



Cornell University
ILR School

Cornell University ILR School
DigitalCommons@ILR

Federal Publications

Key Workplace Documents

June 2005

The Road Ahead for the U.S. Auto Industry

International Trade Administration, U.S. Department of Commerce

Follow this and additional works at: https://digitalcommons.ilr.cornell.edu/key_workplace

Thank you for downloading an article from DigitalCommons@ILR.

Support this valuable resource today!

This Article is brought to you for free and open access by the Key Workplace Documents at DigitalCommons@ILR. It has been accepted for inclusion in Federal Publications by an authorized administrator of DigitalCommons@ILR. For more information, please contact catherwood-dig@cornell.edu.

If you have a disability and are having trouble accessing information on this website or need materials in an alternate format, contact web-accessibility@cornell.edu for assistance.

The Road Ahead for the U.S. Auto Industry

Abstract

[Excerpt] In 2004, U.S. light vehicle sales were up slightly, reversing a moderate slide that began in 2001. The 1.3 percent gain brought the market total to 16.8 million units, approximately the same level as 2002, and the fourth highest sales on record. The trend, which began in 2001 of offering low or no cost financing along with high rebates has cast a cloud over the otherwise sunny sales outcome for the year. American consumers have continued the long-term shift towards a preference for light trucks over passenger cars. Trucks passed cars in 2001, hitting over half the market for the first time that year. In 2004, light trucks accounted for over 55 percent of the U.S. passenger vehicle market. Light truck sales reached 9.3 million units, up 3.6 percent over 2003. Passenger car sales were down 1.4 percent compared to 2003, reaching only 7.5 million units.

Keywords

U.S., auto, industry, sales, car, truck, consumer, market, ilr, key workplace, federal, BEA, vehicle, analysts

Comments

Suggested Citation

International Trade Administration, U.S. Department of Commerce. (2005). *The road ahead for the U.S. auto industry*. Washington, DC: Author.
http://digitalcommons.ilr.cornell.edu/key_workplace/279/

The Road Ahead for the U.S. Auto Industry



**Office of Aerospace and Automotive Industries
Manufacturing and Services
International Trade Administration
U.S. Department of Commerce
June 2005**

The Road Ahead for the U.S. Auto Industry June 2005

EXECUTIVE SUMMARY

Domestic Market

- The U.S. market for cars and light trucks increased to 16.8 million units in 2004 – up 1.3 percent.
- With a rise in sales volume, consumer expenditures for new vehicles were also up, increasing 1.5 percent to reach a record level of \$270 billion.
- The 2005 market will likely mirror the 2004 market, with many forecasters predicting only a slight downturn to 16.7 million units.
- Market shares for the Detroit 3 (GM, Ford, and the Chrysler unit of DaimlerChrysler) have fallen yet again to a new low, 58.5 percent of the 2004 market – breaking below 60 percent for the first time. Their volume dropped 1.4 percent.
- Some industry analysts predict a 50 percent market share for the Detroit 3 within 3-5 years.
- Market shares for the Japanese brands reached a new high, 30.6 percent. Volume increased 7.3 percent.
- German brands sales volume was down 3.3 percent. Market share also declined, falling to 5.2 percent.
- Sales volume of Korean brands increased 8 percent, and market share climbed to 4.1 percent.

Production

- U.S. production of light vehicles was down 1.9 percent in 2004 to 11.6 million units. 1999 was the record high, 12.6 million units.
- Detroit 3 production decreased 5.4 percent to 8.2 million units.
- U.S. production by Japanese affiliates increased 9.7 percent to 3.1 million vehicles.

- U.S. production by the German affiliates was down 12.7 percent to 218,000 units.
- Some analysts expect Detroit 3 production to contract further in 2005, their volume replaced by that of the local Japanese and German affiliates, and by imports.

Employment

- Domestic employment in the auto industry (light vehicle manufacturing) was down in 2004 to an average of 221,800 individuals, a decrease of 5 percent for the year.
- Auto manufacturing remains one of the economy's best paying industries. Production workers' average hourly earnings reached \$29.05 (excluding benefits) in 2004. Wages were 80 percent greater than the national average for all manufacturing industries.

International Trade

- The light vehicle trade deficit increased 4.6 percent in 2004 to \$106 billion – a record high.
- Imports increased 5.7 percent to a total of \$136.1 billion.
- Exports grew for the third year in a row, climbing 10 percent to \$30.1 billion.
- Inbound shipments from Canada remained the largest, and were up 12.9 percent to \$43.4 billion.
- Imports from Mexico fell for the third year in a row, down 4.7 percent to \$17.4 billion.
- Of the 5 major suppliers of vehicles, imports from Korea by far grew the fastest, up 26.5 percent to \$10 billion.
- Japan's shipments to the United States were static in 2004, up 0.1 percent to \$32.2 billion.
- Most U.S. exports still went to Canada, but those exports were down 0.9 percent to \$15 billion.
- Exports to Japan increased 4.7 percent, to \$487 million.
- Shipments to Mexico were up 25.3 percent to \$4.0 billion – the biggest jump among our principal trading partners.

- Exports to Korea declined by 37.3 percent and amounted to just \$52 million.
- There is no reason to expect that the light vehicle trade deficit will decline in the near term.

The Road Ahead for the U.S. Auto Industry 2005

In 2004, U.S. light vehicle sales were up slightly, reversing a moderate slide that began in 2001.¹ The 1.3 percent gain brought the market total to 16.8 million units, approximately the same level as 2002, and the fourth highest sales on record. The trend, which began in 2001 of offering low or no cost financing along with high rebates has cast a cloud over the otherwise sunny sales outcome for the year. American consumers have continued the long-term shift towards a preference for light trucks over passenger cars. Trucks passed cars in 2001, hitting over half the market for the first time that year. In 2004, light trucks accounted for over 55 percent of the U.S. passenger vehicle market. Light truck sales reached 9.3 million units, up 3.6 percent over 2003. Passenger car sales were down 1.4 percent compared to 2003, reaching only 7.5 million units.

According to the Department of Commerce's Bureau of Economic Analysis (BEA), consumer expenditures on new vehicles also continued to follow long running trends. Spending on new trucks reached \$172.8 billion dollars, up 2.4 percent over 2003. Spending on new trucks is up an amazing 65 percent over the last five years. With consumers buying more and more new trucks, 2004 was another record year for spending on new trucks. Expenditures on new cars were roughly the same as 2003, down 0.4 percent.

Production of light vehicles declined in 2004, falling by 1.9 percent to reach a total of 11.6 million units. (Table 6). Sales from vehicles produced outside the NAFTA region were up again in 2004, accounting for 20.1 percent of total sales. This was their highest level since 1987, when they accounted for 27 percent of the market.²

And More of the Same . . .

Market analysts are forecasting 2005 sales to be approximately the same as 2004, with some predicting a slight dip and other predicting a slight rise. An average of multiple analysts' views would put the market down slightly to 16.7 million units.

Many economic indicators for the coming year are mixed. Income is up, but so are debt levels and interest rates. Disposable personal income was up 5.7 percent to \$8.6 billion in 2004. Per capita DPI reached \$29,334 in 2004, up 4.6 percent in current dollars, and was up 2.4 percent in constant dollars.³ The national unemployment rate ended the year at 5.4 percent, lower than the year's average rate of 5.5 percent, and below December

¹ Automobiles, station wagons, vans with not more than 15 passenger capacity, sport and cross utility vehicles, and pickups. All rated at not more than 10,000 pounds of gross vehicle 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 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 BEA data is available at: <http://www.bea.doc.gov/bea/dn/nipaweb/SeclectTable.asp?Selected=N>. Scroll to Section 2 and select Table 2.1 and Table 2.9 for annual and monthly DPI data.

2003's rate of 5.7 percent. The last peak rate was 6.3 percent in June of 2003. Data from the Federal Reserve Board shows that total consumer non-revolving debt, which includes automotive loans, reached \$1.31 billion dollars in 2004, up 4.8 percent from 2003's level of \$1.25 billion.⁴ Interest rates on consumer motor vehicle loans at banks and auto finance companies were on the rise in 2004, averaging 4.36 percent for the year. For fourth quarter of 2004, they averaged 5.01 percent, up from fourth quarter 2003's level of 3.80 percent. According to BEA data, personal outlays for all non-mortgage interest payments reached \$188.2 billion for 2004, up significantly from \$185.3 in 2003.

The consumer price index for new cars has fallen or stayed the same every year since 1997, and 2004 was no exception. The Labor Department's CPI for new cars was 133.9 in 2004, down 0.6 percent for the year. The index for trucks was also down, reaching 145.0, off 0.8 percent for the year.⁵ Population projections also favor the auto industry. According to the U.S. Census bureau, the U.S. population over 16 years of age is expected to grow by 2.2 million people in 2005.⁶

According to the Federal Reserve, economic growth is expected to moderate in 2005, with GDP forecast to grow by 3.3 percent. At the beginning of 2005, oil price were expected to fall throughout the year, which would help spur demand.⁷ But as of March 2005, oil prices were setting record highs. While consumer's expectations about the economy were down slightly in January compared to December of 2004, overall consumer confidence remains high, indicating likely economic expansion in the first half of 2005.⁸

As 2004 was a year which continued a trend of high sales, it also saw other trends continue, including an increasing preference for trucks, a declining market share for vehicles made by the traditional Detroit 3 manufacturers, and an ever expanding reliance on incentives to sell vehicles.

The Great Giveaway

While rebates and incentives have always been part of the automotive industry, the industry has seen a rapid increase in levels of incentives offered and the percentage of vehicles receiving rebates. Beginning with GM's "Keep America Rolling" campaign shortly after the September 11th attacks, the U.S. auto industry, particularly the Detroit 3 have come to rely heavily on high incentives and low to zero interest rate loans to prop up sales and market share. The year 2004 was no exception. Estimates from CNW Marketing/Research indicate that automakers spent \$60 billion in rebates in the United States in 2004, with over 90 percent of all cars sold having some form of incentive.

⁴ See the Federal Reserve Board's monthly consumer credit report at: <http://www.federalreserve.gov/releases/g19/>. Data showing Detroit 3 new and used car credit terms is at: <http://www.federalreserve.gov/releases/g20/Current/>.

⁵ Enter the BLS web site for access to the latest adjusted CPI numbers: <http://data.bls.gov/cgi-bin/dsrv?cu/>. On the fourth screen, scroll to "SS45011" to select new cars, and "SS45021" for new trucks.

⁶ The 16-64 year old group is expected to increase by nearly 4 million persons between July 2002 and July 2004. Census Bureau population projections may be viewed at: <http://www.census.gov/population/www/projections/natsum-T3.html>.

⁷ http://www.chicagofed.org/publications/fedletter/cflfebruary2005_211a.pdf

⁸ <http://www.conference-board.org/economics/consumerconfidence.cfm>

The Detroit 3 were by far the big spenders on rebates in 2004. While estimates vary, analysts track Detroit 3 incentive spending for the year at levels of over \$4,500 per vehicle. Interestingly, Japanese brands, which had long shunned high incentives, began large-scale increases in rebates for targeted segments of the market. According to Automotive News, Toyota's incentives in all forms were up 31.6 percent in 2004, reaching a level of over \$3,100 per vehicle. Nissan's incentives were up 26.0 percent to almost \$2,000 a vehicle and Honda increased incentives by 79.5 percent to almost \$2,000 a vehicle. However, Japanese-brand companies' incentives appeared to be targeted more closely to the light truck market, where they made significant gains in 2004. This strategy would appear to make sense, as Japanese companies now hold 39.3 percent of the car market in the United States, compared with 23.6 percent of the light truck market.

