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The Savings and Loan Insolvencies in the Shadow of 2007-2023

by

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ABSTRACT

This paper reassesses the macroeconomic significance of the Savings and Loan insolvencies (1986-95) given recent and still unfolding events. Reinhardt and Rogoff (2009) and others classified the S and L events as a financial crisis. With our recalibrated historical sensitivities, are we cheapening the terms by using them to describe these earlier developments? On the other hand, does the fact that the sector or a large part of it was already insolvent (if assets and liabilities were marked to market) at the time of the 1980 and 1982 recessions mean that we should classify these *earlier* recessions as also accompanied by financial crisis? If the 2007-2023 financial implosion, recession, and slow recovery make some of the hyperbolic descriptions of the S and L meltdown now seem overblown, in what ways did it help establish preconditions for the genuine crisis that followed?

The Savings and Loan Insolvencies in the Shadow of 2007-2023

Prior to 2007-2009, the 1982 recession was the most severe the U.S. economy had experienced since the Great Depression, and the Savings and Loan insolvencies our worst financial disturbance since those dark days. Numerous articles and book length treatments of the S and L meltdown have been written (e.g. White, 1991; Barth 1991) and in these it has generally been considered sui generis, as a one-off event. The extraordinary economic history of the late 2000s, extending into the second decade of the 21st century, compels us to reexamine it in the light of recalibrated historical sensitivities, which are likely to alter our assessments and interpretations of it.

It is difficult to speak or write the words "savings and loan" without following them with the word "crisis", reflecting a widespread view among academics, journalists, and the public prior to 2007 that the insolvencies were indeed a very big deal. S and L's were financial institutions, so it would make sense to conclude that economists and others did believe at the time that we were dealing with a financial crisis. One of the questions posed in this paper, however, is whether the failures truly represented a macroeconomically significant event. In the interest of not, through choice of terms, prejudging the answer to that question, I have from the start (and this is reflected in the title of the paper as well) used words other than crisis to describe them.

The S and L Insolvencies: Background and Dimensions

The S and L meltdown reached its full efflorescence at the end of the 1980s and early 1990s, a period during which the number of federally insured S and L's decreased by almost half (from 3,234 to 1,645). From 1986 until its demise in 1989, the Federal

Savings and Loan Insurance Corporation (FSLIC) closed or otherwise resolved 296 institutions with assets of $125 billion. Between 1989 and 1995 the Resolution Trust Corporation did the same for 794 institutions with assets of $394 billion. Curry and Shibut (2000) date the episode as running over the ten year period 1986-1995, measuring from the year in which the FSLIC was first declared insolvent to the year in which the Resolution Trust Corporation wound down its operations. Focusing on the years of the worst abuses, Caprio and Klingebiel (1997) situate the events between 1984 and 1991. This is also the frame favored by Boyd, Kwak, and Smith (2005) as well as by Reinhardt and Rogoff (2009, table A.4.1, p. 390). Laeven and Valencia (2012) identify 1988 as the start and end year of what they describe as a "borderline" financial crisis. Lindgren et al (1996, p. 34) describe the entire period stretching from 1980 to 1992 as marked by "significant" banking problems. Whatever the exact time bracket we choose, the roots of these developments can be traced back at least into the 1970s. Indeed, by any reasonable measure, a very large number of S and L's were already market or balance sheet insolvent at the time of the 1980 and 1982 recessions (Kane, 1985, table 4.6; Admati and Hellwig, 2013, p. 54).

Savings and Loans, to an even greater degree than commercial banks, specialized in borrowing short and lending long, which they did principally in the form of mortgages with nominally fixed interest rates. During the 1970s they fell victim to surging inflation and rising nominal interest rates, which led to disintermediation (so long as regulation Q was in effect), an outward flow of deposits which, if unstaunched, forced a fire sale of illiquid assets. The phase out between 1981 and 1986 of the sections of Regulation Q specifying maximum interest rates that could be paid on time deposits ameliorated, at

least temporarily, the disintermediation problem, but at the cost of a rapidly rising costs of funds, which pushed operating income into the red. With or without a cap on deposit interest rates, the foreseeable and in some instances unavoidable result was insolvency.

Some, including Black (2005), have argued that had the S and L's been able to offer variable or adjustable rate mortgages (ARMs) earlier in the 1970s, their balance sheets could have survived the inflation of that decade. Perhaps, although one should note that the subsequent relaxation of restraints on what kinds of mortgage products financial institutions could offer did not, in the 2000s, end happily. During the 1970s ARMs were repeatedly vetoed in Congress, under pressure from both homebuilders and consumer groups. They became legal in 1982, under the terms of the Garn-St. Germain Depository Institutions Act.

The insolvencies of S and L's were disguised and, remarkably, made much worse by a number of legislative and policy initiatives during the 1980s. Regulatory forbearance allowed insolvent (zombie) institutions to remain open, forestalling resolution or bankruptcy. With equity essentially gone, owners had little incentive to restrain risky lending or, if they were fraudulently minded, not direct it towards themselves. These initiatives invited increasingly reckless lending ("gambling for resurrection"), as well as looting, and a continued flow of funds to doomed projects, causing a major deterioration in the quality of assets. Combined with the gradual demise of Regulation Q and the rise of brokered deposits in an environment in which all accounts were federally insured up to $100,000, a situation that at the time seemed catastrophic developed, particularly in the states of Texas and California.

If the sorry state of the industry in 1980 was the consequence of interest rate risk, its situation in 1990 was the result primarily of the impact of poor lending and fraud on asset quality at a time when funds to lend were increasingly easily available (at a price). The moderation of inflation and consequent reduction in nominal interest rates (because of the fall of the inflation premium) should have unwound some of the balance sheet damage inflicted between 1977 and 1982, and to some extent it did. As nominal interest rates fell the market value of the mortgage loans made at low rates in the 1970s began to recover (although refinancings limited this effect). This effect was blunted, however, because legislative and regulatory changes in 1981 encouraged S and L's to remove money losing mortgage loans from their balance sheets by selling them.[1] Remaining positive effects of the nominal interest rate declines were swamped by the massive deterioration in the quality of loans made in the 1980s.

In reassessing the S and L meltdown, this paper focuses on several related questions. First, should the 1982 (and 1980) recessions be classified as accompanied by financial crisis?[2] This takes on more than historical importance because of the rapid recovery after 1982 in comparison with the experience in 2007-2009. A second question, which pushes in the opposite direction, asks whether the insolvencies in the S and L industry between 1986 and 1995, though classified by Reinhart and Rogoff (2009) and others as a financial crisis, truly qualify. The key question is whether a financial disturbance is macroeconomically significant. A macroeconomically significant crisis is

[1] They were now allowed to amortize losses over the projected life of the loan and to offset these losses against taxes paid during the previous ten years. Major Wall Street firms bought the loans at substantial discounts, securitized them, and in many instances then sold the securities back to S and L's.

[2] The NBER identifies a recession in 1980 (as well as in 1982), one resulting from the abortive initial efforts by Chairman Volcker to break the backbone of inflationary expectations. For expositional convenience, however, I will generally refer to these efforts and their consequences as a single recessionary event.

defined as one triggering a recession and slow recovery that together result in substantial cumulative output loss. With respect to the early 1980s and the early 1990s, either both the 1982 and the 1990-91 downturns should be treated as recessions triggered by financial crisis (few dispute this classification for 2007-09), or neither, or one should be but not the other. In determining macroeconomic significance, one must in addition ask what sort of cumulative output losses were associated with these recessions and recoveries.

The 1982 and 1990-91 Recessions

The downturn in GDP growth and rise in unemployment in the early 1980s are widely attributed to the tight money policies adopted by Federal Reserve Chairman Paul Volcker to reduce the inflation rate. Volcker eventually succeeded (with an assist from collapsing oil prices), although, contrary to predictions of rational expectations theorists, it came at the expense of what was then perceived to be a very substantial loss of output.

Using Congressional Budget Office estimates of potential and Bureau of Economic Analysis estimates of actual, we can calculate the cumulative output loss between 1981Q2 and 1984Q2 at $944 billion 2005 dollars, or about 14.8 percent of average annual GDP during that period.[3] This can be viewed as the price of bringing inflation down from almost 10 percent in the late 1970s to 4 percent and lower in the 1980s and thereafter.

According to conventional wisdom, especially that reflecting the assumption of adaptive expectations, this was a garden variety recession, albeit severe, but one (unlike 1974-75) easily understood using standard approaches to aggregate demand analysis. Is it possible that the conventional wisdom has nevertheless missed something? If the S and

[3] Quarterly CBO estimates of potential output are available at http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/120xx/doc12039/keyassumptionspotentialgdp_110125.xls; actual output at http://www.bea.gov, NIPA Table 1.1.6. Accessed March 19, 2013.

L sector was by some measures already insolvent in 1982, should we consider classifying this recession also as one accompanied by financial crisis? Lindgren et al (1996, p. 34) treat the thirteen year period stretching from 1980 to 1992 as marked by "significant" banking problems, pointing out that during this period 1,395 banks closed, as well as 1,142 S and L's. Their classification of banking problems as "significant" indicates a lower degree of severity than crisis, although it also suggests considerable continuity across the entire period, which makes a difference if we end up classifying the late 1980s and early 1990s as crisis.

Many banks (as well as S and L's) did close but most that failed were small. Between 1980 and 1994 the FDIC supervised the closing of 1,617 commercial banks. Their assets, however, totaled less than 9 percent of total commercial bank assets.[4]

One of the challenges in dating banking crises precisely is that, as Frydl (1999, p. 1) notes, unlike currency crises, they are "spread out over time, with no clear beginning or end." Preconditions evolve over years, and these can be as important in understanding outcomes as what we might identify as an immediate trigger. To proceed with analysis, however, we do need to make judgments. And so we come back to the first question: Does the postponement of reckoning - the bandaids represented by regulatory "forbearance" and accounting "innovations" that allowed institutions to avoid being shut down or merged -- disguise a reality, that the two sharpest post-Depression downturns

[4]Failed bank assets as a percentage of FDIC insured commercial and saving banks as of December 31, 1979, plus assets of subsequently chartered institutions as of date of failure, merger, or December 31, 1994, whichever is applicable (FDIC, 1994, p. 156). The exception to the generalization about the size of failed institutions was Continental Illinois (1984), then the seventh largest US commercial bank. Continental Illinois was, until Washington Mutual went under in 2008, the largest bank failure in U.S. history, and its bailout first made commonplace the concept of too big to fail. It got into trouble with oil patch loans in Texas and Oklahoma purchased from the failed Penn Square bank. These loans had not been adequately scrutinized by bank officers (kickbacks and fraud were involved), and when sharply declining oil prices made it evident that the loans were going bad, lenders ran on the bank.

