

The Road Ahead



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Table of Contents

Executive Summary	4
Introduction	6
Crystal Ball Shows Even Lower Sales Volume in 2009	7
The Current Status of the Detroit 3	8
General Motors	9
Ford	14
Chrysler LLC	17
The Detroit 3 and the UAW	18
Current Status of Top International Automakers Selling in the United States	21
Toyota	21
Honda	23
Hyundai-Kia	24
Nissan	25
BMW	25
Daimler/Mercedes-Benz	26
Volkswagen (VW)	27
U.S. Light Vehicle Production	28
Plant Capacity Stable, Utilization Rates Down	28
U.S. Light Vehicle Sales	29
Tight Credit, Gas Prices, & Mother Nature Also Hurt Sales in 2008	30
U.S. Auto Dealers Struggle with Lower Sales	31
As Sales Decline, Incentives Grow	31
Alternative Fuels, Hybrid, and Diesel Technology	31
Automakers' Product Changes, New Investments, and Innovative Advances	34
Detroit 3	35
General Motors	35
Ford	38
Chrysler LLC	41
Japanese Auto Manufacturers	42
Toyota	42
Honda	43

Nissan.....	44
EUROPEAN AUTO MANUFACTURERS	45
BMW	45
Mercedes	45
Volkswagen	46
KOREAN AUTO MANUFACTURERS.....	46
Hyundai	46
Trade Overview	47
NAFTA	47
Japan	50
China	50
Russia	52
Korea	53
India	55
The Road Ahead	56
Fact Sheet	59

Tables (Pages 60-69)

Charts (Pages 70-81)

Tables & Charts

Tables (pages 60 - 69)

- Table 1: Consumers' Expenditures
- Table 2: U.S. Motor Vehicle Production
- Table 3: U.S. Motor Vehicle Sales
- Table 4: Total Passenger Vehicle Market
- Table 5: Light Truck Sales
- Table 6: Passenger Car Sales
- Table 7: Top 5 Markets of U.S. Light Vehicle Exports
- Table 8: Top 5 Sources of U.S. Light Vehicle Imports
- Table 9: U.S. Automotive Industry Average Annual Employment
- Table 10: Total Payroll and Fringe Benefits

Charts (pages 70 – 81)

- Chart 1: Consumers' Expenditures
- Chart 2: Detroit 3 Profit/Loss
- Chart 3: U.S. Light Vehicle Production
- Chart 4: Percent Utilization of U.S. Light Vehicle Production
- Chart 5: Vehicle Assembly Productivity
- Chart 6: U.S. Sales of Light Vehicles
- Chart 7: U.S. Market Share of Light Vehicles
- Chart 8: U.S. Imports of Light Vehicles
- Chart 9: U.S. Light Vehicle Trade
- Chart 10: U.S. Light Vehicle Trade Deficit
- Chart 11: North American Light Vehicle Output
- Chart 12: Detroit 3 NAFTA Production

Executive Summary

Domestic Trends

2008 saw record-high gas prices, an economic and financial crisis, tightening credit, and dwindling consumer confidence. As a result, the U.S. market for cars and light trucks declined 18 percent to 13.2 million vehicles in 2008, the lowest sales level since 1992. Every vehicle segment and automaker, other than Subaru, experienced a sales decline. The severe sales reduction particularly affected the Detroit 3 (GM, Ford and Chrysler), resulting in employment and benefit reductions, plant and dealership closures, supplier bankruptcies, asset sales, product changes, and near-bankruptcy for GM and Chrysler. U.S. light vehicle manufacturing employment alone has declined by 37,700 employees since 2006.

For the first time since 2000, more cars were sold in the United States than light trucks. Sales of passenger cars fell 10.6 percent to 6.8 million vehicles, while sales of light trucks dropped to 6.4 million vehicles, a decline of 24.7 percent. Analysts are not optimistic vehicle sales will increase in 2009, nor do they expect annual U.S. sales levels to rebound to 16 million units for at least a couple of years.

The Detroit 3's combined market share was 47.4 percent in 2008, falling below 50 percent for the very first time. GM and Chrysler, on the verge of bankruptcy, received U.S. government loans, with conditions, in late 2008 and early 2009 totaling \$17.4 billion (as of March 2009). Additional money was requested in February 2009 due to declining economic conditions. Ford has not asked for direct funding, but has stated it may need a \$9 billion line of credit. After assessing GM and Chrysler's restructuring plans submitted on February 17, 2009, the Obama Administration determined at the end of March 2009 that the plans were not viable and called for more aggressive restructuring plans for the automakers.

Foreign competitors were not spared from the U.S. market downturn in 2008. Japanese brands, with a 39.7 percent U.S. market share, experienced a 12.2 percent sales decline. German automakers had a 6.8 percent market share, but sales fell 6.1 percent. The Korean manufacturers' market share grew to 5.1 percent, but sales declined 12.6 percent.

U.S. light vehicle manufacturing capacity declined again in 2007 (latest figure available) for the fourth year in a row. Capacity is likely to continue to decrease since new investments from foreign-affiliated firms will only partially offset the Detroit 3's planned plant closures.

International Trends

The downturn in the U.S. auto market in 2008 was not isolated, as other global markets also experienced a downturn. This global decline meant the Detroit 3 could not depend on other markets to boost their profits. Emerging markets such as Russia, India, and China, are expected to experience increasing income levels and growing vehicle ownership rates in the near future, and have already received high levels of investments by global automakers. However, 2008's global recession resulted in a relatively slow growth year for these markets as well.

The U.S. light vehicle trade deficit remained the highest in the world; however, a 7 percent increase in exports and 9.9 percent decrease in imports led to an 18.7 percent decrease in the light vehicle trade deficit, totaling almost \$79 billion. U.S. light vehicle exports have increased for seven straight years, with most continuing to go to Canada. In 2008, Japan replaced Canada as the largest source of light vehicle imports. Japanese imports fell 4.8 percent, imports from Canada decreased 23.7 percent, imports from Mexico fell 3.5 percent, and imports from Germany grew 4.3 percent.

Outlook

With such low consumer confidence, rising unemployment, and ongoing difficulties in the credit, financial and housing markets, analysts are forecasting U.S. vehicle sales and overall production volumes in 2009 to be even lower than in 2008. The Detroit 3 continue to restructure, with GM and Chrysler working with the U.S. government on turnaround plans to satisfy the terms of their loan agreements.

Stricter fuel economy regulations, lessening our dependence on oil, and an emphasis on reducing emissions are all placing greater pressure on automakers to bring advanced technologies to the U.S. market, as well as other markets worldwide. Complying with new regulations will require billions of dollars in investments by the automakers and may require new infrastructure as well. These demands are coming at a time when automakers are facing severe financial problems and many consumers cannot afford to pay a premium for the new technologies. The timing could also give international automakers, such as Toyota and Honda, an advantage because they are more financially sound to make R&D investments, and are perceived by many consumers as having the lead in providing fuel efficient models. Prioritizing and managing investments in the variety of technologies (i.e., biofuel engines, hybrids, plug-ins, hydrogen fuel cells, and advanced diesel engines) continues to be a challenge and gamble for all automakers. Worldwide competition is growing and it is unclear which technologies will be commercially viable.

The Road Ahead for the U.S. Auto Industry 2009

Introduction

U.S. light vehicle sales in 2008 were at their lowest level in 16 years. After nine straight years of sales levels above 16 million vehicles, the U.S. market fell to 13.2 million vehicles, a decrease of 18 percent compared to 2007.¹ The economic downturn that began during the first half of 2008 hurt not only the Detroit 3 (GM, Ford and Chrysler), but all automakers, as well as suppliers and dealers. Every automaker selling in the United States experienced a sales decline in 2008, with the exception of Subaru, which had only a 0.3 percent increase.

In 2008, the Detroit 3's U.S. market share fell below 50 percent for the first time to 47.4 percent. The Detroit 3, who have been restructuring for years, took further steps throughout 2008 to cope with the decline. Product plans were revised, additional capacity and personnel were cut, benefits were reduced, and incentives grew. By the end of the year, on the verge of bankruptcy, GM and Chrysler went to Congress asking for loans. Ford also appeared before Congress to support the two automakers and ask for a line of credit, if necessary. After providing required restructuring plans, GM and Chrysler received loans from Treasury, with conditions. In the midst of experiencing severe liquidity issues and an economic downturn, the automakers are under increased pressure to bring advanced technologies to the market.

Every segment of both light trucks and passenger cars saw a decrease in U.S. sales compared to 2007. For the first time since 2000, U.S. sales of cars were greater than sales of light trucks. Light truck sales accounted for 48.3 percent, and sales fell to 6.4 million units, a decrease of 24.7 percent from 2007. This drop impacted the Detroit 3 in particular, with their light truck sales falling 27 percent in 2008, compared to 2007. Passenger cars sales also decreased 10.6 percent.

According to the Department of Commerce's Bureau of Economic Analysis (BEA), consumer expenditures on new vehicles have been in flux over the past several years. (Table 1, Chart 1) After consecutive decreases during 2004-2006, spending on new trucks increased in 2007, but dropped again last year by 27.5 percent to \$100.2 billion. Expenditures on new cars have decreased for the past two years, after consecutive increases during 2003-2006. In 2008, expenditures were \$90.8 billion, a decrease of 12.3 percent compared to 2007.

U.S. light vehicle production also declined in 2008, falling by 19 percent to a total of 8.5 million units. Sales of vehicles produced outside the NAFTA region grew to a 25.3 percent share of total sales, despite decreasing U.S. imports.²

¹ "Light vehicles" include automobiles, station wagons, vans with more than 15 passenger capacity, sport and cross utility vehicles, and pickups, all rated at not more than 10,000 pounds of gross weight.

² The industry includes sales of vehicles made within the North American Free Trade Area [NAFTA] as 'domestic' vehicles. Everything else in industry sales data is an 'import.' The industry defines an 'import brand,' as any line other than those of GM, Ford, or the Chrysler Group. Import brands include vehicles their parents produce in the

Crystal Ball Shows Even Lower Sales Volume in 2009

Most economic indicators for 2009 are not encouraging for the auto industry. Analysts and automakers caution that U.S. vehicle sales in 2009 could be the worst in almost two decades. Predictions for the year have been revised downward as sales continue to drop. Since the beginning of this year, analysts have lowered their yearly sales forecast by as much as a million units, with annual predictions made in March 2009 ranging from 10.1 million units to 10.5 million vehicles. However, the seasonally adjusted annualized sales rate (SAAR) for the first three months of 2009 was only 9.3 million units.

Consumer's lack of confidence in the economy, rising unemployment, and ongoing difficulties in the credit, financial, and housing markets, are all expected to continue to negatively influence U.S. vehicle sales in 2009. Although income was up slightly in 2008, debt levels and interest rates increased, and unemployment levels are rapidly rising. Disposable personal income (DPI) was up 4.6 percent reaching \$10.6 billion in 2008. Per capita DPI increased to \$34,929 in 2008, up 3.6 percent in current dollars, and up 0.32 percent in constant dollars.³ However, the national unemployment rate was 5.8 percent in 2008, the highest rate since 2003. As of March 2009, the number of unemployed persons grew by 5.3 million over the previous twelve months, with half of the increase occurring from December to March.⁴ Federal Reserve Board data shows that total consumer non-revolving debt, which includes automotive loans, reached \$1.6 billion dollars in 2008, up 1.4 percent from 2007's level of \$1.58 billion.⁵ Interest rates on consumer new car loans at auto finance companies increased last year, and were projected to average 5.52 percent for the year. For the fourth quarter of 2008, they were projected to average 7.09 percent, up significantly from fourth quarter 2007's level of 4.55 percent. According to Bureau of Economic Analysis data, personal outlays for all non-mortgage interest payments decreased for the first time since 2003. Payments were \$251 billion for 2008, a decrease from \$265 billion in 2007.

Participants at the December 2008 Federal Reserve Bank of Chicago's Economic Outlook Symposium projected U.S. economic growth in 2009 to be very weak, with declining inflation, increased unemployment, and a continued weakness in the housing sector. Light vehicle sales were predicted to fall further to 12.7 million units, the lowest level since 1991. Real GDP in 2009 was forecasted to increase by 0.7 percent. Both short-term and long-term interest rates were expected to increase by 28 and 20 basis points, respectively. Oil prices were expected to

United States. Note, however, that U.S. government trade data counts all vehicles made in Canada and Mexico (including those of GM, Ford, Chrysler, Honda, Nissan, Toyota, and VW) in its import tally ('true imports') for determining the balance of trade with other countries.

³ Current Bureau of Economic Analysis data, available from <http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=Y>. Scroll to Section 2 and select Table 2.1 for Personal Income; Scroll to Section 7 and select Table 7.2.5B for "Motor Vehicle Output."

⁴ Bureau of Labor & Statistics' unemployment statistics, available from <http://www.bls.gov/bls/unemployment.htm>

⁵ Federal Reserve Board's monthly consumer credit report, available from <http://www.federalreserve.gov/releases/g19/Current/>

increase, averaging almost \$72 per barrel by the end of the year.⁶ As of March 2009, consumer's confidence of both current-day conditions as well as their outlook for the next six months remained very pessimistic.⁷

Given the state of the economy and lack of consumer confidence, U.S. vehicle sales are unlikely to rebound in 2009, and many analysts' short-term outlook remains pessimistic. Sean McAlinden of the Center for Automotive Research forecasts U.S. new vehicle sales will not reach 14 million until 2012, or reach 16 million before 2013. J.D. Power does not expect sales to reach 16 million until 2012 at the earliest. In addition, PricewaterhouseCooper's Automotive Institute predicts sales won't reach 15.5 to 16 million units until 2012 or beyond. Finally, R.L. Polk & Co. predicts the market won't return to 16 million units for three to five years, depending upon the effectiveness of the government stimulus package.

The Current Status of the Detroit 3

After experiencing losses in both market share and profitability, the Detroit 3 and their workforce have taken drastic measures over the past few years to improve their competitiveness. (Chart 2) The UAW contracts negotiated in 2007 were a major step in narrowing the difference between domestic and transplant automakers' labor costs. While the terms offered some immediate cost-saving measures, they were expected to generate a huge cost savings by 2010. In addition, the Detroit 3 were making strides implementing restructuring plans that were initiated years ago to cut costs, align production with sales, increase productivity, improve quality, and increase revenue. However, these plans and efforts were obviously altered during 2008, given the declining economic circumstances and the drastic reduction in vehicle sales dragging down the entire industry. Compared to 2007, the Detroit 3 sold 1.94 million fewer vehicles in 2008, a decrease of almost 24 percent.

In late November and early December 2008, the CEO's of the Detroit 3, along with the President of the UAW, came to Congress asking for \$25 billion in financial aid (loans for GM and Chrysler, and a stand-by line of credit for Ford). The automakers argued that filing for bankruptcy would not be a timely or cost-effective solution, given the number of stakeholders involved (dealers, unions, suppliers, lenders, bondholders, creditors), as well as consumers' apprehension about buying a vehicle from a bankrupt automaker. In addition, many analysts contended that a bankrupt automaker would not only negatively impact the domestic auto industry but the entire U.S. economy. As requested by Congress, the automakers submitted restructuring plans detailing how they would become successful and repay the loans. Although the House approved a White House-backed relief package of \$14 billion for the Detroit 3 on December 10, the Senate rejected emergency funding during a procedural vote on December 11.

⁶Federal Reserve Bank of Chicago, *Chicago Fed Letter*, February 2009, available from http://www.chicagofed.org/economic_research_and_data/chicago_fed_letter.cfm

⁷The Conference Board, Consumer Confidence Survey Press Release, March 31, 2009, available at <http://www.conference-board.org/economics/consumerconfidence.cfm>

On December 19, 2008, the Bush Administration provided GM and Chrysler with \$17.4 billion in emergency loans from the \$700 billion Troubled Asset Relief Program. Ford did not ask for immediate aid, but did request a stand-by line of credit of \$9 billion.

Conditions for the U.S. government loans were as follows:⁸

- Provide proof of financial viability by March 31, 2009.
- Provide Government access to financial records, and the power to block transactions over \$100 million.
- Limit executive compensation and eliminate private corporate jets.
- Reduce workers' wages and benefits to make them competitive with those of employees of foreign-based automakers in the United States by the end of 2009.
- Eliminate the jobs bank.
- Convert half of the payments of a union benefit fund into company stock.
- Eliminate new dividends to stockholders.
- Provide nonvoting warrants to government.
- Reduce company debt by two-thirds, mostly through debt-for-stocks exchange.

As required, on February 17, 2009, GM and Chrysler each submitted to the Presidential Task Force on Autos, a restructuring plan for long-term viability and international competitiveness, including repayment of government financing.⁹ In the plans, each automaker requested additional money due to declining economic conditions. On March 30, a day prior to the March 31, 2009 deadline to meet the terms of U.S. Treasury's loan agreements, the Administration determined both GM and Chrysler's plans were not viable.¹⁰ Each automaker was provided with short-term working capital to establish a new strategy, as well as new terms to receive any further funding. Also, Dr. Edward Montgomery was named Director of Recovery for Auto Workers and Communities to leverage government resources to support auto-related workers, communities and regions. For consumers, the Administration is offering government-funded protection for warranties issued by GM and Chrysler for vehicles purchased during the restructuring period. In addition, on April 8, 2009, GM and Chrysler launched U.S. Treasury's Supplier Support Program, which offers up to \$5 billion in short-term financing for GM and Chrysler suppliers.¹¹

General Motors

Although GM commemorated its 100th anniversary in 2008, the year itself was not cause for celebration. In response to lower industry sales and a changing sales mix, GM revised its

⁸ *Treasury Releases Term Sheet for Automotive Plan*, December 19, 2008, available from <http://www.treasury.gov/press/releases/hp1333.htm>

⁹ *Statement from Treasury Secretary Geithner on GM, Chrysler Restructuring Reports*, February 17, 2009, available from <http://www.treasury.gov/press/releases/tg31.htm>

¹⁰ The White House Blog, *GM and Chrysler*, March 30, 2009, available from <http://www.whitehouse.gov/blog/09/03/30/GM-and-Chrysler/>

¹¹ *Treasury Department Statement on Supplier Support Programs*, April 7, 2009, available from <http://www.treas.gov/press/releases/tg86.htm>

product plans, drastically cut capacity, reduced personnel and benefits, and ultimately asked for federal financial assistance to prevent filing for bankruptcy. The automaker reported a loss of \$30.9 billion in 2008, bringing its total loss to almost \$82 billion for the past four years. GM ended 2008 with \$14 billion in cash and available assets.

GM remained the top-selling automaker in the United States, but its U.S. market share has declined from 29.1 percent in 1998 to a historic low of 22.3 percent in 2008. GM's U.S. light vehicle sales declined 22.6 percent in 2008, and its U.S. production declined a total of 18.4 percent.

For the fourth consecutive year, a majority of GM's sales, 64 percent, were outside of the United States. The global economic downturn also hurt GM's regions outside of North America, with GM's global sales down 11 percent. Only GM's Latin America-Africa-Middle East region had a year-end profit, while its Asia Pacific region and its European region each suffered a loss. In addition to requests for financial assistance from the U.S. Government, GM also is requesting funding during 2009-2014 from the Governments of Canada, Germany, Sweden, the United Kingdom and Thailand. In GM's February 2009 restructuring plan, the automaker aims to receive \$6 billion in foreign assistance by 2010, and accelerate its restructuring for its Canadian, European, and Asia-Pacific operations. In mid-March, the Government of Spain provided GM Europe with \$256 million in financial aid to develop the next generation Meriva minivan to be built in Spain in 2010.

Through improvements in productivity, significant reductions in retiree healthcare expenses, and volume declines, GM's hourly manufacturing costs have dramatically declined from \$18.4 billion in 2003 to an estimated \$8.1 billion in 2008. The automaker's structural costs also have been reduced from \$39.6 billion in 2004 to \$30.3 billion in 2008. Legacy cost reductions and manufacturing rationalizations were the primary reasons for the decline.

"The Harbour Report North America 2008" found that GM's overall productivity improved slightly by 0.2 percent, despite an 8 percent production volume decrease in 2007. GM's Toledo, Ohio, transmission plant was the most productive transmission plant in North America for the second year in a row. In addition, three of GM's assembly plants, five of its engine plants and two stamping plants were ranked in the top ten in productivity in their respective categories.

After suffering a record loss of \$38.7 billion in 2007, GM was unable to get off to a smooth start in 2008. On February 26, 2008, UAW members began a three-month strike at American Axle & Manufacturing Holdings Inc. that slowed or closed 30 GM light-truck and parts plants. The strike cost GM \$800 million in the first quarter of 2008, and the automaker ended up with a loss of \$3.3 billion for the quarter. In the second quarter, the American Axle strike, along with additional strikes over finalizing local UAW agreements at some GM plants, cost \$2 billion.

Rising fuel prices, a softening economy and a downward trend for the demand of full-size trucks lead GM to make cost-savings announcements in April and June 2008. In April, GM announced it was eliminating one shift of production at its Pontiac and Flint, Michigan, and Oshawa, Ontario full-size pickup truck assembly plants, and at its full-size SUV assembly plant in Janesville, Wisconsin. The decision would reduce approximately 88,000 units of full-size

pickup and 50,000 units of full-size SUV production from GM's North American capacity for the remainder of 2008.

At GM's annual meeting of stockholders in June 2008, GM chairman and CEO, Rick Wagoner, announced the automaker would strengthen its lineup and increase capacity of fuel-efficient cars, and place the Hummer brand under strategic review. GM also announced it would end production at four truck plants: Oshawa Truck Assembly in Canada in 2009; the Moraine, Ohio plant at the end of the 2010 model run, or sooner; the Janesville, Wisconsin plant's medium-duty truck production by the end of 2009, and its production of the Tahoe, Suburban and Yukon in 2010 or sooner; and, Toluca, Mexico's medium-truck production by the end of 2008. However, the Toluca plant did not end up closing and is producing for the domestic market.

In May 2008, GM announced that approximately 19,000 of its 74,000 U.S. hourly employees accepted buyouts, with most leaving by July 1, 2008.

Anticipating a significant second-quarter loss (which ended up being \$15.5 billion), GM announced in July 2008 that it was taking additional steps to improve its cash position, and to adapt to lower sales volume and shifts in the sales mix. The automaker's plans included: reducing salary positions; eliminating health care coverage for U.S. salaried retirees over 65 effective January 1, 2009; no base compensation increases for U.S. and Canadian salaried employees for the remainder of 2008 and 2009; no annual discretionary cash bonuses for GM's executive group in 2008; reducing truck capacity by 300,000 units by the end of 2009; reducing sales and marketing expenses; holding engineering spending; reducing capital spending; reducing spending for non-product programs, but increasing powertrain spending; reducing raw material, work-in-progress and finished goods inventory levels; deferring approximately \$1.7 billion in payments into the new UAW Voluntary Employees Beneficiary Association (VEBA) until 2010; suspending future dividends on common stock; assessing assets for possible sale or monetization; and, opportunistically accessing global markets for capital.

Throughout the year, there was growing concern about GM's financial losses and its limited cash reserves. GM began the fourth quarter with \$16.2 billion in available cash. The automaker has estimated it needs between \$11 billion - \$14 billion at any time to operate.

During the fall of 2008, GM was in talks with Chrysler's majority owner, Cerberus Capital Management regarding GM merging with or acquiring Chrysler. However, discussions ended when each of the automakers' liquidity issues became more immediate and financing for a merger could not be secured from lenders and the government.

In November 2008, GM announced further steps to improve its liquidity and reduce structural costs to cope with global economic conditions, tight credit, and reduced auto sales. However, GM cautioned that even with the implementation of these steps, its estimated liquidity for the remainder of the year was reaching the minimum amount to operate. GM's announcements included: assessing selling Hummer, its ACDelco parts business, and its technical and manufacturing center in Strasbourg, France; reducing 2009 capital spending by \$2.5 billion by retiming select vehicle programs in North America and Europe; reducing engineering expenses and sales promotion spending; reducing funding to support dealer network activities and channel

consolidations; reducing production at some North American operations; restricting overtime; implementing working capital improvements totaling \$500 million; reducing salaried employment costs in the United States and Canada by 30 percent; not providing salaried employees with incentive compensation in 2009 for the 2008 performance period; and, suspending matching contributions for the 401K plan, tuition assistance, and other reimbursement programs.

To raise cash, GM sold its entire stake in Suzuki Motor Corporation in November 2008. Suzuki bought back GM's 3.02 percent stake in the automaker for \$230 million. GM and Suzuki plan to continue certain partnerships, including jointly developing hybrid vehicles and a joint venture for sports utility vehicles in Canada.

To keep operating beyond 2008, GM went before Congress in December 2008 asking for up to \$18 billion (\$12 billion in loans, with an additional \$6 billion line of credit if conditions do not improve). GM stated it intends to repay the loans as soon as 2011. On December 2, 2008, GM submitted its "Restructuring Plan for Long-Term Viability" to the Senate Banking Committee, as requested. GM listed four key areas for accelerated emphasis: 1) reduction in brands, nameplates and retail outlets; 2) changes in wages and benefits to achieve full competitiveness with foreign manufacturers in the United States by no later than 2012; 3) changes in the company's VEBA-related obligations; and, 4) balance sheet restructuring and supplementing liquidity via temporary Federal assistance. Other key elements GM was already implementing include: 1) full compliance with the 2007 Energy Independence and Security Act and investing in advanced propulsion technologies; 2) further manufacturing and structural cost reductions through increased productivity and employment reductions; and, 3) a continuing portfolio shift to smaller, more fuel efficient vehicles.

On December 31, 2008, GM entered into a loan agreement with the U.S. Department of Treasury for funding of \$13.4 billion. The initial installment of \$4.0 billion was provided on December 31, 2008, followed by \$5.4 billion on January 21, 2009, and \$4.0 billion on February 17, 2009.

In addition to its restructuring plan, GM announced production cuts and plant closures in response to the drastic reduction in U.S. industry sales. GM announced on December 12, 2008, it would reduce North American production for the first quarter of 2009 by approximately 30 percent, eliminating an estimated 250,000 units. In addition, GM's financial problems and a decline in SUV sales led to the accelerated closures of GM's Janesville, Wisconsin plant and its Moraine, Ohio light-truck assembly plant in late December 2008. The closures affected approximately 2,200 employees. The Janesville plant produced the Chevrolet Tahoe and Suburban and GMC Yukon and Yukon XL fullsize SUVs. The Moraine plant produced the Chevy TrailBlazer, GMC Envoy and Saab 9-7X. GM's metal stamping plant in West Mifflin, Pennsylvania also closed in December, affecting approximately 350 maintenance and production workers. The automaker also announced plans to close its metal stamping plant, the Grand Rapids Metal Center, in Wyoming, Michigan by the end of 2009. The plant employs approximately 1,340 hourly and 180 salaried employees. In September 2008, GM also closed its minivan plant in Doraville, Georgia, idling 1,500 employees. GM announced its plans to close the plant in 2005.

