The Economic Crisis: Causes, Policies, and Outlook

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Chair Maloney, Vice Chairman Schumer, Ranking Members Brady and Brownback, and members of the Committee, thank you for inviting me to join you today. The Joint Economic Committee and the President's Council of Economic Advisers share a special relationship and I am delighted to have my first opportunity to speak with you.

As we are all much too painfully aware, the United States is undergoing its most severe economic and financial crisis since the Great Depression. Today, I want to discuss the causes of the crisis, the policies we are putting in place to address it, and the outlook for the economy.

Causes of the Crisis

Understanding the sources of the crisis is critical to crafting the right policy responses for recovery. In thinking about the causes, one needs to begin with the extreme fall in house and stock prices over the last eighteen months. Housing prices, as measured by the Case-Shiller index, have fallen by 27% since July 2007.[1] Stock prices have fallen roughly in half since their peak in October 2007.[2]

Why these two key asset prices have fallen so much is a topic that we could spend hours discussing. Was there a bubble? If so, what caused it, and what caused it to burst? But, regardless of their cause, the falls in asset prices have had a direct impact on consumer behavior. Consumers have substantially less wealth than before. By one measure, household wealth has fallen by $13 trillion, or 20%, since its peak.[3] Consumer spending depends on many things, including income, taxes, confidence, and wealth. Studies suggest that when consumer wealth declines by a dollar, annual spending falls by about four cents.[4] So, a decline in wealth as large as the one we have experienced has led to a large decline in the aggregate demand for goods and services.

Another factor to consider is the uncertainty created by the gyrations in asset prices. In a paper I wrote many years ago, I argued that the main effect of the crash of the stock market in 1929 on spending operated not through the direct loss of wealth, but through the enormous uncertainty it created.[5] The initial crash in October was followed by wild fluctuations of stock prices. This volatility led consumers and firms to be highly uncertain about what lay ahead. I found narrative and statistical evidence that this uncertainty led to large drops in consumption and investment spending. This makes sense: when you don't know what is likely to happen, the best thing to do may be to simply do nothing as you wait for more information.

The same factor may be at work today. While house prices have been steadily down, stock prices have been on a wild ride. Volatility, according to some measures, has been over five times as high over the past six months as it was in the first half of 2007.[6] The resulting uncertainty has almost surely contributed to a decline in spending, especially in the last few months.

The decline in asset prices and the rise in uncertainty have also been critical to the defining feature of this recession: the drying up of credit. As housing prices declined, not only did the value of mortgage-backed securities fall, but uncertainty about their value rose dramatically. It is almost as if investors suddenly woke up to the realization that bundling securities together and slicing them up does not change overall risks, only rearranges them. And, when there are nationwide movements in house prices, the values of many mortgages, and thus the values of many securities backed by mortgages, move together. Add to this the general uncertainty about the path of house prices, and it is not surprising that people stopped trading mortgage-backed securities. Volumes fell sharply and spreads between the interest rates on these assets and those on safe assets, such as government debt, spiked upward.[7]

All of this was disastrous for lending. When banks can't package their loans and sell them for cash, they become more cautious about making new loans. On top of this, the collapse of asset prices put direct downward pressure on the asset side of bank balance sheets. Mortgages and mortgage-backed securities became less valuable, and so banks sought to reduce their liabilities by letting loans run off and not making new ones. The decline of house prices also made potential borrowers less creditworthy, and so further reduced banks' desire to lend. Finally, the dramatic failure or near-failure of several major financial institutions, and just about the first honest-to-goodness bank runs in over half a century, no doubt increased banks' caution further.

Fear, uncertainty, and a desire to contract lending spread to other markets. Overall, the Federal Reserve estimates that net lending to nonfinancial businesses has fallen to a seventh of its peak level.[8] More dramatically, in the fourth quarter of 2008 lenders reduced the amount of consumer loans on their books for the first time since 1992.[9]

Some of the decline in lending surely reflected lower demand for credit. As businesses and consumers became more nervous and wanted to spend less, they sought fewer loans. But much of the decline reflects the supply-side factors I have described. Creditworthy borrowers found banks unwilling to lend at posted interest rates. Credit standards were raised, and other methods of rationing credit were employed.[10]

The restriction of credit had two devastating consequences. One was a further lowering of consumption and business investment.[11] Households that can't get credit have trouble purchasing cars, furniture, and other big-ticket items. Businesses that can't get credit find it difficult not just to invest, but often to buy the raw materials or finance the payrolls that go into production. The result is that reduced credit availability lowers aggregate demand further.