(1982 and 2007-09) share more in common than has been acknowledged, in the sense that the former as well as the latter was associated with financial crisis?

This issue is important because it affects the now widely accepted stylized fact that recessions accompanied by financial crisis experience weaker and much longer recoveries to potential than do those which are not. The classifications of both the 1982 and 1990-91 recessions have implications for this generalization. The 1982 recession was very deep – indeed, as measured by the peak unemployment rate, it was deeper than 2007-09. But recovery from it was also very rapid (Bordo and Haubrich, 2010). It was a V-shaped recession, and the comparatively slow recovery from 2007-2009 became an issue in the 2012 Presidential election. Some attributed the slow recovery to Obama's "failed" economic policies, while others, appealing to the Reinhardt and Rogoff (2009) hypothesis, pointed out that 2007-2009 was accompanied by a severe financial crisis whereas 1982 was not. For historical, theoretical, and political reasons, therefore, it is important to make a judgment about whether the recessions of the early 1980s were accompanied by (disguised) crisis.

There is still lack of agreement among scholars about exactly what is meant by a financial crisis, but consensus in distinguishing within this category among banking, sovereign debt, and currency crises. Since none of the periods under discussion (the 1982 recession, the S and L meltdown/1990-91 recession, or the 2007-2023 recession and slow recovery)[5] was associated with flight either from US government debt or the US dollar,

[5] The 2013 Congressional Budget Office forecast indicates actual output will reattain their (now lowered) estimated trajectory for potential in 2017. See Congressional Budget Office (2013). But, as noted later in this paper, using this end date in a cumulative output loss calculation will significantly underestimate the true cost of the financial crisis. At the time of this writing, 2023 is the outside edge of the CBO's projection window. Using 2023 as an endpoint may still underestimate the cost of the recession and slow

we can begin by agreeing that the type of crises under consideration involves banking (or, more generally, financial institutions).

One symptom of a banking crisis will, of course, be the failure, or delayed failure of financial institutions, and on these counts, one could argue that both 1982 and 1986-1995 qualify. The majority of S and L's were already "zombie" institutions by the early 1980s, kept alive by regulatory gimmicks, and almost half of then failed or otherwise disappeared during the subsequent decade. Definitions of banking crises vary, but most emphasize runs on financial institutions, often but not always accompanied by government bailouts (Government Accountability Office, 2013, p. 9). The S and L meltdown certainly meets these standards, and arguably casts a penumbra over both the 1982 and 1990-91 recessions.

But to qualify as an event with macroeconomic significance, we need more than this. Some banking crises (broadly understood) occur in institutions that are not systemically important and whose impact is highly localized, and they do not engender or threaten a significant downturn in real economic activity. They do not trigger a recession and slow recovery with significant cumulative output losses.

A macroeconomically significant banking crisis is likely to be associated with a sharp drop in aggregate financial sector corporate profits, both in absolute terms, and in relation to nonfinancial profits. Systemic banking crises are understood to be those in which most or all of the banking system's capital is exhausted (Boyd, Kwak, and Smith,

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recovery, because the CBO has the level of output still $1.6 trillion below its 2008 projection of potential (2005 dollars).

2005, p. 981).[6] Although 2007-2009 clearly qualifies, neither the 1982 recession nor the mild 1990-91 recession show much evidence of this. Many S and L's, of course, did exhaust their capital. This was not, however, true for the banking sector as a whole.

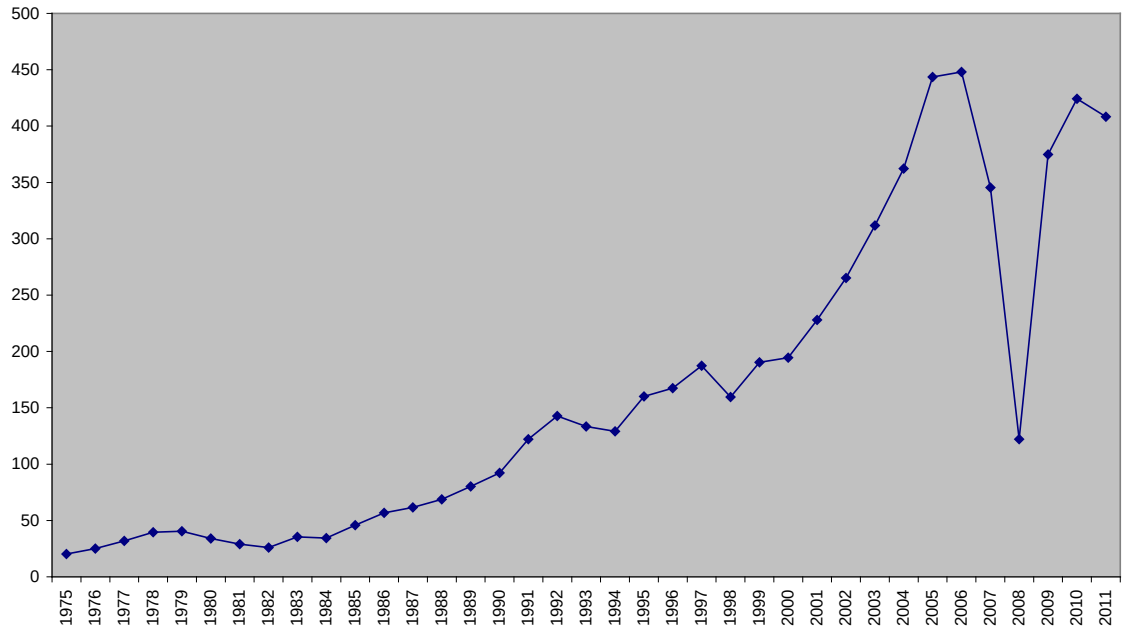
One of the few silver linings associated with 2007-2009 is that we now have a good idea of what a real financial crisis and its immediate aftermath looks like in the post-World War II United States. In particular, we see during this episode a very large decline in pretax corporate profits reported in the financial sector, from a peak of $448 billion in 2006 to $122.2 billion in 2008, a drop of almost 73 percent. In contrast, financial sector profits declined from $40.4 billion in 1979 to $26 billion in 1982, a slippage of 36 percent. The comparison is between a decline of almost three-fourths and one of a little more than a third.

Moreover, the decline in financial sector profits in 1982 can be viewed as largely a consequence of a recession that had its sources elsewhere, in the efforts of the Federal Reserve System to reduce inflation by slowing the growth rate of the money stock. The resulting negative aggregate demand shock increased nonfinancial business bankruptcies, which increased bad loans and understandably took a toll on the profits of the financial sector. In contrast, few question that it was financial crisis that drove the US economy deep into recession in 2008. Whereas John Taylor and others have suggested that monetary policy was too loose between 2001 and 2004, no one has suggested that the 2007-09 recession was caused by tight monetary policy. In this fundamental respect 1982 and 2007-09 were very different.

[6] See also Bordo, Eichengreen, Klingebiel, Martinex-Peria and Rose, 2001, p. 55: "For an episode to qualify as a banking crisis, we must observe financial distress resulting in the erosion of most or all of aggregate banking system capital."

As far as the period of the S and L meltdown itself (during which losses were finally recognized, and the institutions were allowed or forced to merge or fail), between 1986 and 1995 financial sector profits *increased*, with the exception of a slight decline (under 10 percent) between 1992 and 1994. If we treat financial sector profits as a seismograph indicating aggregate stress on the financial system, the S and L "crisis", in contrast with 2007-09, hardly registers (figure 1).

Figure 1
Domestic Pretax profits: Financial Sector, United States, 1975-2011
billion $



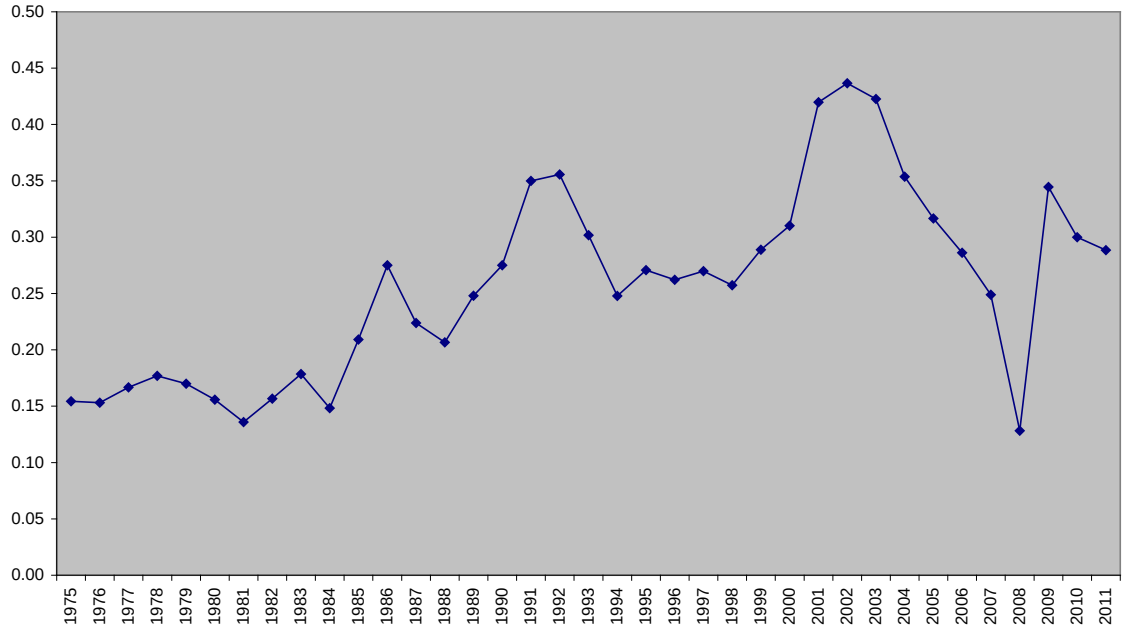
Source: Federal Reserve Board, Flow of Funds Accounts (2012), table F-7, line 11.

