A Decade of Downfall: The Industrial and Financial Self-Destruction of the American Automobile Industry Through 2009

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A Decade of Downfall: The Industrial and Financial Self-Destruction of the American Automobile Industry Through 2009

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by
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and for keeping me on a path through my project,

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Abstract

This paper examines the developments that lead up to the government bailout of General Motors and Chrysler in 2009. The purpose is to examine and discover the historical, industrial and financial factors that drove American cars into the ground. In today’s society, the perception is that foreign automobiles are superior to domestic vehicles. This comes half a century after culture in the United States circulated around the American automobile. The American big business techniques built a manufacturing empire, differentiated the US from the foreigners and then weakened the long-term development of the automotive industry. Financialization became a support in an attempt to support a crumbling system. Each individual strategy was successful in the short term but came together to negatively influence the long-term industry. These elements conclude a self-destructive fate of the US automobile manufacturers. The bailout was not the fault of the nation but rather the responsibility of the Big Three.
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Introduction

During the mid twentieth century, Ford, General Motors and Chrysler were booming with growing business and a customer base that craved American automobiles. Today, the automotive industry is still one of the largest and most powerful sectors in the United States. However, since the time of auto boom, the American automakers have been downsizing in relation to the whole industry and losing interest from the population. Foreign manufacturers have been increasingly taking market share away from the US brands to the extent that the Americans are fighting to survive. In 2007 the Big Three US carmakers approached the United States government pleading for a stimulus package that would save them from bankruptcy. How, then, did a dominant American industry fall from glory into shambles over half a century?

The decline of the US automotive industry began before any of the three companies showed any signs of decay. The problem was not with the carmakers specifically, but with big business in America as a whole. Large-scale production is a characteristic of US manufacturing since the beginning. Definitive characteristics come along with large scale manufacturing that separate it from foreign industries. While it is perceived that big business is synonymous with success, we will examine below why it can be self-destructive to an industry. The US automakers did not understand that there exists too much of one thing and it requires further exploration in order to expand. The American automakers believed that a single working strategy could be expanded continuously. This defined the policy of American auto growth. The Big Three began using this to manufacture vehicles and later translated the same strategy into their financialization.
The perception is that the decline of the US automakers is due to the state of the economy during the 2007 financial crisis. However I believe a government bailout package would have been necessary even if the economy had not went into a recession. Statistics are evidence that a decline had begun far before the national economic decay. The practices of Ford, General Motors and Chrysler display deteriorating stability and a lack of long term growth that originated from old habits. The Big Three had built an empire upon a deteriorating foundation that was bound to crumble. As the companies financialized further between 1990 and 2007, the weaknesses in the industrial groundwork were magnified. A weak manufacturing industry held up by risky financial practices concludes in failure. The financial crisis of 2007 was the stimulus that caused Ford, General Motors and Chrysler to finally crumble but was not the driving force that brought the firms to that point.
1. Automotive Industrialization

During the 2007 economic recession, American banks and businesses, including Ford, General Motors and Chrysler, were drowning in a financial catastrophe. As thousands of American workers were losing jobs, Germany was enduring positive development. German employment rose through the late 2000s, an overall period of poor economic state. The United States was suffering from unprecedented unemployment rates during the same period. The reasons for this deviation are rooted in the background and development of each economy, as well as the manufacturing industry with each.

A powerful economy relies on an equally powerful manufacturing sector in order to create goods. The more products a nation is able to produce and successfully sell, the more stimulation will be generated within the economy. In order to effectively produce a large number of goods, a country must have a very large customer base and therefore export to foreign countries. This opens up a much wider population of possible customers than the limited number within each nation. To do so means the manufacturing industries must be capable of producing items that are consumed within as well as outside the country. As the
United States hit the economic recession in the late 2000s president Barack Obama understood raising exports would help boost the economy. However, by 2011 the US was far behind in their export industries and “Germany had quietly become the world’s second-largest exporter (after China)” (Rattner 7). How, therefore, did the much smaller European nation grow to surpass the economic giant in such an important financial facet?

Germany’s success is based around their private as well as their public sectors. The foundation to Germany’s manufacturing and success is the *Mittelstand*. The *Mittelstand* is the vast number of small to medium sized private firms that make up the majority of the German manufacturing industry. These smaller companies focus on “producing sophisticated goods that emerging markets cannot easily replicate” (Rattner 8). What this means is that each small firm concentrates all of its resources on developing only a few goods. In doing so, all of these parts are given great attention and a large importance is placed upon each one. In addition, these companies aim toward long-term growth instead of short-term profits.

This is a disaggregated system of manufacturing. Each good coming out of individual upstream firms is moved to downstream companies to create the final good for consumers. According to Rattner, the German saying is “we make the thing that goes inside the thing that goes inside the thing” (8). This allows each individual product and part to be more superior as it gets more attention. This should not be confused with horizontal integration in which multiple small firms manufacturing the same or similar products merge to form a larger firm. Instead, the German system utilizes many small, separated firms manufacturing different goods that combine downstream to form a final good. The contrary strategy is for a single company to manufacture most or all parts that are
necessary in producing the final product. This is known as vertical integration, which is characteristic of the United States automotive manufacturers. The American system of big business manufactures many different parts that go into the final product by one company within the same factory.

On top of private sector success, Germany’s public sector aims to help the economy. One such example is the Agenda 2010. Passed in 2005 by the then chancellor, this reorganized the German welfare system. The policy aimed at “pairing unemployment benefits to encourage work, relaxing stultifying regulatory practices, and forging a grand bargain with labor unions whereby the unions agreed to hold down wages and the government assured job security for workers” (Rattner 8). According to the Organization for Economic Cooperation and Development, this agenda saved about half a million jobs by 2009. Policies such as this aid in assisting individuals and businesses as well as boosting economic growth.

Besides the Mittelstand and government policy, Germany’s economy is largely based around its automotive superpowers. BMW, Daimler and Volkswagen reside in and make up nearly 20 percent of Germany’s GDP, according to Rattner. These three firms are the parent companies to Mini, Rolls Royce, Mercedes-Benz, Smart, Maybach, AMG, Audi, Bentley, Lamborghini, Bugatti and Porsche. While the three large companies contain many subsidiaries, all of the brands are making expensive vehicles. The high sales figures from the large German automakers contribute to a high level of product innovation. The Germans are known for over engineering their products and striving for perfection. Figure 1.1 below demonstrates the level of investment put into the continued manufacturing of German cars and trucks. The figure displays relative levels of research and development in
German industries. In 2014 alone, over 17.6 billion euros were spent on German automobile research and development (Industry Overview: The Automotive Industry in Germany, Germany Trade & Invest). This exemplifies the innovation within BMW, Daimler and Volkswagen.

![Innovation Intensity – Share of Innovation Expenditures of Turnover](Image)

*Source: ZEW 2015*

**Figure 1.1:** Research and development expenditure in Germany 2015. Graph from Germany Trade & Invest

Germany’s automotive industry has exceeded in producing high-end cars. The benefit of producing these types of vehicles is they flourish in affluent, booming markets like China. China “alone accounts for 25 percent of BMW’s global profits” (Rattner 8). The story is the same with the other German auto manufacturers who also have high sales levels in foreign countries. This means that the German manufacturing industry, along with the entire economy, is largely based on exports. As shown above, this is largely beneficial to a nation’s economy. While the United States was attempting to raise their export numbers,
Germany had already dominated the sector by creating a product foreign countries want. This has proven to be a very successful strategy demonstrated by the current strength of the German economy.

Japanese Development

After World War 2, Japan set its sights on new techniques for industrialization. “Whereas German products had long been at the top of the quality spectrum, Japanese products were at the bottom” (Best 137). Rather than attempting to follow the American manufacturing system, the Japanese decided to implement four new strategies. These new techniques would propel Japan to expand extremely rapidly between 1946 and 1976. The strategies that would transform Japan were low wage, scale economies, focus and overhead economies and flexible production. These methods were unique and created an entirely new form of industrial manufacturing.

Low wages were the initial strategy implemented by Japan to optimize the nation’s labor resource. During the post-war period, this was one of few Japanese available assets.
The country managed to optimize industries that were labor intensive in order to maximize the available resource. The Japanese paid workers very little as the large supply of laborers allowed little bargaining power for the people. This technique would reduce the manufacturing industry's cost tremendously during the mid twentieth century.

Japan's labor cost was severely lower than that of the United States and Europe in the manufacturing industries. This allowed the Japanese to produce goods that were also at a substantial discount. The low production costs, in relation to competitors, meant Japanese profit margins could exceed the foreign companies while selling less expensive goods. Low priced goods exposed Japan to available exchange in other parts of the world. As the United States could not compete with Japanese prices, demand for these foreign goods rose. This alone, however, was not enough to fully transform the Japanese industrial sector.

According to Best, Japan's next industrial strategy was to use scale economies. Economies of scale use high volume production processes to reduce the marginal cost and increase profit margins. The process required greater one time costs in the early stages but would reduce the production cost by allowing firms to produce large quantities at low prices.

