LESSONS FROM THE AMERICAN AUTOMOTIVE INDUSTRY

WILLIAM AHERNE

Junior Sophister

As part of the largest manufacturing industry in the US, and one of the largest in the world, the global influence of American Automotive companies cannot be underestimated. In this essay, William Aherne describes the evolution of the industry from the 1900s with particular reference to the 'Big Three'. The potential profitability and cost structure employed by firms in the industry are outlined. Finally he examines the difficulties faced by American firms as a result of competition from imports and concludes that unfairly-priced imports are likely to reduce the U.S. share of the domestic market.

Introduction

The history of the indigenous companies in American automotive manufacturing reflects the growth and decline of one of the world's largest manufacturing oligopolies. It involves factors affecting many companies in other industries today; increased competition due to globalization, changing environmental regulations, legacy issues and new technologies.

The US automotive market has changed dramatically, with the indigenous 'Big Three', General Motors (GM), Ford and DaimlerChrysler (hereafter Chrysler), losing market share, mainly to Asian manufacturers. Until the 1970's, these companies (in particular GM) dominated world automotive trading. However along with other American manufacturers in the industry, they are now experiencing trading difficulties.

Background

1900 to the 1970's

Until the early 1970's, the history of the U.S. automotive industry followed the growth path of many large corporations in the U.S. To avail of the economies of scale, a process of continuous consolidation took place as the market moved away from Imperfect Competition where according to

AAMA[1], there were more than three thousand makes of cars and trucks built from fifteen hundred identifiable manufacturers, to the state of Oligopoly with 3 manufacturers in the 50's, 60's and 70's.

In the early phase of the industry, GM, Ford and Chrysler, quickly established overseas operations, principally in Europe, the other potential mass market. The development of the mass production assembly line by Ford in 1910 facilitated the establishment of offshore plants to service local markets. GM and Ford began the export of 'Completely Knocked Down' kits as part of a strategy to avoid protectionist tariffs. Ford established subsidiaries in Europe, while GM expanded through acquisitions (e.g. Vauxhall in England 1926, and Opel in Germany 1929). Over the following decades, the European operations of both companies went on to develop local supply chains, so that by the 1960's the European operations were largely autonomous (Moavenzadeh, 2006).

By 1955 the consolidation of the industry in the U.S. was attracting the attention of legislators. The Senate Committee on the Judiciary, Subcommittee on Antitrust and Monopoly, heard evidence on GM's antitrust activities. In 1957, the U. S. Supreme Court ruled that the 23% stock interest DuPont held in GM violated Antitrust Law and as a result DuPont, GM's largest shareholder, divested its stock in 1961. DuPont had held the stock since 1918 (GM, 2007).

The United Auto Workers (UAW) union was formed in 1935 and began organising unskilled workers, an innovative approach for its time. The union forced recognition from GM and Chrysler in 1937, and Ford in 1941. The combination of the post-war demand for cars, the oligopoly of employers, and the strong union, enabled the UAW to negotiate favourable pay and working conditions, including fully paid hospitalisation, sick leave benefits and pensions. The cost burden of those benefits are now legacy issues for the Big Three which they allege are making them uncompetitive against overseas manufacturers, including those who have built plants ('transplants') in the U.S. (Cooney and Ycobucci, 2005). Though most transplants are non-union operations, they provide an equivalent level of benefits but they do not face the burden of healthcare and other benefit costs for older workers (ibid). The Big Three have been locked into multi-year labour contracts with the UAW that require them to support laid off workers at 95% of salary, plus benefits (ibid).

[1] The American Automobile Manufacturers Association was dissolved in 1998, when the merger of Daimler Benz and Chrysler rendered unviable its "American" exclusivity

1970's to date

The global automotive industry, prior to the 1970's oil shocks, was concentrated in the two large markets of America and Europe and the emerging market of Japan. There was little trade in vehicles between those regions. Following the oil shocks, the Japanese and European carmakers started to make an impression on the U.S. market, selling cars with greater fuel economy than U.S. models (Moavenzadeh, 2006:16).

