

## **Recession Economics and Non-Neutral Money**

Paul F. Cwik, Ph.D.

Associate Professor of Economics

Mount Olive College

Austrian Scholars Conference 2009

**Abstract:** This paper examines the monetary policy choices before a central bank during an economic downturn. The central bank can do nothing and allow credit contraction, actively contract the money supply more, or expand the money supply to offset the monetary contraction. The paper concludes that credit contraction during a recession is a bad situation. However, activist policies that either expand or further contract the money supply are worse.

### **Introduction:**

The distinguishing characteristics of Austrian Macroeconomics are the use of non-neutral money and heterogeneous capital. Austrians have explained how monetary expansion creates an artificial boom that favors those that get the new money first. As a consequence, prices are distorted and production patterns are altered. Austrians have successfully employed the idea of heterogeneous capital to explain the buildup of malinvestment during an artificial boom and have shown how the liquidation of this malinvestment requires the painful process called a recession. In light of the current recession, there is much debate about monetary contraction and deflation. This article investigates the consequences of monetary contraction while maintaining a strict adherence to money's non-neutral effects.

### **Monetary Expansion:**

The Austrian school has shown the damage that an expansionary monetary policy can have upon an economy. Economists list six negative consequences of inflation.<sup>1</sup> 1) As the supply of money (broadly defined) increases, there is an erosion of its purchasing power. Typically this loss is called a Pure Inflation Tax. 2) As the purchasing power of the money falls, the relationship between debtors and creditors changes. The debtors win

---

<sup>1</sup> In this paper, the term "inflation" will follow the classical sense, i.e., an expansion of the money supply.

at the expense of the creditors. 3) Inflation creates a signal extraction problem. Entrepreneurs use price signals to guide their decisions. By inflating the money supply, the measurement tool by which appraisals are made changes and thus expectations are disrupted and price signals are jammed. 4) As the central bank continues an expansionary course it runs the risk of generating a situation of hyperinflation. 5) There are non-neutral effects of monetary injections. Those that get the new money first are able to buy at today's prices; while those who get the new money after the prices have risen have less real wealth. There is a real wealth transfer from those who get the new money last to those who get the new money first. 6) If the central bank opts to pull back from high levels of price inflation, a recession will develop. Austrian business cycle theory has explained that the liquidation phase of the business cycle is a necessary consequence of artificial credit expansion.

Of these six consequences, most economists generally agree with the first four. It is the final two consequences that make the Austrian school unique. The issue of the non-neutrality of money is of major importance because when monetary policy is analyzed and the implications are drawn, the result will usually be different from an analysis conducted under an assumption of neutral money. More detail will be given below but for clarity, if the velocity of money falls a policy based upon neutral money suggests that monetary expansion to offset this fall will have no significant effects. As we will see below, an analysis rooted in non-neutral assumptions will suggest the opposite policy.

### **Non-Neutral Money:**

Non-neutral money simply means that adjusting the money supply will have real effects on production and consumption. Mises so strongly advocates the non-neutral money position he states, "I wish to emphasize that in a living and changing world, in a world of action, there is no room left for a neutral money. Money is non-neutral or it does not exist."<sup>2</sup>

---

<sup>2</sup> Mises (1945) p. 77.

Mises demonstrates that the analysis of non-neutral money must follow a step-by-step process.<sup>3</sup> Money is injected into the economy at specific points in time and given to specific people and institutions. Those that get the new money first will spend that money in a particular pattern. That pattern is unique to the individuals and the moment in time. If I was given a million dollars today, I would spend it very differently than I would have a year ago.

When this new money is spent, those that are buying these goods and services are outbidding all others to attract these items. By outbidding the nearest rival, the prices for those items rise—not at once and not uniformly, but there is upward pressure on prices. When the next set of individuals gets the new money, they also spend and invest that money. These actions apply pressure to other prices. The new money moves through the economy applying pressure to prices and is recorded in the form of a statistical average. During this process, there are those who have not yet received the new money. However, they have to buy goods and services at the new, higher prices. Their real wealth has dropped. Thus, it is clear that those who get the new money first gain at the expense of those who get the new money later, and those who get the new money later lose to everyone who received the new money before them.

Such a story is well known and commonly told in Austrian communities. Austrians have also rightly identified that the banking system is usually the first recipient of the new money. During the first phase of the business cycle, the central bank artificially expands the amount of credit in the economy. According to traditional Austrian Business Cycle Theory (ABCT), this artificial credit expansion starts the artificial economic boom.

