Market Analysis Report: China's Automotive Industry

APCO worldwide®

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EXECUTIVE SUMMARY

- China's automotive industry has experienced phenomenal, double-digit growth rates since 2000. Though the recent global economic slowdown has negatively impacted the industry, with passenger vehicle output dropping to 6.7% growth in 2008, long-term growth prospects remain encouraging.

- Industry growth has been driven by rising domestic demand stemming from rising incomes, a growing middle class, and international demand for low-cost auto components in the international aftermarket and international original equipment manufacturing (OEM) market.

- The Chinese automotive industry remains very fragmented, with the economic slowdown expected to expose the weaker players. The government is seizing the opportunity to encourage industry consolidation in hopes that a few leading companies will emerge.

- China's weak R&D, domestic innovation and design capabilities are a key challenge to international competitiveness. With the government's encouragement, domestic firms have opted for strategic partnerships with foreign players, aiming to facilitate technology transfer and improve domestic design.

- The Chinese government has implemented a number of tax breaks and subsidies for automobile purchases. The effects have been immediate, reversing a three-month trend of declining sales and registering record levels of automobile sales in March.

- Beijing has gradually introduced automobile emissions standards for new vehicles. Plans to develop alternative fuel vehicle production capabilities (especially for electric and hybrid vehicles) are part of a broader, environmentally friendly strategy to develop the auto industry.

- Market opportunities exist especially in the following areas:
    - Supply of essential automotive components/systems to OEMs
    - Developing domestic innovation capabilities (e.g. vehicle design processes, high power diesel engines)
    - Productivity and quality upgrade (e.g. engines, transmissions, electronic control systems, safety systems)
    - Investment promotion
    - Clean transportation technologies
    - Automotive training
    - Advanced manufacturing technologies.

1. MARKET OVERVIEW

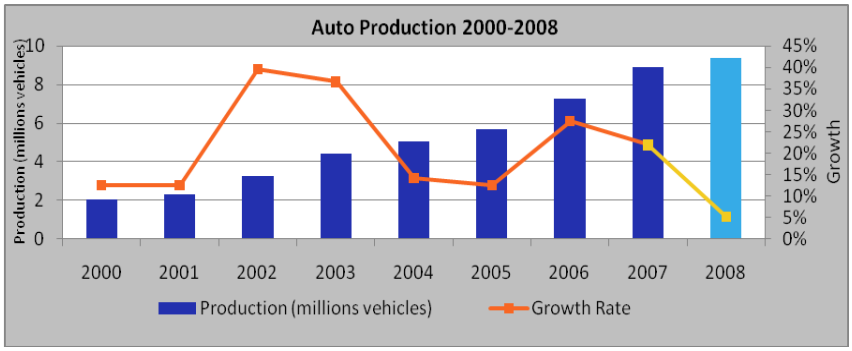
- China's automotive market still holds the world's most growth potential; per capita car ownership is still remarkably low at 3.9%, but continued growth is expected.
- Domestic whole-vehicle manufacturers and automotive suppliers are still extremely fragmented and challenges remain in domestic R&D and design, though government-supported consolidation may be on the horizon.
- With government subsidies and tax incentives, China is aiming to establish early footing in the production of low-emission and environmentally friendly automobiles.
- Component imports grew by 4.89% in 2008; air bag assembly, driving axle assemblies and shock absorber assemblies experienced triple-digit growth.

1.1 GENERAL OVERVIEW

Market Growth

Fueled by domestic and foreign demand, China's rapidly expanding automotive industry has outpaced the nation's already impressive GDP growth rates in recent years. Domestically, rising incomes, alongside encouragement by the Chinese government for its urban population to obtain drivers licenses, have spurred the demand for passenger vehicles. The booming passenger vehicle market has led to the soaring demand for automotive components. Internationally, automotive manufacturers faced with seemingly continually decreasing margins and profitability have sought out more affordable supply chain solutions, looking to China as a potential source of lower cost automotive components.

Unlike developed markets for passenger vehicles, where growth in demand has been largely stagnant, China's domestic demand for new automobiles has skyrocketed in the past years. Passenger vehicle sales expanded at 30.02% in 2006 and 21.68% in 2007. However, the automotive market has suffered from global economic crisis, with shrinking domestic demand causing growth rates to fall below double digits for the first time in nine years in 2008. 2008 output totaled 9.38 million units, up 6.7% from the previous year (see the chart to the right).



Source: China Association of Automotive Manufacturers (CAAM)

Despite the recent slowdown, China's automotive market is still widely considered to hold the most growth potential in the world. China's per capita private car ownership is 3.9%, far less than the 40% average of developed countries, and even less than other emerging markets, such as Russia, Brazil and India. This indicates that China's domestic market is far from being saturated. The demand for cars from China's expanding middle

class is still strong, while sales in tier-one and tier-two cities, as well as in rural areas, should keep growing at a rapid pace over the next few years.

Market Players

There are currently more than 100 whole-vehicle manufacturers and nearly 8,000 automotive parts manufacturers in China, located primarily in Southern, Eastern, and Northeastern China (see the map on the right).

Together, the top ten passenger vehicle manufacturers, seven of which are Joint Ventures (JVs), claim more than 80% of China's market share (see the table below). Nearly every global vehicle manufacturer has established JV operations in China.