On December 24, GMAC received approval to become a bank holding company, making it eligible for government lending programs and most likely saving it from declaring bankruptcy. To comply with Federal Reserve rules, GM had to reduce its stake in GMAC from 49 percent to less than 10 percent, and Cerberus Capital Management had to reduce its stake from 51 percent to 33 percent and its voting control to less than 15 percent. Cerberus distributed the remainder of its stake to its investors and GM's stake will go into an independent trust, who will sell the equity within three years. The firm's financial troubles, which were primarily caused by the declining housing market, made it difficult for the company to provide financing for both dealerships' inventory and consumers' purchases of vehicles, and it especially hurt GM. In early January 2009, GMAC received \$5 billion from the U.S. Department of Treasury in exchange for preferred equity shares that pay an 8 percent dividend, and warrants in the form of preferred stock that will pay a 9 percent dividend if exercised. The Treasury loan immediately allowed GMAC to provide more automotive-related loans by easing its credit criteria. GMAC needed funding to convert to a bank holding company, so the Treasury Department also loaned GM \$1 billion for the automaker to invest in the changeover of GMAC.

Although GM's former parts division, Delphi, was spun off in 1999, it is still a major GM supplier and the automaker continues to provide Delphi with financial support. Delphi has been under bankruptcy protection since October 2005. Since then, GM has paid billions in reorganization-related charges to Delphi, lowered its prices for Delphi-made parts, and provided funding for labor and pension costs. Delphi, which lost \$2.3 billion in 2007, is having difficulty finding financing to emerge from bankruptcy because of its close ties to GM, the tight credit market, and the overall state of the auto industry. To further help Delphi, GM increased the amount it will advance to Delphi from \$300 million to \$450 million, effective March 24, 2009. The automaker also plans to buy Delphi's steering business, which is expected to be completed during the second quarter of 2009, pending the necessary approvals.

On February 2, 2009, GM indefinitely suspended its job bank program, moving 1,600 hourly employees into a laid-off status. The laid-off employees are eligible to apply for state unemployment benefits as well as receive GM supplement pay, totaling 72 percent of their compensation. The following day, GM announced it was offering buyouts to almost all of its remaining hourly workers. Most of GM's 62,000 U.S. hourly workers were offered \$20,000 and a \$25,000 voucher towards the purchase of a GM car. A week later, GM announced it would cut approximately 10,000 salaried employees worldwide, including 3,400 U.S. positions. Most of the cuts will take place by May 1, 2009. Salaries for high-level GM executives and salaried employees also will be reduced on that same date.

On February 17, 2009, GM submitted a status report, as required by its loan agreement with the Department of Treasury. In GM's "2009 – 2014 Restructuring Plan," the automaker contends that it has or will meet all the terms set forth by the U.S. Treasury. GM requested a total of \$22.5 billion (\$13.4 billion has already been received), but cautioned the request could reach up to \$30 billion by 2011, depending upon industry volumes. Under its baseline outlook of 10.5 million units for 2009, GM expects to begin repayment in 2012, and repay the loan by 2017. However, given the weakening financial markets, additional funding could be necessary in 2013 and 2014 if GM's U.S. pension funds become under-funded. Since the economic outlook deteriorated since early December 2008, GM lowered its forecast for 2009 U.S. industry sales

from 12 million units to 10.5 million units, with a downside scenario being lowered by 1 million units to 9.5 million units. Also, GM's breakeven point in the February 2009 report (11.5 – 12 million units annually) is a decrease of one million units relative to the December Plan. The automaker also intends to close 14 facilities by 2012, five more than it stated in its December 2008 plan.

According to the February plan, by the end of 2009, GM plans to reduce the number of its U.S. salaried employees from 29,650 in 2008 to 26,250, and reduce U.S. hourly employees from 62,403 to 44,500. By 2014, total U.S. employment will be reduced to 72,650.

The automaker planned to focus on four core brands: Chevrolet, Cadillac, Buick and GMC, with Pontiac becoming a niche brand. GM will have a total of 36 nameplates in 2012, a decrease of 25 percent from 2008 levels. The automaker's Hummer brand will be eliminated if it is not sold (as of early April 2009, GM remains in talks with interested buyers). If GM's Saturn is not spun off or sold, the brand will be phased out at the end of the current lifecycle (2010-2011). While Saab was under strategic review in December, the February Plan announced Saab is being offered for sale (Saab ended up filing for bankruptcy protection in Sweden on February 20, and will sever its business ties with GM by January 1, 2010). GM expects the number of its U.S. dealers to be reduced from 6,246 in 2008 to 4,700 by 2012, and to 4,100 by 2014. The automaker plans to meet or exceed all Federal fuel economy standards in the 2010-2015 model years using various technologies and product strategies.

On March 30, 2009, the Obama administration determined that GM's February 17, 2009 restructuring plan was not viable. The Administration asked Rick Wagoner to resign as GM's Chairman and CEO. GM received 60 days of working capital to develop a more aggressive plan, with the involvement of Treasury officials and outside advisors.

Ford

At the end of January, 2009, Ford reported it lost \$14.6 billion during the year, the worst financial loss in its history.¹² At the time, Ford announced it would use \$10.1 billion from its existing credit line to stabilize its balance sheet in the coming year. In addition, it will eliminate 1,200 positions at its financial arm, or about 20 percent of that workforce. Ford stock prices reached a 2008 high of \$8.79 in April, but as of April 3, 2009 it was trading for \$3.27, a decline of almost 63 percent.

Ford emphasized it still did not believe it would need to borrow funds from the U.S. Government (USG), unlike its other two U.S.-owned competitors. However, it reserved the option of using a USG guaranteed credit line of \$9.0 billion if U.S. vehicle sales continued to slide. At that time, Ford was forecasting total U.S. vehicle sales for 2009 would be 11.5-12.5 million. In March, many automotive analysts were predicting 2009 sales will decline to less than 9.5 million. However, as of April 1, 2009, Ford continued to state it would not need a USG bridge loan, only the original option of the guarantee for a line of credit.

¹² "Ford Lost \$14.6 Billion in 2008," *Washington Post*, January 30, 2009.

During 2008, billionaire investor, Kirk Kerkorian, purchased 140 million shares of Ford common stock for nearly \$1.0 billion, or about 6.5 percent of total Ford stock, becoming Ford's largest outside investor. However, in October 2008, he began selling his stock and by December 30 no longer held any Ford stock.¹³ Kerkorian has held large quantities of both GM and Chrysler stock in the past, but also divested those.

On March 4, 2009, Ford announced a restructuring of its debt that would strengthen its balance sheet. The plan would retire about \$10.5 billion in debt.¹⁴ Basically, Ford will convert some of its long term notes using Ford equity, offer \$1.3 billion in cash for some unsecured debt, and a cash tender for secured loans. Ford also will defer future dividend payments on some preferred securities.

Three years ago, on January 23, 2006, Ford announced a major six-year restructuring plan for its North American operations, naming it Way Forward. To realign Ford's North American production capacity to match expected demand and reduce fixed costs, the company announced it would close 14 manufacturing facilities, including seven assembly plants by 2012. Ford reported it would reduce production by 1.2 million vehicles, or by 27 percent. At the time of the announcement, Ford predicted there would be a decrease of 25,000 to 30,000 hourly manufacturing jobs and an additional 4,000 salaried positions. (Between the end of 2005 and 2008, U.S. Ford salaried workers declined by 12,000 and Ford lost over 45,000 factory workers.)¹⁵ On January 18, 2008, Ford offered a new buyout program to all 54,000 hourly workers.

Other elements of the original Way Forward plan included: reducing parts and material costs by \$6 billion by 2010; building a new low-cost manufacturing plant in North America; strengthening the identity of Ford, Mercury, and Lincoln brands; using straightforward pricing on cars and trucks to avoid the need for discounts and dealer incentives; leveraging the company's global product-developing resources and flexible manufacturing systems to bring new models to the market faster; and eliminating investors earnings estimates so the company could remain focused on long-term profitability.

Eight months later, Ford hired former Boeing Commercial president, Allan Mulally, to be President and CEO, and moved the current President and CEO, William Ford, grandson of founder Henry Ford, to Executive Chairman. In addition, Ford hired former Goldman Sachs banker Kenneth Leet as a strategic advisor to report directly to Executive Chairman Bill Ford to help restructure Ford.

Since the original Way Forward plan was announced, Ford has made a few substantive changes to it. At the time, Ford stated it would be profitable by the end of 2009, but now states it cannot predict when it will reach profitability due to the volatility of the U.S. auto market.

¹³ *Ward's Automotive Weekly Report*, January 5, 2009, page 5.

¹⁴ "How Ford's Debt Restructuring Would Work," *Detroit Free Press*, March 5, 2009.

¹⁵ *Ford Braves Bumpy Road Ahead*, February 6, 2009, available from <http://www.tradingmarkets.com/.site/news/TOP%20STORY/2163140/>

During 2008, Ford cut the second shift in most of its light truck plants and closed some of them entirely for brief periods of time. It also sold Jaguar and Land Rover to India's Tata Motors. Most auto analysts are speculating Ford will sell its Volvo brand if it can find a buyer. Currently, Ford is asking the Swedish government for financial aid to keep the money losing company ongoing. Ford also sold 20 percent of its share of Mazda back to Mazda leaving it with a 13.4 percent share. Ford states it will continue its cooperation with Mazda, especially in the development of small-platform vehicles.

Although the 2006-2008 buyouts were costly to Ford, most new workers will receive half the starting hourly rate of current workers, less in health care benefits, and a 401K plan instead of a set amount every month for the rest of their life (a defined pension). However, since the number of union and salaried workers is still declining, the actual savings will probably not start until at least 2010 when new workers will begin entering Ford production facilities. Salaried workers have already taken cuts in both salaries and benefits. (The UAW section of this report updates further changes to the Ford/UAW contract.)

As mentioned previously, Ford, Chrysler and GM CEO's testified before Congress in November that they needed financial help from the USG to continue operating. On December 2, 2008, Ford submitted a company business plan to the Senate Banking Committee. Unlike GM and Chrysler, it did not request direct financial funding, but did request that it be provided a \$9.0 billion line of credit. Overall, the plan was not much different than what Ford had previously announced during the last two years. Ford did mention it would like Congress to quickly approve its application with the FDIC to establish an Industrial Loan Company as part of Ford Credit Company so that its dealers can have access to reasonably priced capital and provide credit to auto buyers.

In summary, the Ford plan is to:

- Aggressively restructure to operate profitably at the current demand and change model mix.
- Accelerate development of new products customers demand (especially more fuel-efficient gasoline powered and hybrid vehicles).
- Develop a new finance plan and improve its balance sheet.
- Work together as one team, leveraging global assets.¹⁶

Specific personnel actions include:

- Reduce salaried employees by 10 percent in 2009.
- Reduce contract employees by 50 percent.
- Eliminate 2009 merit increases and bonuses.
- Suspend 401k match, tuition assistance and dependent scholarships.
- Cap retiree life insurance at \$25,000.

¹⁶ *Ford Motor Company Business Plan*, Submitted to the Senate Banking Committee, December 2, 2008, page 8, available from http://media.ford.com/article_display.cfm?article_id=29508

In early 2009, Ford announced it would reduce hourly wages to be competitive with major U.S. transplants, change product mix of trucks/cars from 40/60 percent to 18/82 percent (the 82 percent includes crossover vehicles). In the near term, Ford will introduce the new EcoBoost engines in many of its vehicles, install electric steering in 70-80 percent of its vehicles, introduce new fuel-efficient transmissions and hybrid vehicles, and add other new technologies that will improve efficiencies.

Mid-term changes will include full implementation of all known practical technologies such as weight reduction components, possible diesel applications to autos, introduction of plug-in electric vehicles, and other technologies. For the long-term (2020-2030) Ford plans to decrease the number of vehicles powered by petroleum and increase the use of vehicles using renewable fuels such as fuel cells.

Chrysler LLC

Chrysler is the fourth largest automaker in terms of sales in the United States. Chrysler's U.S. sales and market share peaked in 2005 and has since been on the decline. Chrysler's sales in 2005 were 2,286,625 with a 13.5 percent market share. By 2008 Chrysler sold 1,437,618 vehicles and had a 10.9 percent U.S. market share.

Currently, Chrysler has 56,000 employees in 50 states, representing 74 percent of its total employees worldwide. Chrysler has approximately 4,000 Chrysler, Dodge, and Jeep dealers (62 percent are U.S. based), 14 assembly plants producing 61 percent of its vehicles, 11 powertrain plants, three stamping operations, and six technical centers in North America.

Chrysler had several profitable years under DaimlerChrysler management. However, losses began to mount before the sale to Cerberus and have reportedly continued up to the present. (Chrysler no longer officially releases its finances) Chrysler earned nearly \$2 billion in both 2004 and 2005, but lost approximately \$1.5 billion in 2006 and 2007.

In May 2007, Cerberus Capital Management, a private equity firm, bought an 80.1 percent stake in Chrysler for \$7.4 billion, investing \$5 billion to improve the automotive group, \$1.05 billion into its financing unit, and paying \$1.35 billion to DaimlerChrysler. Cerberus also owned 51 percent of General Motors financing arm GMAC, before reducing it to 33 percent when GMAC became a bank holding company in December 2008. Cerberus Capital Management is a private equity firm not required to make its finances public. Daimler owns the remaining 19.9 percent stake in Chrysler and values it at zero.

A price dispute between Chrysler and Plastech, a plastic parts supplier for nearly all Chrysler vehicles, led to temporary plant closures and shift cancellations in February 2008. Chrysler terminated its contract with Plastech just before the supplier filed for bankruptcy and the automaker sought possession of tools used to make Chrysler components.

The slowing economy, higher gas prices and a shift to smaller vehicles in 2008 led to Chrysler reducing shifts and closing two U.S. vehicle assembly plants. In September, Chrysler announced it would close its minivan plant in St. Louis on October 31, affecting 1,500 jobs. At the end of December, the automaker closed its Newark SUV plant, which produced the Dodge Durango and

Chrysler Aspen. Plans to close the plant were announced in 2007, with the closure planned for the end of 2009. However, the plant's closure was accelerated due to low demand.

In January 2009, Chrysler announced a proposed partnership with Fiat SpA. The nonbinding agreement would give Fiat a 35 percent share of Chrysler and involves no cash investment. Fiat has the option to invest \$25 million for an additional 20 percent share in Chrysler. Fiat will hold three of seven seats on Chrysler's board. Fiat's stake would come entirely out of Cerberus's share.

The alliance would provide Chrysler with access to competitive, fuel efficient vehicle platforms, power trains, and components. Fiat would also provide distribution capabilities in growth markets, as well as substantial cost savings. The partnership also would allow both firms to take advantage of each other's distribution networks and to optimize their current manufacturing facilities and global supplier base. In addition, Chrysler could benefit from Fiat's recent experience in successfully executing its own restructuring over the past several years.

Chrysler received a \$4 billion federal loan on January 2. In addition, the Treasury Department announced it would provide \$1.5 billion in aid to the automaker's finance company, Chrysler Financial. Chrysler LLC states that it will need an additional \$5 billion in federal aid to keep operating. Chrysler applied for \$6 billion in Department of Energy-administered funding that supports retooling for energy efficient cars.

Since 2007, when Chrysler separated from DaimlerChrysler, Chrysler has reduced 1.2 million units of capacity, which represents over 30 percent of previous capacity. Over the past 10 months, Chrysler has reduced fixed costs by \$2.2 billion, and by the end of 2008, will have furloughed over 32,000 employees (including 8,000 white collar staff).

Chrysler submitted its restructuring plan on February 17, 2009. However, on March 30, 2009, the Administration determined Chrysler is not viable as a stand-alone company. Therefore, Chrysler was given working capital for 30 days to conclude an alliance with Fiat. However, certain conditions were placed on this merger. For example, Fiat cannot gain controlling interest in Chrysler before U.S. Government loans are repaid. If successful, the government will consider providing up to \$6 billion, as requested by Chrysler. If unsuccessful, the government will not invest any additional funds in the company.

Chrysler attributes its need for government assistance on the fact it was suddenly operating as a standalone company recently separated from its former partner Daimler. Coupled with high fuel prices and the credit crunch, Chrysler could not adapt quickly enough.

The Detroit 3 and the UAW

During the last decade, the Detroit 3 have contended that their legacy expenses (retiree health insurance, pensions and automatic pension raises each year) have caused their U.S.-built vehicles to cost between \$1,200-\$1,700 more to build than U.S. transplant vehicles and most imported

models. In addition, the Detroit 3 have not been allowed to outsource many positions such as landscaping, janitorial, repacking, subassembly and many other “non-core” jobs.

The 2007 UAW/Detroit 3 contracts marked the first time since the beginning of the UAW in the mid-1930’s, that the UAW gave back major benefits negotiated through the years and accepted other changes it stated it would never allow. The major changes negotiated for the contract were:

- A two-tier wage system under which most newly hired workers received a lower hourly rate and lower benefits.
- The establishment of a Voluntary Employees Beneficiary Association (VEBA) to cover health care costs for retirees/spouses. The VEBA, scheduled to become effective in 2010, was set up with an agreed amount of cash, securities, and stocks (varied for each company) given to the UAW which would be administered by the UAW.
- Decrease the number of workers in the Job Bank and decrease the length of time they were eligible for continued pay after they were laid off or their job was eliminated. Each employee would be offered a job in other plants, but after turning offers down a certain number of times, would lose their job.
- Early buyouts for higher seniority hourly workers that would have to be taken by a specific date, or no longer be paid.
- Elimination of health care benefits after retirement for new workers.
- Outsourcing of non-core jobs (type of jobs may differ from company to company).

These contracts were unique because they did not follow the traditional process of pattern-bargaining. In the past, a target company was chosen from the three U.S. auto manufacturers, and when there was agreement with that company, all others would be offered a similar contract.

In 2007, Ford, GM, and Chrysler’s contracts differed slightly, but the major provisions were similar. Probably the most important change was the acceptance of a two-tier wage system. In the past, the UAW had always demanded equal wages for equal work. Every UAW president has stated that at no time would a worker performing the same job be paid less than another worker. In addition, workers performing some specialty jobs, such as electricians and pipe fitters, would be paid a little more per hour than assembly line workers, but all in the same job classifications would receive the same hourly rate for the same work.

In the new contract, the two-tier system exists, but GM and Chrysler differ from Ford. All newly hired workers at Ford (up to 20 percent of Ford’s total workforce), including those on the assembly line, would receive a lower hourly rate and benefits. The contracts with GM and Chrysler would only apply the lower-tier wage system to new employees in the “non-core” jobs. Though not fully defined, these appeared to include jobs ranging from truck driving and material handling to machining on some non-core sub-assembly work. Even with the distinction

contained in the Ford contract, there would be a significant number of non-core workers at the other two companies by 2012.

In the 2007 contracts, new workers would be paid approximately half what the current workers were paid. New workers would be paid approximately \$15 an hour and current workers would average an hourly wage of about \$28 an hour for most assembly line workers and \$33 per hour for skilled craftsmen.¹⁷ In addition, new workers would receive less in benefits than current workers. (There would still be the legacy costs of pensions and health care payments to retirees, and overtime/vacation pay for current and newly hired hourly workers that are not included in total labor costs per vehicle.)¹⁸ In the past, hourly workers have had what is called a defined pension (a specific monthly amount plus cost of living adjustments) while the Detroit 3 now will contribute to fund a certain amount for each hour worked by new employees (basically a 401-K). When the employees retire they will receive whatever is in their account in a lump sum, thus the companies do not have a pension legacy cost and much lower health care costs.

In addition, health benefits will be reduced for all new hires. The contracts also stipulated the Detroit 3 could close certain plants. In early 2008, new buyout offers were announced by Ford, GM and Chrysler for both salaried and hourly workers. In February, 2009, Ford, GM, and Chrysler again offered buyouts to hourly workers, but this time it was not nearly as generous as before.

After a dismal 2008 for auto sales in the United States of 13.2 million units and a March 2009 SAAR of 9.3 million units, the Detroit 3 have requested changes to the 2007 contract. Also the U.S. Treasury loan program to GM and Chrysler requires that the two become cost competitive in labor costs with U.S. transplants.

All of the Detroit 3 reopened negotiations with the UAW during 2008, and on February 23, 2009, Ford and the UAW agreed to changes in the 2007 contract. The major hurdle was the UAW accepting more equity (Ford common stock) for the VEBA payment then agreed upon in 2007. According to a summary reported in the Detroit Free Press, the UAW and Ford agreed to:

- A tentative plan for Ford to give the UAW VEBA plan up to 50 percent stock to meet its 2007 contract obligations. The UAW agreed to this offer if it is in small payments over a long period of time and may sell the stock at any time.
- Suspend cost-of-living adjustments, performance bonuses in 2009 and 2010, and eliminate one paid holiday after Easter.
- Completely eliminate the jobs bank in which laid-off workers kept the same pay as when they were working and make changes to a supplemental unemployment benefit program that includes creation of a job-training program.

¹⁷ Steve Eder, "UAW Workers' Pay on Par with Japanese Competitors in U.S.," *Toledo Blade*, December 13, 2008.

¹⁸ David Leonhardt, "\$73 an Hour: Adding It Up," *New York Times*, December 10, 2008.

- Offer buyouts from April 1 to May 22 that would include either \$20,000 in cash or a \$25,000 voucher toward the purchase of a new Ford product, plus an additional \$40,000 for certain skilled workers and \$20,000 for other workers.
- Not close any additional production plants, with the exception of the Twin Cities and Norfolk, Virginia plants.¹⁹

The first Ford union locals voted on the proposal February 28 and granted approval. The two plants, Sterling Axle Plant and Ford's Wayne, Michigan complex did not reveal the actual final vote, but a spokesman said a total would be announced after all locals had voted. However, not all locals voted to approve the changes. On March 9, all Ford UAW locals had finished voting, and 59 percent of the production workers and 58 percent of the skilled-trades employees voted to accept the changes.²⁰

The most controversial part of the agreement, as was also the case in the 2007 contract, is the VEBA offer. Ford owes the UAW \$13.8 billion for the VEBA by 2010, thus Ford could give the UAW \$6.9 billion (50 percent) in stock. If the value of Ford stock declines, Ford must make up the difference by giving the UAW more Ford stock.

If the number of shares of Ford's stock portion of the VEBA is relatively high, many experts predict Ford will be pressured by the UAW to place a UAW official on the Board of Directors. This would be true of GM and Chrysler also. This is a common practice in Germany, and during the Chrysler Loan Guarantee Program in the early 1980's, the president of the UAW sat on the board of Chrysler. However, it should be noted that the Ford family holds 40 percent of the voting shares (Class B) and would continue to actually make any major decisions affecting the company.²¹

Current Status of Top International Automakers Selling in the United States

Toyota

Over the past several years, Toyota has become the most thoroughly entrenched foreign-based auto company in the United States, making the world's biggest market a major cornerstone of its growth strategy. However, by becoming more American, it has become heavily interconnected to the misfortunes of the Detroit 3. According to Toyota Motor Corporation spokesman Hideaki Homma, "the damage to our business is certain to be tremendous" adding, "that the conditions for the U.S. market are extremely tough right now."²² One of the reasons for Toyota's concern is

¹⁹ Brent Snavelly, "UAW Urged to OK Ford Survival Plan," *Detroit Free Press*, February 25, 2009.

²⁰ *Ford UAW Workers Ratify Changes to Pay, Health Fund*, March 9, 2009, available from http://www.bloomberg.com/apps/news?pid=20601103&sid=ayMJIzb_PIZU

²¹ "UAW: A Seat on Ford's Board?," *Business Week*, February 24, 2009.

²² "USA cars: U.S. auto woes mean trouble for Japanese makers, too," *Economist Intelligence Unit*, December 16, 2008.

that Toyota shares many of the same parts suppliers with the Detroit 3. If any one of the three automakers were to collapse, suppliers would likely follow.

Another reason for Toyota's concern is the possible further weakening of the dollar, which is likely to accompany a U.S. economic downturn. As of mid-March 2009, the dollar was trading at 97 yen. The Japanese have based their forecasts on the dollar trading at 100 yen, which is already hurting their profits by reducing overseas earnings. The dollar could further decline in the coming months if the U.S. economy worsens. Although Japanese auto companies are in better financial shape than their American counterparts, they are all affected by the shrinking U.S. market.

In November 2008, when U.S. auto sales plunged 37 percent to their worst level in more than 26 years, Toyota's sales sank 34 percent. Toyota finished the year down 15 percent in the U.S. market. Toyota has already slashed its profit forecast for the fiscal year through March to an operating loss of up to \$1.7 billion, the company's first loss since 1938.²³ In fact, Toyota has suspended production at several U.S. plants, and has delayed indefinitely the start of production at its Blue Springs, Mississippi plant, which was supposed to begin production of the Prius in 2010 and is 90 percent complete.

The U.S. market is critical for Japanese automakers. Toyota and Honda sell more vehicles in North America than in Japan. Market share for Toyota is up to 16.7 percent versus 16.3 percent last year. It is number two in the United States for the second year in a row, after passing Ford in 2007. According to Toyota, even if its market share is increasing, the pie itself is shrinking. Sales volume is plunging. In a Wall Street Journal report on January 21, 2009, Toyota has finally surpassed GM in world sales after 77 years when GM was the world's largest automaker. Toyota sold 8.9 million vehicles worldwide in 2008 (a four percent decline), compared to GM's sales of 8.4 million (an 11 percent decline).²⁴

Toyota is also feeling the pinch of a global slowdown in Japan. In December, Toyota announced it was suspending production at a third plant in Japan later that month as it coped with falling demand in the United States and the rest of the world. Toyota Motor Hokkaido, a major subsidiary that makes motor vehicle transmissions, stopped all assembly plants on December 25, the first stoppage at the plant in 15 years. Japanese demand has declined significantly over the past year, but now with U.S. demand falling it has made the situation in Japan worse. One example is Toyota's Lexus line. Most Lexus models are manufactured in Japan for export to the United States, and U.S. sales tumbled 21 percent last year.²⁵ U.S. sales fell sharply for almost all of Toyota's models, and at a time when Toyota offered its rare incentive spending of zero-percent financing through the end of December.

²³ *Toyota Forecasts Loss as Sales Slide*, December 22, 2008, available from <http://money.cnn.com/2008/12/22/news/companies/toyota/index.htm>.

²⁴ "GM Fell Behind Toyota in 2008," *Wall Street Journal*, January 21, 2009.

²⁵ "Japan cars: Toyota to cut domestic output amid slowing demand," *Economist Intelligence Unit*, December 4, 2008.