The Japanese investments, like Carnegie's, would not have been justified on a discounted cash flow rate of return basis. They were long-term strategic investments to penetrate markets... after many years they began to pay for themselves because cost economies were sufficient to establish market dominance. (Best 141).

While the Japanese had to take a risk in initially investing greatly into the production process, it paid off for the country by reducing manufacturing costs in the long run.
Without doing so, the Japanese may not have been able to penetrate the global market or account for nearly the same level of exports.

Once scale economies were in place, the Japanese could begin working on efficient production. Using focus and overhead economies, the Japanese concentrated much more meticulously on the production line. Rather than having multiple production lines manufacturing several different products, the Japanese created a single line that produced high volumes of one product. This strategy reduced the overhead cost and complications that came with producing multiple items. Due to their higher overhead costs, the American firms were not able to compete with the low price point of Japanese products. The Japanese knew they could later expand efficient production but the single production line set the foundation for market development and global competition.

Flexible production became Japan’s next step into competing with global giants in America and Europe. While focus and overhead economies allowed Japan to initially out price the competition, they had to expand in order to compete with America’s multiple production lines. “The first three strategies were cost dominated, but the emphasis shifted from conserving costs of direct to indirect labor... the fourth is distinguished by an endogenous capacity of Japanese firms to improve continuously” (Best 140). Japanese ingenuity and development of their existing processes allowed them to expand without increasing costs. Efficiency was key to expanding in Japan and the Japanese industries did not rush into the process. This development is what built Japan into the manufacturing power that it is today.

Michael Best’s description of Japanese business in relation to the Americans gives no doubt that the foreign firms were manufacturing things better. Unlike American big
business techniques, Japanese and European firms sought to drive productivity and structure. Best describes the Japanese rising industry, or New Competition, as, “not about maximizing profits for a given material, product, process, and organizational method, but about seeking a competitive advantage by continuously upgrading product, process and organization” (144). This new foreign system of manufacturing is consistently upgrading and bettering its manufacturing techniques. This began a new line of thinking among automobile manufacturers. Rather than competing exclusively for profit the Japanese aimed towards competitive advantage. This means that the companies tried outperforming those in America using efficient techniques.

In using the efficient techniques the Japanese had developed over its years of industrializing, the speed developed was faster than ever expected. By investing resources to develop the best techniques in the beginning, the Japanese set themselves up for success later on. Best writes,

In a little over two decades, the Japanese steel industry did what Carnegie had done a hundred years before: international production leadership was established by investing heavily in the latest steel-making technologies which enable it to drive costs below the competition. (141).

Unlike the Americans, however, the Japanese did not see a successful technique as one to stand by but rather one to continually improve and develop on.
United States Big Business

The American business has always been unique in the bigger picture of global industry. Early industrialization and innovation have pushed the country to move rapidly over time. The shared traits of these quickly expanding businesses all circle around large-scale production models. In America, bigger is better and producing more leads to selling and earning more. The Americans believe where there is room to improve, there is also room to make more.

American industry sought to capitalize on the ability to produce large quantities at a lower cost. Rather than focusing on the product they were producing, US firms were concentrating on the quantity they could manufacture. This started an American trend of mass production that created large volumes at lower prices.

Mass production relaxes the constraint of rising marginal costs which, in turn, creates a strategic possibility not open to the firm in the perfect competition model: the mass producer can react to a condition of excess supply by increasing supply. The strategy would be to increase market share and compensate for lower margins with higher volume (Best 74).
This theory of manufacturing creates compromise, as quantity is the driving force. Other factors such as cost and price were seen by American big businesses as flexible around quantity.

In 1919, after near bankruptcy due to a lack of inventory, General Motors reorganized the company structure. They adopted the system of “standard pricing” created by Donaldson Brown. Brown stated “the object of management is not necessarily the highest attainable rate of return on capital, but rather the highest return consistent with attainable volume” (Best 66). This meant that GM would not adjust prices based on the costs of the business cycle but would keep prices constant to dramatically even out profits. This initiated General Motor's process of mass production as they could reduce costs by increasing production while keeping prices the same.

Ford desired to make a product that everyone could afford. Henry Ford’s “approach to sector regulation was to establish Ford Motor Company as the lowest cost producer and dominate the industry to such an extent that he could ignore competitors” (Best 78). This competitive attitude is what drove the American companies to produce. In order to increase consumer consumption, Ford raised the wages of his workers so they would become customers. He was looking to mass produce at the largest scale possible.

The Americans became consumed by increasing output to compete on the price of their vehicles. In Game Theory economics, this is known as the Bertrand economic model, in which firms choose their price in the market competing with identical products as the competitors. As said by Best, “General Motors did not plan for the New Competition” (80), meaning the Americans were not concerned with the strategies of foreign firms. American companies believed that by reducing the price of their vehicles in relation to foreign
companies, their product would be more appealing. In cheapening their product, American auto manufacturers believed they could entice buyers away from the more expensive foreigners. While this worked for some time, American build quality began to negatively affect the companies. The smaller firms in foreign countries like Japan and Germany learned and practiced new production techniques and slowly established more technological developments. They also began gaining market power to move successfully into the industry.

The American focus turned into a strict desire for profits. The system of producing more and charging less was the sole strategy in earning more money. The firms did not look at this in the long run but exclusively in the short run; a short run price competition against much smaller companies that were emerging. The Americans knew the small firms could not produce the quantity of output at their price and sought to drive them out of the market. Rather than continuing the innovation that built the country, the American automakers halted their progression and exclusively used these older techniques. This was a crucial error, as the Americans would have to then play catch up decades later.

The United States automotive industry has always been a powerful force within the country. With up and down market fluctuations, rarely did it ever occur that the country’s automobile companies would be in jeopardy of going out of business. In 1953 Charles Wilson, the then president of General Motors, declared, “As General Motors goes so does the nation”. Today, no American automobile manufacturer would dare to make such a declaration. The American auto industry has been in a slow decline since its peak during the mid twentieth century. Many have argued the reason for the decline but no one can positively identify the element or elements behind it.
Recounting what was stated above, American firms have had a fixation with large industry. This obsession began early in American industrialization with the construction of the railroad system and Andrew Carnegie’s steel business. According to Best, Once the railroads were established. Big Business emerged rapidly in those industries in which high throughput technologies could be deployed. Driving costs down by administrative coordination created profits in the form of quasi-rents to the early birds in a sector. Followers, however, had to struggle for a market share against a firm already achieving throughput economies. (48-49).

This exemplifies the American system of business in terms of scalability. US industries will attempt to expand as rapidly as possible in order to dominate the market. With new industry, it becomes a race as to which firm can do this fastest with the goal to push all other competitors out. American automobile manufacturers used this same technique while competing with foreign carmakers. Pushing high quantities with large price discounts was believed to exclude companies in Europe and Asia.

The Americans did not foresee the numerous downsides that would form as a result of such industrial large-scale structure. "American Big Business suffers from rigid command and control production organizations" (Best 7). Large corporate structure comes with strict protocols that slow and limit internal change. Unlike smaller firms that were forming internationally, American big business was slow to implement changes where need be. This slowed the American progress as the market dynamic continued to change. “American competitors who invested on the basis of rate of return for given production methods found themselves, too late, with declining market shares and loss-making operations. The lesson of Carnegie’s overwhelming of the British Steel industry had been forgotten in America” (Best 141). The Big Three automakers were able to survive with their lack of innovation until substantial changes occurred around the world.
American Automotive Trend

In the early 1980s, Ford, Chrysler and General Motors all produced compact pickup trucks and SUVs in response to high gas prices at the end of the 1970s. Pickup trucks had already been around for decades and a few sport utility vehicles, such as the Willys Jeep, were being produced as early as 1965. However, these cars maintained a presence in niche markets and were not marketed toward the masses. As gas prices began decreasing through the 1980s, the market opened up for the possibility of larger vehicles. The Jeep Cherokee, Chevrolet Blazer and Ford Bronco II all debuted in 1983 and 1984 aimed at better gas mileage compared to older large vehicles. These models began selling in much greater numbers than anyone expected. About a year later, the full-sized pickup truck and SUV market followed the same trend. A sudden popularity of SUVs was especially unexpected and remarkable. Between 1982 and 1985 the sales of SUVs jumped from 132,000 to over 800,000 (McCarthy).

In addition to the lower oil prices, falling interest rates and reduced inflation opened the door for light trucks and SUVs. The US auto companies benefited from the improved economic condition and unpredicted change in consumer preference. Baby Boomers paved
the way for SUVs in the mass market, as they were buying more of these vehicles than any other group. This generation was the first to begin substituting light trucks for their cars. “The median age of SUV buyers in 1987, for example, was thirty-five when the median age of buyers for many domestic car lines was over fifty” (McCarthy 232-233). The tough, off-road capabilities of these new vehicles resonated with the younger audience.