Another way to consider the significance of financial disturbances is to look at the share of financial sector corporate profits in total pretax domestic corporate profits. Once again, there is no doubt about the sizable footprint of the most recent set of events: after peaking at 44 percent in 2002, that share fell to 13 percent in 2008. The general trend in

that ratio has been upward since 1975, and we do see a decline from 36 percent in 1992 to 25 percent in 1994, but it is not nearly as large in magnitude (figure 2).

A related measure of the impact of a recession triggered by financial crisis is the effect on private sector bond prices and yields. In a garden variety recession (one not associated with financial crisis), yields will generally fall and prices will strengthen, with the exception of very risky bonds. In contrast, as we know from 2008, in a recession triggered by a macroeconomically significant financial crisis, prices of virtually all private sector debt plummets, as a flight to quality drives Treasury yields down and all other yields up. There is little evidence of this either in 1990-91 or for that matter in 1982.

Figure 2
Financial Sector Share of Pretax Domestic Corporate Profits
United States, 1975-2011



Source: Federal Reserve Board, Flow of Funds Accounts (2012), table F-7, lines 11-12.

The 1990-91 recession was relatively mild, associated in part with the temporary spike in oil prices accompanying the first Gulf War. In the shadow of 2008, the claim that the S and L insolvencies were macroeconomically significant appears problematic, both because at the aggregate level the recession was mild, with relatively little cumulative output loss, and because there is little evidence linking it to the S and L travails. And the suggestion that 1982 should be considered a recession triggered by a (disguised) financial crisis seems in the light of the data to be something of a reach for those wishing, in highlighting the contrast between the sharp economic recovery from 1982 and the continuing sluggish recovery from 2007-09, to place the Obama administration's recovery record in an unfavorable light.

Measuring the Macroeconomic Significance of a Financial Crisis

A central question in this paper is whether macroeconomically significant financial crises accompanied the 1982, 1990-91, and/or 2007-09 recessions. For a financial crisis to be macroeconomically significant, there needs to associated with it an economic downturn and slow recovery generating a substantial cumulative output loss, as well as a strong case that the crisis not only accompanied the recession but also caused it. Both the 1982 and the 2007-09 recessions saw sharp downturns. But while there is good reason to believe that the latter recession was triggered by financial crisis, there is little evidence to suggest that this was true in the case of the former.[7]

[7] Reinhardt and Rogoff observe that financial crises are sometimes, perhaps often, triggered by a shock (such as economic downturn) leading to defaults which adversely affect financial institution balance sheets (2009, pp. 145-46; they use these words, in reference to crises: "rather than being the trigger of a recession"). There is good reason, however, to believe that in 2007-09, in contrast with 1982, financial crisis was the trigger of recession, and almost all commentary reflects this view. The 2011 Congressional Budget Office Budget and Economic Outlook report summarized developments in this way: "The economy has struggled to recover from the current recession, which was triggered by a decline in house prices and a financial crisis -- events unlike anything this country has seen since the Great Depression" (highlights, p.

Calculating the cost of a financial crisis requires both an estimate of the cumulative output loss, and a plausible case linking a recession and slow recovery to the financial crisis. Other suggested markers, such as the rise in unemployment or the unemployment rate (Better Markets, 2012) represent in a sense double counting: in this case, we are simply observing the flip side of the rising output gap. Given the NIPA accounting identities, the lost income of those at work (as well as their lost expenditure) is equal to the value of lost output.

Bailout or Remediation Costs

Much interest and discussion has surrounded estimates of the cost of government remediation associated with the S and L insolvencies as well as the distress facing much larger institutions in 2007-09 (there is little discussion of such costs for 1982, when bank failures were easily handled by the FDIC). What we ultimately want to focus on, however, is a) whether financial distress plausibly caused or heavily influenced a subsequent economic downturn and slow recovery, and if so, b) what was the cumulative output loss associated with this deviation from the trajectory of potential output. We should not be overly distracted by debates over the magnitudes involved because the size of taxpayer funded remediation is not the most important issue.

That said, there are political economic reasons for studying remediation, since it generally represents transfers from one group to another. The S and L meltdown was associated with transfers to creditors of failed institutions as well as to institutions that took over the assets of those that had failed. To the degree that some of the remediation represented the disbursement of insurance premia previously remitted by S and L

28). In their study of financial and currency crises, Bordo et al (2001, p. 64) reject the idea that crises are mere ephemera, reflections of macroeconomic cycles that have their origin and laws of motion elsewhere.

institutions, the transfers took place within the industry itself, although of course the insolvency and ultimate demise of the FSLIC in 1989 reflected the fact that these funds were hardly sufficient to make good on the guarantees.

The preferred approach to considering cost has been to total up federal disbursements, sometimes excluding and sometimes including payments from government operated but industry financed insurance pools such as FSLIC or FDIC. For the S and L insolvencies the totals (including interest on debt over a 30 to 40 year horizon) have come in as high as half a trillion early 1990s dollars (White, 1997, p. 197). 1994 GDP was approximately $7 trillion so by these measures the bailout cost about 7 percent of one year's GDP.

In my view, however, the cost of remediation should be reckoned independently of how it is financed, and it is therefore not appropriate to include interest on borrowed money in these tabulations.[8] When the government costs out a major weapons system, it doesn't include interest charges assuming the money used to acquire the weapons is borrowed (Curry and Shibut, 2000, p. 29). If one just looks at direct costs (assuming, say, that the transfers were financed with taxes), we are closer to 3 percent. Caprio and Klingebiel (1996) provide 3.2 percent of one year's GDP as an estimate of the resolution costs of the 8 year episode they see running from 1984 through 1991. Lindgren et al (1996) come up with 2.4 percent for the thirteen year period 1980-92 they identified as

[8] The decision as to whether those costs are financed by borrowing or a current levy on taxpayers is in principle separate. If I buy a television for $1,000, that's what it cost me. It doesn't make sense to increase that amount by what I could have earned if I'd invested those funds, or what it would have cost in total had the purchase been financed. In a world without frictions, $1,000 is the present value of the stream of earnings I could get if I lent out the money. It is also the present value of the principal and interest payments owed if the money were borrowed. In the S and L case, the cost of the transfers associated with remediation was part of what led President George H. W. Bush to agree to tax increases, behavior which may have cost him the presidency.

associated with "significant" banking problems. Frydl (1999) treats these as upper and lower bounds of the costs of resolution.

In 2007-09, remediation was more multifaceted. It included traditional FDIC resolutions, the largest of which was of Washington Mutual, and these were similar in mechanism and effect to what had transpired in the S and L cases. But for larger institutions, deemed too big or too interconnected to fail, remediation consisted of government (Treasury) injections of equity, funded by net tax revenues or borrowing. It also included various Federal Reserve liquidity facilities that helped banks and other financial institutions (many of which were both illiquid and insolvent) meet current demands for cash, affirmative action by the Fed to acquire mortgage backed securities (a major factor after 2009 in extending the Fed's balance sheet), the payment of interest on deposits by member institutions at the Fed, which began transferring about $4.5 billion annually of additional revenue to banks,[9] the temporary extension of deposit insurance to money market funds and other deposits, support of the commercial paper market, the takeover of AIG, and the conservatorship of Fannie Mae and Freddie Mac. Remediation operated on both sides of financial institution balance sheets, and did serve to help insulate the US (and to a lesser degree the world) financial system from what would have been a much greater cumulative output loss.

The total "cost" of remediation in the 2007-09 episode remains a matter of considerable controversy. For example, the question of whether the TARP program is or will ultimately turn a profit remains contentious, with the Treasury taking a highly optimistic view and the Office of the Special Inspector General for the Troubled Asset

[9] This estimate is based on current reserve deposits of about $1.8 trillion and an interest rate of 25 basis points.

Relief Program taking a much more pessimistic and critical view (SIGTARP, 2013). The large banks' and AIG's ability to pay back equity infusions has been due in part to the Fed's massive purchases of mortgage backed securities, and their conservatorship of Fannie and Freddie, a process that even with downward revisions, may still require the Treasury to disburse on net about $80 billion.[10] Both types of actions strengthened banking sector balance sheets independently of TARP, and helped large banks pay back their equity injections.

As is the case for all transfers, what is a cost to some is a benefit to others. For the economy as a whole, to the degree that remediation succeeded in reducing the cumulative output loss, taxpayer cost had associated with it an economy-wide benefit.[11] In this context, it should be acknowledged that the cumulative output loss associated with a financial crisis may be influenced by the size and effectiveness of the policy response, including fiscal and monetary stimulus and various forms of remediation. In an extreme case, if remediation succeeded in avoiding any cumulative output loss, we should say that a financial cycle of rising leverage, insolvencies, and remediation had no macroeconomic cost to the economy. That would mean no rise in unemployment or the output gap, and no adverse effects on the trajectory of potential output. These are tough criteria to satisfy, and where a financial crisis can plausibly be associated with or said to cause a recession and slow recovery, it is the lost output with which we should be concerned, not simply

[10] An October 2012 Wall Street Journal story indicated that the actual taxpayer cost would be about $78 billion, down from earlier administration estimates of $130 billion.

[11] These benefits redounded to those who otherwise would have been unemployed, as well as those whose asset values would have been further impaired for longer periods. In viewing remediation as a success in terms of its short term goals, however, there remain questions involving whether the manner in which it was conducted increased or decreased the probability of a subsequent financial crisis.

the costs of remediation, although the latter is likely to be deemed more immediately newsworthy.