To illustrate this process, let us examine who gets the new money. Suppose that there are two industries vying for the new money. One industry is healthy and looks like it will continue to make strong profits in the foreseeable future. (For illustrative purposes let us call it the consumer electronics industry.) The other is not healthy and runs a much higher default risk. (Let us call it the auto industry.) Assuming that the only intervention in the economy is credit expansion, the auto industry will be able to borrow that new money only by promising to pay much higher rates. From a creditor's point of view,

---

<sup>3</sup> See Mises (1945) and (1979) particularly Lecture 4: "Inflation."

such a risk/reward trade-off is acceptable. From the owner's (shareholder's) point of view, the profitability of the firm is reduced. *Ceteris paribus*, shareholders will shift from owning assets in the auto industry to the banking and consumer electronics industries.

However in a world of non-neutral money, another aspect needs to be examined—those who receive the new money first benefit and gain over those who receive the new money later. Since both industries obtain loans, there is a real wealth transfer to both the auto and consumer electronics industries at the expense of other industries and consumers. While the auto industry might not be doing as well as the consumer electronics industry, it does benefit. With these new funds the industries engage in malinvestments and some firms that should have been bankrupted are propped up during the artificial economic boom.

### **Monetary Contraction and the Upper-Turning Point:**

The artificial boom comes to an end either because the central bank has slowed monetary expansion (thereby creating a credit crunch) or there is a real-resource crunch where input prices rise faster than output prices, which squeezes profit margins. For the purposes of this paper, it does not really matter how the upper-turning point is brought about because the consequences are the same, namely credit contraction, rising interest rates and rising input prices.

The central bank and the banking system work in concert to contract the money supply. The money supply can be contracted either through exogenous forces (i.e., the actions of the central bank), through endogenous forces (e.g., the failure and bankruptcy of businesses and banks), or through a combination of the two forces.

The central bank can arbitrarily engage in setting a contractionary monetary policy because the central bank is exogenous to the economy, meaning that economic consequences of its actions do not jeopardize its existence. The three monetary policy tools that are attributed to the central bank are: 1) the setting of the required reserve ratio; 2) the ability to encourage or discourage the banking system's acquisition of borrowed reserves; and 3) the conduct of open market operations—the power to expand or contract the amount of non-borrowed reserves. The banking system responds to the central bank's

actions and must follow its lead. How the banking system reacts to these changes is shown in the banks' balance sheets and is quickly summarized below.

Modern central banks do not tend to adjust the required reserve ratio. However if reserve rates were increased, the consequence would be a direct restriction on the ability of banks to make loans.

If the central bank reduces (or cuts back on) the amount of borrowed reserves it loans into the economy, then within the banking system, assets and liabilities are reduced (or not expanded as much). While the amount of liabilities is reduced for the banking system, the critical change is on the asset side. With a reduction of reserves,<sup>4</sup> the banking system will not be able to accommodate as many demand deposits. To meet its reserve requirements, the banking system will either reduce the amount of new loans it makes, sell off some of the loans as collateralized securities, or it might have to call in some outstanding loans. The result for each scenario is that the amount of loans is reduced.

If the central bank reduces non-borrowed reserves by selling bonds to the banking system, then that means the banks are keeping their level of assets the same, but are exchanging reserves for treasury securities. Again, the amount of loans will need to be reduced in order to maintain reserve requirements. If the central bank sells bonds to the non-banking public, the banking system will also see a reduction in its liabilities to the extent that the public pays for the bonds with demand deposits. Unless the entire purchase is made in cash, there will be a reduction in the amount of loans.

Thus, how ever the central bank contracts the money supply, the result is a reduction in loans.

The endogenous contractionary forces stem from business failures. As businesses fail, they default on their loans. The banking system will face capital adequacy issues whereby many banks may fail. The collapse of a few banks could create generate a contagion effect in which many banks implode. The total amount of credit and loans shrinks. Mises explains it this way,

[The monetary contraction] hurts all enterprises—not only those which are doomed at any rate, but no less those whose business is sound and could flourish if appropriate credit were available. As the outstanding debts are not paid back, banks lack the means to grant credits even to the most solid

---

<sup>4</sup> Vault cash is a component of reserves.

firms. The crisis becomes general and forces all branches of business and all firms to restrict the scope of their activities. But there is no means of avoiding these secondary consequences of the preceding boom.<sup>5</sup>

As the money supply contracts wage and price rigidities and will intensify the recession. Hayek called these effects the secondary contraction and posed the problem in this manner:

