CAR Research Memorandum

The Impact on the U.S. Economy of the Successful Automaker Bankruptcies

November 17, 2010

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Introduction

In late 2008 and throughout much of 2009, the global economy was in recession and the world's automotive industry was in crisis. In the United States, automotive sales plummeted to historically low levels, both automotive commercial and consumer credit availability contracted sharply, and critically, two major automotive manufacturers—General Motors and Chrysler—were on the brink of collapse. Across the globe, federal, state and provincial governments stepped in to provide aid to the Detroit-based automakers with operations in their countries. These loans and other financial assistance provided to General Motors and Chrysler by the U.S. and foreign governments averted certain economic catastrophe had the companies been allowed to fail. Now that sufficient time has passed since the U.S. policy intervention, it is possible to evaluate the magnitude of the economic disaster averted, and weigh the public and private benefits against the public cost of aid to General Motors and Chrysler.

The View from 2008 and 2009

Throughout the debate on whether the U.S. government should intervene to save the U.S. automotive industry, there was general agreement that the failure of General Motors and Chrysler would cause harm to the U.S. economy. The magnitude of the potential employment and economic impacts, the size of the government response, and the precedent that would be set by government action were the focus of intense debate.

On November 4, 2008, CAR produced the first rigorous estimate of job loss and economic impact related to the 2008 automotive crisis in a research memorandum entitled, "The Impact on the U.S. Economy of a Major Contraction of the Detroit Three Automakers."[1] As the decision on whether to proceed with structured bankruptcies of General Motors and Chrysler was being debated in the Spring of 2009, CAR produced a second research memorandum entitled, "The Impact on the U.S. Economy of Successful versus Unsuccessful Automaker Bankruptcies."[2] Several other industry analysts, economists, policy organizations, and government offices—including the White House—also weighed in on the issue of how big the economic impact would be if one or more of the Detroit Three automakers were to fail.[3]

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[1] McAlinden, Sean P., Kristin Dziczek and Debra Maranger Menk, **CAR Research Memorandum: The Impact on the U.S. Economy of a Major Contraction of the Detroit Three Automakers**, Center for Automotive Research, November 4, 2008. http://www.cargroup.org/documents/Detroit_Three_Contraction_Impact.pdf

[2] McAlinden, Sean P., Debra Maranger Menk, Adam Cooper, **CAR Research Memorandum: The Impact on the U.S. Economy of Successful versus Unsuccessful Automaker Bankruptcies**, Center for Automotive Research, May 26, 2009. http://www.cargroup.org/pdfs/impact.pdf

[3] A sampling of reports forecasting the economic impacts if one or more U.S. automakers were to fail includes:
"The Economic Impact of the Detroit Three Automakers in Canada," The Centre for Spatial Economics, December 2008.
Scott, Robert, "When Giants Fall: Shutdown of one or more U.S. automakers could eliminate up to 3.3 million U.S. Jobs," Economic Policy Institute, December 3, 2008.
"Automaker Bankruptcy Would cost Taxpayers Four Times More Than Amount of Federal Bridge Loans," Anderson Economic Group/BBK, December 8, 2008.
Wial, Howard, "How a Metro Nation Would Feel the Loss of the Detroit Three Automakers," The Brookings Institution, Metropolitan Policy Program, December 12, 2008.
Werling, Jeffrey, "Potential Job Losses from Restructuring the U.S. Auto Industry," University of Maryland, Inforum Economic Summary, December 16, 2008.
"Fact Sheet: Financing Assistance to Facilitate the Restructuring of Auto Manufacturers to Attain Financial Viability," White House, Office of the Press Secretary, December 19, 2008.
"U.S. Motor Vehicle Industry: Federal Financial Assistance and Restructuring," Congressional Research Service, 7-5700, January 30, 2009.
"Bankruptcy or Bailout—Which Would Best Help the American Auto Industry?" IHS Global Insight, February 9, 2009.

In CAR's November 4, 2008 memorandum, economic impacts were estimated for two scenarios involving a short-term, severe (50- to 100-percent) contraction of Detroit Three capacity in the United States. The job loss estimates ranged from 2.5-3 million jobs in the first year, and 1.5-2.5 million in the second year, the estimates of personal income loss ranged from $125.1-150.7 billion in the first year, and $86.4-138.2 billion in the second year, and the estimates of net impact to government, in terms of increased transfer payments, reduced social security receipts and reduced personal income taxes paid, ranged from $49.9-60.1 billion in the first year, and $33.7-54.3 billion in the second year.[4]

CAR's May 26, 2009 memorandum produced estimates for two scenarios, as well: a quick, orderly Section 363 bankruptcy (which is what happened), and a drawn-out, disorderly bankruptcy proceeding leading to liquidation of the automakers. A summary of the 2009 and 2010 employment and economic impacts is presented in Table 1.

