

KEYNES AND CAPITALISM ONE MORE TIME:  
A FURTHER REPLY TO HILL

ABSTRACT: *Greg Hill continues to miss my distinction between what is true of free-market capitalism and what is true of the interventionist forms of capitalism that characterize Western economies. It is central banking that triggers lower aggregate demand when the public's desire to save grows. If increases in saving occur through the holding of additional private bank liabilities, rather than central-bank created money, banks could adjust their supply of liabilities so as to keep saving and investment equal and avoid reductions in aggregate demand. Hill's alternatives to market-driven financial intermediaries also fail to compare fairly the market and political processes.*

Greg Hill and I are certainly not going to settle a debate with more than 50 years of literature behind it, but I do think we can once more explore each other's positions with the hope of sharpening our understanding of the issues in question. In this response to his rejoinder ("Capitalism, Coordination, and Keynes: Rejoinder to Horwitz," *Critical Review* 10, no. 3), I will try to address the arguments I think raise the most difficulties and point toward the most fundamental issues. As was the case in his rejoinder, I will be unable to address every point I might like to, and I hope that such omissions do not suggest that I think the issues skipped are unimportant or uninteresting.

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*Savings, Interest Rates, and Wealth*

In his rejoinder, Hill (373-74) breaks down my reply into five main points. He first claims that I believe that “the banking system and the rate of interest assure that saving and investment are effectively harmonized.” This way of phrasing my position suggests that I believe this result to hold at all times and in all places, or at the very least in contemporary market economies. Neither is the case. Instead, I would say that the banking system and the rate of interest *can* assure that *aggregate* saving and investment are effectively harmonized, *if the right banking institutions are in place*. But in the United States and other really existing market economies, these institutions are *not* in place. Perhaps this was not clear enough in my original reply. It is certainly a point that Keynesians have rarely addressed.<sup>1</sup>

Hill (374-75) further disputes my claim that an increase in savings will (with the right institutions in place) lower interest rates and signal investors to produce outputs that will come into being relatively farther in the future. Hill contends that an increase in my own savings from not purchasing, say, a dinner tonight will be offset by the savings lost from those who would have received income had I done so. Hill argues that the effect on total savings is zero, as the income and savings gained by me and my bank’s borrowers and their suppliers cancel out the reduction in savings from those who don’t receive additional income because I did not purchase a dinner. With no effect on total savings, there is no fall in the interest rate and no spur to investment.

Hill continues to claim, however, that savings will reduce aggregate income, presumably due to the income lost by the restaurant owner and her suppliers. But if, instead of buying dinner, I hold an additional bank liability that enables the bank to lend more, then the borrower *and its suppliers* see an increase in their income, offsetting the loss experienced by the restaurateur and her suppliers. How total income falls here is not clear. Whichever path the resources in question take, it is true that the very short-run effect will be that some people’s income rises while that of others falls. However, over time, the increase in saving makes possible a shift of resources toward the capital stock, and this, in the long run, raises overall wealth.

My contention is that interest rates are not purely monetary phe-

nomena. They are determined by time preferences and people's decisions about when to buy goods. More specifically, the interest rate is, fundamentally, a reflection of the price differentials between consumer goods (those that can be consumed in the present) and producer goods (those that must be transformed in order to become consumer goods). It is the differences between present and future prices that comprise the phenomenon of interest.<sup>2</sup> Saving affects the interest rate because it involves abstaining from purchases of goods now, freeing up funds to produce future goods.

In the case Hill and I have been discussing, the decision not to purchase dinner tonight puts downward pressure on the price of a consumer good, a dinner, while the loan that my bank makes with my saving puts upward pressure on the prices of the producer goods that the borrower purchases with it. It may well be true that in the short run, the total amount of income does not change, but the increased desire to save on the part of some market actors will cause changes in the relative prices of consumer and producer goods, lowering interest rates. Today's movement away from consumer goods toward producer goods will tomorrow cause an increase in income due to the increased investment in production processes with a larger number of intermediate stages. As Hayek (1941) and many before him argued, a lengthier structure of production generally produces more value. No one believes that increases in saving *instantaneously* increase wealth. In the short run the effects may be a wash, but over time, increases in saving lengthen the structure of production and thereby increase wealth.

