

Best Options for the Auto Industry Crisis

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The International Motor Vehicle Program (IMVP), founded in 1979 and headquartered at MIT, is an international network of professors and graduate students who do collaborative research aimed at understanding the strategic and competitive challenges facing the global automotive industry.

The views expressed in this paper are solely those of the authors and not those of their universities or any other programs or groups with which they are affiliated.

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Executive Summary

This memo builds on evidence and knowledge gained from 20 years of research and active involvement in the auto industry, much of it carried out under auspices of the International Motor Vehicle Program (IMVP), a research network headquartered at MIT and funded by the Alfred P. Sloan Foundation.

Based on our work we believe the extraordinary crisis facing the Detroit 3 automakers (GM, Ford, Chrysler) compels Congress to take actions that:

- Avoid the economic and human impact of potentially losing 1.5 to 3 million jobs;
- Enhance long term industry competitiveness;
- Accelerate improvements in fuel efficiency and development of energy-saving vehicles;
- Hold the industry and all its stakeholders — unions, suppliers, dealers — jointly accountable for reducing costs and improving quality and responsiveness to customers;
- Minimize the human costs of transforming the industry by fully implementing health care, pension, and workforce adjustment reforms from recent labor contract negotiations; and
- Minimize the government's financial exposure and provide appropriate monitoring of progress toward these goals.

Our view is that what the Detroit 3 needs is **not** what Chapter 11 bankruptcy provides best -- the ability to break contracts and lower costs unilaterally. Suppliers are already operating on near-zero margins and in bankruptcy themselves, and progress made on labor/pension/health care costs just needs the opportunity for full implementation. Rather we urge continued pressure and incentives to improve operational performance, reduce waste, make smarter strategic decisions, learn and collaborate better. To achieve these goals:

- The government should provide access to the equivalent of Debtor-in-Possession (DIP) financing to make continued operations possible without filing for bankruptcy.
- Any company requesting funds should present restructuring plans that include:
 - Aggressive and achievable targets for improved fuel efficiency, beyond those currently required by law, and development of alternative energy vehicles.
 - Clear milestones for working with suppliers, the union, dealers, and other stakeholders to accelerate the pace of improvements in quality, productivity, responsiveness to customers, and other appropriate performance metrics.
 - Joint union-management plans to minimize the human costs and to aid adjustment to workers, engineers, and managers displaced by industry restructuring.
 - Implementation of the recently negotiated VEBA plans that restructure and control the costs of retiree health care.
 - Forgoing dividends and setting executive compensation levels to be no higher than the average for automakers selling cars in the US.
- An oversight commission should be created with the power to accept, reject, or request modifications in submitted plans and to monitor progress in achieving these goals.
- Congress should commit to coordinated, complementary changes in health care and energy policy.

Analysis and Detailed Plan

Since the problems facing the Detroit 3 are partly of their own making, any government aid should require conditions that do not allow a continuation of the status quo but instead advance national policy interests vis-à-vis energy independence, long term competitiveness, innovative capabilities, and economic and human development. Still, the current crisis is not entirely attributable to company and/or union failures to attend to these past problems. The devastating impact of the financial crisis on consumer confidence and access to credit, combined with an unprecedented spike in fuel prices, has caused automotive sales to drop from 15 million/year to 10 million/year. This is not a permanent shift in demand but a temporary shock (of unknown duration).

The Detroit 3 have already taken major steps towards strengthening their long-term competitiveness, including negotiating pathbreaking contracts with the UAW that dramatically reduce health care and pension costs for existing employees and retirees and decrease salaries and benefits for new employees; developing a product portfolio much better matched to current demand conditions; and achieving impressive improvements in quality, reliability, and productivity that have substantially closed the gap with competitors.¹ The popular media still reports on “gold plated” benefits, “uncompetitive” work rules, and earlier job security provisions such as the “jobs bank” – all of which have been adjusted in substantial ways under the current labor agreements and operating practices. The financial crisis has struck at a time when these initiatives are still being implemented, hence their benefits are not yet fully visible — and there is a distinct lag in public perception. Allowing one or more of the companies to fall into bankruptcy would abort these efforts. This positive trajectory should have a chance to continue.