Table 1: May 2009 Forecast of Economic Impact of Government Aid to U.S. Automotive Industry

	Best Case Estimates		Worst Case Estimates	
	2009	2010	2009	2010
Total Employment	-63,200	-179,400	-1,344,000	-446,700
Personal Income (Lost)	-$3.4	-$9.9	-$68.7	-$26.4
Increase in Transfer Payments	$0.3	$0.9	$6.6	$2.3
Decline in Social Security Receipts	-$0.5	-$1.3	-$9.5	-$3.5
Decline in Personal Income Taxes	-$0.5	-$1.6	-$11.0	-$4.2
Net Impact to Government of Avoiding the Worst Case	$25.8 billion in 2009 $6.5 billion in 2010			

Note: All dollar amounts are in billions of current dollars

The difference between the two scenarios presented in CAR's May 2009 memo represented the anticipated private and public benefits of avoiding the scenario of a bankruptcy liquidation of both General Motors and Chrysler. The "good bankruptcy" outcome was projected to have avoided a loss of 1.28 million jobs in 2009, and 267,300 in 2010. Personal income losses were expected to be $65.3 billion less in 2009, and $16.5 billion less in 2010. It was estimated that avoiding the worst case scenario provided a net government impact—in terms of changes in transfer payments, social security receipts and personal income tax receipts—of $25.8 billion in 2009 and $6.5 billion in 2010, a total of $32.3 billion.

The View from 2010

Earlier this year, The White House produced a document entitled, "A Look Back at GM, Chrysler and the American Auto Industry,"[5] which assessed that automotive employment, production and sales had begun to stabilize. Now that data are available on more than a year of General Motors and Chrysler operating results, the forecasted economic impact of the government's intervention in the auto industry can be compared against actual economic events. In so doing, a retrospective measurement of the value of the government's actions in support of the U.S. automotive industry can be constructed.

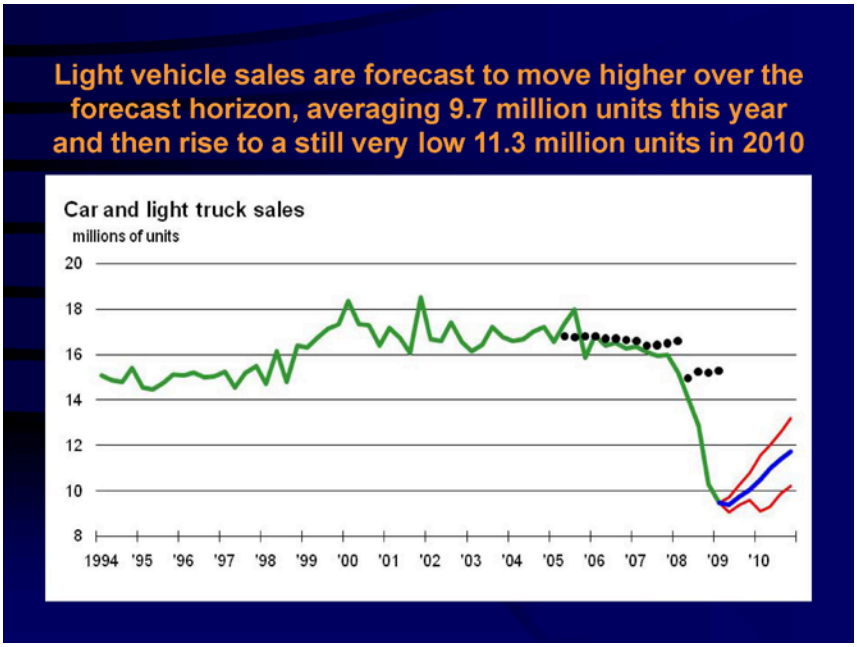
The forecast model used to produce CAR's 2008 and 2009 economic impact studies contained an underlying model of the U.S. economy. Specifically, the model used to produce the May 2009 estimates of the economic impact of "good" versus "bad" bankruptcies assumed that Gross Domestic Product

[4] McAlinden, Dziczek, Menk, op.cit., pages 4-6.
[5] "A Look Back at GM, Chrysler and the American Auto Industry," Executive Office of the President of the United States, April 21, 2010.