Major Automotive Clusters in China

Source: CAAM

Top 10 Passenger Vehicle Manufacturers in China (2008)					
Rank	Manufacturer	Headquarters	JV Partner	Sales (Unit)	Market Share
1	SAIC[1]	Shanghai	GM, VW	1,720,650	19%
2	FAW[2]	Changchun	VW, Toyota, Mazda	1,532,923	17%
3	Dongfeng	Wuhan	PSA, Nissan, Honda	1,320,606	14%
4	Chang'an	Chongqing	Ford, Mazda, Suzuki	861,377	8%
5	Beijing Auto	Beijing	Hyundai, Daimler	771,639	8%
6	Guangzhou Auto	Guangzhou	Honda, Toyota, Isuzu	525,979	5%
7	Chery	Hefei	N/A	356,093	4%
8	Brilliance	Shenyang	BMW, Toyota	285,242	3%
9	Hafei	Harbin	Suzuki	223,802	3%
10	Geely	Taizhou	N/A	21,823	2%
	Others			1,560,000	17%

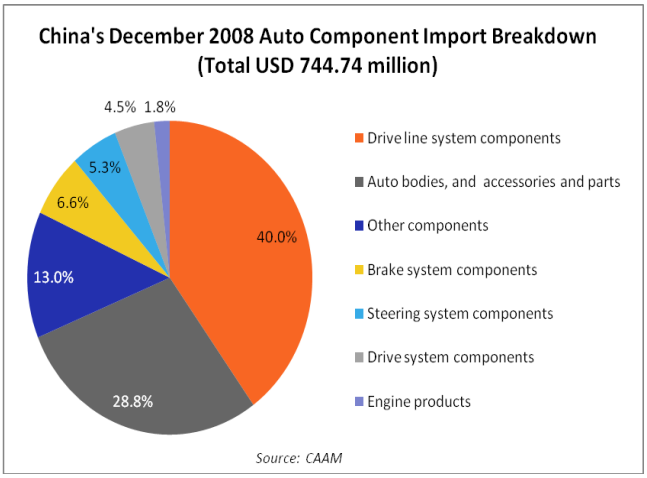
Source: CAAM

Import

Encouraging growth rates in demand for automobiles and components has caused not only domestic firms to ramp up production, but has also attracted the attention of leading foreign automotive manufacturers eager to access the rapidly expanding market. Foreign automotive manufacturers have also been encouraged by lower import tariffs. Import tariffs on whole vehicles have been lowered in the wake of WTO accession from 70% to 80% to the current level of 25%. Import tariffs on Semi-Knocked-Downs (SKDs) and Complete-Knocked-Downs (CKDs) have dropped from 50% to 25%, while import tariffs on vehicle components have dropped from 15% to 10%.

[1] Shanghai Automotive Industry Corporation
[2] First Auto Works

Automotive component imports increased in 2008 by 4.89% to reach USD 13.45 billion. Engines, electronically-controlled fuel injection components, vehicle bodies, safety belts, transmission components, air bag assembly, driving axle assemblies and shock absorber assemblies accounted for a quarter of total component imports, among which the latter three had triple-digit growth. More than 80% of the imported components came from Japan, Germany, Korea, the U.S., and France, of which components from Japan were close to USD 10 billion.



In 2008, in order to discourage production of automobiles with high fuel consumption and emissions, consumption tax on automobiles with displacement above 3.0 liters was raised as indicated in the table on the right. It should be noted that among the engines with displacement exceeding 3.0-liters, imported vehicles comprise the majority, and therefore are largely affected. Consequently, the adjustment is also perceived by many in the Chinese government and industry to "improve" the structuring of China's auto imports.

Passenger Vehicles by Discharge Volume	Previous Tax Rate	Current Tax Rate
DV≤ 1.0L	3%	1%
1.0<DV≤1.5	3%	3%
1.5<DV≤2.0	5%	5%
2.0<DV≤2.5	9%	9%
2.5<DV≤3.0	12%	12%
3.0<DV≤4.0	15%	25%
4.0<DV	20%	40%

In general, there are three main groups that import automotive components into China:

- **Japanese and Korean whole vehicle manufacturers and Tier I suppliers**: Generally, these companies tend to only use suppliers from their country of origin. For example, Toyota typically sources components from Japanese JVs or Wholly Owned Foreign Enterprises (WFOEs) on the mainland, or directly import from Japan. Such practice tends to result from strict quality requirements, cultural compatibility, and logistical concerns.
- **German, US and French whole vehicle manufacturers and Tier I suppliers**: The companies typically import components in the areas where Chinese suppliers are weak, e.g. safety systems for high-end passenger cars.
- **Chinese OEMs**: Chinese OEMs are emerging buyers of imported automotive components, especially in the segments of hybrid and electric vehicles and Chinese-branded luxury vehicles.

Export

In addition to domestic demand, international pressures have also played an important role in driving the growth of the automotive component industry. Margin pressures have driven automotive manufacturers in developed markets to seek out more affordable sourcing solutions to their automotive component needs. Many have begun to look to

China as an attractive alternative, providing them the opportunity to take advantage of lower costs across the entire value chain, from product design to integration and delivery.

China's automotive component exports grew to USD 32.61 billion in 2008, a 9.8% increase over the previous year. Owing to the global economic slowdown, this is much slower than in recent years. According to the Ministry of Finance, automotive component exports experienced an average annual growth rate of more than 35% from 2002 to 2007.

