Testimony of Dr. Edward I. Altman before the House of Representatives Committee on Financial Services' Hearing on "Review of Industry Plans to Stabilize the Financial Condition of the American Automobile Industry"

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Mr. Chairman, and distinguished members of the Committee, my name is Dr. Edward Altman and I am the Max L. Heine Professor of Finance at the New York University, Stern School of Business and Director of the Credit & Debt Markets Research Program at the NYU Salomon Center. It is an honor to testify before the House of Representatives Committee on Financial Services today. I have been a Professor of Finance at the Stern School at New York University for 41 years and my areas of teaching and research concentration are corporate finance, bankruptcy and reorganization and managing credit risk. I am also an Advisor to several financial organizations in the investment management, financial markets and credit risk areas and to publishing and financial communication companies. I have also advised several Central Banks and quasi-governmental organizations in the past and have provided testimony to our Federal and New York State Congressional Committees on such subjects as the U.S. Bankruptcy Law (1973), the Current Business Failure Epidemic (1982), Potential Impact of High Yield Securities on Credit Markets (1985), M&As, LBOs and the Recent Increase in Corporate Debt (1989), Revisions of the U.S. Bankruptcy Code (1996) and the New Basel Accord (2003). I have written and/or edited two dozen books and published over 130 academic and professional articles. A copy of my bio and vita are attached.

My comments today will center on an alternative plan to that presented by the automakers for the restructuring of our nation's automobile industry and also on the financial health of and solvency prospects of the largest of our automakers, General Motors Corporation.

Some of my testimony today is based on an opinion piece that I had published on Forbes.com on November 12, 2008, when there was discussion of a merger of Chrysler with GM. A copy of that article is presented as an attachment to this testimony. I have been analyzing the health of GM and Ford for several years now and predicted the downgrade of these large and important US automakers several years before their securities were eventually downgraded from investment grade debt to non-investment grade ("junk bonds") in spring 2005.

I was one of the first analysts to advocate that GM should file for bankruptcy protection under Chapter 11 of the US Bankruptcy Code, but that the U.S. Government should not turn its back on these huge, important American firms and provide directly, or, through a guarantee to large banks or large firm conduits, e.g. G.E., a massive debtor-in-possession (DIP) loan to provide the necessary liquidity to sustain them during the likely long restructuring period.

With respect to the plan put forward by the US automakers to qualify for a $25+ billion loan-bailout, I would like to restrict my written comments to the financial aspects of the plan and especially to analyze whether the loan and revised capital structure will help transform GM into a potentially viable entity. Since there are potentially many subjective aspects to any viability study and great uncertainties as to the impact of operating changes that would accompany the financial changes, I believe it prudent to use a well tested and respected financial model to predict the future solvency of the firm. In addition, I will comment on the sustainability of GM after a government provided cash-infusion, as proposed by the automakers.

An Alternative to a Government Loan Program

General Motors Corporation is asking for a $12 billion loan and a $6 billion line of credit to provide the interim financing it say it needs to restructure the company. In addition, they will be offering a distressed exchange arrangement with their creditors to reduce the amount of debt by as much as $30 billion. Unfortunately, some form of traditional loan, even for $18 billion, is destined to fail in the current environment and will perhaps be followed by additional requests for more rescue funds or a bankruptcy petition once the initial loan has been exhausted. GM's cash-burn of perhaps $2 billion a month, or more, will reduce the assets of GM even further, and be exhausted in six to nine months based on current conditions. The global automobile industry, not just GM, is facing the likely prospect of an extended and severe economic recession. Many economists and financial forecasters expect the recession to last at least another two years with the likely prospect of the worst recession since World War II.

What is the alternative to a highly controversial government bailout? If it were not for the potential reaction in global credit markets and in the world's automotive markets, the answer would be absolutely clear. Both GM, and probably Chrysler, should file for protection -- yes protection -- under the US Bankruptcy Code, as soon as feasible. The benefits afforded to firms whose assets are protected and whose fixed payments on most liabilities are suspended, while attempting to reorganize under Chapter 11 of the Code, are clear. And, another, sometimes overlooked, enormous benefit for firms in bankruptcy is their ability to borrow substantial amounts of funds for continued operations under what is known as "debtor-in-possession" (DIP) financing. This unique aspect of our Bankruptcy Code gives the provider of funds a super-priority status over all existing unsecured claims and is almost always accompanied by specific

collateral such that the chance of losing any of its investment is quite remote. Indeed, the number of DIP losses to lenders can be counted on one hand from the thousands of such financings in the past. GM, and probably Chrysler, still has some unencumbered assets to qualify and even if it did not, the super-priority status gives the new lender a greater degree of confidence of being repaid.