The main problems...are, firstly, whether this process of deflation is merely an evil which has to be combated, or whether it does not serve a necessary function in breaking these [price and wage] rigidities, and secondly, whether the persistence of these deflationary tendencies proves that the fundamental maladjustment of prices still exists, or whether, once that process of deflation has gathered momentum, it may not continue long after it has served its initial function.<sup>6</sup>

However by the 1970s, Hayek and Robbins not only regretted not calling for an increase in the money supply to offset this downward spiral, Hayek argued “that deflation has no recognizable function whatever, and that there is no justification for supporting or permitting a process of deflation.”<sup>7</sup> Robbins also claimed that he “was on the wrong side; I opposed reflation which I now think might have eased the situation.”<sup>8</sup> The experience of living through the Great Depression and not winning the debate among economists, politicians and the public may have colored their analysis of deflation. As we will see below, Rothbard’s analysis on the merits of deflation reached the opposite conclusion.

### **Monetary Contraction in a Recession:**

The recessionary phase of the business cycle is characterized by the following: 1) there is an absolute decrease in the amount of economic activity across the entire structure of production; 2) early stage businesses experience greater economic contractions than the other stages; 3) there is a decrease in the amount saved; 4) there is a decrease in the amount loaned and invested; and 5) some malinvested capital goods are destroyed and thrown away. A consequence of these conditions is a contraction in demand deposits.

---

<sup>5</sup> Mises (1963) p. 568.

<sup>6</sup> See Hayek (1933) p. 176.

<sup>7</sup> As quoted by White (2008) p. 27.

<sup>8</sup> *ibid.* p. 28.

While it is straight forward to trace the redistributive effects of monetary expansion, tracing the consequences of monetary contraction is not as easy. Mises (1945) basically says that monetary contraction is the same process as expansion except in reverse. Reversing the process means that counterfactual reasoning becomes our primary tool. In *Man, Economy and State*, Rothbard gives more detail than Mises for the effects of deflation during a recession, but devotes less than three pages to it. Nevertheless, what he says in those pages is important and worth examining.

[T]he crisis is often marked not only by a *halt* to credit expansion, but by an actual deflation—a *contraction* of the money supply. The deflation causes a further decline in prices. Any increase in the demand for money will speed up adjustment to the lower prices.<sup>9</sup>

There are two points that warrants our attention. First, the contraction of the money supply creates “a further decline in prices.” While in general it may be true that prices fall, we cannot make the leap to say that all prices fall. Prices are signals of relative scarcity ratios and any falsifying or jamming of the price signal creates market misallocations. Some of these market misallocations will manifest as projects that use capital equipment and as such should also be termed malinvestment. For example in an economic downturn there is an increase in people returning to trade schools, community colleges and evening programs. This increase in demand may induce capital projects and malinvestments. While Mises argues that “no protracted scars are left” from deflation, it seems to be more of an empirical matter, than a matter of analytical conclusions.<sup>10</sup>

Second, Rothbard claims that as people hold onto higher levels of cash, it will result in a faster adjustment process. This reasoning leads to this question: if people are holding on to more cash will this not slow the speed of adjustment? While it is true that by holding on to cash there will be a drop in demand for consumer goods, it does not imply that those funds are made available in the investible funds market. So while there may be some impetus for an acceleration in the speed of adjustment derived from the change in profit/price differentials, there is a brake that is also applied that results from people withdrawing investible funds and holding onto cash.

---

<sup>9</sup> Rothbard (1993) p. 864.

<sup>10</sup> Mises (1963) p. 567. While the amount of malinvestments will pale in comparison relative to that built up during the inflationary boom, they are still created and as a result, they will need to be corrected as well.

Rothbard continues his analysis by focusing on the entrepreneurs' reaction to the distorted price signals.

Furthermore, deflation will hasten adjustment in yet another way: for the accounting error of inflation is here reversed, and businessmen will think their losses are more, and profits less, than they really are. Hence, they will save more than they would have with correct accounting, and the increased saving will speed adjustment by supplying some of the needed deficiency of savings.<sup>11</sup>

It seems as though Rothbard may be injecting some normative analysis. A systemic entrepreneurial error emerges from the secondary monetary contraction. Rothbard argues that the adjustment caused by the incorrect accounting leads to a faster adjustment with an increase in savings. While his analysis is correct, this increase in savings, or “forced savings,” is also a misallocation of resources. The consequence of this incorrect accounting is that the economy overly contracts. Rothbard argues that even if the economy overshoots, no harm would be done. (This point will be examined in more detail below.)