The other consequence of credit rationing is a reduction in efficiency. When credit is not available, consumption cannot be smoothed over time and economic circumstances. Students who rely on private lending may not be able to borrow to go to college so that they can earn more in the future. Businesses cannot replace outmoded equipment at the desirable time. The overall productivity of the economy is reduced.

Last fall, there was some debate about whether credit was actually all that important. Some pundits suggested that we should just let the financial system fend for itself because it really didn't matter. The horrific falls in employment and production over the last five months have largely ended that debate. Shuttered factories across the country simply scream that Main Street and Wall Street do indeed intersect.[12] Credit truly is the lifeblood of our modern economy.

The result of our current credit disruptions and the drop in spending has been a very painful contraction in the economy. Total output of goods and services has now fallen for three consecutive quarters, after barely rising at all over the previous three.[13] The unemployment rate has risen from 4.7% in late 2007 to 8.5%, and payroll employment has fallen by 5.1 million.[14]

Rising unemployment and falling home values have intersected to greatly increase home foreclosures. Hard-working families find themselves underwater and with falling incomes. Defaults have risen steadily over the last year.[15] Foreclosed homes destroy neighborhoods. And, foreclosure sales further reduce housing prices, putting in motion another wave of troubles.

Finally, falling income in the United States means we are buying less from abroad. Our imports fell 32% in the last six months.[16] This fall in our spending on foreign goods, coupled with the fact that other countries have experienced swings of their own in stock prices and housing prices, has had a devastating impact on our trading partners. To give just a few examples, Singapore saw its GDP fall at a 16% annual rate in the fourth quarter of 2008, and Japan by 12%.[17]

Policies for Recovery

This long discussion of what has gone wrong in our economy is important. Only by describing what the problem is can I explain how the actions we are taking will make things better. As I have described, the sources of our current economic problems are complicated and strong. As a result, the solution can be neither simple nor quick. Instead, we have fashioned a broad, multi-faceted plan that, over time, will cushion the downturn, bring about recovery, and make the economy stronger and more secure in the long run. Although the plan has many parts, I think of it as having four critical elements.

1. <u>The first element is direct fiscal stimulus</u>. The problems in housing and lending markets have led to sharp declines in aggregate demand: consumers are spending less, firms are investing less, and our trading partners are buying less. Thus, one critical treatment is for the government to directly promote spending. This was the crucial purpose of the American Recovery and Reinvestment Act (ARRA), which the President signed just 28 days after taking office. The plan is, quite simply, the biggest and boldest countercyclical fiscal action in American history. The package amounts to roughly 2.5% of GDP over each of the next two years.[18] For comparison, the Federal government's fiscal stimulus in Franklin Roosevelt's first full year in office was only 1.5% of GDP, and that was largely reversed the following year.[19]

The ARRA promotes spending in many ways. First, it cuts taxes for 95% of American households. The Making Work Pay tax credit reduces taxes on middle class families by $800 per year.[20] This tax cut started showing up in paychecks during the month of April. We think that households are likely to spend a substantial fraction of their higher take-home pay on the things they haven't been buying for the past year and a half. This will help spur the production of consumer goods and put people back to work.

The Act also raises spending by helping states and people directly hurt by the recession. State and local governments have seen tax revenues decline as the economy has declined, and are constrained by balanced-budget requirements. As a result, many states were in the process of cutting employment of teachers, nurses, and first responders, and raising taxes. The ARRA gave $150 billion in aid to state governments to try to stop this process.[21] At the same time, the money we are spending on extended unemployment insurance and nutritional assistance both helps the unemployed maintain the essentials of life and dignity, and provides spending that keeps local businesses producing.

