



## Adam Smith and the Political Economy of a Modern Financial Crisis

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*Financial crises have occurred periodically for hundreds of years, and Adam Smith had important insights into their causes. Although by no means all that we know about such crises has been derived from Smith, it is interesting and important to reflect on what he did know and how ignoring his warnings about the creation of excess liquidity has contributed to the current crisis. In addition to the complexity of contemporary finance and the role of central banks and other regulatory institutions, a major difference between Smith's day and ours is the emergence of "moral hazard" as an important policy issue and its corollary, "immoral results." It is important to realize that the risks of financial crisis, moral hazard, and immoral results cannot be avoided by financial and accounting gimmicks, and that there is no substitute for adequate capital in the creation of liquidity.*

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**T**he United States is now in the midst of a major financial crisis that has spread to affect credit and equity markets and financial institutions all around the world. Many have characterized the

present crisis as the worst since the Great Depression—a description that is becoming more apt with each passing day. Whatever the ultimate scale of the present crisis, it is not the only important financial crisis to beset the United States in the past 50 years; by my count there have been at least seven: 1971, 1974–75, 1980–82, 1987, 1991, 2000–2002, and 2007–?. Looking further back through the 19th and 20th centuries, the average frequency of crises has been roughly constant at about one per decade. Most other countries, both economically advanced and developing, also have histories of not infrequent financial crises.<sup>1</sup>

During my career as an economist, I have had a good deal of experience with financial crises, perhaps most dramatically as the macroeconomic member of President Reagan's Council of Economic Advisers during the stock market crash of October 1987. During the 10 years that I served as the chief economist of the International Monetary Fund, I witnessed about 40 cases of countries involved in financial crises, sometimes in isolation but often in combination. Once during this period a journalist asked, "What does the IMF do in financial crises?" "Well," I replied, "we help to manage

<sup>1</sup>Financial crises are, of course, a much studied topic in economics both in theoretical and in empirical research; see, for example, Flood and Garber [1994]. For me, the most interesting part of this literature are historical accounts of what has happened in various crises, in the United States and elsewhere; see, in particular, Friedman and Schwartz [1963], Hawtrey [1962], Kindleberger and Aliber [2005], Galbraith (1961), and Mayer [1997].

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them.” “And, how are you doing at this job?” was the next question. “Well,” I replied, “recently we have managed to have quite a lot of crises.”

Because financial crises have been important and relatively frequent occurrences going back hundreds of years, it is not surprising that the greatest economist of all time, Adam Smith, has something relevant to say on the subject in his great book, *An Enquiry into the Nature and Causes of the Wealth of Nations*.<sup>2</sup> Because this lecture is presented in connection with the annual Adam Smith award by the National Association for Business Economics, it is appropriate to reflect here on what that great economist can still teach us about the causes and consequences of such crises and about what both private behavior and public policy might do to help avoid them or ameliorate their consequences.

I shall not argue that everything important that we might hope to learn about the political economy of financial crises is in Smith. Indeed, Smith’s greatness as an economist derives from immense and detailed knowledge of operation of the economies of his day and earlier times, combined with ability to abstract (making use of the ideas of other thinkers) general theories that explained these operations.<sup>3</sup> Our economies and our monetary and financial systems are quite different and in most respects far more developed and complex than they were in Smith’s day. Accordingly, it would be unreasonable to expect that any empirically grounded economist, even one with the intellectual caliber of Adam Smith, could have foreseen and understood all of the important issues that arise in modern financial crises. Nevertheless, Smith’s analysis provides key insights that are useful both in understanding the present financial crisis and in assessing how the risk of such crises might be reduced in the future.

This central theme is developed first by reviewing some of the key ideas in Smith’s discussion “Of Money Considered as a Particular Branch of the General Stock of the Society, or of the Expense of Maintaining the National Capital,” which is the

subject of Chapter II of Book II of *The Wealth of Nations*. Next, these ideas will be applied to an analysis and explanation of important developments in the present financial crisis. Finally, inspired by Adam Smith but based mainly on my own ideas, some comments are offered on how the present crisis is being handled, on how we might better have avoided or ameliorated the present crisis, and on how we might do somewhat better at this in the future.

## 1. Smith’s Theory of Money and Credit

Adam Smith recognized that stock of money was an essential part of the economy’s total stock of useful capital. However, unlike other forms of capital, money was not directly useful either in consumption or in production. Rather, money played the essential role of the “great wheel of circulation” that made possible the distribution of labor and material inputs to their various productive uses and the means by which “every individual in the society has his subsistence, conveniences, and amusements distributed to him in their proper proportion.” More specifically, Smith argued, “The great wheel of circulation is altogether different from the goods which are circulated by it. The revenue of society [gross or net national product in today’s terminology] consists altogether in those goods, and not in the wheel that circulates them.” Nevertheless, Smith maintained that “... the stock of money which circulates in any country must require a certain expense, first to collect it, and afterward to support it, both [of] which ... are ... deductions from the neat [or net] revenue of society. A certain quantity of gold and silver and of very curious labor [i.e., bankers] ... is employed in supporting that great but expensive instrument of commerce ...” instead of in directly productive activities.

The stock of “money” to which Smith refers in this discussion is comprised of gold, silver, and lesser coins and “... several sorts of paper money, [most importantly] the circulating notes of banks and bankers.” The key characteristic of circulating bank notes that makes them useful as money is their ready acceptability as payment in a wide range of transactions on an essentially equal footing with gold or silver money. “When the people of any particular country have such confidence in the fortune, probity, and prudence of a particular banker, as to believe that he is always ready to pay upon demand such of his promissory notes as are likely to be at any time presented to him; these

<sup>2</sup>All of the quotations from Smith [1937].