Manufacturers even began trying more novel approaches to gain notice in a market where some vehicles came with \$7,000 or more off the price (the record appears to be the VW Phaeton which had a \$10,000 rebate). Ford offered a free computer with the purchase of some Ford Focus vehicles. One dealer gained some national recognition for offering a "buy one, get one free" offer on some vehicles (a high end SUV came with an entry level passenger car). Consumers have come to expect the high rebates, and low financing now pervasive in the market. Vehicle manufacturers have come to rely on the incentives to keep sales levels high. Longer-term consolidation and elimination of production capacity will take some time. While Detroit 3 incentives eased slightly at the end of 2004, there is little to indicate that the record high incentives will end any time soon.

Big 2 Battle Plans

GM had a mixed financial year during 2004. While its total net sales and revenues reached \$193.5 billion (versus \$185.8 billion in 2003), its total net income went down slightly to \$3.69 billion (versus \$3.82 billion in 2003). GM's worldwide automotive revenue for 2004 was \$161.5 billion, an increase of \$5.7 billion from revenue of \$155.8 billion a year ago. Ford on the other hand, achieved extraordinary financial gains during 2004. Ford's net sales and revenues reached \$170.8 billion (versus \$163.6 billion in 2003) while its annual net income grew nearly seven-fold, surging to just under \$3.5 billion in 2004 (versus \$495 million in 2003). Ford's worldwide automotive revenue for 2004 was \$147.1 billion, an increase of \$8.8 billion from revenue of \$138.3 billion a year ago.

Both GM and Ford are attempting to streamline their operations by closing plants and consolidating manufacturing lines, as well as redefining strategies in various divisions. However, they also continue to invest heavily in new assembly plants and equipment for both manufacturing and product technology.

GM's Janesville, Wisconsin, assembly plant is reportedly receiving \$175 million to upgrade its body shop and general assembly area for a future product program. The work is to prepare the facility for GM's next generation fullsize truck program, codenamed GMT900. Production is scheduled to begin during the first quarter of 2006. (The plant, which opened in 1919 and employs about 3,900 people, produces the Chevy Tahoe and Suburban and the GMC Yukon and Yukon XL.) GM is also investing \$175 million at its Fort Wayne plant in Indiana for full-size pickup truck production. It is expected that the

investment will primarily be used to upgrade the plant with new machinery, equipment, and special tooling in preparation for new vehicles. Fort Wayne currently builds versions of the Chevrolet Silverado and GMC Sierra pickup truck. Its workforce of around 2,900 built a total of 247,000 pickup trucks in 2004. The project is expected to add about 200 jobs at the plant.

In late 2004, GM also confirmed it would invest \$450 million at its Flint, Michigan, engine and truck assembly facilities: \$300 million to expand its Flint South engine plant (to build a new family of V-6 engines), \$150 million for fullsize pickup operations (retooling for the next generation). GM is also investing \$100 million to renovate its Wilmington, Delaware, assembly plant to prepare for 2006 Pontiac Solstice production. Solstice is the first vehicle from GM's all-new Kappa rear-wheel-drive small-car platform. Other derivatives are expected to be built there as well. The plant also plans to add jobs when more new vehicles are assigned to Wilmington.

GM has also announced plans to invest \$200 million at its Fairfax, Kansas, assembly plant for production of an all-new Saturn midsize car, which is scheduled to begin production in the second half of 2006 as an '07 model. GM will use the investment to expand its facilities and upgrade machinery, equipment and special tooling for the new product. In August 2004, GM also approved plans for a \$400-500 million upgrade to its Saturn Corp. assembly plant in Spring Hill, Tennessee. The new tooling program will allow the facility to produce the next generation Ion small cars and Vue CUVs, and brings the overall investment in Spring Hill to nearly \$4 billion.

GM is also focusing on increasing its manufacturing flexibility. For example, when it opens its new plant in Delta Township, Michigan in 2006, it will be equipped with a new manufacturing technology that allows vehicles based on different platforms to be built on the same assembly line. Called "Tru-Flex", the system is an extension of the C-Flex bodyshop technology GM currently uses at several assembly plants. By gaining the capability to build different architectures at the same assembly plant, GM will better utilize capacity, reduce plant investment and be able to react more quickly to market demands.

Concurrently with its investments, GM stopped production on its oldest nameplate, and plans to close several plants. On April 29, 2004, GM made its very last Oldsmobile—ending a 107-year production run for the nameplate. Oldsmobile was America's oldest automotive brand, and the second oldest in the world, behind Daimler. GM had attempted to resuscitate the division in 1994 with its Centennial Plan. Despite an overhauled product lineup and a new mission to capture Gen X buyers, sales continued to slide until GM's 2000 decision to drop the brand. In terms of plant closures, the Linden, New Jersey plant, which manufactures the Chevy Blazer and GMC Jimmy, will be closing in early 2005, and the Baltimore van plant is also slated for closure during 2005, with production of the Chevy Astro and GMC Safari minivans ending.

During 2004, Ford committed to make an investment in a Chicago-area Supplier Park, as well as its manufacturing facility there, which will result in 400 to 600 more jobs than originally expected. (Initial estimates called for about 1,000 jobs to be added.) The new jobs will bring Ford's Chicago-area employment to approximately 5,400 workers. The

supplier campus will provide more flexibility at its Chicago assembly plant, which had previously produced the Ford Taurus and Mercury Sable, but is now ready to produce the Ford Five Hundred and Freestyle and Mercury Montego. The more flexible facility will be able to produce up to eight models on two separate architectures. With these models, Ford also hopes to achieve All-Wheel-Drive (AWD) leadership, which offers customers more traction and stability. (Ford essentially has “built-in” reliability since most of the technology is already in use in vehicles produced by its wholly owned Volvo subsidiary.)

Ford will also reportedly invest \$62 million in its 54-year old Buffalo, New York, stamping plant to increase output and widen the scope of parts the facility can produce. Ford will begin replacing a press line in early 2005 with a new press made by Germany’s Schuler AG. The new press can run twice as fast, and will be operational by June 2006. Ford is also reportedly spending \$240 million over the next four years at its Wayne Assembly plant in Michigan to incorporate Focus hatchback production from a Mexico plant. Sedans and wagons are currently assembled at the Wayne facility. Ford also started production of the ’06 Lincoln Mark LT luxury pickup at the new Dearborn Truck Plant in Michigan, where it currently builds the F-150. Ford is planning to build around 20,000 Mark LT’s annually. AutoAlliance International, the Mazda Motor Corp-Ford Motor Company joint venture in Flat Rock, Michigan, plans to add 1,400 jobs needed to build the ’05 Ford Mustang, bringing total employment to 3,300 workers. These employees were transferred from other Ford facilities that have been recently downsized or closed.

As its market position continues to decline, Ford like GM is engaged in a restructuring of its production facilities. In 2004, Ford closed the doors on its oldest manufacturing plant, the Dearborn Assembly plant which produced the Mustang. This 86 year old plant, which at one time produced the Model A, is being closed down in order to shift production to newer, more flexible manufacturing facilities.

Also in 2004, Ford further defined some previously announced restructuring plans. The Lorain, Ohio assembly plant will be closed in 2006 – at a loss of approximately 1,200 jobs. The St. Louis, Missouri plant is still scheduled to close its doors at an undisclosed date in the future.

Trucks – Firmly in the Driver’s Seat

American’s love affair with light trucks continued in 2004, as the overall share of trucks in the market continued to increase.⁹ This shift has been ongoing for decades. In 1981, trucks accounted for only 19 percent of the U.S. market. Twenty years later, in 2001 light trucks passed cars to take over fifty percent of the market for the first time. In 2004, light trucks accounted for 55.4 percent of the U.S. light vehicle market, with a volume of 9.3 million vehicles.

⁹ Industry sales data categorizes all vans, pickups, sport utility vehicles built on truck platforms, and ‘cross-over’ utilities built on car platforms as light trucks. (Cross-over vehicles are designed to look truck-rugged, but to ride car-soft.) Light truck sales are defined by OAA as being all of those with a gross vehicle weight not exceeding 10,000 pounds (‘Classes 1 and 2’). Note, however, that the Harmonized Tariff Schedule nomenclature adopted by most governments, including the United States, for tracking international trade, places everything listed above – except for pickup trucks – in the passenger vehicle category.

According to BEA, consumer spending on light trucks also continues to increase. In 2004, total expenditures on new trucks totaled \$172.8 billion, up 2.6 percent from 2003. Expenditures on cars have been declining since 2000, and last year followed the trend, with expenditures down 0.4 percent to \$97.1 billion. Not only do American consumers increasingly prefer trucks, but the profit per vehicle tends to be much higher. While manufacturers can earn \$10,000 or more on the most popular light trucks, they often earn \$1,000 or less on passenger cars. This combination has inevitably pushed more and more manufacturers into the light truck market. Every manufacturer that sells passenger cars in the United States now has at least one line of truck for sale as well. Isuzu only participates in the truck market. Even Porsche, the venerated maker of luxury sports cars now sells far more trucks in the United States than cars (18,116 SUV sales in 2004 vs. 13,355 passenger cars).

The Detroit 3 derive an ever-increasing amount of their sales and profits from the light truck market – a segment now under heavy competition. In 1986, the Detroit 3 sold 3.7 million light trucks. That represented 79 percent of the segment, but only 31 percent of total Detroit 3 sales. A decade later in 1996, Detroit 3 share of the segment stood at 86 percent with sales of 5.6 million light trucks - 51 percent of their volume. In 2004, the Detroit 3 sold 6.7 million trucks, accounting for 67.6 percent of their total sales volume, but only 71.3 percent of the segment.

Detroit 3 Share, How Long Until 50 Percent?

Detroit 3 sales are on a long-term downward trend, likely pushing them below half the market in the near future. With declines in nearly every segment of the market, it is less a question of if, then of when they will cross that line. Over a ten-year span within the truck sector, Detroit 3 shares have slipped in most segments. In 1994, American brands accounted for 85.6 percent of all light truck sales. In 2004, they accounted for only 71.3 percent of light truck sales. Broken down by segment, in 1994 the Detroit 3 achieved 84 percent of the pickup segment, 94 percent of the van segment, and 79 percent of all SUV sales. In 2004, they supplied more of the pickup segment, 86 percent (down from 2003's 89 percent), but significantly less of the van segment, 69 percent (down from 74 percent in 2003), and slightly more of the SUV segment, 80 percent. The latter was subdivided in 2000 to create a new category, Cross Utility Vehicles (CUV), which are, perhaps, best thought of as station wagons with (somewhat limited) off road capabilities, but exhibiting styling cues adopted and adapted from the traditional SUV category. This category has seen increasing competition with multiple new entrants. The American brands supplied 75 percent of this category in its debut year (2000), 36 percent the next two years, 31 percent in 2003 and 37 percent in 2004. Gains made in 2004 were solely to the detriment of Japanese makers, who fell from 55 percent of the segment to 48 percent.