(GDP) would fall 3 percent in 2009, and grow at a rate of only 1 percent in 2010. In fact, the economic activity was higher in the period, with actual GDP falling 2.6 percent in 2009 and gaining at a rate of 2.5 percent in the first nine months of 2010.

Although motor vehicle sales were weak in the second half of 2009 and throughout 2010, market performance was still better than what was anticipated[6]. The weak sales were mainly attributed to the unexpectedly high levels of unemployment, and sluggish consumer confidence. If the government had not invested in the automotive industry, up to 80,000[7] automotive jobs would have been lost, and General Motors alone would have lost one million units of sales in 2009.

Chart 1: Light Vehicle Sales Forecast

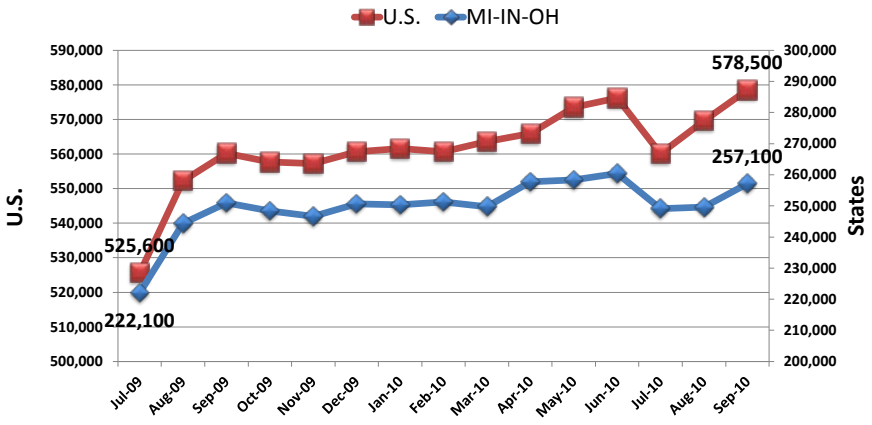


Source: Federal Reserve Bank of Chicago, June 5, 2009

Once Chrysler and GM emerged from their "orderly" bankruptcies, the growth of automotive sector employment has been strong, with 52,900 workers added since July 2009. Had GM and Chrysler not successfully emerged, those jobs would have been permanently lost.

[6] "Consensus Forecast 2009 and 2010", Federal Reserve Bank of Chicago, June 5, 2009.
[7] In 2009, "New GM" sold roughly 1.0 million vehicles between 7/10/09 and 12/31/09. Assuming the U.S. automotive labor productivity is 12.5 units per worker, it is equivalent of 80,000 automotive jobs.

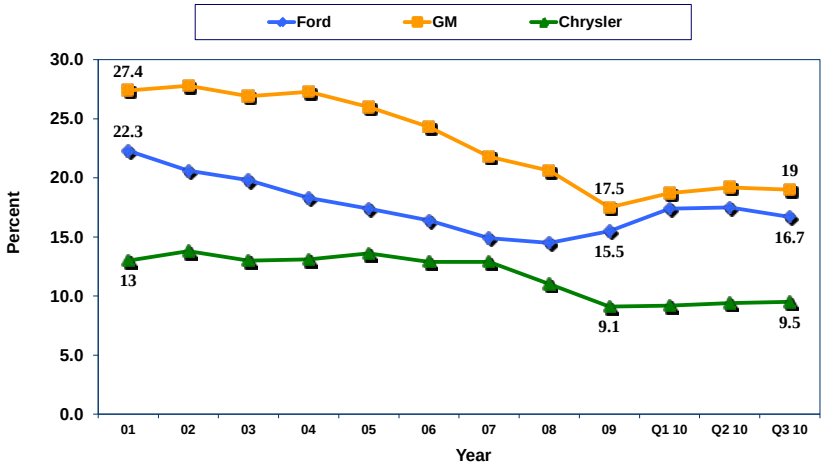
Chart 2: Motor Vehicle and Parts Manufacturing Employment, July 2009-September 2010



Source: BLS, U.S. DOL

In terms of market share, the Detroit Three automakers' shares had stopped plummeting by the end of 2009, albeit in a smaller market. In the first three quarters of 2010, market shares were gradually restored. Although the domestic automakers' market shares are less likely to climb back to where they were in the beginning of the past decade, they are expected to hold up and even improve slightly in the years to come. If the U.S. government had let GM and Chrysler go bankrupt, the U.S. motor vehicle market would be dominated by foreign companies.