<sup>3</sup>Robert Heilbroner [1967] expresses his appreciation of Smith and his great work as follows: “For Smith’s encyclopedic scope and knowledge there can be only admiration. It was only in the eighteenth century that so huge, all-embracing, secure, caustic, and profound a book (as *The Wealth of Nations*) could have been written. ... And perhaps no economist will ever again so encompass his age as Adam Smith.”

notes come to have the same currency as gold and silver money, from the confidence that such money can at any time be had for them.”

### *The private and social virtues of paper money*

Smith repeatedly emphasizes the virtues of paper money both to the banks that create it and to society as a whole. This virtue, in both cases, fundamentally reflects a violation of the principle that *there is no such thing as a free lunch*. By creating paper money at very little cost that may be used with essentially equal convenience in place of metallic money (gold or silver) that can only be obtained at considerable expense, the banker creates essentially out of nothing something that has considerable value for himself and for society. Smith explains this remarkable phenomenon as follows:

The banker who advances to the merchant whose bill he discounts, not gold or silver, but his own promissory notes, has the advantage of being able to discount the greater amount of the whole value of his promissory notes, which he finds by experience, are commonly in circulation. He is thereby enabled to make his clear gain of interest on so much a larger sum.

It is not by augmenting the capital of the country, but by rendering a greater part of that capital active and productive than would otherwise be so, that the most judicious operations of banking can increase the industry of the country. ... The gold and silver money which circulates in any country, and by means of which the produce of its land and labour is annually circulated and distributed to proper consumers, is ... all dead stock ... . The judicious operations of banking, by substituting paper in the room of a great part of this gold or silver, enables the country to convert the great part of this dead stock into active and productive stock.

### *Limits on paper money and bank credit*

Smith also emphasized that there were limits to the amount of paper money that could prudently be created by an individual bank and within a country, and that serious dangers ensued if too much paper money was created. In Smith’s view, the effective limit on the amount of paper money was an amount somewhat less than the amount of metallic money that would be held if no paper money were available. This was based on Smith’s analysis that

sound paper money could efficiently be used in domestic commerce in substitution of most metallic money. Individual bankers, however would need to hold some fractional reserve of gold and silver to maintain their commitments to convert their paper money into metallic money on demand. And for the country as a whole, metallic money would also be needed in transactions with foreigners who ordinarily would not accept domestic paper money.

If an individual bank expands its issue of paper money too much, it could face a run in which holders of its money demand immediate conversion into gold and silver. If the bank could not meet the run out of its own reserves or with metallic money obtained by rediscounting some of the bills it holds (against which it had advanced its own money), the bank will fail. The customers of the bank will be hurt by such a failure, in addition to the loss incurred by the bank. If the general supply of paper money becomes too large, then many banks may face runs in a general panic. Unless additional gold and silver (or freely convertible notes of a central bank like the Bank of England) can be obtained to stem the panic, the financial crisis will create general economic distress—a phenomenon that had been observed on many occasions.

Smith proposed several solutions to the problem of excessive creation of paper money, but his analysis here is somewhat confusing and contradictory. At the end of his chapter on “Money ... ,” Smith embraces, with two provisos, the solution dear to the hearts of today’s ardent deregulators—freely competitive banking. “If bankers are restrained from issuing any circulating bank notes or notes payable to the bearer, for less than a certain sum; and if they are subjected to the obligation of an immediate and unconditional payment of such banknotes as soon as presented, their trade may, with safety to the public, be rendered in all other respects perfectly free.” However, Smith’s discussion earlier in the chapter makes clear that the actual experience with banking and paper money in Scotland, England, and the American colonies raised substantial doubts about whether the private incentives for prudent banking under the discipline of competition would provide adequate safeguards against the dangers of excessive money creation.

Indeed, Smith embraces constraints on banks’ creation of paper money and extension of credit that would be anathema to modern advocates of financial deregulation. In particular, Smith’s explicit proviso that paper money issued by banks

should not be “for less than a certain sum” is far from innocuous. The “certain sum” that Smith recommended was five pounds sterling. Although today, five pounds sterling is worth about eight U.S. dollars and will pay for no more than a short taxi ride in London, in the late 18th century, five pounds sterling was the monthly wage of a skilled craftsman, equivalent in today’s money to about \$5,000. As Smith made clear, paper money issued by banks was for use in business transactions, among dealers and merchants who were presumably sophisticated about the ways of business and finance. Paper money was not supposed to be a substitute for the coinage used in everyday retail transactions.

More generally, Smith argued forcefully that the total issuance of paper money within a country should be constrained by what later came to be known as “the real bills doctrine.” Specifically, paper money should be paid out only on bank credit extended in the discounting of “real bills” that corresponded to actual trade among merchants. Smith argued that such lending was fundamentally safe and would not involve an undue expansion of paper money. But that any other bank lending should only be to such customers where the bank can “... observe with great attention, whether in the course of a short period ... the sum of repayments it receives from them, is ... fully equal to that of the advances which it [the bank] commonly makes to them.”

Another constraint on bank issuance of paper money and creation of credit that Smith recommended was an 18th century version of the Glass-Steagall Act. Banks should limit their extensions of credit and associated issuance of paper money to short-term lending primarily related to the discounting of real bills. All forms of longer-term lending [generally secured by bonds or mortgages] should be the domain of “... such private people as propose to live upon the interest of their money ... and who upon that account [are] willing to lend ... to such people of good credit as are likely to keep it for several years.”