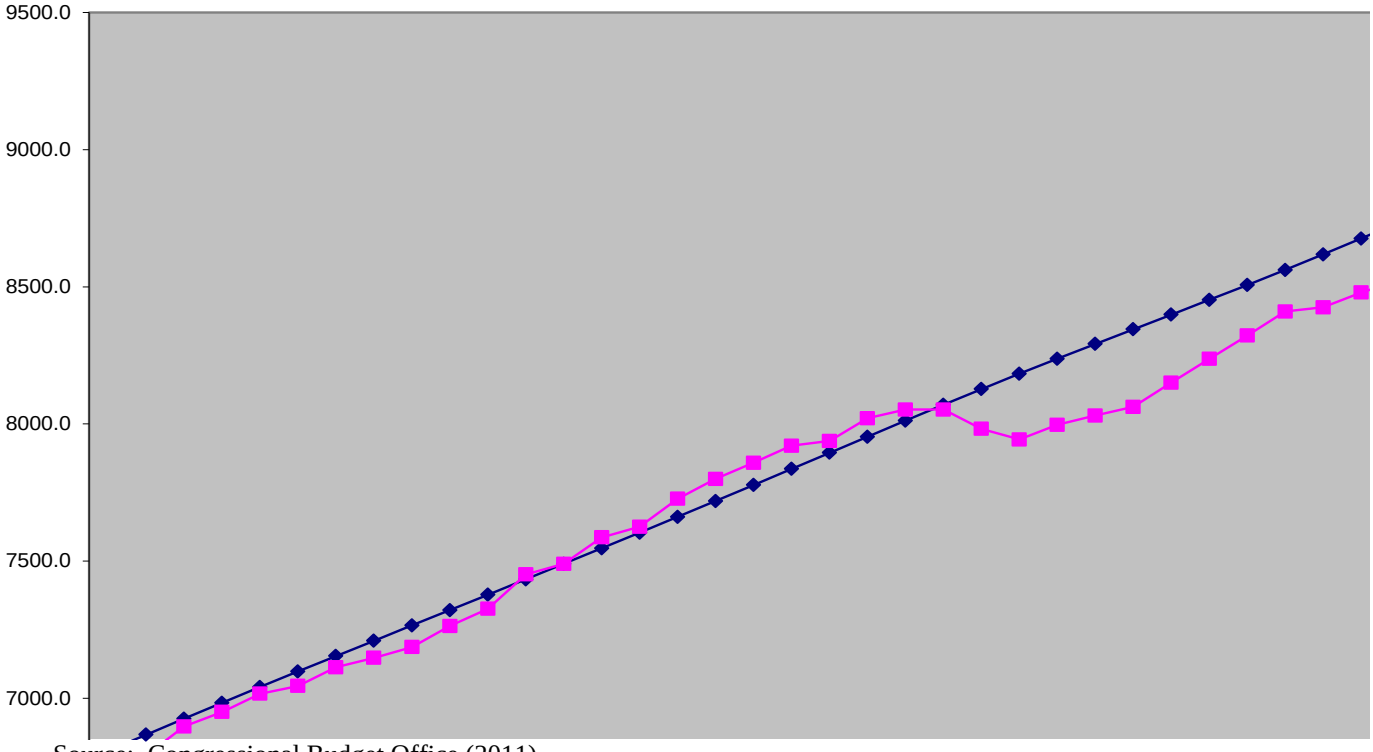
Cumulative Output Loss: 1990-95

There have been few attempts to estimate the macroeconomic costs of the S and L meltdown as measured by cumulative output loss. That is partly because a connection between the events in the S and L industry and the downturn in the economy in the early 1990s is tenuous. The economy did experience a recession in 1990-91, part of which might be attributed to the decline in construction spending, particularly in Texas and California. But all of the magnitudes in question are relatively small. Residential construction dropped in the aggregate from $239.5 billion in 1989 to $205.1 billion in 1991 before recovering. Housing starts dipped from a peak of 1.6 million in January of 1989 (all numbers are at an annualized rate) to a trough of 798 thousand in January of 1991, but quickly recovered to over 1 million, as they had in the 1982 recession (Congressional Budget Office, 2008, p. 34). In contrast, starts collapsed from a peak of over 2.2 million in January of 2006 to a trough of 478 thousand in April of 2009, considerably below where it had been at the depths of either the 1982 or 1990-91 recessions. Recovery has been slow, with starts averaging just over 900 thousand in the first 8 months of 2013 (http://research.stlouisfed.org/fred2 , series HOUST, accessed September 30, 2013)

Perhaps we should be focusing on nonresidential construction. But here the percentage decline is even lower. Nonresidential construction dropped from $622.4 billion in 1990 to $598.2 billion in 1991 before recovering (all magnitudes nominal, from NIPA table 1.1.5). The Federal Reserve Board's Senior Loan Officer Opinion Survey on

Bank Lending shows a modest decline during the 1990-91 recession, comparable to what is seen in 2001, but overshadowed by the precipitous fall in 2008 (Congressional Budget Office, 2009, p. 10). There is little evidence of deterioration during the 1982 recession, (although a large negative spike in 1980 associated with the imposition of credit controls).

Figure 3
Actual and Potenial Output, US, 1985Q1-1995Q4
Trillions of 2005 $



Source: Congressional Budget Office (2011).

Congressional Budget Office data (2011, p. 28) show output roughly at potential between 1985 and 1990, then dipping below potential between 1990 and 1995. Real GDP fell a slight .2 percent between 1990 and 1991, probably influenced by the direct

effect of the spike in oil prices associated with the first Persian Gulf War, and the indirect effects on spending due to related drops in consumer and business confidence. Output recovered relatively rapidly in 1992, although an output gap remained until 1995. In absolute terms the loss is reflected in the rise of the unemployment rate from 5 percent in March of 1989 to 7.8 percent in June of 1992. A 2.8 percentage point increase is not trivial although it pales in comparison with the increase from 4.5 percent in March of 2007 to 10 percent in October of 2009. Moreover, after its June 1992 peak, the unemployment rate dropped almost as quickly as it had risen, and then continued to decline in the 1990s, reaching a nadir of 3.8 percent in April of 2000.

The cumulative output loss between 1990 and 1995 played a role in the 1992 Presidential election,[12] but was nevertheless small compared to what is and will be experienced between 2007 and 2023 (and, arguably, thereafter). A second problem in identifying the S and L insolvencies as macroeconomically significant is the difficulty of linking them to the recession and slow recovery of the early 1990s.

It is very important in estimating the macroeconomic cost of a downturn not to limit oneself to the periods of recession identified by the NBER business cycle dating committee. The economy can return to growth and thus be characterized as having emerged from its downturn, but in terms of levels remain substantially below the trajectory of potential. The NBER says the economy was in recession for 8 months from the third quarter of 1990 through the first quarter of 1991. However, the calculations below reference the five year period from 1990Q4 through 1995Q4, when the economy appears to have returned to potential. I compare the CBO's series for real potential

[12] In the memorable words of James Carville's advice to Bill Clinton on winning the election, "It's the economy, stupid."

output in chained 2005 dollar with actual output using the same metric, and cumulate the output gaps. This comes to $.9 trillion, which can be compared with average potential output during this period of $8.038 trillion. We can therefore say that this half decade of below potential output at the start of the 1990s cost approximately 11 percent of one year's GDP (table 1).

Table 1
Actual and Potential Output, US, 1985Q1-1995Q4

	Potential 6809.9	Actual	Output Gap
1985Q1	6867.5	6734.5	75.4
1985Q2	6925.6	6791.5	76.0
1985Q3	6983.7	6897.6	28.0
1985Q4	7041.0	6950.0	33.7
1986Q1	7097.6	7016.8	24.2
1986Q2	7153.9	7045.0	52.6
1986Q3	7209.8	7112.9	41.0
1986Q4	7265.6	7147.3	62.5
1987Q1	7321.5	7186.9	78.7
1987Q2	7377.4	7263.3	58.2
1987Q3	7433.5	7326.3	51.1
1987Q4	7490.0	7451.7	-18.2
1988Q1	7546.7	7490.2	-0.2
1988Q2	7603.8	7586.4	-39.7
1988Q3	7661.2	7625.6	-21.8
1988Q4	7718.9	7727.4	-66.2
1989Q1	7777.3	7799.9	-81.0
1989Q2	7836.0	7858.3	-81.0
1989Q3	7894.8	7920.6	-84.6
1989Q4	7953.6	7937.9	-43.1
1990Q1	8012.1	8020.8	-67.2
1990Q2	8070.0	8052.7	-40.6
1990Q3	8127.1	8052.6	17.4
1990Q4	8183.0	7982.0	145.1
1991Q1	8237.7	7943.4	239.6
1991Q2	8291.7	7997.0	240.7
1991Q3	8345.2	8030.7	261.0
1991Q4	8398.6	8062.2	283.0
1992Q1	8452.2	8150.7	247.9
1992Q2	8506.5	8237.3	214.9
1992Q3	8561.6	8322.3	184.2
1992Q4	8618.1	8409.8	151.8
1993Q1	8675.9	8425.3	192.8
1993Q2	8735.1	8479.2	196.7

1993Q3	8795.5	8523.8	211.3
1993Q4	8857.0	8636.4	159.1
1994Q1	8919.7	8720.5	136.5
1994Q2	8983.4	8839.8	79.9
1994Q3	9048.4	8896.7	86.7
1994Q4	9114.3	8995.5	52.9
1995Q1	9181.6	9017.6	96.7
1995Q2	9250.0	9037.0	144.6
1995Q3	9319.7	9112.9	137.1
1995Q4			143.3

Sources: Quarterly CBO estimates of potential output available at http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/120xx/doc12039/keyassumptionspotentialgdp_110125.xls; actual output at http://www.bea.gov, NIPA Table 1.1.6. Accessed March 19, 2013.

How much of the shortfall between 1990 and 1995 can or should be attributed to the S and L troubles? In a contemporaneous discussion in 1992, McNees hardly mentioned the S and L sector in discussing the genesis of the downturn. Hall (1993) concluded that the downturn had something to do with the response of consumer and business confidence to the Iraq war and the spike in oil prices. There is no mention at all of the S and L difficulties in his list of eight possible causes of the recession. Walsh (1993) argued that if there was a cause it was restrictive monetary policy. Geltner (2013) concludes that commercial real estate, which was differentially implicated in fraudulent S and L lending, did not play a major role in causing the recession or influencing recovery in the early 1990s.[13] The only contrary view I can find is in an article on http://about.com by Kimberly Amadeo entitled "The History of Recessions in the United States." Regarding the 1990-91 recession she writes that "It was caused by the Savings and Loan Crisis in 1989", full stop. As far as I am able to ascertain, however, no professionally trained economist shares this view.

[13] "CRE (commercial real estate) was much more intertwined with the S and L crisis than it was with the 1990-91 recession…" (Geltner, 2013, p. 1).