While the trend began by the image of greater access to outdoor recreational activities, only about 10 percent of SUVs in the 1980s were being used off-road. The illusion of being used in the “wild outdoors” covered up the environmental problems the vehicles had. According to psychologist Timothy D. Wilson, the indirect advertising of SUVs motivated Americans in the 1980s and 90s, to consider themselves outdoorsy, adventurous people (McCarthy). The association with the outdoors became a trend during this time, especially with American men. Market researcher Thomas F. O’Grady stated, “even though they are used mostly on the road, sports utilities fit people’s images of themselves. They project a rugged, tough image that some people like.” (McCarthy 234-235). Americans also saw this as an opportunity to eliminate station wagons in exchange for the new sport utility vehicles. Having more space within the vehicle for children and pets no longer meant sacrificing style.

The sport utility vehicle quickly became a fashion statement in American society. The automotive trend had a major shift toward taller, boxier motor vehicles. This was a large contrast from the long, low cars of the 1970s, such as the Cadillac Eldorado, Ford Thunderbird and Chrysler Imperial. The SUV arrived as a long awaited change in automotive styling after years of monotony. This resulted in huge demand for something new and different. Consumers, manufacturers and media all embraced this desire with the
SUV. General Motors, Ford and Chrysler all rejoiced the new trend and dominated the market, as foreign competitors were not creating the same vehicles. Foreign companies such the Japanese manufacturer, Suzuki, tried entering this new market by creating small, low-budget sport utility vehicles like the Samurai. However, these smaller SUVs never caught on in the United States as people were looking for larger vehicles.

During the 1980s, scientists had already begun doing research on the impact of the automobile to the environment. Global warming was a validated theory among scientists and the dangers of gasoline consumption were becoming apparent. However, neither this nor the dangers of SUVs, such as rollovers, seemed to affect consumers. Sport utility vehicle sales continued to grow as low gas prices signaled opportunity for larger and larger vehicles for customers. People were looking for an alternative to the minivan that had a ‘cooler’ image. The Jeep Cherokee was one of the first to do this and the other American manufacturers such responded with models such as the Ford Explorer in 1990. The Explorer became the pinnacle of SUVs in the US, immediately becoming the best-selling four-door SUV in its first year. Between 1975 and 1992, the percent of SUVs in America nearly doubled from 19 percent to 37.4 percent of all passenger vehicle sales (McCarthy).

According to Tom McCarthy, by 1997 nearly half of new vehicles sold in the United States were light trucks. The economic condition at the time allowed high asset turnover for the American carmakers as SUV sales were booming. As we will discuss in a later chapter, this paired with high profit margins from low costs and a lack of foreign competition made the American automakers greedy.

During this time of huge growth in the sport utility vehicle, neither consumers nor regulators were concerned with the emissions of these automobiles. The regulations on
these vehicles were lightly regulated and some SUVs “emitted as much as five and a half times more smog-causing pollutants per mile than cars” (McCarthy 240). SUVs were larger and heavier than cars, consumed much more fuel and produced more carbon dioxide. “Under EPCA, Congress permitted light trucks to meet less stringent fuel economy standards than cars” (McCarthy 241). The American auto industry was balancing on the current low oil prices and a lack of innovation. As we will discuss below, this dynamic was supported by easy credit policies on the part of financial institutions. “Prior to the financial crisis, General Motors and Chrysler concentrated on producing larger, less-fuel-efficient, and more-costly-to-produce models than their competitors, and offered aggressive price discounts to consumers” (Goolsbee and Krueger 14). It was these practices that drove the companies to fall as the oil market changed.

**Domestic Transplant Carmakers**

The turn of the century marked the tipping point for the Big Three automakers. Oil prices began to rise and Americans began trading in their large SUVs for small, fuel-efficient foreign cars. Ford, General Motors and Chrysler began dramatically losing profits in the mid 2000s. With their poor performance, one of the first measures was to begin laying off workers. From 2003 to 2013, the employment from the US automakers fell by nearly 50% ending in approximately 253,000 in 2013.

During the same period, foreign companies such as Toyota and Honda were increasing production and employment within the United States. These companies from Asia and Europe who are producing their product on US soil are know as domestic transplant carmakers (DTCs). Domestic transplant companies have been steadily
increasing production and nearly doubled employment to 163,000 by 2013 (Goolsbee and Krueger). Goolsbee and Krueger state that the American employment differences between US and domestic automakers show evidence that the problems within the Big Three automakers were unique to them and not foreign manufacturers.

The problem with the domestic transplant companies is the difference in wage and labor cost from the US firms. During the government restructuring, General Motors agreed to reduce employment from 96,000 to 45,000 by 2012 in order to have similar labor costs as the DTCs. “Estimates of the hourly compensation of the Big Three automakers put hourly compensation almost 25 percent higher than in the transplants” (Goolsbee and Krueger 6). Higher costs for the US companies were created by inflated wages and labor unions. This was one more element that the Big Three were battling while trying to compete with foreign manufacturers.

**Government Bailout**

Up to 2009, Ford, General Motors and Chrysler endured a continuous decline, logging some of the “worst corporate performances in American history” (Goolsbee and Krueger 4). In just a few years, US auto sales plummeted from a peak of more than 17 million vehicles per year to below 10 million in 2009. Sales were deeply affected by “the widespread perception of perennial quality and reliability issues, lower resale values, poorly received new models, and a lack of low-gas-mileage cars at times of rising fuel costs” (Goolsbee and Krueger 5). The American car companies were in a bad spot and it was clear bankruptcy was inevitable if things did not change.
Austan D. Goolsbee and Alan B. Krueger were directly involved with the government automotive bailout during 2008-2009. The decision to assist three major US businesses on the brink of bankruptcy was disputed amongst many Americans during the time. To this day many still argue that a failing business should have to pay the price for producing a subpar product. However, the fait of the three automotive giants would not only affect the workers who were employed by General Motors, Ford and Chrysler but also every other individual living in the United States. Whether the government assisted the companies or not, the American economy would be affected in a major way.

In the last quarter of 2008, the CEOs of all Big Three auto manufacturers requested a “bridge loan” of 25 billion dollars from the United States government in order to remain afloat. The three men blamed their companies’ downturn on the “Nation’s financial meltdown.” Chrysler CEO Robert Nardelli claimed that a shortage of credit caused by the recessionary economy was to blame for lack of auto sales. The company heads tried to fool the public into believing the economy was at fault for the American auto performance. However, as examined in the following chapter, the figures for Ford, General Motors and Chrysler prove Robert Nardelli and the other CEOs very wrong.

As the Big Three auto executives begged the government for money, they were criticized for internal company weakness. Skepticism spread over whether the auto companies could ever recover due to the poor business that had plagued the industry. Critics highlighted issues of “high cost, questionable quality, and the like as factors contributing to the industry’s troubles during the financial crisis.” (Goolsbee and Krueger 5). While the CEOs claimed they had fixed these problems, Goolsbee and Krueger say that
the problems had been building for years and the economic recession was certainly not the sole reason behind their decline.

When the issue developed in front of the Obama administration, the main concern was extreme job loss in the United States. The firms would lay off all workers if things continued the way they were going. In 2009, the Congressional Oversight Panel said that a collapse of General Motors and Chrysler would be “a potentially crippling blow to the American economy that Treasury estimated would eliminate nearly 1.1 million jobs.” (Goolsbee and Krueger 8). It was estimated at the time, that a liquidation of Chrysler on its own would result in the loss of approximately 300,000 jobs (Goolsbee and Krueger). This kind of result would produce a huge increase in US unemployment numbers as well as great costs to the government such as health care, unemployment insurance and additional programs that come with increased unemployment. The alternative option to providing a rescue plan, therefore, could prove just as, if not more, costly to the nation.

As the government is naturally risk-averse, the answer predictably leans toward the conservative choice. In order to avoid the risk of a massive boom in unemployment and hit to the economy, the decision was made to assist the auto industry. Clearly it would be devastating for three giant firms to fail at the same so some assistance was necessary. The government now had to chose the level of assistance to provide, as the choice to help one, two or all three of the companies was still pending.

Despite enduring significant losses, Ford chose not to take government support. While the United States government lent General Motors and Chrysler more than $20 billion at the end of 2008 just to hold the companies over until a bailout decision was made, Ford opted out. The company “had borrowed a significant amount of money in 2006 and
begun restructuring before the financial crisis struck” (Goolsbee and Krueger 7). Because Ford planned further ahead than GM and Chrysler they were able to withstand an economic recession better. This is an indication that incompetence and a lack of planning may have played factors in the degree of failure from the other two firms.

The money that was leant to GM and Chrysler at the end of 2008 was in order to prevent bankruptcy in the short-term. Congress was still deciding upon the bailout but had to adjourn for the holidays. As the two firms were at risk of failing in the time before a decision was made in early 2009, the government chose to lend over $20 billion. This money came out of the Troubled Asset Relief Program (TARP) using the Emergency Economic Stabilization Act. While $17.5 billion went toward the automakers, the remainder of the loan was given to the two associated financial groups. Combined, General Motors Acceptance Corporation (GMAC) and Chrysler Financial received over $2.5 billion. As shown below, these financial institutions played a huge role in the American automotive industry during this time.