It seems that economists and policy setters face a trade-off between the length of the recession and its depth. In a recession, the central bank has three courses to choose from. It can do nothing and not interfere in the liquidation process. It can actively contract the money supply in the hopes of accelerating the correction of the past malinvestments. Finally, it can engage in expansionary monetary policy to counteract the deflation of the money supply and prices.

### **Non-interference by the Central Bank:**

Even though the option of non-interference is highly unlikely to occur in the current political atmosphere, this policy serves the function as the standard by which the other two options are compared.

When the upper-turning point of the business cycle is reached, we start to see higher rates of business failure. Recessions are the processes of liquidation that clean out the malinvestments that were built up during the artificial boom. During this phase of the business cycle, credit is constricted and profit margins fall. Unlike what the popular

---

<sup>11</sup> Rothbard (1993) p. 865.



media portrayed in Fall 2008, not all credit is frozen during a recession. However, banks do become more selective about whom they loan money to and tighten standards for managing their balance sheet. As Mises pointed out above, even “the most solid firms” struggle through recessions.

Two industries, the auto and the consumer electronics industries, were used in the example presented above. In a credit contraction, which industry will the banks stop lending to—the nearly bankrupt auto industry or the healthy consumer electronics industry? In order for the auto industry to acquire loans, they would have to offer very high rates of return to offset the risk. There will come a point where the default risk is too high for enough creditors to justify and the auto firm will fail.

The failure of the auto industry firms will create secondary contractions. Some of these secondary contractions are necessary, but not all. In the example presented above, both the auto and consumer electronics industries benefited from the artificial credit expansion. Since the auto industry was being propped up during the time of credit expansion, there will be some firms that are the result of credit expansion. Other firms may have become closely tied to the auto industry that otherwise would not have been. This dependence may take the form in a company that supplies car components for ultimate assembly or it may be the restaurant across the street from the assembly plant. These higher-order firms might have been to survive the recession if the auto industry collapsed years earlier, but now they will sink with the auto industry in the economic downturn. An example could be a firm that makes wire for airbags. However, if the auto industry was never propped up by an artificial boom, it could have had alternative customers for its wires. The capital equipment that creates the wires for airbags are a consequence of the credit expansion, are malinvestments and need to be liquidated. The employees of this wire company will lose income and diminish their demand for goods and services. The restaurant may also fail with the closing of the auto assembly plant.

In a recession, people are hurt—more than they would be if there was no secondary contraction. Some entrepreneurs whose businesses would not normally have failed, do fail due to the larger macroeconomic situation. This secondary contraction is what caused Hayek and Robbins to lament that they did not advocate a policy of monetary expansion. The transformation of savings into new capital and the realignment

of production methods to a new reality is “a slow process.”<sup>12</sup> During this time, hurt and hardship are endured by real, living people. The failure to sufficiently emote on this point has caused the free-market economist to be portrayed as without a heart. Such portrayals will not win over the setters of policy. Thus, the economist is asked for a “do something” policy.

### **Active Central Bank Deflation to Accelerate the End of the Downturn:**

If a do-nothing approach seems heartless, then either the downturn needs to be accelerated or the depth of the recession needs to be mitigated. The first choice might be something that a reader of Rothbard, Salerno and Hülsmann might contemplate following. Although none of the authors advocate a policy of monetary contraction in the middle of a recession, such a policy may be inferred from statements claiming that “no harm will be done” by deflation;<sup>13</sup> it is “benign;”<sup>14</sup> it benefits taxpayers through the process of “rabattage;”<sup>15</sup> “there is no reason why this redistribution [from deflation] should have negative consequences for overall production;”<sup>16</sup> “bankruptcies...do not affect the real wealth of the nation;”<sup>17</sup> and “deflation appears as a great harbinger of liberty.”<sup>18</sup>

Rothbard and Hülsmann both recognize that there will be redistributive effects generated from monetary contraction. However, they both consider the benefits to outweigh the negatives. Rothbard makes his argument this way:

It is true that deflation takes from one group and gives to another, as does inflation. Yet not only does credit contraction speed recovery and counteract the distortions of the boom, but it also, in a broad sense, takes away from the original coercive gainers and benefits the original coerced losers. While this will certainly not be true in every case, in the broad sense much the same groups will benefit and lose, but in reverse order from that of the redistributive effects of credit expansion.<sup>19</sup>

And Hülsmann puts it this way,

---

<sup>12</sup> See Mises (1963) p. 577.

