

**Advanex Inc.**5998 Tokyo Stock Exchange First  
Section

25-Jul.-16

Important disclosures  
and disclaimers appear  
at the end of this document.FISCO Ltd. Analyst  
Ken Segawa**■ Developing products and opening plants and offices for rapid growth**

Advanex (5998) is a leading producer of precision springs that has applied its superior abilities in technology and product development to manufacture many products holding top shares of the Japanese and global markets.

Advanex used to cater to the Japanese industries for audiovisual equipment and telecommunications terminals, but these industries have lost international competitiveness, so the Company targeted the automobile industry, foreseeing stable demand from this industry. The automobile industry is now its main customer, followed by the office automation equipment industry. As its third main customer area, the Company is developing and selling more products for medical equipment, infrastructure, and housing equipment. It has earned a 60% share of the Japanese market for coil springs to protect needles inserted to administer blood and intravenous fluids through transfusions and a more than 50% share of the global market for springs used in medical inhalants. Advanex is increasing its sales of certified products to expand its business through trading companies and internet sales. One of its main certified products is the “LockOne” spring, which meets National Aerospace Standard (NAS) 3350 of the US. The “LockOne” spring has been found to be much more effective than competing products in tests by Japan’s Railway Technical Research Institute of equipment to lock the bolts and nuts of rails. In the field of aerospace equipment, demand is growing for the company’s tangless inserts, products developed in-house to strengthen screw holes.

Advanex has positioned itself as a global niche company following a “blue ocean” strategy through which it serves top global companies without competing with other major spring makers in markets and regions where it can avoid fierce price competition with small and medium-sized spring makers. Able to develop products that satisfy customer desires, possessing an integrated manufacturing system, capable of improving product quality and reducing product cost by changing processing method, and operating a global network of plants and sales offices responsive to local needs, the Company aims for continuous sales and profit growth.

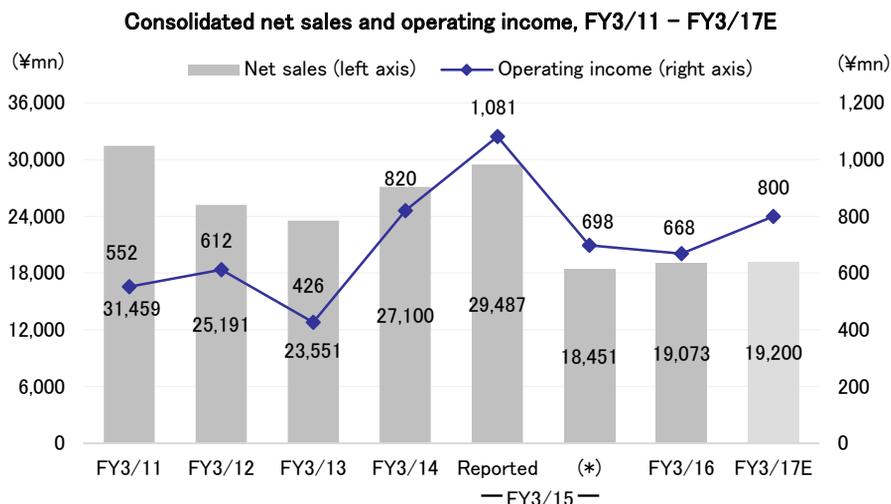
In the fiscal year through March 2016, i.e., in FY3/16, following the strategic divestiture of most of its plastics business, the Company’s consolidated net sales decreased by 35.3% year on year (YoY) to ¥19,073mn and its operating income dropped 38.2% to ¥668mn. In the precision spring business, sales grew 3.4% YoY while operating income declined 4.2%. For FY3/17, the Company projects a 0.7% YoY rise in consolidated net sales to ¥19.2bn and a 19.7% upturn in operating income to ¥800mn. Since the second half (H2) of FY3/16, the Company’s sales to makers of office automation equipment have weakened YoY. However, in the first month and a half of FY3/17, the Company received orders for metal molds for automobile products equivalent to the orders it usually receives in a year. Thus, its overall sales and profits are likely to increase notably YoY from H2 FY3/17.

Advanex’s business plan for FY3/16 – FY3/20, called “Breakthrough to 2020”, takes as its main theme “Becoming a comprehensive metal processing company”. This plan targets consolidated sales of ¥35.0bn and consolidated operating income of ¥4.0bn for FY3/20. To achieve these targets, the Company intends to stress products for automobiles, medical equipment, infrastructure and housing equipment, as it expects these markets or industries to grow quickly and it is competitive in supplying products to them.

Advanex has taken several measures in 2016 toward the realization of its medium-term plan. In January, it started operating its new “smart” Saitama factory, which produces automotive components automatically and with minimal manpower. In the same month, the Company invested in an Indonesian company that provides precision pressing and insert moldings to the Indonesian operations of Japanese companies. In April, Advanex started operations at its second plant in Mexico. Hereafter, it plans to construct new plants in Vietnam, the US, India, and the Czech Republic.

## Check Point

- Company follows a “blue ocean” strategy as a global niche supplier
- It is responding to three trends in the automobile market
- It aims to alter its product portfolio to serve markets that are more stable than some of its traditional markets



Note: Excluding most of the plastics business

Source: Company materials

## Company Outline

### Precision spring maker with a global supply network

#### (1) Business description

Advanex has been a leading manufacturer of precision springs for decades, but plastic products made by a subsidiary accounted for 40.2% of its consolidated net sales in FY3/15. At the end of FY3/15, the Company sold this subsidiary and became a specialized manufacturer of precision springs.

#### (2) Company History

Mr. Inokichi Kato founded a spring factory in Tokyo in 1930. In 1946, this factory was incorporated as Kato Spring Works Co., Ltd., and in 2001, the company changed its name to Advanex Inc. In 1964, the Company listed its shares on the Second Section of the Tokyo Stock Exchange, and in 2004, the shares were elevated to the First Section.

Currently, Advanex has seven plants in Japan and 14 overseas. So far in 2016, the Company has opened its new Saitama factory in Japan, invested in an Indonesian manufacturer of precision springs for the Indonesian operations of Japanese companies, and opened its second plant in Mexico. Thus, it is making continual progress towards achieving the goals of its medium-term business plan.



Advanex Inc.

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### Company History

April 1930	Established a spring plant in Edogawa Ward, Tokyo
November 1946	Incorporated as Kato Spring Works Co., Ltd., with the main plant in Nerima Ward, Tokyo
May 1964	Listed shares on the Second Section of the Tokyo Stock Exchange
May 1971	Established Kato Spring of California, Inc. in Los Angeles, California, the Company's first overseas facility
November 1976	Started operating the new Niigata factory in Kashiwazaki City, Niigata Prefecture
January 1978	Established Kato Spring (Singapore) Pte., Ltd., the Company's first overseas production facility
July 2001	Changed Company name to Advanex Inc.
March 2004	Listed shares on the First Section of the Tokyo Stock Exchange
April 2014	Acquired Funabashi Electronics Co., Ltd. and made it a wholly-owned subsidiary
March 2015	Sold all holdings in Daiichi Kasei Holdings Co., Ltd., which produced most of the Company's plastic products
January 2016	Started operating the new Saitama factory
January 2016	Took an equity stake in PT. Yamakou Indonesia
March 2016	Established a liaison office in Pune, India, the Company's third liaison office in India
April 2016	Started operating the new Querétaro factory in Mexico, the Company's second plant in Mexico
April 2016	Started operating the new sales company, Advanex Deutschland GmbH

Source: Company materials

Since the 1980s, Advanex has released many products that have become global hits and has gained top shares of the markets for these products. Advanex has held a 70% share of the Japanese market for tape pads for audiotapes, a 50% share of the global market for flat springs for videotapes, an 80% share of the global market for shutters for 3.5-inch floppy discs, a 50% share of the global market for hinges for cellular phones, and a 90% share of the Japanese market for center hubs for optical discs. Advanex also holds a 60% share of the Japanese market for springs to protect needles implanted in the human body and a more than 50% share of the global market for springs for automatic insulin injection devices.