American brands have seen their sharpest declines in passenger car sales, where they have been losing both sales volume and market share. They supplied 72 percent (8.2 million units) of the passenger car market in 1986. Volume and share have fallen nearly every year since (and have dropped every year since 1993), dropping to a 43 percent share in 2004 on a volume of 3.2 million cars. The Detroit 3 have lost share in each of the passenger car segments. American brands accounted for 69 percent of all small cars

in 1986, but just 36 percent in 2004. Their share of mid-sized cars has slipped from 70 percent to 47 percent, while their luxury car share has fallen from 58 percent to 27 percent. The only bright spot for the American brands has been the fourth category – large passenger cars – where they maintain 89 percent market share. Unfortunately, large car sales account for just ten percent of the total car market.¹⁰

The net effect of declining shares for the American brands in light trucks (even though their volume has increased), combined with declining shares (and declining volume) in the passenger car segments, is a decline in the Detroit 3's overall share of the U.S. market. (Chart 4) In 1965 their share exceeded 95 percent. In 1986, their position was 73.6 percent. In 2004, they accounted for just 58.5 percent of the overall market – falling below 60 percent for the first time ever. The trend shows every indication of continuing. Their sales in 2004 fell 1.4 percent for the year to 9.9 million units, after having declined in the three previous years. Perhaps bucking the longer-term trend, Chrysler experienced strong sales in 2004, outpacing overall market growth with a 3.3 percent increase for the year - the only one of the Detroit 3 to post a gain. Chrysler's market share reached 13 percent, up from 12.8 percent in 2003.

Some industry analysts forecast the Detroit 3 share to fall to 50 percent by 2008. Simple trend-line analysis shows Detroit 3 share dropping below 50 percent in 2010. In either case, it won't be long before competitive pressures in the car and truck markets push the traditional American auto companies to less than half the U.S. market. Many analysts note the heavy schedule of new models that are being introduced by foreign competitors, not just in the passenger car segments, but also in light trucks. Citing a report from Prudential Equity Group LLC, The Detroit News shows that the Detroit 3 will be behind in bringing new or redesigned models to market in the near future. By 2007, Toyota will replace 93 percent of its current line-up, Honda will replace 108 percent, and Nissan 134 percent. In contrast, Ford is expected to replace only 73 percent, Chrysler 79 percent and GM 86 percent.¹¹ Analysts also note that even though the initial product quality of Detroit 3 vehicles is approaching parity with that of the Japanese brands, the market seems unaware of this fact. Moreover, long-term reliability is not yet on the same level.

The Japanese brands' share (including both imports from abroad plus units produced within NAFTA) of the U.S. market rose by 1.7 points to 30.6 percent in 2004, on a volume that had increased 7.3 percent to 5.2 million units. (1986 share: 20.6 percent.) Japanese light truck volume inched up again in 2004, reaching 23.6 percent of that market – up almost 200,000 units over 2003's truck sales. This increased marked nine consecutive years of increasing Japanese brand market share in the light truck sector (beginning in 1996), putting increasing pressure on the Detroit 3 in this key market segment. In 1986, at the height of import penetration, Japanese brands held a 20.9 percent share of the light truck market. However, it wasn't all good news for Japanese brands. Mitsubishi sales were in a free fall in 2004, with a decline for the year of 37.1

¹⁰ OAAI relies upon Ward's Communications for most of our industry sales and production data, and for product classifications. Wards has re-categorized the Mitsubishi Diamante and the Toyota Avalon for 2003, moving both to the large car category based on their pricing and physical size. This will automatically result in diminished shares for the American brands in the future. Had this occurred in 2002, the American brand share would have been 85%.

¹¹ Detroit News, February 21, 2005

percent (car sales down 31.6 percent and truck sales down 44.7 percent). Isuzu sales were also off in 2004 (down 10.4 percent), though with sales of only 27,000 vehicles it is a much smaller player in the U.S. market.

Japanese shares of the passenger car segments also have increased. In 1986 their overall share was 20.5 percent. It has risen in almost every year since, growing 2.7 points in 2004 to 39.3 percent. Both Honda and Toyota outsold Chrysler in the U.S. passenger car market for the first time in 1997, supplying 10 percent and 9.9 percent of sales, respectively, compared with 8.9 percent for Chrysler. In 2004, Toyota ranked second overall behind GM, with sales of 1,101,221 passenger cars, narrowly hedging out Ford-brand sales (including Volvo and Jaguar) of 1,018,332 passenger cars. Without Volvo and Jaguar, Ford passenger car sales in 2004 totaled 888,633 units. Honda's 11.2 percent share was fourth highest. Nissan came in fifth, with 7.2 percent of passenger car sales. Chrysler was sixth with a 6.3 percent share. In light trucks, Honda held steady at 5.9 percent of that market. Toyota increased light truck sales by over ten percent, to reach 10.3 percent of that market. Nissan increased light truck sales by over 55 percent, to reach 4.8 percent of the market. Chrysler easily remained the market's third largest truck supplier (behind GM and Ford) with an 18.4 percent (slightly down from 18.5 percent) share, after peaking in 1996 at 24.8 percent.

Industry data show that the portion of the Japanese brand sales that are supplied from their NAFTA plants rose steadily after 1986 (when they accounted for just 11.8 percent of their total), until reaching 67.4 percent in 1996. After that year, however, sales of non-NAFTA manufactured Japanese brands began to increase at a faster rate, resulting in the decline of the NAFTA-sourced share of their sales to 63.8 percent in 2001, and to 62 percent share in 2002. This happened even as Japanese producers began adding significantly to their NAFTA capacity and production. It appears the trend has reversed again. In 2003, the share of Japanese brand sales from NAFTA plants was back up, increasing to 63.9 percent. In 2004, it reached 67.6 percent.

Sales of German brands are advancing rapidly, rising steadily from their 1993 trough of 206,000 light vehicles and a 1.5 percent market share. Their sales increased by an average of 92,500 units per year after that, reaching 853,000 in 2000. They added 28,400 vehicles to their annual total in 2001, and followed up with an additional 33,300 in 2002, producing a volume of 915,000 units and yielding their highest market share in over a decade – 5.4 percent. (1986 share: 3.1 percent.) In 2003, German brands experienced a setback for the first time since 1993, with a decline of 0.2 percent. Their sales continued to decline in 2004, down 3.3 percent to 883,000 units, and a market share of only 5.2 percent (down from 5.5 percent in 2003). The light truck sector is showing the most rapid growth for the German brands, exploding from just under 1,000 units in 1996 to reach 98,900 vehicles in 2001, before slipping slightly to 98,200 sales in 2002. In 2003, German truck sales were up 14.6 percent. In 2004, German truck sales increased even faster, up 31 percent to reach 148,000 units. German car sales hit bottom in 1993 at 200,000 units, then rose steadily to 783,000 vehicles in 2001 and reached 817,000 units in 2002. In 2003, car sales were down 2.0 percent, followed by an 8 percent decline in 2004. Of the four German manufacturers selling passenger cars in the United States, only Mercedes experienced an increase in sales in 2004. Volkswagen was the biggest loser, with a sales decline of almost 17 percent.

U.S. sales of Korean cars and light truck have increased sharply, bolstered by low prices, long warranties, and by an increasingly broad product line-up with markedly improved capabilities, quality rankings, and safety ratings. In fact, in March of 2005, Consumer Reports named the Hyundai Sonata sedan to be the most reliable vehicle for sale in the U.S. market, with only two customer quality complaints per 100 vehicles. This is a dramatic improvement over Hyundai quality in the late 1980's and early 1990's, when low quality threatened to drive Hyundai from the market. After sinking to 109,000 sales in 1992, their volume grew by an average of 56,600 units per year, reaching 618,000 units in 2001. In 2002, sales reached a volume of 650,000 units, generating a 3.9 percent market share. However, 2003 saw a decline of 1.9 percent, to 638,000 vehicles a 3.8 percent share. By 2004, Korean manufacturers had regained their sales momentum, with an increase in sales of 8 percent, to reach a market share of 4.1 percent.

What's Ailing the Detroit 3?

As the Detroit 3's market share continues to slide, much ink has been spilled over one of the companies' largest (and fastest growing) expenses – health care costs. According to the Detroit News (quoting company sources) the Detroit 3 spent \$9.9 billion on health care in 2003. GM spent \$4.8 billion (up from \$3.1 billion in 1997), Ford spent \$3.2 billion (up from \$2 billion in 1997) and Chrysler spent \$1.9 billion (up from \$1.2 billion in 1997). Their foreign rivals spent far, far less leaving the Detroit 3 with a major cost burden. When put into a per-vehicle basis, General Motors spent approximately \$1,400 per vehicle sold in the United States on health care, DaimlerChrysler spent \$1,300 and Ford spent \$1,000. GM has publicly pointed out on several occasions that it now spends more on health care per vehicle than it does on steel.

The root of this problem for the Detroit 3 lies in two parts – the rapidly rising costs (see above) and the heavy burden of legacy costs for retirees. General Motors currently provides for health care for 1.1 million Americans – or about half a percent of the total U.S. population. However, less than 200,000 of those receiving benefits are current GM employees. The rest are either employee dependents or retirees. Ford has similar problems, as they now pay for the health care of approximately 500,000 people.

The health care benefits provided to the Detroit 3's workers, their families and the retirees are the result of negotiated contracts with the United Auto Workers. Generous health care benefit packages were negotiated by both sides when times were better for the Detroit 3 and foreign-brand competition was less fierce in the U.S. market. With the high cost of health care today, the UAW membership would be extremely reluctant (to say the least) in giving up their health care benefits in future contract negotiations. Long-term benefit payouts and advances in modern medicine have left companies like GM paying for more retirees than active employees. As part of the ongoing public debate, GM has made reference to one retiree who is now 109 years old who retired from the company almost fifty years ago. At the time he was a line-worker, few would have expected that he (and others like him) would live so long, or that their health care would cost so much.

The foreign manufacturers do not face these same health care costs, giving them a large cost advantage. Nearly all competitors are based in countries that have national health

care systems, giving companies like Toyota the benefit of a large number of workers for whom health care is already provided. Even those which have production plants in the United States do not face the same kind of legacy costs that the Detroit 3 have. They have far fewer retirees on the books, and most of their plants are not unionized.

A problem of this magnitude for some of the countries' largest companies appears to cry out for a solution. As to what that solution is, the answer is not as obvious. The Detroit 3 seem united in a call for some sort of federal government solution – converting the United States into a “single payer” system like many other countries, and removing the cost from their own balance sheets. Establishing and paying for such a system creates a series of problems all on its own. For example, Canada partially funds its own national health care system with a 15 percent national sales tax, a burden for which the United States and its economy may not be ready. However, some action on the national level has already taken place. In 2004, Congress enacted Medicare reform, which amounted to approximately \$6.6 billion in relief for the Detroit 3 for future obligations. For a company like GM, which projects \$60 billion in obligations for future employee and retiree health care benefits, the expected relief from the Medicare reform removes an estimated \$4 billion from that amount. While useful, it is not an entire solution.

The Industry is as Global as Ever, but M&A Took a Rest

After several years of intense activity on the mergers and acquisitions front, 2004 was a relatively quiet year. In fact, some of the merger activity of previous years has come unraveled in recent months. DaimlerChrysler revised its Asia strategy as its major partner, Mitsubishi, continued to hemorrhage money. DC's share of Mitsubishi dropped from 37 percent to 19.7 percent in 2004, and then to approximately 14 percent at the beginning of 2005. As a part of this process DC also divested itself of its 10 percent share of Hyundai, the junior partner in the alliance. If Mitsubishi fails to put its financial house in order, it may be the next company on the acquisition block.