Closely related to Smith’s advocacy of the real bills doctrine and the preclusion of banks from longer-term lending is Smith’s abhorrence of what I would term “money-credit merry-go-rounds.” Smith describes the abhorrent phenomenon as follows:

... trader A in Edinburgh ... draws a bill upon B in London, payable two months after

date. In reality B in London owes nothing to A in Edinburgh; but he agrees to accept of A’s bill, upon condition that before the term of payment he shall redraw on upon A in Edinburgh for the same sum, together with the interest and commission, another bill payable likewise two months after date. ... A in Edinburgh ... before the expiration of the second two months, draws a second bill upon B in London, payable likewise two months after date; and before the expiration of the third two months, B in London redraws on A in Edinburgh another bill, payable also two months after date. This practice has sometimes gone on, not only for several months, but for several years, the bill always returning upon A in Edinburgh, with the accumulated interest and commission or all former bills ... . Though the bills upon which this paper had been advanced, were all of them repaid in their turn as soon as they became due; yet the value which had been really advanced upon the first bill, was never really returned to the banks which advanced it ... . The paper which was advanced upon those circulating bills of exchange, amounted on many occasions, to the whole fund destined for carrying out some vast and extensive project of agriculture, commerce, or manufactures ... . The greater part of this paper was, consequently, over and above ... what the circulation of the country could easily absorb and employ ... .

Smith emphasizes that this merry-go-round of money and credit becomes even more dangerous when it becomes opaque through the involvement of many different banks. “When two people, who are continually drawing and re-drawing upon one and other ... with the same banker, he must immediately see what they are about ... . But this discovery is not altogether so easy when they discount their bills sometimes with one banker and sometimes with another, and when the same two persons do not constantly draw and redraw upon one another, but occasionally run the round of a great circle of projectors, who find it in their interest to assist one another in this method of raising money ... . [Even] when a banker has made this discovery, he might sometimes make it too late, and might find that he had already discounted the bills of those projectors to so great an extent, that, by refusing to discount even more, he would necessarily make them all bankrupts, and thus, by ruining them, might perhaps ruin himself.”

Smith concludes his argument for prudent limits on money creation by describing what happened in Scotland when the issue of paper money and credit became unsustainably large and prudent banks began to cut back. Protests by those who desired even further extensions of money and credit led the establishment of a new bank “... for the express purpose of relieving the distress of the country ... . This bank was more liberal than any other had previously been, both in granting cash accounts and in discounting bills of exchange ... This bank, no doubt, gave some temporary relief to those projectors [who favored and supported its establishment], and enabled them to carry on their projects for about two years longer than they could otherwise have done. But it thereby only enabled them to get so much deeper into debt, so that when ruin came, it fell so much the heavier upon both them and their creditors.”

## 2. Applying Smith's Analysis in the Present Financial Crisis

In applying Smith's analysis of money, credit, and banking to the present day, it is important to keep in mind some key differences between monetary and financial arrangements in Smith's time and their modern equivalents. The paper money to which Smith refers is not analogous either to the currency that we carry around in our wallets or to the measure of the “money supply” that consists of transaction balances of households and businesses (reported as M1). In Smith's time, payments in business transactions were normally made by physical transfer of gold and silver coins or paper bank notes (including both notes issued by private banks and by the quasi-official Bank of England). It was also common for payment in business transactions to be made with private credit instruments in the form of private bills of exchange, especially bills that had been accepted for potential conversion into paper money or specie by a bank.

Since the creation of the Federal Reserve, U.S. commercial banks have ceased issuing paper currency. Today, finality of payment in most business transactions is through transfers between accounts at banks that participate in the interbank payments system. Paper checks are still used in some of these payments, but electronic transfers now account for the bulk of transactions. The total volume of transactions is enormous. In 1996, the annual ratio of debits to demand deposits at U.S. commercial

banks reached almost one thousand or about one hundred times annual gross domestic product (GDP). These ratios have probably at least doubled over the past 12 years.

In Smith's analysis, the issuance of paper money as a circulating liability of banks is intimately tied up with the operations of banks on the asset side of their balance sheets, primarily making loans through the discounting of bills of exchange and other similar paper. Today, the operations of banks and other financial institutions with bank-like activities involves a much wider set of highly liquid short-term assets—well beyond the balances held in accounts that are directly linked to the interbank payments system. The reason for this is clear. With an enormous daily volume of payments and receipts, banks need to be concerned about payments imbalances that might drain away their reserves. Hence, they maintain secondary reserves in the form of assets that can be sold easily and quickly without significant loss of value or that will be readily acceptable as collateral on short-term loans of reserves from other banks or the central bank. For the same reason, businesses with high volumes of payments and receipts typically hold secondary reserves (beyond their transaction account balances) in the form of highly liquid short-term assets or lines of credit that may be rapidly drawn to restore depleted transaction account balances. Thus, in the modern world, the “great wheel of circulation” that keeps business running depends on a banking and financial system that provides and utilizes a wide range of liquid assets and liabilities that support the efficient and reliable operation of the payments system. If any significant part of this complex system is seriously disrupted, the operation of the whole system can be significantly impaired, with important adverse consequences for economic activity.

In Smith's analysis the main danger of financial disruption came from excessive expansion and subsequent collapse of money and credit created by banks. This danger arose from the ability of banks to endow the paper money they created with the magical property of liquidity and from the private incentives to do so to excess. Accordingly, as a safeguard against this danger, Smith focused on limiting the supply of paper money to a proper fraction of the gold and silver money that would otherwise circulate in a country. In the modern world, banks no longer issue paper money, but banks and other financial institutions still engage in the magic of creating “liquidity.”

Banks and similar financial institutions issue a wide variety of claims against the value of the assets that they hold in their portfolios. From the perspective of the holders of these claims, they possess “liquidity” to the extent that they can be converted into transactions balances with high speed, limited cost, and reasonable certainty of value.<sup>4</sup> The effort of banks and similar financial institutions is to create value by endowing the claims they issue with greater liquidity than the assets they hold. This principle applies to Smith’s paradigmatic case of a bank that issues paper money (which it agrees to redeem for specie on demand) against a small reserve of specie and a substantial volume of earning assets. It also applies much more generally when a financial institution uses a variety of means to persuade holders of claims upon its assets that they are more liquid than those assets. The incentive to do this is great because success enables the institution to capture much of the surplus value from the liquidity it has created. The danger is that too much liquidity will be created if it somehow turns out that financial institutions cannot fulfill the expectations of holders of their claims concerning the speed, cost, and certainty of value with which these claims can be converted into the means of payment.