Finally, and most importantly, the ARRA includes more than $250 billion in direct government investment. When the private sector isn't spending, it is appropriate for the government to step in and use unemployed resources to do work that desperately needs to be done. The Recovery Act has money for rebuilding roads and bridges, fixing up 10,000 schools, strengthening dams and levees, and weatherizing Federal buildings.[22] It also includes spending on crucial 21st century investments—building a newer, smarter power grid and funding innovations in health information technology.[23] This funding will not only create jobs over the next two years, it will leave us with an economy that is safer, more energy efficient, and more productive.

We expect the stimulus package to be incredibly helpful to the economic recovery. Because the spending is getting out the door quickly, we expect it to have a beneficial impact on output growth and employment before the end of 2009. I have been told by the Office of Management and Budget that approximately $75 billion in spending under the ARRA has been obligated and almost $14 billion in outlays have already occurred. During the first 100 days in office, which the Administration marked yesterday, we estimate that the ARRA has already saved or created 150,000 jobs.

Of course, because only a very small part of the spending and tax relief called for in the Act has taken place, and because much of the economy's response to stimulus occurs with a lag, most of the benefits of the act are yet to come. Our estimates suggest that ARRA spending will save or create 3.5 million jobs by the end of next year.[24]

It is important to realize while the ARRA was a crucial first step, it is just a piece of our overall battle plan to deal with the economic crisis. A crucial lesson of economics is that it is often much more effective to apply a whole range of measures, rather than to focus exclusively on one cure. Trying to repair the economy by direct stimulus alone would inevitably require that we resort to low-value spending, necessitate enormous increases in the deficit, and leave us with an unbalanced economy. This is a central reason for the Administration's multi-faceted approach.

2. The second key element of our comprehensive approach is financial stabilization and rescue. As I described, our current economic distress derives principally from problems in the financial sector. For this reason, we have initiated a number of programs designed to strengthen financial institutions and restart the flow of credit.

One piece is the Consumer and Business Lending Initiative. This is a program designed to restart the securitized lending market, which accounts for about 40% of lending.[25] The Treasury has partnered with the Federal Reserve to create the Term Asset-Backed Securities Loan Facility (or TALF). This program provides financing to private investors to help unfreeze markets for various types of credit, including auto, student, small business, and credit card loans. Just last month, this facility started operations and $9 billion of this securitized lending happened the first week, more than had happened in the previous four months. We are optimistic that this program will restart this crucial market. By doing so, it will make financial institutions able to increase their loans to consumers and businesses.

One important type of loan that will eventually be facilitated by the TALF are Small Business Administration (SBA) Loans. This is another market where secondary lending has virtually evaporated. Because conditions were so severe and because small businesses are so crucial to job creation, the Treasury announced a program to immediately buy up both current and future securitized SBA loans. This program is designed to get SBA loans flowing again quickly. Also, the ARRA provided for a temporary reduction in fees and a temporary increase in guarantees for SBA loans.

Another recently announced component of the financial stabilization plan was the program to facilitate sales of legacy or toxic assets. Banks and other financial institutions have a large number of mortgage loans and mortgage-backed securities on their books. The value of these loans is hard to determine because the resale market has virtually disappeared. Furthermore, even if we knew the current value, the value of these assets is simply very uncertain. As a result, the presence of these assents on bank balance sheets makes banks hesitant to lend and makes private investors unwilling to put more capital into banks. Finally, because of the seizing up of markets for these assets, there is some evidence that their current prices may reflect temporary “fire sale” levels, not reasonable estimates of the assets’ fundamental value.

The Treasury is partnering with the FDIC, the Federal Reserve, and private investors to restart this market through the Public-Private Investment Program. In the case of the toxic real estate loans, the Treasury will form 50-50 partnerships with private investors and then receive loan guarantees from the FDIC for up to 85% of the purchase price. The loan guarantees will allow the partnership to receive favorable financing, and so should provide a moderate subsidy. This is exactly what is needed to counteract the market failure and get this market functioning again. The result should be slightly higher prices for the toxic assets, which will encourage banks to sell. Also, by creating a market, the government is providing a convenient mechanism by which regulators can encourage banks to clean up their balance sheets.