Cumulative Output Loss: 2007-23

For 2007-2023, there have been discussions both of the costs of remediation and of the output loss. One reason there has been more interest in output loss, aside from the fact that it's been large, is that there is a much stronger case that the more recent recession and slow recovery was caused by developments in the financial sector. By "cause" I do not necessarily mean a specific "trigger" such as the collapse of Lehman Brothers, but rather an accretion of financial fragility over a number of years, the result of risky and highly leveraged bets made with other people's money. Financial fragility increased over time as these features come to characterize the balance sheets of both depository institutions and the larger penumbra of the shadow financial system.[14] This fragility created a predisposing vulnerability. The financial system – mostly actors in the private sector – collectively created this vulnerability, and it is for that reason that it bears major responsibility for the subsequent recession and slow recovery. If the financial sector had been less vulnerable in the second half of the 2000s, a change in the trajectory of house prices might otherwise have been more easily shaken off. [15]

This state of fragility, particularly as it was hidden in the nether reaches of the shadow system, only imperfectly fathomed by policy makers such as Ben Bernanke (he has admitted as much on several occasions), was both unrecognized and significant in

[14] I prefer the term shadow financial to shadow banking system, because most of the institutions within it were not banks and generally not depository institutions. See Roubini (2008). Households investing in housing had, of course, also become much more highly leveraged.

[15] Again, the depth of the recession and the duration of the slow recovery were both undoubtedly influenced by policy responses including remediation. But the history of the financial crisis does not "begin" with Lehman Brothers. There is a widespread tendency to focus exclusively on whether the responses were appropriate and/or effective. We need to spend at least as much time thinking about what happened before 2007 as after.

2007-2023. It was largely absent and noncontributory in earlier recessions such as 1982 and 1990-91.

How unrecognized it was can be appreciated by reexamining the forecast included in the Congressional Budget Office's The Budget and Economic Outlook: Fiscal Years 2008 to 2018, released in January of 2008. For the four years 2009-12, the CBO undershot the civilian unemployment rate by 3.9, 4.5, 4.1, and 3.3 percentage points respectively. They had the three month T bill rate above 4 percent through the period; actual was barely above 0. The record with respect to the ten year T note was not much better.

The 2008 forecast was vetted by the CBOs Panel of Economic Advisors, which included Martin Baily, Jared Bernstein, Martin Feldstein, Robert J. Gordon, Robert Hall, Lawrence Katz, Allan Meltzer, Laurence Meyer, William Nordhaus, Rudolph Penner, James Poterba, Alice Rivlin, Nouriel Roubini, and Stephen Zeldes. While the CBO staff bears responsibility for the forecast, it is fair to say that none of those listed, with the possible exception of Roubini (see Roubini 2008), indicated in his or her pronouncements or writings at the time any premonition that we were about to go over a real cliff, and whatever was said at that panel meeting did not lead the CBO staff to revise what turned out to be an overoptimistic forecast. It was not as overoptimistic as the forecasts by the Bush administration, the Federal Reserve Board, or an average of private forecasters, but it was nonetheless overoptimistic.

Writing in January of 2008 when, as determined subsequently by the NBER, the economy was already in recession, the CBO noted the warning signs reflected in rising unemployment claims and the negative yield spread (p. 33), but did "not expect the

slowdown in economic growth to be large enough to register as a recession" (2008, p. 21). They acknowledged that 2008 growth could be weaker than forecast if "the turmoil in financial markets leads to a more severe economy-wide curtailment of lending than CBO anticipates", but that it could be stronger than forecast if "financial institutions (are) able to absorb mortgage related losses without triggering significant repercussions in the broader economy."

Table 2 reports the Congressional Budget Office's forecast and projected unemployment rate, three month Treasury bill rate, and ten year Treasury note rate for 2009-12, along with the actual. The failure to get interest rates right was not by and large due to poor forecasts of the inflation trajectory, since the CBO only slightly overestimated price levels.

Table 2
2008 CBO Forecast or Projected for 2009-12 and Actual

		Unemployment	3 Month T bill	10 yr T note
2009	Forecast	5.4	4.2	4.9
	Actual	9.3	0.15	3.85
	Forecast Error	**-3.9**	**4.05**	**1.05**
2010	Forecast	5.1	4.6	5.2
	Actual	9.6	0.14	3.3
	Forecast Error	**-4.5**	**4.46**	**1.9**
2011	Forecast	4.8	4.7	5.2
	Actual	8.9	0.01	1.89
	Forecast Error	**-4.1**	**4.69**	**3.31**
2012	Forecast	4.8	4.7	5.2
	Actual	8.1	0.07	1.78
	Forecast Error	**-3.3**	**4.63**	**3.42**

Source: Congressional Budget Office, 2008.

The report went on to say that losses associated with subprime mortgages were uncertain, but "expectations are that the banking system as a whole will not be imperiled…the tightening of credit standards to date has been less extreme than the tightening that occurred during the banking crisis of the early 1990s" (2008, p. 28). The evidence for this appears to have been that at the point the report was written the reduction in lending still seemed modest relative to the mild reduction in commercial and industrial loans evident in the early 1990s (as well as the early 2000s). The report estimated that the fall in residential construction had shaved about a percentage point off of GDP growth in 2007, but forecast that falling house prices, which increased affordability and would lead to a working off of house inventories, would produce a revival of housing starts in 2009 (p. 31). The risk of a collapse of business fixed investment (nonresidential construction and equipment and software), such as had characterized the previous two recessions, was "small" (p. 37).

Table 3
GDP and Potential GDP, US, 2005Q1-2023Q4
(Trillions of 2005 dollars)

		Potential GDP	Potential GDP	Output Gap	Output Gap
	GDP	2013 Estimates	2008 Estimates	2013 Projection	2008 Projection
2005Q1	12.5	12.5			
2005Q2	12.6	12.5			
2005Q3	12.7	12.6			
2005Q4	12.7	12.7			
2006Q1	12.9	12.8			
2006Q2	12.9	12.8			
2006Q3	13.0	12.9			
2006Q4	13.0	13.0			
2007Q1	13.1	13.1			
2007Q2	13.2	13.1			
2007Q3	13.3	13.2			

2007Q4	13.3	13.3	13.3		
2008Q1	13.3	13.4	13.4	0.1	0.1
2008Q2	13.3	13.4	13.5	0.1	0.2
2008Q3	13.2	13.5	13.6	0.3	0.4
2008Q4	12.9	13.6	13.7	0.7	0.8
2009Q1	12.7	13.7	13.8	0.9	1.0
2009Q2	12.7	13.7	13.8	1.0	1.1
2009Q3	12.7	13.8	13.9	1.0	1.2
2009Q4	12.9	13.8	14.0	1.0	1.2
2010Q1	12.9	13.9	14.1	0.9	1.2
2010Q2	13.0	13.9	14.2	0.9	1.2
2010Q3	13.1	14.0	14.3	0.9	1.2
2010Q4	13.2	14.0	14.4	0.8	1.2
2011Q1	13.2	14.1	14.5	0.9	1.3
2011Q2	13.3	14.1	14.6	0.9	1.3
2011Q3	13.3	14.2	14.7	0.9	1.4
2011Q4	13.4	14.3	14.8	0.8	1.4
2012Q1	13.5	14.3	14.9	0.8	1.4
2012Q2	13.5	14.4	15.0	0.8	1.5
2012Q3	13.7	14.4	15.1	0.8	1.5
2012Q4	13.7	14.5	15.2	0.8	1.5
2013Q1	13.7	14.6	15.3	0.8	1.6
2013Q2	13.8	14.6	15.4	0.9	1.7
2013Q3	13.8	14.7	15.5	0.9	1.7
2013Q4	13.9	14.8	15.6	0.9	1.7
2014Q1	14.0	14.8	15.7	0.9	1.8
2014Q2	14.1	14.9	15.8	0.8	1.7
2014Q3	14.2	15.0	15.9	0.8	1.7
2014Q4	14.4	15.1	16.0	0.7	1.7
2015Q1	14.5	15.1	16.1	0.6	1.6
2015Q2	14.7	15.2	16.2	0.6	1.6
2015Q3	14.8	15.3	16.3	0.5	1.5
2015Q4	15.0	15.4	16.4	0.4	1.4
2016Q1	15.1	15.5	16.5	0.3	1.4
2016Q2	15.3	15.6	16.6	0.2	1.3
2016Q3	15.5	15.6	16.7	0.2	1.3
2016Q4	15.6	15.7	16.8	0.1	1.2
2017Q1	15.8	15.8	16.9	0.0	1.2
2017Q2	15.9	15.9	17.1		1.1
2017Q3	16.0	16.0	17.2		1.1
2017Q4	16.1	16.1	17.3		1.1
2018Q1	16.2	16.2	17.4		1.1
2018Q2	16.3	16.3	17.5		1.2

2018Q3	16.4	16.4	17.6	1.2
2018Q4	16.5	16.5	17.7	1.2
2019Q1	16.6	16.6	17.8	1.2
2019Q2	16.7	16.7	17.9	1.2
2019Q3	16.8	16.8	18.0	1.2
2019Q4	16.9	16.9	18.2	1.2
2020Q1	17.0	17.0	18.3	1.3
2020Q2	17.1	17.1	18.4	1.3
2020Q3	17.2	17.2	18.5	1.3
2020Q4	17.3	17.3	18.6	1.3
2021Q1	17.4	17.4	18.7	1.3
2021Q2	17.5	17.5	18.8	1.4
2021Q3	17.6	17.6	19.0	1.4
2021Q4	17.7	17.7	19.1	1.4
2022Q1	17.8	17.8	19.2	1.4
2022Q2	17.9	17.9	19.3	1.5
2022Q3	18.0	18.0	19.4	1.5
2022Q4	18.1	18.1	19.6	1.5
2023Q1	18.2	18.2	19.7	1.5
2023Q2	18.3	18.3	19.8	1.6
2023Q3	18.4	18.4	19.9	1.6
2023Q4	18.5	18.5	20.1	1.6

		% of Avg. GDP
Cumulative Gap, 2008Q1-2017Q1 (2013 Projection of Potential)	6.3	45.4
Cumulative Gap, 2008Q1-2017Q1 (2008 Projection of Potential))	12.1	83.3
Cumulative Gap, 2008Q1-2023Q4 (2008 Projection of Potential)	21.0	134.2
Average real potential GDP, 2008Q1-2017Q1 (CBO 2008)	14.5	
Average real potential GDP, 2008Q1-2023Q4 (CBO 2008)	15.6	

Note: GDP data through 2012Q3 are actual; beyond that they are forecast or projected.

Note: in 2008, the CBO projected that potential would grow by 2.7 percent between 2008 and 2013, and 2.5 percent between 2014 and 2018. In extending the 2008 projection to 2023, I have extended the projection of 2.5 percent annual growth in potential.