By the mid-1970s, the Big Three were clearly high in cost and poor in product quality; the U.S. had in fact been a net importer since 1957. Nevertheless, foreign firms were slow to enter the U.S. market as it was costly to set up a national dealership network, while Americans favoured cars much larger than those driven by the Japanese or Europeans. Until the oil crises of 1973 and 1979 their sales never exceeded 10% of the market and were typically much less. However, the shift in demand toward subcompacts following the oil crises, led to a flood of imports (Smitka, 1999:5).

In the early 1980's the Big Three and the UAW pressured the U.S. government to protect the U.S. market from Japanese competition. In response, the Japanese Ministry of International Trade and Industry (MITI) announced a Voluntary Export Restraint (VER) that limited Japanese exports of vehicles to the U.S. The consequences were completely contrary to U.S. interest and unforeseen by the Big Three and the UAW. The VER had provided an incentive for overseas manufacturers to open plants in the U.S., since the restraints only applied to imports and not to vehicles built in the U.S. Furthermore, the VER provided an incentive to move upscale and develop luxury vehicles for the U.S. (e.g., bringing Acura, Lexus and Infiniti to the U.S.). The Japanese manufacturers also reaped profits estimated at $4-$7 billion per year for 1981 to 1985 on their high-demand, VER-limited-supply vehicles which were in effect a tax on American purchasers. (ibid:6)

The increase in the number of 'transplants', often located outside the traditional Mid Western automotive industry regions, was also driven by other factors; reduced currency risk where weakening of the dollar made foreign purchases very expensive for U.S. customers, transporting finished vehicles is more expensive than transporting components, and locating a plant in the U.S. offers political leverage because of the large direct employment and larger indirect employment levels (Moavenzadeh, 2006:33).

The 1990's also saw the transfer of vehicle production to Mexico and Canada after the North America Free Trade Association agreement came into force in 1994, although U.S. vehicle production still reached a historic record in 1999 and 2000. As of October 2006, the Big Three had 35 plants in the U.S., 7 in Mexico and 5 in Canada (ibid:21). Out of the total automotive

imports of $124 billion in 2005, $35 billion came from Canada and $10.8 billion from Mexico (ibid:38).

The U.S. automobile market is still dominated by the Big Three, who currently make approximately 62% of units sold. Eight Asian suppliers account for approximately 33% of units sold, and three German manufacturers for approximately 5% of units sold. In the sub category of light trucks or SUV's the Big Three corporations have an even stronger position producing 74% of the vehicles sold.

Table 1. Percentage Market Shares for the Big Three

	Unit Sales 1979			Unit Sales 2003		
	Cars	Light Trucks	Total	Cars	Light Trucks	Total
GM	45.90%	41.00%	44.80%	25.70%	30.50%	28.30%
Ford	20.00%	34.40%	23.60%	15.40%	25.10%	20.70%
Chrysler	10.90%	11.20%	11.00%	6.00%	18.50%	12.80%
Big Three	76.70%	86.70%	79.40%	47.10%	74.20%	61.80%

Historically, Original Equipment Manufacturers (OEMs) and automotive suppliers have not considered the after-sale market as a reliable source of revenue. However, as the number of light vehicles on U.S. roads increased to over 213 million in 2000, and the average age of a passenger car increased to 9.0 years in 2000, up from 7.6 years in 1990, the importance of the after-sale market has increased. In addition, people are travelling further and more frequently; miles travelled and the numbers of vehicle trips are increasing. As the sale of after-sales service and parts has been estimated to amount to 20% - 24% of the value chain of the vehicle that is an important factor (McAlinden and Andrea, 2002). While large trucks have progressed toward a more open architecture and modular design, cars have a largely closed architecture because the integral design compels the use of non-modular components. This in turn supports the future demand for specific components for that vehicle (Moavenzadeh, 2006:9).

Prior to 1990, the practice was to manufacture all components within the OEM group but in the late 1990's GM and Ford, spun off the Delphi and Visteon parts divisions respectively, whereby the parts divisions obtained a stock exchange quotation and the shares were distributed to the shareholders in the parent company. Delphi filed for bankruptcy in 2005 after substantial losses (Schoen, 2005).