A final component of the financial rescue plan is a careful evaluation of the health of the 19 largest banks in the country. The so-called "stress test" asks regulators to evaluate whether banks have enough capital to weather a more severe downturn than is currently anticipated – a process that is currently underway.[26] If at the end of the evaluation, regulators decide banks need more capital to be safe and maintain confidence, they will encourage banks to raise private capital. The Treasury will be prepared to provide public capital if needed, through the Capital Assistance Program.

Both the Public-Private Investment Program and the Capital Assistance Program are aimed at the same goal—returning American banks to full health. Japan's experience in the 1990s shows the costs of skimping on bank rescue. Until banks are cleansed of highly uncertain assets and robustly capitalized they will be hesitant to lend, and lending is what we need them to do.

Though the financial stabilization plan is still in its early stages, we are optimistic that it will play a critical role in the economy's recovery. By restarting lending, it should have beneficial effects on aggregate demand. Credit constrained borrowers should be able to spend again. This includes families that want to purchase their first home; consumers who need a new car or major appliance; and students who need to borrow to attend college. It also includes businesses that have had to curtail investment and production because they couldn't borrow to buy machinery or raw materials. All told, the spending that could be unleashed is surely very large. As Treasury Secretary Geithner is fond of saying, there is probably more stimulus in financial rescue than there is in stimulus.

As with direct stimulus, it would be foolish to try to combat the recession solely by trying to fix the financial system. The shocks that have hit the system are so large that no matter what we do, financial recovery will take time. Thus, financial rescue is no substitute for immediate stimulus. Moreover, bringing about recovery solely through financial rescue would probably require that the government intervene in every nook and cranny of the financial system, which would be unwise, inefficient, and almost surely unhealthy in the long run.

3. The third element of our comprehensive recovery plan is direct help to the housing market through our Homeowner Affordability and Stability Plan. The crisis began in the housing market, and defaults, foreclosures, and falling housing prices are contributing to the downward spiral of the economy. Thus, although the crisis has spread so far beyond the housing market that it cannot be solved by actions in that market alone, addressing housing has to be part of any solution.

Our housing plan has several pieces. One is to work with the Federal Reserve to bring down mortgage rates. The government-sponsored enterprises (GSEs), Fannie Mae and Freddie Mac, currently finance about 50% of all outstanding home mortgage loans.[27] Even following the announcement of Federal government conservatorship of these entities in the summer, their borrowing costs remained well above Treasury bond rates.[28] The Federal Reserve has instituted a program to purchase GSE debt as a way to bid down its interest rate. The Treasury has also announced a total funding commitment of $400 billion for the Preferred Stock Purchase Agreements, which serve as a backstop for Fannie Mae and Freddie Mac to ensure these GSEs are financially secure. These two actions helped to bring mortgage rates to historic lows.[29]

The lower mortgage rates have set off a wave of refinancing. Indeed, mortgage refinancing applications have jumped almost 80% since the housing program was announced in mid-February.[30] Furthermore, the GSEs, in consultation with their regulator, the Federal Housing Financing Agency, and the Treasury, have modified their downpayment requirements so that even many homeowners who have seen the equity in their home fall because of home price declines, can still qualify for refinancing. This refinancing activity has the potential for important macroeconomic benefits. When a homeowner qualifies for a lower interest rate, their monthly payments fall. It is as if they just got a tax cut. They have more money to spend on other goods (and to help recover their savings). Mark Zandi, a noted forecaster, estimates that the Administration's housing plan is equivalent to at least a $30 billion tax cut. [31]

Another key piece of our housing plan aims to reduce foreclosures. Because of the fall in house prices and increasing weakness in the labor market, as many as six million homeowners are in danger of losing their homes.[32] The Treasury has announced a program that encourages banks and loan servicers to modify mortgages so that payments are more manageable and homeowners are able to remain in their homes. This program is a win for both the banks and the troubled homeowners. By covering some of the costs of the lower payments and by providing a standard modification framework, the Government is encouraging modifications that prevent both the economic and social losses inherent in foreclosure. And, by preventing millions of homes from being dumped on the market and sold at huge discounts, as foreclosure sales inevitably induce, the program should help to stabilize house prices. Since declining housing prices were at the center of the crisis, this would surely be a very desirable development.