In 2000, GM entered into a deal with Fiat under which it purchased a stake in that company, and Fiat had the right to require GM to purchase the remainder of the company before 2007 if it so desired. However, after the 2000 deal, both companies experienced declines in their European operations, making the put option seem increasingly desirable for Fiat, but increasingly untenable for GM. For various reasons, in 2004 GM claimed the option was no longer valid, and entered into negotiations with Fiat to cancel the deal. In February of 2005 with a \$2 billion settlement, General Motors was finally able to finalize the divorce. So, while GM and Fiat will continue to pursue projects on a more limited partnership basis, this potential acquisition has to put in the negative column.

The Renault/Nissan merger continues to shine as an example of how combining two automakers can go right. In Japanese fiscal year (JFY) 1999, Nissan experienced a loss of \$5.7 billion. In JFY 2002 (most recent available) Nissan had an operating income of \$4.1 billion. Over the same period, Nissan's global sales are up nine percent and global production is up 15 percent. Nissan's U.S. sales have increased 46 percent between 1999 and 2004, going from 677,212 units to 985,989. The Renault half of the company has also fared well under the merger. Renault net income has increased 565 percent, from 565 million Euros in 1999 to 3,551 million Euros in 2004.

DaimlerChrysler, created by Daimler Benz's acquisition of Chrysler Corporation in 1998, is clearly the biggest player in the U.S. market impacted by major M&A activity. The company is fairing well in the U.S. market. In 2004, Chrysler sales were up 3.3 percent (the only one of the tradition Detroit 3 to increase sales last year). Mercedes-brand sales were up 1.3 percent. However, there are indications that not all is going smoothly in this giant merger of companies. In a possible case of role reversal, the Mercedes half of the company is now reportedly suffering from lapses in quality. In March 2005, Consumer Reports released a new report showing Mercedes-Benz to be second to last place in terms of customer reported complaints. Mercedes' operating profits in the fourth quarter of 2004 were down 97 percent compared to the fourth quarter of 2003.

Given the global mosaic of mergers, looking at the U.S. market based on the traditional old-line brand affiliations doesn't adequately convey the changes taking place in the motor vehicle industry. GM owns Saab and holds significant shares of Isuzu, Subaru and Suzuki. Ford owns 100% of Jaguar, Rover, and Volvo, and a one-third, controlling share of Mazda. Chrysler was acquired by Mercedes, which also owns approximately 14 percent of Mitsubishi Motors. On a group-affiliated basis, GM's effective share of the 2004 U.S. market would be 29.3 percent compared with 27.4 percent on its own. (Chart 5)¹² Ford's share increases to 21.0 percent (vs. 18.1 percent), while DaimlerChrysler's share jumps to 14.3 percent (vs. 13.0 percent).

The global industry's restructuring has slowed, but is probably not yet over. The major American, European and Japanese manufacturers will continue to scout out new prospects because market growth prospects in the developed world are exceedingly modest. Long term, the mature markets are adding no more than 1 percent annually to their ability to absorb additional output. Opportunities in the developing world, on the other hand, are excellent – especially in Asia. However, trade barriers – both transparent and translucent – are everywhere. Thus the world's major manufacturers will continue to pursue local investments, taking local partners if necessary, both as way to obtain access to a market, and as a way to protect themselves once they are in place. They will also continue to look for outright acquisitions, mergers, and non-equity cooperative ventures that could help them share and reduce development costs, production expenses, and marketing overhead.

When the dust finally settles, it is unlikely that there will have been any significant, negative impact upon the United States. For some other countries, the prospects are not so sanguine. Local independent vehicle assemblers in the emerging markets are not likely to remain economically viable, except with the protection of their host countries; and that portends clashes with other governments seeking to expand international trade.

¹² The chart includes only those affiliates controlled by the companies as of 2003. For Ford: Jaguar, Mazda, Rover, Volvo. For GM: Saab, Isuzu. DaimlerChrysler (DCX) controls Chrysler, rather than vice versa (as in the case of GM and Ford). Their group includes Mercedes and Chrysler (DCX owns 14 percent of Mitsubishi but does not control the company.)

China's Rising Place on the World Stage

These arrangements are part of a broader, worldwide mosaic of acquisitions, joint ventures, and alliances that have arisen as the major world players attempt to extricate themselves from the glut of excess manufacturing capacity that exists around the world. Estimates of the excess range as high as 20 million units annually – the equivalent of 80 assembly plants. So far, that surplus has proven to be exceedingly elastic, persistently growing along with – or ahead of – every increase in global demand, so that the surplus never subsides. Nor is it likely to do so in the near future. Price Waterhouse Coopers estimates that global light vehicle assembly will grow by 9.4 million units between 2004 and 2012, an increase of 15.9 percent. The largest piece of that growth will take place in the Asia Pacific region (47 percent of the growth), with 32 percent of growth coming from China alone. Some analysts believe that by 2010, China will be the third largest market in the world, trailing the USA and Japan. One major producer suggests that by 2025, China could be the world's largest market for new motor vehicles.

At present, the vast majority of China's capacity serves the needs of the domestic market. But it is only a matter of time before the joint ventures created by the massive investments in China by the international automotive firms and their Chinese partners begin to look outward. The Chinese market itself continues to perform well. In 2004, China maintained a positive but smaller growth rate when compared to 2002 and 2003. While sales grew at an enviable rate of 15 percent in 2004, the market could not sustain its previous annual growth rates of nearly 40 percent. This decline in the growth rate was due to several factors. The Chinese central government followed policies that tightened credit and slowed the overall economy. The more restrictive consumer loans resulted in less auto buyers. In addition, the market is caught in a cycle of price reductions where consumers expect the price to be lower the longer they wait to buy. The average price declined 15 percent in 2004 due to increased competition and a decrease in tariffs.

Despite a declining growth rate and fears of overcapacity, multinational investment continues. Volkswagen, whose market share has suffered the most from the increase in competition, has announced plans to invest another \$6 billion. GM plans to invest an additional \$3 billion, and DaimlerChrysler \$1 billion. Ford, with a production increase of over 160 percent last year (from a relatively small base) plans to invest an additional \$1.5 billion.

Despite all of the massive new investing taking place in China, imports soon may obtain a larger role, in good measure because of the market liberalizing provisions required of China as the price of its admission to the WTO. Import duty rates that were as high as 220 percent have fallen to 38.8 percent, and are scheduled to drop to 25 percent on July 1, 2006. Quota restrictions are being liberalized and are scheduled for elimination on January 1, 2005. GM has indicated that it hopes to ship as many as 10,000 units a year to China from its Australian subsidiary. It may supplement those shipments with additional volume from India and from North America. Exports to China by all U.S. shippers of cars and light trucks reached \$95 million (3,400 units) in 2004, up 98 percent for the year.

A big story in 2004 was the announcement by independent importer Malcolm Bricklin, the man who brought both Subaru and Yugo to the United States, of his plans to bring Chinese made vehicles to the U.S. market. Partnering with the Chinese firm Chery, he plans to bring seven models to market by 2007, with projections of 250,000 units in sales in the first five years. While many judge this plan to be unrealistically optimistic, other analysts are less quick to write it off entirely. A Chinese auto company is sure to come to the U.S. market eventually, and Bricklin has the experience to make this effort credible. Beyond Chery, other Chinese automakers have announced more vague plans to target the U.S. market towards the end of the decade. Whatever way it occurs, it seems obvious that the products created by developed countries' investments in China will soon be coming to compete directly in the established markets, including the United States.

Changing Products

Not only is the motor vehicle industry continuing to morph into something different, so too are the products they offer, and for much the same reasons – an imbalance between global capacity and demand, especially in key markets. The major manufacturers realize that if their largest markets aren't going to grow significantly any time soon, the only way to increase profits is to take market share from one's competitors. In fact, the 20-year trend for the U.S. suggests that growth in the United States will average, at best, 1% annually for the next several years. From this comes the strategy of fracturing existing markets into new segments. Being first in a new segment usually results not only in quick sales with higher profit margins, but also results in a higher ongoing market share.

Paradoxically, the drive to differentiate vehicles is helping to eliminate the differences that have existed for years between passenger cars and consumer-oriented trucks. Demand is growing rapidly for more upright, more versatile, more comfortable 'cross-over' vehicles that combine the best attributes of passenger cars with the cargo carrying capacity and ruggedness of sport utility trucks. The new breed of cross-over vehicles first appeared in the offerings of the foreign affiliated manufacturers in 1997-98. Honda's CRV, Mercedes' M-Class, Subaru's Forester, and Toyota's RAV4 are early examples. Additional offerings followed quickly, including Ford Escape, Pontiac Vibe, DaimlerChrysler PT Cruiser, Volvo Cross Country, and Subaru Baja. Ward's Automotive Reports recorded just 195,000 'Cross Utility' sales in 2000, but 1.9 million in 2004 (reaching 12 percent of total passenger vehicle sales).

Another evolutionary force is the steadily growing demand for 'green' vehicles that produce significantly lower emissions and significantly better fuel economy. The public's response to the industry's initial offerings in 1997 – typified by GM's first-to-market all-battery EV-1 and Honda's similarly powered EV Plus – is best described as 'underwhelming.' Just 1,400 units in total were sold or leased during 5 years of effort by both firms. Even so, it is clear that a significant market is emerging for vehicles with reduced environmental impact, so long as they do not compromise operating economy, comfort and performance, driving range, or price. Helping to foster their demand are state (especially California) and federal government efforts to mandate improvements in both emissions and fuel economy. The U.S. Department of Transportation, administrators of the federal corporate average fuel economy (CAFE) regulations, raised

the bar for light trucks from 20.7 mpg for model year 2004, and are implementing further changes to 21.0 mpg in 2005, and by an additional 0.6 mpg in 2006 and in 2007.

After pure electric vehicles, the next step in the evolutionary chain was the introduction of 'hybrid' power systems that combine small gasoline or diesel engines with battery packs and electric motors. Initially, the Japanese manufacturers showed the most interest in developing and manufacturing these vehicles. The U.S. automakers expressed doubts about recouping the high cost of development, and chose to focus more attention (and R&D budgeting) on longer-term advanced technology such as hydrogen fuel cell engines. These same high costs make it difficult for the smaller automakers to enter this market. Some of them have preferred to focus on diesel (though not yet in any major way in the U.S. market) which offers high gas mileage, but lacks the high technology cache of the hybrid engine vehicles. Regardless of their initial reactions to the technology, with the strong interest in hybrids shown by American consumers, the Detroit 3 have been working hard to catch up to Honda and Toyota – the market leaders.