In this context, Chapter 11 bankruptcy would exacerbate the problems facing the industry and impose substantial costs on society. What a Chapter 11 bankruptcy provides best -- the ability to break contracts and lower costs unilaterally is not what is needed. Suppliers are already operating on near-zero margins and in bankruptcy themselves, and progress made on labor/pension/health care costs need to be fully implemented. Rather we urge continued pressure and incentives to improve operational performance, reduce waste, make smarter strategic decisions, learn and collaborate better.

The auto industry contains valuable capabilities — related to technological innovation, national security, energy independence, and new solutions to mobility problems — whose loss should not be taken lightly. After a bankruptcy, the human capital embodied in some individual engineers would be redeployed at foreign automakers and new U.S.-owned start-ups, but the social capital developed among teams of engineers working in collaboration at automakers and suppliers would be lost. In particular, the financial crisis has caused automakers to postpone the launch of potentially game-changing models, such as GM’s plug-in hybrid (the Volt), and the Cruze, which gets 45 miles per gallon with a turbocharged conventional engine.

While further cuts in employment at the Detroit 3 are certain to happen — in all job categories and across supplier and dealer networks — government aid can minimize the dramatic impact of an

¹ For example, a 1990 International Motor Vehicle Program study, *The Machine That Changed the World* (1990) found that Toyota made "cars with one-third the defects, built in half the factory space, using half the man hours" of US producers. Today, the Toyota advantage on these factors is either non-existent or very small. For example, at GM overall performance in the J.D. Power Initial Quality Survey has improved 25 percent in the last five years; GM has also cut its warranty expenditure in half since 2002. Ford’s gains in quality and warranty costs exceed those of GM. And the Detroit 3 have innovated--they gave us the minivan and the SUV. Not the innovations that environmentalists would have liked, but ones that maximized profits given the (mis-guided) public policy around gas prices at the time.

immediate bankruptcy and soften the negative impact on the already weakened economy. Conservative estimates place that impact at 1 to 1.5 million jobs lost in 2009 alone. Some estimate the ripple effect of job loss could reach 3 million or higher. This is an immense number; only 1.2 million jobs nationwide, across the entire economy, have been lost so far in what is already a very severe recession.

We see bankruptcy as an overly blunt tool to deal with the complex problems of this highly integrated industry, one which cannot easily be broken up into chunks of assets that can be redeployed efficiently elsewhere. Furthermore, handling something as huge and complex as the bankruptcy of GM would tie up private and public financial and human resources in complex legal proceedings that would last for years. It would also be difficult for management in bankruptcy to undertake major new initiatives, since their focus is very much on what is going on in bankruptcy court. Meanwhile, huge costs would fall on federal, state, and local governments in the form of growing unemployment benefits, health care costs, and pension terminations — at amounts likely to far exceed the amounts of aid under consideration. Unlike with air travel, which has continued even as airlines have entered bankruptcy, consumers contemplating the purchase of a vehicle from a bankrupt company will face economic concerns (can I get this car serviced?) and, more significantly, psychological barriers (what are my risks with this company's products?). If, as many predict, bankruptcy led to Chapter 7 liquidation rather than Chapter 11 restructuring, this would involve a multi-year adjustment process as plant capacity is adjusted under new owners, with massive workforce displacement during the transition. Finally, the bankruptcy process is not designed to give public policy considerations any priority; it exists solely to protect creditors and their financial interest.

Thus any government aid must be structured to address the full short term and long term dimensions of this complex problem by:

- Avoiding economic devastation from failure of the Detroit 3 that will be felt nationwide;
- Allowing the important restructuring steps undertaken by these companies and the UAW to come to fruition;
- Insuring that the Detroit 3's worst status quo tendencies, deeply entrenched in their corporate cultures, are met with strong conditions, imposed from a position of deep understanding of how the industry actually operates;
- Facilitating a transition to a smaller but competitively viable U.S.-owned auto industry by avoiding abrupt jolts via a more phased trajectory; and
- Advancing vital U.S. policy objectives in which the auto industry can play a central role.

We believe that the government aid must be conditioned on the Detroit 3 and all its stakeholders — suppliers, dealers, unions — developing the capabilities that have led companies like Toyota and Southwest Airlines to dominate their industries. These firms excel at managing a *knowledge-driven* organization, based on disciplined problem-solving and improvement processes, cognitive contributions from every organizational member, and effective coordination on complex interdependent tasks (such as changing the die in a stamping press in seven minutes, or turning around a plane at the gate in 20 minutes) that is grounded in long-lasting, respectful, and trust-building relationships.