<sup>13</sup> Rothbard (1993) p. 865.

<sup>14</sup> Salerno (2003) p. 90.

<sup>15</sup> *Ibid.*, p. 94.

<sup>16</sup> Hülsmann (2003) p. 56.

<sup>17</sup> Hülsmann (2008) p. 8.

<sup>18</sup> *Ibid.*, p. 12.

<sup>19</sup> Rothbard (199) p. 865.

Deflation is certainly not some sort of a reversal of a previous inflation that repairs the harm done in prior redistributions. It brings about a new round of redistribution that *adds* to the previous round of inflation induced redistribution. But it would be an error to infer from this fact that a deflation following a foregoing inflation was somehow harmful from an economic point, because it would involve additional redistributions. The point is that *any* monetary policy has redistributive effects.<sup>20</sup>

Setting aside the issues of justice and comeuppance, Rothbard is taking a normative position that cannot be supported by theory. His position is that the harm to those caught up in the overshooting of monetary and economic contraction is outweighed by the increased speed by which the economy bottoms out and begins recovery. While one may personally agree with this trade-off shorter-and-deeper versus longer-and-shallower, Rothbard cannot make such an interpersonal utility comparison. When Hülsmann dismisses redistributive effects by arguing that they cannot be avoided seems to be ducking the issue. These redistributions could create malinvestments, which would need to be liquidated at a future date.

Nevertheless, let us set these issues aside and ask what would it take to get the monetary contraction right? In other words, if policy setters were to follow this advice and direct the central bank to actively engage in a policy of monetary contraction, how would it be accomplished such that only the funding of malinvestment was withdrawn? Obviously this is an impossible task. The money would have to be pulled out of the malinvestments and from the demand for those products only. To further conceptualize what must be achieved, we would have to decompose the Marshallian demand curves into their income and the substitution effects. Then make sure that only the substitution effect occurs while preventing the income effect. The absurdity of solving this problem can be illustrated by the fact that economists cannot even agree how to separate the two effects. Thus, we are stuck with redistributive effects.

With redistributive effects present, the pulling of money out of the banking sector would make them the biggest losers. There is a sense of justice and comeuppance that since they were the big winners in the inflation that they should bear the brunt of the contraction.

---

<sup>20</sup> Hülsmann (2008) p. 8.

What needs to be liquidated is not the redistributed wealth, but the malinvestments that were built up during the artificial boom. If we consider that the banking system is in large part a pass-through of the new funds, then redistributing wealth away from the banking industry will not liquidate the malinvestments. If, in general, the auto industry is the malinvestment and not the banking industry, then the distortionary effects are compounded. A monetary contraction will, of course, harm the auto industry and the malinvestments will be liquidated, but the harm to the banking industry with little malinvestments will cause these secondary consequences that cannot be passed off as merely redistributive. Prices are being falsified, resources are being misallocated and capital budgetary expenditures are enacted on the basis of these false prices. Mises warns of the folly of such a policy in one of his more humorous passages:

[Central bank advocates] suggest methods to undo changes in purchasing power already effected if there has been an inflation they wish to deflate to the same extent and vice versa. They do not realize that by this procedure they do not undo the social consequences of the first change, but simply add to it the social consequences of a new change. If a man has been hurt by being run over by an automobile, it is no remedy to let the car go back over him in the opposite direction.<sup>21</sup>

### **Active Central Bank Reflation to Counter the Secondary Deflation:**

The alternative course that the central bank can take is an expansionist monetary policy during the recessionary phase. Most central banks engage in this activity to halt and reverse not only the secondary deflation but to prop up all prices. Most macroeconomic theories recommend expansionary monetary policy during a recession, however there is a split within the Austrian camp.

Selgin (1997), Hayek (in 1975) and Robbins (in 1971)<sup>22</sup> support the productivity norm as a standard for the conduct of monetary policy. As a policy goal, they wish to keep nominal income (MV) constant. Thus when people decide to hold more cash balances (a drop in velocity), there should be an expansion of the money supply to offset this contraction. Hayek and Robbins clearly lamented the position they took in the 1930s by not forcefully calling for a monetary expansion to offset the secondary contraction.

---

<sup>21</sup> Mises (1945) p. 76.

<sup>22</sup> See White (2008) for analysis of Hayek's and Robbins' position.

As seen above, Hayek recognized Rothbard's argument that the deflation can expedite a recession. However, after living through the Great Depression he concluded that the costs were too high. Let us set aside the fact that Western governments engaged in many policies that prevented the liquidation of the malinvestments regardless of monetary policy.