Honda was the first to bring this new breed to the U.S. market, offering its 'Insight' in late 1999. A small two-passenger vehicle reminiscent of Honda's mid-1980s CRX coupe, Insight is capable of impressive acceleration and 70 mile per gallon fuel economy. It was joined by a four-passenger version of the Civic in 2002, which sold at a rate of more than 2,000 units per month in 2003. In late 2004, Honda introduced a hybrid version of its popular Accord sedan – the first hybrid to market with a V6 engine. This vehicle has the same outward appearance and dimensions as the standard Accord, but has more horsepower (255 vs. 240) and an EPA fuel rating of 37 mpg highway/29 mpg city, and improvement of 23 percent and 43 percent respectively over the regular V6 model. According to Honda news releases, Civic Hybrid sales were up 17.5 percent to 25,571 for 2004. Counting all three hybrid models, sales for 2004 rose 18.6 percent to a new record of 27,215 vehicles for the year. December sales of Honda's three hybrid models jumped up 97.2 percent to 3,167 units, bringing total Honda hybrid sales to 74,608 since the introduction of the Insight in December 1999.

In 2002, Toyota began offering the Prius, a 4-door, 5-passenger compact that travels 55 miles on a gallon of fuel. In 2002, sales totaled 20,000 units. In 2003, Toyota released the next generation Prius in the U.S. market, a slightly larger vehicle with even greater fuel efficiency (60 mpg city/51 mpg highway). Sales for 2003 hit almost 25,000 units, up 22% from 2002. Sales continued to skyrocket in 2004, with an increase of 119 percent, to reach almost 54,000 units for the year. In April 2005 Toyota plans to begin selling a hybrid version of the Lexus RX330 (the RX400h). Also in mid-2005 Toyota plans the launch of a hybrid version of the Toyota Highlander. These products will help Toyota build on its strong position in the hybrid market by expanding into the key market segment of SUVs with their proven technology. Toyota is also a prime source for hybrid technology for other manufacturers. The company has agreed to a licensing arrangement with Nissan for future vehicles, is reportedly in talks with Subaru, and has licensed technology to Ford (see below).

In 2004 Ford began sales of a hybrid version of its 'Escape' Cross Utility Vehicle (this project was delayed, originally the launch was to have taken place in 2003), hopefully creating a vehicle that meets consumer demand on two fronts. The delay of this launch

into 2004 has taken away what would have been a sizeable head start for Ford in the hybrid SUV market - a potentially costly delay given Toyota's momentum and existing track record in hybrid sales. Interestingly, Ford will be only the second manufacturer to launch a full hybrid (able to run exclusively on either the electric or ICB engine, or both at the same time), but it is licensing Toyota technology to do so. Ford has also announced plans to build a hybrid version of the Mercury Mariner SUV in 2007, along with a sedan at a future date.

GM has announced plans to enter the hybrid arena, bringing a hybrid Silverado pickup truck (and the GMC version - the Sierra) to market in 2005. This is the first hybrid pickup truck for sale in the United States, and is rated at 18 mpg city/21 mpg highway fuel economy (an improvement of ten percent over the conventional engine Silverado, making it the most fuel efficient full-sized truck currently on the market). Designed for use by contractors, the vehicle has four power outlets to plug in power tools, etc. This vehicle uses a "mild" hybrid, similar to that used in the Honda Insight. GM is reportedly working with DaimlerChrysler on developing a "full" hybrid system to be put into production in 2007. GM expects to bring a hybrid version of the Saturn Vue SUV to market for model year 2006.

In December 2004, Chrysler began production of a diesel-hybrid engine version of the Dodge Ram pickup truck. Initial plans are for this vehicle to be available only for fleet customers. Like the GM Silverado hybrid, the Ram will come equipped with power jacks designed with contractors in mind. The Ram hybrid has improved fuel economy of 15 percent over the conventional version of the vehicle.

Given all the hype about hybrid engines, it is important to step back and look at the big picture. In 2004, all hybrid sales in the United States were approximately 88,000 vehicles, or about 0.5 percent of the total market. One study by J.D. Power and Associates estimates that hybrid-engine vehicles will peak out at approximately 3 percent of the U.S. market in 2010. A major limiting factor will continue to be cost, with a hybrid engine adding approximately \$3,000 to a vehicle's price.

There is another technology that promises to revolutionize the motor vehicle industry, with vehicles on the market perhaps as soon as 2020. The industry - with the blessing and cooperation of the federal government - has enthusiastically turned its attention toward much more promising 'fuel cell' power systems. Similar in concept to the technology employed by NASA to provide electric power on the space shuttle, fuel cells produce electricity through a chemical reaction involving hydrogen and oxygen. The electricity energizes motors that turn the vehicle's road wheels. The concept is so promising that an earlier joint project (the Partnership for a New Generation of Vehicles, PNGV), begun in 1994 between the American industry and the U.S. government to develop a five passenger, low environmental impact, 80 mpg motor vehicle, was replaced in January 2004 with the five-year \$500 million 'FreedomCAR' (CAR = Co-operative Automotive Research) project and the companion five-year \$1.2 billion Hydrogen Fuel Initiative (<http://www.eere.energy.gov/vehiclesandfuels/> and <http://www.eere.energy.gov/hydrogenandfuelcells/>)

FreedomCAR is focusing on perfecting fuel cell technology, attempting to drive down the 3-to-1 cost advantage now enjoyed by the conventional gasoline engine-transmission powertrain. The target is a power package no more expensive to produce, no more complicated to service and refuel, and no less powerful – but with significantly better fuel economy (perhaps, 100 miles per gallon equivalent) and much lower emissions. In fact, if pure hydrogen is used the only byproduct is harmless, potable water vapor. Because fuel cells involve no moving parts, and their companion electric motors just a few – compared with hundreds of components in a conventional engine and transmission – fuel cell vehicles (FCVs) promise both greater reliability and longevity, as well as greatly reduced manufacturing complexity. Heavy foundry work (as well as their emissions) and complex machining operations will be greatly reduced, and the industry’s consumption of steel and cast iron should contract significantly.

Proof-of-concept FCVs already have been assembled not only in America, but also in Europe and Japan. A small number are now on public roads, being used for validation and demonstration purposes. For example, General Motors announced plans in early 2005 to increase its U.S. fleet of fuel cell vehicles to 40 by 2008, by introducing 13 more minivans to operate in the North East corridor. GM forecasts that it will have a commercially viable fuel cell vehicle by 2010 (though when that vehicle will come to market is another question). Many independent analysts do not see fuel cell vehicles having a major presence on U.S. highways before 2020.

Even assuming all the technical issues in fuel cell engines are resolved (including limited range, extremely high costs, remaining difficulties in starting in cold weather), there are other problems waiting in the wings. One of the major obstacles for GM, along with every other manufacturer working on fuel cell driven vehicles is the development of a hydrogen infrastructure. There are many independent, and sometimes overlapping projects underway to help with this development. Both Florida and California have publicly stated goals to be leaders in the development of infrastructure, with both states working with Chevron to break ground on hydrogen refueling stations. GM is working with Shell to create an “East Cost Hydrogen Corridor”, setting up refueling stations in Washington, D.C. (already open), New York and a location to be named between the two. Still, costs of a national system are daunting, with Shell estimating a price tag of \$20 billion (other estimates range as high as \$40 billion) to create the minimum needed infrastructure to make fuel cell (or other hydrogen powered) vehicles a reality in the U.S. marketplace.

Production Dips Again, but Everyone Keeps on Trucking

Eleven manufacturers produced cars and light trucks in the United States in 2004 – BMW, DaimlerChrysler, Ford, General Motors, Honda, Isuzu, Mazda, Mitsubishi, Nissan, Subaru, and Toyota. A twelfth, Hyundai will join the ranks for 2005. In 1999 production reached an all time high of 12.6 million vehicles. Volume dipped to 12.4 million vehicles in 2000, before skidding to 11.2 million units in 2001 on the heels of the terrorist strike and industry efforts to control inventory. In 2002, production gains were sufficient to generate the third highest volume on record – 12 million units, an increase of over 7 percent for the year. However, 2003 and 2004 saw declines. Production for 2004 declined 1.9 percent to 11.6 million units. (Table 6)

In 2003 the Big-3's share of U.S. passenger car production fell below 60 percent for the first time, accounting for only 57 percent. In 2004 the fall continued, with Detroit 3 share of car production reaching 52.7 percent. (In 1986, U.S. producers accounted for nearly 95 percent of car production.) Conversely, in 2003 the Japanese broke 40 percent for the first time, accounting for 41.8 percent of the total car production market. In 2004, Japanese producers claimed 46.5 percent of U.S. car production. (In 1986, Japanese producers accounted for only 4.1 percent of the car market.) Moreover, while the U.S. producers remained dominant in light truck production, their share slid from nearly 84 in 2003 to 81.4 percent in 2004. The Japanese are making steady inroads into the truck segment, reaching 16.1 percent of production in 2004 (up 20 percent from the previous year).

Beyond the Big 2 – Investment Continues

Recent transplant projects include expansions by each of the major Japanese and German manufacturers, and the arrival of the Korean manufacturer, Hyundai.

In response to high demand in the U.S. market for light trucks, Toyota began construction during 2004 on a vehicle plant, located near San Antonio, Texas. It is slated to produce Tundra full-size pickup trucks, with an annual capacity of 150,000 units, and a projected investment of \$800 million by 2006. Employment at the plant is anticipated to be 2,000 direct jobs, with possibly up to an additional 14,000 jobs, based on the plant's supplier base. Upon its completion in 2006, this will be Toyota's 6th North American vehicle plant¹⁰. In addition, the anticipated supplier park for the San Antonio facility is expanding beyond the original plan, and it appears to be close to twenty on-site suppliers, adding over \$150 million more in investments.

Toyota also continues to localize parts production. For example, Toyota's Buffalo, West Virginia engine plant will begin gear production (which is currently done at a Toyota facility in Japan), in 2006. Toyota's Jackson, Tennessee engine-casting plant is expected to be operational during 2005, and its Huntsville, Alabama engine plant added capacity to meet North American demand. Toyota is also reportedly considering more capacity in the United States. Recent press reports indicate that Toyota is looking into the possible production of one of the three SUV models that are only produced in Japan (Highlander, 4Runner and RAV4), to be produced in the United States, with new engine and transmission plants being a part of any plan. Toyota also expects to decide by Summer 2005 where in North America to add production of a hybrid vehicle.

Toyota is also expanding and consolidating its R&D facilities. For example, in April 2004, Toyota also began construction of a testing and analysis lab at its North American headquarters in Erlanger, Kentucky. The \$15.6 million addition will serve as the center

¹⁰ Toyota celebrated the grand opening of its Tijuana, Mexico plant on February 1, 2005. The plant currently employs nearly 700, and began production of Tacoma truck beds in August 2004 and Tacoma trucks in December 2004. At full production, the \$140 million plant will manufacture 180,000 truck beds and 30,000 Tacoma vehicles per year. The truck beds are used in production at both the Mexico facility and the New United Motor Manufacturing Inc./NUMMI (joint venture of Toyota and General Motors facility in Fremont California. NUMMI celebrated its 20th anniversary in 2004.)

for parts, components, materials testing and warranty-claim analysis and to help integrate suppliers into design and manufacturing. In addition, Toyota is seeking an expansion and for its Ann Arbor Technical Center in order to become more self-sufficient in manufacturing, engineering and product development in North America. This proposed \$195 million facility expansion would include a test track.

In December 2004, Toyota announced its plans to consolidate its North American Engineering and Manufacturing into one company, called Toyota Motor Engineering and Manufacturing North America (TEMA). It will be launched during the first half of 2006. TEMA will operate three centers: the Toyota Technical Center will continue to direct R&D activities from Ann Arbor, Michigan; the Toyota Operations Center will oversee Toyota's manufacturing locations in North America from Erlanger, Kentucky; and the Toyota Planning Center will oversee planning and administration from Erlanger, Kentucky. TEMA will reportedly utilize existing facilities and workforces and there are no plans for a new building to house the combined company. The workforce of the combined organizations, including manufacturing operations, will be approximately 27,000.

