
First Research
INDUSTRY PROFILE
Automobile Manufacture

SIC CODES: 3711
NAICS CODES: 33611

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Industry Overview

The US automobile manufacturing industry includes about 160 companies with combined annual revenue of about $250 billion. Major companies are Chrysler, Ford, and GM. The industry is highly concentrated: the eight largest companies account for more than 90 percent of revenue and the top 20 for 98 percent.

COMPETITIVE LANDSCAPE

The major drivers of US demand for autos are employment and interest rates. The profitability of individual companies depends on manufacturing efficiency, product quality, and effective marketing. Large companies manufacture multiple product lines, marketed under different brand names. Smaller companies manufacture a few or single product lines. Large companies have advantages of economy of scale; smaller companies compete by focusing on specialized markets. Due to highly automated manufacturing processes, the average annual revenue per employee is about $1.4 million.

PRODUCTS, OPERATIONS & TECHNOLOGY

Major product categories are cars (45 percent of industry revenue) and light trucks (55 percent). Light trucks include SUVs.

The assembly line is an invention of the auto manufacturing industry of the early 1900s. Many refinements have made the assembly line more efficient, and it remains the primary method for automobile assembly. Robotics and other computer automation have reduced the number of workers on a line. Between 2002 and 2005, the number of auto production workers decreased 8.5 percent while shipments increased 5 percent. Assembly plants now require as little as 15 to 25 labor hours per vehicle.

A typical automobile plant has capacity to produce about 200,000 vehicles annually. Flexible manufacturing has enabled different car models to be manufactured on the same assembly line, saving hundreds of millions in setup and tooling costs. Tighter tolerance of parts enables greater consistency of product quality and reduces line stoppages. US manufacturers also operate facilities that make parts for their assembly plants. Foundries, powertrain facilities, and transmission plants deliver parts and sub-assemblies to final assembly locations.

Raw materials include steel, aluminum, glass, plastic, rubber, and coatings. As many as 15,000 parts are required on some vehicle assemblies, and material costs represent about 70 percent of total shipment value. Assembly plants require a high degree of supply chain management and coordination, as many parts and sub-assemblies are delivered to assembly plants for same day usage to minimize inventory storage and carrying costs. Many suppliers have established manufacturing or warehouse locations near assembly plants.

In addition to automated assembly processes and supply chain management, computer technology is used extensively for product design. Sophisticated computer modeling programs help with material, fuel efficiency, emissions, safety, and product quality design choices.

SALES & MARKETING

Independent dealers are the primary sales and distribution channel for cars in the US. About 21,500 dealers serve the US market, and sold over 16 million new cars and trucks, including imports, in 2006. The Internet is gaining popularity as a shopping venue, but the dealership is still the primary sales outlet, even if the buyer shops online.

Dealers enter into multi-year sales agreements with manufacturers. Some dealers have exclusive agreements with a single manufacturer; other dealers represent multiple manufacturers. Manufacturers impose various operating requirements on the dealer for inventory, working capital, sales practices, showrooms, service facilities, and monthly reporting. Dealers also agree to offer warranty service, parts, general maintenance, and repair of the manufacturer’s products. Most manufacturers require that certified technicians perform this work.

Manufacturers typically own multiple product lines, often marketed under different brands. Brands are targeted to consumers by income, age, and sex by highlighting model characteristics, such as performance, economy, quality, and safety. Ads are delivered primarily by TV, radio, newspaper, and the Internet. Manufacturers advertise directly and also support cooperative dealer advertising programs.

The average price of a new car in 2006 was $27,800, according to Edmunds. Prices range from about $15,000 for
FINANCE & REGULATION

Cash flow is somewhat seasonal with sales strongest in warm weather months. Manufacturers offer inventory financing to dealers, either through captive lenders such as GMAC or Ford Motor Credit, or third-party lenders. These lenders also provide loan services to consumers through manufacturer/dealer arrangements. Most cars are sold on credit.