Hayek, Robbins and Selgin argue that the nominal money supply should remain constant so that the effects of the secondary contraction can be dampened or perhaps even nullified. At an aggregate level such a policy seems not only reasonable, but intuitive. However, money is not a neutral player in the economy.

To accept this policy recommendation, the question of "what would it take to nullify the effects of the decrease in  $V$ ?" needs to be answered. When people hold onto more cash balances, the nominal money supply contracts and there is a decrease in demand deposits and thus credit. The money that is injected into the economy must go to only those enterprises that are contracting from the secondary contraction, but not to those malinvestments that were built up in the initial credit expansion. Meeting such a condition is impossible. There is no method by which one can recognize *ex ante* which projects are malinvestments and which are not. The expansion of the money supply, regardless of the intent, has the same six consequences outlined in the second section of this paper and regardless of whether the economy is in a condition of moderate growth or recession.

The trade-off between depth and duration ends up being a false one. The malinvestments will eventually need to be liquidated. A piecemeal approach by way of a series of monetary injections to offset deflationary forces not only delays the inevitable, but does not solve the malinvestment problem. Each injection causes an additional misallocation of resources, builds up malinvestments and prolongs the suffering of those in the economy.

### **Conclusion:**

The economist walks a tough road during a recession. They are blamed for the problem and when asked for advice, the economist basically tells the policy setters to stop what they are doing and don't do it again.

The central bank policy setters have three options open to them: non-interference, monetary contraction and monetary expansion. The option of non-interference leads to a secondary economic contraction that is unfair and unjust to those living in the midst of a recession. The policy of monetary contraction overrules market preferences and deepens the secondary contraction in the hope that it will be over more quickly. While the theory does point to the possibility that the recession may end sooner, it is not guaranteed. It is certain that accelerating the secondary contraction will lead to more significant overshooting and thus economic hardships.

The third policy choice of monetary expansion attempts to avoid the pain of the economic contraction, but it also avoids solving the problem of malinvested capital equipment and misallocated production structures that need to be liquidated and reorganized. At best it delays the solution; at worst it makes the future economic hole deeper.

Thus, we are back to the non-interference policy. It is a terrible policy for a central bank to take, however it is better than its alternatives. It should be remembered that the hardship endured under a non-interference policy does not stem from the policy itself, but from the fact that the economy is in a recession. When malinvestments are built up during previous expansionary monetary policies, recessions are the necessary consequence. Going to the dentist due to a cavity is not a pleasant experience, but it is a necessary one for the overall health of the individual. Recessions are terrible economic events, but are necessary for the overall health of the economy.

### **References:**

- Hayek, F.A. (1933) "The Present State and Immediate Prospects of the Study of Industrial Fluctuations," Reprinted in *Profits, Interest and Investment*, Augustus M. Kelley, New York, NY, 1975.
- Hülsmann, Jörg Guido (2008) "Deflation and Liberty," Daily article posted Dec. 13, 2008 to Mises.org, retrieved January 15, 2009, pagination is based upon the print out.
- \_\_\_\_\_. (2003) "Optimal Monetary Policy," *Quarterly Journal of Austrian Economics*, vol. 6, no. 4, pp. 37-60.
- Mises, Ludwig von (1979) *Economic Policy: Thoughts for Today and Tomorrow*, Regnery Gateway, Washington D.C.

\_\_\_\_\_. (1963) *Human Action: A Treatise on Economics*, 3<sup>rd</sup> revised edition, Laissez-Faire Books, Chicago, IL.

\_\_\_\_\_. (1945) “The Non-Neutrality of Money,” in *Money, Method, and the Market Process*, edited by Richard Ebeling, Praxeology Press and Kluwer Academic Publishers 1990.

Rothbard, Murray N. (1993) *Man, Economy, and State*, Ludwig von Mises Institute, Auburn, AL.

Salerno, Joseph T. (2003) “An Austrian Taxonomy of Deflation—with Applications to the U.S.,” *Quarterly Journal of Austrian Economics*, vol. 6, no. 4, pp. 81-109.

Selgin, George (1997) *Less Than Zero: The Case for a Falling Price Level in a Growing Economy*, IEA Hobart Paper No. 132.

White, Lawrence H. (2008) “Did Hayek and Robbins Deepen the Great Depression?” *Journal of Money, Credit and Banking*, vol. 40, no. 4, pp. 751-768.