### 3. Underlying Causes of the Current Crisis

The present crisis in U.S. and global financial markets has a complexity of causes—some but not all of which are related to the analysis of Adam Smith in *The Wealth of Nations*. The origins of the crisis trace back to the unsustainable upsurge in homebuilding and house prices in the United States in 2004 through 2006, the associated buildup in mortgage credit and the rapid expansion of lower quality subprime and alt-A mortgages, the development and worldwide marketing of complex and opaque financial instruments that were based on mortgages and other forms of debt, and the explosion of over-the-counter derivatives (including credit default swaps) that further clouded who would bear what risks—especially in situations of

market stress. These developments came in the general context of a remarkable global economic expansion that ultimately became unsustainable in the face of a worldwide upsurge in commodity prices and uncomfortable increases in general price inflation. As these excesses began to unwind, starting in the summer of 2007, stresses began to emerge in key financial markets, leading ultimately to the freezing up of essential short-term credit markets, sharp falls in global equity prices, and the collapse of many commodity prices by the early autumn of 2008. Economic growth, which had already weakened significantly in many countries, turned into steep decline.

The main actors in this drama of unsustainable boom followed by spectacular collapse are surely developments in the private sector of the economy and in private financial institutions and markets. Policy mistakes and misjudgments played a supporting role. In particular, low short-term interest maintained by the Federal Reserve and low longer-term interest rates that were partly the result of surging capital inflows (reflecting reserve accumulation by foreign governments and central banks) undoubtedly gave some boost to house prices and to mortgage lending in the United States. Weak regulation of mortgage lending practices in the United States added something to these problems. However, no government policy compelled people to buy homes at unsustainably inflated prices or to borrow beyond their means in the expectation that already absurdly high home prices would continue to go even higher. Similarly, while regulators should have cracked down harder on unsound and abusive mortgage lending practices, no government agency insisted that people should take up such mortgages, or that dealers should purchase and repackage these mortgages, or that investors in mortgage-related instruments should fail to exercise due diligence in assessing the risks in what they were buying.

Concerning the large role that private sector mistakes and misjudgments played in the origins of the present crisis, Adam Smith’s analysis provides key insight into at least an important part of the explanation. Financial institutions used their power to enhance the apparent liquidity of a wide array of mortgage-related and other asset-backed financial instruments and thereby raised the value of these instruments to investors (often including themselves) above the cost of the underlying assets that backed the instruments—utilizing the same basic principle that Adam Smith recognized as

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<sup>4</sup>Homage should be paid here to the work of James Tobin [1963] who emphasized that “money” was not uniquely important as a liquid asset and that commercial banks were not uniquely important as creators of “money.” Rather, there is a wide array of assets from the perspective of their holders and liabilities from the perspective of their issuers with varying degrees of liquidity that are issued by a variety of financial institutions.

responsible for the economic gain from banks' creation of paper money. As a result of these activities, the financial institutions that engaged in them reported high profits and paid big salaries and huge bonuses to their top management and staff. Investors, too, were happy with the arrangement—at least until the crisis came—because they earned reasonably attractive returns on instruments that were perceived to have the additional advantage of relatively easy and quick convertibility into cash without much loss or value.

What was going on here was basically a vastly elaborated version of Adam Smith's "money-credit merry-go-round"—a virtual Disneyland of complex and opaque financial instruments where no one really understood exactly what the risks were and who was bearing them. For a while, as the system continued to expand, everyone was happy. The holders of supposedly liquid assets found that they were generally able to convert them with high speed and low cost into well-assured values in terms of cash. Thus, the value of these claims was sustained by their demonstrated liquidity and by the moderate yield advantage that they enjoyed over truly liquid instruments.

Trouble began when some of the assets underlying these financial instruments started to go bad at rates significantly greater than earlier anticipated. This was not due to actions of the financial institutions that created these instruments and sought to enhance their liquidity; it was the result of the downturn in the housing market or in the markets for other underlying assets. Nevertheless, holders of the instruments had to write down their values in light of declines in the values of the underlying assets. Fears of further declines in the values of underlying assets forced further write-downs. In addition, rising uncertainty about what the instruments were really worth drove down their values even further. In this process, the instruments lost most if not all of the value associated with their originally perceived liquidity; the special additional value that these instruments had acquired from ease and quickness of convertibility into cash at very close to a known price simply disappeared for instruments that no longer had these perceived characteristics.

Many financial institutions that had created and distributed such instruments to their customers felt obliged (due to fears of lost future business) to repurchase them at prices not too depressed from their original issue prices. These institutions then had to take losses on these repurchased

instruments, as well as any similar instruments that they had decided to keep in their own portfolios. In this regard, the problem was not—as some have suggested—that the financial institutions that provided enhanced liquidity to a wide array of asset-backed instruments did not have enough "skin in the game." They had plenty of skin in the game—more than they really recognized—in their own portfolios and in instruments that they were compelled to repurchase from customers. Without this skin in the game, these institutions would not have faced such substantial losses in the present crisis.

#### 4. The Case of Municipal Auction Rate Preferred Shares

There is a wide array of financial claims that exhibited the problems that have just been described, including collateralized mortgage obligations (CMOs), collateralized debt obligations (CDOs), collateralized loan obligations (CLOs), asset-backed commercial paper (ABCP), and more complex forms of claims that were based on these classes of financial instruments. I am not familiar with the details of most of these classes of instruments, but from work years ago on municipal bonds [Mussa and Kormendi 1979], I may be able to provide some further insight in the special case of auction rate preferred shares (ARPS) issued by closed-end municipal bond funds.