Internal debate over the final bailout eventually settled upon the topic of Chrysler. A large number of people believed that the smallest of the Big Three would not survive, even after government interference and support. In a meeting over the automotive bailouts in March 2009, Goolsbee and Krueger both stated they did not believe Chrysler would survive another five years. This was also the majority opinion among the Obama administration's economic and auto team.

Our analysis suggested that a failure of the much smaller Chrysler, however, would probably not have systemic effects for the whole industry and that rescuing the company would make it more difficult and more costly for taxpayers to rescue GM, although we recognized that a failure of Chrysler would cause considerable hardship to its workers and their families and communities (Goolsbee and Krueger 4).
The Chrysler auto sales had plummeted in the short period between 2006 and 2009. In addition, Goolsbee and Krueger state that industry research led them to believe that current Chrysler customers would most likely turn to a different American car maker in the event of Chrysler going out of business. One hope for the company was a reconstruction through being acquired by another firm, as there was prospect in Fiat obtaining the company. However, Chrysler had already merged twice before, once with Daimler-Benz in 1998 and later with Cerberus in 2007. Neither of these previous acquisitions had proved successful so a third looked less hopeful.

While hope for Chrysler was slim, the company maintained several strong pillars that could hold it up. Chrysler contained its other automotive branches: Jeep, Dodge, SRT and Ram trucks. Some of these divisions were much more successful than the overall company. It was even discussed whether Chrysler could survive by saving its minivan and Jeep units. The decision was eventually made to save Chrysler, along with GM, in a resolution that “was based more on political and social reality,” according to Rattner. “President Obama heard the analysis on all sides of the issue. He concluded that the economy should not risk the failure of both companies in 2009 and opted to rescue both General Motors and Chrysler” (Goolsbee and Krueger 12).

President Obama rejected the initial restructuring proposal by Chrysler and General Motors and demanded a more severe reorganization attempt. The government recruited a team of private sector turnaround experts that would lead efforts to fix GM and Chrysler. Debate finally settled and the US Treasury Department lent $51 billion to General Motors and $12.5 billion to Chrysler. In addition to the two auto companies, the bailout and restructuring would also apply to each firm’s affiliated financing company and auto parts
supplier. GMAC received $17.2 billion as part of the rescue package totaling over $80 billion in government loans. The American auto industry was in the same condition as the big banks that had tipped the financial crisis. The devastating state of the Big Three by 2009 alludes to a plethora of bad business practices and strategies that far exceeded the condition of the national economic condition.
2. Measuring the Fall of an Industry

The automotive bailout has been criticized harshly since the initiative began in 2007. Many people within and outside the United States do not agree with the decision to aid the failing companies. This belief expresses that if your firm fails to profit in the industry, then it deserves to go out of business like any smaller business. In the previous chapter we discussed the American auto CEOs suggesting it was not their fault for their poor performance and rather the fault of the economic condition. However, it is evident that American production strategy was highly flawed in comparison with foreign companies.

Why then, did the United States government feel the need to prevent American auto companies from going into bankruptcy? This suggests the companies’ success has direct and indirect effects. Ford, General Motors and Chrysler are three giants in America today. Each one individually holds a great amount of power in the United States economy. The impact of changes in extremely large companies is much deeper than that of most firms that are medium to small in size. Large corporations like the Big Three automakers affect large economic factors such as job creation, consumer spending and economic growth. An upset in any or all of these items is harmful to the country as a whole. In the case of the United States, if Ford, General Motors and/or Chrysler are upset or altered, the resultant will ripple through the American economy.
Fuel Economy

One explanation for the decline in US automobiles is the increase in oil prices. Figure 2.1 displays the price of US regular gasoline between 1992 and 2014. Prior to 2000, prices remained relatively stable at a little over one dollar per gallon. It was during this time of the 1990s that American SUVs were booming. The Big Three seemed to have little concern for producing vehicles with good fuel economy. This was the time that cars and trucks became bigger and bigger as Americans embraced the low costs.

![US National Regular Gas Price](chart.png)

**Figure 2.1: US national regular gas prices in dollars per gallon**

However, the figure shows that after 2000, there is an extreme upturn in oil prices. Around this time Americans began replacing their big cars and SUVs with smaller cars in order to save fuel. By this time it was too late for the American companies. Years of
developing large, non-fuel efficient vehicles meant they were not ready for such a change. The foreign companies from Germany and Japan had instead spent the past several decades developing more efficient and compact machines. As a result, these small vehicles became the popular trend as people could no longer afford to fuel their big cars and trucks.

Figure 2.2 shows the United States Environmental Protection Agency (EPA) fuel economy rating for the American Big Three compared with two Japanese brands, Honda and Toyota. The EPA is responsible for monitoring and rating the fuel efficiency and emissions of each vehicle on the road. The figure shows the ratings of cars, trucks and combined between 1975 and 2015. The data uses the average of all of the cars in each manufacturer’s fleet. In addition, the bottom row of the figure displays the percent of trucks being produced from a manufacturer’s fleet.
Figure 2.2: Car and truck fuel economy by manufacturer for model year 1975-2015 and percent trucks being sold. Graph from the EPA.
In 1990, General Motors, Ford and Chrysler (now known as Fiat-Chrysler) had average fuel economies of around 20 miles per gallon (MPG) for cars and trucks. This was when SUVs were becoming very popular in the United States. At the same time, Toyota and Honda had average fuel economies around 25 MPG. That is 25% higher than the American level. Between 1990 and 2000 the graphs show little progress by the US manufacturers. The lower graphs show that there is a huge increase in the percent of trucks being produced and sold. This parallels the American vehicle taste at the time. This also leads to a decrease in American brand overall fuel economy. The Big Three were not concerned with producing fuel efficient or small vehicles. As the Japanese competitors continue to innovate, their fuel economy continues to rise.

After gas prices began to increase and the size of vehicles began to decrease, the Americans finally began new developments. However, by this time it was already too late and they were far behind the foreign companies. The extent of this is still present in recent years. In their annual report of 2014 model year vehicles, the EPA stated “Fiat-Chrysler had the highest CO₂ emissions and lowest fuel economy, followed by GM [and] Ford” (Light-Duty Automotive Technology, ES8). The same was true of 2013 model year vehicle ratings. The American manufacturers’ lack of innovation and development has then set them back from foreign companies for over a decade.

**Quality of Automobiles**

The high fuel economy and large size of American cars was not the sole problem with Ford, General Motors and Chrysler. The downward trend in American vehicles after
year 2000 points toward their inferior overall product. Other companies out of Japan and Germany were not having the same experience as the Americans in selling cars. The foreign automakers were out-performing using a greater product and technological development.

Consumer Reports has earned the title as the standard in car reviews with currently over one million subscribers. Car manufacturers as well as consumers look to the magazine for automotive advice and references. In 2004, Consumer Reports published their best and worst used cars of the year.

Every year, Consumer Reports conducts an extensive survey of car owners, asking them about serious problems that have cropped up in the past 12 months. The survey generates more than half a million responses, which together paint a detailed picture of how cars up to eight years old are holding up (Buying Guide 198). This reports advises consumers as to which vehicles and manufacturers are reliable and producing the best products. Buyers look to Consumer Reports to make a safe purchase and to avoid bad products.

In 2004, Consumer reports published their best 39 used cars. Of these 39, only 3 were from US companies. This is a clear indication that the American vehicles reviewed by the magazine’s survey concluded poor results. This is even more evident while looking at the worst used cars in 2004. 28 cars made this list that Consumer Reports described as having “more problems than average over multiple years. Buying one could be asking for trouble” (2004 CR 201). 24 of the worst 28 were vehicles out of Ford, General Motors or Chrysler. Due to the poor quality and engineering of their product, Consumer Reports told their audience not to purchase numerous American cars.

By 2009, the American companies still had not improved. Within their best cars section, vehicles are separated into the categories: best of the best, family cars, upscale
cars, luxury cars, sports and sporty cars, minivans, small SUVs, midsized and large SUVs, and Pickup trucks. Of the total 70 cars, trucks and SUVs that they recommended, only six were from the American Big Three. In addition, no American car was rated as the best in its class. Japanese and German manufacturers dominated the remainder of the top 70 cars and trucks.

To make things worse, the American companies again lead Consumer Reports’ “worst of the worst” category in 2009. The magazine gave 34 vehicles, which it believed to be the worst performing cars, trucks and SUVs. Consumer Reports does not recommend any car on this list for customers. They described this class as having “multiple years of much-worse-than-average reliability among 1999 to 2008 models” (Best and Worst Used). Of the 34 total, 22 were American cars. It is no surprise that American cars were not selling as reviews and advice-givers were telling the American people not to buy the products out of General Motors, Ford and Chrysler. Instead, they were advising consumers to purchase from the Japanese and Germans.