Field inventories are carefully tracked at dealer locations to ensure supply and demand remain in balance. Curtailing manufacturing operations quickly as a result of inventory build-up is difficult and expensive for auto manufacturers.

In recent years, US auto manufacturers’ financial positions have deteriorated. The “Detroit Three” (Chrysler, Ford, and GM) have suffered from import competition and high cost structures. The erosion of profits has pressured corporate treasurers and CFOs, who have had to finance operations by depleting liquid reserves, issuing new debt at higher interest rates, and using other forms of borrowing.

State and national regulatory compliance are significant issues for automobile manufacturers. The EPA issues emissions standards; OSHA legislates worker safety standards; the National Highway Transportation Safety Board (NHTSB) administers fuel efficiency regulations, determines passenger safety standards, and issues safety ratings. State franchise laws govern relationships between manufacturers and dealers.

REGIONAL & INTERNATIONAL ISSUES

Michigan, Ohio, and California have the most automotive manufacturing plants in the US. US auto manufacturers have facilities worldwide. California, along with several other states that have adopted California Air Regulations Board (CARB) standards, has more stringent emissions requirements than other states that follow federal regulations.

Major import countries to the US market are Canada, Japan, Mexico, and Germany. Canada is the largest consumer of US exports, receiving about half of total US exports. US automotive imports have exceeded exports by over $100 billion in recent years. With NAFTA reducing or eliminating tariffs, US companies assemble autos in Mexico and Canada at lower cost. About $60 billion of autos were imported into the US from Canada and Mexico in 2006, most from manufacturing facilities owned by US companies.

HUMAN RESOURCES

The average hourly wage of an automotive production worker is about $30, over 75 percent above the average for US manufacturing overall. Labor unions represent production employees in virtually all automobile assembly plants in the US. A few foreign-owned plants, such as Honda, are non-union. Fringe benefits, including health care and retirement programs, average about 45 percent of the hourly wage.

Worker safety is a significant issue in auto manufacturing plants. While improving over the past several years, the industry still has an accident record about 50 percent higher than the average for all manufacturing industries.

Industry Employment Growth

Average Hourly Earnings & Annual Wage Increase

Bureau of Labor Statistics
Industry Indicators

Total US retail sales, a potential measure of demand for autos, decreased 10 percent in the first four months of 2009 compared to the same period in 2008.

US steel mill product prices, an indicator of commodity steel costs for auto manufacturing, fell 25.4 percent in April 2009 compared to the same month in 2008.

Quarterly Industry Update

Support for Auto Bailout Wanes - A poll conducted by USA Today and Gallup in February 2009 found that only 25 percent of those surveyed agreed that the US government should keep loaning money to GM and Chrysler. The poll indicates a change in sentiment since December 2008, when more than 60 percent of respondents approved of some kind of government aid for US automakers. Despite the lack of support for more loans for auto companies, 37 percent of respondents to the February survey said that they would remain loyal to US-owned brands.

GM to Split Off Opel Brand - As it struggles to re-balance its operations amid anemic sales and the global economic slowdown, GM's European division will restructure its Opel brand, which is based in Germany, into a stand-alone company. GM plans to keep a majority stake in Opel and offer shares to the German government and other investors. The troubled automaker plans to cut Opel's annual costs by more than $1 billion and infuse the brand with nearly $4 billion in hopes of returning to profitability by 2011.

Saab Seeks Bankruptcy Protection - Saab, the Swedish luxury brand controlled by GM, has entered the Swedish equivalent of Chapter 11 bankruptcy protection as the global market for autos continues to deteriorate. Saab is seeking nearly $630 million in aid from the Swedish government to survive, according to the company. GM is in talks with potential buyers or investors for Saab as part of efforts to reduce its worldwide portfolio of brands. GM's Hummer and Saturn brands also are candidates to be unloaded or terminated.

Business Challenges

CRITICAL ISSUES

Import Competition - Imports represent a rising percentage of total US auto sales. Between 1996 and 2006, US market share for Chrysler, Ford, and GM dropped from 73 to 54 percent. Rising fuel prices favor imports that generally are smaller and more fuel-efficient. Offshore manufacturers also enjoy the advantage of substantially lower wages and benefits for employees and lower costs for suppliers. The strength of the dollar against the yen and other foreign currencies can impact import prices.