4. The fourth and final element of our comprehensive recovery plan involves starting to address our long-run economic problems. Even in the midst of an economic crisis, we are trying to take actions that will make the economy stronger in the long run. This focus on the long run was evident in the American Recovery and Reinvestment Act – as its very name suggests. Though any spending would be helpful in creating jobs, as I described earlier, we focused on spending that increases productivity in the future.

As you are well aware, the budget provides for continuing investments in education and energy. For example, it includes more funding for the Pell grant program, so that low-income students can achieve a college education. It funds crucial investments in alternative energy and research and development, as well as a proposal for a cap and trade system to encourage energy independence and limit greenhouse gas emissions. By educating our workforce and encouraging the development of cleaner, more efficient energy, we hope to raise long-run growth and living standards.

In addition, we are committed to fundamentally reforming health care in the United States. Health care reform is central to our long-run fiscal prospects, because the rising costs of health care are the single major determinant of future budget deficits. More fundamentally, our broken health care system is depressing Americans' standards of living and leaving tens of millions of us without health insurance.[33] The Administration is committed to moving ahead with health care reform—and is taking concrete steps to do so.

The budget also calls for making significant improvements in our long-run fiscal situation. We inherited a budget deficit that was huge and expected to grow substantially over time. This trajectory is unsustainable and could have devastating consequences for financial stability and standards of living. We have already moved to adopt honest budgeting that acknowledges our long-run problems; held a fiscal summit and a health care summit; and proposed a budget that identifies important savings. The budget resolution working its way through Congress reduces the deficit we inherited in half over the next four years. And, we are committed to working with Congress to reduce the deficit event further.

Finally, we have also begun to work on fixing our financial regulatory system. The specifics of how best to regulate financial institutions are a difficult and complex issue, and detailed proposals will require careful study and hard work. But, it is clear that the system that allowed our current crisis to occur cannot be permitted to continue. It is also clear, as the President said long before the downturn had become a full-fledged financial crisis, that any institution whose actions have the potential to affect the stability of the financial system as a whole, and that is likely to receive government support in a crisis, must be subject to oversight and regulation. We also know that we need a resolution mechanism other than traditional bankruptcy when a large financial institution becomes insolvent, so that we are no longer caught between the impossible choice of a disruptive bankruptcy, as occurred with Lehman Brothers, and the propping up of a failing institution without adequate power over it, as has occurred with AIG. And, the system where institutions get to choose who they are regulated by, or even choose not to be regulated at all through something as simple as renaming a default insurance contract a credit default swap, must end.

Before I finish my discussion of policies, I want to say a little about interaction effects. A key feature of our multi-faceted program to restore our economic health is that the different elements reinforce one another, with the result that the whole is greater than the sum of the parts. Let me give you just a few examples. One key interaction is that stimulus promotes recovery in financial and housing markets. When people are employed and buying things, loan defaults fall and asset prices are likely to rise. A second is that restoring the health of the financial system will ease the burden on stimulus. Repairing our financial system will allow the natural forces of consumer- and business-led recovery to kick in, and so allow the economy to continue growing as the direct stimulus winds down. A third is that the fiscal stimulus will help the economy not only in the short run, but also in the long run. There would be nothing worse for our long-run fiscal health than an extended period of economic weakness and stagnation. And, by starting critical investments in areas like infrastructure, green energy, and medical information technology, the government investments in the package will make the economy more productive in the long run.

A final key interaction is that starting to tackle our long-run problems now will make the short-run stimulus more effective. Households and firms, understandably, have lost confidence in financial markets, and in some cases, in the economy. If they saw a large fiscal package unaccompanied by any commitment to addressing our fiscal challenges, their confidence might be further shaken, and the benefits of the package muted as a result. If they saw a financial rescue unaccompanied by a commitment to long-term financial reform, they would remain reluctant to participate in financial markets. This is one reason we are addressing our short-run and long-run problems together.