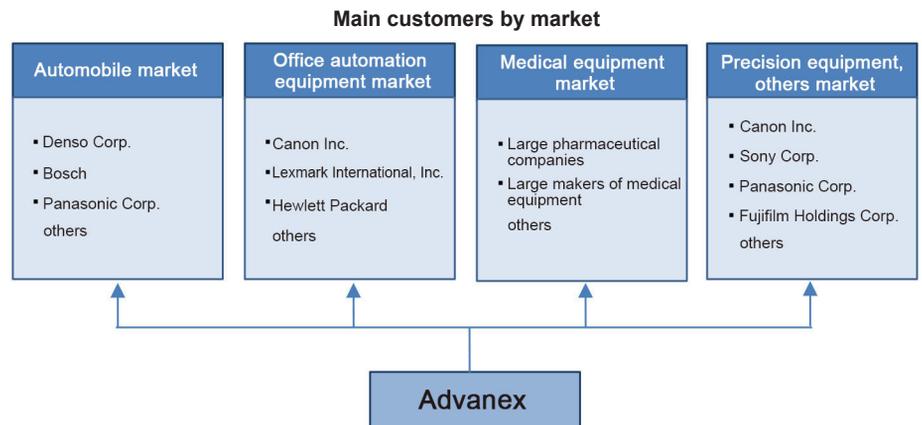
Advanex set up its first overseas subsidiary in 1971 in the US. In following years, it established subsidiaries in Singapore, the UK, Hong Kong, Thailand, China, and Vietnam. The UK subsidiary, founded in 1988, manufactures floppy disc shutters, in which Advanex dominates the global market, for sale in Europe. This subsidiary purchased a leading British maker of springs and now operates two plants. Its main products are precision springs for medical equipment and components to strengthen fasteners for automobiles and airplanes. The UK subsidiary is the most profitable subsidiary in the Advanex group.

As a result of Advanex's selection of and concentration on businesses offering the greatest growth potential, the Company has abandoned or sold its hinge, motor, and plastics businesses. The goal of its current medium-term business plan is to become a comprehensive metal processing company while specializing in the production of precision springs at the top level globally. Although Advanex sold the subsidiary that made most of its plastic products, it retains its insert moldings business, which combines two other original businesses, metal pressing and extruded plastic moldings. In April 2015, Advanex bought Funabashi Electronics Co., Ltd., the top company in Japan with the technology for deep drawing fine materials, a type of metal pressing. Deep drawing is now conducted at the plants in Chiba and Miyagi, but Advanex plans to introduce this technology to its new Saitama factory and eventually to its plants overseas, including China and the UK. It aims to achieve synergy within its group in metal processing by promoting the mutual use of metal mold machinery and by using the Company's abilities in sales and the procurement of materials.

## ■ Business Strategy

### Pursuing a “blue ocean” strategy as a global niche processor

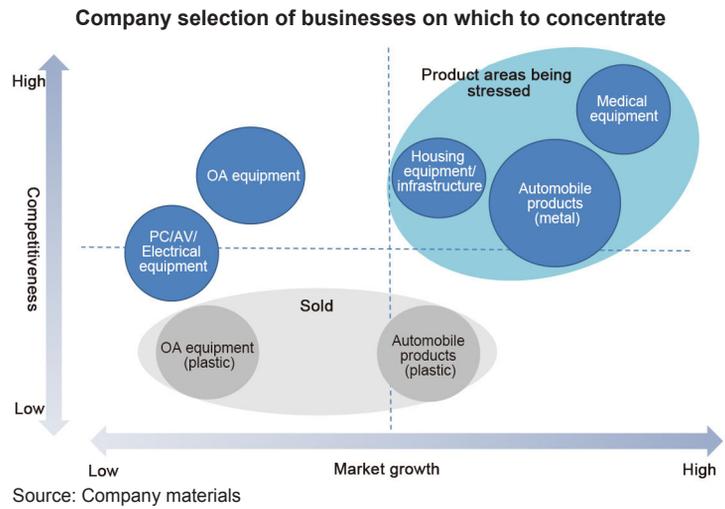
Advanex acquires globally top-level manufacturers as customers by holding technical discussions with these companies from the product development stage, resulting in long-term transactions based on a relationship of deep trust. The Company has about 730 corporate customers in Japan and manufactures about 11,700 different products each year. It derives the largest proportion of its sales from products for the automobile market or industry. It decided to make these products in 2000 and began taking orders for them in 2001, but it was difficult to enter the automobile market because experience is prized in the industry. Furthermore, the life cycle of automotive products is long, and several years are usually required to progress from initial orders to mass production. For these reasons, automotive products did not become a large business for the Company until about 2012. Advanex does not supply automotive parts as a subcontractor. It wins sales contracts by proposing new products, an approach that it had used successfully to sell office automation equipment. As automakers used more electronic components, makers of automobile components encouraged new entrants into their industry. Now, Japanese and German automakers are competing for the top share of the global automobile market, and Advanex supplies products to makers of components for automobiles made by both countries.



Source: Company materials

#### (1) Pursuing a “blue ocean” strategy as a global niche processor

Advanex is the only maker of many of its products, which has allowed it to earn high market shares in Japan and globally. Initially venturing into overseas business in 1971, the Company now has many plants and sales offices in the Americas, Europe and Asia. It has therefore developed its automobile products business and medical equipment businesses globally, and it can supply global manufacturers in a timely fashion. Its international presence enables it to ascertain the needs of clients worldwide, and its group companies cooperate in developing technology for mass production. The Company is now stressing four businesses in which it is very competitive and for which the markets are growing rapidly: automobile products, medical equipment, housing equipment, and infrastructure products.



Advanex follows a “blue ocean” strategy of developing markets in which it can apply its strengths and in which there are few competitors. Most large Japanese spring makers produce large springs, such as suspensions for automobile chassis. Few of these makers compete directly with Advanex in precision springs. About 500 – 700 small Japanese companies produce precision springs, but few of these companies have overseas facilities. Once a spring or other component is used in an automobile model, it must be supplied continually for the life of the model. Furthermore, the component must be manufactured under strict quality standards as human lives may be at risk if the component were not of high quality. Finally, the costs of manufacturing the component must be reduced regularly. The small Japanese spring manufacturers, which produce small quantities at low cost, cannot compete in the global market. Thus, Advanex shares this market with large Japanese spring makers.