Where the Detroit 3 have made big improvements in recent years, it is because they have begun to learn — after a long fallow period of “not getting it” — the lessons of continuous learning in the factory and in the product development process. Indeed, all three automakers now have some locations that are true knowledge-driven workplaces, delivering world class performance on safety, quality, cost, and other indicators. The 2007 UAW contract negotiations also provided dramatic evidence of a new approach to complex problem-solving among parties more accustomed to adversarial locking of horns.

But despite signs of forward motion, the Detroit 3 have been plagued by difficulties perpetuated by old habits and mindsets in such areas as supplier relations and dealer relations.

Consider, for example, vehicle quality, an outcome resulting from complex interactions between product design, supplier capability and reliability, and assembly plant capability and shop floor teamwork that promotes continuous improvement. We see impressive improvements over the past few years for the Detroit 3 in assembly plant quality. A variety of indicators now show quite small differences between US and Japanese producers. Product development changes have also contributed to quality, both in improved design-for-manufacturability and in enhanced “look and feel” that signals quality to consumers. These gains are already providing substantial savings in warranty costs. For example, Ford reported over \$1 billion in warranty savings in 2007.

Progress in union-management efforts to promote team work and flexibility has been made, though there is still work to be done. Some plants continue to be slow in adopting modern productivity and quality enhancing work systems and cooperative relationships. The pace of transforming union-management relations to achieve world class performance levels needs to be accelerated and union and management need to be held accountable for fostering and achieving continued improvements. The contract at the GM-Toyota joint venture (NUMMI) signals the sort of labor agreement that complements a knowledge-driven work system and there are other local and national agreements throughout the industry that provide helpful models.

The parties did take aggressive action in their last contract negotiations to lower future wage and benefit costs. The UAW agreed to establish a health care trust fund (VEBA) to take retiree health care costs off the companies’ books, producing an estimated \$2,000 savings per car. Workers will pay approximately 25% of the costs of the fund by diverting future wages into the trust. New employees will be enrolled in a hybrid defined contribution/defined benefit plan (a cash balance account) which reduces and stabilizes future benefit costs. Wages for new workers are lower and all workers pay more in deductibles and co-pays. Innovative joint initiatives to improve worker health and increase access to lower cost nurse practitioners and physician assistants were also introduced. As we noted earlier, “bloated wages” and “gold-plated benefits” — popular characterizations of the source of Detroit 3 problems — are simply not accurate statements about true causes of this industry crisis. Calls for shared sacrifice are appropriate given the urgency of this moment, but need to take these recent advances into full account.

Suppliers are a crucial determinant of the performance of a car. Purchased parts account for far more than half of the costs of making a car. (In contrast, wages and benefits paid to UAW assemblers — the focus of much attention — account for less than 10%.) These parts also account for an important part of automotive performance.

Unfortunately, the Detroit 3 lag behind Japanese firms in the quality of supplier relations. Annual surveys by Planning Perspectives, Inc. calculate a Working Relations Index, based on a supplier’s rankings of its automaker customers. From 2002 to 2008, on a scale from 0 to 500 (where 0-250 indicates poor supplier relations and 350-500 indicates very good supplier relations), the range of scores for Toyota was 314 to 415; the same range for Honda was 297 to 384. In contrast, the range for GM was 114 to 174; Ford’s range was 162 to 191; and Chrysler’s range was 161 to 218.

Why are relations so poor? US automakers continue to try to reduce component prices using competitive bidding. This mechanism pits suppliers against each other, assuring that margins remain slim. However, this mechanism does not yield the lowest system cost. The true cost of a component includes not just its per-unit cost, but the cost of installing it, the quickness of a supplier's response to unanticipated problems, and warranty costs. A car is a highly complex product, with 5000 parts that must come together with tolerances as low as 1/1000 of an inch, and where a fault in quality or delivery can shut down an assembly plant, costing up to \$10,000 per minute. Most sub-assembled components

are designed especially for a particular product; finding the best design requires input from both the supplier and the automaker. For example, a lighter-weight latch assembly is cheaper, but may not withstand the force that will be placed on it in a particular application—something that is often determined only when the design of all surrounding parts is known.