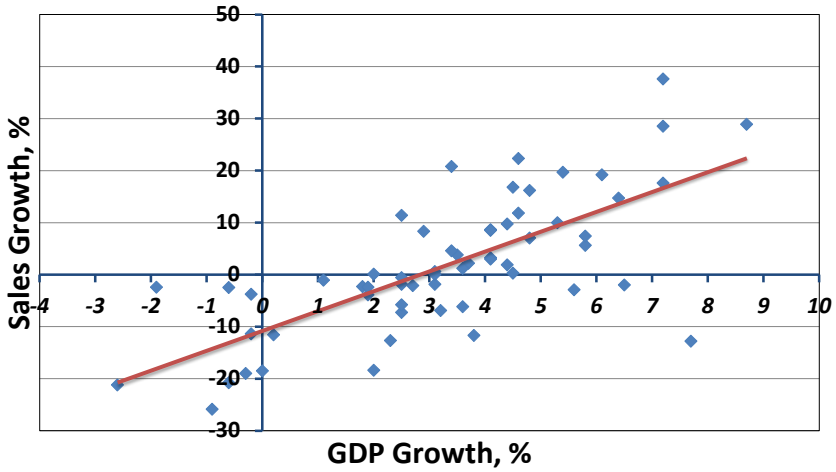
Chart 3: Detroit Three U.S. Market Share, 2001-2010 Q3, Sales of Detroit Three North American Owned Production



Source: CAR Research

Finally, while the U.S. economy has officially been in recovery since Q2 2009, according to the National Bureau of Economic Research, growth has been sluggish. Except for the first quarter, this year's GDP growth was lower than 2 percent SASAR. Historically speaking, vehicle sales do not increase if the GDP annual growth rate is less than 3 percent. So far this year, GDP has only grown 2.5 percent. If the sluggish economic growth continues throughout this year and into next year, overall sales will likely remain at current levels. On the other hand, if the GDP growth rate were 1 percent, as was expected had the government not intervened, auto sales would have dropped another 8 percent this year, according to historical trends (Chart 4).

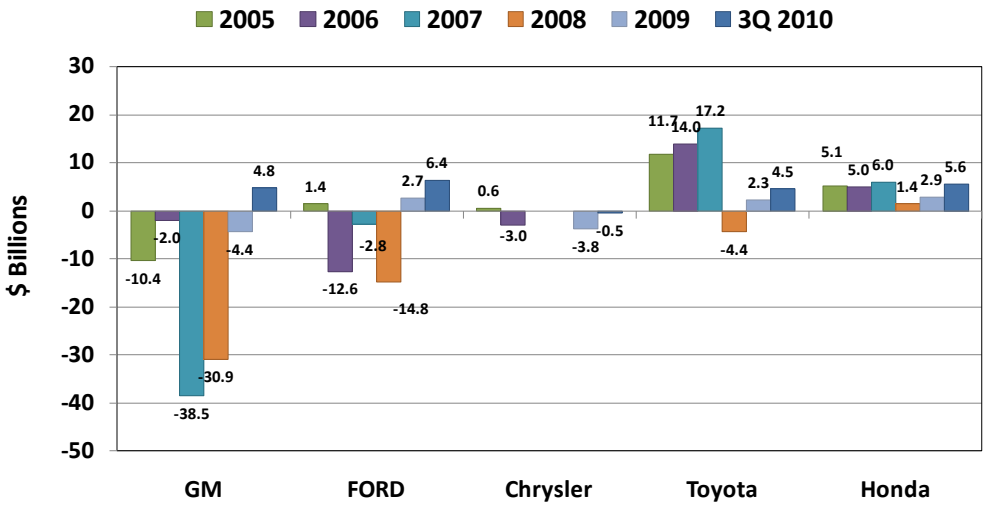
Chart 4: Need 3% GDP Growth to Have Positive Automotive Sales Growth, GDP Growth Rate and Automotive Sales Growth Rate, 1950-2009