Hill's (375) response to this argument is to claim that that a generalized movement to more saving will produce not a "piling up of bank deposits" but a general fall in income. Everyone's attempts to reduce spending will mean a fall in everyone's income, as income and spending are two sides of the same coin. The problem with this argument is that it continues to ignore the question of where the savings "goes." If one reduces one's spending, the resources must go somewhere other than toward spending. If they remain in one's bank account, then bank deposits are greater than they otherwise would have been. As a result, banks have more to lend and that lending and the spending by the borrowers replaces the income "lost" through the saving. However, if the saving takes the form of people holding more currency and coin, then Hill is correct: bank balance sheets will contract, and spending and income will fall. However, as I will argue

below, this is not a flaw in capitalism in general, but the result of poor banking institutions, resulting from various government interventions in the market rather than from intrinsic market forces. These interventions make the withdrawal of base money more likely than it needs to be, by creating conditions where hand-to-hand currency doubles as bank reserves.

### *Price Flexibility and Unemployment*

The second point I raise, according to Hill, is that “prolonged periods of unemployment cannot occur if wages and prices are flexible.” Once again, the matter is more complex than that statement of my position might lead one to believe. If the statement were to read “if wages and prices are *perfectly* flexible,” where “perfectly flexible” includes perfectly rational agents, then yes, I would agree. But such a hypothetical is irrelevant to the real world. Although making prices and wages more flexible is a good thing, there is no way to make them flexible enough to be able, *by themselves*, to avoid prolonged periods of unemployment. Prices in neither real-world market economies nor any market economy inhabited by human beings as we know them will be completely and perfectly flexible. For one thing, human beings are not as rational as a perfectly flexible price model would require them to be; and for another, there are the sorts of collective action problems that Hill identifies (377). Real-world prices will always be somewhat sticky, both upward and downward.

For just this reason, it is important to avoid monetary disequilibria that require economy-wide adjustments in prices. Excesses or deficiencies in the money supply, in the presence of imperfectly flexible prices, can certainly cause prolonged periods of unemployment, as the Great Depression and the stagflation of the 1970s demonstrate. Hill’s points (377–78) about fixed debt-service contracts and the resulting cumulative rot are all possibilities if the money supply is deficient (or, put differently, if planned saving exceeds planned investment). I do not dispute any of that. My concern is over what causes the mismatch between saving and investment. That is the core of the debate, and it has everything to do with the economy’s banking institutions and their ability to respond to changes in time preferences and the demand for money.

*Money's Uniqueness and the Importance of Banking Institutions*

This issue nicely segues into the third point on Hill's list, my claim that "money is not different from other goods." Once again, this statement dramatically oversimplifies my argument. I said: "Cash is not *fundamentally* different than other goods and services; if the public wishes to hold more of it, there is no reason that the laws of supply and demand *should* take a holiday" (Horwitz 1996b, 364, emphases added). Hill says of this that I do "not trouble to tell us why people wish to hold more cash when they can hold interest-bearing securities instead. If he did, his time-preference theory of the interest rate would fall to pieces" (Hill 1996, 378). But in fact, I did: "Cash is no different [from other goods that provide a particular service], in that it provides the service of being available to buy things" (Horwitz 1996b, 364). CD players provide music-playing services; cash provides availability services. Cash, like other goods, provides services to those who hold stocks of it. Although I didn't say the magic word "liquidity," I take the "service of being available" to be the same thing. In order to be "available" to buy things on the whim of the holder, a good must be perfectly liquid; and money's perfect liquidity is the one important difference between money and other goods.