### Business strategy

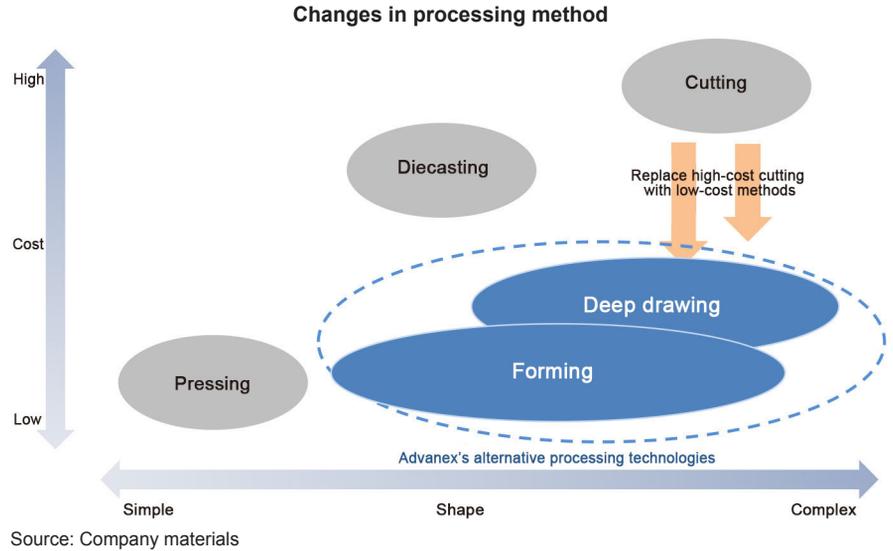
	Japan	Global market
Precision springs	<b>Advanex</b>	
	Small Japanese spring makers	Small Japanese spring makers
	Small Japanese spring makers	Small Japanese spring makers
	Small Japanese spring makers	Small Japanese spring makers
	"Red ocean" (strong competition)	"Blue ocean" (oligopoly)
Large springs	Large, Japanese spring makers	
	Large, Japanese spring makers	
	Large, Japanese spring makers	
	Large, non-Japanese spring makers	Large, non-Japanese spring makers
	"Red ocean"	"Red ocean"

Source: Company materials

### (2) Changes in processing method

Advanex builds win-win relationships with its clients by proposing solutions for client problems that incorporate advantages other than price. In planning and developing a new product with a client, Advanex may suggest a new method to manufacture the product if it differs in shape or technology from any previous product. Advanex analyzes its client’s processes and proposes improvements in them, reducing their number while maintaining product quality. The Company can also transfer the manufacture of a product to an overseas location close to a client’s site of mass production, if the client requests it to.

While a change in manufacturing method may yield merits compared with the previous method, the new method must equal or exceed the old one in terms of product quality, product function, and the ability to mass produce the product. Advanex has recently added deep drawing to its previous forming processes, which resulted in increased capabilities for making proposals. By replacing high-cost cutting with these two forming processes, the Company can produce metal products of complex shape at low cost, and it can mass-produce them in a short period of time. Forming is a strategic process for automobile products, and the Company expects metal forming to lead its overall sales growth. Forming is used at the Saitama factory to produce insert collars, a major product for the plant. The Company is also receiving a rapidly growing number of inquiries from clients for the deep drawing of electronic sensors needed to improve the fuel efficiency and safety of automobiles.

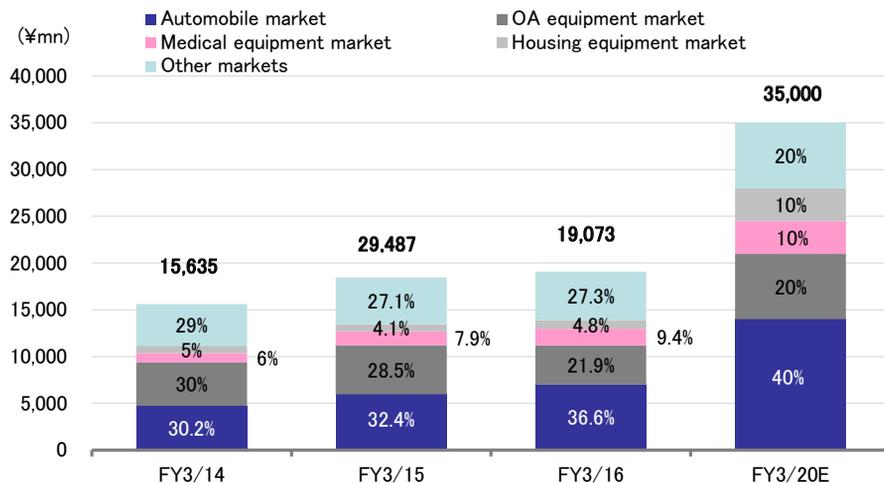


■ **Medium-term business plan**

**Targeting FY3/20 consolidated sales of ¥35.0bn and operating income of ¥4.0bn**

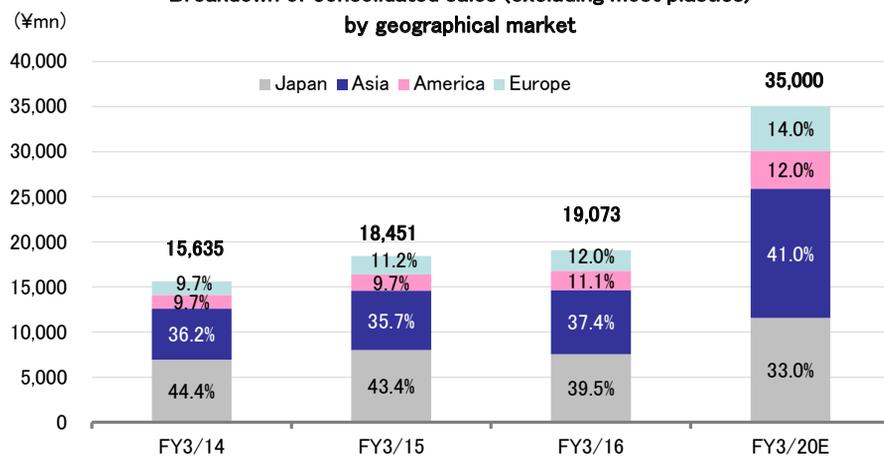
In February 2015, Advanex announced its “Breakthrough to 2020” business plan for FY3/16 – FY3/20. The theme of this plan is “becoming a comprehensive metal processor”, and toward this end, the Company will implement four strategies: 1) area strategy – invest aggressively to expand global business, 2) market strategy – accelerate the growth in sales of automobile products, build medical products and infrastructure products into the third main market, 3) product strategy – stress the expansion of business in certified products, and 4) M&A – acquire other businesses, even small ones, that possess promising technology or sales channels. The medium-term plan aims to amass consolidated sales of ¥35.0bn and operating income of ¥4.0bn in FY3/20, yielding a 5-year CAGR of 13.7% for sales and 41.2% for operating income. The targets imply an operating income margin of 11.4% in FY3/20, up from a margin of 3.7% in FY3/15, excluding the contribution of Daiichi Kasei Holdings Co., Ltd.

**Breakdown of consolidated sales by market**



Source: Company materials

**Breakdown of consolidated sales (excluding most plastics) by geographical market**



Note: Excluding most plastics  
Source: Company materials

In FY3/14, the Company derived 44.4% of its total consolidated sales, excluding sales of most plastic products, in Japan. By FY3/16, this proportion had fallen to 39.5%, and for FY3/20, the Company projects that it will be 33.0%. Although the Company expects its sales in Japan to grow, it foresees faster growth in its overseas sales.

## Market strategy

### Aiming to shift product portfolio to more stable markets

Advanex's market strategy aims to shift its product portfolio to more stable markets. The focus will be automobile products, medical equipment, housing and infrastructure. According to the Company's medium-term business plan, automobile products will account for 40% of total consolidated sales in FY3/20, up from 30%, excluding sales of most plastic products, in FY3/14. The sales weighting of OA products is seen falling from 30% in FY3/14 to 20% in FY3/20, while the sales weighting of medical equipment products rises from 6% to 10%, the sales weighting of products for infrastructure and housing equipment grows from 5% to 10%, and the weighting of other products declines from 29% to 20%. The demand for automobile products is large and more stable than the demand for consumer electronic equipment. On the other hand, most automobile products are sold to large companies, such as tier 1 makers of automobile components, and these companies demand a constant reduction in cost, so it is difficult to achieve high profitability in the sale of automobile products. The requirements of medical equipment, infrastructure, and housing equipment are challenging, but once a company applies its technology to become a supplier of products for these fields, it can look forward to long-term demand. In addition, model changes for these products are infrequent, so they could be highly profitable.