Interest on municipal bonds in the United States is generally exempt from federal income tax and often exempt from state and local income taxes in the state of issuance. As a result of this tax advantage, municipal bonds generally have yields that are below yields on taxable bonds thought to have similar risks of default. Indeed, most municipal bonds with investment grade ratings usually have yields that are below yields on U.S. Treasury obligations of similar maturity. Investors in municipal bonds include individual in high tax brackets, who may hold bonds directly, in open-end or closed-end mutual funds, or in trust accounts. Businesses do not generally invest in municipal bonds because the arbitrage rules of the IRS prohibit businesses from receiving tax exempt interest income on municipal bonds while deducting interest expense on their own debt. (The arbitrage rule also generally applies to individuals with respect to interest deductions other than for home mortgages.) Commercial banks and fire and casualty insurance companies are generally not subject to the arbitrage rule, and

both types of institutions have long been important holders of municipal bonds. Commercial banks have usually been dominant buyers of short-term municipals. Reflecting the 35 percent corporate tax rate, arbitrage by banks between high-grade short-term municipals and high-grade short-term loans or commercial paper has generally kept the interest rate on such municipals below the yield on three-month treasury bills, at about 65 percent of the yield on high-grade commercial paper. At longer maturities, yields on higher-grade municipals are generally below those on similarly rated corporate bonds by something less than the corporate tax rate, and yields on the highest grade municipals usually run about 80 percent of the yield on long-term Treasuries.

Closed-end municipal bond funds cannot increase the yields to their common shareholders by leveraging their holdings of (mainly longer-term) municipal bonds by issuing debt, as this would run afoul of the IRS arbitrage rule. However, with the aid of major commercial and investment banks, these funds innovated a way to obtain leverage by issuing some fraction of the funds' shares in the form of ARPS. This mechanism is supposed to work as follows. Suppose that a newly established closed-end fund buys \$1.5 billion of longer-term municipals, financed by issuing \$1 billion in initial value of common shares and \$500 million in initial par value of ARPS. Ignoring management fees, the common shareholders are paid each month all of the interest earned on the fund's holdings of municipal bonds, less the interest paid on the ARPS. As is true with all preferred shares, the holders of the ARPS must be paid what they are owed before the common shareholders get anything.

What the holders of the ARPS are owed is determined as follows. On most business days, a major commercial or investment bank holds an auction for a substantial fraction of ARPS, rotating through the entire stock of \$500 million once every week or two. In the auction, the price is set at par, and the bidding is on the dividend that will be paid over the period until the next auction for this fraction of the ARPS. Participants in the auction will usually include existing holders who want to roll over, new bidders who will jump in if the yield is attractive, and perhaps the market maker who may take up some slack when bidding is weak. If there are sufficient bids to acquire the amount up for auction at a yield below a cut-off level, then the auction succeeds. If the auction fails, then existing

holders are stuck with their positions at least until the next scheduled auction, and they earn the cut-off yield until then.

The cut-off yield is set (usually by a formula) at a level that is intended to insure that auctions will fail very rarely, if at all. For example, setting the cut-off yield somewhat above the yield on three-month Treasuries would generally be expected to avoid auction failures. The reason is that, as preferred shares, the ARPS are extremely high grade and the yield on high-grade, truly short-term municipals is almost always below the yield on three-month Treasury bills. The ARPS, however, are not truly short-term municipals where the issuer is obligated to redeem them at par within a few days. Legally, the ARPS are preferred claims on a closed-end pool of long-term municipal bonds—fundamentally a very illiquid investment. However, provided that the regular auctions for the ARPS succeed and are expected to succeed, these ARPS have *de facto* characteristics that are essentially the same as true short-term municipals. Through this mechanism, the ARPS have magically been endowed with the virtues of liquidity. As a consequence, investors are willing to purchase ARPS at yields only slightly above true short-term municipals, which are generally well below the average yield on the closed-end fund's portfolio of long-term municipals. The holders of ordinary common shares in the fund benefit from this arrangement. When holders of the ARPS are willing to accept significantly less than the average yield on the portfolio of bonds held by the fund, holders of the common shares (who are not much concerned with liquidity) are able to enjoy yields above this average.

However, once ARPS auctions start to fail with even modest frequency, the perceived liquidity advantages of these instruments tend to disappear quite rapidly. When auctions fail, holders of ARPS are locked in at the cut-off yield until auctions can successfully resume. The fear of being locked-in induces many existing holders of ARPS to withdraw rather than re-bid at the next auction; and it discourages potential new bidders and market makers from participating in auctions. The result is like a panic in which the auction failure rate rapidly shoots up toward 100 percent. With the panic, the special liquidity value previously enjoyed by the ARPS suddenly disappears into nothingness.

This is what happened to many municipal ARPS in late 2007 and 2008. The initiating factors for difficulties in the municipal ARPS market

probably included contagion effects from the markets for financial instruments with some similar characteristics, including other ARPS and ABCP. Special factors were also at work in the municipal market. Commercial banks are usually important demanders of shorter-term municipals, but only to the extent that they have profits to shelter from federal (and state and local) income tax. When bank profits declined sharply in the face of large losses related to mortgage-related and other assets, bank demand for municipals necessarily took a sizable hit. At least partly for this reason, yields on high-grade municipal bonds at all maturities rose meaningfully above yields on comparable maturity Treasuries. Yields on true short-term municipals breached the cut-off yields set for many ARPS auctions, making auction failures virtually inevitable. Thus, through a variety of mechanisms, the general dangers of excessive liquidity creation that were well understood by Adam Smith manifested themselves in the boom and subsequent collapse of the market for municipal ARPS in the United States.