The quality and poor reviews of Ford, General Motors and Chrysler are due to a lack of innovation. Figure 2.3 shows a series of graphs that display different auto manufacturers’ development of variable valve timing. Variable valve timing (VVT) is an advancement within fuel-injected engines that improves the performance, fuel efficiency and emissions of the motor. The figure makes it clear that the American companies are innovating much later than the others. Chrysler, Ford and GM are behind the fleet average by many years.
Companies like Nissan, Honda and Toyota began advancing and integrating their variable valve timing technologies in the early 1990s. Chrysler did not begin making cars with VVT until after 2005. Ford and General Motors also had few cars in their fleet with variable valve timing until the late 2000s. This is the same story with multi-valves, lockup transmissions and front wheel drive. All of these developments improve efficiency and
performance in modern cars. However, the Americans trailed foreign competitors with each one. This makes it clear that the Big Three were following in other brands’ footsteps rather than developing their own new technologies.

Besides the in-house development within automotive manufacturers, car companies use many outside suppliers for parts they do not develop themselves. The supply chain is a crucial element to any big business, especially an automobile manufacturer. The high volume of outsourcing parts is due to the huge number of parts going into the final product that cannot all be produced by a single producer. Increased sourcing is also used in some cases to reduce costs. Figure 2.4 from the Economic Planning Institute shows the working relationship between several American and Japanese auto manufacturers and their parts suppliers. The graph shows that before the recession of 2008 the relationship between Ford, General Motors and Chrysler and their corresponding suppliers was very poor. In relation, the Japanese brands shown in the graph maintained adequate to good relationships with their suppliers throughout the 2000s.
Figure 2.4: Auto manufacturer to supplier working relations. Graph from the Center for Automotive Research

This relationship is important in the development of automobiles. A company that has poor relationships with its suppliers is more likely to change suppliers often. This means that there will be less development and innovation within the parts being manufactured for specific vehicles. American cars and trucks are therefore less likely to undergo as much research and development as the foreign companies with good supplier working relations.

Stock Performance

The innovation, or lack there of, from the American auto companies significantly affected company performance. The stock prices of the Big Three demonstrate how poorly
the companies were doing. Figure 2.5 shows the evolution of Ford’s stock price (F) between 1990 and 2014\(^1\). The figure tracks the percent growth from the starting point in 1990 in relation to the change in the S&P 500 index through the same period. The S&P index shows the market pattern of the largest 500 companies with common stock and is considered one of the best representations of the United States economy. If a company were to fluctuate according to solely the economy, their stock price would mostly overlap with this indicator.

Figure 2.5: S&P 500 vs. Ford from 1990-2014

In figure 2.5 above, it is clear that Ford and the S&P 500 are not following the same path. Rather, there is a great deviation between the price of Ford stock and the S&P index. Ford is greatly underperforming the S&P and therefore the nation. Between 1990 and around 2001, the two lines follow close growth patterns. This means that Ford was following the national economic progression at this time. However, after 2000, the lines

\(^1\) General Motors and Chrysler stock information was not available before 2009 due to company restructuring and acquisition during government bailout.
grow further and further apart until there is little parallel between them. The biggest difference is between 2003 and 2007 as Ford undergoes steady decline while the S&P, and therefore the nation, grow significantly. This is representative of the deterioration the US automotive industry independent of economic condition.

The national recession is clearly indicated in 2007 and 2008 as the S&P 500 has a huge sudden drop. However, Ford only declines a fraction of the amount. This signifies that Ford was not affected by the recession as drastically as the economy as a whole. While the S&P 500 drops much more significantly, its growth remains far above the single firm. Ford was in a devastating place at this time, progressing below the 1990 stock price. The graph shows the decline clearly started in the early 2000s and is not only due to the economic recession.

The graph also indicates the difference in overall growth during this period. Starting with a basis of zero, the S&P 500 grows over 400% over fifteen years. Meaning, the S&P 500 price was over four times higher at the end of 2014 than the start of 1990. This is a long-term upward trend that can be expected of such a time frame. Ford does not show the same growth and only gains 91%. In addition, at two separate points in the span of time Ford drops under its 1990 stock price. This is something that is not even close to the S&P 500, even during the recession.

Besides being far behind the S&P 500 and showing very poor performance, figure 2.6 shows Ford’s stock price compared to that of Wal-Mart (WMT) and Honda (HMC) between 2004 and 2014. This graph keeps the S&P index so it can be compared additionally to the other companies. Ford’s stock growth remains significantly below the other three measures for nearly the entire time span.
In adding Wal-Mart, figure 2.6 now looks at another American company that endured the same economic conditions as Ford. Like Ford’s stock, Wal-Mart’s stock price is below the S&P average between 2005 and 2009. However, it stays much more level and does not undergo any significant declines over the entire ten-year period. Looking at the entire graph, the Wal-Mart stock follows very similar levels and fluctuations as the S&P. This is especially true between 2009 and 2014 as the two lines have a great amount of overlap. This evidences that the overall economy was not responsible for the downturn of Ford, as another American company was not undergoing the same trend.

Looking at the purple line in the graph, Honda is now compared to Ford and the S&P between 2004 and 2014. This line stands clearly above all other three lines for the entirety of the figure. As Ford is undergoing a steady decline from 2004 to 2008, Honda’s stock price rises for most of this period. In addition, Honda experiences nearly the same drop
during 2008 as the S&P 500. This means that the foreign carmaker was affected in a very similar manner by the financial recession as the American economy. Ford and Honda stock prices experience very different trends that are signs of differentiated development for each firm. This illustrates that automakers as a whole were not bearing the same deterioration that the American car manufacturers had.

The period after the turn of the century marks the downfall for the US auto industry. During the bailout, American auto CEOs argued the economy was the force that landed the companies in the financial whole of 2008. However, figures 2.5 and 2.6 clearly show that American automakers were not following economic trends and were doing more poorly than other US and automotive companies. Foreign automakers must have then had another element that lead to their superior performance. This indicates the internal causes that lead to the crash of the Big Three.

Automotive Market Share

The decline of the American auto industry is further exhibited through the industry market share. The once powerful Big Three automakers no longer dominate the market as figure 2.7 demonstrates. The three pie charts illustrate the top 10 companies with the highest market shares in the automotive industry in years 2000, 2006 and 2014. The differences that are clearly demonstrated in these models are a testament to the change in industry and economy over 14 years. This will illuminate the decline the United States auto companies endured that was examined above.
Figure 2.7: Automotive global market shares in 2000, 2006 and 2014 using data from the International Organization of Motor Vehicle Manufacturers
As discussed above, 2000 marked the tipping point for the auto industry. After a steady period of enlarging vehicles and increasing business, the American companies were at the top of the industry. As shown in the first pie chart within figure 2.7, General Motors was the top auto manufacturer in 2000, holding 14.4 percent of the automobile market. Ford followed GM as the second largest with 12.9 percent market share. The smallest of the US Big Three, Chrysler, also showed success as the fifth highest market shareholder with 8.2 percent. The foreign companies out of Japan and Germany do not have nearly the same influence on the global market at this time.

By 2006, the market had already undergone a big turnaround. The American companies were no longer dominating the auto industry and foreign competitors were controlling more and more of the market. As displayed in the center chart of figure 2.7, while General Motors was still on the top, it had lost over one percent of its market share since 2000, landing at 13.2 percent. Toyota was now just trailing at 11.8 percent. Ford had dropped to the third largest automaker and plummeted from 12.9 to 9.6 percent market share. This was over a three percent decrease in only six years. The jump between 2000 and 2006 also shows the impact that Chrysler was enduring. The smaller firm lost more than half of its market share dropping from 8.2 to 3.7 percent. The falling numbers indicated the dire position the US companies were in at this time.

Eight years later, the top market shares show a complete rearrangement. By 2014, General Motors no longer maintained the top spot but instead fell all the way to the third highest market shareholder. Between 2006 and 2014 GM lost 2.8 percent of its market share and was now sitting at 10.6 percent. Toyota now led the industry with 11.5 percent
of the global market share. Volkswagen, which had only 8.3 percent in 2006, now controlled 10.9 percent of the market and was the second largest automaker. The chart shows an influx of new foreign manufacturers controlling the market. Hyundai, a Korean company, went from 3.7 in 2006 to 8.8 percent by 2014. Ford was now only the fifth largest supplier of vehicles with continued decline to 6.6 percent market share. By 2014, Chrysler had been acquired by Fiat and was now under Fiat Chrysler Automobiles (FCA) holding 5.4 percent of the market.

These three charts show a strong picture of the changing automotive climate. The trend of big American cars had impacted the companies in the long-term. As the Big Three lost significant business between 2000 and now, the foreign companies showed an opposite movement. The same is true of the market share within the United States. Figure 2.8, from the Center for Automotive Research, shows the downward trend that all three American automotive brands have in the US market. General Motors, Ford and Chrysler continue to have declining US market share over the duration of the chart. This indicates that Americans are turning more and more to the foreign automotive manufacturers.
The Manufacturing Sector

In identifying the importance of any and all of the Big Three automakers, the impact on gross domestic product and employment in the United States are the largest and most valuable identifiers. In contrast to smaller industries, fluctuations in automobiles are visibly reflected in these measurements. The automotive industry is contained in the manufacturing sector of American business. As well as automobiles, automotive parts are subsets of American manufacturing. These subdivisions contribute largely to the manufacturing industry and thus to US GDP and employment.