Note: Since both actual and potential are quarterly but reported at annualized rates, cumulated gaps are divided by 4

Sources: Congressional Budget Office (2008, 2013); Department of Commerce, Bureau of Economic Analysis, NIPA Tables, accessed March 19, 2013

To its credit, the CBO can point to the fact that its forecasts were more pessimistic (and therefore somewhat more accurate) than those of the Bush administration, which in November of 2007 forecast real GDP growth in 2008 more than twice (2.7 percent) what the CBO had (1.5) percent. The reality, of course, was that real GDP declined in 2008, and then again in 2009. It began rising again in 2010, but did not exceed its 2007 level until 2011 (NIPA table 1.1.6).

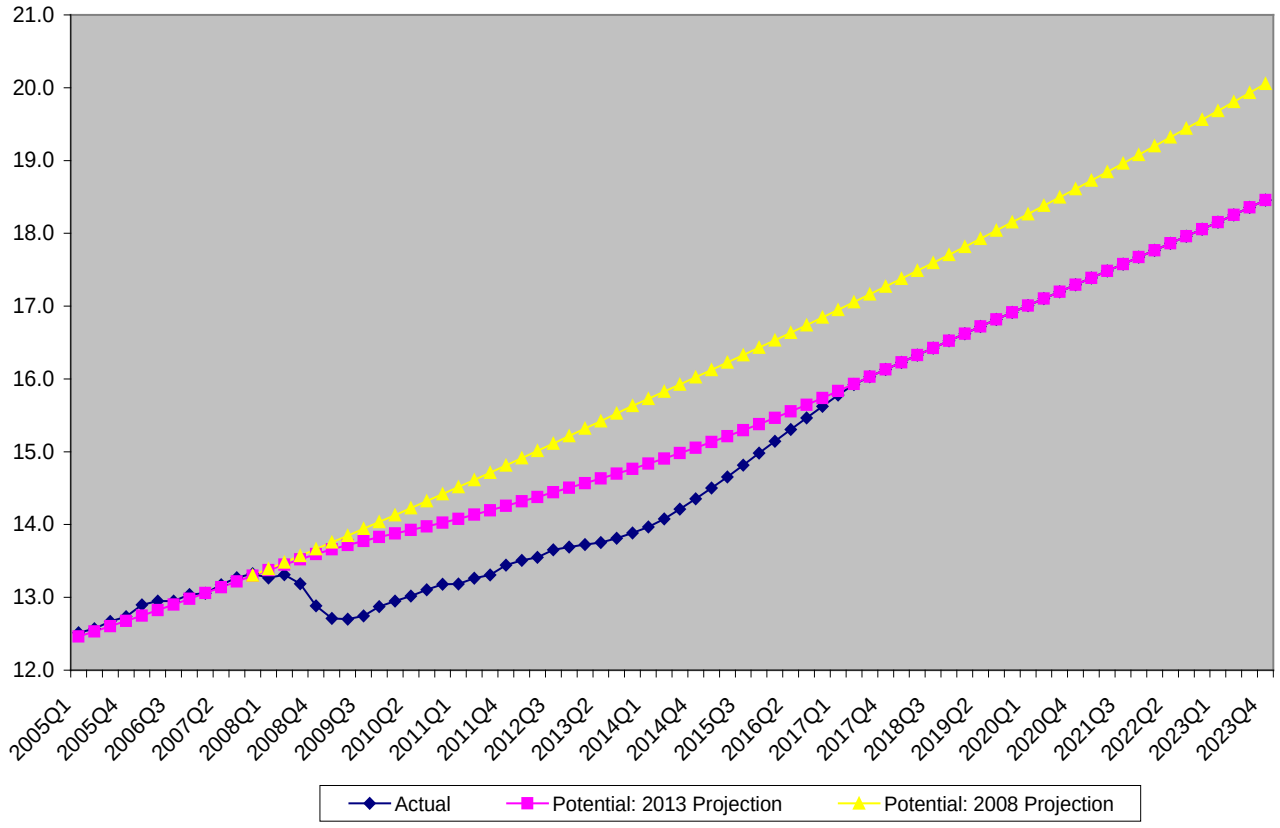
This is, however, a substantial underestimate of the true cumulative output cost, since the CBO revised downward its estimates of potential output after the publication of the 2008 report.[16] The correct counterfactual is to compare actual output with what potential would have been in the absence of the downturn. We can go back to the January 2008 Budget and Economic Outlook, and grow the 2007Q4 estimate of potential by the rates at which the CBO had predicted potential output would increase between 2008 and 2017. This trajectory has 2017Q1 potential at $16.9 rather than $15.8 trillion, a difference of 7 percent. If we redo the output gap cumulation, we are now at $12.1 trillion, 83.3 percent of average estimated potential over this almost ten year period.[17]

This is still a major underestimate, however, because the CBO forecast has the economy returning to its *lowered* estimate of potential in 2017Q1. Levels of potential

[16] In contrast, there was no downward revision of the estimated potential output trajectory as the result of the mild 1990-91 recession.
[17] This calculation is based on the 2008 estimated trajectory of potential.

output may indeed be permanently lower as the consequence of the financial crisis and recession. But if we are calculating the cumulative output loss associated with the financial crisis, we should use the earlier and higher trajectory for potential, and if we do, in 2017Q1 projected output will not have reattained what we can take as an estimate of what potential would have been in the absence of the crisis.

Figure 4
Actual and Potential GDP, United States, 2005-23
Trillions of 2005 Dollars



If we grow potential output at rates forecast or projected in the 2008 report (2.7 percent per year for 2008-13, and 2.5 percent per year for 2014-18, then continuing at that rate until the end of the window of the 2013 projection (2023Q4), and compare this trajectory with the projections of output up through that quarter, we will still be $1.6 trillion short, and the cumulative output loss at that point will be $21 trillion in 2005

dollars. This translates to 1.58 years of 2007Q4 GDP, or 1.34 years of average potential over the entire 2008Q1-2023Q4 period. *And the output gap will still not have closed.*

Perhaps one believes that the 2008 CBO projections of output growth were too high, not because output was above trend, but because they were too optimistic about the future trajectory of productivity growth. Robert Gordon has recently channeled Alvin Hansen, in developing a version of the secular stagnation thesis (I remain agnostic about whether he is correct). How much difference would this make? In a 2010 NBER working paper Gordon forecasts real GDP growth from 2007 to 2027 at 2.4 percent per year (this is down from an earlier estimate of 2.5 percent per year). Suppose we start with 2007Q4 output and grow it at 2.4 percent (compounding quarterly) for an estimate of the trajectory of potential. The cumulative output gap through 2023 (using actual output through 2012 and CBO forecasts thereafter) is almost exactly 1 full year of average potential output during the interval. This is still many times larger than the cumulative output loss associated with 1991 or 1982, and unlike those earlier two episodes, the link between financial crisis and recession and slow recovery is compelling and widely accepted.

In terms of the cumulated output loss already experienced and likely to occur, whichever estimate we use, we are in Great Depression territory.[18] A back of the envelope calculation employing Okun's law suggests that cumulative output loss over the twelve year period 1929-41 approached three years of average potential over the period.

[18] The downturn between 1929 and 1933 was of course much steeper, in part because of differences in policy responses, although recovery between 1933 and 1937 and particularly after 1941 was very sharp. Still. the cumulated output loss measured as a fraction of average potential GDP associated with the great recession and slow recovery is of the same order of magnitude as and rivals that associated with the great depression (considered as running from 1929 through 1941).

Assume 5 percent was the nonaccelerating inflation rate of unemployment (this may be too high, since unemployment in 1929 was below 4 percent with little sign of accelerating or for that matter even positive inflation). For each year between 1930 and 1941 inclusive, calculate the number of percentage points by which the unemployment rate (Lebergott series) exceeded 5 percent and multiply by two. That's the Okun's law estimate of the amount by which actual output fell short of potential in that year. Cumulate these shortfalls and one is at 298 percent. This is probably a slight overestimate because potential was rising rapidly and the most severe shortfalls were early in the period. But it is in the right ballpark.

A more refined estimate confirms this. Begin with 1929 through 1941 output in chained 2005 dollars from NIPA table 1.1.6. Assuming 1929 was at potential, grow 1929 output by 3.64 percent per year (simple compounding) to create a series of estimated potential output (see Field, 2011, for analysis of why potential grew so rapidly during these years). This leaves 1941 actual output about 9.8 percent below potential, which is what is implied by Okun's law and an assumption that the nairu was 5 percent. Calculate the output gap for each year and cumulate, which yields $3.467 trillion in 2005 dollars, relative to an average potential of $1.241 trillion, for a cumulative output loss of 2.8 years of average potential over the years 1929-41. If one were to used David Weir's series for employment during the depression,[19] which includes federal emergency workers, for example those in the Works Projects Administration (WPA) and the Civilian Conservation Corp (CCC) unemployment rates would be lower, and so would the

[19] Carter et al, 2006, Historical Statistics, series Ba477.

cumulated output loss, probably closer to two years, which would narrow the difference by this metric between the Great Recession and the Great Depression.

The cumulative loss that is already and will likely be associated with the Great Recession and slow recovery is therefore very large. It dwarfs the cost of remediation. It dwarfs estimates of the total cost of the Iraq war, which range between $1 and $3 trillion.[20] In absolute terms and as a fraction of average potential GDP it dwarfs the cumulative output loss between 1990 and 1995, almost none of which can be attributed to the S and L insolvencies. It is an order of magnitude higher than losses attributable to either the 1990-91 or the 1982 recessions.[21] *It is a reminder of how important it is to implement a regulatory structure likely to reduce the probability of a future disaster comparable in magnitude or perhaps even more severe than what hit us in 2007-09.* Table 4 summarizes the four estimates of cumulative output loss developed in this paper.

