deposits to currency and strong downward pressure on the stock of money. The establishment of the Federal Reserve System was expected to deprive such shifts in the deposit-currency ratio of monetary significance by providing a means of increasing the absolute volume of currency available for the public to hold, when the public desired to substitute currency for deposits, without requiring a multiple contraction of deposits. In practice, it did not succeed in achieving that objective. The most notable shift in the deposit-currency ratio in the 93 years from 1867 to 1960 occurred from 1930 to 1933, when the ratio fell to less than half its initial value and in three years erased the

It is usual to reckon the acceptance of a deposit which can be drawn upon at any time by means of notes or checks as a type of credit transaction and juristically this view is, of course, justified; but economically, the case is not one of a credit transaction. If *credit* in the economic sense means the exchange of a present good or a present service against a future good or a future service, then it is hardly possible to include the transactions in question under the conception of credit. (Mises 1981, pp. 300-01)

But of course this view is questionable. Why should we accept that a wedge be driven between the "economic" point of view and the "juristic" point of view, or between "economic reality" and "juristic reality"? This view seems acceptable only if we at least implicitly accept a positivistic conception of the law, in other words, if the law is regarded only from a *de lege lata* viewpoint and not from a *de lege ferenda* perspective.

⁹See also Horwitz (2000).

secular rise of three decades. Though the absolute volume of currency held by the public rose, it did so only at the expense of a very much larger decline in deposits, the combined effect being a decline of one-third in the total stock of money. (Friedman and Schwartz 1993, pp. 684-85)

It thus seems that when monetary disequilibrium theorists complain about the possibly disastrous effects of “excess” demands for money, what they really have in mind, at least as an initiating cause, is a decrease in the money supply as may result from a decline in the deposit-currency ratio.¹⁰

During the Great Depression of the 1930s, the money stock fell by one third. This monetary deflation occurred when the United States was on a gold standard, but it was a *fractional reserve-based* gold standard. Obviously under a *pure* gold standard such a monetary deflation would have been virtually impossible. Under a *pure* gold standard, bank runs do not affect the money supply.¹¹ The world supply of gold and hard monetary reserves is

¹⁰According to monetary disequilibrium theory the initiating cause of the bust is indeed a decrease in the money supply. The resulting monetary disequilibrium can provoke a scramble for liquidity, intensifying the economy-wide disequilibrium. On the basis of historical experience the old monetarists, especially Warburton, had already argued that it is a collapse in *M* and not a fall in *V* that brings on depression. They recognize, however, that people’s reaction to monetary disequilibrium may entail a fall in *V*—a scramble for liquidity—which adds to the problems caused by the decrease in the money supply. An excess demand for money puts downward pressure on all prices. For equilibrium to be reestablished, all prices and wages have to adjust downward and can do so only on a piecemeal basis. Complex and far-reaching interdependencies among individual prices and wages, combined with the who-goes-first problem, preclude a quick and smooth adjustment in their general level. Quantity adjustments on an economy-wide scale, that is, depression, characterize the period of slow and ragged adjustments in prices and wages (p. 234)

As Garrison explains, the money supply is particularly susceptible to collapse when policymakers are trying to cope with the final throes of a policy-induced artificial boom. Intertemporal discoordination of economic activity, waning confidence on the part of the business community, and indecision of the monetary authority can set the stage for a collapse of the money supply. And the decrease in the quantity of money, which puts downward pressure on all prices at the very time that systematic adjustments in relative prices are underway, can make the depression much more severe than it would otherwise have been (p. 251).

However, the whole scenario is context-specific, that is, it is not invariant under a modification of the institutional context. The described effects would disappear under a pure, that is 100-percent reserve, gold standard.

¹¹Under 100-percent reserves, shifts between deposits and currency would have no effect on the total stock of money and banks could not alter the ratio of deposits to reserves. The result would be to remove completely any instability in the stock of money arising from these sources (Skousen 1996, p. 83). As Skousen explains:

Under a pure gold standard, banks would be required to maintain a 100 percent reserve, which would calm the fears the public might have regarding the solvency of banks. Why would

always increasing. It is, in fact, inconceivable that a monetary collapse could occur under 100-percent reserves, as happened in 1929-32.