Dependence on Employment, Interest Rates - Auto sales are subject to the health of the US economy, especially employment and interest rates. A new car purchase is the second-largest investment most families make, next to a home. Consumers often delay buying new cars during times of job uncertainty. Most new vehicle purchases are financed, so costs are sensitive to interest rate changes.

OTHER BUSINESS CHALLENGES

Corporate Average Fuel Economy (CAFE) - CAFE, administered by the National Highway Transportation Safety Board, requires car and light truck manufacturers to achieve certain average miles per gallon ratings across their total
fleet. National concern over global warming and energy independence may lead to increases in the current average mileage requirements. Auto manufacturers fear that the increases will be so stringent that achievement will be technologically infeasible or cost too much.

**Emissions Standards** - The auto industry is under pressure for its contribution to the greenhouse effect and global warming. Emission standards are being tightened for future model year products. California requested, and received permission, from the EPA to set its own, more stringent, standards for emissions control; 10 states have also adopted stricter standards. Stricter emissions standards require the auto industry to invest in research and design of new engine technology and controls.

**Raw Material Prices** - Material content is about 70 percent of US auto manufacturer selling prices. As many as 15,000 parts comprise a final assembled auto. High oil prices have driven price increases in steel, aluminum, plastics, and coatings in recent years. Auto manufacturers have squeezed supplier margins to the extent that some critical part vendors have concerns about their continued viability as a supplier.

**Employee Retirement Costs** - Pensions and healthcare benefits offered to current employees and accrued for retired employees represent a heavy financial burden to most US auto manufacturers. These costs have risen as manufacturers have extended early retirement options to thousands of employees in efforts to reduce costs by closing plants and reducing headcount. At the end of 2006, GM had $68 billion of retirement obligations to 400,000 retirees. These retirement obligations are one of the biggest competitive disadvantages for US auto manufacturers.

**Trends & Opportunities**

**BUSINESS TRENDS**

**More Cars, Less Trucks** - Consumer demand has shifted toward more cars and fewer light trucks, including SUVs. Rising fuel costs contributed to a rise in car sales as a percentage of total sales from about 43 percent in 2004 to 47 percent in 2006. SUV sales are being replaced by CUVs, utility vehicles built on car platforms rather than truck. While less rugged, CUVs are generally smaller, more fuel efficient, and handle more like a car.

**Fleet Sales** - Fleet sales to car rental companies, businesses, and government agencies comprise as much as 30 percent of total unit sales for the largest US auto manufacturers. Due to the low margins on fleet sales, some producers have announced intentions to reduce dependence on them or to improve their profit margins. If higher profit margins are realized, the public is likely to see higher rental car prices, and government agencies will need to budget more for fleet vehicles.

**Alternate Fuels** - Ethanol, electric power, hydrogen fuel cells, and clean diesel are among alternate fuel opportunities for autos. While some hybrid vehicles are in commercial production and ethanol is available on a restricted basis, extensive R&D activity is underway on each of these alternatives. Consumer demand for hybrid fuel vehicles has been high, exceeding manufacturing capacity and leading to more hybrid models.

**“Total Cost Reduction” Programs** - Manufacturers are working with suppliers to do more than just cut prices. By collaborating on total cost reduction programs, suppliers and manufacturers discover new designs, materials, and processes that improve quality and performance while reducing the total delivered cost of parts. DuPont, working with the industry, introduced a headlamp bezel trim part that reduced total part cost 40 percent. This new part is now on 8 million vehicles worldwide.

**More “Green” Vehicles** - Manufacturers are producing more environmentally friendly models because of legislation and consumer demand. Reductions in emissions and noise, combined with greater fuel economy, contribute to a greener environment. California has invoked legislation that includes a mandate to manufacturers for 25,000 zero-emission vehicles (ZEV) in 2012 to 2014. Typically, these cars are smaller units with less profit than larger vehicles.