### 5. Managing the Present Crisis and Reducing the Hazard of Future Crises

Management of financial crises by the policy authorities is an art and not a science; and among the arts of public policy, it has a decidedly darker shade. Some useful lessons may be drawn from our vast experience with past financial crises here and abroad, but there are no fixed rules about the right things to do in particular circumstances. Crises inevitably involve great uncertainties about the effects of policy actions in the short and longer run. In the midst of a crisis, it is often difficult to assess whether a particular policy will be helpful or harmful until its effects are apparent. Even afterward, it is sometimes difficult to know whether policy responses have been appropriate (and impossible to know if they have been optimal) because it is not possible to assess with confidence what would have happened on the roads not taken.

Adam Smith had little to say on the management of financial crises other than in his analysis of how to avoid excessive issuance of paper money and extension of bank credit. In Smith's day, the policy tools that we now use, well or badly, to help manage financial crises did not exist. In particular, during Smith's life the Bank of England was only beginning to develop its role as lender of last resort.

Stepping forward where the great man chose not to wander, I offer the following remarks on policy management by the U.S. authorities in the present crisis.

#### *Monetary policy*

Looking to the period from mid-2003 through mid-2006, it may be argued that it would have been better if the Federal Reserve had started to tighten monetary policy somewhat sooner and/or moved more rapidly to a tighter policy. The fact that economic growth strengthened dramatically in the summer of 2003 indicates that the last 25-basis-point step of monetary easing in June 2003 was not really needed. Tightening from an exceptionally easy policy could have begun by late 2003 rather than mid-2004, and the target federal funds rate could plausibly have been raised to five percent by the autumn of 2005 rather than the spring of 2006. The failure of long-term interest rates to rise as they normally do during a cycle of Federal Reserve tightening and the continuing boom in housing and in mortgage finance provided further reason to accelerate monetary tightening beyond the very moderate pace actually pursued. Although a more aggressive path of monetary tightening might not have done much to slow longer-term foreign capital inflows, it would surely have pushed up interest rates on adjustable rate mortgages (which are predominant among subprime and alt-A mortgages) and would have helped somewhat to limit the housing boom. Accordingly, the financial crisis we presently face would probably have been of somewhat smaller proportions.

The Federal Reserve began to ease monetary policy with a cut in the target federal funds rate from 5.25 to 4.75 percent at the FOMC meeting in mid-September 2007. Clear evidence of intensification of stress in financial markets (especially for mortgage-related instruments) as well as a decline in payroll employment for August 2007 (reported in early September) provided the context for the Federal Reserve's move. Although payroll employment for August was revised upward to show a modest gain, and other data showed that the economy continued to grow strongly through the third quarter and (as initially reported) into the fourth quarter, the Federal Reserve cut the target federal funds rate in two further 25-basis-point moves by mid-December.

This was prudent, forward-looking monetary policy. In the autumn of 2007, there was good

reason to anticipate that the economy would weaken significantly even if the data did not yet show it. Moving the stance of monetary policy from moderate restraint to rough neutrality made perfect sense. The Federal Reserve was not, as some have argued, “behind the curve” in its monetary easing at this point, especially not in comparison with the usual pattern of monetary policy adjustment. In particular, in many earlier recessions, especially those where high inflation needed to be curbed, the Federal Reserve kept monetary policy fairly tight well into the recession. In the 2000 to 2003 episode of monetary easing, the Federal Reserve kept the target funds rate at 6.5 percent through the end of 2000 despite clear evidence that the economy had slowed significantly after mid-2000 (with negative real GDP growth now estimated for the third quarter of 2000). By end 2007, the Federal Reserve easing was well ahead of schedule of this and other earlier recessions.

The economic data weakened sharply beginning in late December 2007, and it was clear that further Federal Reserve easing was in order. The Federal Reserve undertook an emergency 75-basis-point cut in the target federal funds rate on January 22, followed at the end of the month by another 50-basis-point cut. Here, I think that the Federal Reserve became somewhat too aggressive. The apparent impetus for the January 22nd move was the sharp sell-off (of approximately four percent) in foreign equity markets that were triggered by reports of large losses at a French bank due to speculations by a rogue trader. Although sudden monetary easing is sometimes an appropriate response to combat a meltdown in equity markets—as it was on October 20, 1987—it is a tool best used only on occasions when it is really needed. In the January 22nd operation, the Federal Reserve used up a significant amount of ammunition on a relatively minor disturbance and cheapened the value of its remaining ammunition in dealing with future challenges. Moreover, a total cut of the target federal funds rate of 75 basis points (rather than 125 basis points) in January 2008 would have been better aligned with a responsible and predictable response of monetary policy to incoming economic data.

Further monetary easing in March and April could plausibly have been kept at 50 rather than 75 basis points in view of economic data suggesting that the economy was sluggish but not in recession. This would have left the target federal funds rate at

2.5 percent through September 2008. When extreme turmoil beset world credit markets beginning around mid-September, this would have allowed a further 50 basis points of room to ease U.S. monetary policy to combat the rising threat.

The Federal Reserve’s efforts to address the present crisis have expanded well beyond the normal confines of monetary policy by allowing a wide range of financial institutions and some categories of commercial and industrial firms to access credit directly from the central bank. This is an enormous departure from the Federal Reserve’s practices of the past 70 years. Before the Federal Reserve began its new policy in March, loans to financial institutions were limited to member banks and constituted only about 0.05 percent of the Federal Reserve’s total assets. At its postwar peak, during the Continental Illinois crisis in the mid-1980s, lending through the discount window was about four percent of Federal Reserve assets.

Following the Bear Stearns crisis in March, access to the Federal Reserve’s discount window was broadened to include U.S. major investment banks. In the immediate aftermath of the failure of Lehman Brothers in mid-September, the insurance company AIG was lent huge amounts (under tough conditions) to help avert a collapse of the credit derivatives market. In subsequent weeks, Federal Reserve lending has been further broadened to encompass purchases of high-grade commercial paper and massive (indirect) lending to foreign banks through swap lines from the Federal Reserve to foreign central banks. Money market funds have been offered insurance through the FDIC and benefit from the opportunity to sell commercial paper to the Federal Reserve.

