

# Analysis of Challenges in Global Industrial Fastener Markets

by Kristy Chi, Industry Analyst of MIRDC

## Introduction

Fasteners are considered an indispensable part of all industries as they serve to connect and fasten things together; though they represent a very small percentage of the overall cost, they are quite important as evident by the fact that the production yield is required to be nearly 100%. Once a fastener fails, the entire automobile production line may be shut down. Moreover, a failed fastener may also result in the re-assembly of an aircraft engine; if this really happens, the combined cost may exceed 100 times the total cost of manufacturing fasteners.

The global financial storm took place in 2008. 5 years later, the global economic condition started to recover. Most countries put their eyes on manufacturing and intend to strengthen it to boost their economy. Fasteners are closely correlated with industrial manufacturing. Generally speaking, industrial fasteners may be categorized into three types: externally threaded type, standard type, and aerospace grade. These fasteners are mainly used in the automotive, construction, and machinery industries (generally regarded as the OEM market) and the MRO market. This article will analyze the general conditions of the global industrial fastener market and challenges faced by the fastener industry after the business transition during 2014-2018.

## Current Conditions and Outlook

### (1) The Compound Annual Growth Rate (CAGR) of the Global Industrial Fastener Market Is Estimated to Exceed 6% During 2014-2018

In 2014, the annual turnover of the global industrial fastener market reached US\$ 73.1 billion, up 5% as compared

to year 2013. It is predicted that the annual turnover in 2018 will reach US\$ 93.6 billion. Therefore, the CAGR of the global industrial fastener market during 2014-2018 will reach 6.4%. Fig. 1 illustrates the annual turnover of the global industrial fastener market during 2014-2018.

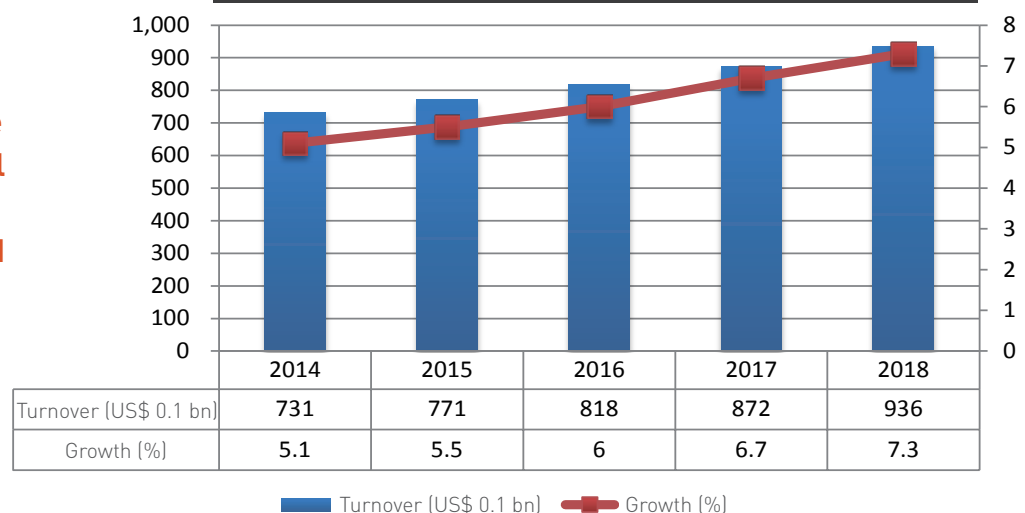
### (2) The Automotive and Construction Industries Will be the Driving Force for the Global Industrial Fastener Market in 2018

The fierce regional or global competition among suppliers can be currently observed. However, the main targets of these suppliers can be generalized as:

- Achieving the optimal operating cost
- Maximizing the efficiency of production facilities
- Shortening lead times
- Enhancing quality of products

For the time being, the demand for fasteners from the automotive, construction, and machinery markets as well as the MRO market acts as the driving force for the industrial fastener industry. Fig. 2 illustrates these four market sectors as percentages in the industrial fastener industry during 2014-2018. In Fig. 2, we can see that the automotive and