During 2004, Honda celebrated the 25th anniversary of its first U.S. manufacturing plant. Honda is also responding to the growing demand of trucks in the U.S. market. For example, Honda Manufacturing of Alabama (HMA), located in Lincoln, is devoted to minivan and more recently, SUV production. In March 2005, HMA celebrated the completion of its 500,000th vehicle and V-6 engine. Total investment to date at this facility is approximately \$1.2 billion. HMA currently employs more than 4,300 workers, and is now the sole North American production source of the Odyssey minivan. In April 2004, HMA's Line 2 facility began production of the Honda Pilot sport utility vehicle (SUVs) and is now capable of building both Odysseys and Pilots on the same line. (Line 1 is dedicated to Odyssey production, but has reached full capacity at 150,000 units, so the Odyssey is also produced on Line 2, in order to meet demand.) Combined production on two assembly lines currently totals more than 1,100 Odyssey minivans and Pilot SUVs each day. At full capacity, HMA will produce a total of 300,000 vehicles and V-6 engines each year. Considering the differences between the two vehicles (a two-wheel drive minivan and a four-wheel drive SUV), this is a major manufacturing achievement.

Also during 2004, Honda demonstrated its manufacturing flexibility by shifting a portion of its Accord sedan production from its Marysville, Ohio plant, to its East Liberty, Ohio plant. Moreover, Honda recently unveiled big plans for its Ohio auto plants. In 2006, it will begin production of the CRV SUV at East Liberty and an all-new Acura SUV at Marysville. Honda decided to move CRV production from the United Kingdom to the United States in order to meet increasing U.S. demand. CRV production will also continue in the U.K. to meet European demand. Honda will also start production of its new sport utility/pickup truck, the Ridgeline, in Alliston, Ontario Canada, in early 2005.

Honda's localization of parts production also continues. For example, in November 2004, it announced plans to build a \$100 million plant in Tallapoosa, Georgia, to produce automatic transmissions as part of a broader North American Powertrain Strategy. The plan also includes significant investments to add production of high precision gears at a Honda transmission plant in Ohio, and key engine components at a Honda engine facility

in Alabama. In all, Honda will invest \$270 million and create 600 jobs across three states¹¹. Honda's first U.S. powertrain operation— the Anna, Ohio Engine Plant, completed a \$20 million expansion in July 2003, adding a new assembly line that further increased its flexibility to produce both 4-cylinder and V6 engines. The Anna plant now has a capacity of 1.16 million engines per year. Together, Honda's Ohio and Alabama engine plants have annual production capacity of 1.46 million automobile engines and supply all Honda and Acura vehicles produced in North America.

In January 2004, the first U.S.-built Nissan Infiniti rolled off the line in Canton, Mississippi. By June 2004, Nissan built its first Altima at its expanded Canton, Mississippi plant. The addition, slated for 150,000 units annually, brings that plant's capacity to 400,000 units and supplements Altima production at Nissan's Smyrna, Tennessee facility. The Canton plant also builds the Titan fullsize pickup truck, the Quest minivan, and the Pathfinder Armada fullsize SUV.

In August, Nissan's Powertrain Assembly Plant in Decherd, Tennessee, launched production of a V-6 engine for the first U.S.-built Pathfinder SUV. This engine will also be featured in the '05 Frontier pickup and '05 Xterra SUV. Decherd has an annual capacity for 950,000 engines, as well as 300,000 transaxles. It supplies all the engines for Nissan and Infiniti vehicles built in the U.S. at Nissan's Smyrna and Canton plants. Nissan also announced a \$47.3 million expansion to add crankshaft forgings for the engines it manufactures for all Nissan and Infiniti vehicles built at the companies two manufacturing plants at the Decherd operation. Some of the forgings will be exported to Nissan's Mexico plant. This investment is expected to add another 70 employees to the facility. The Smyrna plant launched Pathfinder output in August 2004, marking the first time the vehicle has been built in North America, and adding to Smyrna's roster of models, which includes the Maxima, Altima, Frontier and Xterra. With the addition of the Pathfinder, Smyrna's annual output rises to 550,000 units. In early 2005, Nissan announced it may export to China from this plant.

Mitsubishi experienced a difficult year during 2004, and is making efforts to restructure. Over the year, operations at its Normal, Illinois plant have undergone incremental cutbacks—in production, jobs and shifts. Production consolidation will be key to upcoming Mitsubishi models. In September 2004, Mitsubishi revealed the name of its new truck: "Raider", and announced that its new Eclipse will offer more powerful engines, and many interior upgrades to appeal to potential customers.

Production by the German manufacturers has also been growing steadily. For example, in 2003, BMW and Mercedes assembled over 250,000 light vehicles in the United States, up 18 percent from the previous year. However, during 2004 this declined nearly 13 percent, totaling only 218,472 units.

Nevertheless, BMW has big plans for its sole U.S. plant in Spartanburg, South Carolina. The facility will move from a 2-line operation to a single line in early 2006, paving the

¹¹ The Georgia plant will begin assembly in Fall 2006. At full capacity, the plant will employ 400 workers and produce 300,000 transmissions a year. The Ohio investment totals \$100 million and will add 100 new jobs, while the Alabama investment totals \$70 million and will also add 100 new jobs

way for production of another model in addition to the X5 and Z4 already built there. (This is particularly extraordinary in the manufacturing realm, since the X5 (a large SUV) and Z4 (a small roadster) are not built on the same platform.) Therefore, BMW plans to idle its plant in late 2005 to make the conversion, and is expected to resume production by mid-January 2006, providing BMW with greater seasonal flexibility on model choices. It is uncertain which additional model(s) will be built, but since the 3 and 5 series are amply produced in Germany and South Africa, it is more likely the additional product(s) for this facility will be the X3 replacement or another Cross Utility Vehicle. Since its construction in 1993, BMW has invested more than \$2 billion in its Spartanburg facility to meet global demand. This facility currently has the capacity to produce 150,000 vehicles a year.

Since 2001, DaimlerChrysler has invested \$600 million to expand its Tuscaloosa, Alabama plant and double capacity from 80,000 to 160,000 vehicles per year. (This investment brings total capital investment in Tuscaloosa to more than \$1 billion.) The plant expansion is nearly complete. This plant was the first Mercedes passenger vehicle plant outside of Germany. The plant currently employs 3,400 people, with the workforce expected to grow to 4,000 by 2006. Mercedes ended output of its current-generation M class SUV in late 2004, and the redesigned '06 M-Class began production shortly thereafter. Production of the new Mercedes-Benz R-Class Grand Sports Tourer is expected to begin in early-to-mid-2005.

For the second year in a row, the prestigious Harbour industry-consulting group, named the Chrysler Group as the most improved local automaker in manufacturing efficiency. As part of its continuing efforts to improve, the Chrysler Group announced in August 2004 that it plans to pursue an innovative manufacturing project in Toledo, Ohio, that will reportedly feature the most advanced use of supplier co-location yet in North America. Part of a \$2.1 billion total program investment, the project will produce a family of future cars for sale worldwide. The plan consists of co-locating three suppliers within the manufacturing plant -- specifically the body, paint and chassis operations. It is hoped that this flexibility will enable multiple products to be built on the same assembly line, as well as the ability to react quickly to changing market demands.

Moreover, Chrysler is investing \$113 million to bring its popular Stow 'n Go seating and storage system to its St. Louis South assembly plant in Missouri. Having been made exclusively at its Windsor Ontario, Canada plant, Stow 'n Go minivans are now set to begin production in St. Louis in early 2005. In addition, the all-new '05 Jeep Grand Cherokee rolled off the assembly line at Chrysler Group's Jefferson North plant in Detroit, Michigan, culminating three years of development and \$241 million in capital investment at that facility. The upgraded facility also began pilot production of the larger Jeep Commander SUV in late 2004. Based on the success of its rear-wheel-drive LX cars (Chrysler 300 Series and Dodge Magnum), Chrysler is also reportedly considering another LX plant to assemble future variants of the platform should demand remain high.

In tandem, Chrysler slowed its production at its Sterling Heights, Michigan plant. The Chrysler Sebring and Dodge Stratus sedans, launched in 2001, and Sebring convertible, are approaching the end of their lifecycles. The plant is expecting new product in 2006, based on the D-segment platform jointly developed with Mitsubishi Motors Corp.

Furthermore, in February 2005, the Chrysler Group concurrently unveiled Dodge concept vehicles on both sides of the Atlantic, indicating its intention to expand Dodge into the global automotive market.

Volkswagen's luxury division, Audi, is reportedly considering building a factory in the United States. While there are no immediate plans, annual volumes could be as low as 50,000 units; but even at this low volume, anticipated plant investment would be between \$600 to \$800 million.

Korean manufacturer Hyundai is the newest arrival in the United States. Hyundai's Montgomery, Alabama plant is scheduled to open in May 2005, and will initially produce the all-new NF Sonata sedan. Total investment to-date is \$1.1 billion. The second model for this facility will be the next-generation Santa Fe CUV, which is expected to begin production in January 2006. Beyond this, Hyundai is reportedly considering a fullsize pickup for the U.S. market. Korean manufacturer Kia, (Hyundai has controlling interest in Kia), has stated that it wants a U.S. manufacturing plant by the time its annual volume hits 300,000 units (Kia sales reached 270,000 units in 2004, up 14 percent from 2003). It is reportedly considering both fullsize pickups and sporty convertible segments for production. Apparently, it is not a question of if, but when this plant will be built in the United States. Looking for ways to brand differentiate, Hyundai will reportedly focus more on unibody frames while Kia will focus more on body-on-frame vehicles.

Hyundai's Ann Arbor, Michigan Tech Center is scheduled to open during the second quarter of 2005. The Tech Center represents a \$117 million investment over two phases, \$56 million of which is dedicated towards construction. Officials say that it is also expected to provide 85 new job positions during the first year, and potentially 750 more down the road. This facility will take the place of an older facility built in 1986 that was dedicated to emissions work on U.S. products. Therefore, this facility upgrade represents Hyundai's increasing commitment to longevity in this market.

Plant Capacity Stable, Utilization Rates Mixed

Industry data show that U.S. light vehicle manufacturing capacity – the number of units that can be built annually – has shown a solid increase over the last decade, up from 12.6 million units in 1993 to 13.4 million units in 2003 (2003 was down 0.5 percent from 2002), due primarily to expansion by the Japanese affiliates – an expansion that is slated to continue. For example, Toyota began production of pickup trucks in late 2004 at its new plant in Mexico. In 2006, Toyota expects to begin production at a new facility in Texas, and in early 2005 Toyota announced plans for a possible seventh North America production plant (also see “Transplant Battle Plans” above). The Census Bureau's Census of Manufacturers confirms the trend of expanding U.S. capacity. (Table 8) From 1997 through 2002, car and light truck manufacturers reported investing \$28.1 billion in the United States for new industrial machinery, equipment, and the structures to house them. Some of this investment was used to replace obsolete facilities, but most was used to create additional and more efficient capacity.