1.2 Market Structure

Supplier Landscape

The automotive supplier landscape in China is extremely fragmented. The China Association of Automobile Manufacturers (CAAM) reported a total of 7,959 automotive enterprises in China in 2008, scattered in the segments of motor vehicle manufacturing, vehicle refitting, motorcycle production, engine production and automotive parts manufacturing. This includes 100 OEMs, of which 40% produce passenger vehicles. At the end of 2008, there were about 1,400 foreign investments in 7,959 automotive manufacturers in China. The high degree of fragmentation in the industry is largely attributable to the fact that Chinese suppliers serve a very fragmented local OEM market.

The world's leading automotive companies are all well-established in China. OEMs are represented by Ford, General Motors (GM), Volkswagen (VW), Daimler, BMW, PSA, Mazda, Nissan, Honda, Toyota, Hyundai, and tier-one international companies including Bosch, Delphi, Denso, Johnson Controls, Lear, Magna, Visteon, Yazaki, ZF, Arvin Meritor, TRW and the likes. Several international automotive giants are moving their R&D centers to China, with heavy encouragement for joint-R&D centers and laboratories from the Chinese government.

The top Chinese automotive parts manufacturers are, for the most part, wholly owned domestic companies such as ASIMCO, Wanxiang, Hongteo, Fuyao, Dicastal, Wanfeng and others. These companies could be competitors or partners for Israeli companies.

Domestic Flagship Automotive Companies

ASIMCO Technologies Ltd.

Founded in 1994, it is now one of China's largest independent component manufacturers. In 2008, it recorded more than USD 500 million in sales.

- Produces castings, brake systems and components, diesel fuel injection systems, NVH products, piston rings and camshafts for China and global markets.
- Powertrain components account for approximately 75% of sales.
- Operates 17 manufacturing facilities & 52 sales offices in China.
- 70% of sales are to domestic customers, 30% goes to the U.S., Europe and Japan.
- All facilities are certified to QS 9000 or TS 16949 quality systems.
- Adopted Six Sigma quality standard and improvement program in 2003.
- Has extensive technological and business relationships with companies from the U.S., Europe & Japan.
- Seeks opportunities for cooperation in R&D, as it has done with Caterpillar and Haldex Corporation.

Most major international OEMs have established global sourcing offices in China. The components sourced are not only for the Chinese domestic market, but also for assembly lines of these OEMs in the US, Europe and Australia. For example, Ford's Global Sourcing Office in Shanghai sourced about USD 1.7 billion in automotive components in 2007, and it has aggressively planned to increase its annual sourcing to around USD 10 billion in a few years. Daimler sourced USD 410 million in 2008 in China, and plans to increase the amount to USD 3.25 billion in four years. Israeli companies could consider engaging these OEMs' sourcing offices to explore business opportunities.

In response to foreign interest, and investments by local manufacturers intent on meeting domestic demand, Chinese automotive component manufacturers have ramped up their capabilities tremendously, improving not only product quality but also technological sophistication.

Key Challenges for the Domestic Industry

Chinese suppliers are now looking beyond domestic markets and are improving their production process to emerge as true global competitors. However, further investments in R&D are still required before Chinese manufacturers possess the capability to achieve competitiveness on a global scale, as the industry still trails in technological capability and suffers from quality issues.

R&D capability

Almost all Chinese automotive component manufacturers can produce when provided designs and specifications. However, most of them lack design and R&D capabilities.

Owing to weak R&D capabilities, many local suppliers have opted to enter into technical collaborations and JVs with leading international suppliers with the goal of facilitating technology transfer and improving basic product design capabilities. Domestic R&D capabilities of Chinese automotive parts manufacturers have historically been limited due to small-scale operations and a shortage of investment in laboratory facilities, in comparison with international firms.

Taking steps to remedy the situation, the Chinese government has continued to encourage investment in

Domestic Flagship Automotive Companies

Shanghai Automotive Industry (Group) Corp (SAIC)

SAIC is a state-owned company headquartered in Shanghai and one of the top-three auto groups in China. It holds an 83.83% stake in SAIC Motor Co. Ltd., which is listed on the Shanghai Stock Exchange.

- In 2008, SAIC led all Chinese auto groups with sales volume of more than 1.83 million units.
- Ranked 373 in the Fortune 500 in 2008, with consolidated revenue of USD 22.6 billion in 2007.
- Manufacturing bases in Shanghai, Liuzhou, Chongqing, Yantai, Shenyang, Qingdao, Yizheng and Nanjing.
- Acquired Nanjing Automotive (Group) Corp (NAC) in 2007.
- NAC has an annual production capacity of 400,000 vehicles and has three major vehicle production bases: Nanjing Yuejin, Nanjing Iveco and MG.

Chery Automotive (Chery)

Chery was founded in March 1997 in Wuhu, Anhui, and produced its first sedan in December 1997.

- The biggest Chinese vehicle exporter for six consecutive years.
- Sold more than 135,000 units in 2008.
- Annual production capacity of 650,000 vehicles, 650,000 engines and 400,000 sets of gearboxes.
- Six years to produce first 500,000 cars, and only 1.5 years to produce the next 500,000.
- Established R&D centers in Italy and Australia, and assembly lines in Russia, Argentina, Iran, Indonesia, Uruguay, Malaysia and the Ukraine.

R&D of core systems, such as engine, transmission system, steering system, brake system and driving control system.