Critics of this idea will quickly point out that the current market for DIP lending is essentially shut-down, as financial institutions are in a massive deleveraging phase and DIP risk capital, even at spreads of 700-800 bps (7 - 8%) over LIBOR, is currently unavailable. Circuit City's recent $1.1 billion DIP facility and Pilgrim Pride's $0.5 billion facility, did, however, show some life in the DIP market. Because of this and the enormous amount involved, the DIP lender-of-last-resort must be the US Government, to permit a rational "right-sizing" of the bankrupt firm, rather than resulting in our nation's vehicle production industry to eventually be sold off in pieces.

I advocate that the government work with one or more conduit organizations, like JPMorgan Chase, Citi, Wells Fargo, Bank of America and GE, who are experienced in structuring and monitoring DIP loans. DIP loans can be increased over time, with appropriate fees, to sustain GM over this expected long and likely deep recession. Without this support, GM and Chrysler are, I am afraid, doomed to eventually file for bankruptcy at a later point, with lower recoveries as asset values deteriorate and job losses mount. Indeed, Chrysler had announced that 50 percent of its workforce would had been laid-off if the two firms had merged. In addition to the DIP support, bankruptcy status enhances the ability for management to renegotiate existing and legacy pension and health care claims, which is much more difficult

outside the protective confines of the court system. And, the savings alone on interest payments by GM/GMAC would be at least equal to the interest of about $3.5 - $5.0 billion a year to the government or its conduit on say a $40 - $50 billion DIP facility.

Some fear that a GM bankruptcy announcement will cause immeasurable harm to the economy and to financial markets. The current situation of "waiting for another shoe to drop" in the credit market meltdown includes a possible GM/Chrysler bankruptcy filing and no doubt there will be some negative consumer and vendor fallout should they file. But, pointing out the high likelihood of bankruptcy, which is now obvious to all, (something that I and the credit default swap market have been forecasting for some time) will help reduce the surprise impact. And, the clearly articulated communication of guaranteed government support via the post-bankruptcy DIP financing route will help blunt consumer fears of liquidation, lost warranties, spare parts availability and other bankruptcy costs that the management and Board of GM worry about. Those costs, in the form of lost sales and profits, have already taken place to a large extent, as potential customers assess the health of the major auto companies in their purchase decisions.

The management and boards of these two firms, which until recently have been in a state of denial, should face up to the reality of their dismal outlook and request the DIP loan, leaving the government the choice of supporting this unique rescue and hopefully concluding that it would be far better for the country and the economy to "right-size" the auto business in the U.S. now and make it more competitive, rather than have it deteriorate further and sold off at a later date with even more lost jobs and cuts in pension/health care benefits. Incidentally, any concerns about the impact of a bankruptcy on pension benefits are not valid since the well

managed GM pension plan under General Motors Asset Management is over-funded at this point in time.

Nobody wants to see our American motor carrier icons go into bankruptcy -- not even those who have been predicting this fate for some time. But, if most stakeholders will be better off and if we minimize the surprise factor, then Chapter 11 reorganization, (not liquidation), with government sponsored DIP lending, is the way to go.

The Viability of GM with a Government Bailout

In order to assess the financial viability of GM assuming that they would receive a loan of $12 billion from the government and an additional line of credit of $6 billion, as well as exchanging equity for debt and reducing existing debt by $30 billion, I have utilized a model I developed called the Altman Z-Score model. This model is extremely well known and respected by practitioners and academics and is taught in most corporate finance, investments, and accounting courses and is the prototype for many of the world's financial institutions' corporate risk management system. It is a major source of default forecasting by practitioners and I am told by Bloomberg, Inc. that approximately 1,000 users of their system per day access the Altman Z-Score model. I developed the original Z-Score model 40 years ago and have updated the resulting firm credit scores bond rating equivalents for changes in the capital markets.