### Automobile market 1 responding to three trends

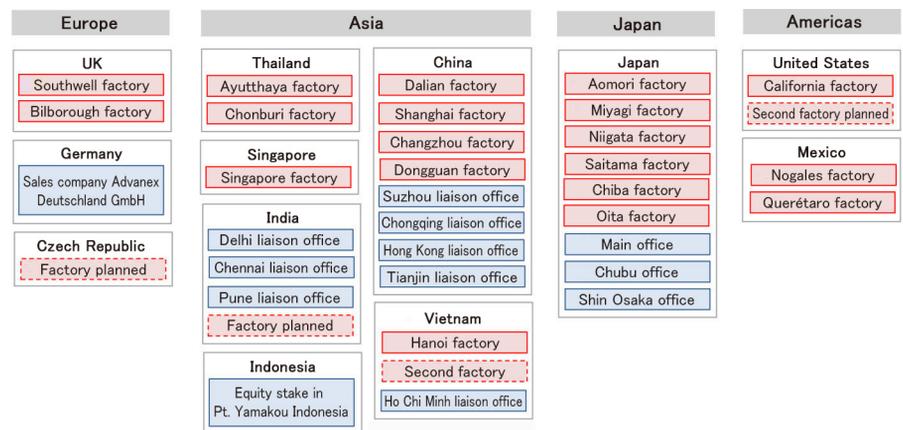
#### (1) Increasing use of modules and common parts – global supply

There are three main trends in the automobile market: the increasing use of modules and common parts, weight reduction, and the increasing use of electronic components. Advanex is responding to these trends through policies that take advantage of its strengths.

Global automakers include in their business continuity plans the increased use of modules and common parts in order to reduce costs and to cope with changes in currency exchange rates and in regional demand. These automakers also choose to buy from parts makers capable of supplying locally in each geographical market, as demanded by many countries. Product quality must be strictly controlled because a single defect can have a wide-ranging adverse impact on business. Advanex's global supply network allows it to respond effectively to the trend of the increasing use of modules and common parts.

Advanex operates 7 plants in Japan and 14 overseas: 2 in the UK, 1 in the US, 2 in Mexico, 1 in Singapore, 4 in China (Shanghai, Dalian, Dongguan, and Changzhou), 2 in Thailand, 1 in Vietnam, and 1 in Indonesia. The Company plans to build a second plant in both Vietnam and the US in FY3/17, as well as initial plants in India and the Czech Republic from FY3/18.

#### Advanex's global network



Source: Company materials



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Advanex's second plant in Mexico, the Querétaro factory, which began operations in April 2016, is benefiting from the domestic demand that has attracted many Japanese automakers and auto parts makers into the country. The Company minimized its initial investment in this plant by leasing an existing plant. Advanex has also taken an equity stake in Pt. Yamakou Indonesia, which serves about 20 Indonesian operations of Japanese auto parts makers with the aim of establishing a production facility in Indonesia.

The Company may develop products and manufacture them on a trial basis in Japan, but many of its clients want the products mass produced overseas. Its Koriyama trial production center and Niigata factory support mass production at overseas plants. The trial production center develops processes from trial production to automatic processing. The staff of overseas plants is trained at the Niigata factory, which facilitates communication. The Niigata factory fully understands the equipment at overseas plants and the production level at these plants, so it can anticipate possible problems at these plants. The Company's plants in Japan and overseas use the same kind of machinery, allowing a consistent worldwide response to problems.

Statistics on global automobile production show that the share of production by Japan has declined while the share by emerging economy countries has risen. According to the Organisation Internationale des Constructeurs d'Automobiles (OICA), global automobile production in 2015 was 90.78mn units, up 1.1% YoY and 23.9% from output in 2007, the year before the Lehman Brothers bankruptcy. However, automobile production in Japan fell by 20.0% between 2007 and 2015, and Japan's share of global production dropped by 5.6ppts from 15.8% in 2007 to 10.2% in 2015. Automobile production in Japan decreased sharply after the Lehman Brothers bankruptcy of September 2008, and a combination of yen appreciation and the transfer of production overseas slowed the recovery of production in Japan. The automobile markets in developed countries are mature, but the automobile markets in China and India are growing rapidly. Hence, in China, production in 2015 was 2.8 times that of 2007 and in India, 1.8 times. China's share of global automobile production increased from 12.1% in 2007 to 27.0% in 2015, and China's automobile output in 2015 was 24.5mn units, more than double the 12.1mn units produced in the US, the second-largest producer.

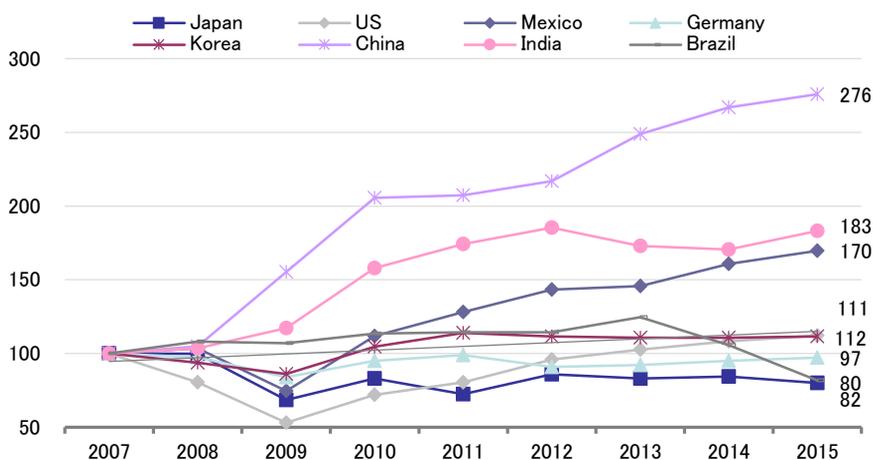
**Global automobile production by main producing nation and average exchange rates versus the Japanese yen, 2007–2015**

(thousand units)										
Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	YoY
Global total	73,266	70,729	61,762	77,583	79,880	84,236	87,507	89,747	90,780	1.1%
Japan	11,596	11,575	7,934	9,628	8,398	9,943	9,630	9,774	9,278	-5.1%
US	10,780	8,672	5,709	7,743	8,661	10,335	11,066	11,660	12,100	3.8%
Germany	6,213	6,045	5,209	5,905	6,146	5,649	5,718	5,907	3,556	5.6%
Korea	4,086	3,826	3,512	4,271	4,657	4,561	4,521	4,524	6,033	2.1%
China	8,882	9,299	13,790	18,264	18,418	19,271	22,116	23,722	4,555	0.7%
India	2,253	2,332	2,641	3,557	3,927	4,174	3,898	3,840	24,503	3.3%
Brazil	2,977	3,215	3,182	3,381	3,407	3,402	3,712	3,146	4,125	7.3%
Average exchange rate against the Japanese yen									2,429	-22.8%
US dollar	117.8	103.4	93.6	87.8	79.8	79.8	97.6	105.9		
Euro	161.2	152.4	130.2	116.4	111.1	102.6	129.6	140.5	121.1	14.3%
Korean won*	96.0	73.6	76.0	72.1	70.9	89.2	100.6	108.7	134.3	-4.4%
Korean won	0.096	0.074	0.076	0.072	0.071	0.089	0.101	0.109	10.7	-1.3%

Note: thousand Korean won

Sources: Data from the Organisation Internationale des Constructeurs d'Automobiles (OICA), the Bank of Japan, and other sources

**Indices of automobile production by leading producer nations, 2007 – 2015  
(2007=100)**

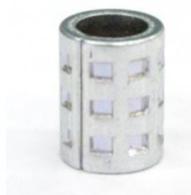


Source: Data from the Organisation Internationale des Constructeurs d'Automobiles (OICA).