According to the World Bank, in 2000, the United States’ manufacturing sector contributed 16 percent of the value added to the national GDP. The Bureau of Economic
Analysis has since stated that in 2008 the manufacturing industry decreased to 11.3 percent of the United States’ GDP. As seen in figure 2.9 below, manufacturing still contributed the third largest valued of national GDP after dropping over four percent in eight years. The National Association of Manufacturers states that the manufacturing industry contains the “highest multiplier effect of any economic sector” with a 1.37 ratio according to data from the BEA. That is, that every one-dollar spent of manufacturing adds one dollar and thirty-seven cents to the US economy (Top 20 Facts about).

![Figure 2.9: Percent Contribution to US GDP by industry in 2008: Data from Center for Automotive Research](image)

In 2008, the automotive industry accounted for 19 percent of the manufacturing sector’s output. That is equivalent to 2.2 percent of the national GDP that year. As seen in
Figure 2.10, this 2008 number is relatively low for the industry. Around 1999, the auto industry was creating four percent of the nation’s GDP. This was over 23 percent of the manufacturing sector’s output. This is a massive contribution in a sector as large as the manufacturing. While the Big Three have declined significantly these numbers show the importance of the industry to the economy. However, this is only half of the story as employment is just as crucial in the US economy as the level of GDP.

Automotive Output as Percentage of GDP

![Automotive Output as Percentage of GDP](image)

Figure 2.10: Automotive output as percentage of GDP. Data from Center for Automotive Research using data from the BEA

Automotive Employment

The importance of US automotive manufacturing is clear for the impact on national GDP. However, besides this, a large reason for the government bailout was to protect
American jobs. The automobile industry is so vast that a bankruptcy would ripple through millions of individuals and their incomes. The United States employment rate is a crucial statistic in measuring the health of an economy. “An economy is reinforced by the size and job creating capability of its manufacturing base” (Center for Automotive Research 2010). In addition, the automotive industry maintains one of the highest employee value-added rates among industry manufacturers. In 2006, each employee working in motor vehicles added $321,000 of final product into the market according to the Center for Automotive Research.

The manufacturing sector of the car industry alone employs a very large number of Americans who are affected by the Big Three automakers’ performance. Figure 2.11 uses
data from the Bureau of Labor Statistics to illustrate the number of jobs that are affected by the auto industry. The manufacturing sector, that produces the parts and vehicles on the road, accounts for hundreds of thousands of jobs. Between 1990 and 2006, the automotive manufacturing sector employed over one million employees within the United States. This figure peaked in 2000 with over 1.3 million employees after continued success with big vehicles and lower gas prices. As the Big Three started declining after 2000, there is a dramatic descent in manufacturing employment that dropped even more severely after 2006. These are the jobs that are being lost as US car companies were failing to sell as many cars.

During the recession when bankruptcy was possible, the graph shows major job cuts as the companies attempted to cut costs. Over one hundred thousand jobs were lost in auto manufacturing between 2007 and 2008 and again between 2008 and 2009. The year 2009 marked the lowest employment in this sector in recent history. This parallels the industry’s performance and shows how jobs are affected by the welfare of these large companies. To think if one, two or possibly all three of the Big Three had failed, US auto employment numbers would have continued to decline to devastating figures.

Manufacturing is not the only employment sector of the automotive industry. As a tremendous industry, individuals and jobs are affected far beyond the factories that make the cars. The dealers that sell vehicles and parts are also affected by Big Three. Looking again at Figure 2.11, the numbers of dealer jobs are greater than manufacturing positions. The trend in employment between car dealers and parts dealers is nearly the same yet they both differ from the manufacturing trend. These sectors did not see significant decline in employment until 2008, when the bailout began. This industry, too, would be devastated
by the collapse of even one of the American automakers. These numbers not only show the extent that the automakers affect the American economy but also represent the condition of the firms during the time period.

![Graph showing total US automotive employment as a percentage of total US employment from 1990 to 2014.](image)

**Figure 2.12:** Total automotive employment/Total US employment from the Bureau of Labor Statistics

When summing the American automotive employment figures, the total is a very significant percentage of the total US employment. Figure 2.12 shows the American auto employment as a percentage of the total nation employment each year according to the Bureau of Labor Statistics. Of all Americans employed, the auto industry accounts for around three percent of jobs. This is a huge number that represents the impact the industry has on the nation. Looking at the graph, the percent of US employment declines beginning in the early 2000s. We saw above how the declining automotive employment figures were due to declining performance. However, figure 2.12 shows that, during the
recessionary period, the auto industry is declining more significantly than the entire economy in terms of employment. If the decline in employment was due to the recession alone, the graph would show a more flat distribution. This is because the auto employment would be reducing evenly relative to total employment. Since there is a major decline from 2006 to 2009, the Big Three are performing worse than the overall nation.

While many foreign car manufacturers are now producing vehicles within the United States, Figure 2.13 displays their employment gap from the Big Three. Ford, General Motors and Chrysler are employing almost a 68 percent majority of American automotive jobs. This means that the majority of the auto jobs are held by those affected by the three American companies. According the American Automotive Policy Council, in 2014 Fiat Chrysler Automobiles employs 16.84 percent of the American Automotive jobs. If the smallest American auto company had not been bailed out and had failed during the recession, this portion of workers would have been unemployed. This is a huge number that would have brought national unemployment numbers down significantly.
As it is proven above, the economic climate was clearly not the sole reason behind the decline of the American auto companies. The statement in the previous section from Chrysler CEO, Robert Nardelli, stating the company performance was entirely due to the financial crisis is evidently false. Ford, General Motors and Chrysler were declining at a different rate that the US economy due to a lack of innovation and progression. The big business strategies used by the three firms put them behind the foreign companies out of Japan and Germany. As we will examine in the following chapter, the financialization and practices of the American auto companies also contributed to their downfall and subsequent crash.
3. Financialization of the Automobile

The half-century before the Great Depression was consumed with big business and the rise of robber barons. American business grew and industrialized through the end of the nineteenth century becoming known as the “industrial period”. As businesses grew, each required more and more funding to handle costs and business expenses. It quickly became impossible to fund these large companies through individual wealth. Therefore, the necessity to borrow became abundant to support and continue to grow big firms. This began the financial economic stage in the United States. Financial institutions sold equity shares directly to the firms influenced by “whirlwinds of optimism and pessimism” (Wray 2011c 4). These financial institutions would then create trusts and inflate them with gullible public investment. They would then sell off their shares and abandon the fund. This process created little real production and was based on the speculation of trading capital. “There were no ‘fundamentals’ to drive the Wall Street boom. Inevitably, it collapsed and a ‘debt deflation’ began as everyone tried to sell out of their positions in stocks—causing prices to collapse” (Wray 2011c 4). It took the real spending of World War II to get out of the Great Depression. The period that followed the Second World War was the welfare state in which the economy maintained stability. This was continued through the majority of the twentieth century until new financial practices beginning in the 1980s brought about a new economic state.
Financial Fragility

Minsky breaks modern financial lending into three risk categories: hedge, speculative and Ponzi finance. In order, this refers to the level of fragility from the safest to the most risky. In hedge finance, an individual or institution holds enough liquid cash to payoff the entirety of the obligation, including interest, at any time. This means the borrower is able to “fulfill contractual payment commitments on liabilities” (Minsky 1992b 4). Speculative finance signifies that the incoming cash flows are enough to pay off interest but not the full value of the commitment. Lastly, a Ponzi posture means the individual or institution lack the ability to pay either interest or the principle value. In Ponzi finance, the borrower must borrow further in order to repay the initial commitment, placing themselves in more debt. “Note that Ponzi financing decreases equity for debt increases without any increase in assets” (Minsky 1992b 6). If the institution does not borrow more money to cover the interest payments required, they will default on the obligation.

These different financial strategies determine the fragility of an institution. Each economy holds a mixture of hedge, speculative and Ponzi postures. If there is a majority of hedge finance, the institution is likely to be less fragile than one that is saturated with Ponzi positions. Banks use speculative finance, as they are able to replay interest to investors but do not hold enough liquid cash to repay the full amount. This system stays relatively stable as banks could maintain paying interest to their investors as long as they did not withdraw their initial sum. However, if banks were to use Ponzi finance, the system would be extremely risky and unstable and inevitably lead to a crash. “A liability structure in which units are heavily in debt so that speculative and even Ponzi finance are common will be
towards the fragility end of spectrum” (Minsky 1992b 5). Each financialized institution balances on some combination of the three postures.

