

## **BEYOND CALCULATIONAL CHAOS: SOUND MONEY AND THE QUEST FOR CAPITALISM AND FREEDOM IN EX-COMMUNIST EUROPE**

### 1. Introduction: The Lesson of the Socialist Calculation Debate

Although the argumentation in the papers collected in this volume may sometimes be complex, the lesson they teach is simple and direct: any hope for the successful transformation of Ex-Communist economies into full and productive market economies depends crucially on the implementation of institutional reforms that establish the prerequisites of economic calculation. These include: 1. full private property rights in all categories of goods and services, including, and especially, capital goods; 2. freedom to exchange these property titles at prices established on unhampered markets; and 3. sound money. The absence of even one of these preconditions results in what Murray Rothbard (1993, 825) has called “calculational chaos,” which imposes a pervasive and irremediable misallocation of resources on the economy. When private property in “the means of production” is abolished, as it is under socialist central planning, markets for capital goods and natural resources cannot come into being and it is impossible for the planners to calculate production costs. Economic irrationality and chaos also reign where the freedom to exchange is impaired by universal price controls, a central feature of national socialist and state capitalist war economies (Reisman 1979; Reimann 1939). Where prices are arbitrarily fixed by government decree, the profit calculations of capitalist-entrepreneurs are meaningless and give absolutely no indication of the most valuable uses for scarce resources. Finally, arbitrary manipulation of the money supply by central banks or

governments distorts monetary calculation and, in the latter stages of hyperinflation, renders it completely useless for planning production processes of more than a few days duration.

Now, after decades of insisting that the problem of economic calculation could be solved without the institutions of private property, free markets, and sound money, the collapse of the Soviet and other Communist economies has compelled even mainstream economists to begin to absorb this lesson. Thus, articles in leading mainstream economic journals now recognize “privatization,” “marketization,” and “monetary restraint” as indispensable steps on the road to economic reform (Carrington 1992; Sachs 1992; and McKinnon 1991). But, while there is now basic recognition by economists that rational allocation of resources necessitates institutional reforms that return resources to private hands and restore genuine markets for productive inputs, there is no such comprehension of the importance of sound money to the processes of economic calculation or of the thoroughgoing institutional reconstruction necessary to attain it. Programs for enforcing “monetary discipline” or “monetary restraint” by reorganizing the existing central bank along Western lines--the preferred solution of most Western economist-advisers to governments of former Communist countries (Sachs 1993, pp. 49-54)--is hardly a substitute for a regime of sound money.

The reason for the continuing failure of the majority of Western economists to absorb the complete lesson of the calculation debate has to do with the yawning gulf between Austrian and mainstream monetary theory (Salerno 1991; and Salerno 1994). While Austrian and neoclassical microeconomics share a common heritage in the marginal revolution of the 1870s, Austrian and neoclassical monetary theory, despite a brief period of cross-fertilization during the debates of the 1930’s on capital, saving and investment, and business cycles--the fruits of which

were subsequently aborted by the Keynesian Revolution--developed in isolation from one another. Given this situation, a few words on the nature of sound money, its role in economic calculation, and the means by which it might be achieved is hopefully not out of place in this Postscript.

## 2. Sound Money and Monetary Calculation

Economic calculation requires homogeneous units that can be manipulated in arithmetic operations. Because money is the general medium of exchange and, as such, the one good that is universally and routinely accepted by market participants, it always constitutes one of the two goods that are exchanged in every market. Consequently, money is the item in which all economic quantities--cost and revenue, profit and loss, and capital and income--are expressed and computed. Economic calculation, therefore, always is and must be *monetary calculation*, i.e., calculation employing money prices that result, or are expected to result, from *actual* exchanges. Thus, the primitive production processes of household or barter economies are driven by subjective valuations of collections of heterogeneous goods not by objective calculations of profit and loss. Moreover, while *capital goods* may exist in these economies, there is no way of ascertaining their *capital values* singly or in combination. Without such an aggregate expression for his productive wealth, an individual agent producing in autarky or for direct exchange would never be able to precisely determine if a particular action would (or did) result in an expansion or diminution of his sources of future production, that is, in capital accumulation or capital consumption. All he would be able to anticipate (or record) is the

collection of heterogeneous and noncommensurable goods and services used as inputs in the production process and the different variety of goods composing or received in exchange for the output of the process. It would also be impossible, without monetary exchange, to identify a uniform interest or social time-preference rate to be utilized in capital accounting (Salerno 1997, pp. 21-23; Mises 1990, p. 65; Mises 1966, 210-211, 230, 260-62, 491, 514-515) *In short, in the absence of money, there are no economic quantities and no economic calculation.* This insight is the foundation of the classical doctrine of sound money, as reformulated by Ludwig von Mises.

Mises (1966, 224) stated this doctrine in the following terms:

What economic calculation requires is a monetary system whose functioning is not sabotaged by government interference. The endeavors to expand the quantity of money in circulation in order to increase the government's capacity to spend or in order to bring about a temporary lowering of the rate of interest disintegrate all currency matters and derange economic calculation. The first aim of monetary policy must be to prevent governments from embarking upon inflation and from creating conditions which encourage credit expansion on the part of banks.

Money is thus unsound to the extent that it promotes calculational chaos by falsifying entrepreneurial price appraisements and profit calculations and causing a systematic misallocation of monetary investment and production factors. Let us take the extreme case of hyperinflation, in which "the price level," i.e., overall prices, begins to rise at rapidly and unpredictably accelerating rates. With no prospect of reasonably appraising output prices for more than a few weeks or days in advance, entrepreneurs' bids on factor markets come to

exclusively reflect the value of resource uses in production processes geared to serve consumer demand in the immediate future, for instance, in consumer services, in the wholesale and retail trades, and in enterprises involved in various kinds of commodity speculation. When the entrepreneurial appraisal process has been rendered incapable of taking account of the value of resource contributions to time-consuming production processes, the economy's structure of production is radically "shortened" and ceases to be coordinated with the underlying structure of consumer preferences for consumption in the present and future. As calculational chaos begins to prevail, industrial processes, especially those involving production of business structures, durable capital goods, and raw materials grind to a halt, unemployment skyrockets, and a full-blown depression takes shape in the very midst of the raging hyperinflation.<sup>1</sup> When hyperinflation reaches its final stage, there is a headlong "flight into real values," during which market participants are eager to rid themselves of the continuously depreciating and nearly worthless currency by immediately spending it, although there is scarcely anyone to be found who is willing to accept it in exchange for "real" goods on any terms. At this point, barring the ready availability of either a relatively sound foreign currency or a commodity money, monetary calculation is completely nullified and the economy is plunged into the calculational chaos of barter (Mises 1978, pp. 5-16).