Now Garrison could point out that this insight is obviously not sufficient to turn the Austrian theory into a theory of depressions. Being able to point to the conditions under which a depression—and in fact the unsustainable boom itself—would be impossible, or at least very much unlikely, is not yet the same thing as presenting a *theory* of depressions—or a *theory* of the boom-bust cycle.

Nevertheless, from a comparative institutions perspective, one would have expected Garrison to have at least mentioned the theoretical link between fractional reserve banking, unsustainable boom, and depression.

CONCLUSION

According to this writer Garrison's *Time and Money* is precisely what it purports to be: an exercise in comparative frameworks.

Even if it should be recognized that the comparison of different theoretical traditions within a unified—graphical and conceptual—framework may require a number of concessions that are not without drawbacks—in the sense that one or more of the theories thus compared may come out of the exercise more or less mutilated—there can be no doubt that Garrison's endeavor must be considered a success. The foundation has now been laid not only for renewed and fruitful discussion with different and related schools of thought at the highest level of scholarly debate—an event without its equal since the Hayek-Keynes debate during the first half of the last century—but also for further research along Austrian School lines.

REFERENCES

- Böhm-Bawerk, Eugen von. 1959. *Capital and Interest*. South Holland, Ill.: Libertarian Press.
- Cochran, John P., and Fred R. Glahe. 1999. *The Hayek-Keynes Debate-Lessons for Current Business Cycle Research*. Lewiston, N.Y.: Edwin Mellen Press.

panicky depositors want to withdraw their money when the total amount owned is stored safely in the bank's vaults? And even if they did withdraw their funds, the total amount of money would remain unchanged. Under a fractional reserve system, converting deposits into cash can sharply curtail the money supply, but under 100 percent backing, it can have no such effect. Thus, bank runs would have no impact on the supply of money. Moreover, the government could not blunder in reducing the money supply because the monetary stock would consist entirely of gold bullion and coins. (1996, p. 82)

- Friedman, Milton, and Schwartz, Anna J. [1963] 1993. *A Monetary History of the United States*. Princeton, N.J.: Princeton University Press.
- Garrison, Roger W. 2001. *Time and Money: The Macroeconomics of Capital Structure*. London: Routledge.
- Hayek, F.A. 1935. *Prices and Production*. 2nd ed. London: Routledge.
- . 1941. *The Pure Theory of Capital*. London: Routledge.
- . 1978. *New Studies in Philosophy, Politics, Economics, and the History of Ideas*. London: Routledge.
- Hicks, John. 1967. "The Hayek Story." In *Critical Essays in Monetary Theory*. Oxford: Clarendon Press. Pp. 203-15.
- Horwitz, Steven. 2000. *Microfoundations and Macroeconomics: An Austrian Perspective, Foundations of the Market Economy*. London: Routledge.
- Huerta de Soto, Jesús. 1998. *Dinero, crédito bancario y ciclos económicos*. Madrid: Unión Editorial.
- Mises, Ludwig von. 1943. "Elastic Expectations' and the Austrian Theory of the Trade Cycle." *Economica* 37:251-52.
- . [1934] 1981. *The Theory of Money and Credit*. Indianapolis, Ind.: LibertyClassics.
- . [1949] 1998. *Human Action: A Treatise on Economics*. Scholar's Edition. Auburn, Ala.: Ludwig von Mises Institute.
- Piaget, Jean. (1968) "Explanation in Psychology and Psychophysiological Parallelism." In *Experimental Psychology: Its Scope and Method*. Paul Fraisse, and Jean Piaget, eds. London: Routledge and Kegan Paul.
- Samuelson, Paul. 1962. "Parable and Realism in Capital Theory." *Review of Economic Studies* 29:193-206.
- Sapir, J. 2000. *Les Trous Noirs de la Science Économique—Essai sur l'impossibilité de penser le temps et l'argent*. Paris: Albin Michel.
- Skousen, Mark. [1977] 1996. *Economics of a Pure Gold Standard*. Irvington-on-Hudson, N.Y.: Foundation for Economic Education.
- Stigler, George J. [1941] 1994. *Production and Distribution Theories*. New Brunswick, N.J.: Transaction Publishers.
- Van den Hauwe, Ludwig. 2000. "An 'Austrian' View on Economic Policy (In)Effectiveness." *Wirtschaftspolitische Blätter* 5-6:578-86.
- . 2001. "Hayek's Accelerationism: A Rectification." *Wirtschaftspolitische Blätter* 2-3: 311-16.