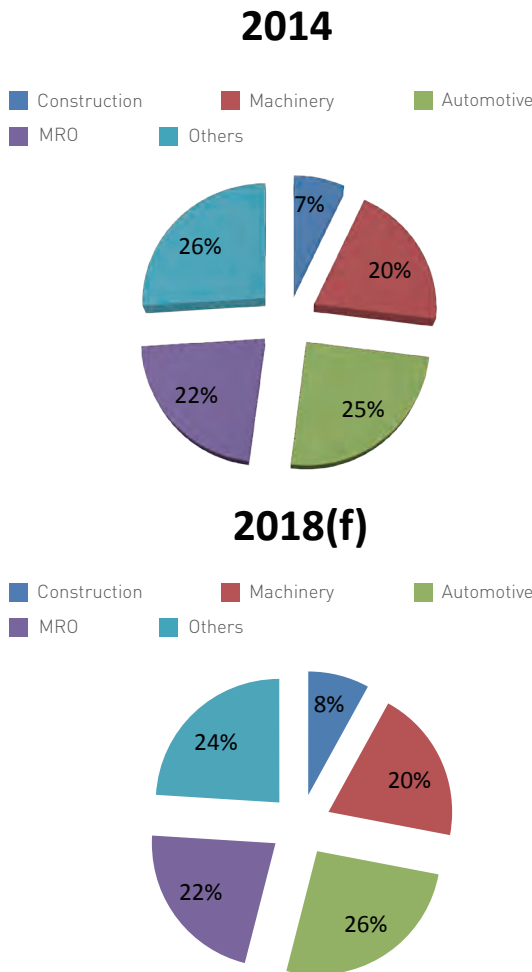
Fig. 1 Turnover of the Global Industrial Fastener Market During 2014-2018



Data source: TechNavio Analysis; compiled by MII of MIRDC in May 2015

construction markets will continue their growth till 2018, with the automotive, construction, and machinery markets representing 26%, 8%, and 20% respectively of the industrial fastener industry. The automotive, construction, and machinery markets altogether will represent more than half of the industrial fastener industry; these three market sectors and the MRO market will even represent 80% of the industrial fastener industry.

Fig. 2 Four Market Sectors as Percentages in the Industrial Fastener Industry During 2014-2018



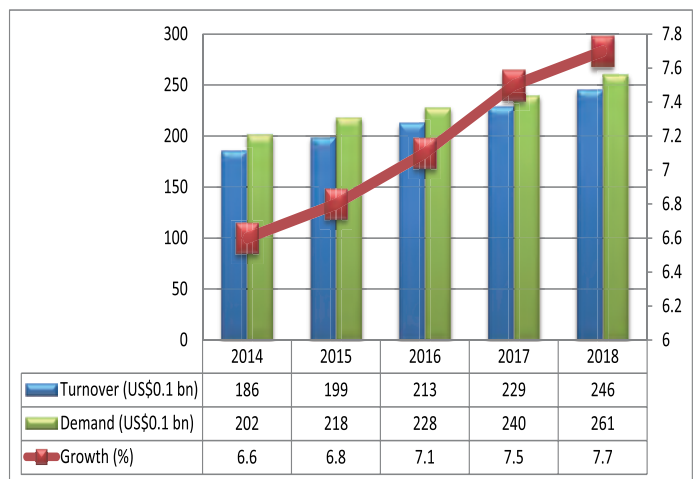
Data source: TechNavio Analysis; compiled by the MII of the MIRDC in May of 2015

According to a report of OICA (Organisation Internationale des Constructeurs d'Automobiles), the global automobile sales have increased from 75 million units in 2010 to 89 million units in 2014, exhibiting a 4% CAGR. It is predicted that more than 100 million automobiles will be sold in 2018; in 2018, the demand for automotive fasteners is estimated to reach US\$ 26.1 billion and the revenue generated is estimated to reach US\$ 24.6 billion. Fig. 3 illustrates the predicted sales of the global automotive fastener market during 2014-2018, exhibiting a 7.2% CAGR (compared to a 6.4% CAGR of the predicted sales of the global industrial fastener market (including all types of industries) during 2014-2018.

The 5 biggest automobile manufacturing countries in the world in 2014 were China (26.4%), the U.S. (13.0%), Japan (10.9%), Germany (6.6%), and South Korea (5.0%). The top 3 automobile manufacturing countries represented more than half of the global automobile production. Attention should be paid to carmakers in Germany, France, and the UK manufacturing heavyweight, medium-weight and lightweight commercial vehicles. In addition, buyers in China and India prefer luxury European brands, such as Mercedes Benz, Porsche, and BMW. In order to satisfy their demand, European manufacturers have begun to erect factories in many areas around the world, particularly Asia. Major automobile fastener manufacturing countries in the Asia Pacific region include China, Taiwan, Japan, and Malaysia, and the shortage in the supply of automobile fasteners provides a great business opportunity for these countries.