Safety and reputational issues

Incidents and product recalls have raised questions about the quality and safety standards of Chinese manufactured automotive components. For example, in 2007 the U.S. National Highway Traffic Safety Administration ordered the recall of 450,000 Chinese-made replacement tires that lacked a gum strip, making them prone to separation and leading to a fatal 2006 crash. The agency has also received reports of Chinese engine fuses that could spark electrical fires, windshield glass that could shatter into large shards, and poorly welded wheel rims that have the potential to separate from wheels at highway speeds. All of those parts have been recalled.

As a result of such recalls, as well as other non-automotive related manufacturing scandals including lead-paint-tainted toys, contaminated pet food, and anti-freeze laced toothpaste, Chinese manufactures are facing serious reputational issues. This is a problem local manufacturers will have to overcome if they are to increase their competitiveness on a global scale.

The drivers are in place for Chinese domestic manufacturers to move to the forefront of the global automotive industry, but substantial domestic investment in R&D and improvements on quality and reputation are a necessary prerequisite.

1.3 EMERGING INDUSTRY TRENDS

Industry Drivers

The rapid expansion of the Chinese automotive industry has been largely attributable to growth in domestic demand for passenger vehicles and international demand for affordable automotive components. The Chinese government also continues to play an important role in encouraging the growth of the industry.

With respect to domestic demand, rising incomes and a growing middle class have led to a rise in consumer culture, and the purchase of an automobile is increasingly becoming a symbol of financial success. Though larger cities in China are experiencing more frequent traffic congestion issues, this has not deterred the Chinese from actively making new automobile purchases. China overtook the U.S. as the world's number one automotive market in January 2009. Such positive developments in the passenger vehicle industry have benefitted both domestic auto manufacturers, which are emerging from their infancy stages and developing competitive capabilities, and major international automotive giants, which have increased investment into China to expand their presence. However, per capita car ownership remains remarkably low at 3.9%, far below the 40% average witnessed in developed countries, a sign that domestic demand for passenger vehicles will remain strong in years to come.

The domestic aftermarket for automotive components is becoming an increasingly important driver of the industry. The more than eight million cars sold annually in China,

and expectations of continued sales increases, will lead to a growing number of automobile repairs, further stimulating domestic demand for automotive components.

With respect to international demand for automotive components, international automotive firms have faced pressure of decreasing margins in recent years and have begun to seek more economical alternatives abroad. China's vast, inexpensive labor force presented an attractive option for producing lower-cost automotive components, initially for use primarily in the international aftermarket, but increasingly for use in the international OEM market as well. Today, the majority of leading international automobile OEMs has established global sourcing offices in China. However, the recent economic downturn has had a negative effect on Chinese auto components manufacturers, particularly those who are relatively export-oriented. A recent survey of China's automotive parts suppliers revealed that 40% face severe liquidity issues, and without aggressive measures to improve cash positions, a number will fail over the next year. This development is expected to contribute to the consolidation trend in the automotive industry, discussed below.

Finally, the Chinese government continues to play an important role in driving the industry as well. Post-WTO accession concessions have resulted in lower import tariffs, giving international automotive firms more access to the domestic market. Beijing has actively encouraged establishment of JV R&D centers with preferential tax policies designed to facilitate knowledge and technology transfer. The government has also pledged substantial funds towards automotive technology innovation, upgrades, and R&D of alternative-fuel automobiles and components, as well as setting quotas for purchases of domestically produced vehicles for government use.

"A Year of Adjustment"

2008 may be referred to as a "year of adjustment" for the majority of China's domestic automobile brands. Following consecutive years of rapid growth, major automobile brands like Chery and Geely entered a phase of corporate strategic adjustment, expending more resources to "internal work." They introduced a fewer number of new models than in previous years, directly contributing to Chinese brand auto manufacturers' 0.43% loss of market share.

One up-and-coming newcomer, BYD, which focuses on electric vehicles, managed to achieve excellent results, unlike many of its other Chinese competitors. Of all domestic brand auto manufacturers, only BYD managed to meet its set production and sales goals. In the second half of December 2008, BYD announced that it had met its annual production and sales goal of 200,000 automobiles. Its leading model, the F3, sold 166,632 units, up 66% from the previous year, becoming one of the best-selling domestic models.

Industry Consolidation

China is looking to take advantage of the economic slowdown to restructure the automotive industry, stating a preference for two or three dominant domestic automobile manufacturers in comparison to the current, more fragmented market. The State Council made statements that it had set the goal of reducing the number of major automakers,

who are responsible for 90% of domestic sales output, from 14 to 10. Under the plan, two or three companies would dominate the industry, responsible for producing more than two million vehicles annually, while four or five others would have annual output capacity of 1 million units.

The State Council named four groups as potential industry heavyweights, urging them to take advantage of consolidation opportunities that may present themselves in the wake of the economic downturn – FAW, Dongfeng, SAIC and Chang'an. Additionally, it named four regional leaders that it encouraged to consider regional consolidation: Beijing Automobile, Guangzhou Automobile, Cherry and Sinotruck. All above mentioned companies are passenger vehicle manufacturers, except Sinotruck, which manufactures heavy-duty trucks with sales of 112,017 units in 2008.

Though the central government has indicated a clear preference for industry consolidation, realizing its goal may not come as easily as hoped. On the one hand, the current economic slowdown is especially hitting the weaker automakers, facilitating deal making at home and slowing down the trend of outward acquisition. On the other hand, however, China's automotive market structure is complex, making consolidation a difficult task, especially considering potential redundancies that could occur from merger and acquisition activities and local government officials' reluctance to make such concessions for the sake of consolidation. With more than 100 vehicle manufacturing companies, large and small, consolidation may take considerably more time and effort than the government would like.