But we need not wait for the hyperinflationary "crack-up boom" and the abolition of monetary exchange for the onset of calculational chaos. As Murray N. Rothbard (1993, p. 826) has pointed out, ". . . *each* governmental firm introduces its *own* island of chaos into the economy; *there is no need to wait for full socialism for chaos to begin its work*. . . . [A]ny governmental operation injects a point of chaos into the economy; and since all markets are

interconnected in the economy, every governmental activity disrupts and distorts pricing, the allocation of factors, consumption/investment ratios, etc.” But if this is true for the economy in general, it is true *a fortiori* in the monetary sphere. The function of money as a general medium of exchange and tool of economic calculation insures that, even at the outset of an inflationary monetary regime, its distortive effects on pricing, calculation, and resource allocation are transmitted swiftly and directly to all markets.

A case in point is the situation in which inflation of the money supply occurs via the emission of unbacked notes and deposits, known as “fiduciary media,” by a fractional-reserve banking system. Today, this usually occurs when a central bank creates additional reserves for its national banking system in order to drive down domestic interest rates. When the commercial banks receive these new reserves they loan them out by creating new checking deposits, in the process temporarily increasing the supply of credit and lowering the structure of interest rates. Unfortunately, this decline in interest rates does not reflect a change in the underlying intertemporal consumption, or “time,” preferences of market participants. Moreover, this movement of interest rates will reverse itself just as soon as the inflation of bank credit ceases. Nevertheless, entrepreneurs, should they misperceive the initial fall in rates as a long-term development, are induced to borrow the additional credit and invest it in adding to their stocks of capital goods. They act in this way because their calculations using the lower interest rate indicate that the present discounted value of the future output attributable to a specific capital good now exceeds its current purchase price, despite the fact that overall consumer preferences for consumption in the more remote future have in reality not intensified. The increase in demand for capital goods that results will lead to broad ranging increases in the

prices of capital goods relative to prices of consumer goods. This relative-price movement, to the extent that it is expected to persist and even strengthen, will further falsify profit calculations and mislead capitalist-entrepreneurs into increasing the allocation of monetary investment and productive inputs to capital goods' industries in order to expand output.

The apparent prosperity in the real economy will be mirrored in the financial sector, as the artificially-depressed interest rates in conjunction with higher earnings of firms producing capital goods precipitate a boom in the stock, bond and real estate markets. The calculational chaos produced by the unsound bank credit inflation will only be revealed when fears of price inflation compel the central bank to constrict or arrest the flow of new money through credit markets. At this point the distortion of the pricing process ceases and monetary calculation once again comes to accurately and sensitively reflect the most highly valued uses of scarce resources. There generally ensues a sharp upward movement of interest rates and a financial collapse, followed sooner or later by a depression of real economic activity and higher rates of unemployment and business bankruptcies centered in the capital goods industries. The so-called "depression" or "recession" is the period during which the errors and malinvestments committed during the calculational chaos fostered by bank-credit inflation are exposed and corrected, and the economy painfully re-coordinates the relative outputs of consumer and capital goods with the demonstrated consumption/saving preferences of the public.

A sound money, then, is simply one that does not lead to systematic falsification or nullification of economic calculation. In Mises's words, "[f]or the sake of economic calculation all that is needed is to avoid great and abrupt fluctuations in the supply of money." The sound money program, therefore, is not an unattainable ideal but one that can be realized by totally

separating the money supply process from the State. This involves abolishing central banking and paper fiat money and restoring a commodity money chosen by and totally subject to the market. Historically, the classical gold coin standard provided a sound money: the natural and unalterable scarcity of gold completely precluded hyperinflation as well as rigidly limiting the extent to which fractional-reserve banks could expand fiduciary media. As Mises (1966, p. 224) explained:

Gold and, up to the middle of the nineteenth century, silver served very well all the purposes of economic calculation. Changes in the relation between the supply of and demand for the precious metals and the resulting alterations in purchasing power went on so slowly that the entrepreneur's economic calculation could disregard them without going too far afield.

But the classical gold standard, especially in those countries where a central bank sat atop the commercial banking system as an acknowledged "lender of last resort" or provider of "emergency liquidity," still permitted some scope for credit expansion and the systemic calculational chaos manifested in business cycles. Mises himself recognized that "The first aim of monetary policy must be to prevent governments from embarking on inflation and from creating conditions which encourage credit expansion on the part of banks." So a completely sound monetary policy would require not only the abolition of fiat currency and central banking, but also the strict prohibition of fractional-reserve banking. In other words, sound money necessitates that all demand liabilities incurred by banks, whether in the form of notes or demand deposits, are "backed" 100 percent by reserves of the money commodity. More accurately sound money requires that, both legally and economically, bank notes and deposits

be made to function as genuine property titles to the money commodity, standing in the same relation to gold deposits at banks as warehouse receipts for wheat stand to the wheat deposited for storage in grain elevators. This means that the creation and exchange of titles to nonexistent property, which is the essence of fractional reserve banking<sup>2</sup> and is considered fraudulent if undertaken by any other business enterprise, must be diligently suppressed. Only under these conditions would the banking system cease to operate as a source of calculational chaos.