**(2) Weight reduction – stressing the production of insert collars to reinforce plastic fasteners, aiming for annual sales of ¥2.0bn**

As global regulations on fuel efficiency have been tightened, automakers have increased their use of plastic components to lighten automobiles. Insert collars are metallic components used to strengthen the parts of plastic components into which bolts are affixed. A single automobile uses 50 – 100 insert collars. Insert collars are the main strategic product made at the Company’s new Saitama factory. Advanex aims to sell ¥2.0bn of insert collars in FY3/20 and to expand these sales in following years.

**Insert collar (used to strengthen plastic fastenings)**



Source: Company materials

Advanex’s insert collars cost about half as much as competing insert collars because the Company produces its insert collars through a multi-forming process, rather than the more expensive cutting process used to make competing products. A metal sheet or strip can be pierced, crushed and bent in one step through multi-forming, and the entire width of the sheet of strip can be used, leaving little scrap. Because Advanex uses multi-forming instead of cutting, it can propose insert collars in dimple shapes, which offer great drawing strength as well as VE and VA proposals. Since Advanex makes the metal molds used to produce insert collars, it can respond to customer requests quickly. Advanex’s insert collars are clearly superior to the products made by other companies through forming processing because the Company’s forming technology is based on its knowledge of springs. Ordinarily, when a piece of metal is hollowed out and rounded, it tends to return to its original shape through a restoration process. This causes openings between joints, through which plastic could leak. However, Advanex’s insert collars constrict around the plastic they surround, eliminating the risk of leakage.

Although Advanex sold the subsidiary that had produced most of its plastic products, it retained its insert moldings business and the facilities needed to produce insert moldings. Insert moldings combine plastic, metal, and other materials into a single component. The Company's integrated manufacture of insert moldings incorporates its technology to press metal sheets and to make extruded plastic moldings. Advanex designs all of the equipment needed to produce its presses and injection moldings, from metal molds to automatic machines. Therefore, it can propose to clients the design of insert moldings that are small, thin, fine, and require fewer steps to assemble than competing products.

**(3) increased use of electronics – drawn components are used in automotive sensors**

Global automakers are using more electronic sensors to improve the safety and fuel efficiency of automobiles. Advanex subsidiary Funabashi Electronics uses its precision deep drawing technology to make electronic sensors, and Advanex has received a growing number of inquiries from manufacturers of automobile components about these sensors. The two types of sensors they are most interested in are car speed sensors, used to prevent horizontal slipping and thereby increase safety, and power train crank sensors, used to improve the fuel efficiency of automotive engines. The automobile industry is increasingly using automatic braking systems and other kinds of advanced driving assistant systems (ADAS), and these systems are becoming more advanced, so the demand for automotive sensors is likely to grow.

Deep drawn products have been used only in consumer electronic equipment, and the demand for this equipment has been weakening. Funabashi Electronics probably lacked the scale to sell its products to the automobile industry. However, Advanex is larger than Funabashi Electronics and is already selling products to the automobile industry, so as a unit of Advanex, Funabashi Electronics may be able to market its goods to this industry. Advanex will have to invest heavily to develop automotive business for Funabashi Electronics, and even if the subsidiary sells its sensors to makers of automotive components, automobiles incorporating these sensors will not be sold for a few years. Thus, Funabashi Electronics is unlikely to generate sales of automotive components until about 2018, or later. The integration of Funabashi Electronics increased the Company's fixed costs in FY3/16, reducing its profits in the short term. In 2016 and 2017, Advanex will have to manufacture metal molds for its subsidiary's automotive sensors, ship samples of the sensors, and wait for potential customers to certify the quality of the sensors and use them on a trial basis. However, in the first month and a half of FY3/17, the Company received orders for metal molds for automobile products equivalent to the orders it usually receives in a year. Orders for metal molds do not imply mass production in the near future, but they indicate the growing potential for more business with the automobile industry in the future. As Advanex applies precision deep drawing technology to its operations in Japan and overseas—including China and the UK-- synergy within its group should increase.

**Deep drawn products**



Source: Company website

A transfer press is used for precision deep drawing. Transfer processing is a continuous, automatic procedure in which materials are aligned in a single row on one press machine and are propelled forward at the same time they are pressed. This processing combines many processes into a single process. Since transfer processing does not require cutting or manual labor, it is less costly than other kinds of processing, and it yields reliable product quality. Drawing is usually used to make tubes with lengths of 3–4 times their external diameters. Deep drawing is used to make tubes with lengths of about 10 times their diameters. Funabashi Electronics’ deep drawing technology can be used to make tubes with lengths of 30–40 times their diameters. Funabashi Electronics used to subcontract the production of metal molds for its presses, but it had to adjust the accuracy of its equipment, which required time and effort. Because Advanex develops and manufactures all its metal molds in-house, Funabashi Electronics now uses these molds, which has increased the precision of its deep drawing.

Transfer processing



Source: Company website

### Automobile market 2 – New Saitama factory specializes in automobile parts

In November 2015, Advanex completed the construction of its new Saitama factory in Honjo City, Saitama Prefecture. One reason that the company chose this location for the plant is that it anticipated increased business with Japanese and German makers of automobile components. This plant encompasses an R&D facility and plans to acquire the ISO/TS16949 system for managing the quality of products for the automobile industry. The plant is built on a land site of 12,000 square meters and has about 5,000 square meters of floor area. It cost about ¥1.5bn, is staffed by about 30 employees, and aims for sales of ¥3.0bn in FY3/20. The plant is automated to the point that it requires only about half the number of workers that a similar plant has required to date. It is equipped with the newest machinery, including numerically controlled forming machines, some of which was transferred from the Niigata factory. The factory produces wire springs, flat springs, insert moldings, deep drawn products, and other products for the automobile industry. Its production processes match those of a “smart factory”, i.e., a factory with minimal labor input. By opening this factory, which specializes in automobile products, Advanex aims to increase its presence in the automobile industry and expand its automobile product business.

## Demand for disposable medical products projected to grow

### Medical equipment – Products with a high market share provide large profits

Advanex's sales of products for medical equipment grew from ¥800mn in FY3/13 to ¥1.8bn in FY3/16, and the Company forecasts sales of ¥2.0bn for FY3/17.

The medical equipment market seems appropriate for the Company, as it aims to be a provider for global niche markets. As the global population and global medical expenditures are increasing, the global market for medical equipment is likely to grow steadily. Furthermore, the trend of increase in self-administered health care indicates that the demand for disposable medical products is likely to increase. Medical equipment has a long product life cycle, few model changes, and provides large profits. On the other hand, the cost of developing medical equipment and producing it on a trial basis is high, this equipment must be tested for a long time before it can be commercialized, and the plan for developing and commercializing a piece of medical equipment may be abandoned. If these negative factors, which constitute barriers to entry, can be overcome, medical equipment can provide large profits consistently.

A good example of successful medical equipment is the precision springs for medical use sold by Advanex Europe, the UK subsidiary. Such products account for a little over 40% of the subsidiary's sales and a higher proportion of its profits. In 1999, the subsidiary received an order from a large European pharmaceutical company for precision springs for use in inhalant devices that dispensed fixed amounts of asthma medicine in mist form. This order launched the rapid growth of the subsidiary. Springs from other companies did not meet product standards, but the Niigata factory developed springs that did meet these standards and was successful in receiving orders. Subsequently, equipment for manufacturing the new springs was shipped to Advanex Europe, which began to mass produce the springs.

