

An Analysis of Czech's Related Fastening Hardware Industry

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1. Foreword

After Czech became the member of EU in May 2004, its open market, leading W. European companies' concern about cost, its geographically central location in Europe, excellent labor skill and well-established infrastructure and so on all played significant roles in boosting foreign investments and economic growth in Czech. Although Czech suffered the global financial crisis in 2008, its economic growth still climbed to 4.4% and 2.4% respectively in 2015 and 2016 due to strong export to Germany and weak Czech koruna to euro.

Czech was one of the eight largest industrialized countries in the world before WWI; however, its development after WWII became almost stagnant for half an century. Even so, it still keeps a solid base for its metal, machinery, precision machines and machine tools industries. In the period of 1990-2016, part of its SMEs started to focus on small-lot, customized parts production and strengthened its R&D and manufacturing capabilities for high value-added products, making them competitive in the world and gain potential in the future. Thus far, local Czech companies have established their international labor division network with many countries (e.g., Taiwan, Switzerland and Sweden) and its technical collaboration with Taiwanese companies has been proved to be very potential.

In terms of natural resources, Czech is rich in uranium, iron ore and silica, but most of its actual demand for materials is still dependent upon import. Compared with so many advantages Czech has, how could Taiwan utilize Czech's highly industrialized conditions and Czech's market with great demand to compete with low-price Chinese fasteners and fastening tools has become a critical issue for Taiwanese government and companies. This article will expound upon two main categories: fasteners and fastening tools.

2. The Current Development of Related Fastening Hardware Industries in Czech

A. The Fastener Market

Table 1 shows the import and export of Czech's fastener industry in 2013-2017. **Czech imported USD 1.029 billion worth of fasteners from the world in 2017 with a 5-year CAGR of 4.06% and also exported USD 0.572 billion worth of fasteners to the world with a 5-year CAGR of 5.47%, which means Czech's demand for fasteners was larger than what it could actually supply by itself.** In terms of Taiwan, the total fastener value Taiwan exported to Czech increased from NTD 0.267 billion in 2013 to NTD 0.329 billion in 2017 and the 5-year CAGR was approx. 5.33%. As Czech has quite mature industries, which show great demand for various fasteners, Taiwanese fasteners exported to Czech are expected to be influenced by Chinese low-price fasteners. Taiwanese companies should be aware of market segmentation and product positioning in order to avoid low-price cutting competition.

Table 1. Czech's Fastener Import and Export in 2013~2017

Unit: USD 0.1 bn; NTD 0.1 bn; %

	2013	2014	2015	2016	2017	CAGR
Import Value (World->Czech) (USD 0.1 bn)	8.77	9.81	9.94	9.73	10.29	4.06%
Export Value (Czech->World) (USD 0.1 bn)	4.62	5.15	4.64	5.07	5.72	5.47%
Import Value (Czech->Taiwan) (NTD 0.1 bn)	0.26	0.32	0.28	0.31	0.31	4.78%
Export Value (Taiwan->Czech) (NTD 0.1 bn)	2.67	4.18	3.71	2.73	3.29	5.33%

Data source: ITC/TIER Import/Export Statistics/MIRDC MII-ITIS

Table 2 shows the fastener values Czech imported from the world in 2013-2017. **The top 3 fasteners Czech imported from the world (incl. values and CAGR) in 2017 were: other screws and bolts (Value: USD 0.335 bn; CAGR:3.73%), other iron and steel non-threaded articles (Value: USD 0.125 bn; CAGR: 4.49%), and iron and steel self-tapping screws (Value: USD 0.118 bn; CAGR: 10.46%). Czech shows tremendous demand for these 3 categories of fasteners. Top 3 categories with the highest CAGR were: iron and steel automotive screws (CAGR: 59.85%), pins & cotter pins (CAGR: 26.43%), and other copper threaded articles (CAGR: 15.66%).** Czech's automotive industry (incl. the component industry) is a traditional and competitive industry and is also an industry that has attracted the most investors in the country. That is why its automotive industry continues to take the lead in Central Europe and its demand for iron and steel automotive screws continues to grow substantially. According to Roland Berger, Czech's annual sales of electric vehicles (EV) and hybrid plug-in electric vehicles, benefited by the increasing concern over environmental protection, are forecast to reach around 6,000-7,000 units by 2020 (about 3% of the total market share). As a result, Taiwanese companies can continue to focus on these products and grasp opportunities to enter Czech's green energy markets.