I also didn't mention the tradeoff of money against interest-bearing securities, although I have addressed that issue thoroughly elsewhere.<sup>3</sup> Indeed, money does allow, in Hill's words, "holders to postpone decisions"—this is what it means to provide the service of being available to buy things. The holding of money for its availability services, and the fact that interest-bearing securities are inferior along these lines (we cannot spend Treasury Bills at the grocery store), are perfectly consistent with a time-preference theory of interest.

Hill is implying that once one admits that cash trades off against such securities, one has to admit that the demand for money is caused by interest rates and that, therefore, the interest rate is purely or overwhelmingly a function of the supply and demand for money. However, the fact that I prefer the present to the future is intimately linked with the fact that the future is uncertain. Contrary to Hill's claim (379–80), I never denied that people hold money due to uncertainty. In fact, that is precisely why they hold it, as I have argued elsewhere (1992, ch. 1). The desire for liquidity or availability services is a manifestation of the more fundamental concept of time-preference. If

I choose to sell bonds and acquire cash, this suggests that I am worried about the future and want cash so as to leave my options open. My time preferences have shifted toward the present. When I sell my bonds, bond prices fall and interest rates rise, as they should to reflect my concerns about the future. There is no contradiction between recognizing money's liquidity or availability services and a time preference theory of the interest rate.

However, there is a more fundamental issue that Hill misses. After his claim that money is in fact different from other goods due to its liquidity properties, he writes:

When the demand for an ordinary good increases and its price rises, labor can be employed to produce more of it. But when the demand for money increases, private enterprise cannot (legally) employ labor to increase its supply. In this respect, the "laws of supply and demand" do, indeed, "take a holiday." (379)

But this is precisely what is at issue. Under the current set of monetary institutions, Hill is correct; but my point in saying that there's no reason that supply and demand *should* take a holiday was to suggest that there are alternative banking institutions that *do* enable private enterprise to produce more currency and deposits when the public wants them. If so, then the downward effects on aggregate demand of an excess of planned saving over planned investment will be avoided. (Of course, if a central bank is wise enough to respond appropriately, it can avoid those effects as well.)

Hill (377) claims that I "do not think that when planned saving exceeds planned investment . . . unemployment will result." That is false as written. With a central banking system and less than perfectly flexible prices, such imbalances between saving and investment can indeed cause unemployment. My argument is that when such imbalances occur due to changes in either saving or investment, *the right set of banking institutions* can adjust the interest rate in order to bring the two quantities closer and avoid anything more than very minimal, very transient macroeconomic consequences.<sup>4</sup>

He then argues (377) that, for example, a fall in the demand for cars due to an increase in saving will not lead car producers to plan for an increase in future demand (and thus increase their demand for producer goods), as they are currently facing falling demand, falling prices, and excess capacity. What Hill misses here is that, under the

right set of banking institutions, the increase in saving will lower interest rates and reduce the cost of investment for car makers. Even though prices and demand are lower, so will be costs. Under such circumstances, it is not clear that more investment would be unprofitable. In addition, car makers need not make the crude extrapolations Hill attributes to them. Just because prices are falling today need not lead them to believe that future prices will be low. Entrepreneurs who (correctly) interpret the lower interest rate as signaling a relative shift in demand from the present to the future will take lower prices today to mean relatively *higher* prices tomorrow.

The issue of alternative banking institutions also comes into play when Hill notes that “to hold cash is to take refuge from uncertainty.” He then quotes G. L. S. Shackle, who argues that taking refuge from uncertainty (presumably by holding cash) means that we also take refuge “from enterprise, from the giving of employment.” There are two questions here. First, does Hill mean “cash” or “money”? If Hill is referring to cash in the strict sense (that is, base money), then he is correct.<sup>5</sup> Withdrawals of base money from any banking system will generate contractionary effects by reducing the ability of the banking system to lend. However, if he means money more generally, this is not the case. In the short run, my decision to hold more money in the form of bank deposits redistributes employment among different people, but does not reduce “the giving of employment.” And in the long run, my uncertainty-induced decision to hold more bank deposits will generate increased employment.