The Z-Score model is a composite credit score for manufacturers involving the calculation of five traditional financial measures of firm performance, including measures of corporate liquidity, cumulative and current profitability, leverage and sales productivity. Each measure is assigned a computer determined weighting such that when an analyst multiplies the

weights times the financial performance measures and sums up the five factors, the result is the overall Z-Score. The five variables and their weights are shown in Exhibits I-V. A variation of the Z-Score, comprising four of the five variables, was developed for non-manufacturing entities as well as manufacturers. This second model is known as the Z"-Score model. Also in the Appendix, are tables which show the bond-rating-equivalents of the Z and Z"-Scores (Exhibits IV and VII).

Over the years, the Z-Score model has been extremely accurate in correctly predicting between 82 - 94% of all firms that went bankrupt based on financial data from one year prior to bankruptcy. Since U.S. companies are, on average, more risky today than they were in 1968, I no longer use three zones to summarize their outlook (safe, grey and distressed-Exhibit III). Instead, we use the bond-rating-equivalents (BRE) that do change somewhat over time. From the BRE, we can then estimate the probability of default – assuming that the firm's BRE is above D (default).

I have analyzed General Motors' viability (including its 49% interest in GMAC) in the following way. I have taken its financial results as of the end of the third quarter of 2008 and estimated its fourth quarter's operating performance by assuming it was no better, or worse, than that of the third quarter. Actually, I am certain that the fourth quarter's results will be far worse than the loss of about $2.5 billion reported in the third quarter. I have also assumed a $2 billion per month "cash-burn" for each month in the 4th quarter, as reported by the firm in many of its statements. I have then adjusted its capital structure for the $30 billion reduction in debt and addition to equity based on its proposed massive equity for debt swap. There is no guarantee incidentally, that GM's creditors will accept this distressed exchange, in whole or in part.

Finally, I have assumed that GM will receive the $12 billion loan and $6 billion line of credit. As such, I have assumed the actualization of GM's proposed out-of-court restructuring.

Using the 5-variable Z-Score model, as of the end of the third quarter of 2008, GM's Z-Score was -0.16, which places the firm clearly in the "D" bond-rating-equivalent category. Indeed, GM's Z-Score fell and became negative for the first time as of June 2008 and was in the "D" default zone (see Exhibit VI). The average Z-Score of a sample of hundreds of bankrupt firms in the recent past was -0.19. When I estimated this pro-forma financial profile as of 12/31/08, GM's Z-Score improves slightly to -0.09, assuming the receipt of $12 billion in loans and to -0.03 assuming an increase of $18 billion in cash from the government. These scores are still much closer to a "D" rating equivalent than to a "CCC" rating. Please see Exhibits IX and X for the Z-Score calculation results and my assumptions for Q4 2008.

For the Z"-Score model, useful since a part of GM's activities are non-manufacturing, the scores and BREs are (Exhibits IX and X):

Period	**Z"-Scores**	**BREs**
3Q 2008	-1.57	D
4Q 2008 ($12 billion)	-0.46	D
4Q 2008 ($18 billion)	+0.02	D

In conclusion, even with the generous assumptions as to Q4 operating results and carefully adhering to GM's proposed restructuring, GM is still a highly distressed company and likely to go bankrupt, probably with one year. As a post-script, the Z-Score model can also be

used to evaluate the firm when it emerges from Chapter 11 as to whether it will be able to sustain itself as a going concern.

I hope the Committee will find my testimony helpful in their important deliberations. I would be pleased to answer any questions.

Exhibits On The Altman Z-Score Bankruptcy Model

Exhibit I
Z-Score Component Definitions

Variable	Definition	Weighting Factor
X_1	$\frac{\text{Working Capital}}{\text{Total Assets}}$	1.2
X_2	$\frac{\text{Retained Earnings}}{\text{Total Assets}}$	1.4
X_3	$\frac{\text{EBIT}}{\text{Total Assets}}$	3.3
X_4	$\frac{\text{Market Value of Equity}}{\text{Book Value of Total Liabilities}}$	0.6
X_5	$\frac{\text{Sales}}{\text{Total Assets}}$	1.0