The MRO market takes the 2nd place in the industrial fastener market and will exhibit a growth of at least 5% during 2014-2018. Revenues generated by demand for fasteners from the MRO market in 2018 will reach US\$ 20.4 billion, representing 24% of the industrial fastener market. The machinery market takes the 3rd place in terms of its revenue, which will exhibit more than 5% of CAGR. The turnover generated by demand for fasteners from the machinery market in 2018 will reach US\$ 19.0 billion, representing 20% of the industrial fastener market. The turnover generated by demand for fasteners from the construction market will exhibit more than 8% of CAGR (the highest CAGR among these four markets) during 2014-2018. The automotive and construction markets will exhibit growth; however, the other markets will exhibit little or no growth. The turnover generated by demand for fasteners from the construction market in 2018 will reach US\$ 0.7 billion, representing 8% of the industrial fastener market.

Fig. 3 Turnover of the Global Automotive Fastener Market During 2014-2018

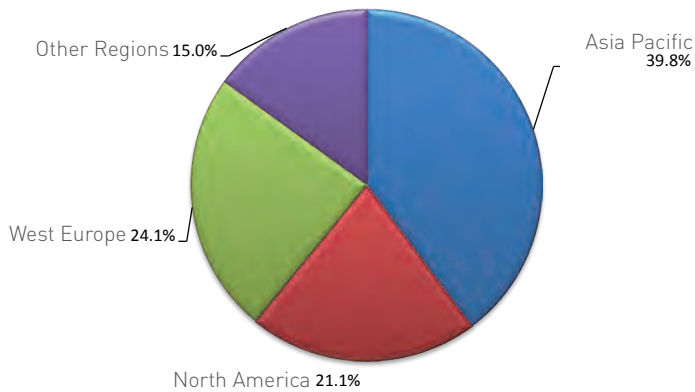


Data source: The Freedonia Group and TechNavio Analysis; compiled by MII of MIRDC in May 2015

### (3) Asia Pacific Will be Where the Main Competition is from in the Global Industrial Fastener Market

The Asian Pacific region (APAC) comprises Australia, Brunei, Cambodia, Fiji, Indonesia, Japan, Kiribati, North Korea, South Korea, Malaysia, Marshall Islands, Federated States of Micronesia, Nauru, New Zealand, Palau, Papua New Guinea, the Philippines, Samoa, Singapore, Solomon Islands, Thailand, East Timor, Tonga, Tuvalu, Vanuatu, Vietnam, China (incl. Hong Kong and Macau), Russia, and Taiwan. Fig. 4 illustrates 3 major fastener manufacturing regions of the world, with Asia Pacific sharing 39.8% of the total global industrial fastener production, followed by West Europe in the 2nd place at 24% and North America (incl. Canada) in the 3rd place at 21%.

Fig. 4 Major Fastener Manufacturing Regions of the World



Data source: TechNavio Analysis; compiled by MII of MIRDC in May 2015

Fig. 5 illustrates the turnover generated from industrial fasteners in Asia Pacific during 2014-2018. The turnover grew from US\$ 29.7 billion in 2014 to US\$ 41.4 billion in 2018, with an 8.7% CAGR, indicating that the Asian Pacific region will exhibit the biggest growth in all these regions. The main reason for the growth is that many construction projects have been underway in many Asia Pacific countries (which means there exists higher demand for industrial fasteners used in automotive, construction, and machinery markets). The second reason is the fact that many European and American automakers have moved their factories or erected factories in China, Thailand, Malaysia and Vietnam, thus prompting such growth.

The turnover generated in West Europe ranked the 2nd place in the global industrial fastener markets was US\$ 17.1 billion in 2014 and is estimated to reach US\$ 19.5 billion in 2018, indicating a 3.3% CAGR. The main contributing countries of the growth will be Germany, France, and Italy, and the main contributing industry will be the automotive industry.

Revenue generated in the North American region ranked the 3rd place in these regions, was US\$ 15.2 billion in 2014 and is estimated to reach US\$ 18.3 billion in 2018, indicating a 4.7% CAGR, which is only about half of the growth of the Asian Pacific region. Although North America's economic condition recovers very fast, its growth will be relatively lower owing to the lack of new product releases and the main contributors will be the machinery industry and the MRO market.