Industry data show that average straight time vehicle assembly plant capacity utilization rates in the United States have routinely exceeded 80 percent – the level that many

industry observers believe to be optimal. 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 2000, the industry's rate was 90 percent in the car plants and 99 percent for light truck plants. Harbour reports that utilization rates then declined in 2001 – cars dropped to 80 percent; trucks to 87 percent. However, in 2002, rates were back up, with car plants at 87 percent and light trucks at 92 percent. In 2003, utilization rates at car plants dropped almost ten points, falling to only 78 percent. Capacity utilization at truck plants was up slightly in 2003, reaching 94 percent. 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 7)

The Federal Reserve Board (FRB) also measures plant capacity utilization. By FRB measures, plant capacity utilization reached a peak of 99 in May of 2000, followed by a general decline. After reaching 75.2 in January of 2001, utilization increased and has remained in a range of the mid 80s to the low 90's since. It reported autos and light trucks (NAICS 33611) as being at 84.6 percent in December of 2004¹².

Employment Continues to Slide

Direct employment in the domestic motor vehicle assembly industry (NAICS 33611) was down in 2004 to 221,800 employees (down five percent from 2003). This number has slipped considerably from its most recent highwater mark of 251,300 persons in 1995. (Table 9) American vehicle assemblers are cutting their remaining employment rosters to reflect their declining share of the domestic market. General Motors and Ford are both in the midst of restructuring plans, including plant closures. Even though they are building new plants and expanding some of their existing NAFTA plants, Detroit 3 employment will shrink as these facilities become more efficient. The U.S. plants of the Japanese and German manufacturers are continuing to add to their U.S. employment rosters, but their additions may not be sufficient to offset the Detroit 3's reductions.

Accompanying the decline in the industry's employment has been the steady improvement in efficiency on their production lines, but not in the 'back office' of management, marketing, and engineering. According to Bureau of Labor Statistics' data, productivity gains – measured as the number of vehicles assembled per production worker – have increased sharply, rising from an average of 44.1 in 1990 to 64.1 in 2004, a gain of 45 percent. When measured only against salaried worker employment, however, the trend is in the opposite direction – dropping from 415.6 units to 280.7 units, a 33

¹² 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

percent reduction. The net effect has been to limit the overall, corporate productivity gain to an increase of 30.7 percent spread over 14 years, growing from 39.9 units per employee to 52.1 units. Put more directly, while production employment has declined by 16.4 percent from 214,900 workers in 1990 to 180,500 in 2004, salaried employment has increased by 80.3 percent, growing from 22,900 in 1990 to 41,300 in 2003.

While the number of employees in the industry shrinks, the remaining jobs continue to pay well. (Table 10) According to the U.S. Census Bureau's 2002 Economic Census, wages alone were worth \$12.9 billion in 2002, while fringe benefits added an additional \$7.4 billion to the total earned by all employees in the car and light truck assembly industry. BLS data also indicate that motor vehicle production workers (NAICS 33611) remain among the highest paid in the U.S. economy. Their average hourly rate (excluding benefits) was \$29.05 in 2004 – 80 percent higher than the average wage for all manufacturing workers.

Trade Overview

From the very beginning of the automobile industry, the vastness of the American market and the profits that can be generated from it have provided little incentive for domestic manufacturers to focus upon exporting in any significant way. Moreover, the vehicles they have become accustomed to designing to compliment the wide-open spaces and low energy expenses of the American market hold only limited appeal for buyers in most other countries. On the other hand, the vastness of the American market and the profits that can be generated from it, provide a great deal of incentive for foreign manufacturers to enter the American market.

The result should not surprise – the United States suffers the world's largest imbalance in light vehicle trade. It is the natural result of the world's most profitable market serving as a magnet for shippers in approximately 50 countries who face no non-tariff barriers in the United States, and duty rates that have only limited impact upon pricing in the American market, magnified by foreign government practices that have encouraged and entrenched local manufacturing operations, while discouraging large volumes of vehicle imports. Consequently, and despite ongoing U.S. government efforts to break down trade barriers around the world, it is unlikely that the United States will generate a surplus in its light motor vehicle trade in either the near or the medium term.

The U.S. light motor vehicle trade deficit has climbed relentlessly between 1989 and 2002. In 2003, the deficit was down slightly (2 percent) to \$101.4 billion. (Chart 9) However, in 2004, the deficit was up again, rising 4.6 percent to a new record high of \$106 billion. Light vehicle exports have actually performed well over the last few years, up 15 percent in 2002, up 9.5 percent in 2003 and up 10 percent in 2004. But given the massive size of the other side of the ledger, even modest gains in imports extend the deficit (imports were up 6.2 percent in 2002, 0.2 percent in 2003 and 5.7 percent in 2004).

Between 1989 and 2001, U.S. imports rose and fell in close harmony with the domestic market's pace of expansion and contraction. That relationship was broken in 2002, however, when imports advanced even though the market fell. In 2003 imports were up

again (0.2 percent) in another declining market. In 2004, the market was up 1.3 percent, but import growth out-paced the market - up 5.7 percent. (Chart 9) The 2004 deficit was more than twice as large as the 1986 deficit, when 'true imports' (i.e., all vehicles from abroad, including those received from Canada and Mexico) reached their all-time peak share of the light vehicle market of 44%. (Chart 10) In 2004, true imports were the equivalent of 42.5 percent of the market – nearly back to the record high.

Trade with our NAFTA partners, Canada and Mexico, accounted for 40 percent of the 2004 light vehicle trade deficit, up from 2003's 38 percent. Trade with just three more countries – Japan, Korea, and Germany – represented all but six percent of the remainder. (Chart 11) The deficit with Japan continued to dominate – hitting \$31.7 billion, or 30 percent of the total deficit in light vehicle trade.

Exports Up Nicely. . .

The United States is the world's fourth largest automotive exporter, mostly because of shipments across the borders to Canada and Mexico. Shipments of new passenger vehicles and of light trucks from the United States grew by 55% between 1989 and 2004, reaching a volume of 1.5 million units. (Chart 12) As a share of light vehicle production, exports increased from 9% in 1989 to their highest level of 12.9 percent in 2004. If shipments to Canada and Mexico are excluded, exports accounted for nearly four percent of production in 2004.

Total U.S. light vehicle exports reached 196 countries in 2004, producing a total of \$30.1 billion – a healthy 10 percent gain for the year, and more than twice the volume of shipments in 1989. The 2004 top five markets – Canada, Mexico, Germany, Saudi Arabia and the UK – absorbed 80 percent of all U.S. outbound shipments, repeating a long-standing pattern. (Table 11).

In 2004 U.S. outbound shipments to Canada were down 0.9 percent to \$15 billion. However, Canada remains the top destination for U.S. light vehicle exports by far. Exports to Mexico were up 25.3 percent, but this was not enough to put it back in the number two slot – the position still held by Germany (up 1.5 percent). Exports to Germany totaled \$3.998 billion, while exports to Mexico totaled \$3.996 billion. Still, Mexico is far above its pre-NAFTA levels, when it was not even in the top 15 export destinations.

After a period of growth, shipments to the UK were down 32.8 percent in 2004. Exports to Saudi Arabia were up 58 percent to \$1 billion, placing them above Japan's level of \$487 million, keeping Japan out of the top five destinations.

. . . but Imports Still Dominate

Passenger vehicle and light truck imports reached \$136.1 billion in 2004, climbing 5.7 percent over 2003, reaching yet another new record high, and making three consecutive years with record setting imports. (Table 12) The United States imports more vehicles by volume and value than any other nation, in part because of shipments from plants in Canada and Mexico (our NAFTA partners account for 44.7 percent of U.S. light vehicle

imports, up from 44.1 percent in 2003). Along with Germany, Japan, and Korea, these five countries account for over 90% of all U.S. light vehicle imports. The first four have been our primary suppliers for well over a decade. Korea has moved in and out of the top five group, first breaking into the ranks in 1989, with the help of 'captive imports' from GM and Ford. Korea regained 5th place in 1999, this time without GM and Ford, and has held that position ever since. Korea could rise in the rankings in the next few years, as both GM and Suzuki began in 2003 to source vehicles from their new joint venture there, while Hyundai and its Kia subsidiary continue to develop a strong presence here. However, there is still a fair bit of distance between the \$10 billion in imports from Korea and the \$17.4 billion in imports from Mexico.

Germany was the primary source of U.S. light vehicle imports in 1965, while Canada was distant third behind the UK. Canada rose to the top in 1970 on the strength of Detroit 3 plants in that country. In 1976, Japan – aided by the first 'oil shock' in 1974 – had moved well ahead of everyone else. It didn't relinquish first place until 1993 when Canada again became, and remains, our primary import supplier. Detroit 3 plants in Canada have been joined by Toyota and Honda, and by a joint venture between GM and Suzuki. In 2003, Germany displaced Mexico, moving up to the number three slot – a position it continued to hold in 2004.

The import statistics for our primary import sources were mixed in 2004. While imports from Canada were up 12.9 percent in 2004 (reaching \$43.4 billion), imports from Mexico were down 4.7 percent (reaching \$17.4 billion). Imports from Japan held virtually steady, up 0.1 percent. Imports from Germany were up marginally, increasing 3.2 percent to \$20.3 billion. Imports from Korea were up massively, posting a 26.5 percent gain, reaching \$10 billion – far outstripping 2003's record imports of \$7.9 billion.

In 2003, the United States and Australia concluded negotiations on a free trade agreement, which includes the removal of the U.S. truck tariff. In 2004, U.S. imports from Australia were up 188 percent, reaching \$400 million dollars. As manufacturers adjust product plans, it is likely that this number will continue to rise. The agreement will also lead to increased U.S. exports to Australia.

NAFTA – Entering a Second Decade

In 1994, the United States, Canada, and Mexico entered into an historic undertaking to liberalize trade among the three nations. In the years following implementation of the North American Free Trade Agreement (NAFTA), shipments of new passenger vehicles and light trucks between the United States and its two partners have grown tremendously. In 2004, cross-border trade hit a new record high, reaching \$79.8 billion. In the year before NAFTA, two-way shipments were \$36.5 billion – less than half the 2004 total. Most of the growth in trade during this period was the result of increased imports by the United States, which rose from \$28.4 billion in 1993 to 2000's peak of \$61.7 billion. Most of the increase in 2004 can be attributed to increased imports from Canada, up almost \$5 billion (a 12.9 percent increase). However, exports to Mexico were also up, increasing almost \$1 billion (up 25 percent).

In 2004 imports from Canada and Mexico reached \$60.8 billion – more than double the size of 1993's sum. U.S. exports also have more than doubled, growing from \$8 billion in 1993 to \$19 billion last year. The United States continues to experience deficits with both countries. However, their combined share of the U.S. global deficit in these products has declined steadily, dropping from a high of 54 percent in 1996 to 39.5 percent in 2004 (up slightly from 2003). (Chart 13)

Most trade in automotive products between Canada and the United States was liberalized by two bilateral agreements enacted well before the NAFTA agreement was implemented. Therefore, little of the growth in trade between the two countries can be attributed directly to the NAFTA agreement. Bilateral trade with Canada in these products, \$32.8 billion in 1993, reached \$58.4 billion in 2004. U.S. exports have increased by 88 percent to \$15.0 billion, while imports from Canada grew 75 percent above 1993's total to \$43.4 billion.