### 3. Sound Money versus “Stable Money” and “Neutral Money.”

To reiterate, sound money is a praxeologically attainable and historically attained ideal; it requires only that the government be restrained from intervening in the market’s money supply process and that standard contract law be rigorously applied to the banking sphere. The sole aim of the sound money program is the preservation of monetary calculation from distortion by extramarket forces; it does not aim at “stabilizing” a specific economic quantity, such as the purchasing power of money, much less “neutralizing” the influence of money on real economic quantities. These latter goals are impossible of achievement because, as noted above, calculability in economic processes only exists by virtue of monetary exchange, so that the very notion of purely real economic quantities, wholly uninfluenced by money, is contradictory. Consequently, in the sound money program, the terms “inflation” and “deflation” do not apply to fluctuations in the value of money, as they do in current usage; rather, the terms denote changes in the money supply that do not rigidly and exactly correspond to changes in the stock of the market-chosen money commodity, which is to say that they apply exclusively to changes

in the supply of money that distort the processes of monetary calculation and price appraisal.<sup>3</sup> And this is precisely the reason for the practicability of the sound money program: it seeks only to liberate the purchasing power of money from government manipulation and control to fluctuate freely in response to market demand and supply. As Mises (1966, p. 224) emphasized, “[The sound money] program is very different from the confused and self-contradictory program of stabilizing purchasing power.”

Because money is a tangible commodity that is traded on the market, it is endowed with its own variable supply and demand, and therefore its “price” or purchasing power can never be rendered constant or stable. Unlike a nonmonetary good, however, whose price is almost always determined and expressed as a unitary quantity of money, the purchasing power of money itself is embodied in an exhaustive and heterogeneous array of the alternative quantities of nonmonetary goods for which the money unit exchanges at a given moment. In other words, the purchasing power of money is simply the unaveraged series of exchange ratios constituted by the reciprocals of all realized money prices in the economy. Thus money’s purchasing power is unavoidably entwined with the economy’s structure of relative prices, which is constantly in flux. To stabilize purchasing power in the strict sense, then, means to freeze relative prices permanently, effectively abolishing monetary calculation and the market economy.

Some contemporary macroeconomists, such as those associated with either the monetarist or the modern free banking schools, find fault with the sound money program precisely because it makes no attempt to stabilize one or another macroeconomic statistical construct. For example, Milton Friedman and other monetarists argue that the long-run

appreciation of the purchasing power of money, or “price deflation,” is likely to occur under a sound money regime because the secular growth of real output tends to outstrip the increase in the supply of gold, thereby discouraging investment and producing a suboptimal rate of economic growth. Additionally, they claim, the purchasing power of money is subject to unpredictable variations as a result of changes in the stock of money due to alterations in the costs of producing gold and in the demand for gold for nonmonetary uses. These sudden changes in the money supply are likely to bring about short-run fluctuations in real output during the transition to the altered purchasing power of money. While they therefore prescribe a program of stabilizing the purchasing power of money, or “stable money” for short, the monetarists do not actually intend to freeze all prices in the economy. Rather their goal is stabilization of “the price level,” an average of particular prices arrived at by some arbitrarily selected statistical method.<sup>4</sup> They rightly perceive that any political interference with the structure of relative prices produces calculational chaos. However, in an attempt to circumvent this insight, they posit the “long-run neutrality” of money, meaning that the general level of prices is ultimately determined by a monetary process operating in a macroeconomic realm separate and distinct from the real or microeconomic processes that determine the system of relative prices.

Thus, in terms of the Equation of Exchange, i.e.,  $MV=PQ$ , the monetarists advocate that the central bank be legally bound to pursue a “quantity” rule,” which involves attempting to stabilize  $P$ , some statistical average of prices, by increasing the stock of money,  $M$ , at a steady rate that roughly matches the long-run rate of growth of real output,  $Q$ , minus the presumably stable secular growth rate of  $V$ , which denotes the velocity of circulation of money. The monetarists would implement their program via a central bank with absolute, monopolistic

control over a money supply consisting of its own fiat currency and bank-issued fiduciary media.<sup>5</sup>

A variant of this stable money program is offered by the supply-side school, an offshoot of monetarism founded by Arthur Laffer and Robert Mundell in the 1970s. Supply-siders also uphold the stability of the price level as the overarching goal of monetary policy, but quibble with the monetarist presumption of long-run stability of the growth rate of money's velocity. If  $V$  is subject to sudden and unpredictable variations, they argue, a quantity rule fixing the growth rate of  $M$  would give rise to cyclical instability in  $P$  and  $Q$ . Supply-siders would thus bind the central bank to follow a "price rule." Under this rule, the central bank would fix the money price of some widely-traded commodity (or basket of commodities), within narrow limits. The commodity selected to serve as the *external standard*—let us assume it is gold—would be a sensitive indicator of impending fluctuations of the price level. Thus, when  $V$  increases, causing total spending ( $MV$ ) in the economy to increase, there would quickly ensue an upward movement of the gold price, and the central bank would engage in open market sales to reduce  $M$  and prevent the gold price from exceeding its upper limit, thereby heading off the imminent rise in the general price level. Conversely, a fall in the price of gold toward its lower limit would indicate an incipient price-level deflation, which would signal the central bank to buy securities and increase  $M$ . Despite their gold-standard rhetoric, then, the supply-siders do not advocate a genuine gold standard, but a pseudo-gold standard of the Bretton Woods type. In effect, what they are proposing is "price-rule monetarism." Under this system: gold is not actually utilized as a circulating medium of exchange by the public; the central bank still enjoys a virtual

monopoly of the money supply; and the ability of the commercial banking system to create fiduciary media at the behest of the central bank remains intact.<sup>6</sup>

Unlike monetarists, whether of the quantity-rule or price-rule variety, the modern free banking school does not propose a money of stable purchasing power. Instead it prescribes a money whose purchasing power appreciates (depreciates) at a rate equal to the rate of growth (decline) of factor productivity in the economy. Of course, the proponents of this “productivity norm” do not actually call for an equiproportional change in each and every element of the really existing purchasing-power array of money, which would be tantamount to freezing relative prices. Rather, their program, like the monetarists’ program, focuses on optimal movements in an arbitrarily selected average of prices representing some fictional general price level.<sup>7</sup>