Exhibit II
Altman Z-Score
Bankruptcy Model

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + .6X_4 + .999X_5$$

$$X_1 = \frac{\text{Current Assets - Current Liabilities}}{\text{Total Assets}}$$

$$X_4 = \frac{\text{Market Value of Equity}}{\text{Total Liabilities}}$$

$$X_2 = \frac{\text{Retained Earnings}}{\text{Total Assets}}$$

$$X_5 = \frac{\text{Sales}}{\text{Total Assets}}$$

(= # of Times e.g. 2.0x)

$$X_3 = \frac{\text{Earnings Before Interest and Taxes}}{\text{Total Assets}}$$

Exhibit III
Zones of Discrimination:
Original Z-Score Model (1968)

$Z > 2.99$ - "Safe" Zone

$1.8 < Z < 2.99$ - "Grey" Zone

$Z < 1.80$ - "Distress" Zone

Exhibit IV
Average Z-Score by S&P Bond Rating
S&P 500

Rating	2004-2005	1996-2001	1992-1995
AAA	5.31	5.60	4.80
AA	4.99	4.73	4.15
A	4.22	3.74	3.87
BBB	3.37	2.81	2.75
BB	2.27	2.38	2.25
B	1.79	1.80	1.87
B-	1.34	1.31	1.38
CCC+	0.90	0.82	0.89
CCC	0.45	0.33	0.40
D	-0.19	-0.20	0.05

Source: Compustat Database

Exhibit V
Classification & Prediction Accuracy
Z-Score (1968) Failure Model*

Year Prior To Failure	Original Sample (33)	Holdout Sample (25)	1969-1975 Predictive Sample (86)	1976-1995 Predictive Sample (110)	1997-1999 Predictive Sample (120)
1	94% (88%)	96% (72%)	82% (75%)	85% (78%)	94% (84%)
2	72%	80%	68%	75%	74%
3	48%	-	-	-	-
4	29%	-	-	-	-
5	36%	-	-	-	-

*Using 2.67 as cutoff score (1.81 cutoff accuracy in parenthesis)

Exhibit VI
U.S. Automotive Industry: Z, Z"-Scores and Bond Rating Equivalents (BRE)

Ford and GM Quarterly Z and Z score tracking				
	Ford		**GM**	
	Z Scores	**BRE**	**Z Scores**	**BRE**
09/30/08 [1]	**0.44**[1]	**CCC**[1]	**(0.16)** [1]	**D** [1]
06/30/08 [2]	**0.56**[2]	**CCC**[2]	**(0.07)** [2]	**CCC- / D** [2]
3/31/08	0.57	CCC	0.52	CCC
12/31/07	0.58	CCC	0.88	CCC+
12/31/06	0.35	CCC	1.04	CCC+
12/31/05	0.64	CCC	0.46	CCC
12/31/04	0.61	CCC	0.36	CCC
	Z" Scores	**BRE**	**Z" Scores**	**BRE**
9/30/2008 [1]	**2.62**[1]	**CCC**[1]	**(1.49)** [1]	**D** [1]
06/30/08 [2]	**3.33**[2]	**CCC+**[2]	**(0.63)** [2]	**D** [2]
3/31/08	3.03	CCC+	1.03	CCC-
12/31/07	3.03	CCC+	1.94	CCC-
12/31/06	2.73	CCC	2.95	CCC+
12/31/05	2.92	CCC+	3.82	B-
12/31/04	2.86	CCC+	2.78	CCC
Representative Bond	5.65% SrSub 11/21/11		7.20% SrSub 1/15/11	
Moody's Ratings (8/2008)	B1		Caa1	
S&P Rating (11/7/2008)	B-		CCC+	
Fitch Rating (11/7/2008)	CCC		CCC	
Bid Price (as of 8/2008)	65.97		58.50	
Yield	21.47%		33.36%	