Global Expansion

Chinese companies are expected to become formidable automotive market players in the near future. Domestic vehicle and auto parts manufacturers have begun to seek out investment opportunities abroad. Desires to enhance R&D capabilities, obtain new technologies, and access to foreign markets are all key drivers motivating Chinese automotive firms to expand abroad.

This trend toward outward expansion is illustrated by one of China's largest independent carmakers, Geely Automobile's acquisition of Drive train Systems

Domestic Flagship Automotive Companies

Shanghai Volkswagen

Established in March 1985, the group is one of the first JV car manufacturers in China.

- Shareholders include SAIC (50%), German Volkswagen Group (40%) and Volkswagen China Investment Co (10%).
- To date SVW has produced more than 4.2 million cars, and is the largest vehicle brand in China. Its standard Santana model is recognized as the best-selling car in China.
- SVW has an annual production capacity of 600,00 cars, with three plants located in Anting Shanghai International Auto City and one plant located in Nanjing.
- Based on its core brands Volkswagen and Skoda, it has developed 6 series of models: Santana, Passat, Polo, Touran, Lavida and Octavia.

Geely Holding Group

Geely started to manufacture cars in 1996, and was listed on the Hong Kong Stock Exchange in May 2005.

- Headquartered in Hangzhou, Zhejiang Province, Geely represents the first privately-owned automobile manufacturers in China with its own brand.
- Geely now has an annual production capacity of 300,00 cars and 300,00 engines and gear boxes with six manufacturing bases of vehicles and powertrains.
- Geely already has more than one million cars on the road in China and had 21.4% markets share in China for economy cars in 2007.

International (DSI), the world's second largest auto transmission supplier. In the agreement between Geely and DSI, Geely will invest in the R&D of the Australian-based auto transmission supplier to help keep its leading role in the world's auto parts market.

Lower Emission Cars Gaining Market Share

According to CAAM statistics, passenger vehicles with a discharge capacity of no more than 1.6L achieved total sales of 3.1 million in 2008, increasing overall market share by 3.9% to 61.54%. On the other hand, market share of cars with discharge capacity from 1.6L to 2.0L decreased by 2.72%. This indicates vehicles with discharge no more than 1.6L are consolidating their dominant position in China's sedan market, corresponding with China's push to promote energy conservation and environmentally friendly cars with lower emissions. Much of this shift is due to the car consumption tax adjustment enacted in September 2008, which promoted the sales of cars with lower emissions (see chapter 1.1). Such government efforts to encourage the production and purchase of lower-emissions passenger vehicles has paid off, as car manufacturers are paying more attention to the benefits of producing such cars. Additionally, JV efforts have also resulted in the launch of new models of lower-emissions cars in attempts to expand market share. In 2008, China produced a total of 2,100 alternative fuel vehicles. It has set an ambitious target of increasing that number to 500,000 by the end of 2011.

2. REGULATORY OVERVIEW

- While China has officially fulfilled its WTO obligations, barriers to trade still exist.
- Government tariffs on automotive imports are still not in compliance with WTO rules, and minimum capital barriers still exist for foreign investors. The government has created some incentives to spur R&D partnership, and regulations for foreign distributers have been eased somewhat.
- The government has plans to spread higher auto emissions standards for new cars to cities beyond Beijing, most notably to Shanghai and Guangzhou, which aim to institute 'China IV' standards by yearend.
- The government is pursuing tax deductions on alternative fuel vehicles, especially electric and hybrids vehicles, and a wide range of subsidies to boost (rural) purchases and aid domestic manufacturers.

2.1 FOREIGN ACCESS TO THE CHINESE AUTOMOTIVE MARKET

Trade

The Chinese auto sector is competitive and has a well developed supply chain. Imports of foreign-made auto parts will likely decrease as OEMs continue to increase their local capacities. At the same time, higher quality Chinese auto parts are being increasingly integrated into the global supply chain.

In December 2008 China lost a trade dispute over automotive parts to the U.S., Canada and the European Union. The World Trade Organization Appellate Body asked China to bring its import tariff rules into compliance with international rules. In China, import tariffs are 25% for whole vehicle and 10% for automotive parts. According to a Chinese regulation effective in April 2005, imports of automotive parts which are valued 60% or more of a whole vehicle are regarded as a whole vehicle, and therefore the 25% tariff would be applied. China now has a "reasonable period of time" to make legislative changes, after which a separate WTO panel will determine whether China has come into compliance with international rules.

Investment

Despite these past and anticipated regulatory adjustments, foreign businesses still must meet a number of requirements in order to access China's automotive market. The Chinese government has set minimum registered capital requirements for establishing automotive facilities (USD 73 billion for automobile financing, USD 73 million for engine production, USD 1.4 million for an R&D center), and all projects are subject to government approval. Foreign firms looking to establish businesses to produce passenger vehicles cannot set up WFOEs, but must partner with a local Chinese firm in the form of a JV, with the foreign partner's stake limited to 50%.

On the other hand, China offers fiscal and financial incentives to attract foreign investment in R&D strategies as part of the central government's strategy to speed up international technology transfer and maintain economic growth. China now provides tax incentives for enterprises engaged in research and development activities. R&D enterprises can directly deduct 50% of R&D expenses incurred from taxable income, and amortize 150% of the costs of intangible assets resulting from R&D efforts.