The provision of loans to customers to finance the purchase of vehicles is now an important source of profitability for the OEM, and

enabled Ford to earn a profit in 2005 despite making a loss on manufacturing.

In addition to changes in the value of different components in the value chain, the relationships between the OEMs and other participants in the market are also changing. The relationship between manufacturers in the industry has become complex and is rapidly changing with technology; product development agreements, shared platforms, minority equity holdings, controlling equity stakes, and mergers and acquisitions (Daimler Benz and Chrysler, Ford and Jaguar, Ford and Volvo). This leads to complex ownership and control structures.

The industry is also developing new relationships with many Tier 1 suppliers (i.e. supply directly to the OEM). Such suppliers are now undertaking sub-assembly contract manufacturing and engineering design work for the OEMs. This blurring of the lines between OEMs and suppliers is reflected in DaimlerChrysler's Supplier Park in Toledo, Ohio, where the 2007 Jeep Wrangler is manufactured by three suppliers with facilities located on site. The concept, called 'modularisation', allows the OEM to have much of the sub-assembly work done by less expensive labour and UAW has accepted that labour will be drawn from currently unemployed auto workers (Cooney and Yacobucci, 2005:42).

The industry became less concentrated between 1979 and 2003, with the Big Three taking a smaller percentage of the market in every category, other than DaimlerChrysler's slightly increased share of the Light Trucks market. The 17.6% market share lost by the 3 corporations was taken almost entirely by Japanese suppliers, Toyota, Honda and Nissan, between them up 13% in market share, from 11.1% in 1979.

No major automobile manufacturer has exited the industry in the U.S., although Chrysler got into financial difficulties in 1980 and had to be rescued by government intervention in the form of Federal Guarantees for its debts. Within three years, Chrysler had paid off its loans and the federal government sold at a substantial profit the warrants it had required on Chrysler stock as collateral (ibid:55).

New entrants to the market have entered by way of imports or the establishment of transplant operations. There are currently 17 transplants in the U.S., 14 Japanese, 1 Korean (Hyundai) and 2 German (Mercedes Benz and BMW), representing an investment of over $27 billion and employing 65,000 (ibid:16).

Profitability

Legacy Costs and Operating efficiencies

The ability of overseas manufacturers, particularly Japanese manufacturers, to earn a return on their investment in the U.S, has been reviewed by the Congressional Research Service, which identified two principal areas of interest, legacy costs and operating efficiency.

> [On legacy costs], an *Automotive News* article…stated that GM paid for the health care of 339,000 retirees, accounting for more than two-thirds of GM's $5.2 billion spending on health care (and not counting a $9 billion contribution to a trust fund for health care costs). Ford spent $2 billion on retiree health care in 2004, and the Chrysler Group spent $1.3 billion. By comparison, Toyota's employees in Japan are switched from the company health care plan to a national health care system within two years of retirement; the company is thus responsible currently for the retiree health care coverage of only 3,000 persons in Japan. (ibid:44)

The Big Three and the UAW challenge the view that Japanese operating systems such as kaizen and kanban are more efficient.

> But a study by the Harbor automotive consulting organization, which surveys plant efficiencies every year, reportedly found in June 2004 that manufacturing inefficiencies contributed to an average loss by Ford of $48 on every vehicle that it produced in North America, while Nissan, the industry leader, had a profit of $2,402 per vehicle, and Toyota followed with a profit of $1,742 (ibid:39).

Credit Incentives and Price Discounting

After a slump in cars sales, due in part to September 11th 2001, GM engaged in price discounting and provided credit incentives. Maintaining sales levels was particularly important for the Big Three because of the 95% salary support in their contracts with the UAW (ibid). GM's campaign turned out to be very successful. Ford and DaimlerChrysler pursued the same strategy. This change coincided with the opening of new highly efficient manufacturing plants in the U.S. by European, Japanese and South Korean automotive manufacturers. These two factors together resulted in a price war that was disproportionately felt by the American manufacturers, as the European luxury brands had more efficient production plants and were perceived by consumers as more stylish, allowing them to command a higher

market price. The Japanese car was viewed as more reliable and of superior quality.