Table 2. Fasteners Czech Imported from the World in 2013-2017

Unit: 1,000 USD; %

Products	2013	2014	2015	2016	2017	CAGR
Other screws and bolts	289,938	320,722	397,165	346,614	335,689	3.73%
Other iron and steel non-threaded articles	105,601	115,138	105,611	115,867	125,873	4.49%
Iron and steel self-tapping screws	79,380	88,303	83,202	100,466	118,181	10.46%
Nuts	100,202	110,022	102,423	102,696	113,283	3.12%
Other washers	58,857	69,305	62,576	60,502	68,740	3.96%
Other iron and steel threaded articles	60,566	73,968	60,971	56,855	61,472	0.37%
Other wood screws	18,254	23,531	22,174	25,861	27,288	10.57%
Spring washers and other locking washers	30,857	33,400	27,507	25,460	27,023	-3.26%
Rivets	23,924	25,879	24,189	22,901	24,350	0.44%
Iron and steel nails, flat head nails, corrugated nails, staple and thumbtacks	18,474	21,033	19,246	18,736	19,261	1.05%
Other copper threaded articles: screws, bolts and nuts	10,439	11,230	11,181	12,060	18,678	15.66%
Aluminum bolts, nuts, screws, hooks, pins, washers, etc.	15,276	16,930	15,973	16,393	17,204	3.02%
Pins and cotter pins	5,369	5,302	9,919	14,410	13,720	26.43%
Copper bolts, nuts, screws, hooks, pins, washers, etc.	10,650	13,521	10,289	11,062	12,219	3.50%
Tubular or split rivets of base metal	9,905	9,960	9,811	11,211	12,007	4.93%
Other copper threaded articles	13,234	12,880	8,756	8,956	10,023	-6.71%
Iron and steel automotive screws	1,409	1,826	3,308	7,852	9,199	59.85%
Copper nails, flat head nails, thumbtacks, staples and similar products	16,325	18,231	12,601	7,720	7,370	-18.03%
Helical hooks and helical rings	4,429	4,926	4,098	4,093	4,448	0.11%
Copper washers (incl. spring washers)	2,597	2,817	2,304	2,561	1,883	-7.72%
Iron and steel anchors, 4-claw anchors and parts	1,667	1,648	1,079	840	677	-20.17%
Total	877,353	980,572	994,383	973,116	1,028,588	4.06%

Data source: ITC/MIRDC MII-ITIS

B. The Fastening Tool Market

Table 3 shows Czech's fastening tools import and export in 2013-2017. **Czech imported USD 0.141 billion worth of fastening tools from the world in 2017, with a 5-year CAGR of 9.66% and exported USD 0.216 billion worth of fastening tools to the world with a 5-year CAGR of 7.29%. On the other hand, the total fastening tools value Taiwan imported from Czech in 2017 was merely NTD 4 million with a CAGR of 8.62% and the total fastening tools value Taiwan exported to Czech was merely NTD 90 million, with a 5-year CAGR of 21.26%, which shows that there are still potential opportunities for Taiwanese medium to high end fastening tools in Czech**

and Taiwan should be well-prepared as early as possible to make Czech's medium to high end fastening tools users get used to Taiwanese fastening tools and make Czech an extended market of Germany (Taiwan's third largest export destination) to reduce the negative impact of Chinese fastening tools on Taiwanese companies in Czech market.

Table 3. Czech's Fastening Tools Import and Export in 2013-2017

Unit: USD 0.1 bn; NTD 0.1 bn; %

	2013	2014	2015	2016	2017	CAGR
Import Value (World->Czech) (USD 0.1 bn)	0.97	1.06	1.17	1.28	1.41	9.66%
Export Value (Czech->World)	1.63	1.95	1.58	1.79	2.16	7.29%
Import Value (Czech->Taiwan) (NTD 0.1 bn)	0.03	0.05	0.02	0.03	0.04	8.62%
Export Value (Taiwan->Czech) (NTD 0.1 bn)	0.42	0.74	0.67	0.77	0.90	21.26%

Data source: ITC/TIER Import/Export Statistics/MIRDC MII-ITIS

Table 4 shows Czech's fastening tools import and export in 2013-2017. **The top 2 fastening tools Czech imported from the world in 2017 and their respective values and CAGR were: power socket wrenches (Value: USD 0.152 bn; CAGR: 5.3%), screwdrivers (Value: USD 30 million; CAGR: 12.1%). The top 2 fastening tools with the highest 5-year CAGR were: drilling, threading and tapping tools (CAGR: 43.7%) and hand-held wrenches and spanners (CAGR: 20.2%).** As wrenches and spanners are two of the most competitive products of Taiwanese hand tools manufacturers, Taiwanese companies can grasp opportunities to enter Central European market by focusing on Czech's demand for these products and its government development policies (e.g. solar power, natural gas, or EV).