<u>The Economic Outlook</u>

Where does all of this leave us? I am sorry to say that in the short run, we are still in for more bad news. The economy we inherited was so weak, and deteriorating so rapidly, that even the aggressive actions we have taken could not turn it around immediately. People often compare the economy to a supertanker. Its momentum is so great that it responds to the forces pushing on it only slowly and gradually.

Just yesterday, the advance first quarter GDP numbers were released. They showed that overall output continued to decline rapidly in the first three months of this year. We, like most private forecasters, expect another decline in the second quarter. And we expect to see continued declines in employment and rises in unemployment for the next several months.

But, there is every reason to think that the policies we have put into place over the last three months, together with the natural strength and resiliency of our workers and businesses, will spur recovery. Already, we are beginning to see "glimmers of hope" that the economy is stabilizing. The housing sector has shown some tentative signs of finding a bottom. Housing starts increased slightly from January to March and builder confidence in April rose five points from March.[34] The fall in housing prices is abating.[35] As of Tuesday, the S&P 500 had risen 26% from its low point on March 9th. And, perhaps most importantly, consumer confidence has increased, indicating that the American people are increasingly optimistic about our recovery. Both the Conference Board index and the University of Michigan index have risen for the past two months, with the Conference Board measure showing a particularly large rise in April.[36]

We currently expect that the pace of the overall decline in the economy to moderate sharply over the next several months. This is consistent with the Blue Chip consensus forecast, which shows a rate of decline of GDP of 2.1% in the second quarter.[37] We expect the economy to level out in the second half of the year and then begin to recover. Whether the recovery begins later this year, as most private forecasters predict, or takes a bit longer is hard to know. Because labor market indicators tend to lag changes in output, most likely we will see positive GDP growth before we see increases in employment and declines in the unemployment rate.

The President's economic team is keeping a watchful eye on all aspects of the economic situation, and we will not rest until we are assured of a long-term and lasting recovery with robust employment growth. Because the downturn has been so long and so severe, the recovery will almost surely take a long time. But, as I have stressed, our intent, and our expectation, is for the economy not just to recover, but to emerge even stronger and more resilient than before.

Thank you. I would be happy to take any questions you might have.

NOTES

[1] House price data are from the S&P/Case-Shiller Composite 20 Home Price Index, http://www2.standardandpoors.com/spf/pdf/index/SA_CSHomePrice_History_042841.xls [Haver: CASC20XA@USECON].

[2] Stock prices are from the S&P 500 Index; historical data can be found on Bloomberg or at: http://finance.yahoo.com/q/hp?s=%5EGSPC&a=00&b=1&c=2007&d=03&e=28&f=2009&g=d.

[3] Household and nonprofit net worth data are from the Federal Reserve Flow of Funds Data, Household and Nonprofit Net Worth, Table B.100, change from 2007:Q2 to 2008:Q4, http://www.federalreserve.gov/datadownload/Choose.aspx?rel=Z.1 (choose table B. 100). [Haver: PA15CDA5@FFUNDS].

[4] See for example, the literature surveyed in Ricardo M. Sousa, "Financial Wealth, Housing Wealth, and Consumption," *International Research Journal of Finance and Economics*, Issue 19 (2008): 167-191, see page 171. Estimates of the MPC out of housing wealth are often higher than the estimates for the MPC out of financial (or total) wealth; see for example, John D. Benjamin, Peter Chinloy, and G. Donald Jud, "Real Estate Versus Financial Wealth in Consumption," *Journal of Real Estate Finance and Economics*, 29:3 (2004): 341-354, which estimates that for every $1 increase in housing wealth, consumption increases 8 cents.

[5] Christina D. Romer, "The Great Crash and the Onset of the Great Depression," *Quarterly Journal of Economics* 105(August 1990): 597-624.

[6] S&P 500 daily volatility, as measured by the daily return standard deviation for the previous 30 days, averaged 3.3% from October 27, 2008 to April 27, 2009. It averaged 0.6% from January 1, 2007 to June 30, 2007.