To support the mortgage market, the Federal Reserve has purchased large quantities of securities issued by Fannie Mae and Freddy Mac. To provide funds for these operations, the Federal Reserve has reduced substantially its own holdings of Treasury obligations; and the Treasury has deposited at the Federal Reserve the proceeds from large issues of additional debt. These deposits, in turn, have been used to finance Federal Reserve lending and asset purchases. The result is that Federal Reserve credit provided to entities other than the U.S. Treasury has risen from a few hundred million dollars in the summer of 2007 to over 1.5 trillion dollars in the autumn of 2008 and is still rising.

Although well warranted by the exigencies of combating the present crisis, these massive new initiatives by the Federal Reserve also raise serious

concerns for the future. At some point, after the present financial crisis abates and the economy begins to recover, the massive easing of monetary and credit policy undertaken by the Federal Reserve will need to be unwound. The last time this happened (in 2003 to 2006), the issue concerned only the unwinding of an aggressive easing of traditional monetary policy; and doubts have already been expressed about how successfully this unwinding was carried out. This time, the unwinding will involve the additional and more complex issue of undoing the massive interventions of the central bank into particular financial markets and in support of a wide variety of financial institutions. There is little relevant experience to help guide this process, and common sense suggests that there are important dangers both from proceeding too quickly and from moving too slowly. Moreover, even if the Federal Reserve successfully withdraws from most of its present interventions, there remains the critical question of how the fact of these interventions in the present crisis will affect expectations about the Federal Reserve's likely behavior in future crises. This is part of the more general problem of "moral hazard."

#### *Immoral result and moral hazard*

Official activities to deal with the financial crisis have raised intense concerns about the wisdom of "bailing out" financial institutions that face large losses and even bankruptcy primarily as a consequence of their own imprudence or mismanagement. These concerns are often expressed in terms of the "moral hazard" that is generated by government bailouts. Public outrage over these bailouts, however, is probably more directed at the "immoral result" from using public money to rescue particular institutions and individuals. Quite rightly, people are annoyed by the notion that they are being asked to pay for somebody else's excesses and mistakes—especially those of wealthy bankers and investment bankers. The "moral hazard" operating in the present crisis, however, comes not from present bailouts but rather from past bailouts. Earlier bailouts created expectations that those who undertake excessive risk through the creation or reliance on excessive liquidity can reasonably expect to see their losses ameliorated by government actions (including monetary easing) to help deal with a crisis. By the same principle, bailouts in the *present* crisis will inevitably generate *future* moral hazard, as people begin to appreciate the

lesson that "immoral results" from today's bailouts suggest that imprudent risk takers in the future will benefit from future bailouts.<sup>5</sup>

Both "immoral result" and "moral hazard" are important features of the present crisis. Although it is not widely recognized, a key source of immoral result and moral hazard are the Federal Reserve's actions to cut to the target federal funds rate. The consequence of these interest rate cuts is to transfer hundreds of billions of dollars per year from the public's income on trillions of dollars of bank deposits and other money market instruments into the hands of those who make use of this cheap short-term credit. In comparison, the Federal Reserve's assumption of some risk on \$29 billion of Bear Stearns assets in the rescue of that investment bank's creditors and preferred shareholders (and limited bailout of common equity holders) is a drop in the bucket. The massive use of the Federal Reserve's balance sheet to relieve stress in key credit markets may or may not have significant cost for the taxpayer and the general public. Because the cost of Treasury borrowing has fallen to exceptionally low levels, the cost of credit supplied by the Federal Reserve will, on this occasion, probably be well below the income earned on the loans made and securities purchased by the Federal Reserve. However, the precedent set on this occasion makes it more likely that the Federal Reserve (with the support of the Treasury) will be expected to, and will need to, intervene in a similar way in future crises. Experience in other countries suggests that in such circumstances, the prospects for massive borrowing by the Treasury at exceptionally low interest rates may not be as favorable as in the present episode.

The government's takeover of mortgage giants Fannie Mae and Freddy Mac—although unavoidable—involves meaningful risk of loss to the taxpayer. In effect, this is the bill coming due for decades of implicit subsidies to these two quasi-government institutions and to the housing sector that they have supported. The \$700 billion financial rescue package (the TARP) passed by the Congress in October 2008 implies risk to the taxpayer, while offering some possibility that the government

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<sup>5</sup>Smith was well aware of the general problem of "moral hazard" although he did not explicitly use this terminology. In Smith's day, however, the modern widespread practice of providing government guarantees and bailouts for financial institutions was not yet well developed. Accordingly, Smith does not comment on this issue.

might earn a profit. Indeed, the way in which most of the initial \$350 billion of TARP resources have been deployed suggests a fairly high likelihood that the government (which can finance the TARP with very low cost borrowing) will ultimately earn a moderate profit. In contrast, government support provided through less transparent means, including exceptionally low interest rates set by the Federal Reserve and modifications of tax regulations by the Treasury, will have very substantial costs to the general public.

These government interventions and more that are probably yet to come will provide at least partial bailouts to some miscreants at the expense of the general public. Correspondingly, there will be considerable “immoral result” in the present and significant “moral hazard” will be generated for the future. These adverse consequences necessarily accompany virtually any meaningful effort to keep a major financial crisis such as that now underway from spinning out of control and doing substantial and unnecessary damage to the economy. Thus, government intervention to help deal with a major financial crisis is inevitably a balancing act. Bailouts that are too generous and too readily available generate too much immoral result and moral hazard and cost too much to the general public relative to the protection they provide to innocent bystanders. Interventions that are too weak to contain the crisis impose large costs on many (but not all) miscreants, but involve unacceptable collateral damage to the innocent.