**Improved Vehicle Safety** - Manufacturers are building more safety features into products. The National Highway Transportation Safety Board (NHTSB) says that all vehicles offered in model year 2012 must be equipped with Electronic Stability Control (ESC). This feature uses computer technology to apply the brakes automatically as a vehicle starts to slide on wet pavement or during a sudden swerve. About 200 models currently offer ESC, but it's not a mandatory safety feature. NHTSB forecasts that ESC control will save from 5,000 to 9,000 lives a year and will cost manufacturers about $111 per vehicle.

**More Drivers** - Population demographics favorably impact the US auto industry. The US population age 16 and older is
forecast to grow about 20 million in the next decade. The trend toward an older and growing population is a longer term positive sign for the industry.

**INDUSTRY OPPORTUNITIES**

**Fuel-Efficient Vehicles** - Consumers and government want greater fuel efficiency. Consumers want it due to the cost of gas and environmental concerns; government wants to reduce US dependence on foreign oil and greenhouse emissions. The federal government is reviewing the Corporate Average Fuel Economy (CAFE) standards; current miles per gallon requirements will likely be raised.

**Reducing Material Costs** - US manufacturers are increasing offshore sources for parts and sub-assemblies in an attempt to reduce material costs. Materials are about 70 percent of sales revenue and represent the single largest opportunity to reduce overall costs. Ford, in its "Way Forward" restructuring plan, has committed to a $6 billion reduction in material costs by 2010.

**Emerging Markets** - Foreign markets, especially China and India, are growing faster than the US and Europe. China is the world’s second largest car market, replacing Japan. Demand for cars in China is forecast to grow 10 percent annually for the next several years. US manufacturers are establishing plants in China to take advantage of this market growth.

**Extended Warranties** - Manufacturers can build consumer confidence with extended warranties. Extending warranties suggests manufacturers are confident in the quality of their cars, since warranty expense can be a large burden if consumer repairs are high. Manufacturers evaluate likely warranty claims before offering these extended warranties. Ford extended its powertrain warranty from three years or 36,000 miles to five years or 60,000 miles in 2007. GM extended its powertrain warranty to five years or 100,000 miles.

**Alternative Fuel Sources** - In addition to increasing gas mileage through more efficient technologies, many alternative sources of power are in development including ethanol; hybrids (a combination of gas and electric power); hydrogen fuel cells; clean diesel; and electric power. Honda recently announced a revamped hydrogen fuel cell vehicle with a range of 270 miles that's capable of speeds up to 100 mph. Marketed as a vehicle that will substantially reduce carbon dioxide emissions and help end US dependence on foreign oil, limited manufacturing is expected to begin in 2008 for use in the US and Japan.

**Call Preparation Questions**

**CONVERSATION STARTERS**

**How is the company’s business affected by imports?**
Imports represent a rising percentage of total US auto sales.

**How are current economic conditions affecting the company’s sales?**
Auto sales are subject to the health of the US economy, especially employment and interest rates.

**What challenges does the company see in meeting stricter CAFE standards?**
CAFE, administered by the National Highway Transportation Safety Board, requires car and light truck manufacturers to achieve certain average miles per gallon ratings across their total fleet.

**How is the company improving fuel efficiency of its products?**
Consumers and government want greater fuel efficiency.

**What steps is the company taking to reduce parts and material costs?**
US manufacturers are increasing offshore sources for parts and sub-assemblies in an attempt to reduce material costs.

**What is the company's strategy for selling to foreign markets?**
Foreign markets, especially China and India, are growing faster than the US and Europe.

**QUARTERLY INDUSTRY UPDATE**

**How will public perception of government loans for the auto industry affect the company's marketing plans?**
A poll conducted by *USA Today* and Gallup in February 2009 found that only 25 percent of those surveyed agreed that the US government should keep loaning money to GM and Chrysler, down from 60 percent in December 2008.
Does the company plan to trim its number of brands to achieve economic viability?
GM has announced plans to de-emphasize brands such as Hummer, Saturn, and Saab.