If the productivity norm were operative, an increase in labor productivity, for example, would cause a fall in P equal in percentage terms to the rise in Q resulting from this “productivity innovation.” With nominal wage rates maintained constant, labor would reap the fruits of the productivity enhancement as real wage rates increased *pari passu* with the drop in P. Without going too deeply into the rationale of the productivity norm, the superiority of a price level that varies inversely with productivity innovations over a stable price level supposedly lies in the greater success of the former in neutralizing “unwarranted,” i.e., purely money-induced changes in relative prices. To implement such a neutral money, it is necessary only that the monetary system operate to maintain constancy in the total flow of spending, MV, in the economy. Stabilizing MV is equivalent to stabilizing nominal income or PQ and insuring that productivity-driven increases in Q always elicit an inverse and equiproportional change in P. Actually, stability of nominal income results in only an approximation of the productivity norm, which,

strictly speaking, dictates that variations in  $Q$  that are not caused by productivity changes but by changes in factor supplies be fully accommodated by an increase or decrease in  $MV$  rather than a fall or rise in  $P$ . This would prevent a fall in the nominal price level of labor and capital services in the case where their supplies have expanded. The productivity norm is thus also consistent with stability of nominal wage rates and rents.

What is the connection between the neutral-money doctrine and free banking?

According to George Selgin (1997, pp. 67-69), a leading free-banking theorist,

. . . a comprehensively deregulated or ‘free’ banking system [makes] for a relatively stable relationship between the volume of aggregate spending (the one thing the central bank *needs* to control) and the quantity of central-bank-created base money (the one thing it definitely *can* control). . . . In short, a free banking system, given some fixed quantity of base money to work with, *tends automatically to stabilise nominal income*. Getting nominal income to grow at some predetermined rate then becomes a relatively simple matter of having the central bank expand the stock of base money by that rate.

What both the money stabilizers (monetarists) and neutralizers (free bankers) have in common, then, is their strongly-held, but profoundly erroneous, belief that money, when it is functioning properly, exists in hermetically-sealed isolation from real economic processes. This is the reason that both of their approaches to monetary reform involve stabilizing elements, such as  $P$  or  $PQ$ , of the macroeconomic Equation of Exchange. The use of this analytical device obscures the unavoidable microeconomic implications of the formation of money’s purchasing power. Thus the proponents of stable and of neutral money fail to comprehend that the market

determines both the general level of prices and the complex structure of their interrelationships *as part of one and the same pricing process*. Any change in the supply of or demand for money originates at a specific point in the system, precipitating a sequential and uneven adjustment process that alters individual selling prices, incomes, cash balances, and demand schedules for goods at each and every step of the way. As this monetary adjustment process unfolds over time, real income and wealth are therefore necessarily redistributed between individuals, depending on their position in the process and the nature of its initiating cause, e.g., whether it is an increase or decrease in the supply of money. Consequently, at the end of this process, not only has the scale of nominal prices and incomes been raised or lowered but, more importantly, the structure of relative prices and incomes has been completely and permanently *revolutionized*. The proper metaphor to aid in conceptualizing changes in the purchasing power of money, therefore, is not a homogeneous body of water smoothly changing its level but of a bee swarm rising and falling, a movement during which the relative positions of the individual bees are continually being modified.<sup>8</sup>

If we consider further that fresh changes in real monetary demand are taking place at each succeeding moment and, simultaneously, at a multitude of different points in the system--both autonomously and induced by ceaseless shifts in the distribution of incomes and wealth attributable to prior changes in the real data--we cannot escape the conclusion that money's effect on relative prices and the allocation of resources can never be neutralized by stabilizing a macro aggregate or average. As Mises (1966, pp. 417-18) explained:

It may happen that the effects of a change in the demand for or supply of money encounter the effects of opposite changes occurring by and large at the same time and

to the same extent; it may happen that the resultant of the two opposite movements is such that no conspicuous changes in the price structure emerge. But even then the effects on the conditions of the various individuals are not absent. Each change in the money relation takes its own course and produces its own particular effects. If an inflationary movement and a deflationary one occur at the same time or if an inflation is temporally followed by a deflation in such a way that prices are not very much changed the social consequences of each of the two movements do not cancel each other. To the social consequences of an inflation those of a deflation are added.<sup>9</sup>

The terms “neutral money” and “stable money,” strictly speaking, are both oxymorons. Money, by its very nature as the general medium of exchange, is bought and sold on all markets and is therefore subject to continual and ineradicable fluctuations of its value. These constant changes in purchasing power undeniably do generate “apparent” profits and losses that cannot be distinguished from those “genuine” profits and losses that reflect alterations in supply and demand in the “real” economy. Nonetheless, this does not affect the case for a market-evolved money, because every conceivable kind of money is subject to changes in its purchasing power. Moreover, the sound money that has been developed by the market embodies those qualities that optimally suit it to serve both as a medium of exchange and a tool of economic calculation. Thus, for the purposes served by monetary calculation, entrepreneurs could--and in fact, always did--safely ignore the comparatively slight changes in purchasing power that have historically characterized a sound money. For instance, the variations in the value of gold that occurred in the course of the nineteenth century and up until 1914 did not prevent private individuals and firms from building an intricate and mighty capital structure in the West. The financial panics and

depressions that periodically racked the nascent industrial economies of Western Europe and the U.S. during this era were attributable to the sharp, recurrent bursts of inflationary credit expansion undertaken by the national fractional-reserve banking systems that had been superimposed on the international gold standard.<sup>10</sup>

In sharp contrast to sound money, monetary regimes that aim at stabilizing the *absolute* level of some macroeconomic construct such as the price level or nominal income in a vain effort to negate the purely monetary influences on economic calculation end up seriously deranging the structure of relative prices and falsifying real-world monetary calculation. As demonstrated above, when a fractional-reserve banking system, either as a result of its alleged own inner workings or in responding to the stimulus of a net inflow of cash reserves created by a stabilizationist central bank, expands its credit by creating fiduciary media, it causes a reduction of interest rates not warranted by a change in social time preferences. This results in a pervasive misdirection of entrepreneurs' intertemporal price appraisements and economic calculations, and promotes systemic capital malinvestment and resource misallocation. There are many other criticisms that could be made of macroeconomic stabilization, but, for our purposes, here the important point is that the goals of stable money and neutral money are both fundamentally inconsistent with the preservation of the integrity of monetary calculation. Only the implementation of a sound money program, in conjunction with full and unfettered private property and free exchange, provides an escape for ex-Communist countries from their lingering calculational chaos.

