Can Monetary Disequilibrium be Eliminated?

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We are indebted to Professors Greenfield and Yeager for their continuing attention to fundamental aspects of monetary theory. Their work forces each of us to consider or reconsider such basic issues as the role of money, the conditions for existence of a price level, limits to the role of government in the monetary process, and the costs of achieving the social benefits provided by a monetary system.

Greenfield and Yeager suggest that the social benefits can be achieved in a system of private money. They use the term "private money" to mean a monetary system in which government has a minimal role. The government does not issue base money, produce or specify a medium of exchange, function as lender of last resort, hold inventories of money, set an exchange rate, or maintain convertibility. The role of government in the monetary system is limited to defining a unit of account and conducting its own transactions in that unit. The government does not require others to transact in the unit except when transacting with the government, so legal tender is restricted to government transactions. Convergence to the unit as a basis for accounts and valuation is not imposed. To define the unit, the government specifies a bundle of goods and services that is comprehensive enough to keep stable the general level of prices quoted in the unit of account. Prices would be quoted in units and, if the system worked as the authors intend, goods and services would be priced in the unit. Relative prices would change for the usual

*On first reading, I missed the main, novel idea in this paper. I am indebted to Professors Greenfield and Yeager for discussions and letters that helped me to understand better their contribution. I regret that my comments at the conference may have misled others. Bennett McCallum and Georg Rich were helpful in discussion.
reasons.

The advantage claimed for the system is that the price level would be constant or, as the authors suggest, nearly so. More importantly, if the system works as claimed, the anticipated price level would be constant. People would plan on the properly held anticipation that their decisions to invest and save would not be subject to the risk of price level changes. Relative prices would change as required by changes in taste, technology, and population. This is, for me, an attractive outcome. We must see what it would cost to achieve and how it might work.

The System

The authors introduce a simple, but remarkable, scheme. Conventional monetary systems fix the nominal value of money (and other financial assets) and require real values to adjust. In these systems the government either determines the nominal stock of (base) money or specifies a rule or agency which controls the nominal stock. The public determines the price level at which they willingly hold the outstanding stock. In the Greenfield-Yeager system, this is reversed. The government fixes the real value of money by choosing a commodity basket that serves as the unit of account. The stock of (nominal) money is determined by the public's demand. ¹

It is best to think of the commodity basket used to value the unit of account as rather comprehensive, say the real GNP of the country or perhaps the domestic component, real GDP. Each unit of money is a claim to a fixed basket of this kind, a fraction of the GDP. No matter what happens to the relative prices of the items in the basket, or the relative prices of items in and out of the basket, a unit of money maintains its real value. By fixing the unit of account, the authors claim to have fixed the real value of money denominated in that unit. Denote the unit by U.

The authors illustrate the working of the system at times by analogies to the gold standard. This is potentially misleading. If the basket of commodities defining U is not relatively comprehensive, the price of U's

¹The authors confused me, and possibly others, by describing their system as a BFH (Black, Fama, Hall) system. Their proposal is very different. A better name would be real valued money or, if an acronym is needed, perhaps MORV — money of real value.
relative to non-U's will be subject to greater and more frequent shocks. A more comprehensive basket gets the benefit of diversification—lower risk of fluctuations in its relative price. A very comprehensive basket, however, faces the problem of shifting weights on the items in the basket, disappearance of items from the basket, and introduction of new items. Money that is stable in terms of a U defined as the GDP of 1900 would not have the stability properties relevant for current money holders that the authors stress. The authors do not address issues of this kind.

The government does not issue any money. The medium of exchange is provided by banks which may choose to use the unit of account defined by the government. Suppose for the moment that they do. Banks would issue and accept deposits and make loans denominated in U's. Neither banks nor the public would choose to incur the cost of buying, selling and holding baskets of the GDP commodities, so the value of banknotes and deposits cannot be maintained by exchanging the medium of exchange for fractions of the GDP. Some other mechanism is required to fix the value of money. Greenfield and Yeager introduce clearing drains as the principal means of restricting overissue by a single bank. At one point, they assume that banks use gold (valued in U's) to settle surplus and deficit positions. Since there is an opportunity cost to holding gold, the authors suggest that earning assets would do better.

To understand how the scheme would work and how it differs from conventional schemes, suppose, first, that there is a real shock to productivity. Under conventional arrangements, the price level falls if the shock is positive and rises in the opposite case. The price change adjusts the stock of nominal money until real balances are willingly held. In the Greenfield-Yeager scheme, the price level remains fixed. The change in productivity changes the level of output and, therefore, the demand for money, the volume of borrowing, and the stock of notes and deposits outstanding. If more commodity baskets are produced with the same resources, more money is produced (in response to demand) at an unchanged price level. Each unit of

To avoid doubts about convergence to a common unit, the authors should let the government impose a legal tender requirement. This would simplify contracting. Since the government does not produce money, there would be no risk of inflation or deflation and no effect on the price level.
money retains its value in U's.