One problem with central banking is that the paper money that people use for hand-to-hand transactions (currency) is also part of bank reserves and the monetary base. Thus, when the demand to hold currency rises relative to deposits, there is a withdrawal of base money (bank reserves) and a resulting contraction in bank lending and in the economy, unless the central bank offsets the change with an injection of reserves. In really existing capitalism with central banks, an increased relative demand for currency due to uncertainty can indeed touch off a decline in aggregate demand (assuming anything less than perfectly flexible prices) if the central bank does not react properly. However, in a banking system where individual banks were allowed to create their own currencies in the same manner as their deposits, this would not be the case.<sup>6</sup> Where currency is a liability of the banking system, taking refuge from uncertainty in currency is no different from taking refuge in bank deposits and the effects are

the same: an increase in wealth over time, due to the increase in saving. Of course, in such a system, an increased demand for base money (which might or might not be a precious metal) will have contractionary effects, but that is true of *any* banking system. The question is whether fallible central bankers with poor feedback mechanisms, as opposed to fallible individual bankers with market signals to rely on, will do a better job in adjusting the total size and composition of the money supply to changes in demand. By making currency a bank liability rather than a reserve medium, a “free banking” system would allow one less way for the public to withdraw bank reserves and cause a major contraction in credit and aggregate demand. The problem with contemporary central-bank-controlled capitalism is the very fact that when the public wants more of certain kinds of money, private enterprise cannot legally “produce more of it.” Such a prohibition is not an irremediable fact of the world, but a particular institutional condition of modern capitalism that could be changed by ending government control over money.

### *The Investment-Saving Circularity*

The fourth point Hill attributes to me is the view that “income is the source of expenditure.” He got this one right. However, his supposed counterexample does not do the work he thinks it does. He argues that some expenditures are financed by lines of credit extended by a bank and not by anyone’s savings, such that “contemporary banks create credit in excess of savings, which means that ‘savings proper’ need not precede investment” (381). This is simply untrue. To the extent that competitive banks *themselves* create credit, they can do so only if they have excess reserves to back it up, or if the public is willing to hold balances of the bank’s liabilities. Both of these are forms of saving.

Suppose a bank decides to extend a \$1 million line of credit to a firm. When the loan is spent, the recipients (the sellers of the plant and equipment purchased by the borrower) deposit the checks written against the loan by the borrower, either at their own banks or at the bank that lent the firm the money in the first place. If all of the spending winds up with customers of other banks, the lending bank must have \$1 million in excess reserves on hand to meet its clearing needs at the central bank. In that case, it cannot lend without already



having sufficient reserves on hand to withstand the demands made on it during the clearing process. That is, the reserves (which constitute saving to the extent that they arrive at the bank via deposits made by their customers) must be on hand before the line of credit (investment) is spent. And if some portion of the spending comes back to the lending bank in the form of deposits made by its own customers, these deposits reflect the willingness of the public to hold the bank's deposit liabilities. This, too, is a form of saving, in that depositors are forgoing expenditure so as to provide banks with funds to loan out to their borrowers. In this case as well, investment must be financed by savings.

Hill rightly notes that there are cases in which banks can lend more than the public is willing to save. This is called inflation. But only a central bank, whether directly run by the state or in possession of state-granted monopoly privileges, has the power to create bank reserves *ex nihilo*; in doing so it gives banks the ability to lend without any prior voluntary saving by the public. Of course, the spending power that comes with such loans has to come from somewhere. This magic power comes from diluting the value of the real cash balances of other money holders when inflation leads to higher prices (a process also known as "forced saving"). In such a case, banks can indeed lend without the public wanting to save, the interest rate will indeed be sending an erroneous signal about the time preferences of the public, and unemployment will eventually result.<sup>7</sup> But this is not the fault of capitalism. It is a product of profoundly nonmarket institutions—central banks. Central banks can and do generate the kinds of system-wide discoordination that Keynes and Keynesians wrongly believe are inherent in capitalism.