The Detroit 3 have insisted that suppliers do more of the design of their products (usually without additional compensation) and imposed 3 to 5 per cent annual price cuts without any shared effort to find pragmatic ways to reduce costs. The impact of these actions is to squeeze supplier margins, leading many of them to the edge of bankruptcy even before the current crisis.

An alternative way of relating to suppliers is shown by Toyota and Honda. These automakers also push suppliers extremely hard—but in ways that improve quality, develop products that consumers want to buy, and yield profits that sustain suppliers through the business cycle. The process starts with a rigorous joint examination of each step in the production process, whether it is necessary and whether it could be done more cheaply. This exercise is carried out both at the design stage and after the part has gone into production. The information that surfaces during this process yields far greater savings than does multiple rounds of competitive bidding.

Delphi introduced this process — learned from managers it hired from Honda and Toyota — with its long-time suppliers in 2003 and achieved cost reductions of 20-30%, both by improving suppliers' processes and being willing to make changes in its own designs (e.g. reducing the number of variations of a product; simplifying attachment points). Unfortunately this process ended when Delphi filed for bankruptcy.

Bankruptcy is particularly damaging to organizations that are pursuing continuous learning both within their boundaries and in their relations across firms. In bankruptcy, contracts can be torn up, with terms renegotiated at lower prices. In the auto industry, excessive payments are not the main cause of the industry's distress. Many suppliers are already close to bankruptcy and the UAW has made substantial concessions. Instead, the various groups involved in the industry need to work together very differently than in the past, reviving and accelerating initiatives already under way, in pursuit of knowledge-driven work systems.

What bankruptcy court is good for is to get people to do the same things, only cheaper. What we believe, in contrast, is that the savings in the auto industry will come largely from doing different things (e.g., systematically studying costs and eliminating waste, increasing the ability to assemble multiple types of cars in a single plant). There is not a large payoff for the first option. The stock price is already close to zero (meaning shareholders have little equity left); many suppliers are themselves in or close to bankruptcy, and the UAW has already taken pay cuts, to the point that they will soon make less than their transplant counterparts. (In any case; active UAW employees account for at most \$800 per car.) It is possible that management, bondholders, and dealers could be paid less, but we think there are better ways to do this, as described below.

The airline industry is often cited as an example of an industry that continued function in bankruptcy. However, there is a key difference. In the airline case, airlines continued operating as usual — flights landed and took off as before. The airlines did not make major changes to their operations --as we are suggesting is required to create a viable auto industry.

What is the alternative to bankruptcy? While the U.S. government could nationalize a company like GM simply by purchasing 51% of the available equity (a bargain at present, at less than \$1 billion), this would be a contentious outcome given our nation's historic allegiance to private enterprise. A more achievable alternative would be a process that preserves the best while avoiding the worst of what a normal Chapter 11 bankruptcy provides, while building on the successful lessons of past government intervention in supporting firms in troubled industries.

Based on these goals, we advocate a process that includes:

- The government should provide access to the equivalent of Debtor-in-Possession financing to make continued operations possible without filing for bankruptcy.
- Any company requesting funds should be required to present restructuring plans that include at a minimum:
 - Aggressive and achievable targets for improved fuel efficiency and development of alternative energy vehicles.
 - Clear milestones for working with suppliers, the union, and other stakeholders to accelerate the pace of improvements in cost, quality, productivity, customer responsiveness, and other appropriate metrics related to supplier and dealer performance.
 - Joint union-management plans to minimize the human costs and aid adjustment to workers, engineers, and managers displaced by industry restructuring.
 - Implementation of the recently negotiated VEBA plans that restructure and control the costs of retiree health care.
- An oversight commission should be created with the power to accept, reject, or request modifications in submitted plans and to monitor progress in achieving these goals.
- Congress should commit to working toward health care and Medicare reforms that provide universal access to quality, cost-efficient care, and towards energy policy that creates ongoing incentives for consumers to shift towards fuel-efficient vehicles.

Note that this is not a full plan, but a set of potential elements in a framework. Our aim to suggest a viable path, but to refrain from mapping it out in detail since many inputs are needed from diverse stakeholders before anything could be codified.