#### 4. The Road to Sound Money

What Mises (1981, p. 480) said in 1953 is still valid: “Sound money still means today what it meant in the nineteenth century: the gold standard. The eminence of the gold standard consists in the fact that it makes the determination of the monetary unit’s purchasing power independent of the measures of government. It wrests from the hands of the ‘economic tsars’ their most redoubtable instrument. It makes it impossible for them to inflate.” The sound money ideal is thus a full-bodied gold standard that is completely separated from the State. Unfortunately, unlike the implementation of the other two prerequisites of economic calculation, private property and free markets, which can and should be accomplished swiftly--in one day if possible--the establishment of a sound money regime will require a somewhat longer transition period.<sup>11</sup> But this does not mean that rapid and meaningful strides cannot be taken toward the ideal immediately.

In fact, Mises (1981, pp. 485-90) suggested a transition program for the monetary reconstruction of postwar Europe in the early 1950’s that can be readily adapted to the case of contemporary ex-Communist Europe today. Indeed, the Currency Board option that has been proposed by a number of proponents of stable money in recent years represents nothing but a flawed variation of Mises’s program.<sup>12</sup> The Misesian reform is driven by two aims: to debar the national government from financing any future budget deficits by means of debt monetization *and* to preclude the systematic distortion of the interest-rate structure and the intertemporal-price system that inevitably results from bank credit expansion. As Mises (1981, p. 481) explained, “The main thing is that the government should no longer be in a position to increase the quantity of money in circulation and the amount of checkbook money not fully--that is, 100

percent--covered by deposits paid in by the public. No backdoor must be left open where inflation can slip in.”

The first step in this reform is to prohibit the existing central bank or the government itself from engaging in any future transactions that expand the supply of money. This includes open market operations and loans by the central bank and “emergency” currency issues by the finance ministry. Second, commercial banks and other financial institutions must also be forbidden from loaning any portion of new demand deposits; in other words all demand deposits—including noncheckable “savings” deposits redeemable on demand—made after the start of the monetary reform are to be rigidly subject to 100 percent reserves. To insure observance of this rule banks would be legally obliged to split themselves into “deposit” and “savings” departments, and the former would be strictly prohibited from expanding its noncash assets beyond the total of its uncovered demand liabilities as they stood on the date of the implementation of the reform. In other words all new issues of fiduciary media would be strictly precluded. The savings department would be free to issue *bona fide* time deposits, such as certificates of deposit with contractually fixed maturities, and these liabilities would not be subject to any law regarding reserve requirements; banks’ savings departments and other institutions would also be free to offer equity shares in money market and other types of mutual funds entirely unencumbered by legal reserve requirements, since these too are vehicles for genuine savings and investment. These two measures taken together would succeed in freezing the domestic money supply.

A third step, undertaken simultaneously with the first two, is the freeing of the foreign exchange market so that the domestic currency would become fully and effectively convertible

into historically “harder,” i.e., less inflationary, fiat currencies, such as the U.S. dollar, the German mark, and the Swiss franc. As dealers and speculators on foreign exchange markets become increasingly convinced of the credibility and durability of these reform measures the depreciation of domestic currency--let us assume it is the Romanian leu--will eventually cease; an appreciation will set in as the purchasing power of the leu, whose stock is now rigidly frozen, begins to rise relative to that of foreign currencies, even the hardest of which is likely to have its quantity continually increased by its central bank. As soon as the leu’s broad-ranging appreciation becomes manifest, the existing exchange rate between the leu and a selected hard currency, for example, the dollar, is to be established as the new legal parity. This parity is to be effectively maintained by full and unconditional convertibility between the two currencies.

To implement the convertibility between the leu and the dollar, a fourth step is necessary: the creation of a Conversion Agency charged with the sole function of buying and selling leus in exchange for dollars at the legal parity (and only at the legal parity). In order to achieve its purpose of establishing the legal parity as the effective market exchange rate, the agency would be legally empowered to create leus that are backed 100 percent by dollars. The agency would also require an initial stock of dollar reserves with which to redeem any and all leus offered to it at the legal parity rate. These reserves are to be lent to it by the central bank or the fiscal arm of the government, in perpetuity and at a zero interest rate. It must be emphasized that the Conversion Agency will have no further dealings with the central bank or the finance ministry after the receipt of the initial loan of foreign exchange reserves. Moreover, the strict legal prohibition against the central bank creating leus through loans or asset purchases will continue in force until the transition to a classical gold coin standard is completed and the central

bank is abolished.<sup>13</sup> Nor will the government be permitted ever again to issue leus, with the exception of the minting of subsidiary coins. However, to forestall any attempt by the government to finance its deficits by flooding the market with small change, the minting of coins will be subject to two legal conditions: first, the coins will have full legal-tender power against no payee but the government itself; second, the government will be obliged to redeem all coins offered in leu notes or deposits without delay or cost to the bearer. Finally the Conversion Agency will not be granted any monopoly privileges in its dealings in foreign exchange; it will operate as any other agent in the foreign exchange market, buying and selling on an unhampered market.

Once these four steps have been taken the country will effectively be on a dollar-exchange standard. Under this monetary regime, so long as the dollar-leu exchange rate remains rigidly fixed, arbitrage will insure that the purchasing power of the leu continually and rapidly adjusts so as to maintain “purchasing power parity” with the dollar. Thus, both the rate of overall price inflation and the configuration of relative prices in terms of leus and of dollars will tend to be identical. This means that it will be impossible for a given commodity to be purchased more cheaply in terms of one currency than the other anywhere in the world.