Japanese auto companies are in a better position to weather the economic storm than their U.S. rivals. Toyota and its other Japanese competitors are experts in developing hybrid and other fuel efficient vehicles. In Nikkei Inc.'s 12th annual environmental management rankings, Toyota was the leading manufacturer for the third consecutive year. It received the highest scores of any company for measures to prevent pollution and for recycling resources. Toyota has focused on reducing the environmental impact of its production activities, such as through cutting volatile organic composites released in paint. Toyota also earned high marks for its products. Cumulative sales of hybrid vehicles, which emit less carbon dioxide than those that run on gasoline alone, have reached 1.67 million units worldwide.²⁶ Toyota is planning to have hybrid versions of all its models by the 2020s.

Honda

Like Toyota, Honda is thoroughly entrenched in the U.S. market. The U.S. market has long been Honda's largest sales market. In fact, it is Honda's largest market by far. The company sold 1.4 million automobiles in the United States versus 624,000 in its "home" market of Japan in 2008. The company has been involved in the U.S. market for a long time. 2009 marks 50 years in the U.S. market with sales operations having begun in the United States in 1959 with the establishment of American Honda Motor Co., Inc., Honda's first overseas subsidiary. Honda was the first Japanese-based automotive firm to begin U.S. production operations starting in 1979.

Over the past 50 years, Honda has invested over \$8.9 billion in its North American operations with 15 major manufacturing plants. It directly employed nearly 27,000 in 2007 and had purchases of more than \$16 billion in parts and materials from suppliers annually in North America. According to Honda, more than 76 percent of Honda and Acura cars and light trucks sold in America were produced in North America in 2007. Honda produced a record number of vehicles in the United States in 2007 totaling 1,015,462 Honda and Acura vehicles, an increase of 4.2 percent from the previous year's record of 974,380 units.

The high gas prices that began in 2008 gave Honda a leg up on its competition. Its traditional focus on small, fuel efficient vehicles enabled it to fare well in consumers' switch from trucks to smaller vehicles. In May, the Honda Civic became the best-selling vehicle in America. It was the first time in 17 years that the best-selling vehicle wasn't a truck. Honda's Accord also joined Toyota's Camry and Corolla in surpassing the Ford F-150 in sales.

The U.S. market began its overall decline in September, however. Honda's sales held up well compared to many of its peers, but it has still been badly affected by the market fall. When the U.S. market was down 37 percent overall during November, Honda's sales fell 24.3 percent. In addition to the sales decline, Honda has been hurt by the increased value of the Japanese yen. Despite being a leader in setting up overseas production, Honda like other Japanese manufacturers still ships many vehicles from Japan, and has likely been spurred to maintain high Japanese production in recent years by the low yen. In January 2009, Japanese export figures

²⁶ "Japan cars: Toyota enjoys 3rd year atop list of green manufactures," Economist Intelligence Unit, December 3, 2008.

showed automotive exports down 69 percent from January 2008, as the yen appreciated.²⁷ Overall Japanese exports were down 45.7 percent.

Honda's total 2008 U.S. production declined three percent to 987,172 vehicles. In his year-end speech, CEO Takeo Fukui noted that "the situation is worsening every day in every region."²⁸ Honda began making production adjustments in the later months of 2008 in North America, Europe, and Japan with plans to reduce production an additional 54,000 units during the Japanese fiscal year, which begins in April and ends in March the following year. Global plant expansion plans were put on hold or delayed, and the automaker has also withdrawn from Formula One auto racing.

Hyundai-Kia

During 2007, Automotive News ranked the Hyundai-Kia Automotive Group as the 5th largest automotive manufacturer in the world, registering a 5.5 percent jump in global sales (with total sales of 3.96 million). While Hyundai has grown quickly, it will have to grow considerably more to inch up another spot in global sales, as it was 2 million units behind Ford Motor Company in 2007.

In 2008, Hyundai worldwide sales reached 2,781,677, up 6.9 percent from 2007. Hyundai produced 1.7 million vehicles in Korea, of which 1.1 million were exported. Hyundai sold 571,000 vehicles in Korea in 2008, down 8.7% from 2007. Hyundai's 2008 global sales total of 2.8 million vehicles included 1.1 million vehicles produced in overseas plants (the first time Hyundai production reached over 1 million units in its non-Korean plants). For 2007, Kia (Hyundai has a controlling interest in Kia) announced global sales of 1,375,738 units (273,397 in the United States), up 8.4 percent from 2007's sales total.

Hyundai is bearing well in the declining U.S. vehicle market. Its 2008 sales were down 14 percent, while the total market was down 18 percent (with market share increasing from 2.9 percent to 3.0 percent.) For the first three months of 2009 (latest available) Hyundai's sales were up 0.5 percent in a market that declined 38.3 percent. Kia sales were also up, showing a 1.0 percent increase. Only one other automaker (Subaru) managed a sales increase for the period.

Hyundai's Montgomery, Alabama plant opened in mid-2005 and its total investment to-date is \$1.1 billion. This plant initially produced the Sonata sedan and added-on the Santa Fe CUV during 2006. The plant is now operating at normal capacity, producing 237,000 vehicles in 2008 (down 5.4 percent from 2007). The co-located Hyundai Mobis plant supplies an array of parts and modules needed in producing the vehicles, including: front and rear chassis modules; cockpit modules; airbag systems; bumper systems; and, door-trim packages.

²⁷ *Recession Watch: Export Slide Shock's Japan's Economy*, Just-Auto.com, Editorial Team, February 25, 2009, available from <http://www.just-auto.com/article.aspx?id=98184&lk=dm>

²⁸ *Honda Adjusts to Deteriorating Markets; Focus on Hybrids and Small Cars, Delayed Introduction of New Diesel in US and Japan*, December 20, 2008, available from <http://www.greencarcongress.com/2008/12/honda-adjusts-t.html>.

In March 2006, Hyundai's subsidiary company Kia announced it would invest \$1.2 billion in its first U.S. production plant, which will be located in West Point, Georgia, on the border with Alabama. Looking for ways to brand differentiate, Hyundai will reportedly focus more on unibody frames while Kia will focus more on body-on-frame vehicles. The plant, which was scheduled to open in fall of 2009, may now delay its opening to begin production in 2010. The plant will employ 2,500 workers, and be capable of producing 300,000 vehicles a year.

Hyundai's Ann Arbor, Michigan Tech Center opened during 2005 and represents a \$117 million investment over two phases, \$56 million of which was dedicated towards construction. Officials say that it provided 85 new job positions during the first year, and potentially 750 more down the road. This facility replaced an older facility built in 1986 that was dedicated to emissions work on U.S. products.

Nissan

Nissan is the sixth selling brand in the United States and (together with partner Renault) the third largest automaker in the world. Nissan has three production plants in the United States: Smyrna, Tennessee; Decherd, Tennessee; and Canton, Mississippi. At the Smyrna plant, Nissan produces the Altima, Altima Coupe, Maxima, Frontier, Pathfinder, and Xterra. Nissan produces the Altima, Armada, QX56, Quest, and Titan at its facility in Canton.²⁹ Nissan is expected to discontinue both the large Armada and Titan models sometime in 2009 or 2010. In addition, the 2009 Quest will be final model year for the minivan.³⁰ The Decherd plant manufactures all the engines for the complete lineup of Nissan vehicles produced in the United States.

In 2008, Nissan sold 951,363 vehicles, a decline of over 10.9 percent from the previous year. However, this decline was less than the decline in the overall U.S. market, which experienced a decline of 18 percent in 2008. As a result, Nissan was able to improve its 2007 market share of 6.6 percent to approximately 7.2 percent in 2008.

As mentioned previously, in addition to the decline in sales, another cause of concern for Japanese manufacturers is the weakened value of the dollar, which diminishes the value of earnings made in the United States and increases the cost of imported vehicles. On February 9, 2009, it was announced Nissan would eliminate 20,000 jobs, 8.5 percent of its global workforce. Of these cuts, 12,000 will be in Japan.³¹ Nissan also stated that it expects a loss of \$2.9 billion for the fiscal year through March. This will be the first time in nine years that Nissan will have an annual loss. As a result, corporate officers' salaries will be reduced by 10 percent while managers' salaries will be reduced 5 percent. Nissan is also looking at eliminating shifts, shortening work weeks, work-sharing, and reducing compensation, among other options, to reduce costs while at the same time trying to avoid cutting jobs.

BMW

²⁹ The Harbour Report 2008

³⁰ "Nissan Prepares for Key Line Changes," *Automotive News*, August 11, 2008.

³¹ "Nissan to Slash 20,000 Jobs," AP, February 9, 2009.

In 2008, 1,202,239 BMW brand vehicles were sold worldwide, down 5.8 percent from the previous year, but still ahead of competitors in the premium segment. In fact, BMW brands Mini and Rolls-Royce achieved new sales volume records in 2008. BMW also remained the leading European car brand in the United States during 2008, and the United States remained the largest single market for BMW, Mini and Rolls-Royce brand cars in 2008; even ahead of its home market in Germany.

By the end of 2008, BMW had reduced its number of employees by 7 percent, with its worldwide employment comprising 100,041 employees.

Convinced that the United States will remain the largest premium car market in the world, BMW is almost doubling its capacity in the United States, which will reportedly come on-line in the next 18 months. By 2012, BMW will have spent over \$1 billion in the United States by expanding office and distribution centers, as well as plant upgrades. While the Z4 roadster is being transferred to Germany, BMW's Spartanburg facility will centralize its X-model production and build the next generation X3 there, as well as the X5 and X6 SUVs for the world market. (Likewise, BMW is centralizing its convertible production at its Regensburg facility in Germany, which builds the 1 series and all variants of the 3 series.) By spending \$750 million in the Spartanburg plant expansion, it will take capacity from 160,000 to 240,000 a year by 2012. In addition, BMW's US headquarters facility in New Jersey is being expanded at the cost of \$100 million, to include engineering operations and training offices ("BMW of North America Campus").

The Spartanburg plant also began building diesel versions of the X5 for the U.S. market in late 2008 (it already built diesels for export), and it will reportedly produce a hybrid version of the X6 starting in 2009. During 2009, BMW Group (BMW, Mini, and Rolls-Royce) will launch several new models, beginning with the Mini Convertible, followed by the Z4 Convertible, the Progressive Activity Sedan in the middle of the year, the S1 towards the end of the year and a new small Rolls Royce. Additional innovation areas include "efficient dynamics" and the electric Mini. For the Mini brand, there's a further extension in 2010 with the cross-over 4-door model which will be more than 4-meters in length (made by Magna Steyer, in Austria). BMW also intends to remain competitive globally by stressing the importance of a flexible manufacturing system that can respond and quickly adjust to rapidly changing circumstances, coupled with agreements with its workforce across the world.

Daimler/Mercedes-Benz

Daimler AG is a leading producer of premium passenger cars and the largest manufacturer of heavy- and medium-duty trucks in the world.³² Daimler sells its products in nearly all countries of the world and has production facilities on 5 continents, with North America remaining a key location in its global strategy.³³

³² The current brand portfolio includes Mercedes-Benz, smart, AMG Maybach, Freightliner, Western Star, Mitsubishi Fuso, Setra, Orion and Thomas Built Buses.

³³ For more information about Daimler's North America commitment see: http://www.daimler.com/Projects/c2c/channel/documents/1533769_daimler_corp_2008_booklets_commitmenttonorthamerica_en.pdf

Specifically, Mercedes-Benz U.S. International (MBUSI) manufactured its one millionth vehicle two years ago after the first M-Class rolled off the production line in 1997 in Tuscaloosa, Alabama. Today, three vehicles are built at that facility: the second-generation M-Class, the R-Class Sports Tourer and the GL-Class luxury SUV. When the M-Class first arrived in 1998, the new sport utility vehicle started a trend that inspired other manufacturers to shift toward more luxurious car-like SUVs. Launched as the only SUV in its class with 4-wheel independent suspension, the original M-Class was one of the first to be designed from the ground up, rather than being based on an existing truck platform. In 1997, the midsize M-Class SUV model immediately accounted for 12 percent of the brand's sales. By 2007, after the M-Class had evolved into a cross/utility vehicle and was joined in the Mercedes showroom by three additional CUVs, light truck products accounted for 30 percent of the brand's sales volume in the United States.

Volkswagen (VW)

Despite the bleak global economic situation, Europe's largest automobile manufacturer and third largest automaker in the world after Toyota and General Motors, VW reported record Group unit sales and revenue for 2008. It sold 6.3 million vehicles worldwide and its sales revenue grew by 4.5 percent. The Group operates over 50 plants in Europe, the Americas, Asia and Africa, and employs approximately 360,000 people worldwide. The VW Group consists of brands in virtually every segment and it considers this coverage to be a key element in its "Strategy 2018."³⁴ In fact, with this scope of brand coverage, VW hopes to perform better than the market as a whole, and intends to gain additional market share during the crisis. Part of its forward aggressive plan is to launch 60 new models, product enhancements and successors in the market during 2009.

Recognizing the United States as a key market for its global growth strategy, Volkswagen selected an additional site for North American production in Tennessee during 2008. (While VW operated an assembly plant in Pennsylvania in the 1970s building a Rabbit-badged version of the original Golf, it closed it in the 1980s.) At its new Chattanooga facility, VW intends to develop a car to compete with Honda's Accord and Toyota's Camry. The new mid-sized sedan will fit somewhere between the German-built Passat and Mexican Jetta. As of February 2009, VW has already invested \$1 billion in the Chattanooga assembly plant, and despite market conditions, VW is reportedly on-track with this facility. Initial production capacity will be 150,000 units starting early in 2011. Thirty percent of this production will be powered by VW's TDI clean diesel technology. Volkswagen expects to create about 2,000 direct jobs. (VW hopes that its U.S. sales will increase to 500,000 units within 4-5 years.)

According to a list compiled by the Chattanooga Chamber of Commerce, more than 750 auto suppliers are within a 300-mile radius of the VW factory site. Major suppliers include Delphi, Magna, Continental and Johnson Controls, but the vast majority is smaller suppliers. The

³⁴ The current Group portfolio consists of nine brands from 7 European countries: Volkswagen, Audi, Bentley, Bugatti, Lamborghini, SEAT, Skoda, Scania, and Volkswagen Commercial Vehicles. Information regarding "Strategy 2018" available from http://www.volkswagenag.com/vwag/vwcorp/info_center/en/news/2008/11/group_strategy_2018.html

additional jobs anticipated for the supplier base are reportedly as high as 9,600 positions. In addition, German supplier ThyssenKruppAG will build a \$3.7 billion steel processing center in Mobile, Alabama. Another North American plant is under consideration for VW's Audi brand, with a decision expected at some time during 2009.

U.S. Light Vehicle Production

In 2008, U.S. vehicle production reached only 8.5 million units, the lowest level since 1982 (when production reached just under 7 million units, and the U.S. population was 75 percent the size it was in 2008). (Table 2, Chart 3) U.S. light vehicle production last peaked in 1999, when it reached a record high of 12.6 million units. Volume suffered in 2001 after the September 11 terrorist attacks, but recovered in 2002. While production experienced declines in 2003 to 2007, the dramatic drop in 2008 (down 20 percent from 2007) came as automakers looked to cut back on increasing inventories in the face of dismal sales forecasts for 2009.

There are currently twelve major manufacturers producing cars and light trucks in the United States - - BMW, Chrysler, Daimler (Mercedes), Ford, General Motors, Honda, Hyundai, Mazda, Mitsubishi, Nissan, Subaru, and Toyota. Kia is scheduled to open its first U.S. plant in Georgia in 2010, and Volkswagen has planned a return to U.S. production, with a plant to open in Tennessee in 2011.

In 2008, the Detroit 3's share of U.S. light vehicle production fell below 60 percent for the first time, reaching only 57.3 percent. In 2003, the Detroit 3's share of U.S. passenger car production fell below 60 percent for the first time, accounting for only 57 percent. By 2008 it had dropped to 43.1 percent. Their share of light truck production remained dominant in 2008 at 69 percent, but was down considerably from 2007 when the three companies held 73 percent of light truck production. In 2003, Japanese manufacturers exceeded 40 percent of U.S. car production for the first time, accounting for 42 percent of U.S. car production. In 2007, Japanese producers accounted for 53 percent of U.S. car production. The Japanese manufacturers continue to make steady inroads into the truck segment, reaching 23 percent of production in 2007, up from 21 percent in 2007. Korean and German manufacturers' light vehicle production is also on the rise.

Plant Capacity Stable, Utilization Rates Down

Industry data show that U.S. light vehicle manufacturing capacity – the number of units that can be built annually – declined again in 2007 for the fourth year in a row and is now back to the level of October 2005 (according to Federal Reserve seasonally adjusted statistics). As the Detroit 3 continue to close plants, net national capacity will likely continue to decline. However, declines from the Detroit 3 will be at least partially offset by new investments from foreign-affiliated firms. For example, Toyota is planning a new plant in Mississippi (completion is on hold during the current economic crisis). Kia is building a new plant in Georgia, scheduled to begin production in 2009 (potentially delayed to 2010) and Volkswagen is planning to open a U.S. plant in 2011.

Industry data show that average straight time vehicle assembly plant capacity utilization rates in the United States have routinely exceeded 80 percent, and are often closer to 90 percent. (Chart 4) Some plants routinely run at over 100 percent of capacity (through the use of overtime, extra shifts, etc.). Data in the annual Harbour Reports show that as light vehicle production was peaking in 1999, the average car plant utilization rate exceeded 87 percent and light truck plants approached a rate of 105 percent. In 2007, capacity utilization was up 0.7 percentage points compared to 2006, increasing to 84.6 percent. Car plant utilization rates increased again, from 85 percent to 86 percent and light truck plant utilization rates held steady at 83 percent.

Computations from Ward's Automotive Reports indicate that capacity utilization in North American auto plants reached only 66 percent in 2008, and could fall as low as 50 percent in 2009. Ward's reports that the Detroit 3 had capacity utilization rates of 61 percent in 2008 (compared to 71 percent for all others), and they are likely to finish 2009 below 50 percent utilization.

These mathematical averages hide large differences among individual plants. Some facilities are grossly underutilized, while others run at herculean rates that are neither sustainable, nor conducive to maintaining product quality or employee morale. Harbour reports significant variances among productivity levels in the American, Japanese, and German manufacturers' car and light truck plants in the United States. (Chart 5)

The Federal Reserve Board (FRB) also measures plant capacity utilization. By FRB measures, plant capacity utilization (for motor vehicles and parts [NAICS 3361-63]) declined dramatically in 2008, falling to only 53 percent in December 2008.³⁵

U.S. Light Vehicle Sales at Lowest Level Since 1992

Total U.S. light vehicle sales in 2008 were 13.2 million vehicles, an 18 percent decline from 2007, and the lowest sales level since 1992. (Table 3, Chart 6) 2008 marked the third straight year of sales declines, and the first time in ten years that sales fell below 16 million units. Fluctuating gas prices, tightening credit and sagging consumer confidence made it a rough year for every automaker and every vehicle segment. Subaru was the only automaker selling in the United States to experience an increase in sales, a modest 0.3 percent.

As the U.S. market has become increasingly competitive, Detroit 3 sales have been on a long-term downward trend. Their combined market share was fairly stable from 1986 to 1995, averaging 72.4 percent for the period. Of course, this is far below the over 95 percent share they controlled in 1965 when they truly dominated the U.S. market. The Detroit 3's share in 1995

³⁵ The Federal Reserve Board constructs estimates of capacity and capacity utilization for industries in manufacturing, mining, and electric and gas utilities. For a given industry, the capacity utilization rate is equal to an output index (seasonally adjusted) divided by a capacity index. The Federal Reserve Board's capacity indexes attempt to capture the concept of *sustainable maximum output* – the greatest level of output a plant can maintain within the framework of a realistic work schedule, after factoring in normal downtime and assuming sufficient availability of inputs to operate the capital in place. For details see: http://www.federalreserve.gov/releases/G17/cap_notes.htm

reached 73 percent, but then began a long and steady decline. Their U.S. market share in 2008 was 47.4 percent, falling below 50 percent for the first time. (Table 4, Chart 7) Sales of imported vehicles increased to 49.3 percent in 2008. (Chart 8)

In 2008, the Detroit 3's sales fell 23.7 percent, Japanese automakers' sales decreased 12.2 percent, German automakers' sales declined 6.5 percent, and the Korean brands decreased 12.6 percent for the same period. The five top-selling automakers in the United States were GM (U.S. market share of 22.3 percent), Toyota (16.8 percent), Ford (14.2 percent), Chrysler (10.9 percent), and Honda (10.8 percent).

For the first time since 2000, more cars were sold in the United States than light trucks. (Chart 6) Sales of light trucks declined 24.7 percent in 2008 with a volume of almost 6.4 million vehicles. Light trucks accounted for 48.3 percent of the U.S. light vehicle market. (Table 5) It is unlikely this trend will reverse in the near-term, given increased fuel economy standards, fears of rising gas prices, and consumers' shift away from segments such as minivans and sport utility vehicles (SUV).

SUV sales have been falling since 2001, and they dropped another 37 percent to almost 1.2 million units in 2008, their lowest level since 1992. Many consumers have down-sized into cross utility vehicles (CUV). CUV sales in 2008 were 2.4 million units, comprising 37.6 percent of the light truck market. However, even this popular segment experienced a decline of 14 percent in 2008. Pickup truck and van sales also fell in 2008, by 27 percent and 25.09 percent, respectively.

The Detroit 3 have been particularly impacted by the over 2 million unit decline in U.S. light truck sales over the past ten years. Light trucks are more profitable than cars, and the Detroit 3 still maintain the majority of the segment's market share. In 2008, sales of light trucks made up 58 percent of total sales for GM, 64 percent for Ford and 72 percent for Chrysler. Nonetheless, the Detroit 3's share of the segment has fallen from 83.6 percent in 1998 to 61.6 percent in 2008, as new competitors, mainly the Japanese automakers, entered the market and expanded their lineups. The Japanese share of the light truck segment has gradually increased from 15.1 percent in 1998 to 31.3 percent in 2008.

Sales of passenger cars in 2008 also declined, falling 10.6 percent to 6.8 million vehicles. (Table 6) They accounted for 51.7 percent of the market (an increase from 2008's share of 47.4 percent). Overall, total U.S. sales of large cars took the biggest hit in 2008, dropping 38.8 percent, while luxury cars decreased almost 16 percent, and mid-size cars decreased 10.4 percent. Small cars saw a surge in sales during last summer's high gas prices, thereby annual sales dropped by less than one percent. With an emphasis put on producing popular and profitable light trucks, the Detroit 3's share of passenger car sales has steadily declined over the last twenty years. Their share fell from 69 percent in 1988 to 34 percent in 2008.

Tight Credit, Gas Prices, & Mother Nature Also Hurt Sales in 2008

In addition to slowing financial and economic conditions, last year's auto sales were impacted by other factors. The rise and fall of gas prices throughout the year demonstrated consumers' fickle

behavior. When gas prices climbed last summer, sales of hybrids and fuel efficient vehicles immediately skyrocketed while pickup trucks and SUVs plummeted; however, as lower fuel prices returned, fuel efficient vehicles' popularity waned and other segments were once again considered. In the Fall of 2008, the focus turned away from gas prices and towards consumers' worries about the economy and the financial crisis. In addition, higher interest rates and tighter lending standards made it more difficult and expensive for some consumers to obtain loans. In September, sales fell to their lowest level in 16 years, with all of the six major automakers experiencing declines. Hurricanes in the Gulf states and gas shortages in the Southeast also hurt sales in these regions. In addition, the number of auto financing companies offering new retail vehicle leasing declined due to both the financial crisis and vehicles' residual values falling, particularly for light trucks.

U.S. Auto Dealers Struggle with Lower Sales

Dealers were hit especially hard in 2008, having to cope with lower new and used vehicle sales, fewer leases, lower property values, tighter credit, along with stricter terms and higher rates for floorplan (vehicle inventory) financing. The National Automobile Dealers Association reports U.S. auto dealer profits were the lowest in nearly two decades, at 1.0 percent of sales. There were even reports of a few desperate dealers offering "buy-one-get-one-free" vehicle deals. In 2008, there was a net loss of 760 dealerships and a loss of 50,000 new dealer employees. An additional 900 dealerships are expected to close in 2009.

As Sales Decline, Incentives Grow

Consumers able to obtain credit last Fall faced higher interest rates, but benefitted from higher sales incentives. After offering consumers high vehicle incentives following 9/11, the Detroit 3 spent the past couple of years trying to increase their profits by weaning consumers from incentives and emphasizing their vehicles' quality. However, by the end of the Summer of 2008, the drastic reduction in sales forced almost all of the automakers to increase incentives in an attempt to boost sales. Edmunds.com reported that 2008 began with the average automotive manufacturers' incentive in the United States at \$2,401 per vehicle sold in January 2008. However, by December 2008, the amount climbed to a record high average for the year, \$2,902 per vehicle, which also was an all-time record high for a December average incentive. Moreover, there is disparity among manufacturers on these amounts. For example, in 2008, the Detroit 3 spent \$3,545 per vehicle sold, up 10.3 percent from 2007; Japanese automakers spent \$1,397 per vehicle sold, up 16.4 percent from 2007; Korean automakers spent \$2,052 per vehicle sold, up 10.3 percent; and, European automakers spent \$2,794 per vehicle, only \$8 less than in 2007.

Alternative Fuels, Hybrid, and Diesel Technology

The Energy Independence and Security Act (EISA) of 2007 increased fuel economy standards, provided tax credits for increased production of biofuels for transportation, and also provided

incentives for electric vehicles. Industry analysts suggested that the increased fuel economy requirements would add further to the Detroit 3's competitive pressures and accelerate Toyota's and Honda's market share increase. The run-up in fuel prices during 2008 provided a similar impact. Truck and large SUV sales declined markedly while hybrid and small vehicle sales advanced. The late 2008 financial collapse and resultant retreat in fuel prices has softened the effectiveness of the EISA considerably.

Political winds have blown increasingly toward lessening petroleum usage. The Energy Improvement and Extension Act of 2008 was part of the economic stabilization package signed into law in October 2008. Among other important changes, the Act increased and extended tax credits for biodiesel and renewable diesel fuel through 2009 and provided a tax credit for plug-in vehicles until 2014. The American Recovery and Reinvestment Act enacted in February of 2009 added further incentives for an industry shift away from petroleum fuels including extending the tax credit for plug-in vehicles, more loan guarantees for advanced vehicle technology production capabilities, and federal fleet purchasing requirements.