Asthma medicine inhalant



Automatic injection device



Needle for intravenous transfusion (implanted needle) (protective coil spring)



Source: Company materials

Asthma medicine inhalant dispensers are disposable medical devices that are hand-held by a patient and operated by depressing a plunger to release a fixed amount of medicine. Advanex supplies push springs that return a depressed plunger to an open position. Hereafter, the Company plans to produce these springs in the US, as well as in Europe. Advanex's precision push springs, torsion springs, and deep drawn products are also used in automatic injection devices used by diabetics and other people requiring regular injections of medicine. These disposable devices automatically insert needles and inject medicine and are included in self-care kits. European makers of medical equipment are expanding their manufacturing bases into Asia. Thus, Advanex is considering the production and sale of its products for medical equipment in Japan and other Asian countries.

## ■ Product strategy

### Company is also concentrating on building a business in the production and sale of certified products for many uses

(1) "LockOne" device to prevent the loosening of bolt-nut connections is overwhelming leader in performance tests

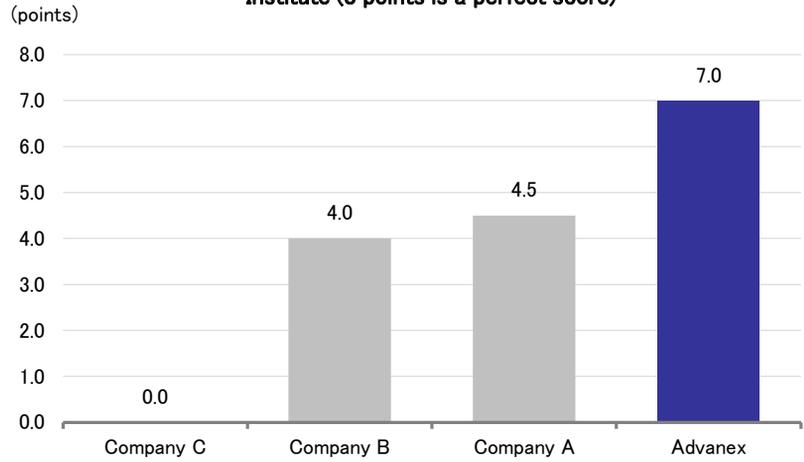
The most promising product for housing equipment and infrastructure is the "LockOne" spring for preventing the loosening of nut-to-bolt connections. This spring passed a test in which it was subjected to shock vibrations by a machine conforming to the National Aerospace Standard 3350 of the US.

In tests of equipment to prevent the loosening of bolt-to-nut connections in electric railway lines by Japan's Railway Technical Research Institute, the "LockOne" spring significantly outperformed competitors. Against a perfect overall score of 8, the "LockOne" spring was awarded a score of 7, whereas three competing products received scores of 4.5, 4 and 0. The institute downgraded its appraisal of the "LockOne" spring by one point because it appeared to be loose, but it found no problems with the performance of the spring.

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**Overall scores awarded by Japan's Railway Technical Research Institute (8 points is a perfect score)**



Double nuts, locknuts and the "LockOne" spring were tested for failure. They were subjected to shock vibrations until the nuts fell from their bolts. To reduce error, two sets of each product were tested simultaneously. The double nuts failed after 1,200 – 1,800 vibrations. The locknuts failed after 2,500 – 4,500 vibrations. Nuts secured by the "LockOne" spring did not fail even after 30,000 vibrations, which is the NAS 3350 standard. In a follow-up test, nuts secured by the "LockOne" spring did not fail after 180,000 vibrations.

Products competing with the "LockOne" spring internalize the function of preventing nut-to-bolt loosening, but this function must be modified for each nut. The "LockOne" spring can be attached easily to the top of a nut using a socket wrench sold at any hardware store, and the "LockOne" spring is not expensive. Users of the "LockOne" spring do not have to inspect nut-to-bolt connections for security often.

**"LockOne" springs**



Source: Company website

The “LockOne” spring can be used in buildings, such as condominium buildings, highways, electric power equipment, and other areas, in addition to railroads. However, the spring must be certified by each user, which delays their use. The “LockOne” spring is now being used to secure the bolts that fasten directional signs and shields on some highways. On structures such as highways, where vibrations are frequent, nut-to-bolt connections loosen easily. The “LockOne” spring can be used to secure the nuts that fasten acrylic sheets that partition the balconies of condominium units. A large construction company has used this spring for this purpose at a building it erected in Vietnam. Since the shape of a “LockOne” spring is complex, Advanex is the only company currently able to mass produce the spring.

**(2) Tangless wire inserts for strengthening screw holes – sales for use in airplanes are growing**

Another certified product that Advanex is promoting is its tangless wire inserts used to strengthen the screw holes in soft materials. In FY3/16, the Company’s sales of tangless wire inserts grew to almost ¥1.0bn. Airplanes are made of light materials, such as aluminum and carbon fiber-reinforced plastic. Screw holes in these materials must be reinforced, and a single airplane may require reinforcement for from several ten thousands to several hundred thousands of screw holes. Tangless wire inserts have been replacing other kinds of reinforcement for several years now, and they are projected to increase their share of the market for airplane screw hole reinforcements.

Tangless wire inserts have many characteristics for which they are more highly valued than conventional screw hole reinforcements. Tangless wire inserts are also highly profitable because they do not require more materials or steps to produce than conventional reinforcements.

**Tangless wire insert**



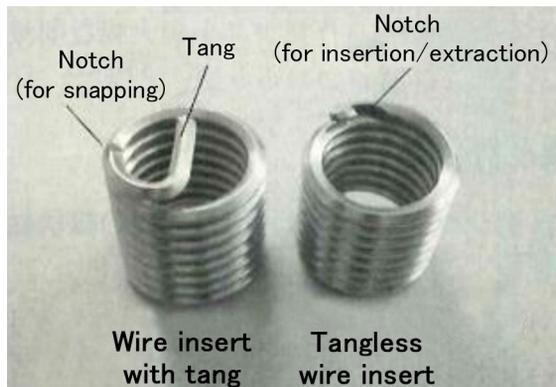
**Inserted into a screw hole for reinforcement**



Source: Company materials

Accurate Inc. deals in products made by Advanex. The website of Accurate Inc. contains the photograph shown below of wire insert with a tang next to a tangless wire insert. Tangs are wire projections used to hook onto the material into which they are inserted. After insertion, the tangs must be broken off and removed. The tangless wire inserts developed by Advanex contain notches for insertion and extraction, rather than tangs. These tangless inserts offer several advantages over inserts with tangs: 1) they are easier to apply, greatly reducing the time for threading and insertion, 2) they pose no risk of forgetting to recover the tang or scratching the material into which the hole is bored while cutting or extracting the tang, 3) they are the same shape at both ends, so there is no need to ensure that they are being inserted from the correct end, 4) they can be removed, and 5) they comply with the National Aerospace Standards of the US.

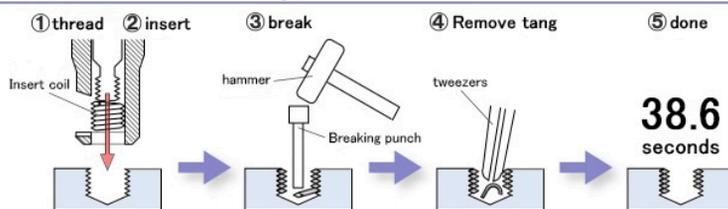
**Wire insert with tang and tangless wire insert**



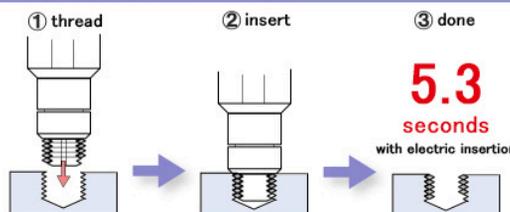
Source: Materials from Accurate Inc.