This also implies that there is no necessity for a domestic monetary policy: the supply of leus will fluctuate automatically in response to variations in the balance of payments as an essential part of the process of preserving purchasing power parity. Thus if there is an increase in the demand for leus in the economy, the attempts by households and businesses to increase their holdings of the currency will cause a reduction in the demand for nonmonetary commodities and services. As leu prices begin to decline, the purchasing power of the leu will

rise above parity with the dollar, making it cheaper to buy with leus than with dollars. This will lead to an increase in exports and fall in imports for Romania, resulting in a balance of payments surplus and a net influx of dollars. These excess dollars will then be brought to the Conversion Agency and redeemed for leus at the par exchange rate. As the supply of leus in circulation thus expands, leu prices will be bid back up until purchasing power parity and, consequently, balance of payments equilibrium are restored.

While the money supply is spontaneously adjusted to the demand for money through changes in the balance of payments, it is also the case that this system facilitates the “importation” of the U.S. inflation rate, whatever it may be. To see how this might occur, consider an expansion of the supply of dollars generated by the Federal Reserve System that does not correspond to an increased demand to hold dollars. This will initially drive up prices in the U.S., causing the ratio between the purchasing powers of the dollar and the leu to decline below the fixed leu-dollar exchange rate. Since it will now be cheaper to purchase goods with leus, there will develop a surplus of dollars at the legally-fixed exchange rate, which the Conversion Agency will be called upon to redeem in leus. As these newly-issued leus swell the stock of money, general prices in Romania will be bid up to reestablish parity with U.S. prices. And as long as the U.S. continues to inflate its domestic money stock, the operation of the dollar-exchange system will insure that the leu loses purchasing power at roughly the same rate as the dollar. Additionally, as this inflation adjustment process runs its course, real income and wealth will be redistributed from Romanians, who tend to receive the new dollars late in the process, i.e., after most prices in the U.S. have already risen, to U.S. residents and organizations, especially the U.S. government and other initial recipients of the new money.<sup>14</sup>

This transfer of real income and wealth from leu users to dollar users is manifested in the balance of payments surplus that Romania experiences with the U.S. during the process, as there emerges a balance of Romanian products sold to the U.S. that is compensated not by imports of real goods and services from the U.S. but by paper dollars. It should be noted that the specific effects on domestic income and wealth distribution of imported dollar inflation would not be altered just because the Conversion Agency may hold its dollar reserves in the form of interest-bearing assets.<sup>15</sup>

Not only will Romania import whatever price inflation the U.S. experiences, however, arbitrage will also insure that the distortion of the structure of interest rates and relative prices produced by the creation of fiduciary media in the U.S. is rapidly and fully transmitted to Romania. This means that Romania will experience the ups and downs of the U.S. business cycle in the same manner as any other integral component of the dollar “currency area,” e.g., Texas or Maine. At least temporarily, then, the economic fate of Romania would rest to a great degree on the policy of the U.S. Federal Reserve System (or some other foreign central bank, as the case may be).

I dwell on these negative aspects of a system that involves fixing the exchange rate between the domestic currency and a historically “harder”--yet still central-bank issued--fiat currency in order to emphasize the point that it is to be viewed strictly as a transition expedient. Yet, in this respect, it does have substantial virtues. First, and most important, it takes control over the quantity of money out of the hands of the domestic government and its central bank, thereby providing immediate relief from the danger of the extreme calculational chaos caused by hyperinflation, which is threatened by the current regime of unrestrained debt monetization.

Second, by rigorously suppressing all further domestic emissions of fiduciary media, it removes the temptation for government to reestablish control over the banking system as a means of intervening in credit markets to lower interest rates and to provide a short-run boost to employment and real output during (imported) cyclical downturns.<sup>16</sup> Simultaneously, it roots out the underlying cause of financial panics: the mismatching of the term structure of assets and liabilities that is an inherent feature of fractional-reserve banking. With the ever-impending threat of financial collapse negated, the government can no longer seize on the need for injecting “emergency liquidity” into the financial system as an excuse for once again unleashing the central bank to inflate the money supply.

This last quality of Mises’s transition program is absent under the currency board solution favored by free bankers and some monetarists. Under the currency board system, although the currency board notes themselves are backed one hundred percent (or more) by debt claims denominated in the foreign reserve currency, much as the notes of Mises’s Conversion Agency are, commercial banks would be free to issue deposits and even notes only fractionally backed by the currency board notes (Schuler, Selgin and Sinkey, p. 17; and Selgin 1992, p. 655). This leaves the system vulnerable to financial panics, especially those initiated by or involving “capital flight” into foreign currency.<sup>17</sup> In this situation a broad movement by foreign and domestic investors in Romanian enterprises and securities to liquidate their investments and convert their leus into dollars for investment abroad would first necessitate a wholesale conversion of leu deposits into currency board leu notes. This would threaten to break the fractional-reserve banking system and undoubtedly bring irresistible pressure on the currency board to assume the central banking function of a “lender of last resort.”<sup>18</sup>

A final virtue of Mises's proposed transition regime is that the last step to a completely sound money, a 100 percent gold standard, would be simple and painless. Unfortunately, this final step could only take place after the U.S. itself had decided to restore the gold basis of the dollar.<sup>19</sup> But once the U.S. dollar was again defined as a specific weight of gold, say one-two thousandth of an ounce, the Romanian Conversion Agency would then be in a position both to convert its paper dollar reserves into gold at the rate of \$2,000 per ounce and to calculate the gold content of the new gold leu.<sup>20</sup> It would then use the gold obtained to immediately redeem its leu notes and close its doors. Since the Romanian public thinks and calculates in leus, it might be wise for the Conversion Agency to mint the gold reserve into coins denominated in leus, before paying them out to the public. This once-and-for-all coinage operation could be paid for by a special fund built up from the interest earned on the Agency's dollar reserves. But whether it does this or pays out gold in the form of bullion and dollar-denominated coins, leaving it to the payees to engage private mints to transform the gold at their own expense into coins of their preferred sizes and denominations, it is indispensable for the public to take physical possession of and become familiar with gold money. In either case, individual leu holders would then decide what portion of their cash balances to retain in the form of gold coin and what portion to hold in the form of instantaneously redeemable claims to gold, such as bank notes and demand deposits. The latter would be literal money certificates, which would function as substitutes for the actual gold in exchange and would *certify* that those who receive them in exchange are getting *de facto* title to the ownership of the precise quantity of gold specified on their face. In order for these notes and deposits to operate as the *bona fide* property titles to gold that they

purport to be, their issuing institutions would be legally obliged to hold 100-percent gold reserves against all demand liabilities.<sup>21</sup>