Positive consumer and political response to hybrid vehicles has increased the focus on various electric vehicle technologies. Hybrid vehicle sales represented roughly 2.5 percent of total U.S. vehicle sales in 2008. Clearly hybrids remain a limited portion of the total market. Still, the number of hybrid models available is also currently limited. Toyota, a global leader in hybrid technology, received roughly 8.5 percent of total sales from hybrids in December 2008.³⁶ With virtually every manufacturer working on adding hybrids or increasing their range of offerings, the segment will continue to grow.

Virtually every manufacturer is also working to market a plug-in vehicle over the next 3 years. GM is focusing on its Volt plug-in hybrid technology. It will offer a 40 mile range under electric power after which it will operate like a regular hybrid. Ford and Toyota are working on similar plug-in versions of their hybrid vehicles and both are also looking at bringing fully electric vehicles to market. Ford plans to market an electric version of the Transit van, and BMW is evaluating bringing a fully electric Mini to market. Chrysler, Mercedes, Subaru, Mitsubishi, Hyundai and others are all working on plug-in vehicles with plans to market them over the next 3 years.

Developing country firms are also working to introduce plug-in vehicles. The Chinese firm BYD began Chinese market sales of its plug-in hybrid in December 2008, and Chery unveiled the S18 a fully electric vehicle in February 2009. Likewise, Indian firm Tata Motors is planning to begin sales of a fully electric vehicle in Denmark in 2010. Initial production volumes will be low for most of these early vehicles and many will be targeted toward fleet users until manufacturers become more comfortable with the technology.

The early plug-in vehicles will also be expensive, though researchers from Nissan claim that batteries will reach price parity with internal combustion engines by 2015, and that they will offer a vehicle range of roughly 250 miles. This claim is supported to an extent by a statement made by Andy Karsner, Former Assistant Secretary for Energy Efficiency at the U.S.

³⁶ *Reported Sales of Hybrids Down 42.8% in December, 10% for 2009*, January 6, 2009; available from <http://www.greencarcongress.com/2009/01/reported-sales.html>

Department of Energy. Speaking at the “Plug-in Electric Vehicles 2008: What Role for Washington?” conference, Mr. Karsner noted that by 2014 advanced batteries would decline to \$300 per kilowatt hour (kw/h). He said that he based his comments on his access to the financial data of several major advanced battery suppliers. To put this into perspective, GM’s Volt will use a 16kw/h battery enabling 40 miles of all electric travel. At \$300 kw/h the Volt battery would cost \$4,800, roughly half the \$10,000 this same battery is purported to cost today. Even at 7 percent interest, it could take an average driver less than three years to pay back the cost of a Volt size battery at \$300 kw/h, leaving room for manufacturer markup and consumer return on purchase.

Notably, representatives from VW and Honda continue to argue that plug-in electric vehicles aren’t yet practical, but both also have leadership positions with technologies - - diesels and fuel-cells - - that could be threatened by a shift to electric vehicles. Even then Honda is working on a plug-in electric motorcycle and VW is working with Toshiba to develop electric cars.

Vehicle manufacturers continue to develop other technologies to increase the efficiency of their products. Many are also working to increase their small vehicle offerings particularly the Detroit 3. There are rumors that GM will bring its diminutive “Beat” to the United States, while Chrysler has negotiated a tie-up with Fiat which should allow it access to Fiat’s small vehicle technologies. Looking at fuel efficiency inducing technologies, Ford is working to market its version “EcoBoost Engine Technology.” EcoBoost is actually a combination of technologies that allow smaller engines to deliver the power of larger displacement engines while also delivering increased fuel efficiency. Vehicle manufacturers are also offering other technologies such as the dual clutch and CVT transmissions that allow engines to operate closer to their peak efficiency, thereby offering increased fuel economy.

Diesel is the dominant alternative drive train technology in Europe. Despite significant reductions in diesel emissions, it remains difficult to engineer diesel powered vehicles to meet stricter U.S. emissions regulations. The fact that only about 34 percent of filling stations in the United States sell diesel fuel also limits their attractiveness to consumers. The United States introduced regulations in 2006 that reduce sulfur content in diesel motor fuels, which will make meeting emission regulations much easier. However, relatively high diesel fuel prices are restraining firms from introducing diesel vehicles to take advantage of the change.

The Detroit 3 remain committed to biofuels and are still aiming to make 50 percent of their respective lineups capable of burning E85 (85 percent ethanol) by 2012. They have also been working to increase the amount of bio-diesel their diesel engine vehicles can handle. Biofuel makers continue to make efficiency improvements and distribution infrastructure is increasing though it remains very limited with roughly 1,900 E85 filling stations nationwide. Nonetheless, vehicle makers are enabling consumers to use the fuel as it becomes available with their flexible fuelling options.

Likewise, automakers continue to make progress toward mass marketing hydrogen fuel cell vehicles. GM continues to pursue its Project Driveway program, while Honda began an extremely limited U.S. lease program for their fuel cell powered “Clarity” in 2008. Fuel cell vehicle costs remain high but they are declining and targets for mass market cost competitiveness

continue to be met. In fact, the cost trajectories for many alternative fuels and fuel economy related technologies are trending downward. This is opposed to the expected long-run cost trajectory of petroleum.

The International Energy Agency (IEA) took a long look at oil production in its “2008 World Energy Outlook.” According to the report, petroleum production costs are rising and will continue to rise on a long term basis. The very large oil fields that produce most of the current oil supply will begin to decline over the next decade or two. New fields that will replace the missing volume will tend to be much, much smaller and in harder to access locations. Many small fields will require more drilling while the hard to access locations, like deep offshore, will require much more expensive drilling as well as expensive support infrastructure. If so, future petroleum prices will have to be high enough to cover the increased costs and provide a return on investment. Similarly, demand for transportation fuels has been accelerating globally. In their “2007 World Energy Outlook” the IEA estimates the Chinese light vehicle fleet will increase over 800 percent between 2005 and 2030 (from 22 million to 200 million respectively), and they predicted the Indian light vehicle fleet will grow over 945 percent between 2005 and 2030 (from 11 million to 115 million respectively). Probably due to the increasing development costs and increasing demand, GM projects a gasoline price of \$4 per gallon in 2014.³⁷

Vehicle producers are making enormous investments in alternative fuels and fuel related technologies. Those investments are leading to declining costs. At the same time, the price floor for new petroleum investments is increasing. These trends portend a strong potential for a rapid shift in vehicle drivetrains to some of these alternatives should consumers embrace the new technologies. Mass production allows the opportunity for economies of scale and cost reductions through learning, yet it takes roughly 15 years for the fleet to turn over. Thus, even rapid increases in production would have limited initial impacts on petroleum fuel demand and prices. For example, if a technology achieved 100 percent of new car sales in one year it would only replace 6.7 percent of the total U.S. fleet. It would take a substantial period of time for large sales increases of an alternative fuel or drivetrain to impact global petroleum demand giving a potentially significant time period for the alternative to develop a cost advantage. Once gained, that cost advantage would continue to widen over time as long as overall trends held.

Automakers’ Product Changes, New Investments, and Innovative Advances

According to Conde Nast’s Portfolio.com, “fear and desperation have always been powerful engines of innovation for the auto industry.” Given the current state of the global economy and the auto industry, in particular, innovation should flourish over the next several years. The price of oil will also determine the popularity of alternative fuels and electric/hybrid vehicles. Although the price has dropped more than \$50 off the record high price of \$147.27 a barrel last July, prices are edging up a bit as oil producers have decreased production. If prices continue to increase substantially, there will be more incentive to invest up front in energy saving technology. To be sure, electrification, bio-fuels, clean diesels, natural gas, fuel cells, and various hybrid technologies will play ever greater roles over the next several years. However, new technology will not come cheap. It takes three to five years to do the engineering and install

³⁷ GM’s February 13, 2009 restructuring plan submission to Treasury, p. 53.

the tooling needed to produce new automobiles, and the best new models will be relatively expensive. As production costs decrease for these new technologies, these vehicles will become more mainstream.

Nonetheless, the manufacturers are vigorously competing for survival in what will be the best technological investment choices for the coming years and strategies vary widely, as do priorities for each manufacturer. Moreover, weak global economies are forcing a sea-change in supplier-OEM relationships. While vehicle manufacturers have traditionally been dependent on their suppliers for innovation, some companies with money available to invest in research and development are taking steps to assume more control, such as Daimler, which has decided to develop battery technology in direct competition with its supplier, Bosch. For other vehicle manufacturers, the nurturing role of spurring innovation will remain for years to come in materials and electronics development.

Therefore, in order to remain competitive in today's tough environment, manufacturers and suppliers alike are being challenged to stay one step ahead of the game in developing cutting-edge new technologies that address issues as diverse as fuel economy, light-weighting, and emissions control under forthcoming climate change policies. Today's auto shows devote pavilions to showcase top "green" cars that embrace the road ahead for electric, alternative fuel, clean diesel, and other advanced technology vehicles. The discussion below provides an overview of each major U.S. auto manufacturer's new product launches and innovation strategies.

DETROIT 3

General Motors

GM continues to work on a variety of advanced technologies, such as alternative fuel vehicles, and hybrid and plug-in vehicles. In its February 2009 Plan to the Treasury Department, GM said it plans to increase the number of hybrid models to 26 by 2014, and to make 65 percent of its sales alternative-fuel capable in 2014. GM's car/truck fleet average fuel economy is forecasted to improve from 31/24 mpg in 2010 to 38.6/27.6 mpg in 2015. By 2012, GM vehicle nameplates will decline from 48 in 2008 to 36 vehicles, and over half of its U.S. passenger car sales will be derived from new, global architectures, growing to almost 90 percent by 2014.

In January 2008, GM formed a global team based in Michigan, Germany and Shanghai to implement hybrid and extended-range electric vehicles (E-REV) and advanced battery technology more quickly. Vehicles engineered by the team include the Chevrolet Tahoe and Silverado 2 Mode; Chevrolet Malibu Hybrid, Saturn Vue 2 Mode Plug-in; Saturn Vue and Aura Hybrid; GMC Yukon and Sierra 2 Mode; and the Cadillac Escalade 2 Mode.

GM is a global leader in producing vehicles that operate on ethanol fuel blends. The company offered 11 flex-fuel capable models for 2008. Because ethanol is renewable and emits fewer CO₂ emissions compared to gasoline, GM believes ethanol used as a fuel, not just as a gasoline additive, is the best near-term alternative to the increasing global demand for oil. The automaker has partnered with two firms specializing in developing cellulosic ethanol. In January 2008, GM announced a partnership with Cosakata, a biology based renewable energy company, to commercialize Cosakata's process for turning practically any renewable source into ethanol for

less than \$1 gallon. In addition, in May 2008, the automaker and Mascoma Corporation announced a strategic relationship to develop cellulosic ethanol focused on Mascoma's single-step, low-cost biochemical conversion of non-grain biomass into low-carbon alternative fuels. GM's involvement with Mascoma will also include projects to evaluate materials and other fuels for specific engine applications.

Throughout 2008, GM implemented its "Project Driveway," the largest market test of fuel cell vehicles in the world. The automaker loaned 100 of its zero emissions Chevrolet Equinox fuel cell vehicles for three months to everyday drivers, who provide customer feedback to GM engineers and help them to develop the next generation of fuel cell vehicles. The Equinox fuel cell vehicle has a range of approximately 150 miles when fully fueled.

GM announced in March 2008 it would introduce a second-generation version of its hybrid system, with a new lithium-ion battery supplied by Hitachi Vehicle Energy Ltd., of Japan. The new battery will help make the new system nearly three times more powerful than the first generation system and will allow the hybrid system to be used in a variety of global powertrains. In addition, the battery will improve vehicles' fuel economy by up to 20 percent, depending on the engine and vehicle application. The technology is expected to be implemented beginning in 2010.

In June 2008, GM demonstrated to the media its homogenous charge compression ignition (HCCI) system on its Saturn Aura concept vehicle. HCCI provides up to 15 percent fuel savings when combined with several additional advanced technologies, and meets current emissions standards. In addition to highway driving, the vehicle is capable of operating in HCCI mode when the vehicle is idling, which could be the first for the industry. The vehicle operates in HCCI mode for speeds up to 55 mph, and switches to spark-ignition for higher-load conditions or passing at lower speeds.

GM announced several advances during 2008 related to the Chevrolet Volt's battery, vehicle's design and production. The Chevrolet Volt will offer up to 40 miles of gasoline-and emissions-free driving, with the extended-range capability of hundreds of additional miles. The vehicle is powered only by electricity stored in its 16-kWh, lithium-ion battery for trips up to 40 miles. When the battery's engine is depleted, a gasoline/E85-powered engine generator provides electricity to power the Volt's electric drive unit while simultaneously sustaining the charge of the battery, thus extending the range of the Volt for several hundred additional miles. In September 2008, GM unveiled its production version of the Chevrolet Volt. The vehicle is scheduled to be produced at GM's Detroit-Hamtramck manufacturing facility, beginning in late 2010 for models in the United States.

In April 2008, engineers at GM's battery test facilities developed a new computer algorithm to accelerate durability testing of its advanced lithium-ion batteries. The system helps to compress 10 years of comprehensive battery testing into Volt's fast-paced development schedule. The Volt's 6-foot long T-shaped battery, which weighs more than 375 pounds, will be placed down the middle of the vehicle. Its placement is critical because the battery will also interact with the vehicle's thermal and safety systems and chassis components.

GM's new global Powertrain Engineering Development Center in Pontiac, Michigan, which will bring advanced fuel-saving powertrains to the market faster and at less cost by reducing 10 weeks from the development process, was opened in July 2008. The Center is the largest and most technically advanced powertrain development center in the world. The Chevrolet Volt's electric drive unit, motors, power electronics and engine will be developed and tested at the Center, along with electric motors for fuel cell and hybrid powertrains and other advanced gasoline, biofuel and clean diesel engines and transmissions. It also is the model for 11 additional GM powertrain laboratories around the globe.

In August 2008, GM announced it will invest more than \$500 million in the United States to build the Chevrolet Cruze, an all-new global compact car. The vehicle will be built at GM's Lordstown, Ohio plant. The Cruze was designed and engineered by GM's global teams in Europe and Asia Pacific and will also be manufactured in those regions in addition to Lordstown. The Cruze will begin to be sold in Europe in March 2009, followed by other global regions.

In terms of plant investments, GM is investing \$250 million to install machinery for producing a 1.4-liter, four-cylinder engine in unused space in its existing Flint South Engine Plant. The engine will go into the Chevrolet Volt as well as the Chevrolet Cruze compact. GM also announced that it will invest \$69 million in its DMAX plant in Moraine, Ohio to manufacture a new Duramax 6.6-liter V-8 turbo diesel engine to meet 2010 emission standards. The plant is a joint venture between GM and Isuzu. The investment includes plant renovations, and new machinery and tooling.

During 2008, GM announced a couple of alliances to further its advanced technology efforts. In June 2008, GM and Carnegie Mellon University announced a new Collaborative Research Lab and a joint effort to work on autonomous driving technologies. The lab, established under the terms of a five-year, \$5 million agreement, will operate as an extension of GM's Global Research & Development network, and will be located at Carnegie Mellon in Pittsburgh. In addition, GM announced in July 2008 that it would collaborate with the nonprofit Electric Power Research Institute (EPRI) to accelerate the introduction of plug-in electric vehicles such as the Chevrolet Volt and Saturn Vue Plug-in Hybrid. GM, EPRI and utility companies will increase public awareness of plug-in vehicles, and work on everything from codes and standards to grid capacity to ensure the infrastructure is ready when the vehicles are marketed.

In the summer of 2008, the automaker announced a number of new vehicles available in 2009, including the 2010 Chevrolet Camaro, the 2010 Cadillac CTS Sport Wagon, and 2010 Cadillac SRX Crossover. In August, GM began selling its 2009 Cadillac Escalade hybrid, the first-ever large luxury SUV hybrid, with EPA fuel economy ratings of 20/21 miles per gallon (city/highway). The vehicle features GM's two-mode hybrid technology, which allows the hybrid system to operate the vehicle entirely on battery-electric power during idling or low-speed driving situations. To save fuel, the vehicle also incorporates Active Fuel Management technology that enables the Vortec V-8 engine to operate on only four cylinders in certain driving conditions.

Also in August 2008, GM introduced the new Xtra Fuel Economy (XFE) models of the 2009 Chevy Silverado, Chevy Tahoe, GMC Sierra and GMC Yukon. The vehicles use a combination

of mechanical, aerodynamic and mass-reducing enhancements to achieve 15 city and 21 highway mileage ratings versus comparable non-XFE models' 14/20 ratings. GM already offers hybrid versions of the Tahoe and Yukon that achieve up to a 50 percent improvement in city fuel economy. In the first half of 2009, the Silverado and Sierra Hybrids will be available, which offer up to 25 percent overall increased fuel economy and greater than 40 percent improved mileage in city driving.

In January 2009, GM had a variety of announcements related to developing its advanced battery technology. GM is planning to manufacture the Volt's lithium-ion battery packs at a new plant in Michigan beginning in 2010. The battery cells will be supplied by LG Chem. Compact Power Inc., a subsidiary of LG Chem, until GM's plant is operational. A joint engineering contract with Compact Power and LG Chem also was signed to further develop the battery's technology. GM also plans to: open an auto battery lab in Michigan for design, testing and development; increase staff to accelerate "in-house" battery-development capability; partner with the University of Michigan to create a new automotive advanced battery lab and develop an auto battery engineering curriculum; continue to establish battery-related suppliers; and, collaborate with government and industry to advance hybrids, plug-ins and electric vehicles and related electric infrastructure.

Ford

Ford's president, Allan Mulally, stated in early November 2008 that Ford is staying with its earlier policy of building smaller, more fuel efficient vehicles, even though fuel prices have declined from around \$4.00 a gallon to a little over \$2.00 a gallon.³⁸ In addition, Ford will continue introducing new alternative-powered vehicles (E85, electric hybrids, fuel cell-powered) during the next two decades. Also, Ford plans to import current models of Ford products from the European Union (EU) and possibly other areas of the world. Other significant innovations for these products are a new four-cylinder and V-6 engine, equipping most models with electric power steering, new transmissions, start/stop systems, aerodynamic improvements, renewable fuel engines, and in the very long term fuel cell propulsion systems.

One of Ford's most recent product introductions was the release of the newly designed F-150 pickup truck. For most of the last three decades, the F-150 lightweight truck has been the best-selling vehicle in the United States. However, during the period of high fuel prices in 2008, it was not the number one selling vehicle, but it reclaimed this distinction in January and February 2009 largely due to falling fuel prices.

During 2009, Ford will introduce a new Taurus, Ford Fusion/Mercury Milan gasoline and hybrid, and a Lincoln SUV.³⁹ Ford will make extensive use of its new EcoBoost engine in some of these models. Two new "image cars" will be introduced--the Ford Taurus SHO and the Ford Mustang Shelby GT 500. Both of these cars have been sold with the same badges in the past, and both are performance models that Ford hopes will bring consumers into the showroom.

³⁸ "Ford Sticks with Small-car Plans," *Automotive News*, November 3, 2008, p. 1.

³⁹ Brent Snavelly, "Ford Has Vehicles to Launch," *Detroit Free Press*, March 3, 2009.

The most innovative model to be introduced in 2009 is the Fusion hybrid. Ford says it will achieve 36 mpg on the highway and 41 mpg in the city. It will compete with models such as the Camry and Honda mid-sized sedans and be equipped with a small four cylinder engine and an electric motor. Some of its newer technology includes: electric power steering, a six speed automatic transmission, a digital instrument panel display that “coaches” drivers to maximize fuel economy, and an electric motor that captures 90 percent of the braking energy. The new Fusion will also be available as a non-hybrid, powered by a conventional four or six cylinder engine. A similar model, called the Milan, will be offered in the Mercury lineup. Ford is currently targeting sales of 25,000 vehicles a year, but if gasoline prices reach the \$4.00 per gallon and over price again, it will likely sell more. Ford estimates it will retail for about \$27,000, competitive with other hybrid sedans of its size.⁴⁰

The new Lincoln MKT is built on the Ford Flex SUV platform and will hold up to seven passengers. However, it will have a completely different body and interior than the Flex. It will be the second cross-over, or CUV model, in the Lincoln line that is based on a unibody platform.

In late January 2009, Ford announced it was halting plans to produce a new rear wheel drive (RWD) platform for Ford and Lincoln. Currently, Ford builds three large sedans with RWD; the Lincoln Town Car, Ford Crown Victoria, and Mercury Marquis. New models were originally expected to be introduced in 2013. Last year, Ford announced it was ending production of the current three models. Ford also announced in December, 2008 that it was discontinuing the Taurus X CUV and the Mercury Sable. Without the Sable and Marquis, Mercury’s lineup will consist of only the Mountaineer SUV, the Milan midsized sedan, and the Mariner CUV, all virtually the same as regular Ford models.⁴¹

In July 2008, Ford announced plans to retool three North American factories, at a cost of about \$3 billion to manufacture six European models.⁴² The first EU vehicle to be produced in the United States will be the Fiesta. The Fiesta is a subcompact model Ford is currently manufacturing in Europe, China, and Spain, and plans to sell/produce in other countries throughout the world in the near future. In November 2008, when the current model was first introduced, it was the best selling model in the United Kingdom. It is Ford’s second best-selling vehicle in the 19 major EU countries, following only the Ford Focus. The Fiesta is designed to be Ford’s worldwide platform for subcompact models. The “world car” concept has been around for a long time, and in 1980, Ford produced the original Fiesta, proposing it would be a world car.⁴³ The current model, built in the Cologne, Germany plant, is also sold in South Africa, and will go on sale in Australia and New Zealand some time in 2009.

⁴⁰ Bill Vlasic, “Ford Hybrid Emphasizes High Mileage,” *New York Times*, December 31, 2008.

⁴¹ “Ford Axes Taurus X, Sable in Favor of Flex, MKT,” *Ward’s Automotive*, December 8, 2008, p2.

⁴² Matthew Dolan, “Ford Speeds to Tailor European Cars for U.S. Crowd,” *Wall Street Journal*, September 8, 2008.

⁴³ *Auto Situation: 1980*, Prepared by the Staff of the Subcommittee on Trade, June 6, 1980, pp. 67-68.

Ford shipped 100 European Fiesta models to the United States in mid-March to young American consumers to see how they are received and help gather feedback on the model.⁴⁴ Some 1,500 younger consumers have applied for the Fiestas. The ones who are selected will use networks such as Facebook, MySpace, and Flickr to share their experiences.

Another European vehicle slated to be built in the United States is the Ford Transit Connect. It is primarily a commercial small van that will be used for smaller payloads. It is currently manufactured in Turkey, and has a fuel efficient four cylinder engine. Mileage is 22 mpg in the city and 25 highway driving. Initially, Ford plans to import it from Europe. It is front-wheel drive and uses an automatic transmission. It has a much smaller cargo carrying ability than Ford's current North American commercial van, but still a very suitable commercial van for urban use.⁴⁵ Some of the innovative features are an in-dash computer that provides internet access and printing capabilities, a "Tool Link" that can help the driver to organize and track tools and other work-related equipment, and inventory control. Companies can track their fleet through a tracking system and manage any type of fleet.

An electric version of the van was announced in April 2008. It is assembled in the United Kingdom by Smith Ampre EV. Plans are to use it not only as a commercial light van, but also as a taxi. It has a range of 100 miles, and a top speed of 70 mph. It is currently being produced for European use, but plans to import the electric model or produce it in the United States are not certain. Ford had planned to build the next generation Transit at a U.S. plant in 2011, but the production date has been set back due to Ford's current financial condition.

A new version of the Ford Explorer SUV is planned to go on sale in 2010. The concept version was to appear at the 2009 Detroit Auto Show, but Ford did not display it. It will be built on an auto platform and will be a CUV rather than the current SUV built on a truck frame. It also will have a four cylinder, 275 horsepower EcoBoost engine, increasing its fuel mileage considerably.

A plug-in hybrid vehicle is also being developed by Ford and Edison Electric in Southern California. The battery will be supplied by Johnson Controls, a leading U.S.-owned battery producer, and Salt, a French maker of lithium-ion batteries. Ford supplied Edison Electric a fleet of Ford Escape Hybrid SUV's in 2007 as part of the plug-in project. In January 2009, Ford announced it would begin selling a battery electric vehicle by 2011 and a plug-in hybrid by 2012.⁴⁶

One of Ford's major changes is the type of engine it is placing in many of its new models and plans to equip future models. Ford calls it the EcoBoost and while not a revolutionary engine, it has many technical innovations. Ford is moving away from its traditional V-8 engine to four and six cylinder EcoBoost engines that are turbocharged, have variable timing, direct injection, and

⁴⁴ "Scott Burgess, "Younger Buyers Will Tout Fiestas," *Detroit News*, February 21, 2009.

⁴⁵ "Ford's Transit Connect Brings 22 City, 25 Highway MPG to Market-Leading Commercial Truck Lineup," Ford Motor Company press release, December 16, 2008.

⁴⁶ David Shepardson, "Obama Plans to Visit Electric Vehicle Facility," *Detroit Free Press*, March 17, 2009.

other fuel efficient and power enhancing equipment.⁴⁷ Ford describes its EcoBoost strategy as an effort to provide fuel economy “to the masses.” By 2012, Ford plans to have some 500,000 EcoBoost-powered vehicles on the road in North America.

A major production change is the shift from assembly lines that produce only one platform to the new system used by many U.S. transplants where different platforms can be produced in one plant. The major advantage is that, as consumer tastes and buying factors (such as oil prices) change, a plant can change models and run at a higher capacity. It also requires fewer manufacturing facilities.

Although Ford is in the process of closing multiple plants, cutting back workers, and contracting the number of platforms/models it is currently building, there was some good news regarding plant investment in 2008. The formerly closed Brookpark, Ohio engine plant will reopen to build the new EcoBoost four-cylinder and V-6 engines. At full production, it will employ 500-800 hourly workers. The plant originally opened in 1951, was closed in 2001, reopened and closed again in 2004, and closed again in 2007 for retooling.⁴⁸

In addition, Ford announced on October 20, 2008 it would invest an additional \$200 million in two Louisville, KY plants. Half would be invested in its truck plant, and the other half in a plant that formerly produced SUV’s, but soon will build a small car currently produced in Europe. Ford had already revealed plans to invest up to \$300 million in the two plants by 2011. Kentucky agreed to award up to \$180 million in incentives for the two plants if up to 6,000 employees are kept at the Louisville plants.⁴⁹

Chrysler

Over the past decade, Chrysler has built more than 1.5 million Flexible Fuel Vehicles capable of running on renewable, American-made ethanol fuel (E85). Chrysler has stated that it is committed to making 50 percent of its light-duty vehicles capable of using alternative fuels by 2012. For the 2009 model year, 73 percent of Chrysler’s products offer improved fuel economy compared with 2008 models. To further increase fuel efficiency, an all-new family of fuel-efficient V-6 engines will be introduced in 2010.