**Procedures for threading and inserting inserts with tangs and tangless inserts, and times required for these procedures**

**Procedure for insert with tangs**



**Procedure for tangless wire insert**



Source: Materials from Accurate Inc.

Tangless wire inserts require special tools to use, one of several obstacles to their use. Consequently, Advanex had limited their sale to certain categories of client, mainly makers of airplanes. To expand the market for these inserts, Advanex sold low-priced entry kits containing hole drills, insertion tools, extraction tools, and other pieces of equipment. The Company's intent in selling entry kits is to familiarize potential users with the product, making them more likely to use it.

These certified products are not just sold through retail channels. By selling them to consumers, the company raises the public's awareness of the products, which contributes to its sales to businesses and is likely to lead to orders for custom-made products.

■ **Business Trends**

**Sales and profits fell sharply in FY3/16 following the divestiture of most of the company's plastics business**

● **FY3/16 Results**

**(1) Consolidated income statement – excluding most plastic products, sales increased slightly YoY and operating income decreased slightly**

In FY3/16, following the strategic divestiture of most of its plastics business, the Company's consolidated net sales decreased by 35.3% YoY to ¥19,073mn and its operating income dropped 38.2% to ¥668mn. Excluding the contributions of the divested plastics business, sales increased by 3.4% YoY to ¥19,073mn and operating income declined by 4.3%. Reported sales were 3.7% smaller than the company had forecast at the start of the fiscal year, and reported operating income was 24.1% smaller than initially projected. Results in H1 FY3/16 were in line with the company's forecasts, but in H2, Japanese demand, especially for office automation equipment, weakened, causing sales and profits to decline. Sales did not grow enough to offset increases in costs accompanying the construction of the new Saitama factory and the absorption of Funabashi Electronics. In FY3/15, the Company claimed as an extraordinary loss a ¥105mn increase in provisions for losses due to disasters. In FY3/16, the Company claimed as an extraordinary gain a ¥103mn withdrawal from provisions for losses due to disasters. These changes in extraordinary gains and losses contributed to an 82.4% YoY rise in consolidated net income in FY3/16 to ¥587mn.



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## Consolidated results in FY3/15 and FY3/16

(¥mn)

	FY3/15		FY3/16		YoY (excluding most plastic products)		Versus plan	
	Reported	Excluding most plastic products	Plan	Result	Absolute change	% change	Absolute change	% change
Sales	29,487	18,451	19,800	19,073	622	3.4%	-726	-3.7%
Operating income	1,081	698	880	668	-29	-4.3%	-211	-24.1%
Operating income margin	3.7%	3.8%	4.4%	3.5%	-	-	-	-
Ordinary income	992	504	860	671	167	33.0%	-188	-21.9%
Net income	535	321	550	587	266	82.4%	37	6.8%

Source: Company materials

### (2) Breakdown of sales and operating income by geographical market

After divesting of most of its plastic products business, Advanex is now engaged solely in the production and sale of precision springs. Therefore, the Company no longer presents breakdowns of its sales and profits by business segment, but it does disclose breakdowns by geographical markets. Sales in Japan, excluding sales of the divested plastic products business, fell by 5.8% YoY in FY3/16 to ¥7,539mn, or 39.5% of total sales, 3.9ppts lower than the country's sales weighting in FY3/15. Sales of products to the automobile market in Japan grew, but sales of products for office automation equipment fell notably. The deterioration of the product mix and the absorption of the employees of Funabashi Electronics led to an increase in fixed costs, so the Company suffered an operating loss of ¥401mn in Japan in FY3/16, which was ¥295mn larger than the operating loss in Japan in FY3/15. The Company also bore costs in FY3/16 in preparation for the opening of the new Saitama factory in January 2016.

Advanex's operations in the Americas and Europe produce and sell only precision springs. In FY3/16, sales in the Americas increased by 17.3% YoY to ¥2,108mn, and operating income grew by 9.2% to ¥28mn. Sales of products to the automobile market grew, as did sales of products for infrastructure, including sprinklers. However, the Americas operations incurred costs related to the start of operations of the new plant in Querétaro, Mexico in April 2016. In Europe, sales climbed 11.0% YoY to ¥2,286mn and operating income rose 14.5% to ¥350mn, for an operating income margin of 15.3%, which was 4.4 times the Company's average operating income margin of 3.5%. European sales of highly profitable products for medical equipment grew YoY, as did sales of products for airplanes. In Asia, sales advanced by 8.3% YoY to ¥7,138mn and operating income jumped by 50.7% to ¥700mn. Asian sales of products for automobiles increased, as did sales of products for smartphones.

### Breakdown of consolidated sales by geographical market, FY3/15 – FY3/16

(¥mn)

		FY3/15		FY3/16		YoY	
		Amt.	Ratio to sales/profit margin	Amt.	Ratio to sales/profit margin	Absolute change	% change
Japan	Sales	8,003	43.4%	7,539	39.5%	-464	-5.8%
	Operating income	-106	-1.3%	-401	-5.3%	-295	-
Americas	Sales	1,797	9.7%	2,108	11.1%	311	17.3%
	Operating income	26	1.5%	28	1.4%	2	9.2%
Europe	Sales	2,059	11.2%	2,286	12.0%	227	11.0%
	Operating income	305	14.9%	350	15.3%	44	14.5%
Asia	Sales	6,591	35.7%	7,138	37.4%	546	8.3%
	Operating income	465	7.1%	700	9.8%	235	50.7%
Total	Sales	18,451	100.0%	19,073	100.0%	621	3.4%
	Operating income	698	3.8%	668	3.5%	-29	-4.3%

Note: Figures for FY3/15 exclude most plastic products

Source: Company materials

Sales to the automobile market, excluding sales of the divested plastic products business, grew to 36.6% of total sales in FY3/16, which was 4.2ppts higher than the sales weighting of this market in FY3/15, while sales to the office automation equipment market fell by 6.6ppts to 21.9% of total sales in FY3/16. Sales to the automobile market rose 17.0% YoY in FY3/16, while sales to the medical equipment market grew 22.9%, sales to the precision equipment market climbed 20.3%, sales to the housing equipment market advanced 19.9%, and sales to the airplane market jumped 60.9%. Although sales to the airplane market comprised only 3.3% of total sales in FY3/16, because of the sharp increase in these sales, this category was recognized for the first time, having previously been included in sales to other markets. Markets to which sales fell YoY in FY3/16 include the office automation equipment market (down 20.3%), the market for personal computers and peripheral equipment (down 10.2%), the market for audiovisual equipment and electric appliances (down 26.7%), and the market for cellular phones and information terminals (down 26.3%). Sales to markets targeted by the Company increased in FY3/16, but sales to formerly core markets declined more than the Company had expected.