Table 4:
Cumulative Output Losses: Four Episodes

Episode	Cumulative Loss 2005$	Cumulative Loss Relative to Average Potential
1929-1941	$3.5 trillion	2.80
1981-1984	$.9 trillion	.15
1991-1995	$.9 trillion	.11
2007-2023	$21.0 trillion	1.34

Discussion

Estimates of a cumulative output gap, as the above calculations illustrate, are influenced by forecasts and projections of actual as well as the trajectory of potential

[20] The $3 trillion estimate is from Bilmes and Stiglitz (2008), but this includes interest costs on money borrowed to finance the war, which I have argued results in an overestimate.
[21] The estimates of the cumulative output loss associated with the 1982 and 1990-91 recessions and slow recovery were, respectively, 15 percent and 11 percent of average potential GDP during the relevant time periods.

output. The most volatile and therefore the most influential private sector determinants of actual output in the short term are autonomous consumption and the three components of gross private domestic fixed investment: residential construction, nonresidential construction, and producer durables (equipment and software). If any one or a combination of these declines sharply, and if this drop in aggregate demand is not compensated for by an increase in net exports or in government spending on goods and services, a recession is almost certain. As a practical matter, given norms and institutions, deflation cannot be relied upon to close an output gap, nor, as a policy measure, is it to be recommended. Among other reasons, due to the zero lower bound on interest rates, deflation will result in very high real interest rates, which discourage private sector investment as well as purchases of consumer durables.

Regardless of the degree of leverage involved in financing the housing construction boom that peaked in 2005, overbuilding would, upon the boom's termination, have depressed residential construction, leading to a modest deficiency in aggregate demand that, unless compensated for by sufficient fiscal and monetary stimulus on the part of the government or Federal Reserve, or increasing net exports, would have driven a wedge between actual and potential. Even allowing for a healthy multiplier, this decline is, however, far too small to account for the downturn experienced. The fragility of the financial sector meant that a cascading and self-reinforcing set of influences dragged down private sector consumption and investment spending much further.

A second set of effects may influence the trajectory of potential output, and they pertain to physical capital, human capital, and labor. With respect to physical capital, relaxed standards for granting credit during a boom can result in misallocation, one

dimension of which can be long overhangs of residential or nonresidential structures as well as equipment far in excess of current or immediate future needs. More damaging, from the perspective of putty clay models, is the possibility that physical capital will be ill-suited, not just in quantity, but in design, configuration and location with respect to future needs. Since equipment is by definition moveable, this concern applies particularly to structures. In some cases poorly chosen investment in structures can result in an outcome where the consequence of investment is worse than had there been none at all (Field, 1992).

If a credit boom can result in an overhang of excess structures and equipment, it is also true that a long period in which output lies below potential will result in shortfalls in investment as well as consumption. The investment shortfalls do not have the same immediate effect on living standards as do consumption shortfalls, but they may (after any overhangs are exhausted) result in a private sector capital stock, and a capital-labor ratio, lower than they would have been in an environment of smoother and less disrupted physical capital accumulation. This prospect can, but may not, be counterbalanced by the positive supply side influence of fiscal stimulus in the form of well-chosen government R and D or infrastructural investment, which can complement private sector commitments and increase the growth of total factor productivity (Field, 2011). Of course, to the degree such stimulus is undertaken, the cumulative output loss will be smaller and terminate sooner, and the possible detrimental influences of recession on the trajectory of potential output will also be of less concern.

With respect to labor, the immediate effects of a downturn may not be so damaging, since out of work or underemployed workers may conclude that this is a good

opportunity to pursue a professional or advanced degree, or pay for additional training. As the downturn proves to be more prolonged, however, pessimism and discouragement generally sets in, as forecasts of the likely returns from such investments get revised downwards. For the long term unemployed there can be reduced labor market attachment and a decay of job related skills including but not limited to the psychological discipline necessary for successful participation in the workforce. Older workers discouraged by a long bout of unemployment may leave and never reenter the labor force.

It is also possible that the longer term trajectory of potential output might *benefit* from recession, with adversity stimulating creative responses with persisting positive effects. There is historical evidence for some sectors suggesting the operation of such a mechanism (see Field, 2013). It seems likely overall, however, that negative effects of prolonged recession on potential output predominate. That is the basis of the decision by the CBO to revise downward the estimated trajectory of potential output after several years of recession. What should be understood is that if we use cumulative output loss relative to the new lower trajectory of potential as an estimate of the macroeconomic cost of a financial crisis, we will underestimate it.

A different perspective has been advanced by James Bullard, President of the St. Louis Federal Reserve Bank, who has promoted the idea that an effect of the housing bubble prior to the crash was to allow actual output to temporarily exceed true potential.[22] An implication is that projecting potential based on actual in 2002-2007, as

[22] In its April 5, 2012 News Release, the St. Louis Fed described a recent speech in which Bullard suggested that "the U.S. output gap may be smaller than typical estimates suggest", because such estimates

the CBO did in 2008, and as I have done in table 3, is inappropriate. Bullard is not arguing, as is the CBO, that the financial crisis and recession depressed the trajectory of potential output below what it would have been in the absence of the downturn. Rather, he is arguing that the boom temporarily *raised* output above true potential in a manner that was not sustainable. The claim is not simply that the sectoral composition of output was temporarily shifted towards construction, it is that total output was raised. If this view is accepted, the cumulative output loss associated with the financial crisis and recession will be much lower.

The idea that actual output can temporarily exceed potential is a well-established feature of macroeconomics textbooks, as well more formally of the New Keynesian short run Philips curve. Natural or potential output is defined as the highest level of output that can be sustained without so stimulating the economy that one has an acceleration of the inflation rate. The claim can be justified either by appeal to the Friedman "fooling" argument (in the presence of an inflation surprise it may take workers some time to realize that they are working for lower real wages than they bargained for) or through a number of other mechanisms that makes nominal wages rigid or otherwise more sluggish to adjust than prices.[23]

None of these mechanisms can be used to justify the view that actual output was above potential between 2002 and 2007, since there was no inflation surprise. CPI or GDP deflator inflation was stable and relatively low, in a range of 2 to 3.5 percent. We

typically count the "housing bubble" as part of the normal level of output. Available at http://www.stlouisfed.org/newsroom/displayNews.cfm?article=1355 , accessed March 17, 2013.

[23] Other rationales for an upward sloping short run Philips schedule stress an asymmetric adjustment rate of different categories of prices. I prefer phrasing the question in terms of the (non) neutrality of aggregate demand shocks as opposed to money, since alterations in the rate of growth of nominal GDP can come from perturbations in velocity (due for example to fiscal policy changes), as well as changes in the growth rate of the nominal money supply.

may have had asset price inflation in housing, but we didn't have significant goods and services price inflation.[24] There is therefore no coherent explanation for why, in a large economy such as the United States, an asset price (as opposed to a GDP deflator) surprise or bubble should cause total output to be temporarily above potential.

It is well understood, and not controversial, that such a surprise might temporarily distort the composition of production. The problem is arguing that *total output* was above potential. We should be skeptical that the path of the economy was, from an aggregate supply standpoint, on an unsustainably high trajectory since, though the unemployment rate did decline from over 6 percent in 2003 to about 4.5 percent in 2007, the inflation rate remained moderate.

Bullard's argument, if accepted, has the effect of moving the goal posts in a way that reduces the estimated costs of the financial crisis induced recession, thus possibly reducing the urgency of taking actions that might reduce the waste of running an economy at what otherwise looks to be 6 percent or more below capacity. If the CBO view is correct, measures to close an output gap sooner rather than later might be doubly advantageous because they could forestall further downward revisions of the estimated trajectory of potential. It matters a great deal whether a downward revision was due to the deleterious effects of the recession or because 2002-07 was somehow unsustainably high. If the latter is true then slow recovery is not adversely affecting the long term trajectory of potential and there is correspondingly somewhat less urgency to close the output gap.

Conclusion

[24] A combination of asset inflation and low goods and service inflation (close to 0 percent) also characterized the 1922-29 period. See Field (1984).

Did the S and L insolvencies represent a macroeconomically significant crisis? The answer, in retrospect, is no. The recession and slow recovery between 1990 and 1995 resulted in a cumulative output loss equal to about 11 percent of average GDP at the time, an order of magnitude lower than that associated with 2007-23. The relative magnitudes are, however, only part of the problem, because there is little reason to believe that the output loss during the earlier period had much to do with what had been going on with the S and L's. Those institutions, individually and collectively, were not large enough, complex enough, or interconnected enough to threaten a global financial crisis. If the postponement of reckoning had dragged on for several more years, the looting would have been worse, the commercial construction boom would have been worse, the drain on the taxpayers would have been worse, the scandals would have been worse, but it would not have threatened to bring down the entire US and world economy.

Caprio and Klingebiel viewed the S and L experience as a "borderline or smaller" financial crisis (1997, p. 7),[25] as apparently do Laeven and Valencia (2012, and this is closer to the mark in my view than the characterization given by Reinhardt and Rogoff. On the other hand I conclude that those authors made the right decision in not treating 1982 as a recession cum financial crisis. It is clear that legislative interventions (particularly the Depository Institutions Deregulation and Monetary Control Act (1980) and Garn-St Germain (1982), in conjunction with actions of the Federal Home Loan Bank Board under Richard Pratt, did postpone the reckoning at a very substantial cost to the taxpayer and the industry itself. And it is also true that the eventually successful efforts of regulators such as William Black in the Federal Home Loan Bank Board and

[25] See also Boyd, Kwak, and Smith (2005) who reach a similar conclusion, repeating Caprio and Klingebiel's judgment that is was "nonsystemic."

the San Francisco and Dallas Home Loan Banks helped prevent an even larger drain on the federal treasury. Had the country waited another several years, the cost to clean up the industry would have been much greater (Black, 2005).

But although, with the innovation of NOW accounts, S and L's had increasingly come to resemble more traditional depository institutions with which they had been historically contrasted, a trend accelerated by legislative changes in the 1980s, their role in the US economy was simply not as central as those whose existence was threatened in 2007-2009.

Suppose there had been no remediation in the S and L instance. The losers would have been mostly individuals, many of them high net worth rate chasers who had taken advantage of brokered deposits and the federal deposit guarantee. They had not by and large leveraged themselves to acquire these S and L liabilities, and had they had to bear the losses the macroeconomic impact would likely have been small, just as the losses associated with the dot.com collapse appear to have had relatively little macroeconomic impact.

Because of 50 percent margin requirements today, the impact of stock market declines generally stops with the households that hold the stock. The risk to financial institutions lending on stock is small, except in the unlikely event of a catastrophically rapid decline in prices, where there is not enough time to sell out before margin is exhausted. There were likely modest negative impacts on consumption in the early 2000s, (there was after all a $7 trillion wealth decline), but partly because stock is more unequally held than real estate, the consumption hit was lower than when the real estate

bubble burst (because high income and high net worth individuals have lower marginal propensities to consume).