The proposed alliance with Fiat would benefit Chrysler by gaining access to Fiat’s vehicle platforms that specialize in small fuel efficient vehicles that would complement Chrysler’s current product portfolio of larger vehicles and would accelerate the company’s plans for the introduction of more environmentally friendly vehicles.

In late 2008, Chrysler announced its ENVI (representing the first four letters of “environment”) plug-in vehicle program, where Chrysler revealed three fully functional vehicles, which it expects to have on the road by 2010. The Town & Country minivan, Jeep Wrangler SUV and

⁴⁷ “Collaboration with Partners Key to EcoBoost’s Industry-Leading Fuel-Charging System Output, Ford Motor Company press release, February 27, 2009.

⁴⁸ “Ford Motors to Reopen Engine Plant in Brookpark, Ohio, for EcoBoost Engine,” Ford Motor Company press release, February 27, 2009.

⁴⁹ Ben Jackey, “Ford Announces \$200 Million Investment in Louisville Plants,” *Louisville News*, October 8, 2008.

Dodge sports car comprise a product line that CEO Robert Nardelli claims “allows us to be energy-independent going forward.” Chrysler plans to sell several models that have gas as well as plug-in capability, rather than selling dedicated plug-in models as other manufacturers are doing. Chrysler stresses that its high variety and low cost strategy will play a big role in its comeback.

JAPANESE AUTO MANUFACTURERS

Toyota

Toyota has, for years, been considered one of the most consistently and successfully innovative auto companies. That is because Toyota has focused more on process than product. In other words, Toyota’s innovations lie in the factories, not in the showrooms. Toyota has reinvented how things got made, which enabled it to build cars faster and with less labor than American companies. Toyota defines innovation as an incremental process. It has a Japanese name for the principle, called *kaizen*, or continuous improvement.

Toyota has invested 15 years in hybrid research. Although mired in the present slumping market along with the other automakers, Toyota will continue to focus on an expanded hybrid future. In fact, the seven hybrids in its present portfolio will increase to 17 after 2010. This position is strengthened by the fact that Prius is Toyota’s number three bestseller after Camry and Corolla. At the 2009 North American Auto Show, Toyota unveiled the all new 50-mile per gallon (mpg) Prius hybrid vehicle (up from the existing model’s 46 mpg). The mid-size third generation 2010 Prius will go on sale in Spring 2009 and will offer innovative design features such as a moon roof with solar panels, four driving modes, intelligent parking assist and steering wheel touch controls that display on the instrument panel. It will be powered by a larger and more powerful four-cylinder engine, which, contrary to conventional wisdom, will actually help improve highway mileage by creating more torque and allowing the engine to run at a lower average rpm on the highway.

There are several new improvements with the patented Hybrid Synergy Drive system, including a lighter transaxle which reduces torque losses, a new direct cooling system for the inverter to reduce size and weight, and a newly developed electronically controlled regenerative braking system. There are three driving modes: EV-Drive mode allows driving on battery power alone at low speeds for about a mile, if conditions permit; Power mode increases sensitivity to throttle input for a sportier feel; and, an Eco Mode will help drivers achieve the best mileage. Toyota wants to sell 400,000 of these vehicles worldwide annually by 2010. These goals are without the benefit of its Blue Springs, MS manufacturing facility, whose construction has been halted until the U.S. economy recovers. Toyota intended to begin production at Blue Springs in 2010, but pulled the plug on the 90 percent-completed facility, which was to have planned capacity for 150,000 units.

Although Toyota has stated that gas-electric hybrid vehicles remain its “long term core” powertrain focus, it displayed an electric-vehicle concept, called the FT-EV, at the North American International Auto Show this year. The FT-EV concept car is built on the same platform as the automaker’s tiny IQ A-segment car sold in Europe and Japan. Toyota also says that it is moving up the introduction date of its plug-in hybrids for fleet demonstration to 2009 from 2010. The automaker later this year will begin delivering 500 Prius PHVs powered by

lithium-ion batteries, 150 of which are allotted for the United States. The first-generation Li-ion batteries will come from Toyota's 60/40 joint-venture with Panasonic Corporation, called Panasonic EV Energy Co. Ltd. Toyota says that the 2010 Prius has been engineered to take either a Li-ion battery pack with plug-in capability or the conventional nickel-metal hydride battery currently used in the Prius gas-electric version.

In addition to the new 2010 Prius, Toyota recently revealed the 2010 Lexus HS 250h, the world's first dedicated luxury hybrid vehicle. The HS 250h will be Lexus' fourth hybrid and is expected to offer the best combined fuel mileage of any luxury vehicle in the United States. It will also be the first Lexus to utilize carbon-neutral Ecological Plastic materials in a new futuristic cockpit and interior design, making the car 85 percent recyclable. Over the estimated lifecycle of the vehicle, the HS 250h will have approximately 20 percent fewer carbon-dioxide emissions as a result of the Ecological Plastic trim pieces. Among the technologies adopted in the 2.4-liter four-cylinder engine are cooling piston oil jets; an optimized balance shaft rate for improved noise, vibration and harshness (NVH) characteristics; and, a hot-air venting system mounted behind the radiator.

Honda

Many of Honda's major technology innovations are fuel economy related. At the 2008 North American International Auto Show in Detroit, President Takeo Fukui, announced that Honda plans to bring two different, all-new hybrid small cars to the market in the coming years. Mr. Fukui also announced in early 2008 that Honda developed a new "i-DTEC" clean diesel engine series. The first new i-DTEC engine meeting Euro5 emissions standards went on sale in Europe in 2008. The i-DTEC engine technology was set to debut in the United States in 2009, meeting the same Tier2, Bin5 emissions standard as current gasoline engine vehicles. Significantly, Honda will achieve this emissions target without an onboard tank of urea as other vehicle manufacturers have required. Those plans were cancelled due to diesel price volatility and the declining automotive market.

The market collapse has led Honda to make adjustments to many of its plans. During his year-end speech in December 2008, Fukui said that Honda will continue to concentrate on developing fuel-efficient products. Honda views hybrids as the most promising technology to reduce greenhouse gas emissions and it will therefore focus on mass marketing them. The new Insight is a priority and a sporty hybrid vehicle based on the "CR-Z" show car will go on sale by the end of 2010. Honda is also thinking about hybridizing its larger vehicles. The company is working to increase its production capacity to match this effort to mass market hybrids, hoping for its hybrids to account for approximately ten percent of Honda's global automobile sales by 2010.

Honda launched its new Insight in February 2009. With a newly developed lightweight and compact hybrid system, the vehicle is designed to achieve high fuel efficiency while meeting the needs of a family. Due to significant cost reduction efforts, Honda believes the vehicle is affordable. In designing the vehicle, Honda was aiming to offer a hybrid vehicle significantly below the cost of Toyota's Prius. The new Insight has a base price under \$20,000, roughly \$3,000 under the base price of a Prius. Honda's global sales plan for this new hybrid vehicle is 200,000 units, with half of these targeted for the North American market.

Honda will also continue its efforts on advanced diesels but focus on its development of small-size diesel engines, delaying introduction of medium and large-size diesel models in both the United States and Japan. In related news, Fukui said that Honda is currently developing a plug-in electric motorcycle. The company aims to produce a battery-powered electric vehicle in about two years.

The company reached a major milestone in June 2008 when it began limited production of the FCX Clarity hydrogen fuel cell vehicle. Lease sales began in July in the United States. The company plans to produce a couple dozen units within a year and about 200 units within three years.

Nissan

Nissan's stated philosophy toward the environment is "seeking a symbiosis of people, vehicles and nature." Nissan's Green Program involves reducing carbon dioxide (CO₂) emissions; minimizing emissions to preserve the atmosphere, water and soil; and, recycling resources as the paramount issues to implement a successful environmental plan.⁵⁰ Nissan is engaging in a number of approaches and activities in order to achieve its goal of being an environmentally responsible manufacturer.

Nissan is taking a very active role through partnerships with cities, states, and various countries in promoting electric vehicle technologies. In late 2008, Nissan announced that it was forming a partnership with the state of Oregon, along with Portland General Electric, to develop an electric vehicle (EV) charging network. As part of this agreement, Nissan will provide the state with zero-emission vehicles while the state will work toward implementing a charging network. In March 2009, Nissan announced a similar electric vehicle program with the Pima Association of Governments (PAG), which includes the Tucson, Arizona region. Nissan and PAG will work with ECotality, a clean electric transportation company, to deploy electric vehicles and a charging infrastructure throughout the region.

Similar alliances have also been agreed to with the Sonoma County community of governments in California and the state of Tennessee. The state housing Nissan's North American headquarters, Tennessee, would be one of the first locations to sell a new all-electric car. Nissan eventually would like to make the car and its batteries, with a 100-mile battery range goal, at its factory in Smyrna, Tennessee. Nissan plans to introduce electric cars in the United States in 2010 and mass market them globally by around 2012.

In addition, the Renault-Nissan Alliance also has begun ZEV initiatives in Israel, Denmark, Portugal, Japan, and with French electric utility company EDF.⁵¹ In 2008, Israel and Renault-Nissan partnered with Shai Agassi's Better Place, which aims to eliminate dependence on oil by using charging spots and battery exchange stations to ensure the viability of electric cars. Under this partnership, Better Place will build an electric recharge grid across Israel for wide-scale

⁵⁰ *Nissan Green Program*, available from http://www.nissan-global.com/EN/ENVIRONMENT/GREENPROGRAM_2010/ABOUT/index.html

⁵¹ http://www.nissan-global.com/EN/NEWS/2008/_STORY/081119-04-e.html

deployment in 2011 with an infrastructure of 500,000 recharging stations. Renault will supply the vehicle, and Nissan will supply the battery with partner NEC.⁵²

In July 2008, Nissan released the 2009 GT-R, a high-performance coupe which was named the 2009 Motor Trend Car of the Year. In 2009, Nissan will release the Cube in the United States for the first time with the base price expected to be \$14,685. The Cube was originally introduced in Japan in 1998, but it has not been available in the United States until now as the third generation. The Cube is targeted toward Honda Fit and Toyota Scion shoppers. Also, an all-new 370Z Coupe went on sale at the end of 2008, which was the first full redesign on the Nissan Z since the 2003 model.

EUROPEAN AUTO MANUFACTURERS

BMW

BMW views innovation not simply as developing new concepts, but developing new technologies that fulfill specific requirements with recognizable customer benefits. Recent BMW innovations include jet-guided direct gasoline engine technology that simultaneously reduces fuel consumption while increasing engine output; “runflat” tires which save space and weight by omitting the spare tire; and, active steering, which enhances drivers’ agility during driving and parking maneuvers.

BMW categorizes its short, medium and long-term energy goals under “Efficient Dynamics.” In the short- and medium-term, BMW intends to reduce fuel consumption through new engine generations (ranging from electrification to hybridization), aerodynamic design, and, light-weighting materials. BMW’s long-term energy goal is to focus on the use of hydrogen in the combustion engine. As a step along the way, in November 2006, the BMW Group presented the BMW Hydrogen 7, based on the BMW 7 Series, the first hydrogen-powered vehicle to be offered in the premium segment. BMW is also evaluating fully electric versions of its popular Mini brand.

Finally, BMW is leading the way in consolidating electronic control units (ECUs) in vehicles. Since today’s vehicles rely increasingly on sophisticated electronics, there is a need to refine and integrate ECUs. Specifically, in powertrain applications, ECUs govern, among other things, fuel-injection systems, ignition timing, idle-speed control and the fuel pump, as well as gear shifting. Due to the increasing complexity of electrical-distribution systems, as well as stringent quality and cost requirements, OEMs are calling for fewer ECUs in order to streamline the design process. Currently, ECUs can range from as high as seventy in the most expensive luxury models to as low as twenty five in the smaller vehicles.

Mercedes

Despite market volatility, Mercedes plans a full product line-up for 2009, and hopes to retain a 15th consecutive year of annual volume increase. Following the U.S. arrival of the ’10 GLK compact cross utility vehicle, Mercedes promises to include the next generation E-Class sedan; CLK sports coupe successor, to be dubbed E-coupe; and hybrid-electric versions of the S-Class sedan and M-Class CUV. In 2010, Mercedes also plans to launch the E-Class convertible.

⁵² *Renault-Nissan Alliance and the State of Oregon For Zero Emission Vehicle Partnership*, November 19, 2008, available from <http://www.autonews.com/article/20080204/ANE03/894976263>

Daimler AG will also reportedly invest \$20 billion by 2010 in lithium-ion batteries, alternate fuels and turbocharger research and development, among other technologies focused on sustainable mobility. As part of this plan, Mercedes introduced its 2009 Bluetec diesel engine in July 2008. It is currently the cleanest diesel offered in the United States and meets Tier 2 Bin 5 emissions regulations.

Daimler is positioning itself as a leader in electric vehicle technology through a partnership with chemicals and energy conglomerate Evonik Industries, of Dusseldorf, Germany. Daimler plans to produce lithium ion cells and whole batteries with Evonik, and cells from Evonik subsidiary Li-Tec soon will be installed in Mercedes-Benz cars. The deal makes Daimler the only automaker with R&D and production of lithium ion cells and batteries under one umbrella. But Daimler and Evonik want to find a third partner to provide expertise in electrical and electronic systems integration. Finally, the BlueZero concept, a compact sedan, will inspire a production series, all-electric Mercedes car in 2010.

Volkswagen

During the 2009 North American Auto Show, Volkswagen reportedly promised it will continue its aggressive investment in new products, saying it will spend nearly \$11 billion per year on “new vehicles and eco-technology, including hybrids, electric vehicles and biofuels.” VW also revealed a roadster concept called Concept BlueSport. Audi AG’s hybrid Q5 cross/utility vehicle is reportedly on schedule for a production launch in late 2010 or early 2011, aimed at the U.S. market. Although more bullish on diesel engines and other fuel-saving technologies, Audi will follow through on plans for the full-hybrid system. Volkswagen is also exploring technologies beyond engines for fuel-economy gains via light-weight material use and electric steering.

KOREAN AUTO MANUFACTURERS

Hyundai

In an effort to take a leading position on green vehicle technology, Hyundai has announced its Blue Drive program. The company plans to achieve a fleet average of 35 miles per gallon in 2015, five years ahead of CAFE requirements, through the use of more efficient engines and new technologies. A major component of the program will be the introduction of a full gas-electric hybrid Sonata in 2010. In future years beyond 2010, Hyundai plans to expand the Blue Drive program to include plug-in-hybrid-electric vehicles and fuel cell vehicles.

In January 2008, Hyundai officially announced its plans to enter the U.S. luxury vehicle market. Hyundai’s first vehicle for the segment is the Genesis, a rear-wheel-drive vehicle with a V8 engine. The car is aimed at competing with the BMW5 series, the Mercedes Benz E Class and the Lexus GS, but priced with a base of \$32,250. By comparison, the Lexus GS has a base of \$44,850 and the BMW5 has a base of \$45,800. The Genesis has been well received by the automotive press and nationally recognized car reviewers, including winning the 2009 North American Car of the Year Award. Interestingly, Hyundai has chosen not to create a new luxury brand like Toyota (Lexus) and Nissan (Infiniti) but instead to badge its premier luxury vehicle as a Hyundai – a brand Americans have long associated with entry level vehicles. Time will tell if this strategy helps bring up the other models in the brand or make it more challenging to sell the Genesis to luxury buyers who wouldn’t ordinarily consider a Hyundai.

Trade Overview

International trade and globalization continues to impact the U.S. automotive industry, as production grows in low-cost countries and foreign competition increases. The automotive industry's future growth is expected to take place outside of North America. While U.S. motor vehicle imports still vastly outweigh exports, the deficit has declined during the last three years, as a result of both increasing exports and decreasing imports. Exports in 2008 were up 7.0 percent and reached a record high (over \$54 billion), while imports declined to their lowest level since 2003 (\$133 billion). As a result, the U.S. light vehicle trade deficit declined to only \$78.8 billion – its lowest level since 1998. (Tables 7 & 8 - Charts 9 & 10) Imports were down 9.9 percent largely as a result of the declining U.S. vehicle market, which was down 18 percent in volume terms for 2008. If the 2009 market unfolds as many currently forecast (down 20 percent), then imports will likely decline even further. However, U.S. export numbers may also suffer in 2009 as a result of declining demand in key overseas markets.

There are several reasons to explain the perpetual U.S. automotive trade deficits. As the world's largest single market, the United States naturally attracts participation. The United States serves as a magnet for shippers from approximately 50 countries that face virtually no non-tariff barriers in the United States, and duty rates that have only a limited impact. In addition, a number of foreign governments have created and promoted export-oriented economies.

In addition to attracting imports, the United States has attracted investment. German, Japanese and Korean auto manufacturers rely heavily on their U.S manufacturing facilities to supply the U.S. market. The result has been a substitution of local production over imports. A dramatic example of this is Hyundai. After increasing by 17 percent in 2003 and 27 percent in 2004, the value of imports from Korea fell by almost 13 percent in 2005 and 1 percent in 2006 as a result of the new Hyundai manufacturing facility in the United States beginning production. Import sales for Hyundai continued to fall in 2007 and 2008, though 2008's decline was most likely due to the overall decline in the U.S. market. However, it should be noted that the overall trend in the U.S. market is an increasing market share for imports. In 1986, 74 percent of vehicles sold in the United States were produced in North America. That share increased until it peaked in 1996 at 88.7 percent. Since that year, imported vehicles have gained market share every year, capturing 25.3 percent of the market in 2008.

NAFTA and Beyond – Integration Continues

Implementation of the NAFTA has had a tremendous impact on automotive trade in North America. Shipments of new passenger vehicles and light trucks between the United States and its two partners have grown tremendously. In 2008, cross-border trade reached \$75.1 billion, down from 2007's record high of \$88.4 billion. In the year before NAFTA, two-way shipments with Mexico and Canada were \$35.8 billion - - less than half the 2008 total. Most of the growth during this period was the result of increased imports by the United States, which rose from \$27.8 billion in 1993 to \$53.4 billion in 2008. Imports from both Canada and Mexico declined

in 2008, with shipments from Canada down 24 percent and shipments from Mexico down 4 percent to \$20 billion.

Since 1993, U.S. exports to Canada and Mexico have more than doubled, growing from \$8 billion in 1993 to \$21.8 billion in 2008. The United States continues to experience deficits with both countries. However, their combined share of the U.S. global motor vehicle deficit in these products has declined steadily, dropping from a high of 55 percent in 1996 to 37 percent in 2008 (down slightly from 2007).

Most trade in automotive products between Canada and the United States was liberalized by two bilateral agreements enacted well before NAFTA was implemented. Therefore, little of the growth in trade between the two countries can be attributed directly to the NAFTA. Bilateral trade with Canada in these products, \$32.1 billion in 1993, reached \$53.1 billion in 2008. U.S. exports to Canada were 144 percent higher in 2008 than in 1993 (increasing \$19.4 billion), while imports from Canada were 39 percent above 1993's total to \$33.6 billion.

Before NAFTA was enacted, exports to Mexico from the United States were artificially constrained by a host of measures enacted by the Mexican government to force firms to produce in Mexico, if they wished to export there. In 1993, our shipments of new passenger vehicles and light trucks totaled less than \$95 million. They jumped 500 percent in 1994, the first year of the agreement, reaching \$580 million. By the end of 2008, U.S. exports to Mexico totaled \$4.1 billion. Mexico is our third largest export market, after Canada and Germany. Those increases came about because U.S. firms were able to rationalize and relocate some of their Mexican production to U.S. plants, and because they could export more models to Mexico from the United States without being subject to artificial import and local production constraints.

Imports from Mexico have grown rapidly since the agreement was signed, climbing from \$3.6 billion in 1993 to a total of \$19.8 billion in 2008. Because the U.S. border was already largely open to Mexican imports before the trade pact was signed, it would be a mistake to attribute this surge entirely to NAFTA. The exception is the increase in U.S. imports of trucks with MFN duty rate of 25 percent (those primarily designed for cargo, such as two-door pickup trucks and certain medium/heavy duty trucks). Imports of these trucks were 1130 percent higher (up \$6.1 billion) in 2008 than in 1993. This increase represents 38 percent of the total increase in new passenger vehicle imports from Mexico during that time. Chrysler, Ford, General Motors and Toyota manufacture pickup trucks in Mexico.

The growth in U.S. exports can be directly credited to the agreement, since there were significant changes in cross border market access for goods heading to Mexico, with the removal of Mexican restrictions that constrained U.S. shippers. For example, a Mexican requirement that producers assemble vehicles in Mexico and export a certain percentage of them in order to import vehicles into Mexico, was immediately phased out for commercial vehicles and reduced for passenger vehicles. On January 1, 2004, the remaining restrictions were entirely eliminated. Strict quotas, high tariffs, and minuscule import market share allocations that applied to motor vehicle imports from the United States have been eliminated. Mexican content requirements were substantially curtailed and were eliminated entirely by January 1, 2004. Import duty rates for U.S. products, which reached as high as 20 percent, were voluntarily eliminated by Mexico

on January 1, 2003, one year ahead of schedule. Mexico has also begun implementing its NAFTA mandated plan to remove its used car import ban. The phase-out is scheduled to take place over a ten-year period. However, there are still some obstacles to exporting used vehicles to Mexico, including a requirement to supply a NAFTA certificate of origin.

Before the accord was signed, many observers expressed reservations, believing that the lower wage rates in Mexico would result in the immediate and significant relocation of U.S. light vehicle manufacturing capacity to sites south of the border. Instead, data produced by Harbour and Associates indicates that light vehicle assembly capacity increased in all three countries between 1993 and 2005, rising from a total of 16.7 million units to 17.7 million vehicles. Capacity grew the fastest in Mexico, and was 25.1 percent higher in 2005 than in 1993. However, the increase was from a relatively smaller base. U.S. capacity in 2005 was 5.5 percent greater than in 1993, but the absolute increase of 696,000 additional units, was roughly double Mexico's 361,000 unit increase. (Chart 11)

As the Detroit 3 have recently begun enacting their turnaround plans, they have shuttered U.S. production. Production in Mexico has been relatively unaffected. Also, some foreign manufacturers, such as Nissan and Volkswagen, have chosen to invest heavily in their Mexican operations pushing up capacity in that country.⁵³ In 2007, capacity in Mexico was static compared to 2006 (up 0.5 percent), and up 33 percent since 1993 (since before NAFTA was enacted).

Largely as a result of Detroit 3 plant closures and capacity adjustments, overall capacity in North America was down 3.2 percent in 2007 compared to 2006. The United States and Canada each lost ground in 2007, with U.S. capacity down 4.1 percent and Canada down 1.5 percent. (Chart 12) Plant capacity is not static, however, and its measure depends upon a combination of factors that can change from year to year, and even from day to day. Variables include the level of investment in a physical plant, the efficiency of the processes employed, complexity of the vehicles being assembled, the number of employees on the assembly line, and the number of hours of operation. Measured capacity in all three countries actually declined in the first year of the NAFTA, dropping the most in Mexico – 1 percent. By the end of the second year, capacity had increased the most in Mexico – 15 percent – despite the economic crisis that the country was then experiencing.

Plant capacity utilization – dividing the number of units actually produced in a year by estimated annual production capability – is another useful tool for measuring changes in the industry. Harbour's data shows that in 1993, Mexico produced one million vehicles in plants with a capacity to assemble 1.4 million, yielding a 72 percent utilization rate. During Mexico's 1995 'peso crash,' light vehicle production in the country's plants dropped 16 percent to 925,000 units, while capacity had risen that year by nearly 15 percent to 1.6 million units. The net result was a 27 percent decline in utilization for the year to a rate of 58 percent. By the end of 2000, Mexico's utilization rate had hit 100 percent, the highest of any of the three countries. It fell the next four years, dropping to 82 percent in 2004. It then began a steady climb, reaching 105

⁵³ Mexico has worked hard to increase its desirability as an FDI destination. Not only does it possess a skilled automotive workforce and supplier base, it has also signed 12 Free Trade Agreements covering trade with 41 countries, including such major markets as the United States, Canada, Japan and the EU member states.

percent in 2007. The U.S. rate, 84 percent in 1993, was 85 percent in 2007 after reaching higher rates in the mid/late 1990's. (Chart 4) Capacity utilization rates remained high in Canada, rising to 97 percent in 2007. Between 1993 and 2006, the overall utilization rate averaged 89 percent in U.S. plants, 89 percent in Canadian plants, and 85 percent in Mexican plants.

Japan

The United States has sustained automotive trade imbalances with Japan for over three decades. This imbalance has had significant economic and political impact, and has dominated our trade relationship with Japan over much of this period. U.S. automotive companies' sales in Japan have not improved significantly, while Japanese companies have continued to gain market share in the United States.

The automotive trade deficit with Japan is the largest U.S. sectoral bilateral imbalance. It has grown from the \$30 billion dollar level in the early 80's to \$52.6 billion in 2008, a decrease of six percent compared to 2007. (\$41.3 billion deficit in autos and \$11.9 billion deficit in auto parts) Meanwhile, overall sales of North American-made vehicles and parts in Japan remain low despite an upturn in U.S. vehicle exports in 2007. Sales of U.S. produced motor vehicles in Japan increased by an additional 23 percent in 2008 to 25,441.

Over the last twelve years, the Detroit 3 have lost 25.7 points of U.S. market share, declining from 73.1 percent of the market in 1995 to only 47.4 percent of the U.S. market in 2008. Japanese brands have made strong headway during this period, climbing from 22.9 percent to 39.7 percent, a gain of 16.8 points of market share (according to Ward's Automotive Reports). The Japanese auto companies have supplied their increased U.S. market share through both exports and investment in U.S. manufacturing facilities. Imports from Japan were down slightly by 0.8 percent in 2007 to 2,176,153 units compared to 2,193,554 units in 2006. The value of Japanese imports increased by 0.5 percent to \$43.1 billion.

The cumulative Japanese investment in the United States stands at \$32.7 billion. Japanese manufacturers produced over three million cars in the United States in 2008. In 2007, Japanese brand manufacturers accounted for 19 percent of the total U.S. car and truck exports.

The largest Japanese investor, Toyota, has invested over \$14 billion in eleven U.S. manufacturing facilities that produced 1.1 million vehicles in 2008. Toyota employed 24,452 in the United States in 2007 at its manufacturing facilities. Other Japanese manufacturers are similarly increasing their presence in the United States. Honda of America has invested nearly \$9 billion in five U.S. manufacturing facilities that produced 987,000 vehicles in 2008. Nissan has invested over \$5 billion in three U.S. manufacturing facilities that produced 549,000 vehicles in 2008. Mazda, in a joint venture with Ford, has invested over \$1.9 billion in one manufacturing facility that produced 167,000 vehicles in 2008.