**Breakdown of consolidated sales by market, FY3/15 – FY3/16**

	FY3/15		FY3/16		YoY	
	Sales	Ratio to sales	Sales	Ratio to sales	Absolute change	% change
Automobiles	5,970	32.4%	6,984	36.6%	1,014	17.0%
OA equipment	5,252	28.5%	4,186	21.9%	-1,066	-20.3%
Medical equipment	1,460	7.9%	1,794	9.4%	334	22.9%
Precision equipment	983	5.3%	1,183	6.2%	200	20.3%
Housing equipment	759	4.1%	910	4.8%	151	19.9%
Airplane equipment	394	2.1%	634	3.3%	240	60.9%
Personal computers and peripheral equipment	706	3.8%	634	3.3%	-72	-10.2%
Audiovisual equipment and electrical appliances	735	4.0%	539	2.8%	-196	-26.7%
Cell phones and information terminals	691	3.7%	509	2.7%	-182	-26.3%
Others	1,495	8.1%	1,700	8.9%	205	13.7%
Total	18,451	100.0%	19,073	100.0%	622	3.4%

Note: FY3/15 sales figures exclude sales of most plastic products  
Source: Company materials

**(3) Consolidated balance sheet**

The balance sheet figures for the end of FY3/15 reflect the sale of Daiichi Kasei Holdings Co., enabling a comparison with the figures for the end of FY3/16. Total assets at the end of FY3/16 came to ¥17,024mn, which was ¥469mn more than total assets a year earlier. Current assets declined by ¥347mn between the end of FY3/15 and the end of FY3/16, mainly because of decreases in sales and promissory notes receivable and in inventories. Tangible fixed assets increased by ¥657mn between the end of FY3/15 and the end of FY3/16, mainly because of the construction of the new Saitama factory. Intangible fixed assets, investments, and other fixed assets also grew during FY3/16. Total liabilities increased by ¥924mn.

**Abbreviated consolidated balance sheet**

	FY3/15-end	FY3/16-end	YoY absolute change
Current assets	10,304	9,957	-347
(cash and deposits)	3,485	3,465	-19
Fixed assets	6,249	7,066	816
Total assets	16,554	17,024	469
Current liabilities	5,619	5,852	232
Fixed liabilities	3,902	4,593	691
(interest-bearing debt)	3,977	5,096	1,119
Total liabilities	9,522	10,446	924
Net worth	7,032	6,578	-454
Measures of financial safety			
Current ratio (current assets ÷ current liabilities)	183.4%	170.1%	
Equity ratio (Total equity ÷ total assets)	42.3%	38.4%	
Gross debt-to-equity ratio (interest-bearing debt ÷ total equity)	0.57	0.78	
Measures of profitability			
ROA (a × c)	5.4%	4.0%	
ROE (b × c × d)	9.1%	8.7%	
a ordinary income margin	3.4%	3.5%	
b net income margin	1.8%	3.1%	
c asset turnover ratio (times)	1.60	1.14	
d financial leverage (times)	3.14	2.48	

Source: Company materials

#### (4) Consolidated cash flow

At the end of FY3/16, cash and cash equivalents totaled ¥2,669mn, which was ¥737mn less than the corresponding figure at the end of FY3/15. Cash flow from operations amounted to ¥1,415mn in FY3/16, reflecting profit, depreciation cost, and other factors. Cash flow from investing was negative by ¥2,823mn, due mainly to ¥1,854mn of investment in tangible fixed assets. Cash flow from financing was ¥910mn, as the Company funded its capital investment with increased borrowings. The Company also bought ¥101mn of its shares outstanding, making them treasury shares.

#### Abbreviated statement of consolidated cash flow, FY3/15 – FY3/16

	(¥mn)		
	FY3/15	FY3/16	Absolute change YoY
Cash flow from operations	2,139	1,415	-724
Cash flow from investing	-1,179	-2,864	-1,684
Cash flow from financing	-794	951	1,745
Balance of cash and cash equivalents at the end of the fiscal year	3,407	2,669	-737

Source: Company materials

#### ● Company forecasts for FY3/17

##### Net sales forecast to be flat and operating income to grow 20%

For FY3/17, the Company projects a 0.7% YoY rise in consolidated net sales to ¥19.2bn, a 19.7% upturn in operating income to ¥800mn, a 19.1% increase in ordinary income to ¥800mn, and a 2.2% rise in net income to ¥600mn. These forecasts are based on the assumption of an average exchange rate of ¥110 per US dollar, whereas the Company had assumed an average rate of ¥120 per US dollar for FY3/16. For H1 FY3/17, the Company forecasts a 5.3% YoY decline in sales to ¥9.4bn and a 10.0% drop in operating income to ¥330mn. Sales to the office automation equipment market weakened YoY in H2 FY3/16, and the Company does not expect a rebound in sales to this market in H1 FY3/17. In the first month and a half of FY3/17, the Company received orders for metal molds for automobile products equivalent to the orders it usually receives in a year. Thus, its overall sales and profits are likely to increase notably YoY from H2 FY3/17.

#### Company forecasts for FY3/17 versus results in FY3/16

	FY3/16		FY3/17E					
	H1	Full term	H1			Full term		
	Amt.	Amt.	Amt.	Absolute change YoY	% change YoY	Amt.	Absolute change YoY	% change YoY
Sales	9,924	19,073	9,400	-524	-5.3%	19,200	126	0.7%
Operating income	366	668	330	-36	-10.0%	800	131	19.7%
Operating income margin	3.7%	3.5%	3.5%	-	-	4.2%	-	-
Ordinary income	353	671	320	-33	-9.4%	800	128	19.1%
Net income	237	587	180	-57	-24.2%	600	12	2.2%

Source: Company materials

## ■ Shareholder returns

### Company plans to increase its dividends per share for FY3/17

From FY3/08 through FY3/12, Advanex paid no dividends because its profits were weak. The Company resumed dividend payments in FY3/13 and has increased its annual dividends per share each year since then. Its dividends per share now exceed the level before FY3/08.

For FY3/16, Advanex paid dividends of ¥35.0 per share, for a dividend payout ratio of 23.2%. On October 1, 2015, it consolidated its shares outstanding, replacing each 10 shares with 1 share. After adjusting dividends per share and the dividend payout ratio in all years for this share consolidation, FY3/16's dividends per share of ¥35.0 were ¥5.0 per share more than the dividends per share for FY3/15, and FY3/16's dividend payout ratio was 24.4%. For FY3/17, the Company plans to pay dividends of ¥40 per share, a YoY increase of ¥5 per share, for a dividend payout ratio of 27.3%. The Company's medium-term business plan targets a dividend payout ratio of 30%.

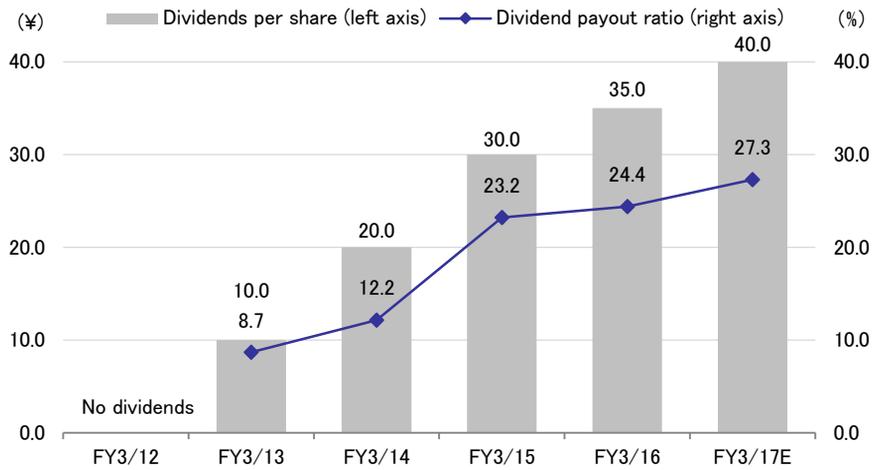


Every year, Advanex awards to its shareholders as of the end of September a QUO card. Furthermore, in May 2015, the Company bought back ¥106mn of its outstanding shares, and it intends to buy back more shares as the opportunity arises. Combining dividends, the value of the QUO cards awarded, and the impact of the share buyback in FY3/16, the total return to shareholders exceeded 40% that year.

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**Dividends per share and dividend payout ratio, FY3/12 – FY3/17E**



Note: Adjusted for share consolidation  
 Note: Dividends per share prior to the share consolidation in October 2015 adjusted to reflect this consolidation  
 Source: Company materials

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