Interconnection matters. It matters, when a financial institution fails, whether the losses stop with its immediate creditors, or whether their impairment impairs those who may have lent to them, and so on. Limiting leverage is critical in controlling the threat that too much interconnection can pose to a financial system. It is central to the logic of those advocating higher equity requirements for financial institutions (Admati and Hellwig, 2013).

What actually happened with S and L remediation? Those holding their liabilities were made whole at the expense of either current or future taxpayers in general. For the individuals affected by the remediation, it clearly made a difference. For the macroeconomy, not so much.

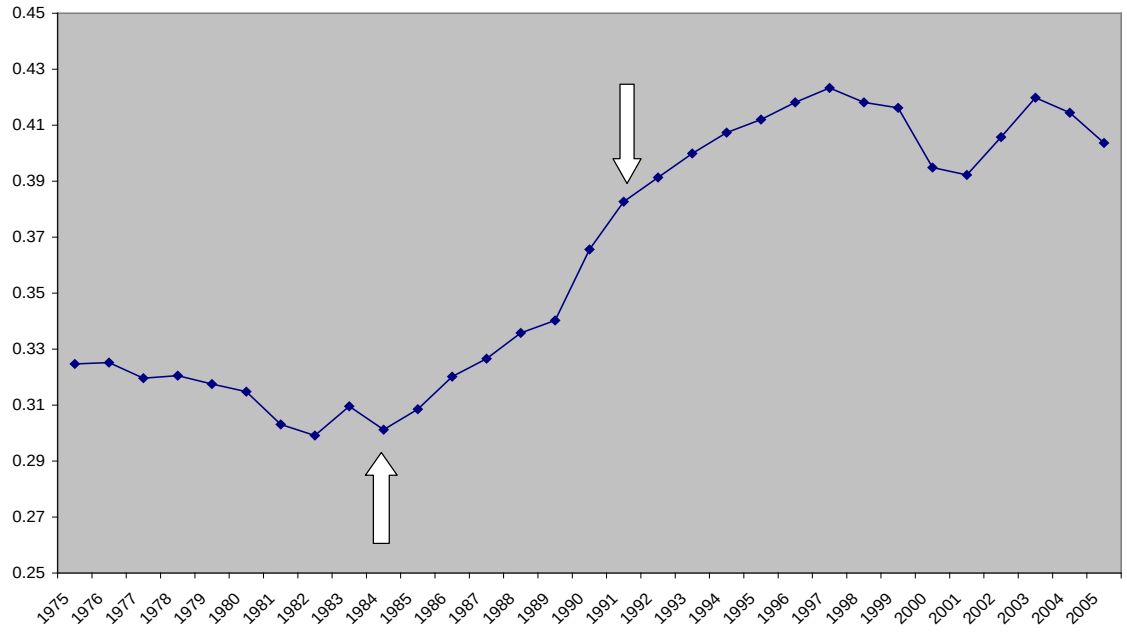
Why then did the S and L follies attract so much attention? In part because it was a great story. It featured colorful heroes and villains, and many prurient and salacious details. There was much to get angry about. Ordinary citizens (aside from those holding high interest rate CDs from the failing institutions) were outraged at the cost of the government bailout. And there was much over which to salivate. The narrative featured prostitutes, cocaine, high living, fraud, and real criminals who were actually and eventually put in jail. Before their fall the political reach of individuals like Charles Keating extended to the upper house of the United States Congress, casting a pall over the reputations of a former astronaut (John Glenn) as well as a future presidential candidate (John McCain). For those with a taste for schadenfreude or morality tales, the story had a somewhat satisfying conclusion. Hundreds of crooks and bad guys got their

comeuppance, and went to jail. All of this created a brew irresistible to vendors of newspapers, magazines, and books, as well as to the scholarly community.

But when we look at the S and L events in the light of a financial crisis like 2007-09, we conclude that from a macroeconomic standpoint, it was mostly vapors. The institutions that failed were systemically unimportant. Their failures had almost no discernible effect on financial sector corporate profits. The impact of commercial structure overbuilding and/or misallocation was heavily localized. The US did experience a recession and slow recovery that began in 1990 and extended to 1995, but this had little to do with the S and L travails. In any event, the cumulative output gap was a small fraction, relative to contemporaneous GDP, of that associated with 2007-2023.

Nevertheless, although its impact pales in comparison with the potential and actual damage from what could have been the mother of all financial crises, the developments and legislation that contributed to the S and L insolvencies are part of a trajectory of financial deregulation and rising ratios of private sector debt to GDP that helped lay the foundations for the truly systemic financial crisis that hit at the end of the 2000s.

Figure 5
Debt to Value Ratio, Residential Housing, United States, 1975-2005



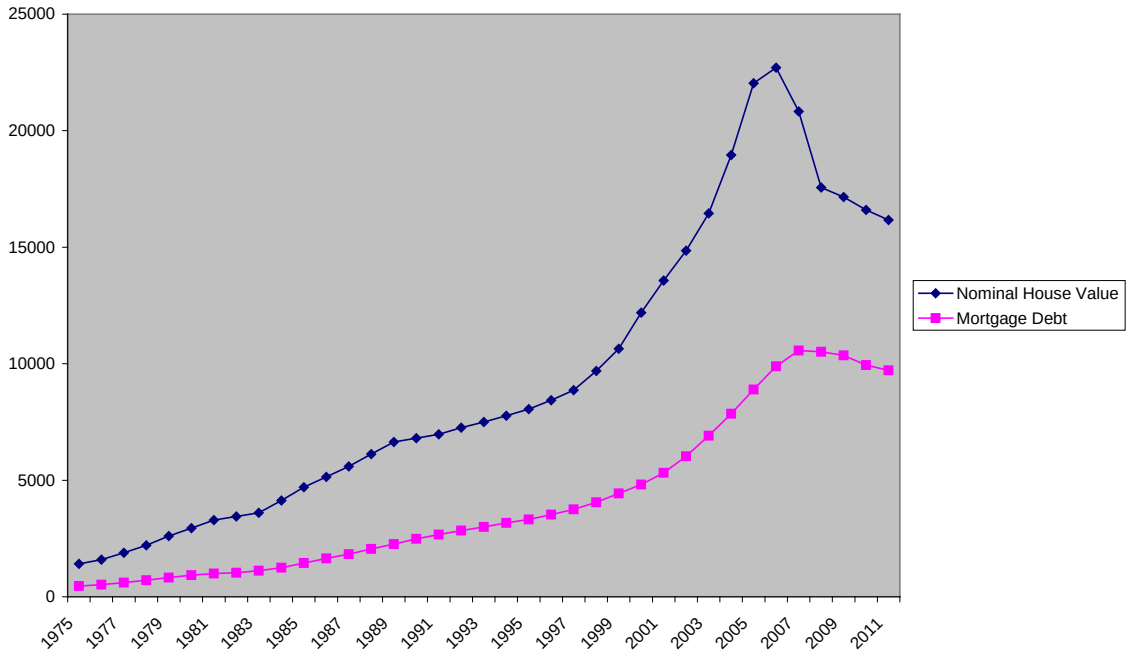
Source: Federal Reserve Board Flow of Funds Accounts (2012), Table B100, lines 4 and 33.

The years of greatest S and L excesses in lending contributed to a substantial and sustained upward shift in the ratio of mortgage debt to housing value in the US economy. That ratio remained below 33 percent throughout the 1970s and stood at 31.1 percent in 1984. Over the next seven years the ratio increased dramatically, to 38.3 percent. It then grew more slowly through 1997, when it peaked at 42.3 percent, remaining at or below this level through 2005, the year housing construction peaked. It shot up to 60 percent in 2009 and remained high thereafter, but this was largely although not entirely due to the more than $6 trillion collapse in nominal housing values between 2006 and 2011.

In figure 5, I have plotted values through 2005, because I want to draw particular attention to the steep rise in the debt to value ratio between 1984 and 1991, the years of the most extreme gambling for resurrection and fraudulent looting. Some of the most highly publicized fraudulent lending may have been in the area of commercial real estate,

but between 1984 and 1991 S and L liberality in lending on housing was associated with what became a new normal in terms of the extent of household borrowing on residential housing.

Figure 6
Nominal House Value and Mortgage Debt, United States, 1975-2011



Source: Federal Reserve Board Flow of Funds Accounts (2012), Table B100, lines 4 and 33.

The rise in mortgage debt (debt and nominal house value through 2011 are illustrated in figure 6) was an important contributor to the increase in the overall ratio of household debt to income beginning in the 1980s which, along with increased labor force participation, particularly among women, allowed consumption levels for the bottom 80 percent of households to continue to rise in the face of stagnant real hourly earnings and sharply increasing wealth and income inequality.

Legislation enacted in response to the S and L insolvencies reflected a philosophical shift away from the consensus that had driven New Deal responses to the 1920s and had given the country a half century of relatively crisis free finance. Faith in

the "market" and distrust of government and regulation were a key part of the Reagan administration's ideological armament, and there is continuity of purpose in these policy areas extending through the Clinton years and into the administration of George W. Bush. Regulatory and legislative responses represented way stations in the dismantling of a New Deal regime that had given the U.S. a half century of a relatively crisis free financial sector.

Financial innovation in the remediation of the S and L insolvencies, remarkably, also contributed in an important way to what followed fifteen years later. It was methods developed by the Resolution Trust Corporation for disposing of distressed commercial real estate assets in the aftermath of the S and L insolvencies that provided the template for the tranched collateralized mortgage backed securities subsequently so enthusiastically embraced by the private sector (see Geltner, 2013, p. 31). Developed and extended by private firms, these derivative securities were an integral feature of the growing financial fragility that made the U.S. and world economy so vulnerable when housing prices ceased rising and began to decline after 2005.[26]

A further legacy of the S and L insolvencies may have been this: because the remediation costs, although much complained about at the time, were comparatively small, and because the recession and slow recovery associated with the insolvencies was mild and apparently not connected in any serious way to them, policy makers may have developed unjustified confidence in the ability of the macroeconomy to weather the consequence of a credit fueled construction boom. They were therefore less inclined in the 2000s to express much interest in the ways in which continuing financial innovation,

[26] Geltner references the Resolution Trust Corporation's N series mortgage trust program, begun in 1992.

extensions of the shadow financial system, and their interaction, were creating a far more fragile and potentially explosive system.[27]

[27] Thanks to Ken Snowden for suggesting this possibility.

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