OPERATIONS, PRODUCTS, AND FACILITIES

What mix of products does the company manufacture?
Major products are cars (45 percent of sales) and light trucks, including SUVs (55 percent).

What is the company’s primary manufacturing methodology?
Auto manufacturers use highly automated assembly lines to build vehicles.

What trend is the company seeing in the productivity of its plants?
Between 2002 and 2005, the number of US auto production workers decreased 8.5 percent; shipments increased 5 percent.

How many labor hours are required per vehicle on the company’s assembly lines?
Efficient assembly plants require 15 to 25 labor hours per vehicle.

What is the company’s manufacturing capacity?
A typical automobile plant has capacity to produce about 200,000 vehicles annually.

Other than assembly plants, what additional facilities does the company own and operate?
Some auto manufacturers own and operate their own foundries, powertrain facilities, and transmission plants.

How do suppliers support the company’s assembly line operations?
Many parts are delivered from suppliers to assembly plants for same day usage to minimize inventory storage and carrying costs.

What percentage of company revenues do parts and material costs represent?
Material costs are about 70 percent of the industry's total shipment value.

CUSTOMERS, MARKETING, PRICING, COMPETITION

How are the company’s products sold?
About 21,500 independent dealers are the primary outlets for the sale of new automobiles in the US.

What are the company’s products sold?
About 21,500 independent dealers are the primary outlets for the sale of new automobiles in the US.

How does the company select its dealer network?
Manufacturers require dealers to maintain certain standards of operation that reflect positively on the manufacturer.

Do the company’s dealers carry its products exclusively?
Some dealers have exclusive agreements with a single manufacturer; other dealers represent multiple manufacturers.

How many different products does the company manufacture?
Manufacturers typically develop multiple product lines, often marketed under different brands.

How does the company market to consumers?
Marketing is targeted to consumers by income, age, and sex by highlighting vehicle characteristics such as performance, economy, quality, and safety.

What kinds of advertising has the company found most effective?
Advertising programs are delivered primarily by TV, radio, newspapers, and the Internet. Manufacturers advertise directly and support cooperative dealer advertising programs.

What is the average selling price of the company’s products to consumers?
The average price of a new car in 2006 was $27,800, according to Edmunds.

REGULATIONS, R&D, IMPORTS AND EXPORTS

Where are the company’s facilities located?
Michigan, Ohio, and California have the most automotive manufacturing plants in the US. Many US companies also have facilities overseas.

What are the primary export markets for the company?
Canada, the largest consumer of US exports, gets about half of total US exports.
How has NAFTA affected the company’s US operations?
With NAFTA reducing or eliminating tariffs, US companies assemble autos in Mexico and Canada at lower cost.

How have imports affected the company’s business?
US automotive imports exceed exports by over $100 billion annually.

ORGANIZATION AND MANAGEMENT

What percentage of the company’s production employees are union members?
Virtually all auto assembly plants in the US are represented by labor unions.

What is the average hourly rate for the company’s production employees?
The average hourly wage of auto production workers is about $30.

How much do fringe benefits cost as a percentage of wages?
Fringe benefits, including healthcare and retirement programs, average about 45 percent of the hourly wage.

How large is the company’s obligation to retirees for healthcare and pension benefits?
US auto manufacturers find these retirement benefit obligations one of their biggest competitive disadvantages.

How does the company communicate its plans for the future?
Ford’s “Way Forward” is a restructuring and reorganization plan publicly announced to employees, investors, and the general business community.

FINANCIAL ANALYSIS

How seasonal is the company’s business?
Sales are normally strongest in warm weather months.

How does the company support dealer sales to consumers?
Manufacturers offer inventory financing to dealers. Since most automobiles are sold on credit, these lenders also provide loan services to consumers through manufacturer/dealer arrangements.

How does the company manage finished goods inventory?
Field inventories are carefully tracked at dealer locations to ensure supply and demand remain in balance.

What are the company's biggest financial challenges?
Liquidity has become a major issue for auto manufacturers as they seek to reduce costs in response to lower market share.