China

In 2008, 9.38 million vehicles were sold in China, an increase of 6.7 percent, but down considerably from 22 percent growth in 2007. Last year marked the first time that annual growth fell below 10 percent since 1999. China remains the second largest vehicle market in the world after the United States.

To address the Chinese market slowdown and plan for a globally competitive industry, the Chinese government has announced plans to consolidate numerous small regional manufacturers and encourage the use of more fuel efficient, lower polluting vehicles. The government calls for lowering the sales tax on cars with engines less than 1.6 liters in 2009, reducing gas and diesel fuel prices, providing subsidies to farmers to replace older vehicles with smaller vehicles, providing funding for the development of alternative energy vehicles, and promoting several large state-run automakers, including SAIC, FAW Group, Dongfeng Automobile Co. and Chang'an Automotive Co. The goal of the plan is to increase the domestic brand's share of the Chinese auto market from 34 percent to at least 40 percent. China also aims to have 5 percent of its vehicle sales be all-electric battery cars and plug-in electric hybrid vehicles.

Despite the slowdown, General Motors' sales in China rose 6 percent to 1.09 million vehicles in 2008, a record for the automaker in China. GM's Chevrolet brand grew 15.7 percent, and the Wuling brand grew 17.4 percent. However, GM's passenger car joint venture, Shanghai GM, had lower sales in 2008 due to limited new model introductions. China has been a priority market for GM. The automaker has eight joint ventures, a vehicle development center and an alternative fuel research lab. Under construction in China is a GM proving ground, a new engine plant, GM Asia Pacific and GM China Headquarters, and a Center for Advanced Research and Science. In the next two to three years, GM plans to introduce five or more new products in China under the Buick and Chevrolet brands.

Ford Motor China increased sales from 216,324 in 2007 to 306,306 vehicles in 2008. (This does not include sales of Jaguar and Land Rover.) Ford's passenger car joint venture, Chang'an-Ford-Mazda Automobile, sold 204,334 vehicles, a 5.5 percent decline compared to 2007. On the other hand, Jiangling Motors, Ford's commercial joint venture, increased sales to 95,171 units in 2008. Ford introduced several new models in China in 2008, the Ford Fiesta, the Ford Focus, the Ford S_MAX, Ford Mondeo and the Ford Transit. Ford's total production capacity in China has reached 546,000 units.

Chrysler sold 11,200 vehicles in China in 2008. Most of Chrysler vehicles sold in China were manufactured under licensing agreements with Southeast Motor Company and Beijing Benz-DaimlerChrysler. In addition, Chrysler has 130 dealerships in China.

In spite of increased local capacity in China and worldwide market downturn, U.S. exports to China continue to increase, due to the market liberalizing provisions required of China joining the World Trade Organization (WTO). Import duty rates that were as high as 220 percent have dropped to 25 percent. Quota restrictions were eliminated on January 1, 2005. Exports to China by all U.S. shippers of cars and light trucks reached \$945 million in 2008, an increase of 40 percent over 2007. Passenger vehicle exports were 35,690 units, representing a gain of 64 percent over 2007 exports.

In recent years, many Chinese automakers have announced plans to sell in the U.S. market and/or have at least exhibited at the North American International Auto Show. However, many plans to sell in the United States have been derailed for one reason or another. Complying with U.S. safety and emissions standards, meeting U.S. consumer's quality expectations, and

overcoming financial- and distribution-related issues, have all been impediments to Chinese automakers' U.S. arrival. One of the more recent announcements to sell in the United States was from BYD Auto, which has Warren Buffet's Berkshire Hathaway as an investor. In January 2009, BYD announced plans to market its pure electric and plug-in hybrid vehicles in the United States in 2011, as well as eventually manufacture in the United States. The automaker began mass producing electric vehicles in China in late 2008.

In December 2008, the WTO rejected an appeal by China against a ruling that favored the United States, the European Union and Canada in a dispute over car parts. The WTO appeals panel recommended in a ruling that China must bring its import tariffs for foreign auto parts into compliance with international trade rules. Under the current rules, cars made in China must contain at least 40 percent Chinese made parts or they are taxed at the rate of imported finished cars. The United States, the European Union, and Canada argued that the tariffs made it cheaper for car parts companies to shift production to China. China is expected to make legislative changes within a "reasonable period of time," and then a separate WTO panel will determine whether China has come into compliance.

Russia

Ford and GM have been capitalizing on growth in Russia, despite obstacles involving labor, suppliers, and infrastructure. According to the Association of European Businesses (AEB), Ford's vehicle sales in Russia grew 6 percent in 2008 and GM's Chevrolet brand saw 24 percent growth. Chevrolet was Russia's best-selling brand with sales of 235,466 units in 2008, up from 190,553 units in 2007. Ford was the fourth top-selling brand, with sales increasing from 175,793 units in 2007 to 186,828 units in 2008. While Chrysler does not manufacture in Russia, the Chrysler, Jeep and Dodge brands sold a total of 8,799 units in 2008, up from 5,636 units in 2007.

Initially, Russia was on track to become Europe's largest auto market in 2008. Russia's new-car sales jumped 41 percent through June 2008 to 1.65 million units, surpassing Germany as Europe's biggest auto market, according to PricewaterhouseCoopers. If the market growth rate had remained at the same level in the second half of 2008, sales in Russia would have exceeded sales in Germany and might have reached 3.6 million–3.8 million cars. The Russian economy was soaring with money from oil and gas industries trickling down to Russian consumers. But crude oil prices receded, the global recession slammed Russia's auto market, and credit dried up for Russian consumers. In the second half of 2008, sales of autos in Russia slowed dramatically, resulting in 3.2 million vehicles sold for the year. Russia ended up being Europe's second largest auto market. Industry analysts forecast a 25-50 percent drop in light vehicle sales in Russia to around 1.6 million units in 2009.

Russia is considered a primary growth engine for the global automotive industry and global sales. In 2007, an estimated 1.2 million cars were produced in Russia. That total is expected to increase to more than 2 million in the next few years. Russia has 142 million people and 27 million cars on the road. That is 188 cars per 1,000 people, compared with 565 cars in Germany and 369 cars in Poland. Roland Berger consultants project an increase to 432 cars per 1,000 Russians by 2020. Ernst & Young consultants project there will be more than 50 million cars on Russian roads by 2015.

AEB reports that the top selling non-Russian vehicles in Russia in 2008 were the Ford Focus (93,496), Chevrolet Lacetti (81,656), Renault Logan (74,300), Hyundai Accent (66,378), and Toyota Corolla (63,986). GM opened a new plant near St. Petersburg in November 2008, which produces GM SUVs, as well as Chevrolet and Opel brand vehicles. In addition, GM has joint ventures with ZAO Avtotor in Kalinigrad and with OAO AvtoVaz in Toliatti. GM, which sells five brands in Russia, is the number one foreign auto maker in Russia, followed by Ford. Ford has a plant located near St. Petersburg, which was opened in 2002 and employs 2,200.

Increased access to consumer credit and an increase in crude oil revenues when the price of crude oil spiked in 2008, contributed to Russia's automotive growth. The average Russian consumer was not usually concerned by occasional increases in interest rates as they have consistently risen over recent years, but access to credit dried up in the second half of 2008 as Russia felt the impact of the worldwide credit crunch. Forecasters expect a decline in auto sales in Russia in 2009 due to excess inventory, high interest rates, and a slowing Russian economy.

Korea

The South Korean automotive industry is world class, and exports from South Korea's automakers go to all of the key world markets, including the United States. Hyundai (including Hyundai controlled Kia) is the 5th largest vehicle manufacturer in the world, with 2007 sales of 3.96 million vehicles (up from 3.76 million in 2006). Korea's automakers are heavily reliant on exports. In 2008, Korean manufacturers produced 3.8 million vehicles in Korea, but exported 70 percent to foreign markets.

The United States and South Korea have a long history of negotiations on automotive trade, having reached agreement on two Memoranda of Understanding to improve access to the Korean market – one in 1995 and one in 1998. These MOUs were negotiated because U.S. vehicle manufacturers were prevented from selling into the Korean market by a variety of measures.

Throughout 2006 the United States and Korea engaged in Free Trade Agreement (FTA) negotiations. The resulting agreement has not yet been ratified by either country's legislatures. The Obama Administration has indicated a desire to re-examine the automotive provisions of the Agreement before seeking ratification. The full text of the proposed Agreement can be found on-line at:

http://www.ustr.gov/Trade_Agreements/Bilateral/Republic_of_Korea_FTA/Final_Text/Section_Index.html

In 1994, before the first MOU was signed, import sales in the Korean auto market totaled 3,810 vehicles (0.3 percent of the market), with Ford, Chrysler and General Motors accounting for slightly over half that total. By 1997, total import share had only climbed to 0.7 percent, with U.S. manufacturers still accounting for approximately half (or 0.35 percent of the Korean market). Also during that time, the U.S. automotive trade deficit with Korea rose dramatically, up 30 percent to reach \$1.8 billion. As a result of unsatisfactory progress under the 1995 MOU, a second more comprehensive agreement was negotiated and put into place in 1998 (for more detailed information on the 1998 MOU see the report, "World Motor Vehicle Import Requirements," also on the Office of Transportation and Machinery's Automotive Industry

Team's web page: www.ita.doc.gov/auto). While import sales in Korea have improved slowly, they are still low, representing only slightly over six percent of the total market in 2008.

The opening of Hyundai's first U.S. plant has had a strong impact on trade flows. The U.S. vehicle trade deficit with Korea increased every year until peaking in 2004 at \$10 billion dollars (Hyundai began U.S. production in 2005). Since then, it has declined - - reaching only \$7.1 billion in 2008. However, the U.S. automotive parts deficit with Korea has continued to climb, reaching \$3.5 billion in 2008. The overall automotive trade deficit was down to \$10.6 billion in 2008, off \$830 million from its peak of \$11.4 billion in 2004.

The Korean manufacturers have enjoyed a sustained string of success in the U.S. passenger vehicle market. Every year since 1993 they have either maintained or increased their share of the U.S. market, rising from 0.8 percent, with sales of 109,000 vehicles in 1993, to 5.1 percent of the market with sales of 675,000 vehicles in 2008 (down from 750,000 vehicles in 2006 for a share of 4.6 percent). For the first three months of 2009, both Hyundai and Kia increased their sales (compared to the first three months of 2008) in an extremely depressed market. For the period, their combined market share stood at 7.5 percent of the U.S. market.

Korean automakers have a long history in the United States – one that, contrary to current trends, has not always been successful. The first Korean automaker to enter the United States was Hyundai in 1986. Kia followed much later in 1994 and Daewoo started sales in 1998 (only to leave the U.S. market in 2003 after declaring bankruptcy and to re-enter the U.S. market badged as Chevrolet and Suzuki products after GM purchased Daewoo assets and created a new company).

In 1986, Hyundai introduced the Excel, a small sedan, priced well below competitors' brands. Sales of the Excel reached 264,000 units by 1988. To build on the brand's growing popularity, in late 1988 Hyundai opened a plant in Canada, producing the Sonata (primarily for the Canadian market, with some exports to the United States). However, after only a few years, the Excel developed a reputation for poor quality, and sales plummeted. By 1992, Excel sales were down to only 42,000 and total Hyundai sales reached only 109,000 units. After only three years of production, the Hyundai Canada plant closed. It wasn't until the year 2000 that Hyundai sales began to approach the peak year of 1988, with sales reaching past that peak in 2001.

After a long period of supplying the U.S. market entirely through exports, Hyundai invested over \$1 billion in its first U.S. manufacturing plant in Montgomery, Alabama. The plant started producing vehicles in 2005 and last year sourced 47 percent (down from 51 percent in 2007) of its U.S. sales with U.S. produced vehicles. Hyundai produces the Sonata and the Santa Fe SUV at the Montgomery plant.

The plant is now operating near capacity with production of 237,000 vehicles in 2008 (down from 251,000 vehicles in 2007), employing more than 2,000 people. In March 2006, Kia announced its first U.S. production plant in West Point, Georgia. The plan calls for an investment of \$1.2 billion. At full capacity of 300,000 units, the plant will employ 2,500 workers. The plant was scheduled to begin production in 2009, though this date may be delayed given the downturn in the U.S. market.

India

As the second most populous country, automakers realize the long-term potential of investing in the Indian market. Given that the percentage of the population that owns a vehicle is less than 1 percent, there is a tremendous opportunity for growth in the Indian automotive marketplace. In addition, with a vast supply of cheap, skilled, English-speaking labor, India has potential as an export center. Both of these points are demonstrated by the fact that Indian exports tripled from 72,005 to 218,418 between 2002-03 and 2007-08. During this same time frame, domestic passenger vehicle sales in India rose to 1.5 million, doubling the 707,198 sales from five years earlier.⁵⁴

In 2006, India released the Automotive Mission Plan (AMP) which details development goals for the years 2006-2016, recognizes the importance of the automotive industry for all levels of society, and describes the government's role in supporting the automotive industry. The stated goal of the AMP is to double the automotive sector's contributions to India's gross domestic product (GDP) from 5 percent to 10 percent by 2016. However, today there are still a number of barriers that limit the development of the Indian automotive industry, both domestic and foreign. Some of these limitations include high tariffs on automobiles, customs procedures that impede importation of automotive products, the high demand for two wheel vehicles, lack of adequate infrastructure that causes overcrowded roads and heavy congestion, and inflexible labor regulations.

In 2008, the United States imported only five vehicles from India and exported only 225 to India. Given the relative paucity of trade, U.S. manufacturers have invested directly in India as not only a potential market, but also as an export hub for the Asia and African region. On the other hand, India's Mahindra & Mahindra is hoping to make a splash in the U.S. market starting in 2009 by offering pickups and SUVs. Over 300 dealers have signed on to sell the Mahindra vehicles in the United States according to Global Vehicles, which has exclusive U.S. distribution rights. The current economic downturn and U.S. automotive sales slump, however, brings into question the commercial viability of breaking into the highly competitive U.S. market at this time.

Given the recent growth in exports and sales in India, U.S. manufacturers have invested heavily there and continue to develop plans to invest billions of dollars in the Indian market over the next several years. Last year, Ford announced its intention to invest \$500 million to expand its Indian subsidiary. Ford is currently building a plant that will produce 250,000 engines per year that is expected to open by 2010. While these engines will be used primarily for Indian vehicles, the engines will be shipped throughout the Asia-Pacific and Africa regions once output expands. Ford also opened a new engine plant in 2008 that has a capacity for 50,000 diesel and 10,000 petrol engines. GM's facility in Halol had its capacity raised from 60,000 units to 85,000 units in 2007. GM opened a second plant in India that began manufacturing in 2008, which has a capacity of 140,000 vehicles. This raises GM's capacity in India to 225,000 vehicles.⁵⁵ Further, GM plans to invest \$200 million in a neighboring engine facility that will be able to produce up to 160,000 units initially when it opens in 2010.

⁵⁴ Society of Indian Automobile Manufacturers, available from www.siamindia.com.

⁵⁵ Automotive News. August 27, 2008.

However, while foreign investment in India has increased, Indian automakers control the market. For example, Maruti Suzuki controls slightly less than half of the Indian passenger car market, followed by Hyundai, Tata, Mahindra, Chevrolet, Honda, Toyota, and Ford.⁵⁶ In addition, the Indian market is dominated by small, low-cost vehicles (two wheelers such as scooters and motorcycles make up about 75 percent of the market share). The Tata Nano, also known as the “People’s Car” due to its low price (\$2500), made its world premiere at Auto Expo India 2008. While it was initially expected to manufacture approximately 250,000 annually, these forecasts have been reduced due to delays in building the plant because of protests over the seizure of farm land to build the facility. These protests caused Tata to abandon the plant in favor of a new location, even though the plant was about 95 percent complete. As a result, the Nano will have a limited release beginning in April 2009. There will also be competition in the low-cost car segment from the alliance between Indian motorcycle-maker Bajaj Auto and Renault-Nissan. They plan to build a plant in India with a capacity of 400,000 units a year to produce a car that they hope to sell between \$2500-3000.⁵⁷

GM plans to launch three vehicles in India this year: the already launched automatic version of the Chevrolet Captiva, the Cruze mid-year and a mini-car toward the end of 2009. For the 2008 calendar year, GM saw its sales in India rise 9.5 percent despite an overall decline in the Indian market. These competitive sales figures are due in part to the success GM has achieved from sales of the compact Spark. GM is also developing a mini-car to help it compete with the Tata Nano. They hope to price this new model between the \$2500 price tag of the Nano and the \$5,000 price tag of the Chevrolet Spark. “Ford is developing a new India-specific Ikon model – a sedan version of the new Fiesta – to be launched by 2010 for both domestic market and exports.”⁵⁸ Currently, other Ford India models include the Fusion, Endeavour, and Fiesta.

The Road Ahead

The 18 percent decline in the U.S. light vehicle market for 2008 hurt the bottom line of all automakers selling in the United States, and no vehicle segment was spared from lower sales. Suppliers, dealers, and communities experiencing lost employment, suffered as well. With low consumer confidence, rising unemployment, a depressed U.S. and global economy, and the Detroit 3 still in serious financial trouble, the short-term outlook for the industry remains pessimistic. Sales will eventually increase due to a growing population, improved economic conditions, pent-up demand for new vehicles, and the availability of advanced vehicles offering new, fuel-efficient technology. However, a return to a 16 million unit annual sales level will likely take years. In addition to economic conditions, additional unknown factors continue to impact automakers’ future and direction, such as the price of fuel and other commodities, production and sales in markets worldwide, state and federal regulations, international standards and trade policies, and, as always, consumers’ tastes.

⁵⁶ Just-Auto, India Automotive Market review, November 2008.

⁵⁷ Ibid.

⁵⁸ Ibid.

Decreased U.S. production and the recent hardships of the Detroit 3 have trickled down their supply chain, as evidenced by an increased number of supplier bankruptcies and the need for the U.S. Treasury's Supplier Support Program. The inability to obtain credit/loans compounds financial distress and hampers domestic suppliers' ability to innovate and offer new technology at a crucial time for the industry. In addition, industry strongly cautions that automakers rely on many of the same suppliers for domestic production. Therefore, if a major supplier fails, U.S. vehicle production at one of more of the automakers would inevitably be disrupted until another qualified supplier is found, which could take months.

During the continued restructuring of the Detroit 3 over the past several years, U.S. auto employment has significantly declined. (Table 9) In just the past two years, light vehicle employment decreased by almost 19 percent. In the next five years, the Detroit 3 will close additional plants, resulting in additional job losses. This reduction in employment is not expected to be entirely replaced by new or expanded U.S. investments by international automakers, and certainly will not be replaced in the same communities. In addition, affected suppliers and dealerships will face further consolidation, resulting in even more employment declines.

Globalization and foreign competition continue to impact the U.S. economy, particularly the automotive industry. As competition has increased over the years, the Detroit 3's market share has gradually decreased, falling below 50 percent for the first time in 2008. With increased U.S. exports, and decreased U.S. imports, the U.S. automotive trade deficit decreased 18.7 percent in 2008 to almost \$79 billion. Automotive trade will be influenced by auto parts sourcing needs, the availability of quality products and service at the right price, engineering and R&D decisions, currency values, delivery costs, and, the availability of fuel efficient vehicles/technology to meet regulations and consumers' demands.

Automakers recognize the importance of investing and selling in overseas markets, especially in emerging markets, where most of the future growth will take place. As income rises in growth markets and more vehicles are purchased, there will most likely be growing concern over the environmental impact and the increased demand for natural resources. Likewise, the competitive pressures facing the U.S. automotive industry are only going to intensify over the next decade as manufacturers from emerging markets begin exporting vehicles to the U.S. market in earnest. Like Japanese and Korean producers before them, these manufacturers will ratchet up their vehicle safety and quality until they are on par with the international market norms. In fact, it may well take them much less time than it took the Japanese and Koreans before them. While the Japanese and Koreans had to develop world class automotive parts supply channels and vehicle distribution systems on their own, industry consolidations are making entire supply and distribution chains available to new market entrants. For instance, GM's intentions to spin off Saturn could offer a complete distribution outlet to manufacturers looking to enter the U.S. market. Likewise, suppliers from around the globe have excess capacity and long-term efforts by vehicle producers to shift R&D expense to them give them the ability to help engineer solutions for quality and safety shortcomings.

China and India-based automakers have focused on their respective growing markets, but automakers in each market continue to express an interest in selling in the United States. It's just a matter of how soon these automakers will be able to comply with U.S. standards and safety requirements, meet U.S. consumers' quality expectations, and develop a distribution network. With the U.S. market in disarray, the timing of their entry becomes more complicated and risky. The U.S. downturn and the competitiveness of the market could delay plans, but purchasing a Detroit 3's vehicle brand, facilities, or other resources would accelerate an overseas automaker's plans. Regardless, their ultimate arrival will only increase the fight for sales by all automakers.

Growing competition, the economy, and the automakers' financial difficulties have lead to great uncertainty for the industry. In the midst of these troubled times, worldwide pressure is on for the automotive industry to develop fuel efficient vehicles with advanced technologies. A combination of regulations and consumers will ultimately decide the replacement of the more than century-old internal combustion engine, and how soon it will happen. Without a doubt, it is certainly a turning point in the history of the automobile. For the near-term, a combination of technologies will be developed and offered, including hybrids, biofuel engines, plug-ins, hydrogen fuel cells, and advanced diesel engines. Whether one technology will become dominant, remains to be seen.

FACT SHEET

Domestic Market

- The U.S. market for cars and light trucks decreased to 13.2 million units in 2008 – down 18 percent from 2007.
- The economic downturn in 2008 led to a drop in sales in every light vehicle segment. Light truck sales declined almost 25 percent, with pickup trucks falling 27 percent. Volatile gas prices and a shift in consumers' preferences greatly impacted sales of sport utility vehicles (SUV), which suffered a steep decline of 37 percent in 2008. Since 2005, SUV sales have dropped by more than 50 percent.
- Cross utility vehicles (CUV) experienced their first decline since being introduced at the beginning of the decade, with sales declining by 14 percent in 2008.
- Total passenger car sales also decreased, falling 10.6 percent, but the small car segment experienced a decline of less than 1 percent.
- Consumer expenditures for new vehicles fell sharply from \$240.3 billion in 2007 to \$190.9 billion in 2008.
- Most forecasters predict the 2009 market will be the lowest in decades, with estimates ranging from 10.1 to 10.5 million vehicles sold.
- Market share for the Detroit 3 fell below 50 percent for the first time ever to 47.3 percent in 2008. Detroit 3's sales dropped 23.8 percent.
- Sales of Japanese brands in 2008 fell 12.2 percent, but their market share reached a new high of 39.7 percent.
- German brands' market share grew to 6.8 percent in 2008, although their sales volume fell 6.1 percent.
- Korean automakers' market share grew to 5.1 percent, but their sales declined 12.6 percent.

Production

- U.S. production of light vehicles decreased by 19.2 percent in 2008 to 8.5 million units (lowest since 1982). The record high was in 1999, at 12.6 million units.
- Detroit 3 production in 2008 decreased 24.2 percent to 4.8 million units.
- U.S. production by Japanese affiliates decreased 12.8 percent to 3 million vehicles in 2008.

- U.S. production in 2008 by the German affiliates decreased slightly by 0.1 percent to 327,000 units.
- U.S. production by Korean manufacturer, Hyundai, was down 5.4 percent, at 237,000 units.

Employment

- U.S. motor vehicle manufacturing employment has declined from a peak of 300,000 workers in June 2000 to approximately 120,000 workers in January 2009, a decline of 180,000 workers.

International Trade

- The light vehicle trade deficit decreased by 18.7 percent in 2008 to almost \$79 billion.
- Imports decreased by 9.9 percent to a total of \$133 billion in 2008.
- Exports in 2008 grew for the seventh straight year, climbing 7 percent to \$54.2 billion.
- In 2008, Japan replaced Canada as the largest source of light vehicle imports. While imports from Canada fell 23.7 percent, Japanese imports fell only 4.8 percent to \$41 billion. Imports from Mexico also fell 3.5 percent to \$19.8 billion for the same period. Imports from Germany, however, grew 4.3 percent to \$18.4 billion.
- In 2008, most U.S. light vehicle exports continued to go to Canada, although those shipments decreased by 9.5 percent to \$19.4 billion. Exports to Germany increased by 16.8 percent, reaching \$8.3 billion. Shipments to Mexico increased by 4.4 percent to \$4.7 billion. Exports to Japan increased by 5.2 percent to \$537 million. However, exports to Korea declined for the first time in four years to \$322 million, a decrease of 7.2 percent.