[7] Data on volumes of MBS are from the Federal Reserve Flow of Funds data, Table F.126 http://www.federalreserve.gov/releases/z1/Current/accessible/f126.htm. Mortgages held as assets by Asset-Backed Security Issuers to back the issuance of mortgage backed securities (MBS) have been falling since 2007:Q3; in 2008:Q4 they fell 15% at an annual rate [Haver: FA67MOR5@FFUNDS]. This decline in mortgages held implies fewer issuances of private MBS, which suggests less demand for MBS. Data on spreads between rates on MBS and Treasuries come from proprietary Lehman Brothers data through LehmanLive. The spread is specifically between option adjusted Fannie Mae 30 year current coupon and comparable Treasuries. The spread trended up from January 2007 through September 2008, and has narrowed since then.

[8] Data on lending to nonfinancial business data are from the Federal Reserve Flow of Funds Data, Table F.2, Nonfinancial Business Liabilities: Credit Market Instruments, http://www.federalreserve.gov/releases/z1/Current/z1r-3.pdf [Haver: FL14TCR5@FFUNDS].

[9] Data on consumer loans are from Federal Reserve Board Flow of Funds, Table L.2, Consumer Credit Outstanding, end-of-period on quarterly basis, http://www.federalreserve.gov/releases/z1/Current/z1r-4.pdf [Haver: AL15CNC0@FFUNDS].

[10] Federal Reserve Board, Senior Loan Officer Survey. In 2007:Q4, over 80% of lenders said they were keeping lending standards constant; in 2008:Q4, over 80% said they were tightening credit standards. http://www.federalreserve.gov/boarddocs/snloansurvey/.

[11] Real personal consumption expenditures data are from the Bureau of Economic Analysis, http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=66&FirstYear=2006&LastYear=2008&Freq=Qtr&3Place=Y. Real private fixed investment data are also from the BEA, http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=129&FirstYear=2006&LastYear=2008&Freq=Qtr&3Place=Y.

[12] Data on employment are from the Bureau of Labor Statistics, Establishment Survey, total nonfarm payrolls, http://www.bls.gov/news.release/empsit.t14.htm. Data on production are from the Federal Reserve Board, Industrial Production Index, http://www.federalreserve.gov/releases/g17/Current/default.htm.

[13] Bureau of Economic Analysis, National Accounts Data, real GDP; includes 2009 Q1.

[14] Data are from the Bureau of Labor Statistics, Establishment Survey, total nonfarm payrolls and unemployment rate, downloaded through CES and CPS databases "one-screen data search," http://www.bls.gov/ces/#tables.

[15] Data on defaults are from the Federal Reserve Board, Loan Delinquency Rate, Real Estate Loans, Residential, http://www.federalreserve.gov/releases/chargeoff/delallsa.htm.

[16] Imports data are from the Census Bureau, Foreign Trade Statistics, Historical Series, Nominal Imports of Goods and Services, http://www.census.gov/foreign-trade/statistics/historical/gandsimp.xls.

[17] Data on Singapore's GDP come from the Singapore Department of Statistics, http://www.singstat.gov.sg/stats/latestdata.html [Haver: S576NGPC@EMERGEPR]. Data on Japanese GDP come from the Cabinet Office of Japan, http://www.esri.cao.go.jp/jp/sna/qe084-2/nritu-jk0842.csv.

[18] The deficit impact of the American Recovery and Reinvestment Act is from the Congressional Budget Office, Letter to Senator Charles E. Grassley, March 2, 2009, Table 2, http://www.cbo.gov/ftpdocs/100xx/doc10008/03-02-Macro_Effects_of_ARRA.pdf. The data are for fiscal years. Because most of the spending ends early in 2011, I assume that the bulk of the spending in fiscal 2009, 2010, and 2011 will occur the 24 months between April 2009 and March 2011. This number is then divided by nominal GDP in 2008 to express it as a percent of GDP.