What is the company doing to improve profit margins on vehicles?
Auto companies are implementing programs to reduce material costs and reducing consumer rebates and dealer incentives.

How effective is the company at forecasting the mix of product sales?
Financial performance can be affected by the product mix of auto manufacturers. Trucks and large cars carry higher profit margins than economy models.

BUSINESS AND TECHNOLOGY STRATEGIES

How does the company plan to reduce retiree costs?
Retiree costs have been cited as the biggest competitive disadvantage for US companies.

How much does the company spend on R&D?
Auto manufacturers spend 3 to 4 percent of annual revenues on R&D.

What alternate fuel sources is the company developing?
Ethanol; hybrids (a combination of gas and electric power); hydrogen fuel cells; clean diesel; and electric power are viable options.

What is the company's strategy for high growth markets, like China?
Demand for cars in China is forecast to grow 10 percent annually for the next several years.

How is the company responding to demand for more "green" vehicles?
Manufacturers are producing more environmentally friendly models because of legislation and consumer demand.
## Financial Information

### COMPANY BENCHMARK INFORMATION

**Automobile and Light Duty Motor Vehicle Manufacturing**  
(NAICS: 33611) - (NAICS: 33611)

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<thead>
<tr>
<th>12 Month Rolling Data Period</th>
<th>Last Update March 2009</th>
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<tr>
<td>Small Company Data</td>
<td>Sales &lt; $2,176,876</td>
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<td>Table Data Format</td>
<td>Median Values</td>
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<th><strong>US Private Company Data</strong></th>
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<td>Company Count in Analysis</td>
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<td><strong>Operating Income</strong></td>
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<td><strong>Net Profit After Tax</strong></td>
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<td>26.2%</td>
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<td><strong>Total Fixed Assets</strong></td>
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<td><strong>Accounts Payable</strong></td>
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<td><strong>Net Worth</strong></td>
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<td><strong>Current Ratio</strong></td>
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<td><strong>Current Liabilities to Inventory</strong></td>
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<td>14.0%</td>
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<td>Metric</td>
<td>First Research</td>
<td>Fintel</td>
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<td>Fixed Assets to Net Worth</td>
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<td>Return on Assets</td>
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<td>Return on Investment</td>
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**ECONOMIC STATISTICS AND INFORMATION**

**Index of Industrial Production - Federal Reserve Board**

![Index of Industrial Production Chart](image)

**Change in Producer Prices - Bureau of Labor Statistics**

![Change in Producer Prices Chart](image)

**Change in Consumer Prices - Bureau of Labor Statistics**

![Change in Consumer Prices Chart](image)
Industry Forecast

The output of US motor vehicles manufacturing is forecast to grow at an annual compounded rate of 3 percent between 2008 and 2013. Data Sourced: December 2008

Motor Vehicle Manufacturing Growth Dives Then Quickly Expands

First Research forecasts are based on INFORUM forecasts that are licensed from the Interindustry Economic Research Fund, Inc. (IERF) in College Park, MD. INFORUM's "interindustry-macro" approach to modeling the economy captures the links between industries and the aggregate economy.

Web Links & Acronyms

INDUSTRY WEBSITES

Alliance of Automobile Manufacturers
Industry news and updates.

Assembly Magazine
Industry news, product news, links.

Automotive News
Daily industry news.

Chrysler Motors
Worldwide car manufacturer.

Ford Motor Company
One of Detroit Three.

General Motors
One of Detroit Three.

The Car Connection
Daily news site.

GLOSSARY OF ACRONYMS
“The purpose of the Profiles is for sales call preparation and general business and industry analysis. Profiles provide general background information only and are not intended to furnish detailed information about the creditworthiness of any individual borrower or purchaser or to be used for making any loans, leases or extension of credit to any individual borrower or purchaser. First Research, Inc. is not an investment advisor, nor is it in the business of advising others as to the value of securities or the advisability of investing in securities, and the Profiles are not intended to be relied upon or used for investment purposes.”

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