Next, suppose that an improvement in the payments system lowers the demand for money. People are now able to carry out their transactions with smaller average cash balances. In the conventional system, as the demand for money declines, prices rise to reduce real balances. In Greenfield-Yeager, the public buys assets from the banking system, reducing the stock of money. Output, or GDP, as conventionally measured is unchanged, but the stock of money is smaller, so each note or deposit is a claim to a larger U at an unchanged price level.

As a final exercise, assume that the return to real capital and the productivity growth rate increase permanently to a new level. The demand for real balances increases with output, but since the equilibrium return to real capital has increased, the rate of interest is higher. The quantity of real balances demanded falls with the rise in the rate of interest. The stock of money declines with demand. Again, each unit of money is a claim to a larger real GDP at an unchanged price level.

Some Problems

Any change in the price of items in the basket relative to items not in the basket will change the relative price of assets denominated in U's. Suppose that the non-U's are imports. From international finance theory, we know that no general statement can be made about the optimality of either price level stability or exchange rate stability (the relative price of U and non-U baskets). The authors do not claim that their system would be optimal, but some attention to its welfare properties would be welcome. Consideration of the comparative welfare properties of the authors' proposal relative to proposals to adopt a monetary rule that maintains price stability on average would bring some additional perspective.

In the past, I have proposed a rule that sets base money growth equal to the maintained average rate of output growth minus the growth rate of base velocity. A rule of this kind would keep the anticipated price level constant and, if major countries adopt rules of this kind, the rule would also reduce fluctuations in exchange rates. Bennett McCallum proposed a similar rule for domestic price stability without the exchange rate feature. Milton Friedman's rule is well-known. There is, then, no shortage of proposals for price stability. The proposals just mentioned, like the Greenfield-Yeager proposal,
do not address the problem of adoption—the apparent absence of sufficient incentives for the public or government to adopt a rule for price stability. The alternative proposals, however, do not require the radical changes in financial structure required by Greenfield and Yeager's proposal.

To this point, I have maintained the authors' assumption that the system would converge to a common unit of account. It is not obvious that convergence would occur. Suppose that the price of some asset or basket, call it W, has negative covariance with the price of baskets denominated in U's. Banks or firms can denominate claims in W's. Innovations in the payments system that lower the value of real money balances in U's raise the value of balances in W's and conversely. Money denominated in W's may coexist with money denominated in U's. I do not see that this has been ruled out.

Negative covariance is one example. The more general point is that convergence is not assured. If the government's role is limited to choosing the unit of account, the public is free to introduce other units and use them as mediums of exchange and units of account.

The authors do not claim that interbank clearing achieves price stability. They introduce the use of a redemption medium with a price expressed in U's. The redemption unit may be a single commodity or a small basket of commodities, presumably commodities with relatively low costs of information, storage, and transactions. Since it is costly to hold the GDP, the authors suggest that banks would pay out or accumulate the redemption medium whenever the actual price level in U's differs from the established norm. This suggestion introduces several complications. One is the possibility of occasional sharp changes in the relative price of the redemption unit and the risks that this might pose for banks and their customers. A second is the possibility that the redemption unit takes on the properties of a monetary base. Suppose bankers find that profits increase if they hold (reserves of) redemption units and denominate assets and liabilities in redemption units, a subset of the basket of U's. Would the public demand that the redemption units remain convertible into U's? Would they pay the marginal cost of maintaining this convertibility?

It is not difficult to see how a monetary base would develop. Banking history gives many examples. Suppose a bank has all of its assets and liabilities denominated in U's, but the assets are illiquid (or can only be sold at a substantial reduction in price). Or, suppose the bank has
accumulated a large portfolio of marketable securities with relatively long term to maturity. To protect against risks of this kind, depositors or note holders may prefer banks with relatively large holdings of relatively safe assets or assets with known properties such as gold or short-term securities. To reduce risk, smaller banks may contract with larger banks that offer to rediscount. I see nothing in the Greenfield-Yeager system that prevents this ubiquitous pattern from emerging or developing a monetary base—an asset used to settle balances between banks, held as a reserve by banks, and used as a medium of exchange by the public.

Greenfield and Yeager say very little about the operating characteristics of their system. They note that erratic monetary growth can cause stagflation. It is not money growth alone that causes this problem, however. There are also contracts, the difficulties of reading noisy signals, and other causes of sluggish price adjustment. Reducing price variability, if achieved, would raise welfare. However, we do not know whether the variability of relative prices and real output would remain unchanged or increase enough to bring offsetting losses. The authors tell us very little about issues of this kind, so we cannot judge whether their system would increase or reduce the variability of real values.

Finally, let me add a few comments on the title—"Can Monetary Disequilibrium Be Eliminated?" The answer must depend on the meaning of equilibrium. If the issue is one of maintaining approximately zero variance of the absolute price level or, as the authors prefer, of matching nominal demand to nominal supply at a nearly constant price level, I believe they have suggested a way of achieving substantially lower price variability. It does not follow that their proposal reduces fluctuations in consumption and production.

The challenging issue about the design of monetary institutions, as I see it, is how to achieve stability of anticipated prices and minimize the costs and risks to society that accompany the social and private benefits of using a medium of exchange. The authors in their paper and in their previous work earn our gratitude by giving attention to some of these issues and offering a novel and interesting proposal that is worth developing more fully.