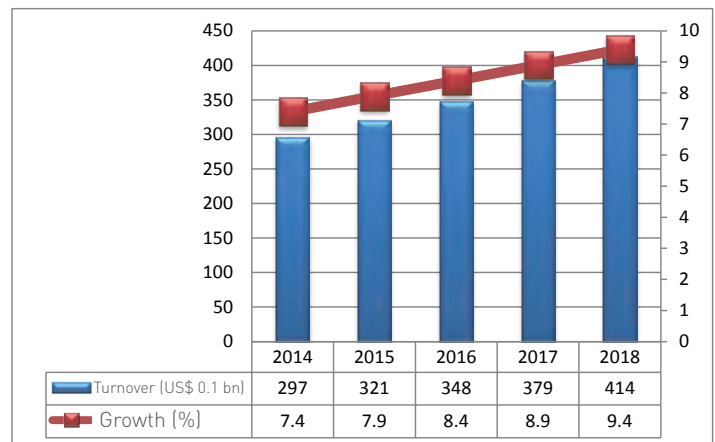
## Opportunities and Challenges

### (1) Michael Porter's 5 Forces Analysis

Table 1 shows the Porter's 5 forces in the global industrial fastener market. In this table, both suppliers and buyers have an excellent bargaining margin and this means the prices are closely correlated with the bargaining margin and factors include raw material prices, product innovation, and R&D capabilities. For example, Europe and the U.S. have asked China to eliminate the preferential tariffs on the export of its boron steel rods; such a request will be against the export of these rods from China. Though China's export of products made of raw materials available in China would benefit China, the anti-dumping measures imposed by Canada and the EU would offset such an advantage. In the aspect of product innovation and R&D capabilities, the UK and Taiwan have continued to carry out research on smart fasteners, which can be monitored remotely, and several industrial countries have developed new metallic alloy fasteners. Therefore, if we continue to pay attention to buyers' special needs, we may create higher prices and values for our fastener products.

In the 5-force analysis, the threat of substitutes is something to be aware of. The connective and fastening functions of fasteners may be replaced by welding and crimping. To save energy and reduce carbon footprint, some big electronics manufacturers have started to research

Fig. 5 Turnover Generated from Industrial Fasteners in Asia Pacific During 2014-2018



Data source: TechNavio Analysis; compiled by MII of MIRDC in May 2015

on electronics products that do not need bolts and nuts. In construction, construction firms have started to research on new construction methods to reduce the use of fasteners, thereby reducing the risk brought by rusty fasteners and prolonging the service life of bridges and buildings.

**Table 1. The Porter's 5 Forces Analysis on the Global Industrial Fastener Market**

Force	Level	Explanation
Bargaining margin of suppliers	High	Suppliers, through the control of raw materials sources, acquire dependence of vendors. Therefore, suppliers have a high bargaining margin.
Bargaining margin of buyers	High	Product differentiation in the market is small and there are many suppliers to choose from, buyers have a high bargaining margin.
Threat of substitutes	Medium	Though industrial fasteners can not be replaced, the use of them may be reduced. Therefore, the threat of substitutes is determined to be medium.
Intensity of competitive rivalry	High	The five biggest fastener suppliers of the world occupy 15% of the global market share and the rest of the market is shared by other small-to-medium-size manufacturers. Therefore, competition among local manufacturers in a country and the competition among different countries in a region are fierce. Because entry barriers are low, the intensity of competitive rivalry is determined to be high.
Threat of new entrants	High	Because new entrants focus on the fabrication of tailor-made products and sell their products at lower market prices, and on the other hand, barriers of technology and capital are not high, the threat of new entrants is determined to be high.

Data source: compiled by MII of MIRDC

## (2) Challenges

Current challenges faced by the industrial fastener industry include the price increase of fastener products, low level of product differentiation and the price cutting war among vendors.

### (a) The Price Increase of Fastener Products

As the prices of copper, stainless steel and alloys exhibit higher fluctuations and raw material providers are limited, such a price hike cannot be transferred to the end users and vendors may absorb it or transfer it to the suppliers. Because, in such a case, suppliers' gross profit is squeezed, and hence, their budgets on research and development will be reduced, this acts against the long-term development of the industrial fastener industry.

### (b) Low Level of Product Differentiation

Standard fasteners are an important type of products in the industrial fastener market. Different manufacturers use similar technologies and methods to fabricate fasteners, thus resulting in a low level of product differentiation. This may result in the fact that buyers choose their suppliers only according to prices and thus may result in fierce competition. Such a scenario will also act against the long-term development of the industrial fastener industry.