– INDUSTRY TABLES –

Table 1

Consumers' Expenditures (PCE) (Billions of Current Dollars)							
	2002	2003	2004	2005	2006	2007	2008
Cars, New	101.7	97.2	97.7	103.1	106.5	102	90.8
Light Trucks, New	148	160.8	161.7	152.8	134.1	138.3	100.2
Total, New	249.7	258	259.4	255.9	240.6	240.3	191
Net, Used Autos	117	108.2	108.4	114.1	117.6	121.2	111.5
Total	366.7	366.2	367.8	370	358.2	361.5	302.5
Source: U.S. Bureau of Economic Analysis							

Table 2

U.S. Motor Vehicle Production (Millions)							
	2002	2003	2004	2005	2006	2007	2008
Cars	5.0	4.5	4.2	4.3	4.4	3.9	3.8
Light Trucks	7.0	7.3	7.3	7.2	6.4	6.5	4.7
Total LV	12.0	11.8	11.6	11.5	10.8	10.5	8.5
Med/Heavy Trucks	0.258	0.251	0.358	0.424	.462	.279	.225
Total All	12.3	12.1	12.0	11.9	11.3	10.7	8.7
Source: Ward's Automotive Reports							

Table 3

U.S. Motor Vehicle Sales (Millions)							
	2002	2003	2004	2005	2006	2007	2008
Cars	8.2	7.6	7.5	7.7	7.8	7.6	6.8
Light Trucks	8.7	9.0	9.3	9.2	8.7	8.5	6.4
Total LV	16.9	16.6	16.8	16.9	16.5	16.1	13.2
Med/Heavy Trucks	0.3	0.3	0.4	0.5	.5	.4	.3
Total All	17.2	16.9	17.3	17.4	17.0	16.5	13.5
Source: Ward's Automotive Reports							

Table 4

Total Passenger Vehicle Market					
	1986	2005	2006	2007	2008
TOTAL SALES	16,121,645	16,921,005	16,476,554	16,085,290	13,246,022
AMERICAN BRANDS					
Total Sales	11,813,719	9,609,279	8,816,458	8,181,158	6,236,621
Share of Market	73.3%	56.8%	53.5%	50.9%	47.1%
JAPANESE BRANDS					
Total Sales	3,386,912	5,472,051	5,768,782	5,979,708	5,309,343
Share of Market	21.0%	32.3%	35.0%	37.2%	40.1%
GERMAN BRANDS					
Total Sales	503,550	870,283	920,879	947,785	886,251
Share of Market	3.1%	5.1%	5.6%	5.9%	6.7%
KOREAN BRANDS					
Total Sales	168,882	730,863	749,822	772,482	675,139
Share of Market	1.0%	4.3%	4.6%	4.8%	5.1%
Source: Derived from Ward's Automotive Reports by U.S. Department of Commerce/Automotive Industries Team					

Table 5

Light Truck Sales					
	1986	2005	2006	2007	2008
TOTAL TRUCK SALES	4,642,687	9,253,939	8,655,700	8,467,128	6,362,833
Share of Total Pass. Vehicle Market	28.8%	54.7%	52.5%	52.6%	48.3%
AMERICAN BRANDS					
Total Sales	3,657,896	6,439,881	5,670,614	5,393,004	3,918,771
Share of Truck Market	78.8%	69.6%	65.7%	63.7%	60.9%
JAPANESE BRANDS					
Total Sales	972,503	2,313,429	2,453,642	2,479,734	1,989,779
Share of Truck Market	20.9%	25.0%	28.2%	29.3%	32.1%
GERMAN BRANDS					
Total Sales	12,288	143,705	157,990	179,772	163,570
Share of Truck Market	0.3%	1.6%	1.8%	2.1%	2.5%
KOREAN BRANDS					
Total Sales	0	258,510	273,559	315,847	229,377
Share of Truck Market	0.0%	2.8%	3.1%	3.7%	3.6%
Source: Derived from Ward's Automotive Reports by U.S. Department of Commerce/Automotive Industries Team					

Table 6

Passenger Car Sales					
	1986	2005	2006	2007	2008
TOTAL CAR SALES	11,478,958	7,667,066	7,820,854	7,618,413	6,813,536
Share of Total Pass. Vehicle Market	71.2%	45.3%	47.5%	47.4%	51.7%
AMERICAN BRANDS					
Total Sales	8,155,823	3,169,398	3,145,844	2,788,406	2,317,850
Share of Car Market	71.1%	41.3%	39.9%	36.6%	34.0%
JAPANESE BRANDS					
Total Sales	2,414,409	3,158,622	3,315,140	3,499,972	3,246,524
Share of Car Market	21.0%	41.2%	42.6%	45.9%	47.6%
GERMAN BRANDS					
Total Sales	491,262	726,578	762,889	768,014	726,068
Share of Car Market	4.3%	9.5%	9.8%	10.1%	10.7%
KOREAN BRANDS					
Total Sales	168,882	472,353	476,262	456,635	445,762
Share of Car Market	1.5%	6.2%	6.1%	6.0%	6.5%
Source: Derived from Ward's Automotive Reports by U.S. Department of Commerce/Automotive Industries Team					

Table 7

U.S. Exports of Passenger Vehicles & Light Trucks – Top 5 Markets Billions of Dollars, FAS						
	2003	2004	2005	2006	2007	2008
World	26.838	29.499	35.374	40.179	50.664	54.199
Canada	14.802	14.686	16.184	18.083	21.448	19.407
Mexico	3.178	3.987	4.438	4.160	4.475	4.672
Germany	3.928	3.980	3.661	5.177	7.145	8.344
S. Arabia	0.660	1.040	2.162	2.267	2.173	3.364
UK	0.863	0.852	0.821	1.006	1.365	1.105
Source: U.S. Census Bureau, using Automotive Industries Team HTS Selections						

Table 8

U.S. Imports of Passenger Vehicles & Light Trucks – Top 5 Sources Billions of Dollars, Customs Value						
	2003	2004	2005	2006	2007	2008
World	127.906	135.148	136.450	148.364	147.643	133.010
Canada	38.332	43.255	44.009	43.058	44.115	33.642
Japan	31.596	31.625	34.413	42.898	43.133	41.054
Mexico	18.261	17.407	16.945	21.701	20.526	19.806
Germany	19.710	20.344	20.307	19.233	17.609	18.374
Korea	7.933	10.040	8.769	8.671	8.218	7.455
Source: U.S. Census Bureau, using Automotive Industries Team HTS Selections						

Table 9

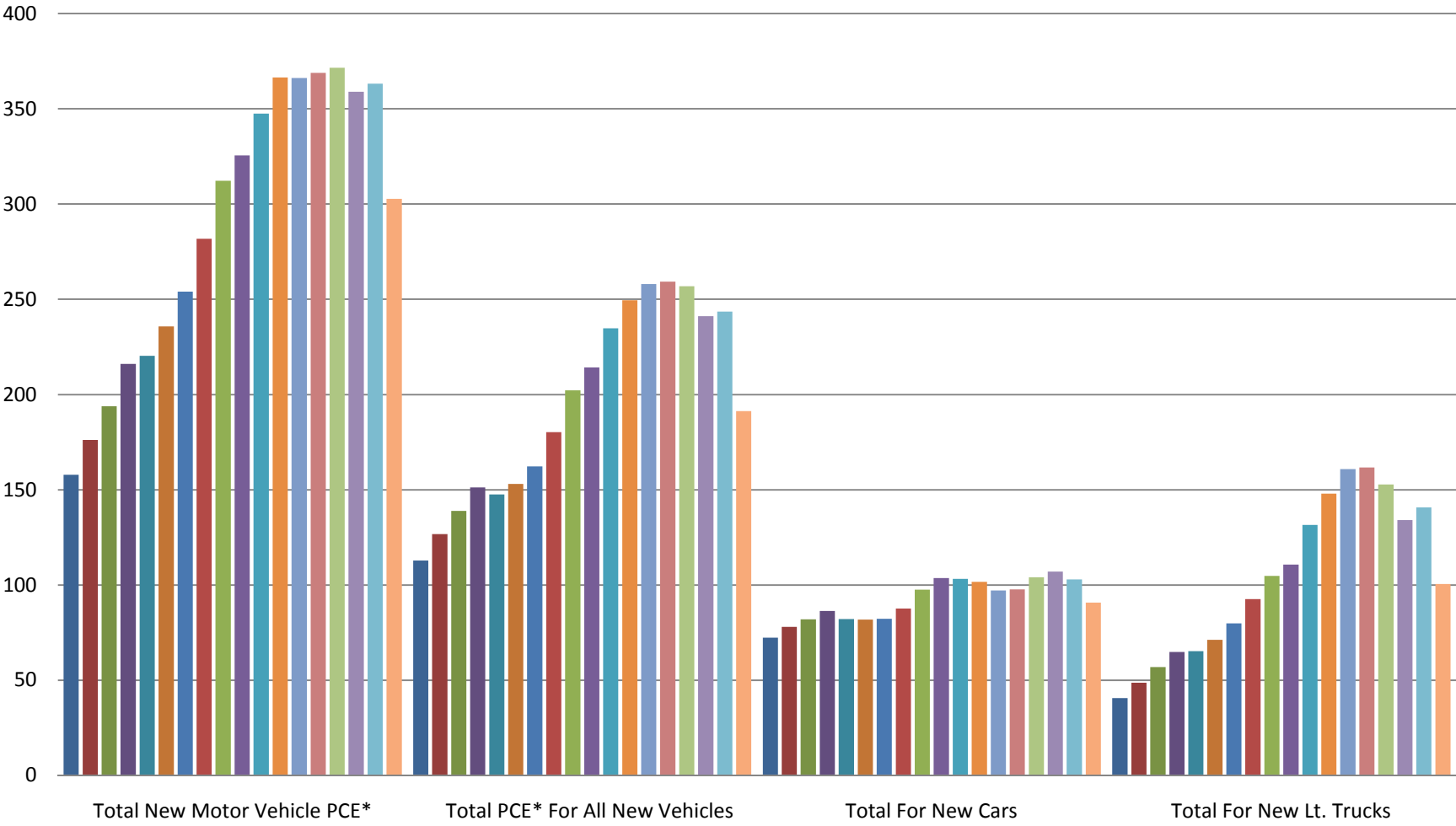
U.S. Automotive Industry Average Annual Employment (1,000s)			
(NAICS Based)	2006	2007	2008
Automobiles (336111)	134.6	127.5	116.6
Light Trucks and utility vehicles (336112)	65.1	58	45.4
Total Light Vehicles	199.7	185.5	162
Heavy Duty Trucks (33612)	36.8	37.6	28.7
Total vehicles	236.5	223.1	190.7
Motor Vehicle Bodies and Trailers (3362)	178.8	164.9	141.9
Motor Vehicle Parts (3363)	654.7	608.9	544.5
Motor Vehicle Parts (3363) and Motor Vehicle Bodies and Trailers (3362)	833.5	773.8	686.4
TOTAL	1070	996.8	848.4
Source: U.S. Department of Labor/Bureau of Labor Statistics			

Table 10

Total Payroll & Fringe Benefits (Billions of Dollars)					
	2002	2003	2004	2005	2006
Car Plants	7.2	7.3	7.5	7.6	7.4
Light Truck Plants	10.4	11.0	11.6	10.9	9.9
Total LV Plants	17.6	18.3	19.1	18.4	17.3
Heavy Truck Plants	1.8	1.6	1.9	2.1	2.2
Total All Plants	19.4	19.9	21.0	20.6	19.5
Source: U.S. Census Bureau 2006 and Earlier Annual Survey of Manufactures					

Total spending for all new vehicles decreased by over \$50 billion in 2008. Most of this decrease is accounted for by spending on light trucks, which was \$40 billion less in 2008 than in 2007

Chart 1



PCE= Personal Consumption Expenditure

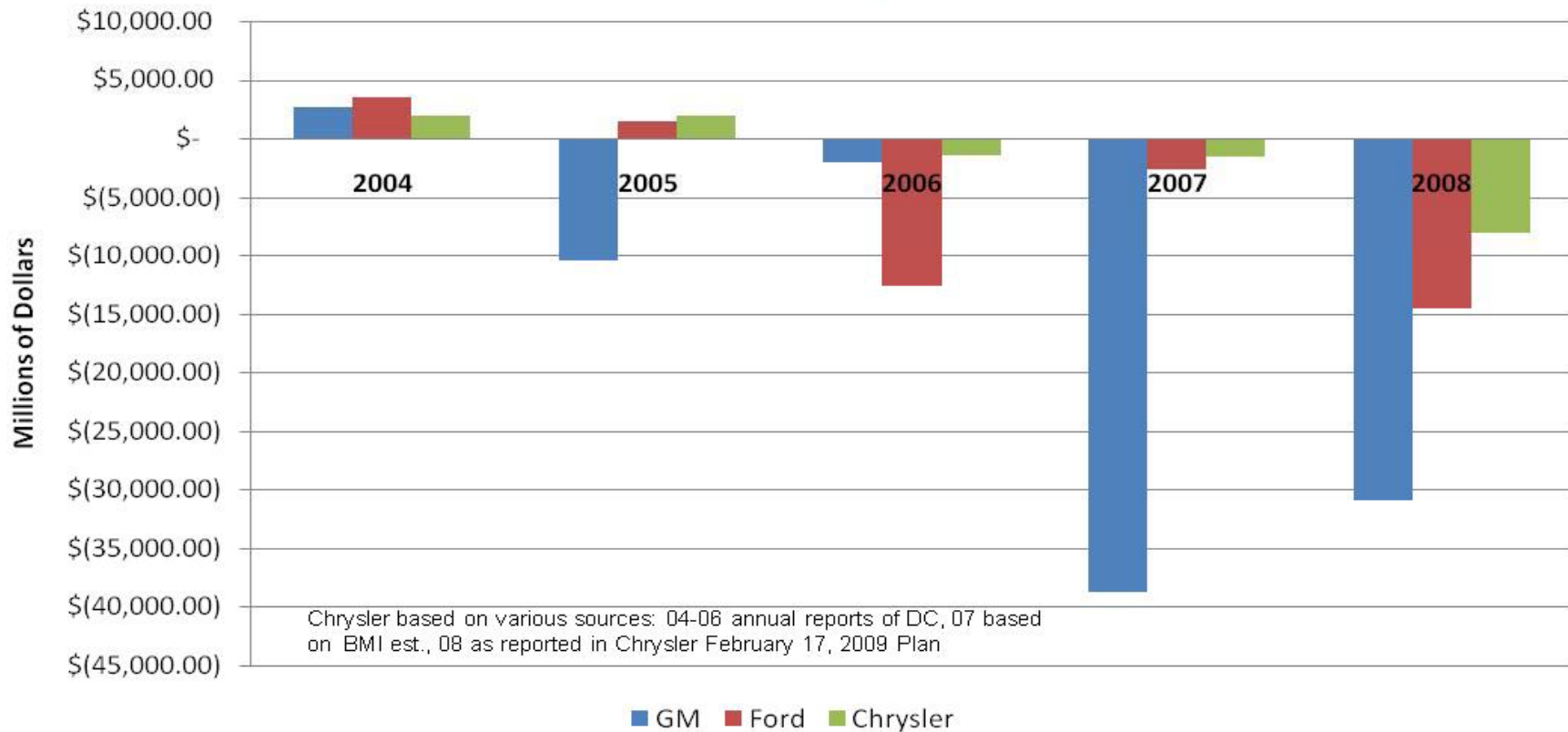
- Series1
- Series2
- Series3
- Series4
- Series5
- Series6
- Series7
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008

Source: Bureau of Economic Analysis

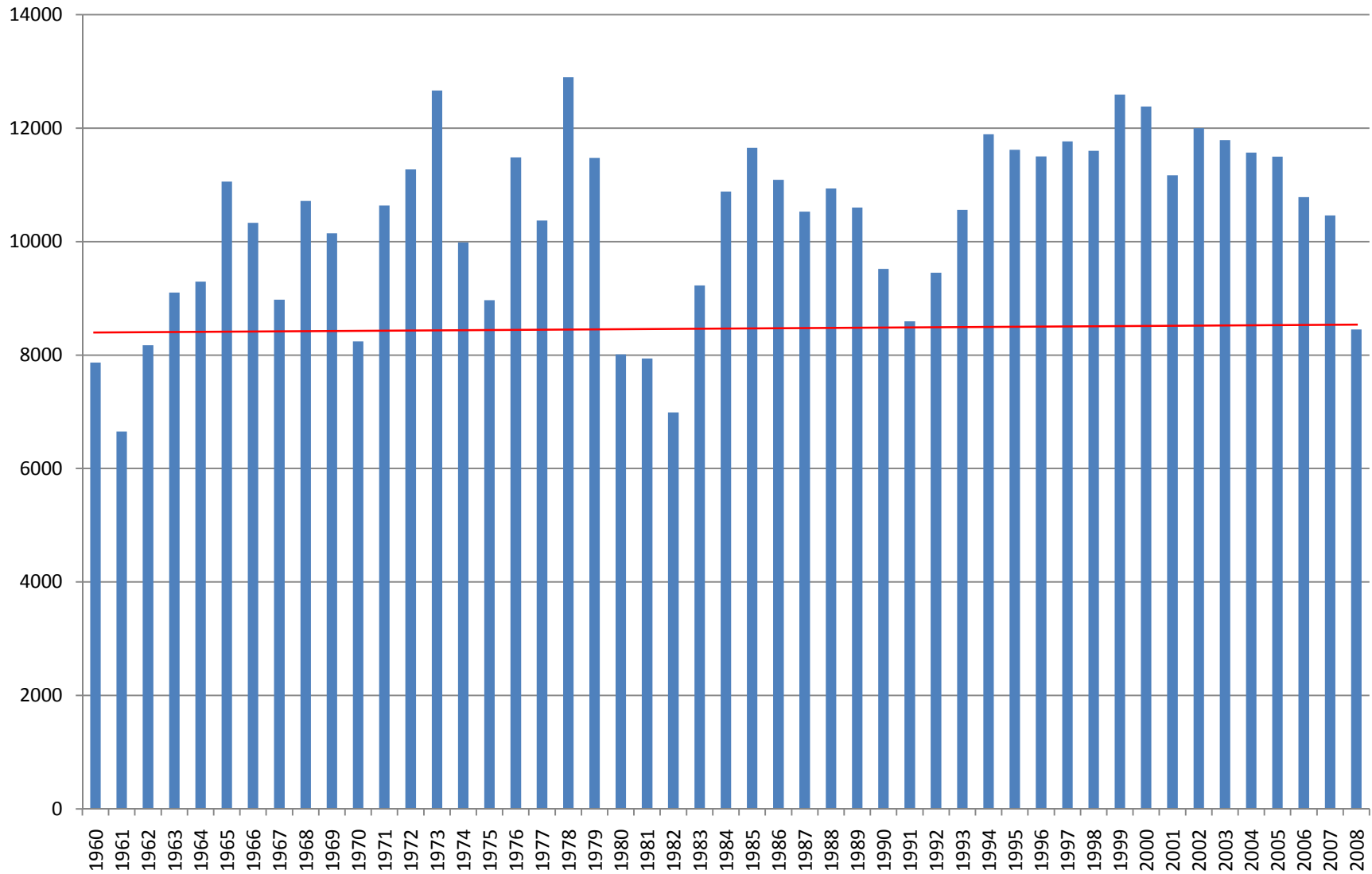
GM and Ford and Chrysler have experienced heavy losses. Without federal loans, GM would have fallen below its minimum operating cash level (\$11 billion) in the fourth quarter of 2008. GM has lost \$82 billion in the past four years.

Chart 2

Detroit 3 Profit/Loss

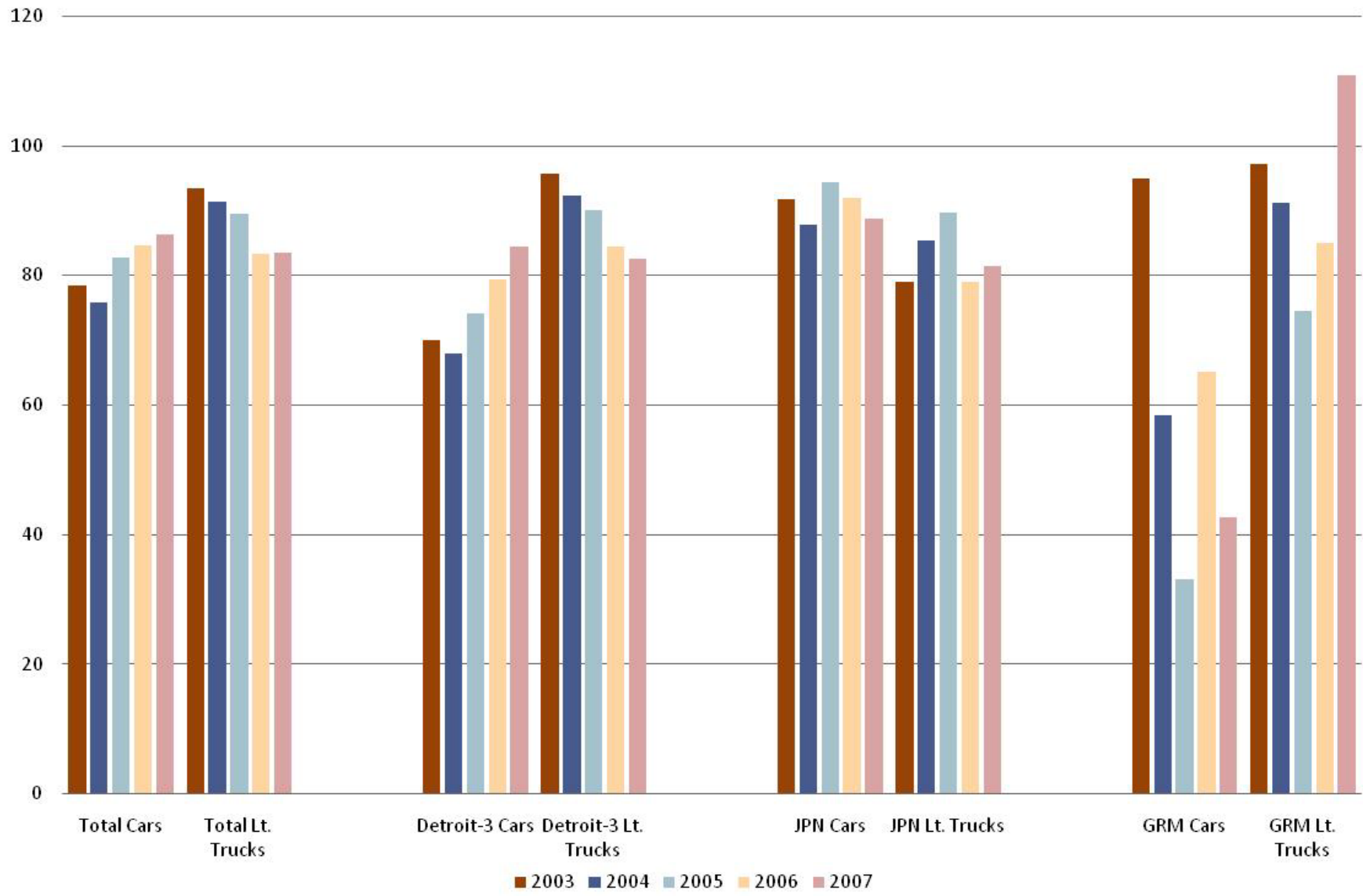


U.S. Production was lower than levels regularly achieved in the 1960's, 70's and 80's



Percent Utilization of U.S. Light Vehicle Production

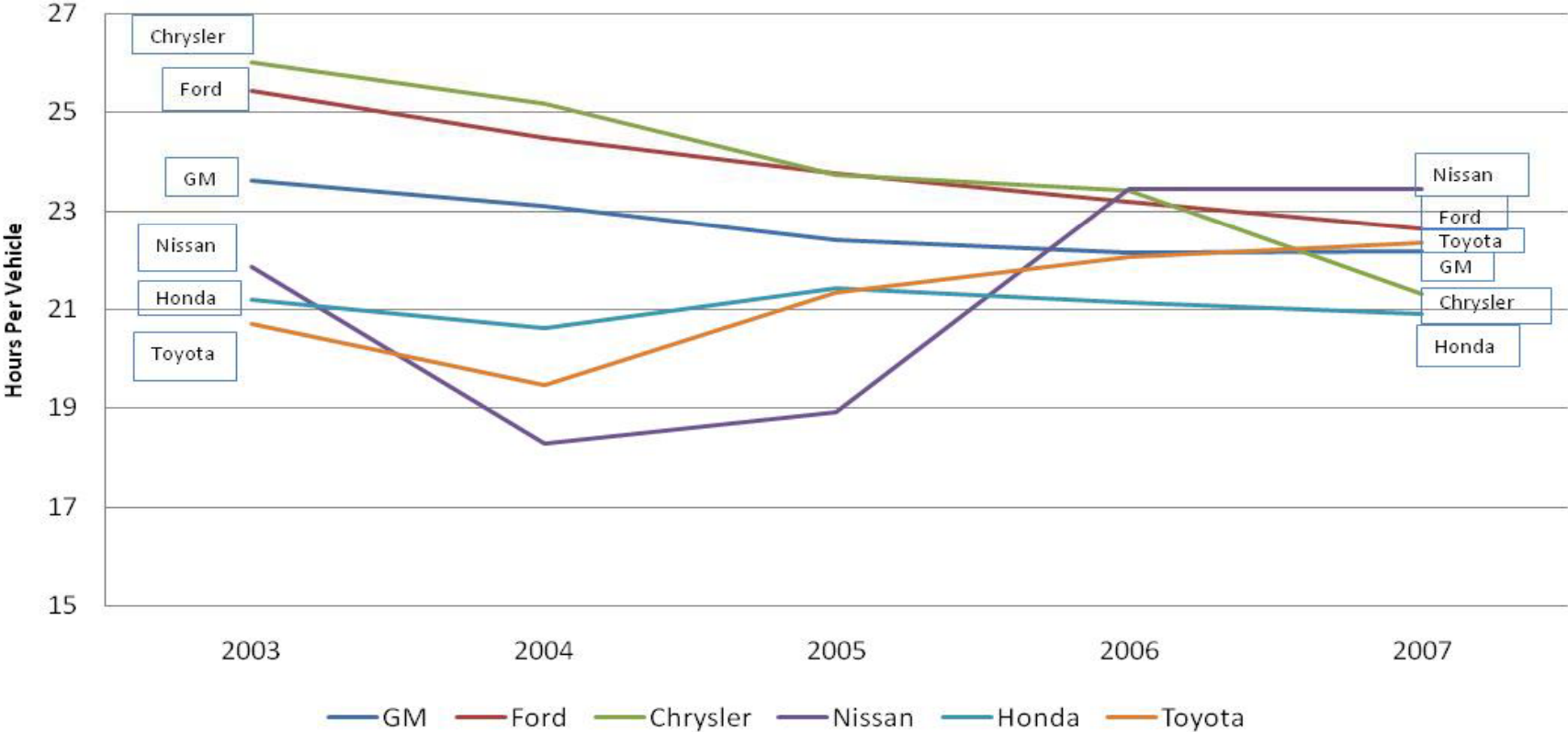
Chart 4



Source: Derived from The Harbour Report Annuals, 2003-2008 by USDOC Office of Transportation and Machinery

The Detroit 3 have made tremendous gains in improving productivity. Chrysler jumped from last place in 2003 to second place in 2007. GM has passed Toyota at 22.19 hours per vehicle, vs. Toyota's 22.35 hour per vehicle.