Data Source: Bloomberg

[1] Last Twelve Months (LTM) data as of 09/30/2008

[2] Last Twelve Months (LTM) data as of 06/30/2008

Exhibit VII
Z''-Score Model for Manufacturers, Non-Manufacturer Industrials, & Emerging Market Credits

$$Z'' = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

$$X_1 = \frac{\text{Current Assets - Current Liabilities}}{\text{Total Assets}}$$

$$X_2 = \frac{\text{Retained Earnings}}{\text{Total Assets}}$$

$$X_3 = \frac{\text{Earnings Before Interest and Taxes}}{\text{Total Assets}}$$

$$X_4 = \frac{\text{Book Value of Equity}}{\text{Total Liabilities}}$$

$Z'' > 2.60$ - "Safe" Zone

$1.1 < Z'' < 2.60$ - "Grey" Zone

$Z'' < 1.1$ - "Distress" Zone

Exhibit VIII
US Bond Rating Equivalent Based on Z" -Score Model

$$Z'' = 3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

Rating	Average 1996 Z"-Score [1]	Average 2006 Z"-Score [1]
AAA/AA+	8.15 (8)	7.51 (14)
AA/AA-	7.16 (33)	7.78 (20)
A+	6.85 (24)	7.76 (26)
A	6.65 (42)	7.53 (61)
A-	6.4 (38)	7.10 (65)
BBB+	6.25 (38)	6.47 (74)
BBB	5.85 (59)	6.41 (99)
BBB-	5.65 (52)	6.36 (76)
BB+	5.25 (34)	6.25 (68)
BB	4.95 (25)	6.17 (114)
BB-	4.75 (65)	5.65 (173)
B+	4.5 (78)	5.05 (164)
B	4.15 (115)	4.29 (139)
B-	3.75 (95)	3.68 (62)
CCC+	3.2 (23)	2.98 (16)
CCC	2.5 (10)	2.20 (8)
CCC-	1.75 (6)	1.62 (0) [2]
CC/D	0 (14)	-1.04 (5)

Sources: Compustat, Company Filings and S&P

[1] Sample Size in Parentheses

[2] Interpolated between CCC and CC/D

Exhibit IX

General Motors Corp: Summary Analysis (Government loan = $12bn)

Date	Z Score	BRE[1]	Z" Score	BRE[1]	S&P Rating	Moody's Rating
LTM for year ended September 30, 2008	(0.16)	D	(1.57)	D	CCC+	WR[1]
LTM for year ended December 31, 2008	(0.09)	D	(0.46)	D	NA	NA

[1] *Bond Rating Equivalent*

[2] *Withdrawn Rating*

Assumptions:

Source: 10K and 10Q

EBIT calculations for LTM for year ended December 31, 2008: Q1 + Q2 + (Q3 X 2)

Revenues calculation for LTM for year ended December 31, 2008: Q1 + Q2 + (Q3 X 2)

Cash Balance and working capital for LTM for year ended December 31, 2008: Balance in Q3 - $6bn + $12bn

Outstanding Debt calculations for LTM for year ended December 31, 2008: Assumed the writeoff of the $30bn debt with a corresponding increase in Book Value of Equity

Add $12bn to Total Liabilities

Retained Earnings calculations for LTM for year ended December 31, 2008:: Q3 balance - $2.542bn

Market Value of company
- Q3 2008: Closing share price on September 30, 2008 X No. of shares outstanding
- Q4 2008: Closing share price on December 02, 2008 X No. of shares outstanding

Exhibit X

General Motors Corp: Summary Analysis (Government loan = $18bn)

Date	Z Score	BRE[1]	Z" Score	BRE[1]	S&P Rating	Moody's Rating
LTM for year ended September 30, 2008	(0.16)	D	(1.57)	D	CCC+	WR[2]
LTM for year ended December 31, 2008	(0.03)	D	0.02	D	NA	NA

[1] *Bond Rating Equivalent*

[2] *Withdrawn Rating*

Assumptions:

Source: 10K and 10Q

EBIT calculations for LTM for year ended December 31, 2008: Q1 + Q2 + (Q3 X 2)

Revenues calculation for LTM for year ended December 31, 2008: Q1 + Q2 + (Q3 X 2)

Cash Balance and working capital for LTM for year ended December 31, 2008: Balance in Q3 - $6bn + $18bn

Outstanding Debt calculations for LTM for year ended December 31, 2008: Assumed the writeoff of the $30bn debt with a corresponding increase in Book Value of Equity

Add $18bn to Total Liabilities

Retained Earnings calculations for LTM for year ended December 31, 2008:: Q3 balance - $2.542bn

Market Value of company
- Q3 2008: Closing share price on September 30, 2008 X No. of shares outstanding
- Q4 2008: Closing share price on December 02, 2008 X No. of shares outstanding