Of course, as critics of sound money tirelessly remind us, even the gold standard may be undone if a government decides not to continue to abide by “the rules of the game.” But, of course, this objection is completely vacuous, because it applies just as fully to any of the reforms aimed at restoring the market economy and economic calculation. The government may in the future choose to institute all-around price controls or to once again collectivize the means of production. And these violations of “the rules of the game,” or more properly, of the rights to private property and freedom of exchange, would undoubtedly plunge the economy once again into calculational chaos. The point is that sound money is also a fundamental institutional requirement of economic calculation that can be wrecked by government destruction of property rights. But this means that its restoration and preservation is imperative if a nation wishes to survive and flourish.

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<sup>1</sup> As Bresciani-Turroni (1968, p. 220) observed regarding the German hyperinflation, “. . . the continual and very great fluctuations in the value of money made it very difficult to calculate the costs of production and prices, and therefore also made difficult any rational planning of production. The entrepreneur, instead of concentrating his attention on improving the product and reducing his costs, often became a speculator in goods and foreign exchanges.” Bresciani-Turroni (1968, pp. 222-23) went on to describe the widespread stoppage of sales and mass unemployment that developed in October and November of 1923 at the height of the hyperinflation.

<sup>2</sup> For the elaboration of this view of fractional reserve banking, see Hoppe et al. 1998. For a juridical characterization of the demand deposit contract which is founded on a similar conception of fractional-reserve banking, see de Soto 1997, pp. 29-39.

<sup>3</sup> In defending this use of the terms “inflation” and “deflation” as the only one that is praxeologically meaningful, Rothbard (1993, p. 878) writes: “Movements in the supply-of-goods and in the demand-for-money schedules are all the results of voluntary changes of preferences on the market. The same is true for increases in the supply of gold or silver on the market. But increases in fiduciary or fiat media are acts of fraudulent intervention into the market, distorting voluntary preferences and the voluntarily-determined pattern of income and wealth. Therefore, the most expedient definition of ‘inflation’ is one we have set forth above: an increase in the supply of money beyond any increase in specie.” Mises (1966, p. 422; 1952, p. 333), too, maintained that “inflation” and “deflation,” defined as variations in the purchasing power of money, “are not praxeological concepts,” and argued for restricting the term “inflation” to mean “increasing the quantity of money and bank notes in circulation and of bank deposits subject to check.”

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<sup>4</sup> On the impossibility of measuring changes in the purchasing power of money and on the arbitrary nature and analytical meaninglessness of all statistically constructed price indexes, see Mises 1966, pp. 219-223 and Heilperin [1939] 1978, pp. 259-69. As Mises concluded: “A judicious housewife knows much more about price changes as far as they affect her own household than the statistical averages can tell. . . . If she ‘measures’ the changes for her personal appreciation by taking the prices of only two or three commodities as a yardstick, she is no less ‘scientific’ and no more arbitrary than the sophisticated mathematicians in choosing their methods for the manipulation of the data of the market.”

<sup>5</sup> For brief overviews of monetarism, see Cagan 1989 and Meltzer 1993b; detailed expositions of the monetarist reform program can be found in Bordo and Schwartz 1987 and Meltzer 1987. For a critique of monetarism from the perspective of Austrian monetary theory, see Salerno 1991.

<sup>6</sup> The classic proposal for a gold price rule is presented in Laffer 1980. Miles (1984) provides a book-length exposition of supply-side monetary theory and policy. Unlike Laffer, Miles would dispense with gold altogether and advocates a combination of a “forward index price rule” based on a basket of selected commodities and an “interest-rate price rule” targeting long-term interest rates. Under this proposal, the central bank would retain its virtual monopoly over the money supply process, buying and selling both commodity index futures contracts and long-term government bonds. For a critique of supply-side proposals for monetary reform, see Salerno 1982, pp. 7-11 and Salerno 1987, pp. 249-52.

<sup>7</sup> For discussions of the productivity norm, see Selgin 1991; Selgin 1995; and Selgin 1997.

<sup>8</sup> The metaphor of a “price swarm,” I believe, is due to the American monetary theorist, Arthur Marget ([1938-42] 1966), although I cannot seem to find the exact location of its use.

<sup>9</sup> Hayek (1967, p. 124), too, recognized this crucial point, writing, “... in order to eliminate all monetary influences on the formation of prices and the structure of production, it would not be sufficient merely quantitatively to adapt the supply of money to these changes in demand [for money], it would be necessary to see that it came into the hands of those who actually desire it. . . .”

<sup>10</sup> As Nobel Laureate Maurice Allais (1987) puts it: “In the final analysis, the only effect of the [fractional-reserve banking] system is to create morally indefensible ‘false claims’ and ‘unearned income,’ despoiling one part of the population in favor of another. . . . The system generates economic imbalance, an unhealthy concentration on financial rewards, and unbridled speculation. . . . All the major crises of the eighteenth, nineteenth, and twentieth century were the result of the proliferation of promises to pay and their monetization.”

<sup>11</sup> On this point, see Rothbard 1992, pp. 70-71. Otherwise, Rothbard supports the “One-Day Plan” for desocialization put forward by Yuri Maltsev (1990).

<sup>12</sup> An especially good discussion of the nature and functioning of currency boards, which includes references to the recent literature, is Humpage and McIntire 1995. Currency boards have been suggested for countries such as Lithuania (Selgin and Sinkey 1991), Russia (Hanke and Schuler 1993 and Hanke, Jonung and Schuler 1993), and Mexico (Humpage 1995).