Before NAFTA was enacted, exports to Mexico from the USA 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 2004, U.S. exports to Mexico totaled \$4 billion, 42 times greater than shipments in 1993. Mexico displaced Japan as our second most important international market in 1997 (though it fell to number three [behind Germany] in 2003 and remained in that position in 2004). 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 U.S. without being subject to artificial import and local production constraints.

Imports from Mexico have grown rapidly since the agreement was signed, climbing from \$4.5 billion in 1993 to a total of \$17.4 billion in 2004. Because the U.S. border was already open to Mexican imports before the trade pact was signed, it would be a mistake to attribute this surge to the NAFTA agreement. In fact, of the two, only the growth in U.S. exports can be directly credited to the agreement, since the only change in cross border market access has been 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%, were voluntarily eliminated by Mexico on January 1, 2003, one year ahead of schedule.

The point bears repeating: NAFTA is responsible for a significant surge in U.S. automotive exports to Mexico. Conversely, our imports from Mexico would have risen even in the absence of the agreement, since the U.S. motor vehicle market has experienced an unprecedented period of strong sales that happens to coincide with

implementation of the agreement. The strength of the U.S. domestic market, not the agreement, is the primary factor 'responsible' for drawing in imports of motor vehicles not only from Mexico, but from all over the world.

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 has increased in all three countries since 1993, rising from a total of 16.7 million units to 18.0 million vehicles in 2003. (Chart 14) Capacity has grown the fastest in Mexico, and was 14.4 percent higher in 2003 than in 1993. However, the increase has been from a relatively smaller base. U.S. capacity in 2003 was 6.3 percent greater than in 1993, but the absolute increase of 798,000 additional units, nearly triple Mexico's 206,000-unit increase.

Largely as a result of Detroit 3 plant closures and capacity adjustments, overall capacity in North America was down 1.6 percent in 2003 compared to 2002. Mexico was the biggest loser, with capacity down 9.5 percent, followed by Canada with a 1.7 percent decrease and the United States with a 0.5 percent decrease. In unit terms, Mexico lost 173,000 units of production, followed by the United States down 65,000 units, and then Canada down 52,000 units.

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 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%. (Chart 15) By the end of the second year, capacity had increased the most in Mexico – 15% – 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. (Chart 16) 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 three years, dropping to 85 percent in 2003. The U.S. rate, 84 percent in 1993, was 86.7 percent in 2003. Capacity utilization in Canada was in line with the other NAFTA countries, reaching 85 percent in 2003. Between 1993 and 2003, the overall utilization rate averaged 90 percent in U.S. plants, and 87 percent in Canadian plants and 82 percent in Mexican plants.

According to Harbour Reports' data, most light vehicle production in each of the three countries is accomplished in the plants of the American Detroit 3. (Chart 17) In 1993

they accounted for 81 percent of all NAFTA production. Since then, their share has fallen almost every year, reaching only 72.5 percent in 2003 – a decline of almost a point a year in share. Detroit 3 production in Canada has been relatively stable over the last ten years, achieving a slight bump up in the late 1990's, but returning to an almost identical level in 2003 as in 1993 (1993 production 1.86 million, 2003 production 1.85 million units). Detroit 3 share of Canada's production has fallen from 84.5 percent in 1993 to 73.4 percent. In Mexico, Detroit 3 production increased between 1993 and 2000, going from 643,000 units to 1.1 million units. However, from 2000 to 2003, their production in Mexico declined, falling back below a million units to 916,000 vehicles. Their share of Mexican production peaked in 1996 at 72.8 percent, but had fallen to 58.5 percent by 2003. Detroit 3 production in the USA has shown a much greater degree of fluctuation, rising from 8.8 million in 1993 (an 82.3 percent share of local production) to a peak of 10 million units in 1999 (79.7 percent), falling to a low of 8.5 million units in 2001 (76.4 percent). 2002 saw a recovery to 9.2 million units (77.3 percent share). However, in 2003 Detroit 3 production was back down, to 8.5 million units, for a share of only 74.2 percent.

Summary

U.S. light vehicle sales reached 16.8 million units in 2004, reversing 2003's decline. 2004 was the fourth highest sales level on record. Many analysts' forecasts for 2005 indicate a stable to slightly down market.

Even as the Detroit 3 continued to spend record levels on incentives and special rate financing, their market share continued its long-term decline. In 2004, they accounted for just 58.5 percent of the overall market – falling below 60 percent for the first time ever. Most analysts predict this decline will continue, likely pushing the traditional American brands below 50 percent of the U.S. market in the next five to eight years. Following a decline in 2003, light vehicle production decreased again in 2004, down 1.9 percent to 11.6 million units. Production is forecast to increase moderately in 2005.

The U.S. automotive trade deficit continued to worsen, reaching a new record in 2004 of \$106 billion. Even though exports were up for the third year in a row, they continue to be swamped by rising imports. There is no reason to expect a reversal of this trend in the near future.

Prepared by: Scott Kennedy/Office of Aerospace and Automotive Industries/Automotive Industries Team

– INDUSTRY TABLES –

Table 1

Total U.S. Motor Vehicle Registrations (Millions)			
	Cars	Trucks	All Vehicles
1999	132.4	83.1	216.3
2000	133.6	87.1	221.5
2001	137.6	92.0	230.4
2002	135.9	92.9	229.6
2003	135.7	94.9	231.4
Source: U.S. Department of Transportation			

Table 2

U.S. Cars and Trucks Registrations per:						
	1998	1999	2000	2001	2002	2003
1,000 Residents	780	791	784	819	796	793
1,000 Driving Age (16yrs & older)	1,013	1,024	1,017	1,061	1,027	1021
1,000 Licensed Drivers	1,140	1,152	1,158	1,205	1,182	1176
Derived from U.S. Department of Transportation/U.S. Census Bureau data by U.S. Department of Commerce/Automotive Industries Team						

Table 3

Median Age of U.S. Operating Fleet (Years)						
	1996	1997	1998	1999	2000	2001
All Cars	7.9	8.1	8.3	8.3	8.3	8.1
All Trucks	7.7	7.8	7.6	7.2	6.9	6.8
Source: The Polk Company via Ward's Automotive Yearbook						

Table 4

U.S. Motor Vehicle Sales (Millions)							
	1998	1999	2000	2001	2002	2003	2004
Cars	8.1	8.7	8.8	8.4	8.2	7.6	7.5
Light Trucks	7.4	8.2	8.5	8.7	8.7	9.0	9.3
Total LV	15.5	16.9	17.3	17.1	16.9	16.6	16.8
Med/Heavy Trucks	0.4	0.5	0.5	0.4	0.3	0.3	.4
Total All	16.0	17.4	17.8	17.5	17.2	16.9	17.3
Source: Ward's Automotive Reports							

Table 5

Consumers' Expenditures (PCE) (Billions of Current Dollars)							
	1998	1999	2000	2001	2002	2003	2004
Cars, New	87.9	98.4	105.5	105.9	103.2	97.3	97.1
Light Trucks, New	86.8	97.8	102.6	121.8	137.8	168.7	172.8
Total, New	174.7	196.2	208.1	227.7	241.0	266.0	269.9
Net, Used Autos	54.9	57.7	59.4	60.6	58.6	48.3	52.9
Total	229.6	253.9	267.5	288.3	299.6	314.3	322.8
Source: U.S. Bureau of Economic Analysis							

Table 6

U.S. Motor Vehicle Production (Millions)							
	1998	1999	2000	2001	2002	2003	2004
Cars	5.6	5.6	5.5	4.8	5.0	4.5	4.2
Light Trucks	6.0	7.0	6.8	6.3	7.0	7.3	7.3
Total LV	11.6	12.6	12.4	11.2	12.0	11.8	11.6
Med/Heavy Trucks	0.374	0.432	0.391	0.256	0.258	0.251	.355
Total All	12.0	13.0	12.8	11.4	12.3	12.1	12.0
Source: Ward's Automotive Reports							

Table 7

Value of Manufacturers' Product Shipments (Billions of Dollars)					
	1998	1999	2000	2001	2002
Cars	92.0	98.6	95.6	84.6	90.7
Light Trucks	113.4	141.7	121.6	116.5	131.7
Total LV	205.4	240.4	217.2	201.1	222.4
Med/Heavy Trucks	21.5	24.1	20.1	13.0	16.1
Total All	226.8	264.5	237.3	214.1	238.5
Source: U.S. Census Bureau 2002 Census of Manufacturers					

Table 8

Capital Expenditures for Plant and Equipment (Billions of Dollars)					
	1998	1999	2000	2001	2002
Car Plants	3.2	1.8	2.0	2.3	2.2
Light Truck Plants	2.1	2.8	2.5	1.7	2.6
Total LV Plants	5.3	4.5	4.5	4.0	4.8
Med/Heavy Truck Plants	0.1	0.2	0.3	0.5	0.2
Total All Plants	5.4	4.8	4.8	4.5	5.0
Source: U.S. Census Bureau 2002 Census of Manufacturers					

Table 9

U.S. Automotive Industry Average Annual Employment (1,000s)			
(NAICS Based)	2002	2003	2004p
Automobiles (336111)	158.7	156.6	146.2
Light Trucks and utility vehicles (336112)	73.8	76.9	75.6
Total Light Vehicles	232.5	233.5	221.8
Heavy Duty Trucks (33612)	32.9	31.1	34.4
Total vehicles	265.4	264.6	256.2
Motor Vehicle Parts (3363)	733.6	707.8	688.3
<i>TOTAL</i>	999	972.4	944.5
Source: U.S. Department of Labor/Bureau of Labor Statistics			

Table 10

Total Employee Wages and Benefits (Billions of Dollars)					
	1998	1999	2000	2001	2002
Car Plants	8.1	7.7	8.0	7.6	7.7
Light Truck Plants	7.1	9.1	9.4	8.7	10.2
Total LV Plants	15.2	16.8	17.5	16.3	17.9
Med/Heavy Truck Plants	1.9	2.3	2.2	1.7	1.8
Total All Plants	17.1	19.1	19.7	18.0	19.7
Source: U.S. Census Bureau 2002 Census of Manufacturers					

Table 11

U.S. Exports of Passenger Vehicles & Light Trucks – Top 5 Markets Billions of Dollars, FAS						
	1999	2000	2001	2002	2003	2004
World	20.606	21.646	21.748	25.011	27.375	30.105
Canada	12.363	12.648	11.492	13.781	15.112	14.971
Mexico	2.387	3.462	3.758	3.805	3.190	3.996
Germany	1.175	1.177	1.771	2.788	3.940	3.998
S. Arabia	0.493	0.646	0.854	0.901	0.661	1.044
UK	0.533	0.333	0.531	0.641	0.878	.872
Source: U.S. Census Bureau, using OAAI HTS Selections						

Table 12

U.S. Imports of Passenger Vehicles & Light Trucks – Top 5 Sources Billions of Dollars, Customs Value						
	1999	2000	2001	2002	2003	2004
World	108.521	122.035	121.005	128.448	128.765	136.113
Canada	42.264	42.246	38.491	39.136	38.478	43.440
Japan	29.191	32.092	31.117	35.045	32.197	32.229
Mexico	13.816	20.211	20.727	19.773	18.261	17.407
Germany	13.459	14.649	15.004	17.796	19.711	20.345
Korea	2.879	4.839	6.344	6.802	7.937	10.040
Source: U.S. Census Bureau, using OAA HTS Selections						