### (c) Vicious Price Cutting War of Suppliers

The vicious price cutting war is often observed in countries where low-end industrial fasteners are manufactured. New entrants in a certain market often cut their prices, and hence, many fasteners with poor quality or those made of poor-quality raw materials are often observed. If buyers buy their products based on lower prices, such a scenario will act against the long-term development of the industrial fastener industry and orders taken away from suppliers of high-quality products may affect the operation of these suppliers.

## (3) Opportunities

A challenge often means an opportunity. The solution lies in leading the industrial fastener industry to overcome the adversity. For example, the price cutting war of low-end products may be solved by developing high-quality products. Also, high-quality products require quality management. The acquisition of orders via price cutting only lasts a short period of time, and orders which last longer and are bigger, depend on the product quality. Quality management includes delivery, lead time and after-sales services. Manufacturers of industrial fastener products may use lab tests for humidity or corrosion resistance and certificates provided by clients and even comparison of quality with competitor's products to assure the quality of their products and differentiate their products from poor-quality products.

Another important solution for suppliers of industrial fastener products is developing emerging markets to get new orders because the markets in the advanced industrialized countries are quite saturated. In addition, many of these emerging markets have economic stimulus plans, which enable suppliers to enter these markets in the name of technology exchange or via the preferential treatments for foreign investors.

"Manufacturing with well-organized after sale service" can be also applicable to industrial fasteners as product designs become more sophisticated and the demand for provision of design and engineering support and the need for other services is also increasing. Because the MRO market represents about a quarter of the industrial fastener market, more buyers will purchase products if improvements are made in the MRO market. Next, suppliers may provide services regarding logistics and testing, including SCM (Supply Chain Management) information management system, valet inventory service, fastener testing and a global fastener testing service platform.

In the recent years, big multinationals have entrusted their non-core operations or tasks to other firms and have reduced the number of their suppliers. Therefore, this has prompted

a re-shuffling of the supply chain. Big suppliers have formed a long-term partnership with their clients and in the aspect of logistic management, via the business platforms they built, they have developed towards “manufacturing with well-organized after sale service” by providing collaborative product design, one-time purchase, valet inventory management and product inspection on-line, so as to lower clients’ purchase costs, meet the clients’ overall needs and gradually gain the dominance over the sales channels. Therefore, vendors may disappear gradually. Therefore, such a scenario may have a big impact on the industrial fastener industry; in other words, by eliminating the middleman—vendors, suppliers may adopt the mode of direct marketing.

## Conclusion

From 2014 to 2018, the industrial fastener industry will exhibit positive growth, driven especially by the automotive industry. More than 100 million automobiles will be sold in 2018 and such growth will benefit the sales of automotive fasteners. The construction industry in the emerging markets will benefit from infrastructure, such as bridges, high-speed rails, etc. and will exhibit an 8% CAGR, making it the industry with the highest growth among the industries. Turnover

generated by demand for fasteners from the machinery industry will remain 20% of the share and the MRO market may continue to grow. Revenue generated by the overall industrial fastener industry may reach US\$ 90 billion in 2018, with a CAGR exceeding 6% during 2014-2018.

A crisis is also an opportunity. Though fierce competition is present in the global industrial fastener industry, the markets in the developed countries have been quite mature, suppliers need to meet the demands from their vendors in different places and secure their end-user clients. Suppliers have to face the competition from substitutes that may be used to replace the connective function and enhance their product differentiation. In addition, because the entry barriers for the industrial fastener industry are relatively lower, such barriers have exerted pressure on the global fastener prices and have made more fierce competition in the industry. However, suppliers, through securing their quality and delivery time, developing emerging markets, “manufacturing with well-organized after sale service” (such as by providing collaborative product design, one-time purchase, valet inventory management and product inspection on-line), so as to lower clients’ purchase costs, meet the clients’ overall needs and gradually gain the dominance over the sales channels. Therefore, such a scenario may have a big, revolutionary impact on the industrial fastener industry; in other words, by eliminating the middleman—vendors, suppliers may adopt the mode of direct marketing. ■

### References

1. 2014-2018 Global Industrial Fastener Market, TechNavio Insights.
  2. A report (Nov. 2014) on Freedonia Group
  3. 2013 Yearly Book on metallic Products – on Fasteners and Nuts
-