Supply opportunities are often tied to the need to localize or invest in China, particularly for just-in-time delivery and production cost reasons. Given this context, Israeli companies interested in tapping into the vast Chinese market will need to consider establishing a China presence.

2.2 Automobile Emissions Standards

In 2007, China began enforcing "China III" emission standards nationwide, which are equivalent to Euro III standards. The country plans to adopt "China IV" standards, equivalent to Euro IV standards, in July 2010. Automobiles that fail to meet emissions standards will be banned from sale. Beijing was the first to take initiative and implement China IV emissions standards ahead of schedule at the beginning of 2008. Shanghai has announced it plans to implement China IV emissions standards at the end of 2009. Guangzhou is in the planning stages of making the transition to China IV standards.

2.3 China Automotive Industry Stimulus Plan

Tax Cuts & Subsidies

The Chinese government has been in the process of creating a detailed stimulus plan designed to revitalize the auto industry. Rather than following the U.S. model of supplying cash to struggling manufacturers to create liquidity, China has opted to boost consumption with tax breaks and subsidies. The measures are designed to increase demand for smaller, more fuel-efficient vehicles, and encourage China's rural population to increase passenger vehicle consumption.

On January 20 the Chinese government cut sales tax in half for automobiles with engines sized 1.6 liters or smaller, lowering the rate from 10% to 5%. The effects of the tax cut were felt almost immediately, reversing a three month

IPR Issues in China

While the protection of intellectual property rights (IPR) remains a contentious issue for companies in China, the country's laws and regulations have progressed considerably in recent years, with the large majority now compliant with requirements of the WTO's TRIPS agreement.

The main challenge surrounding IPR protection in China regards the lack of effective enforcement of the regulations. Enforcement issues arise from a range of root causes, including the relatively recent introduction of IPR legislation and concept of intellectual property in general, the absence of a fully independent judicial system, and provincial officials' often protective attitude towards local, job creating counterfeiting industries.

While most foreign companies considering business operations in China may have to accept an unavoidable degree of IPR infringement, there are nevertheless a number of actions that a company can take in order to limit their IPR-related risk:

- Ensure to register your patents, copyrights, or trademarks with the relevant bureaus
- Ensure that your trade or other business agreements include clauses to protect your IPR
- Sign contracts or confidentiality agreements with staff that has access to key technologies and make sure that your policies on trade secrets and other relevant issues are properly communicated
- Be aware of China's (often quickly changing) laws and regulations, and understand the different possible ways of redress, including administrative and judicial channels.

trend of declining sales. February vehicle sales grew to 827,600, and March sales hit record levels at 1.1 million units. First quarter sales totaled 2.67 million units, 70% of which were small-engine vehicles (1.6 L and below).

To stimulate automobile purchases in rural areas, the government stated that it would provide USD 732 million in subsidies to rural residents who buy automobiles. In mid-March the Ministry of Finance announced that rural residents would be eligible for a 10% subsidy on automobile purchases, with a subsidy ceiling set at USD 732. Additional subsidies of USD 293 and USD 439 will be provided to rural households looking to replace old three-wheeled and four-wheeled vehicles, respectively. It remains to be seen whether these subsidies will be substantial enough to spur significant demand increases in relatively low-income rural areas.

Support for Alternative Fuel Vehicles

The industry development plan also acknowledges the role of energy conservation and alternative-fuel automobiles. In support of its 500,000 electric and hybrid vehicles goal, the central government has been urging the development of necessary infrastructure for alternative-fuel autos. It has encouraged the state electricity grid to set up electric car charging stations in Beijing, Shanghai and Tianjin. Additionally, the government will promote alternative-fuel vehicles for public use by offering subsidies of up to $8,800 to taxi fleets, and for local government agencies in 13 Chinese cities to purchase electric vehicles, such as buses, government cars, airport transportation, mail delivery vehicles and garbage trucks. Government research subsidies for electric car designs are growing rapidly, and plans are currently in the works to offer tax credits for consumers who purchase alternative-energy vehicles.

Support for Indigenous Innovation

China also recognizes the need to continue the development of its indigenous innovation capabilities. The government plans to support the development of local technological capabilities and innovation, including the production of such key automotive components including engines, gearboxes, brakes systems, steering systems, transmissions, suspension systems and automobile control systems. The government has announced it will invest USD 1.46 billion on automotive technology innovation, upgrades, and R&D of alternative-fuel automobiles and components.

Additional government measures to support local auto manufacturers include a requirement for 50% of government vehicles to be domestic makes, and favorable treatment of local auto manufacturers in terms of granting loans and credits.

3. MARKET OPPORTUNITIES

- Market opportunities exist especially in the following areas:
  - Supply of essential automotive components/systems to OEMS
  - Developing domestic innovation capabilities (e.g. vehicle design processes, high power diesel engines)
  - Productivity and quality upgrade (e.g. engines, transmissions, electronic control systems, safety systems)
  - Investment promotion
  - Clean transportation technologies
  - Automotive training
  - Advanced manufacturing technologies.

3.1 CURRENT OPPORTUNITIES

Parts Supply to OEMs in China

Firms can take advantage of the growing automotive market and establish themselves in a role of automotive parts suppliers to OEMs in China, including JVs with foreign manufacturers and Chinese OEMs. In most cases, owing to just-in-time production and cost factors, this will require investing/establishing a facility within China.