The Big Three continue to use incentives. “Heavy use of incentives, especially by GM and Ford, has promoted sales since 2001, but at the price of reducing current profits and future demand. If companies continue promoting sales through financial incentives, then higher interest rates, which are widely expected in financial markets, will raise the cost of incentives.” (ibid:7). GM incentives per automobile in March 2005 averaged more than $4,000 per vehicle. Ford and Chrysler averaged more than $3,000, while Nissan averaged $2,000, and Toyota and Honda about $1,000 (ibid:8).

Cost Structure of the Industry

The pressures that have brought about change in the American automotive industry were economic and environmental. Underpinning the economic pressures on the profitability of the automotive industry is the fundamental issue of supply and demand. Growth rates in the established markets of the world such as the United States have been relatively low. In the U.S., the Big Three face legacy issues, not merely related to labour costs as described above, but their size and market dominance, which may have hindered their ability to respond to the Japanese challenge in the 1980’s.

The cost differential per automobile between the Big Three and the transplants are attributable to three main factors; sales incentives, legacy costs (predominately labour) and dissimilar operating efficiencies. Sales incentive programs encourage purchases, creating a depression in sales when the incentive is withdrawn. This is expensive, estimated to cost $3,000 - $4,000 per automobile, according to Congressional Researchers. The cost of Japanese incentives has been much less at $1,000 - $2000 (ibid). The cost of the incentives plus the legacy labour costs, claimed by the Big Three to be at least $1,200 per automobile, combined with the efficiency bonus enjoyed by the more efficient Japanese transplants, present major problems for the Big Three. The cost differential between the best Japanese plant (Nissan) and Ford, was estimated by Harbor Consulting at nearly $2,500 per unit (ibid:39).

Conclusion: Future of the Industry?

Because of the open nature of the US market, increases in global overcapacity could bring accelerating rationalisation and industry closures,

with especially negative consequences for U.S. manufacturers, their employees and the economy. The U.S. China Economic and Security Review Commission (USCC) commented that:

> China's automobile production capacity already exceeds domestic demand by 10 percent to 20 percent. This overcapacity is projected to grow to 8 million vehicles by 2010 and it is very likely that China will begin exporting vehicles to the United States within the next five to ten years. …The U.S. auto industry will find it difficult to compete with unfairly priced imports and likely will lose an additional share of the domestic market. (USCC, 2006)

Bibliography

Cooney, S. and Yacobucci, B.D. (2005) *U.S. Automotive Industry: Policy Overview and Recent History.* Congressional Research Service: The Library of Congress. Viewed at http://www.ncseonline.org/NLE/CRSreports/05apr/RL32883.pdf accessed on 12/02/2007.

General Motors Website. Viewed at http://www.gm.com/company/corp_info/history/gmhis1950.html accessed on 20/03/2007.

Moavenzadeh, J. (2006) *Offshoring Automotive Engineering: Globalization and Footprint Strategy in the Motor Vehicle Industry.* National Academy of Engineering. Viewed at http://www.nae.edu/nae/engecocom.nsf/weblinks/PGIS-6W8TWP/$file/Moavenzadeh%20paper%20v5%2012.01.06.pdf accessed on 12/02/2007.

McAlinden, S.P. and Andrea, D.J. (2002) *Estimating the New Automotive Value Chain: A Study Prepared for Accenture.* The Centre for Automotive Research. Viewed at www.cargroup.org/pdfs/CAR2002_7.pdf accessed on 12/02/2007.

Schoen, J.W. (2005) *Auto Industry Rocked by Delphi Bankruptcy: Analysis.* Viewed at http://www.msnbc.msn.com/id/9644882/ accessed on 20/03/2007.

Smitka, M. (1999). 'Foreign Policy and the U.S. Automotive Industry: By Virtue or Necessity?' *Business and Economic History*, Winter 1999.

U.S. - China Economic and Security Review Commission (2006) *2006 Annual Report.* Viewed at www.uscc.gov/annual_report/2006/06_annual_report.php accessed on 21/02/2007.