Financial fragility is the weakness behind a capitalist economy. Unlike an industrial based economy, financialization balances on speculative monetary exchanges. The problem with this is that financial business uses few real foundations as supports. According to Minsky, “a collapse of asset values, which forces the price of capital assets below the cost of production of investment output, could occur in many countries” (Minsky 1992b 2). Minsky sees this as the risks in a financial economy and he believes this collapse would undoubtedly lead to a global depression.

The early 1990s saw the development of securitization of financial institutions. One purpose of this was to move assets off balance sheets. Doing so would reduce capital requirements. “If assets did not need to be counted, leverage ratios could rise tremendously” (Wray 2011a 5). The institution is also able to choose its risk and return using securities. This securitization system grew tremendously, as Minsky said, “that which can be securitized will be securitized” (Minsky 1987). Using securities, businesses avoid the traditional banking system.

Minsky uses the phrase, “make position by selling out position” (Minsky 1992c), in order to describe the strategy among financial institutions. This terminology refers to the position of banks and other institutions that use financial lending and borrowing. Selling position refers to selling debt in order to have more capital to invest. Banks and firms then lend this borrowed money to individuals in the form of loans. The institutions will then profit from the loans’ interest to pay back their debt. This type of business can range from
stable to fragile based on the above borrowing practices that are used. As we will see below, capitalist tendencies move lending and borrowing into a riskier state.

Keynes’ financial instability interpretation, or the financial instability hypothesis, believes that after a duration of economically strong time, a financial institution will progress toward fragility. The theory believes that as a capitalist institution develops, it will become progressively financialized. This means it would rely more and more on borrowed money and therefore moving further from hedge and closer toward Ponzi finance. This dependency is based on the exchange of present money for future money. “The present money pays for resources that go into the production of investment output, whereas the future money is the ‘profits’ which will accrue to the capital asset owning firms” (Minsky 1992c 2). Firms understand that it will be more profitable to borrow more money and therefore hold less liquid capital.

During the 1990s and 2000s, banks and financial institutions were undergoing this transition. It was more profitable to borrow more money in order to loan out further capital. This meant moving closer and closer toward Ponzi finance. In addition, banks were borrowing money short term rather than long term. "If the Fed was willing to raise rates that much, no financial institution could afford to be stuck with long-term fixed-rate mortgages" (Wray 2011a 5). Short-term borrowing allowed them to have fewer costs associated with each sum of borrowed money. The problem with this system is it relies on the loans and interest coming into the bank to pay back the debt. If the institution does not have these cash flows it cannot repay its debts. As we will see below, this became a major problem leading up to the financial crisis.
Minsky understood the capitalist banking cycle and believes it is a natural progressive change. His theory is that capitalism drives toward financialization and institutions will therefore try to continuously “make position by selling out position”. As this occurs further and further, the economic structure will become more fragile. The riskier financial policies will create wholes that could collapse the system. This means a collapse and a resurrection are destined within this system. Minsky stated that government intervention is natural part of the process and should not be viewed as a “bailout”. He stated:

The need for the government to intervene to refinance savings and loan associations and commercial banks should be viewed as a normal and therefor expected result of the characteristics of the economy which make intermittent bouts of chaos, incoherence or hysteresis occur and where the consequences of allowing free reign to such “states of nature’ are deemed unacceptable (Minsky 1992b 13).

This means Minsky understood the build up to and the reasons behind financial crises. He believed it was expected for the financial institutions to become increasingly fragile leading to a crash.

**Money Manager Capitalism**

According to Wray, the 2007 financial crisis was the result of several key financial components. These components changed the dynamic of the financial and business markets. The first was the rise of professional money managers who seek maximum returns from the funds they control. This is known as managed money. The problem with this is each manager has the goal of total return and is competing for clients. This influences the managers to make riskier investments and to exaggerate their numbers. The money managers along with shadow banks, or “financial institutions that are not regulated**
as banks” (Wray 2011c 6), would purchase commercial paper or junk bonds from firms, usually in the form of securities. Along with this, an increase in outsourcing in which money managers such as hedge funds would hire Wall Street firms to manage money. This would lead to abusive practices like “shoveling trashy assets like asset backed securities (ABS) and collateralized debt obligations (CDOs) onto portfolios of clients” (Wray 2011c 7). These investment banks would also help their clients disguise or hide debt.

This system that began in the 1990s was the beginning of money manager capitalism. Minsky coined this term, calling it “the modern form of the previous stage of finance capitalism that self-destructed in the Great Depression of the 1930s” (Wray 2011a 2). He saw this system as a culmination of the issues Wray stated above and added that there was little regulation or supervision. As the name suggests, this period was saturated with money managers creating growing risk while competing for clients and returns. This type of business quickly drew upon riskier financing using speculative and Ponzi positions. Figure 3.1 illustrates the rise of managed money and the decline of banking. Managed money includes, but is not limited to, hedge funds, pension funds, sovereign wealth funds, mutual funds and university endowments.
Automotive Financialization

Since the beginning of the automotive industry, the carmakers have maintained high operating leverage. According to the *Foundations of Financial Management*, “operating leverage reflects the extent to which fixed assets and associated fixed costs are utilized in the business” (Block, Hirt, and Danielsen 126). The operating leverage of a firm is based on the company’s total costs and total revenue. As illustrated in figure 3.2, a firm with high fixed costs and low variable costs will have a more flat costs curve while a company with low fixed costs and high variable costs will have a steep cost curve. As the cost is flatter, there is greater area between that and the total revenue curve as displayed below on the left. This means under the break-even (BE) point a firm endures substantial losses while above the break even will provide large profits. A firm with lower fixed costs, and
therefore less operating leverage, will have a higher break-even point but will undergo more mild losses up to that point.

As automakers, there are many large fixed costs that are associated with the industry. The costs of multiple plants along with a great amount of machinery are all fixed, as they do not fluctuate. Ford, General Motors and Chrysler therefore all endured high operating leverage from their numerous assets. This meant their total costs and total revenues resembled the left figure below more than the right. For the auto companies, if they were able to sell vehicles and have revenues above the break-even point, their profits were high and would continue to grow substantially the higher their revenue. However, if the manufacturers could not reach this crucial point, they experienced huge losses. During the 1990s when the Big Three were able to sell big numbers of SUVs, their profits were large. However, as we examined in previous chapters, SUV sales sunk in the 2000s with rising oil prices and their profits disappeared. This meant that the high operating leverage and high fixed costs cost the companies huge amounts of money.
Leading up to 2007, the American automobile companies also began following the trend of financialization. The car companies began making more and more loans to individuals purchasing vehicles. Additionally, there was an increase in leased vehicles from all three manufacturers. The manufacturers were profiting more from the loans and leases on vehicles than from the sale of the car or truck. This encouraged financial lending and discouraged industrialization. Meaning, the car companies had less incentive to create new technologies and improvements in their vehicles. This explains largely to the auto companies’ lack of innovation displayed in the previous chapter. Ford, General Motors and Chrysler were not as concerned with the quality of the vehicles being produced as much as the financing of the good.

Between 1990 and the auto bailout in 2009, the Big Three showed a similar path of developments that professor Wray believed lead the economy as a whole to the financial crisis. Following the characteristics of money manager capitalism, the American automakers wanted to move assets off their balance sheets in order to reduce capital
requirements. Money managers controlled each company's money and acted in the interest of only achieving high total return. Before money managers, the company would put capital towards the best long-term interest of the firm. Money managers were not interested in items such as upgrading equipment and numerical costs. Money managers encouraged whatever practices lead to the greatest profitability. This created a very short-term view as the managers wanted to generate the highest profits.

In addition to money managers, the automotive companies themselves became banking institutions. As Wray described above, the three were acting as shadow banks. Ford, General Motors and Chrysler were giant companies with huge amounts of capital. They saw the profitability of loaning money and did not have reason to use a third party for what they could do themselves. This describes the system of big business the American car companies were using in manufacturing as they were vertically integrated to produce many parts themselves. The auto companies transformed their treasury departments into profit centers. In creating and using their financing arms such as GMAC and Chrysler Capital the carmakers were able to disguise assets using shadow banking strategies. This was accompanied by the outsourcing of auto loans to investment banks. The different banks would compete to purchase the loans from the auto manufacturers creating layering. This means there are intermediaries who increase the firm's financial leverage.

The auto companies were increasing their financial leverage through these developing practices. "Financial leverage is the degree to which a company uses fixed-income securities such as debt and preferred equity" (Financial Leverage and Capital). According to Investopedia, as a firm uses more debt financing the higher its financial leverage will be. The DuPont system of analysis states that financial leverage, also known
as the equity multiplier, is directly related to return on equity, profit margin and asset turnover. The DuPont return on equity (ROE) equation is as follows:

\[
\text{Return on Equity} = \text{Net Profit Margin} \times \text{Asset Turnover} \times \text{Equity Multiplier}
\]

The profit margin of the firms represents operating efficiency while the asset turnover shows the asset efficiency, or how well assets were used to generate sales. The equation illustrates that if profit margin, asset turnover and/or equity increase the return on equity will also increase. However a combination of fluctuations in these three variables will create a relative change.