[19] The deficit figures are from *Historical Statistics of the United States: Colonial Times to 1970*, Part 2, p. 1194, series Y337. Nominal GDP data are from the Bureau of Economic Analysis, http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=Y, Table 1.1.5. I average calendar year figures to estimate fiscal year nominal GDP figures. The 1½% is for the rise in the deficit-to-GDP ratio from fiscal year 1933 (July 1932-June 1933) to fiscal 1934 (July 1933-June 1934).

[20] Details of the Recovery Act and Making Work Pay can be found at: http://www.recovery.gov/?q=content/making-work-pay.

[21] Details of the Recovery Act can be found at Recovery.gov, http://www.recovery.gov/?q=content/act#TB_inline?height=240&width=400&inlineId=tb_external

[22] The American Reinvestment and Recovery Plan—By the numbers, http://www.whitehouse.gov/assets/documents/recovery_plan_metrics_report_508.pdf.

[23] Recovery Act Information, National Institute of Standards and Technology, http://www.nist.gov/recovery/bill.html.

[24] Recovery Act, Recovery.gov, http://www.recovery.gov/?q=content/act. For more details on the methodology for estimating job creation, see Christina Romer and Jared Bernstein, "The Job Impact of the American Recovery and Reinvestment Plan," January 9, 2009, http://otrans.3cdn.net/ee40602f9a7d8172b8_ozm6bt5oi.pdf.

[25] Secretary Tim Geithner Opening Statement – Delivery Senate Banking Committee Hearing, February 10, 2009, http://www.treas.gov/press/releases/tg02102009.htm.

[26] Details of the "stress test" can be found at http://www.treasury.gov/press/releases/reports/tg40_capwhitepaper.pdf.

[27] GSE financing data are from the Federal Reserve Board Flow of Funds, Table L.218. Home Mortgages, http://www.federalreserve.gov/releases/z1/Current/z1r-4.pdf [(GSE + Agency and GSE mortgage pools) / total assets].

[28] Data on borrowing costs come from Bloomberg and are the spreads between Fannie Mae and Freddie Mac 2 and 10 year debts and appropriate Treasuries.

[29] Data on rates are from the Freddie Mac Weekly Primary Mortgage Market Survey, http://www.freddiemac.com/dlink/html/PMMS/display/PMMSOutputYr.jsp.

[30] Refinancing application data come from the Mortgage Bankers Association Weekly Applications Survey, http://www.mbaa.org/ResearchandForecasts/ProductsandSurveys/WeeklyApplicationSurvey (subscription only). [For internal use, data is on Haver: MBAMR@SURVEYW.]

[31] Mark M. Zandi, "Assessing Obama's Housing Plan," *Moody's economy.com*, March 10, 2009, https://www.economy.com/home/login/ds_proLogin_4.asp?script_name=/dismal/pro/article.asp&cid=113267 (subscription only).

[32] The number of families facing foreclosure is noted in the Homeowner Affordability and Stability Plan Fact Sheet, http://www.treasury.gov/initiatives/eesa/homeowner-affordability-plan/FactSheet.pdf

[33] Data on health insurance coverage are from the National Coalition on Health Care, "Health Insurance Coverage", http://www.nchc.org/facts/coverage.shtml—nearly 46 million Americans were without health insurance in 2007.

[34] The housing start data are from the Bureau of the Census, http://www.census.gov/const/newresconst.pdf. The builder confidence measure is the National Association of Home Builders/Wells Fargo Index of Builder Confidence, http://www.nahb.org/news_details.aspx?sectionID=134&newsID=9045.

[35] See, for example, the behavior of the Federal Housing Finance Agency monthly House Price Index, http://www.fhfa.gov/webfiles/2119/1Q09m02F.pdf.

[36] The Conference Board Index is available at http://www.conference-board.org/economics/ConsumerConfidence.cfm. The Reuters/University of

Michigan Index of Consumer Sentiment is available at https://customers.reuters.com/community/university/default.aspx.

[37] The Blue Chip Consensus Forecast is based on a number of private forecasts. It is a proprietary forecast and is published in the document *Blue Chip Economic Indicators*. The numbers reported are from the April 10, 2009 issue.