Hill also claims that despite my argument to the contrary, entrepreneurs "in the aggregate sometimes overestimate demand" (381). I admit to not being clear on this point, so let me try to correct that. I do *not* deny that entrepreneurs might make errors in the aggregate. In fact, they *will* do so when market signals, in particular the interest rate, are distorted by well-intentioned but counterproductive government intervention, such as the case described in the previous paragraph. Such system-wide error is what we mean by a recession. My original claim was that "idleness caused by entrepreneurial error [as opposed to distorted prices] would show no systemic patterns, being an irremovable feature of a world of uncertainty" (Horwitz 1996b, 367). The burden on Hill is to offer an example where entrepreneurs

make aggregate errors that are sustained for a long enough period to cause a recession, but *where the errors are not the result of distorted prices or incentives created by government intervention*. Otherwise he has not shown that free-market capitalism (as opposed to the really-existing interventionist forms of capitalism of the Western world) shows any tendency to system-wide error.

### *Hill's Alternatives to the Market*

The fifth point to which Hill responds is my claim that “real-world markets may be imperfect, but they are superior to every alternative” (Hill 1996, 374). Hill’s response is to offer two alternatives that he believes would be superior to the market. The first is “a computer network linking the economy’s thousand largest firms with a Walrasian auctioneer at the center of the network” (383). The auctioneer would coordinate each firm’s investment demands with the various levels of investment desired by the others. There are numerous problems with this proposal. It appears that, for Hill, the problem with the Walrasian model is not that it isn’t a good description of what an economy *should* look like, but that it just doesn’t describe existing economies very well. Therefore, we should create institutions that make economies look more like the model of Walrasian general equilibrium. However, the conditions (perfect knowledge, stable preferences, etc.) necessary for anything close to general equilibrium to exist in the real world are so far removed from the reality of human existence that using it as any kind of goal or end-state is sure to lead to erroneous public policy.

Second, this proposal involves no mention of the interest rate whatsoever. Why wouldn’t firms just pick any old dollar amount for their desired investment? Hill suggests that firms that do not meet their investment commitments would suffer tax penalties. But how are firms to begin to know how much to invest without a market interest rate (driven by meaningful supply and demand decisions) to guide them? To first blind firms and then penalize them for not seeing correctly hardly seems feasible. How will our auctioneer know how much investment is possible without some knowledge of the public’s time preferences, in the form of its willingness to save? During the cycles of negotiation needed to converge on the Walrasian solution, how will our computerized auctioneer assure that the data in-

forming those investment preferences do not change?<sup>8</sup> Where will the resources come from to finance the level of investment that the auctioneer determines is appropriate? Hill claims that households will “remain free to save as they wish” (384), but what if they choose to save less than the auctioneer determines is the “socially” appropriate level of investment? Will the central bank make up the difference? If so, what about inflation and its deleterious consequences?

Third, this proposal assumes that the criteria for the investments that firms wish to make can be quantified and articulated in a form that can be fed into a computer. But much economic information is not known in forms that can be articulated or quantified. A significant component of our knowledge is “tacit” and can be revealed only in real social actions, not in words or numbers. Much of what goes on in the market is action driven by knowledge that the actors themselves cannot articulate. The experience acquired from operating in a particular market context often leads producers to make decisions that they themselves might describe as educated guesses or even hunches. They may not be able to specify their exact reason for thinking a certain new product or new line of business is the right thing to do, but they have that “gut feeling.” The ability to buy and sell in a market enables them to make use of this knowledge without recourse to a linguistic or statistical rationale. As a result, any proposal to coordinate economic activity centrally, whether by means of language or computers, is doomed to rely on even less complete knowledge than is available in imperfect markets.<sup>9</sup>

Finally, Hill once again overlooks any public-choice considerations. Computers are programmed and operated by real human beings with their own ideas and interests. With billions of dollars at stake, the programming of such computers would be fertile ground for rent-seeking by private firms and vote- and power-seeking by political actors. Hill’s response to an imperfect market is to assume a perfect political process.