<sup>13</sup> The central bank may be permitted to remain in existence during the course of the transition period, continuing to collect and dispose of the interest on its assets and to provide check-clearing services to the commercial banks (if it had performed this function in the past). Under no circumstances, however, should the central bank be permitted to retain its function of regulating the banking system and, in particular, of monitoring and enforcing the system’s adherence to the new 100 percent-reserve rule for demand deposits. The very rationale of central banking is to foster and support fractional-reserve banks in their natural desire to expand credit, and this has been its historical function as well. Thus, it would be the height of folly to permit officials whose very jobs consisted in undermining sound money to exercise any influence over the emerging sound money regime.

<sup>14</sup> This is only true to the extent that Romanians actually do receive the newly-created dollars late in the process. However, although this would generally be the case, it need not be so. Should the initial recipients of the new money, e.g., the U.S. government or U.S. import firms, spend most of their newly-acquired dollars directly on Romanian exports, and the Romanian exporters in turn spend this windfall mainly on domestic products, causing prices in Romania to rise in advance of the rise in U.S. prices, the redistribution of real income caused by the dollar inflation would generally benefit Romanians at the expense of Americans.

<sup>15</sup> In other words, even though the Romanian Conversion Agency would capture the “seignorage” from issuing leus by investing its dollar reserves in interest-bearing securities, this would not negate the

likelihood that the seignorage appropriated by the Fed's dollar creation would take a separate toll on the income and wealth of individual Romanians.

<sup>16</sup> Of course, such a domestic "cheap money" policy is completely ineffective in dealing with the temporary upsurge in unemployment that normally accompanies a cyclical downturn. This unemployment is inherently speculative and self-liquidating, as workers whose labor services have previously been misallocated invest their time and other resources in "job prospecting" for their best employment opportunities in an economy whose production structure and pattern of resource allocation is being radically reshaped to reflect consumers' genuine time preferences. As long as the freedom to exchange is rigorously enforced in the labor market, however, this process will operate expeditiously and efficiently, and no permanent mass unemployment will result. Laborers will quickly find that they have no recourse but to accept the lower real wage rates necessitated by the malinvestment and destruction of capital that follows in the wake of imported credit inflation. An expansionary domestic monetary policy will only delay the needed labor market adjustments and pile new capital malinvestments atop the old.

<sup>17</sup> This is recognized by Meltzer (1993, p. 709), a lukewarm proponent of currency boards. On the key role of fractional-reserve banking in precipitating the capital flight of the 1930's, see Mises [1933] 1990, pp. 107-109.

<sup>18</sup> This scenario appears to be developing in Hong Kong as I write this in September 1997. A general--but not yet headlong--exodus of capital from Southeast Asia is beginning to cause a credit crunch, resulting in a sharp increase in the Hong Kong interbank, or Hibor, rate and the drawing down of dollar reserves by Hong Kong's currency-board-like Monetary Authority to defend the fixed exchange rate between the Hong Kong and U.S. dollars. Should large lenders to the region, such as the Japanese banks, lose confidence in the stability of the indigenous currencies, a pell-mell flight of capital would ensue, the Hibor would climb to stratospheric heights and weaker Hong Kong banks would be unable to borrow on the market to finance the continuing redemption of their demand liabilities. At this point the Hong Kong Monetary Authority would forsake its role as a strict currency board and begin to lend to the failing banks to ward off bank runs and widespread financial panic. On the developing financial crisis in Southeast Asia, see Guyot 1997 and Sapsford 1997.

<sup>19</sup> If a small country like Romania attempted to unilaterally reestablish gold convertibility for its currency, it would face the problem of sudden and unpredictable fluctuations of its price level. This would result not from any innate feature of gold but from the actions of governmental monetary authorities abroad. If the latter begin to substantially increase the rates of growth of their national fiat money supplies, this could precipitate panic buying of gold by their citizens as a hedge against inflation. This would drive up the value of gold relative to other goods, thereby causing a sudden deflation of prices in terms of Romania's gold currency. Or foreign governments might decide to dump part of their accumulated gold stocks to temporarily prop up the exchange rate for their depreciating fiat currencies, to increase their current revenues, or to punish gold speculators. This sell-off would depress the value of gold and cause leu prices to surge upward. But the risks associated with unilaterally establishing a gold convertible currency must, of course, be compared with the inflationary risks posed by tying on to a "harder" fiat currency such as the dollar, whose stock may be inflated at double-digit rates at any time as the result of an arbitrary political decision. If, in assessing these risks, Romanians decide that a gold convertible currency is the safer course for the transition period, then the proposal in the text is readily adaptable to this decision by simply substituting "gold" and "gold market" for "dollar" and "foreign exchange market" wherever these terms appear.

<sup>20</sup> If the par rate between the leu and the dollar had been fixed at 7,000 leus per dollar, then, given the definition of the dollar as 1/2000 oz. of gold, each gold leu would contain 1/14 millionth oz. of gold (= 1/2,000 oz. of gold per dollar x 1/7000 dollars per leu).

<sup>21</sup> The enforcement of one hundred percent reserves would not require the continuation of the administrative mandate of the transition regime that banks be split into deposit and saving departments. Presumably, by the time the government of the U.S. and possibly other G-7 governments have decided to restore the gold standard, Romania will have formulated a body of property law that includes recognition of the true economic nature of bank notes and demand deposits, i.e., as nothing more or less than property titles to the money commodity, gold. In fact, it would not be difficult to incorporate a legal principle requiring 100 percent reserves for demand deposits into a system of property law adopted from Western market economies, because, as de Soto (1995, pp. 29-30) has pointed out, such a general legal principle was contained in the continental European juridical tradition which extends from old Roman Law to the French

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and Spanish legal codes of the early twentieth century. A second problem that would need to be resolved upon the transition to a completely sound money is the disposition of the fiduciary media that were issued by the banks prior to the transition period and whose stock has been since frozen. While the continued existence of these media would not necessarily disrupt monetary calculation, they would remain a source of weakness--and, therefore, of never-ending temptation for government intervention--in the financial system. One possible method of liquidating them is to transfer to the commercial banks the proceeds from the sale of the central bank's assets upon its dissolution. The commercial banks would then use these assets to purchase the gold reserves necessary to transform their margin of unbacked demand liabilities into 100-percent gold-backed money certificates. This would mean of course a windfall capital gain for the shareholders of these banks.