Source: CAR Research

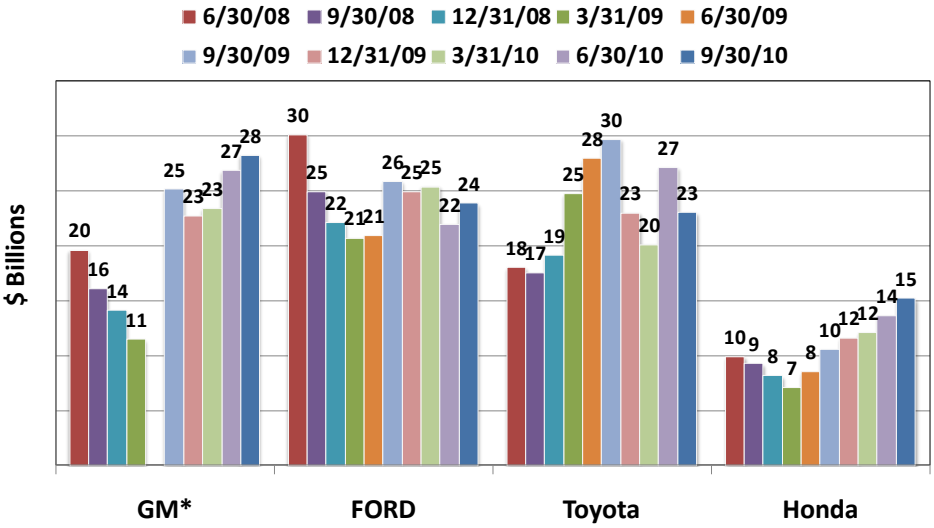
Against the backdrop of lackluster overall economic recovery, and the mixed bag of automotive-specific results from 2008-2010, the Detroit Three automakers have proven that they can make money at far lower volumes than was true prior to the crisis. The break-even point has been lowered for all three companies, and profits and cash flow have been positively impacted.

Chart 5: Earnings Are Positive: Corporate Net Income (Loss), 2005-2010 Q3



**GM represents both General Motors Corp. and General Motors Co.*
***Chrysler represents Chrysler Group of DaimlerChrysler AG, Chrysler LLC, and Chrysler Group LLC.*
****Toyota/Honda data reflect corresponding fiscal year financial results.*
Source: Companies' financial reports

Chart 6: Cash and Cash Equivalent – Quarterly, 2008 Q2-2010 Q3



**The numbers reflect both old GM and new company after the bankruptcy. Second quarter of 2009 data was not available due to the bankruptcy process.*
Source: Companies' quarterly reports.
Source: Companies' quarterly reports.

Scenario and Methodology

For purposes of this study, CAR researchers replicated the exact scenarios produced for the May 26, 2009 memorandum on the difference between the economic impacts of "good" and "bad" bankruptcies—using a model loaded with actual economic performance data for the period 2009-2010. As in the previous economic impact studies, CAR employed the Regional Economics Models, Inc. (REMI) forecasting model.

The REMI model uses annualized data. At the REMI website, www.remi.com, the resources tab provides model documentation detailing every dataset, as well as data scrubbing procedures. The REMI model provides for central bank monetary responses and federal fiscal policy responses to movements in the economy. There are three options that may be chosen for simulation purposes. Each of these options provides varying levels of federal involvement and different rates of policy response. We use the Keynesian closure option. This option has the lowest level of federal response to economic upheavals, with no fiscal intervention to economic shocks in any sector of the economy. This option provides the clearest picture of the true role that any one industrial sector has within the national and regional economies. The purpose of the study was not to forecast Fed response to the automotive industry contraction, but to show the extent to which the auto industry is a large component of the U.S. economy.

Within the REMI model, important algorithms affecting the rate of economic growth or contraction are the migration equations (the movement of population from one area or state to another). Migration occurs due to economic pulls or pushes; the migration equations used in REMI reflect the mobility of the population as experienced in the U.S. economy over the past 30 years. Therefore, the ability of a labor force to recover from this type of industrial shock is reflected in model results.

Trade with other nations, via imports and exports, is part of the model and is affected by economic changes. Exchange rates are not a focus of the model, and are incorporated into the trade effects based on historical data.

Generating meaningful results from an economic model requires:

- having an understanding of the algorithms, datasets and formulae of the model being used,
- having familiarity with how changes in various data inputs will impact results, and
- calibrating the model to historical, known outcomes.

In addition, economic simulations are most useful when combined with a theory of how model results can be used against the backdrop of current economic conditions. Every situation has aspects that are not going to be captured in a model in such a way as to produce consistently accurate forecasts. The current economy in the U.S. is extremely volatile. The employment impact results found in this study–in either of the scenarios–are quite low, because many of the employment losses due to GM's and Chrysler's downsizing have already occurred and are part of the model's baseline. For all industries, capital funds are not as readily available as they were even a year ago. Therefore, investment spending (which is needed for economic and employment recovery) is presently not occurring at the healthier levels, seen as recently as 2007. This would indicate that the recovery predictors of the model (based on 15-year historical averages) are optimistic for current economic conditions.