Developing Domestic Innovation Capabilities

Developing indigenous car models and innovative technologies is now a priority in China. China's policy is to encourage Chinese automotive companies to carry out more R&D activities. In this regard, opportunities exist for foreign auto parts companies to work with Chinese counterparts on R&D and engineering programs.

Domestic whole-vehicle enterprises are still in the process of developing internal innovation capabilities with varying degrees of progress. Some of the areas where domestic enterprises are looking to further develop and improve include:

- Establishing vehicle design and development processes including:
  - Auto body and chassis development techniques
  - Standardized and differentiated technologies for auto bodies, engines and transmissions
  - Emission and purification techniques.
- Making breakthroughs on crash safety, NVH and other key related techniques
- Controlling design and manufacturing costs for new energy automobiles.

Additionally, a number of key components that require higher technological capabilities, though available in domestically produced automobiles, are generally acquired from Chinese subsidiaries of multinationals, or acquired directly from overseas. There is thus a push to develop domestic production, engineering, and innovation capabilities for these products as well. Areas that China would like to improve include:

- Making further efforts to promote research and manufacturing of 1.5 liter and smaller gasoline engines that meet the China IV (Euro IV equivalent) Motor Vehicle

Emissions Standards, and 3.0 liter and smaller diesel engines with power of 45KW/Liter and above.

- Making breakthroughs in key technologies for heavy duty commercial vehicle chassis integration.
- Providing heavy support for the R&D of key technologies used in high-power diesel engines, and their high-pressure electronic fuel injection systems, post-treatment systems, and automated manual transmission (AMT) for commercial vehicles.
- Providing support to power assembly, including engines, especially gasoline direct injection engines, diesel engines' high pressure common rails, unit pump and unit injector technologies, and post-treatment systems, all of which are weaknesses of Chinese engine manufacturers.
- Developing matching electronic control systems for components is a bottleneck since the matching tests are time consuming and require large investments

Productivity and Quality Upgrade

In an effort to increase automotive components productivity and quality, the Chinese government has recently issued a *Catalogue of Automotive Products for Technology Advancement and Upgrade*, which consists of the following components.

Engines

In order to meet "China IV" emission standards, automotive manufacturers are looking to upgrade emissions and displacements of electronic gasoline engines, to upgrade high-pressure injection technologies of electronic diesel engines, including Diesel Particulate Filters (DPF), Selective Catalytic Reduction (SCR), Exhaust Gas Recirculation (EGR), and On-Board Diagnostics (OBD) technologies.

Transmissions

Passenger vehicles: Dual clutch automatic transmissions can be produced with equipment originally designed to manufacture manual transmissions. Incentives for this type of transmission include ease of operation, fuel efficiency, and low investment costs. Others desired upgrades include manual transmissions with more than six shifts and Continuously Variable Transmissions (CVT).
Commercial Vehicles: AMT, hydrodynamic and electromagnetic retarders.

Electronic Control Systems

Chinese companies have started to develop their own Tire Pressure Monitoring Systems (TPMS), malfunction diagnostic instruments, and LED front lighting systems. Though other electronic control systems are manufactured by JVs, much of the key technology remains the property of the foreign partners.

Systems such as Anti-lock Brake Systems (ABS), Traction Control Systems (TCS), Electronic Brakeforce Distribution (EBD), and Electronic Stability Program (ESP) are keeping pace with those of overseas markets. However, domestically produced versions of these systems are currently priced much higher than those offered by international companies.

Safety systems
Energy-absorbing steering systems and electric-powered steering systems

Others
There remains much room for improvement in other components for commercial vehicles, including axles for low-floor buses, air suspension, inverter air-conditioning systems and re-enforced steel wheels.

Investment Promotion

A segment of the Chinese automotive industry is on the lookout for investment and R&D opportunities in North America and Europe in order to enhance their credentials, acquire famous brands, access new, large automobile markets, gain access to new technologies, and improve product development and R&D capabilities.

Best Practices

Factors to be considered before taking action to access the Chinese automotive market:

- Ensure products are tailored to the Chinese market with a higher performance-to-price ratio.
- Branding should be adapted to local customs and products should have established reputations in North American, European, Middle Eastern or Australian markets.
- The ability to quickly establish an efficient distribution network for both sales and service is crucial.
- Study and understand local intellectual property rights (IPR) procedures for products and technologies, and take the proper steps to register IPR in China (either through patent or trademark).

Clean Transportation Technologies

Owing to recent environmental protection and energy consumption and efficiency concerns, Chinese auto policies currently promote the development of clean transportation technologies. As such, activities related to fuel cells, electric and hybrid automobiles and components all present opportunities in China.

The profile of China's current auto industry is favorable for such development of alternative-fuel vehicle capabilities. Four-fifths of car buyers in China are first time buyers, meaning they have not yet been able to establish a preference for higher powered cars running on gasoline. Inner-city driving is rare. Commutes are generally short, and at low speeds, thus speed and range issues that have discouraged foreign consumers from purchasing alternative-fuel vehicles are not as pronounced in China.

This is not to say that obstacles do not exist: Chinese city-dwellers generally live in apartments, negating the ability to set up personal recharging devices – there will first need to be heavy investment in public charging centers before owning a hybrid or electric vehicle becomes practical. Rechargeable lithium-ion batteries also currently suffer from reputational issues, owing to a prevalence of counterfeit products that have caused accidents. Additionally, lithium-ion batteries are expensive, decreasing the

competitiveness of vehicles that use them when compared to traditionally fueled vehicles that use relatively lower–priced, government subsidized gasoline.