Every firm aims to increase its return on equity. The ROE tells investors whether a company will provide them with strong returns on their capital. “Ideally, investors and analysts prefer to see higher returns on equity” (Maverick). If companies are handled by money managers, they are required to have a high return or the money managers will not do business with them. They can achieve this if their profit margin, asset turnover and/or equity multiplier are strong. The US auto companies understood this and aimed towards a high return on equity to satisfy the managers.

Illustrated in the previous chapter, the American car companies were far behind the innovation of the foreign firms. This meant that they were not able to compete over cost as the Japanese and Germans optimized efficiency. The American response to this was to compete over quantity by producing as many vehicles as possible. This strategy did not work until 1990 when the American firms began producing SUVs. This was a product the foreign companies did not have, and therefore the Americans did not have this outside competition. The Big Three repackaged their trucks that they had been manufacturing for
decades into the SUV, which they could then sell at a high price. This meant that the American profit margins were much higher on SUVs than their sedans and small cars. The money managers saw this and encouraged SUV production. This behavior leads to higher asset turnover, as the car companies were able to sell many more vehicles at a quicker rate. This production trend increased the American auto profit margins and asset turnovers, which caused an inflated return on equity.

The third element to affect the American auto companies’ ROE was the equity multiplier of the firm. This means collecting more debt by borrowing more money. As we saw above, the Americans already had high operating leverage and needed to pair this with an increased financial leverage. Not only would increased financial leverage provide the companies with benefits such as concealing assets and increased profits, but this would also create a higher return on capital for money managers and investors. This incentivized the carmakers to accumulate further short-term debt. While the ROE can be a good measure of investment profitability, this shows that a high return can also be a sign of risky financing and therefore risky investment.

In evaluating a firm, the debt-to-equity ratio (D/E) is equally as important as the return on equity. This ratio is an appropriate measure because the manufacturing of automobiles is a very capital-intensive industry. “An increasing D/E ratio indicates a company is being increasingly financed by creditors rather than by its own equity” (Maverick). While holding some debt is healthy for a company, containing too much is a sign of risky financial practices. This means move further from hedge and closer to Ponzi finance. “Both investors and potential lenders prefer to see a lower D/E ratio. In general, an ideal D/E ratio is around 1 when liabilities are roughly equal to equity” (Maverick).
Debt-to-equity ratios can either take the form of a numerical figure or as a percentage
\((\text{number} \times 100\%)\). If a firm’s debt-to-equity ratio is greater than 1 (100%) the firm has more debt than equity and may be a risky investment.

As the American auto companies continued to borrow more and participate in risky lending beginning around 1990, their debt-to-equity ratio was representative of their financial practices. Looking at figure 3.3 below, the debt-to-equity ratios of Ford is well above that of the foreign firms. Capital-intensive industry such as automobile manufacturing typically has higher D/E ratios than other industries. The D/E ratio of Japanese and German automakers is much below that of Ford, showing that the US firm had a different business model than foreigners. Honda, Toyota and Volkswagen all have debt-to-equity ratios around 1, paralleling Maverick’s statement above about a healthy ratio. However, Ford currently has a D/E ratio three to four time that of these foreign automakers. Ford also has enormous jumps between 2006-2012 due to the large amount of capital it borrowed in 2006 and the overall financial crisis over the period.
Figure 3.4 illustrates the D/E ratios of the other two US automakers from the mid 1990s to 2015. This graph uses data from General Motors and Chrysler annual reports. Both companies were restructured after the bailout and Chrysler changed ownership from Daimler to Fiat. This is represented through the fluctuations and jumps in the data. While the numbers are on average below that of Ford above, both companies are still substantially higher than the Japanese and Germans. The annual reports presented by GM and Chrysler are illusive and display characteristics of firms hiding debt and assets as discussed earlier. General Motors generally reported very low levels of debt while disguising the majority under GMAC. Similar is true for Chrysler and Chrysler Capital. Both

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2 General Motors and Chrysler are separated from figure 3.3 because of limited information due to the company restructuring after the 2009 bailout.
3 General Motors 2002 value affected by high pension liabilities and therefore assessed using varied formula
of these financing arms are shadow banks for the manufacturers. The higher levels of debt that the Americans have over the foreign brands shows they are financing more based on borrowed money.

Figure 3.4: Debt-to-Equity Ratios for General Motors and Chrysler from 1995-2015

Figure 3.5 below displays the asset-backed securities issued by auto manufacturers between 2000-2015. “An asset-backed security (ABS) is a financial security backed by a loan, lease or receivables against assets other than real estate and mortgage-backed securities” (Asset-Backed Securities – ABS). These numbers represent the number of loans and leases being issued by automotive companies. The automakers would then sell these loans to banks in the form of securities. This is the process of outsourcing as discussed previously. The steep rise in ABSs between 2000 and 2005 is reflective of the easy credit,
high housing prices and strong economic climate. This created increased demand for new vehicles and the carmakers were happy to issue more loans. However, the economy weakened after this point leaving consumers with depreciated vehicles they could not pay off. "A serious recession might cause many car owners to default on their car payments to GMAC, and thus leave the owners of the asset-backed security without the promised cash flows. This happened quite often in 2007-2009" (Block, Hirt, and Danielsen 242). If financial institutions were borrowing short-term, which the American auto companies were doing, they would then lack the cash flows to repay their obligations. This is how the automakers began dealing in Ponzi finance as they relied on cash flows to repay interest as well as the value of their obligation. Lacking the income, the system failed to be maintained and collapsed inward on the Big Three.

Figure 3.5: Automotive ABS issuances from 2000-2015
After 2005 there is a substantial fall in figure 3.5, indicating a decreasing number of ABSs. This was due to falling demand along with the inability of the automakers to get the financing to make loans. The fall is also prevalent in figure 3.6 that shows the change in issuances. There is a steady decline in the number from 2006 to 2010. After years of firms issuing fewer and fewer loans, the Fed began the Term Asset-Backed Securities Loan Facility (TALF) program to help the flow of credit. (Felkerson). This allowed automakers and other financial institutions to increase the issuance of loans, and therefore asset-backed securities. This is illustrated in both figures as the program succeeded in increasing the number of asset-backed securities. If this program had not been put in place, it is certain ABSs would have continued to decline. When the TALF program ends around 2012, the ABS issuances slow down.

Figure 3.6: Percent change in auto ABS issuances from previous year
These figures are clear indicators that the American automakers had spread into a wider industry. The money manager control diverged the US firms further from manufacturing and closer to the banking sector. Acting to achieve high profits, the Big Three became consumed with issuing loans and accumulating debt. Their practices grew more and more risky until there was no way to sustain the debt system. This led to the crash during the financial crisis. Contrary to popular belief, the financial crisis was not the cause of the auto bailout but just a factor that contributed to the final descent.
Conclusion

The American automotive CEOs argued that it the fault of the economy as a whole that the Big Three had fallen to the brink of failure. It is clear now that this was false and the companies themselves drove themselves into the ground. The performance of the three companies in relation to that of the whole economy indicated the automakers were underperforming because of unique problems. Years of short-term views and big business strategy limited Ford, General Motors and Chrysler from the big picture of the automotive industry. However, it was not exclusively the traditional issues of industrialization that drove the decline but a new stage of capitalist financialization.

Focusing short-term, the US automakers overly compensated their business techniques with large vehicles and SUVs. They were not able to compete with the efficiency of Japanese or German firms in producing small cars but saw an opening in the large car market. The Americans were able to generate much higher profit margins producing SUVs and did not have strong foreign competition in the 90s. The low oil prices allowed them to sell mass amounts of these vehicles and the money managers encouraged high asset turnovers to increase return on equity. On top of this, increased debt caused the firms to become more risky. This increased the financial leverage of the US automakers and incentivized them to increase their financial business instead of their manufacturing sector. Innovation suffered because of this and made the Big Three fall further behind foreign competition. The US carmakers therefore fell apart because of the backward system of taking financial priority above manufacturing.
Financialization proved to be a profitable yet harmful characteristic of the American auto big business. Though this lead up to what Minsky calls a natural bailout, the automakers do not appear to be learning from their mistakes. In a Reuters article written by Bernie Woodall, Ben Klayman and Paul Lienert in August 2014, the three stated that risky automotive lending has increased since the 2009 bailout. Before the financial crisis, subprime home loans grew out of control from a lack of regulation and oversight. Now, the regulatory agencies have a firm hold on home loans, so banks are instead changing their sights on auto loans. There is much less regulation on unsuspecting auto loans and we are seeing a rise in subprime loans. “General Motors Co (GM.N) is among several automakers recording growth in subprime lending, to borrowers with credit scores of less than 620” (Woodall, Klayman, Lienert). The capitalist system of financing continues, as there are profits to be made. These subprime auto loans may soon bubble up, leading to the next economic recession since the burst of the housing bubble in the 2007.
References


<http://americanautocouncil.org/job-creation>.