Results

Table 2: November 2010 Backcast of Economic Impact of Government Aid to U.S. Automotive Industry

	Best Case Estimates		Worst Case Estimates	
	2009	2010	2009	2010
Total Employment	-193,078	-171,219	-1,329,406	-485,641
Personal Income (Lost)	-$12.61	-$12.32	-$84.47	-$36.95
Increase in Transfer Payments	$0.94	$0.88	$6.51	$2.49
Decline in Social Security Receipts	-$1.45	-$1.41	-$9.61	-$4.12
Decline in Personal Income Taxes	-$1.36	-$1.33	-$9.20	-$3.99
Net Impact to Government of Avoiding the Worst Case	$21.6 billion in 2009 $7.0 billion in 2010			

Note: All dollar amounts are in billions of current dollars

Jobs

The May results estimated that the outcomes of the orderly bankruptcy proceedings would save 1.28 million jobs in 2009, while the current review estimates slightly lower job savings of 1.14 million jobs. For 2010, original estimates (of orderly bankruptcies vs. unsuccessful proceedings) were that 267,300 jobs would be saved, while the current review estimates that 314,400 jobs were preserved.

Personal Income

From the May forecast, personal income losses were expected to be $65.3 billion less in 2009, and $16.5 billion less in 2010, with the review estimates higher at $71.9 billion for 2009 and $24.6 billion for 2010.

Net Impact to Government

The contrast between the two studies for the net impact to government budget—lower transfer payments, higher social security receipts and higher personal income taxes paid—amounted to original estimates for a public benefit of $25.8 billion in 2009, and $6.5 billion in 2010 compared to new estimates of $21.6 billion in 2009, and $7.0 billion in 2010, for a two-year total of $28.6 billion.

Conclusion

In May, 2009, CAR estimated that if GM and Chrysler were able to enter into bankruptcy proceedings and exit within 90 days with operating cash, the effect on the economy would be an initial loss of 9,700 jobs (total for both companies) in 2009, and a cumulative total loss of 29,000 jobs by the end of 2010. Using historical employment and economic data, CAR now estimates that 23,900 jobs were lost at these companies by the end of 2009, and a net of 21,900 jobs will have been shed at these companies by the end of 2010. The cumulative losses to the economy as of the end of 2010 are less than originally forecasted. The original forecast predicted that nearly 180,000 jobs would be lost in the U.S., while in actuality, a total of slightly more than 171,000 total jobs will have been taken out of the economy.

The forecast and the review differ most significantly for the year 2009. For this year, the original forecast estimated that job losses would be minimal for the first 6 months following the bankruptcies, and that job losses would continue throughout 2010. In actuality, the companies moved quickly to optimize production capacities and rationalize operations. While this meant that most jobs were eliminated almost immediately, the companies were able to improve their operations with surprising speed. Although the loss of jobs has been a severe blow to the economy, these companies are now poised to operate profitably and at lower levels of production and sales.

Net Public Benefit of Government Intervention

Providing government assistance to General Motors and Chrysler through quick and structured bankruptcy proceedings avoided the worst case scenario. In reviewing the economic impacts using actual economic performance for 2009 and much of 2010, the net public benefit—the difference between what CAR estimated did happen and what CAR predicted might have happened to government transfer payments, social security receipts and personal income taxes paid—was just $4.2 billion in 2009 and $0.5 billion in 2010.

The U.S. government provided $80 billion in total assistance to General Motors, GMAC, Chrysler and Chrysler Financial[8], and stands to recover a substantial amount of this financial assistance through upcoming sales of stock in the Initial Public Offerings (IPOs) at General Motors and Chrysler. To date, $13.4 billion in principal has already been repaid, which brings the total remaining outstanding government investment to $66.6 billion. The updated analysis contained in this memo demonstrates that even if the net return to the U.S. Treasury is $28.6 billion (the amount of the net public benefit of the government intervention) lower than the outstanding public investment in these two companies, or $38 billion, the public will have at least met a two-year break-even. This means that if the Treasury recovers $0.57 on the dollar or more in upcoming equity sales, the public will have been made fully whole. Additionally, the government's actions avoided personal income losses totaling over $96 billion, 1.1 million net job losses in 2009, and another 314,400 in 2010.

[8] www.financialstability.gov, amount of assistance and repayments made confirmed in November 16, 2010 conversation with U.S. Treasury automotive staff.

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