However, these obstacles also represent opportunities for foreign enterprises that have the capability and desire to collaborate with domestic firms to make technological advances in this field, thus promoting development of the industry.

Automotive Training

As many domestic automakers have expansion plans over the next five years, there is a demand for specialized management training in this segment.

Advanced Manufacturing Technologies

As Chinese automobile and parts manufacturers seek out opportunities to enhance their manufacturing capabilities, demand for advanced manufacturing technologies and equipment should continue to grow.

3.2 KEY INDUSTRY EVENTS

Auto Shanghai 2009

Shanghai New International Expo Center
April 22-28, 2009

Organized by CAAM and the China Council for the Promotion of International Trade (CCPIT), the Shanghai International Exhibition Co. Ltd., and MMG-Messe Muenchen International, this auto show is the oldest professional international auto exhibition in China, alternating locations between Shanghai and Beijing. First held in 1985, this year's theme is "The Art of Innovation." This year's event will utilize 11 indoor exhibition halls in the Shanghai New International Exhibition Center (SNIEC) with a total exhibition space of 170,000 square meters, with 100,000 square meters designated for automobile manufacturers' exhibitions and an additional floor space of 47,000 square meters for auto components exhibitors.

Major exhibitors will include all three of the big U.S. car manufacturers, GM, Ford and Chrysler. Additional players, including BMW, Mercedes-Benz, Toyota, Honda, Nissan, Volkswagen Audi, Skoda, Citroen, Peugeot, Volvo, Mazda, Hyundai and Kia are all registered exhibitors this year. Local exhibitors will include FAW, SAIC, Dongfeng, Chang'an, GAC, BAW, BYD, Haima, Great Wall Auto, Brilliance, Changfeng, Greely, Jianghuai and Hafei.

http://www.autoshanghai.org/en/ShowArticle.asp?ArticleID=45

China International Auto Parts Expo

China International Exhibition Center, Beijing
September 24-26, 2009

Organized by the Ministry of Commerce, the annual China International Auto Parts Expo (CIAPE) was first held in 2007. Co-organizers include automotive industry associations from 10 countries such as the U.S., the U.K., Germany, France, Italy, Korea, etc. The

2008 CIAPE hosted 1,100 exhibitors and over 50,100 visitors from 113 countries and regions, with an exhibition floor space of over 80,000 square meters. Participants included Bosch, Denso, Delphi, Magna, GM, Ford, VW, Toyota, FAW, SAIC, Dongfeng and the likes.

Exhibit categories include auto parts, auto maintenance equipment and accessories, car tuning equipment and accessories, materials and components, energy-saving, environmentally friendly and new energy technologies and products, and more.

http://www.iapechina.com/english/

2009 China Beijing International Exhibition on Buses, Trucks & Components

Beijing Exhibition Center
April 22-24, 2009

Organized by the Ministry of Transport, the China Beijing International Exhibition on Buses, Trucks & Components is a newly established exhibition to be held at the Beijing Exhibition Center from April 22-24 of this year. The exhibition will be managed by the China Academy of Transportation Sciences, the Bus Institute of China Highway Society, and the CCPIT. Registered exhibitors, which currently include Daewoo and a number of Chinese manufacturers, will have access to an exhibition hall with total floor space of nearly 40,000 square meters.

Exhibit categories will include Coaches and Buses, Trucks, Accessories & Components, NewTechnology Application in Fuel Emission & Environmental Protection, and Other Components.

http://www.bustruckexpo.com/en/Default.asp

Automechanika Shanghai

Shanghai New International Expo Center
December 9-11, 2009

Organized by Messe Frankfurt (Shanghai) Co. Ltd., and China National Automotive Industry International Corporation (CNAICO), Automechanika Shanghai is an annual international trade fair for automotive parts, equipment and service suppliers. The event is co-organized by the China Chamber of Commerce for Import & Export of Machinery & Electronic Products. The 2008 exhibition hosted 1,982 exhibitors on a floor space of 92,000 square meters, and attracted 30,845 visitors. Visitors include those from the vehicle manufacturing industry, parts and accessories manufacturers, garage equipment and tool manufacturers, petrol stations and companies, auto dealers, and government agencies and trade associations.

Exhibit categories include parts and systems, accessories and tuning, repair and maintenance, IT and management, and service station and car wash.

http://www.messefrankfurt.com.hk/fair_homepage.aspx?fair_id=11&exhibition_id=11

APPENDIX I: ACRONYMS

ABS	Anti-lock Brake System
AMT	Automated Manual Transmission
CAAM	China Association of Automobile Manufacturers
CKD	Complete Knock Down
CVT	Continuously Variable Transmission
DPF	Diesel Particulate Filter
EBD	Electronic Brakeforce Distribution
EGR	Exhaust Gas Recirculation
ESP	Electronic Stability Program
JIT	Just-In-Time
NVH	Noise, Vibration and Harshness
SKD	Semi Knock Down
FAW	First Automotive Group Corporation
OBD	On-Board Diagnostics
SAIC	Shanghai Automotive Industry Corporation
SCR	Selective Catalytic Reduction
TCS	Traction Control System
TPMS	Tire Pressure Monitoring Systems

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