His second proposal is to create a market in which “workers could insure the value of their human capital by purchasing an insurance policy that paid a benefit in the event the average wage of their occupational group fell below a certain threshold. Similarly, imagine new insurance markets in which people could hedge against changes in their income that were due to changes in national income over which individuals have no control” (384). My reaction to this is that if

such policies are to be created by private insurance providers, more power to them. This is not to suggest that since such policies haven't been offered, they must be a bad idea. It's possible that no one has thought of them before. But there are reasons for skepticism.

First, what happened to the uncertain future? Hill's proposal depends crucially on the ability of insurance sellers to quantify the unknowable. Life, health, and auto insurance premiums can be computed on the basis of past performance and the statistical likelihood of similar events in the future. Those are largely quantifiable risks because most of the causal factors are well known, as is their relationship to the insured-against outcome.<sup>10</sup> But Hill proposes insurance against the possible effects of future changes that we cannot now even imagine. As Austrian economists are fond of saying, the market is a discovery procedure. Israel Kirzner (1989, ch. 2) in particular has emphasized that the market discovers knowledge of which we were previously ignorant. We do not know what it is we do not know. (The value of human freedom rests on the fact of our ignorance of the future.)<sup>11</sup>

In the face of this structural ignorance, how could sellers of insurance calculate the risk of future changes in wages? After all, such changes are almost totally dependent on human choices and the link between those choices and eventual outcomes is beyond our predictive powers. What goods will people be buying in the future? What new inventions will arrive that will overturn the existing set of wages? Could an insurance company in 1965 have computed the risk of changes in the wages of U.S. auto workers? Could it have possibly foreseen the rise of Japanese competitors? Of computer and robotic technology? How will insurers be able to assess the possibility of alternative effects on the multitude of wages that comprise the market process? I find it incredible that Hill, whose Keynesianism is built on the uncertainty of the future and the inability of market actors to penetrate it successfully, would now believe that insurance companies could make a profit providing such policies.

Hill also overlooks the fact that a decline in wages for a particular group might be good for society as a whole. It was not a bad thing that the wages of candlemakers fell with the invention of the light bulb. If resources are used to compensate those whose wages fall every time there is a socially beneficial change in technology or the organization of production, are we not simply cancelling out the benefits of such changes and perhaps reducing the number of them

forthcoming? Although it is often true that such innovations reduce the wealth of particular producers and workers in the short run, the long-run increases in the standard of living that result are to the benefit of all. A policy that would deter technological innovation and productive efficiency will, in the long run, harm everyone, including those it is explicitly trying to help.

Hill may have government provision of insurance in mind here. Such a program would still face the technical problem of computing risk, and the social problem of justifying the resulting redistribution. But government provision would get around the barrier to implementing such a plan posed by the difficulty of making accurate predictions. One wonders, however, whether the waste generated by mispricing such insurance by the government wouldn't more than offset the potential gains. Once again, the public-choice issues surrounding government provision are nowhere to be found, nor are any mention of the undesirable unintended consequences of governmental support of inefficient institutions.

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Hill and I agree, I think, that if planned savings and planned investment remain out of balance for an extended period of time, a fall in total income and employment is likely to follow. This agreement points to the influence of turn-of-the-century macroeconomic thought on both Keynesian and Austrian economists. We disagree about the *source* of these imbalances. Hill, and most Keynesians, believe that these imbalances are inherent in free markets because of their decentralized decision making. I argue, by contrast, that such mismatches either stem from government interventions in the market (especially in the banking sector) or are prevented from correcting themselves with a minimum of disruption as a result of such interventions. Banking institutions free of the practices and policies imposed by government control of money would be able to translate changes in the public's desire to save (in the form of changes in their willingness to hold bank liabilities instead of purchasing goods and services) into investment lending, with no greater macroeconomic consequences than markets experience from a change in the demand for any other good or service. Keynes's "general" theory of employment, interest, and money is instead a rather specific theory, useful, at best, in explaining one way in which recessions might occur not under capitalism per se, but under interventionist forms of capitalism.