Table 4. Fastening Tools Czech Imported from the World in 2013-2017

Unit: 1,000 USD; %

Products	2013	2014	2015	2016	2017	CAGR
Power socket wrenches	123,172	144,515	113,475	125,442	151,554	5.3%
Screwdrivers	18,904	24,698	20,846	23,736	29,885	12.1%
Hand-held pneumatic spanners	8,702	9,702	8,699	9,611	10,184	4.0%
Hand-held wrenches and spanner	6,754	8,740	8,314	12,158	14,114	20.2%
Interchangeable socket wrenches with/without handles	3,685	5,380	4,288	5,184	6,036	13.1%
Drilling, threading, or tapping tools	801	1,047	1,545	2,343	3,416	43.7%
Bolt cutters and similar tools	1,109	1,207	901	919	997	-2.6%
Total	163,127	195,289	158,068	179,393	216,186	7.3%

Data source: ITC/TIER Import/Export Statistics/MIRDC MII-ITIS



3. Potential Application of Czech's Fastening Hardware in Industries:

a. Automotive

Czech's automotive industry (incl. components industry) is traditional and competitive and the total number of its employees is about 150 thousand. The production of Czech's automotive industry represents nearly 20% of Czech's total export and the export of the automotive industry also represents more than 20% of Czech's total export (most of the models produced in Czech are small passenger cars. **Czech has a competitive automotive components industry and almost all European car brands use some components made in Czech. According to statistics by Czech's Investment and Business Development Agency, there are about 270 automotive/motorbike and components manufacturers in Czech (65% of them are foreign investors). More than 50% of the top 50 largest automotive components in the world have set up their factories in Czech to manufacture components** like diesel motors, power systems, suspension systems, lamps, air-conditioners, cooling systems, bodies, electric parts and materials, tires, seat components, pistons, batteries, windshield wipers, etc.

According to the data released by Czech's Automotive Association, Czech produced 1.351 million units of cars in 2016 and Czech's major car brand, Skoda, produced more cars than in 2015 (up 12.5%). As for the development of new energy vehicles, 248 EV charging stations was set up in 2016 (inclusive of 45 stations set up by Czech's state-owned power company- CEZ), forming a preliminary base for the construction of charging network. In addition, it is expected that Czech's EV market after 2020 will show the growth of thousands of units per annum, so more main charging stations must be completed as early as possible in order to satisfy the charging demand of tens of thousands of EV after 2020. For achieving this goal, Czech has invested up to CZK 2 billion in building up the fast charging network. This industry will definitely influence the specifications and standards of automotive fasteners and will indirectly boost the demand for fastening tools, which is worth the attention of Taiwanese companies.

b. Machinery & Machine Tools

In addition to products manufactured domestically, machine tools used in Czech are mainly from Germany, Italy, Switzerland, Japan and Taiwan. W. European countries know how to distribute products and Japanese companies offer favorable financing conditions, creating stringent competition. In addition, foreign investment also boosted the import of machine tools and a

majority of foreign investment in Czech's manufacturing originated from W. European countries (e.g., Germany) and Japan. The recent investment of Taiwanese IT and communication companies in Czech has also boosted some import.

Machinery is one of the most competitive industries of Czech and most of the companies in the industry specialize in large-size machine tools and metal cutting & forming processing machines. The global demand for metal processing machines (especially the demand from automotive, weapons and consumables industries) is growing. The main categories Czech exports to the world are general processing machines and machine tools (particularly drilling machines, mills and threading machines). In terms of import, the main categories Czech imports from the world include forming machines and punching machines. Germany is also the largest machinery import origin of Czech. Countries following Germany are Japan, Taiwan and Switzerland.

Taiwan is one of the main machine tools suppliers to Czech, so it has a consolidated advantageous base in Czech market. On the other hand, fasteners and fastening tools of special specifications will also be the critical elements in Czech's growing demand for machinery. As a result, Taiwanese fastener manufacturers may be able to reinforce their presence in Czech's tremendous machinery and machine tools markets, or combine with the recent sales network of machine tools to strengthen the R&D of high value added fasteners.

4. Conclusions

Should Taiwanese companies want to boost their export to EU countries, Czech is absolutely one of the options that cannot be ignored. Czech is located in the center of Europe and connects with the markets of Germany, Austria, Slovakia and Poland. It has years of industrial history and infrastructure better than those in other E. European countries. It has high quality technicians and wage cost lower than those in W. Europe. That is why it is still attractive to investors.

When it comes to bilateral economic and trade development, Taiwanese MOEA has signed a Taiwan-Czech bilateral innovation and R&D collaboration memorandum with Czech in 2013. According to the memorandum, Taiwan and Czech will respectively subsidize the R&D of their own domestic companies. Taiwanese companies or research institutes could submit their subsidies applications to Taiwanese DoIT (MOEA) and Czech's companies could submit their DELTA cross-countries int'l R&D projects subsidy applications to Czech's relevant authorities.

As for suggestions for investment, Taiwanese companies can turn to Taiwan's trade representative office in Czech for arranging possible appointments with CZECHINVEST in order to understand the investment conditions and benefits. CZECHINVEST can help them find locations for factories, recruit labors, boost communication with local governments, select strategic collaborative companies and solve problems when they have determined to make investments in Czech.

As a result, Taiwan maybe can consider utilizing Czech (or its industrial zones) as one of its manufacturing bases and adopting bilateral industrial investments and trade and simultaneously taking Czech's local consumption and infrastructure and the demand for industrial transformation into account to reinforce the value chain integration of Czech's fastener industry, further connect with German market and infrastructure projects and eliminate entry barriers to the market. Through repositioning the value chain of Czech's fastener industry, Taiwan and Czech can together create economic prosperity shared by both sides.