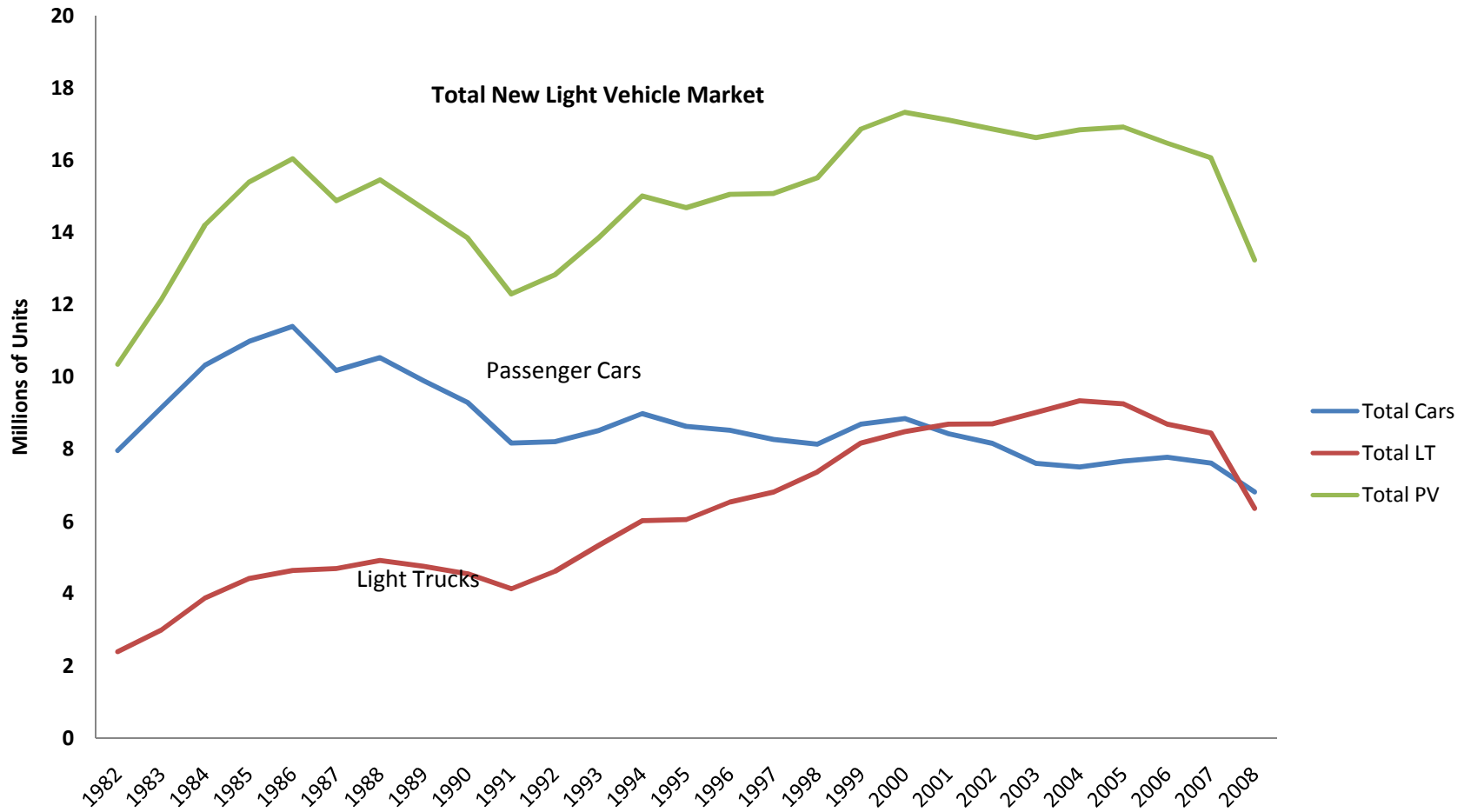
Vehicle Assembly Productivity



Source: The Harbour Report 2008

U.S. Sales of Passenger Cars (6.8 Million) Eclipsed Sales of Light Trucks (6.4 Million) in 2008 for the First Time Since 2000

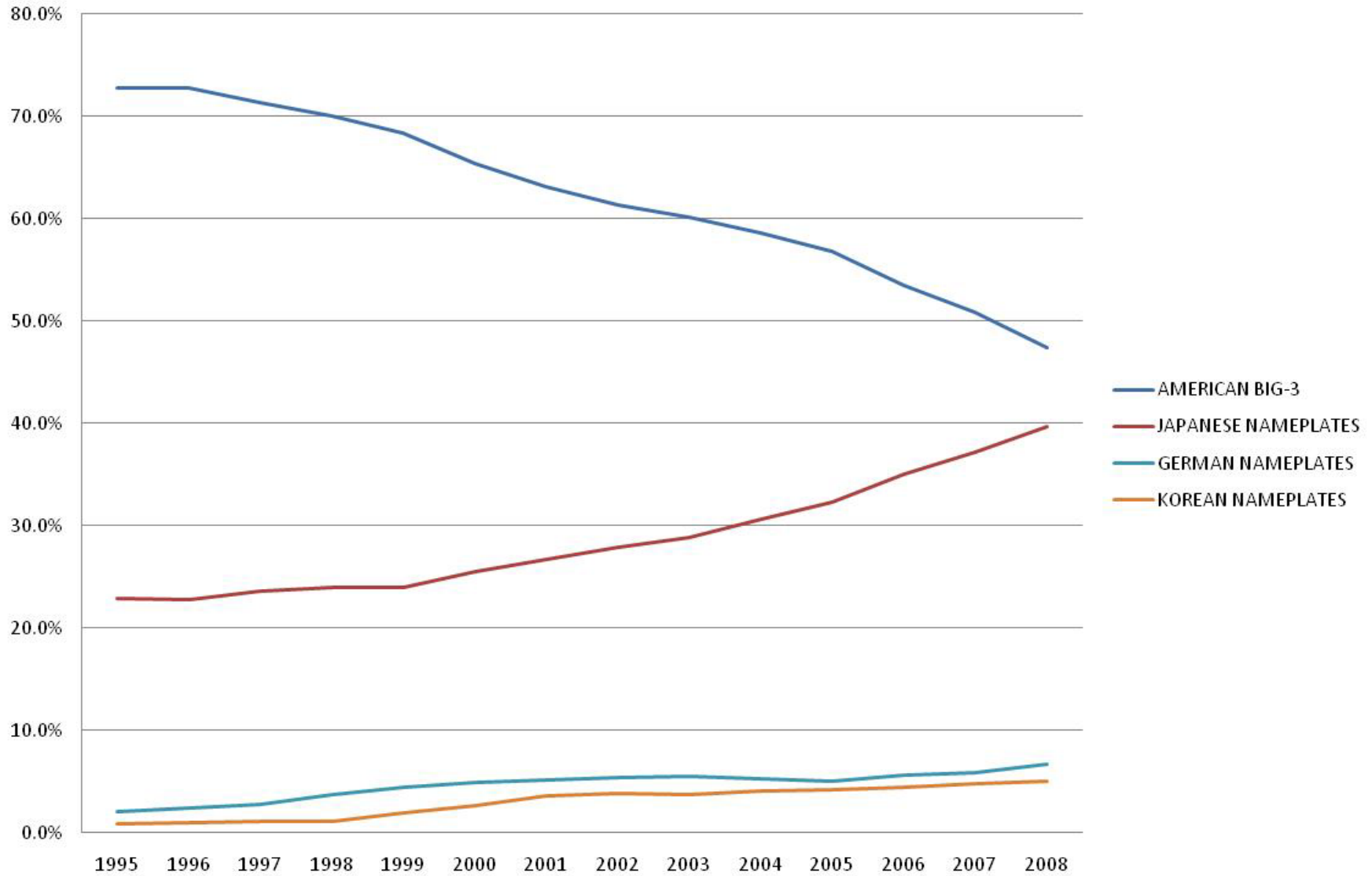
Chart 6



Source: Derived from the Automotive News 100-Year Almanac, 1996 ; and Ward's AutoInfoBank by USDOT Office of Transportation and Machinery

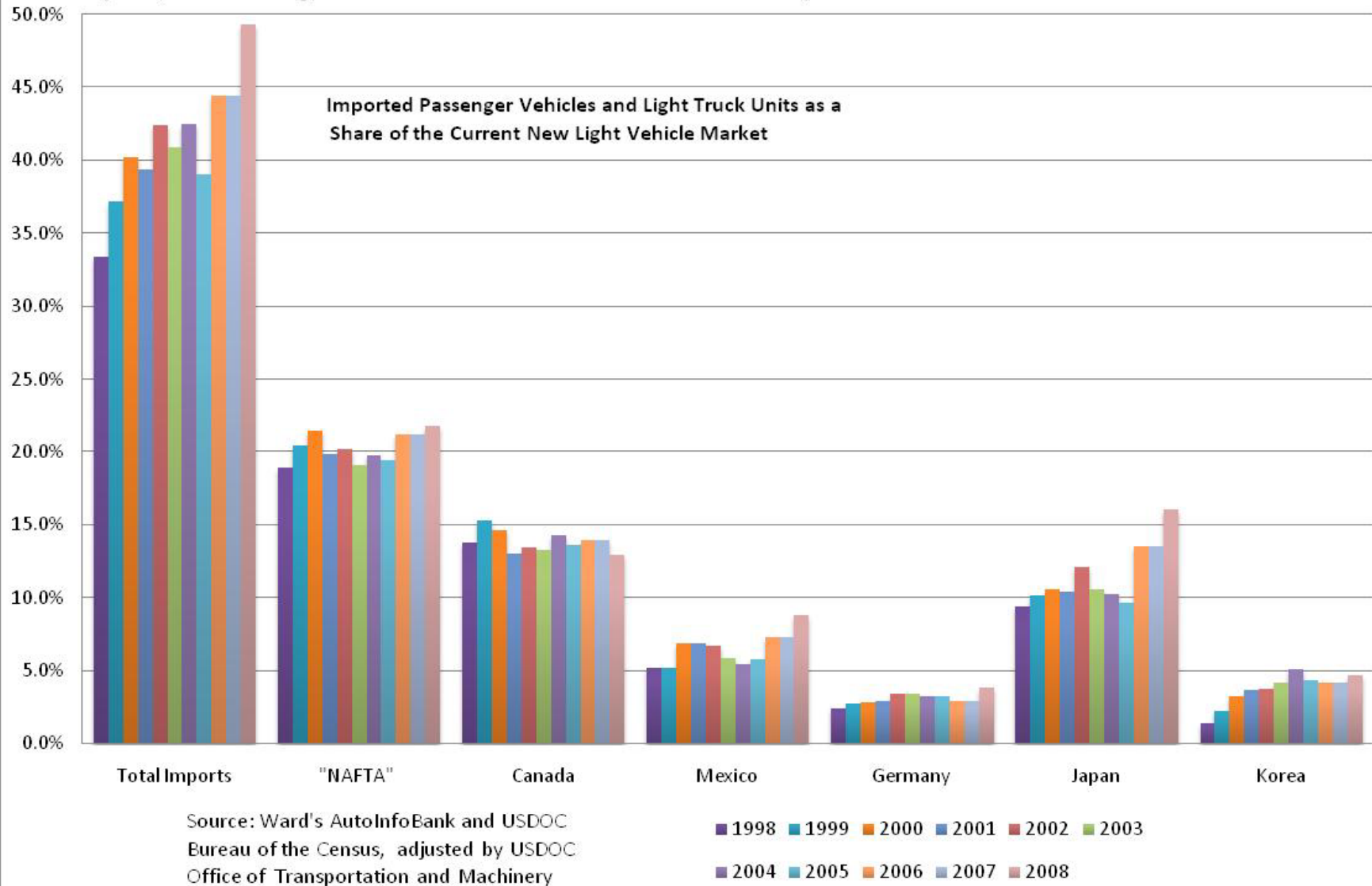
The American brands' share of the domestic market continues to slip, while Japanese, Korean and German brands continue to gain market share.

Chart 7



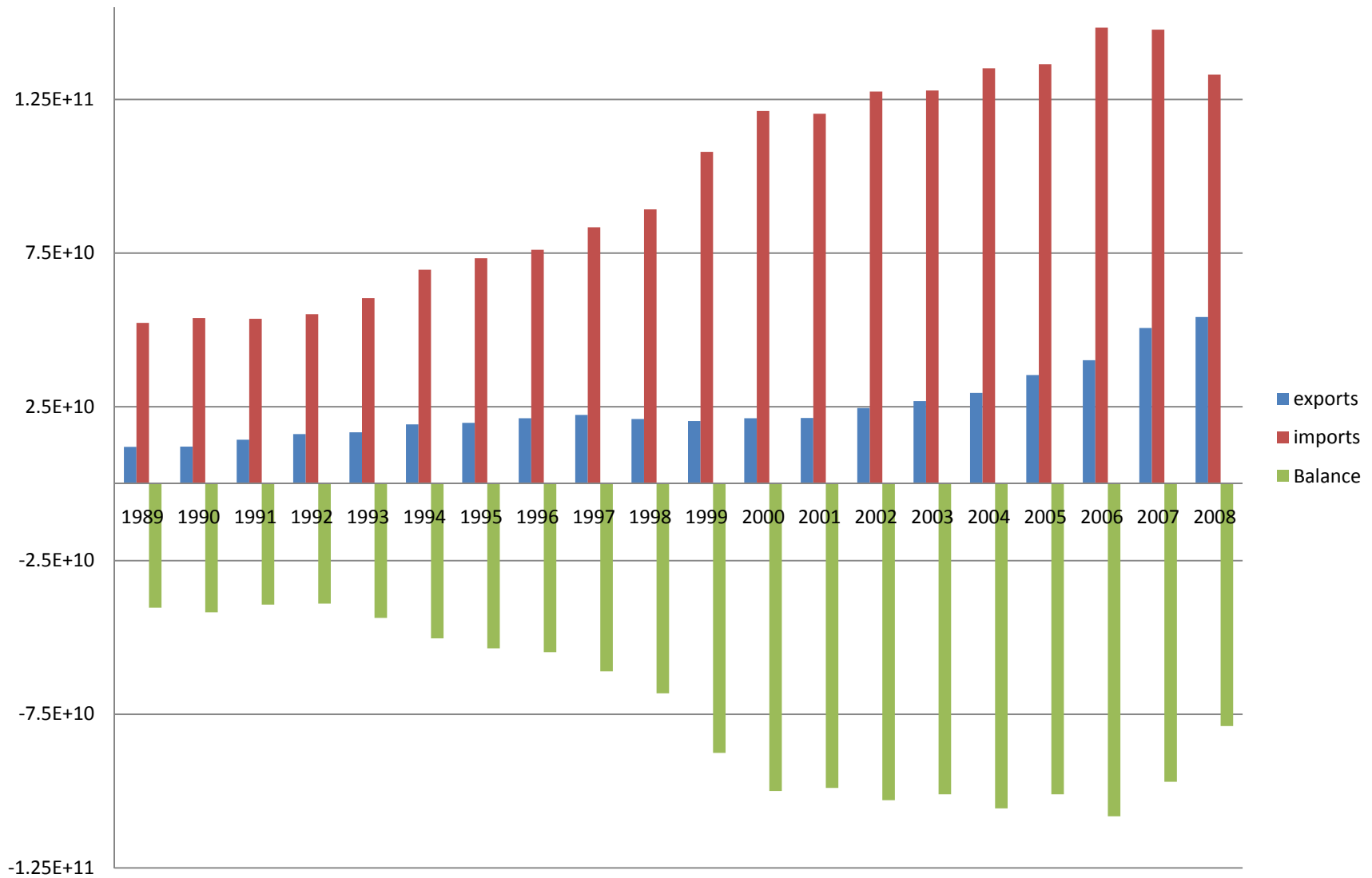
After remaining stable for 2006 and 2007 at 44.5%, total import sales (i.e., including those from Canada and Mexico) rose to 49.3% in 2008.

Chart 8



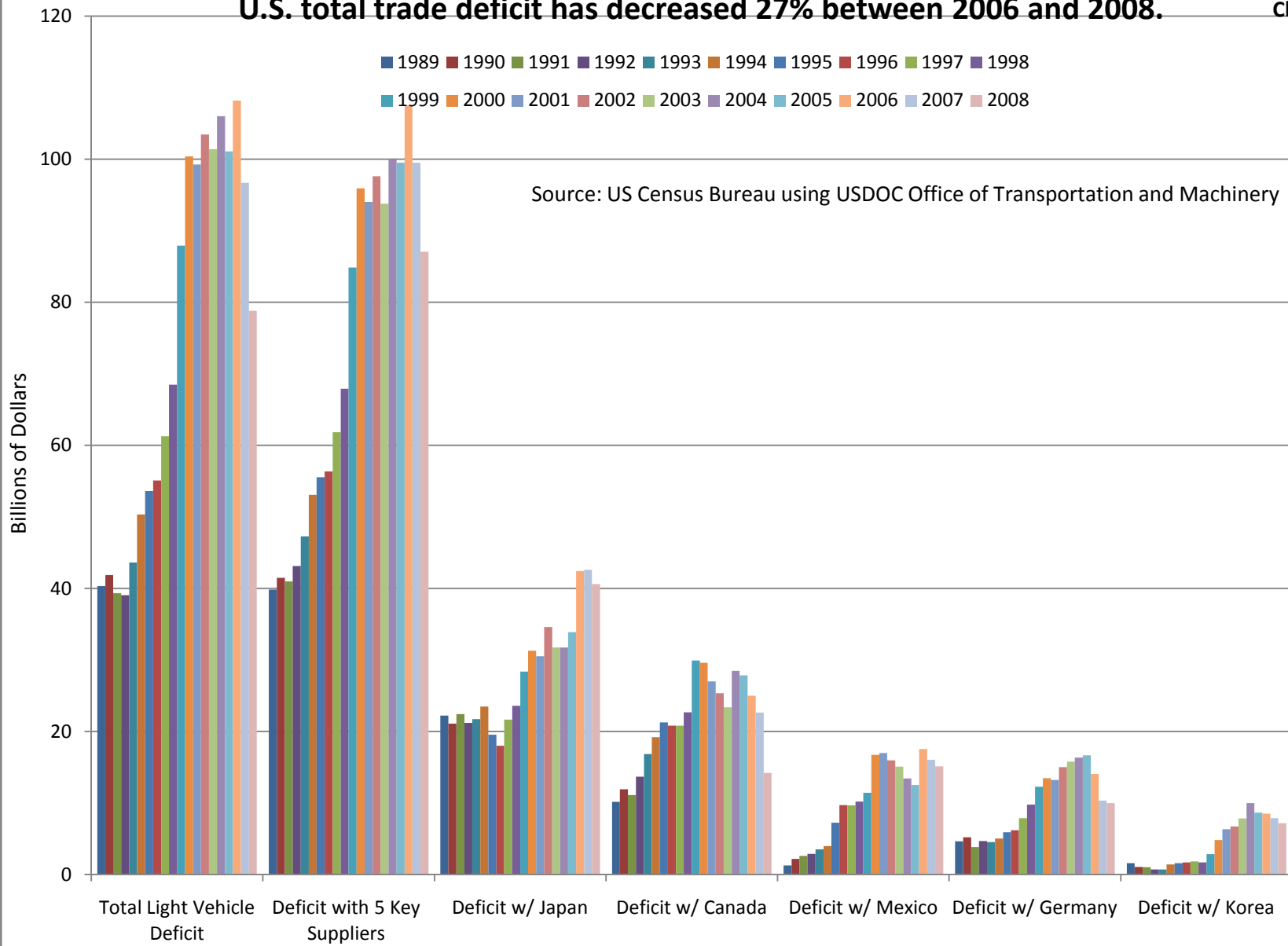
While new U.S. motor vehicle imports still vastly outweigh exports, the deficit has declined during the last three years, as a result of both increasing exports and decreasing imports. Exports in 2008 reached a record high (over \$54 billion) while import

Chart 9



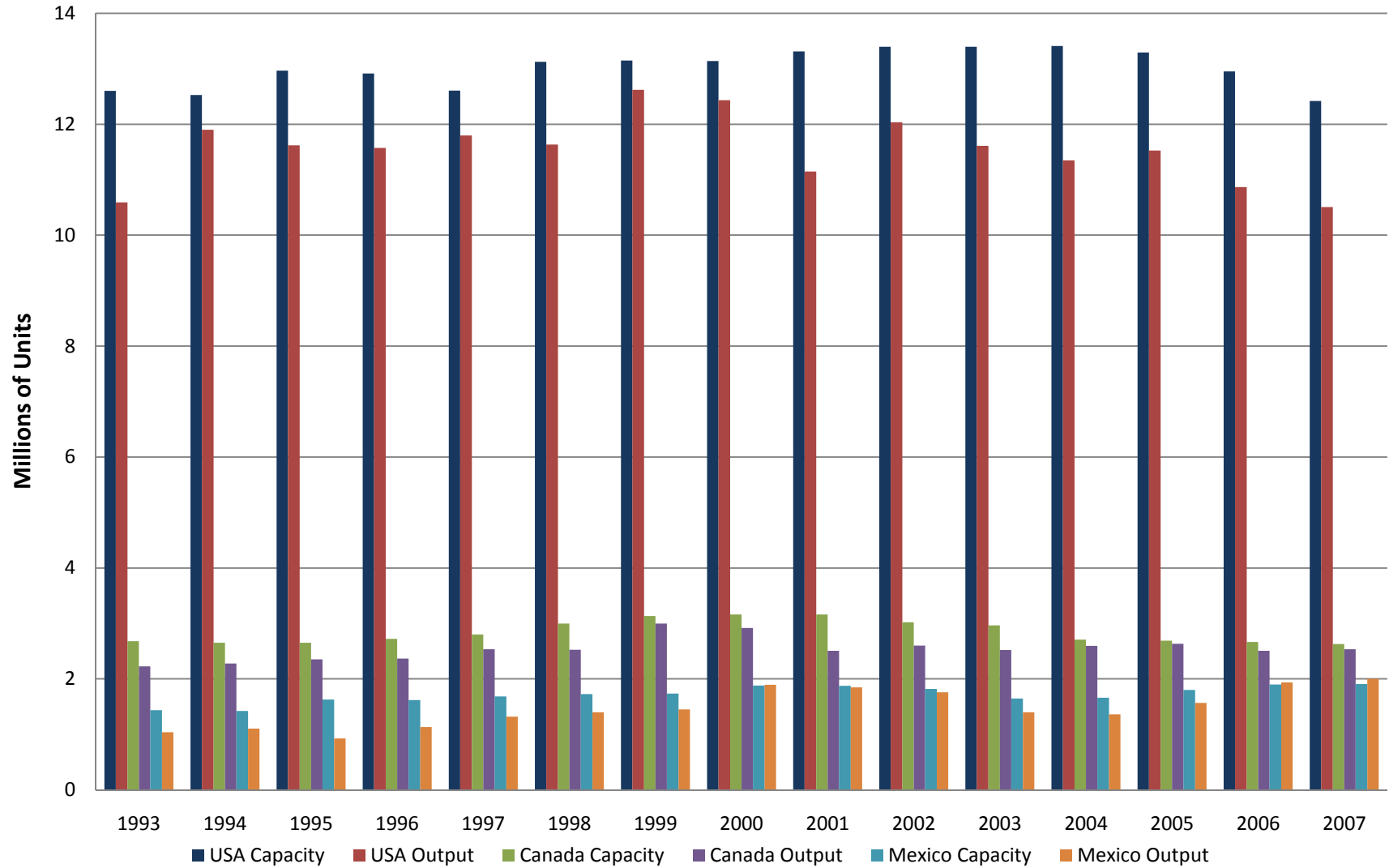
U.S. total trade deficit has decreased 27% between 2006 and 2008.

Chart 10



In 2007, U.S. output declined by .5 million units, while output increased slightly for both Mexico and Canada

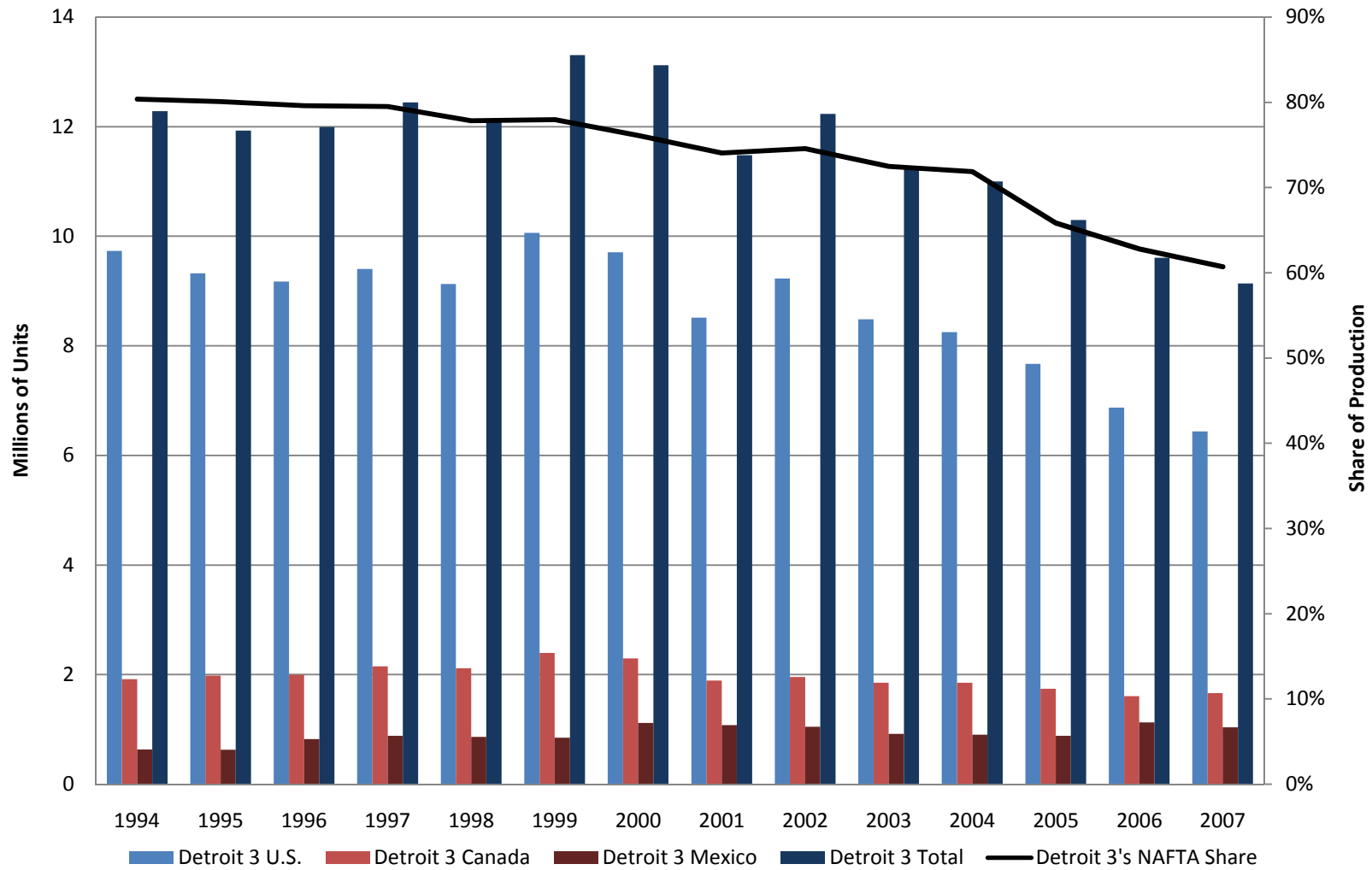
Chart 11



Source: Derived from 1995-2008 Annual Issues of "The Harbour Report" by USDOC Office of Transportation and Machinery

U.S. and Canadian production for the Detroit 3 is down since NAFTA was signed. Also, the Detroit 3 share of NAFTA production has steadily declined.

Chart 12



Source: Derived from 2001-2008 Annual Issues of "The Harbour Report" by USDOC OTM