In the present crisis, policy efforts are attempting to achieve the right balance. At least in some important respects, they may be better achieving this balance than in past crises. Broad application of mark-to-market accounting has forced many financial institutions to recognize large losses at a relatively early stage of the crisis—rather than disguising the situation with continued overvaluation of distressed assets. Financial institutions in the United States and Europe have been compelled to raise hundreds of billions of dollars of new capital, seriously diluting the position of existing shareholders. Some of those most responsible for the debacle have lost their jobs and seen their private wealth collapse. With respect to immoral result and moral hazard, these results compare favorably with what happened in the U.S. Savings and Loan crisis of the 1980s or the Japanese banking crisis of the 1990s. With substantial punishment already delivered to many of the guilty, as well as to many of the innocent, the most

pressing issue now is containment of the real economic damage from the crisis. As the present crisis recedes, but before memory of it fades, it will be essential to reconsider how the risks of future crises can be diminished—especially in view of the intensification of future moral hazard problems arising from the extraordinary actions taken to help contain the present crisis.

Some have suggested that a useful way out of present difficulties is to suspend mark-to-market accounting and even to consider the re-introduction of accounting gimmicks like the “net worth certificates” that were useful in the 1980s in helping keep financial institutions artificially solvent. Indeed, it was fortunate in the early 1980s that applicable accounting practices did not force U.S. depository institutions to promptly report large declines in the market value of their portfolios of loans, mortgages, and other debt securities. At that time, when monetary policy needed to focus on containment and reduction of inflation even as the economy was falling into deep recession, it would have been highly dangerous to reveal that the entire savings and loan industry was deeply insolvent and that many important commercial banks were at least moderately insolvent on a mark-to-market basis. At that time, allowing depository institutions to carry loans and securities at book values, rather than at deeply depressed mark-to-market values, was the well-established practice—derived from an era during which the behavior of depository institutions was tightly constrained by regulation and fluctuations in interest rates were generally modest. When this practice was not enough to disguise insolvency, net worth certificates—which I prefer to call the “absence of net worth certificates”—were created as a mechanism of regulatory forbearance that allowed institutions to maintain accounting measures of their capital above regulatory minimums. Commercial banks generally regained economic solvency by the mid- to late 1980s through the recovery of the economy, the decline in market interest rates, and the recovery in loan values. Consequently, the government was not stuck with large losses from the necessity to restore solvency to the commercial banking system (although some costs were incurred in restructuring individual banks). For savings and loan associations, the outcome was not so fortunate. The government was ultimately forced to absorb large losses in order to bail out depositors.

The key point, however, is not whether the government is ultimately forced to recognize large

costs when it allows financial institutions to use deceptive accounting practices. Individual investors are entitled to believe that assets they hold are worth more than their current market values; indeed this is often the reason why investors hold particular assets. However, an individual investor, whatever his personal beliefs, is not allowed to overstate the probable market value of an asset he pledges as security for a loan—that is fraud. If the value of the asset drops after the loan is made, that is acceptable provided that the loan covenant does not provide for an increase in collateral in these circumstances. Once the loan reaches maturity, however, the value of assets pledged as collateral for a renewed loan must respect the market valuation of the assets at that time.

Similarly, financial institutions should be able to issue longer maturity claims with no promises about their value before maturity on the basis of assets of adequate initial market value.<sup>6</sup> Financial institutions, however, should not be allowed to issue purportedly liquid financial claims in excess of the current market value of the assets that back these claims. This goes well beyond the already somewhat dangerous practice of “banking” that seeks to endow financial claims with greater liquidity than the assets that back them. If the holders of the claims discover, or even suspect, that the value of the assets backing their supposedly liquid claims is less than the assumed value of these claims, a run is likely to ensue. The government may forestall such runs by providing explicit or implicit guarantees that will sometimes (but not always) result in open or disguised bailouts, but the consequence is that government policy is effectively facilitating financial fraud. The alternative and correct solution is to require that financial institutions that issue supposedly liquid claims to maintain sufficient capital to ensure that even when seemingly unreasonable declines occur in the market value of their assets, there will be sufficient backing for the claims that have been issued.

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<sup>6</sup>This may be interpreted as a modified version of Smith’s stricture that banks should not engage in any longer-term lending. Longer-term lending that is financed by issuing longer-term claims, with no explicit or implicit claim of shorter-term certainty of value, should be acceptable. But it is essential to guard against the ever-present danger that claims created in this way will be perceived to have greater liquidity than they are inherently capable of sustaining.

At present, mark-to-market accounting is already generally in place for most financial institutions. There are undoubtedly some difficulties about how this principle is applied, and some reforms are worthy of serious consideration. However, at this stage, going back to book value accounting in order to conceal losses in the values of assets held by financial institutions would simply be a lie—and not a very believable lie. Investors are unlikely to be fooled very much this time by accounting statements that they know are not fair representations of the economic health of financial institutions. The taxpaying public should not be deceived into taking on substantial additional risk by under-the-table actions of the regulatory authorities who seek to delay the recognition of losses in the hope that better times will wash these losses away. If public funds are needed to inject additional capital into weak financial institutions, the Congress and the general public should face up to the required legislation—and to the dangers of not enacting it. This is a vital safeguard against the danger that immoral result and moral hazard will get completely out of hand.

Finally, for the longer run, this crisis re-teaches an important lesson: When financial institutions generate substantial risks through the creation of liquidity, they need to understand these risks and to hold adequate reserves of capital to safeguard both themselves and the financial system. Unrealistic accounting and special gimmicks to conceal losses are not the answer. As Adam Smith recognized in *The Wealth of Nations*, the great wheel of circulation that keeps the economy running relies on the activities of financial institutions that perform the magic of creating liquidity. But great danger lies in allowing too much liquidity to be created without adequate reserves of capital.

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