The recessions and depressions experienced by the United States all took place under this special set of circumstances. Before claiming such examples as evidence for the failures of capitalism, one must consider whether it was government control of the banking system (whether at the federal or state level) that might have been the source of the problem.

Notably, Hill points to no empirical examples to back up his theoretical argument. I would argue that extensive recent research in American financial history offers strong evidence that government intervention was the culprit in all such instances.<sup>12</sup> Thus, there is neither theoretical nor empirical reason to believe that unregulated market economies would lack self-regulatory properties sufficient to avoid recessions brought on by changes in the public's desire to save or invest.

#### NOTES

1. See my discussion of Keynes and free banking in Horwitz 1989.
2. For example, see Mises 1966, 524: "As the consumer goods are present goods, while the factors of production are means for the production of future goods, and as present goods are valued higher than future goods of the same kind and quantity, the sum thus apportioned . . . falls behind the present price of the consumers' goods concerned. This difference is the ordinary interest." Of course, it should be noted that actual market rates of interest include factors other than what Mises is terming "ordinary interest." Rates of inflation, uncertainty about the future, borrower-specific risk and many other factors can cause market rates of interest to differ from these intertemporal prices. What is important is that time preference is necessary and sufficient to generate the phenomenon of interest.
3. See Horwitz 1990. MacLachlan 1993 discusses the similarities between Austrians and Keynesians on these issues.
4. As my work in macroeconomics is squarely in the Wicksellian tradition, it would be an odd thing indeed for me to claim that a disequilibrium between ex ante savings and investment would not cause unemployment. See Horwitz 1996c for an elucidation of this theoretical perspective.
5. Hill frequently uses "cash" and "money" interchangeably and appears to overlook the important differences between the two. Normally, "cash" refers to base money such as currency and coin, while "money" is a broader concept that includes cash plus the variety of cash substitutes banks produce, such as savings and demand deposit accounts.
6. Such a system has been explored in the recent literature on free banking. See, for example, Selgin 1988 and White 1996. It is also worth noting that

- the possibility of bank-created “currency” may arrive in the form of so-called “smart cards” and “e-cash” through computer technology and the Internet. See Dorn 1997 for a collection of papers addressing these issues.
7. This is the fundamental idea behind the so-called Austrian theory of the business cycle, which is most clearly presented in Rothbard 1963, ch. 1.
  8. For these reasons and others, this scheme falls victim to the same sorts of objections that F. A. Hayek (1940) raised against Oskar Lange’s market socialist proposals to determine the equilibrium prices of capital goods by means of central planning. See also Lavoie 1985.
  9. For an application of the tacit knowledge argument to the claim that computers can coordinate economic decisions better than the market, see Horwitz 1996a.
  10. In addition, there may be some very difficult moral hazard problems here. If I have insurance against a fall in the average wage of my occupational group, what is to prevent me from slacking off or unionizing against technological changes that might affect my group’s wages? A group’s average wage can be affected by the actions of the insured. How would the providers of such policies monitor the behavior of those insured, so as to avoid them bringing on the insured-against outcome?
  11. The analogy to intellectual freedom in the academic disciplines is a very strong one. The value of academic freedom derives from the fact that we do not know what will be discovered, so we need to keep all possible avenues of discovery open.
  12. There has been a great deal of recent scholarship exploring the relationship between state intervention and the numerous problems that litter the history of American banking. For a sampling of this work, which covers everything from the early nineteenth century to the bank and savings and loan failures of the 1980s, see the following: Dowd 1992, Ely 1988, Horwitz 1990, 1992, Mullineaux 1987, 1988, Rockoff 1974, Rolnick and Weber 1983, Selgin 1992 and 1994, Selgin and L. White 1988, Timberlake 1993, E. White 1983, and L. White 1993.

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