Evaluation of other plans

Above we contrasted our proposal to the alternatives of Chapter 11 and Chapter 7 bankruptcy. In recent days, other proposals have been made; in this section we compare our plan above to these various alternatives. In each case, we try to examine likely outcomes, not idealized ones.

Alternative 1: companies file for Chapter 11 bankruptcy, and the government provides “Debtor-in-Possession” financing

This option seeks to restructure but runs the considerable risk of one or more of the firms ending up in liquidation if consumers worry about future service, warranties, or resale values. Liquidation would in turn lead to huge losses in capabilities and jobs. Moreover this option retains the problems of Chapter 11 bankruptcy (consumer uncertainty, no representation of social interests, focus on cutting margins on tasks done already, rather than fact-based collaboration to identify waste and opportunities for improvement).

Alternative 2: Companies are liquidated, and the government provides aid to workers and communities.

This is a vastly more expensive option than a \$25 billion loan, plus it disrupts valuable social networks for advanced engineering. If, for example, GM was liquidated, in the short run we would see a minimum of 500,000 jobs lost. (This number assumes that only 60% of workers at GM and its suppliers are actually unemployed, the others find jobs at other automakers and suppliers.) This number is

unrealistically low, but even if we paid each of them \$50,000 for a year, that's an outright expenditure of \$25 billion, without including their health care, or retiree pensions, or lost tax revenue or the possibility that a GM bankruptcy drives other suppliers down. A year is nowhere near long enough to rebuild the economies of Michigan, Ohio, and Indiana from the loss. In contrast a \$25 billion loan that is the first liability to be paid off is much, much cheaper.

Alternative 3: Sen. Levin and Rep. Frank bills

These bills have many good provisions. They provide for \$25 billion in loans, which companies can access if their proposal is approved by an oversight board. The loans come with warrants that allow the government to take an equity position, and prohibitions on paying bonuses to executives making over \$250,000 (\$200,000 in the Frank bill), offering golden parachutes, or paying dividends while loans from the government are outstanding. All other obligations would be subordinate to the loan from the taxpayers, yielding a high likelihood that it would be paid back.

To get the money, the automakers must submit both a Short-term Operating Plan by December 1, and then a Long-Term Restructuring Plan by March 31, 2009. The long term plan must be “an acceptable restructuring plan for long-term viability and international competitiveness, including meeting enhanced fuel efficiency standards and for advanced technology vehicle manufacturing, and restructuring of existing debt” to quote from the summary of the Frank bill. The Frank bill also includes an oversight committee to be made up of the secretaries of Labor, Energy, and Transportation and the EPA Administrator. Both bills take the money from the \$700 billion banking bill already passed, and maintain the oversight provisions (such as they are) of that bill.

We find both bills promising, though we prefer the Frank bill’s oversight panel. We would add two provisions:

1. A commitment to exceed the Corporate Average Fuel Economy requirement of 35 mpg by 2020, by 10% (This requirement could be made contingent on the passage of a bill requiring permits to emit greenhouse gases, to ensure that there is demand for such vehicles.
2. The “Financial Stability Oversight Board” in the Frank bill (described above) should be assisted by a panel of automotive industry experts who would create a set of operational metrics to ensure that the improvement programs we described above are well underway. Because of the interdependencies described above, there is a large payoff to collaborative relations, relations that are not well suited to being judged by conventional financial metrics. These metrics are focused on the short term, and can make it look attractive to (for example) squeeze supplier margins, not taking into account the long-term disadvantages of reduced ability to collaborate to reduce system costs.

We find this approach quite promising. We share the frustration of the public with the past decisions by leaders of the industry, and harbor no illusions that this plan has a 100% chance of producing a viable industry. However, we do not believe such a rigorous standard is necessary to meet to justify public investment in the industry. We believe that providing a well-secured loan to avoid imminent massive job loss in the industry is an intelligent use of public funds.

Conclusion

There is opportunity in this crisis. All stakeholders, amid the painful sacrifices that will be required, must keep this in mind. If the crisis is framed in zero-sum terms, the probability of a destructive scramble for each stakeholder to preserve its own benefits and prerogatives to the exclusion of others will increase dramatically — as will the risk of overwhelming losses for all. The plan outlined here would address the immediate crisis and put the industry on a path toward restoring its long term competitiveness, providing sustainable jobs and helping the nation meet its environmental challenges.