

# Achieved YoY Growth in Earnings and Profits in FY2018 Q3

-Construction machinery manufacturers have taken a cautious stance in their production plans due to the slowdown in the Chinese economy-

YAMASHIN-FILTER CORP.  
Financial Results for the Third Quarter of  
the Fiscal Year Ending March 2019

First Section of  
Tokyo Stock Exchange

**6240**

February 4, 2019

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## Business environment and our actions in FY2018 Q3

### Business environment

- There has been a slowdown in the Chinese economy due to the impact of trade friction between the U.S. and China.
- There is a sense of uncertainty about the future of the Chinese economy. This has caused our major Japanese manufacturer customers to revise their new machine production plans. Accordingly, inventories of service parts have temporarily been adjusted.
- The future trends in fiscal policy will be the key to our business.



### Our actions

- Sales have temporarily stagnated due to the adjustment in the inventories of service parts among construction machinery manufacturers. Nevertheless, we aimed to enhance our lineup by taking advantage of new materials and IoT technologies with a main focus on construction machinery filters.
- We focused our efforts on achieving our PAC18 targets. We achieved a reduction of 220 million yen compared to our cost reduction target of 200 million yen by the end of Q3 (60% of annual target achieved to date).

## Results in FY2018 Q3

- Net sales increased by 10.0% to 10,589 million yen compared to the same period in the previous term. This was despite the adjustment in the inventories of service parts by our construction machinery manufacturer customers.
- Gross profit increased by 12.7% to 4,998 million yen compared to the same period in the previous term. This was thanks to our efforts to reduce costs through PAC18.
- Operating income increased by 5.0% to 1,597 million yen compared to the same period in the previous term. This came from the effect of the aforementioned increase in net sales and the effect of PAC18 despite an increase in inventory and a rise in SG&A.



# I Q3 Business Performance and Full-year Forecasts for FY2018

# FY2018 Q3 Business Performance (October - December)

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(Million yen)	FY2017 Q3 Actual	FY2018 Q3 Actual	YoY change	
	Amount	Amount	Amount	%
Net sales	3,385	3,462	76	2.3%
Operating income	553	512	△40	△7.3%
<b>Operating income margin</b>	<b>16.4%</b>	<b>14.8%</b>	<b>△1.6Pt</b>	
Ordinary income	536	482	△54	△10.1%
<b>Ordinary income margin</b>	<b>15.8%</b>	<b>13.9%</b>	<b>△1.9Pt</b>	
Net income	366	332	△34	△9.4%
<b>Net income margin</b>	<b>10.8%</b>	<b>9.6%</b>	<b>△1.2Pt</b>	
Exchange rates AR* USD	113.0	112.9	△0.1	△0.1%
EUR	133.0	128.8	△4.2	△3.2%

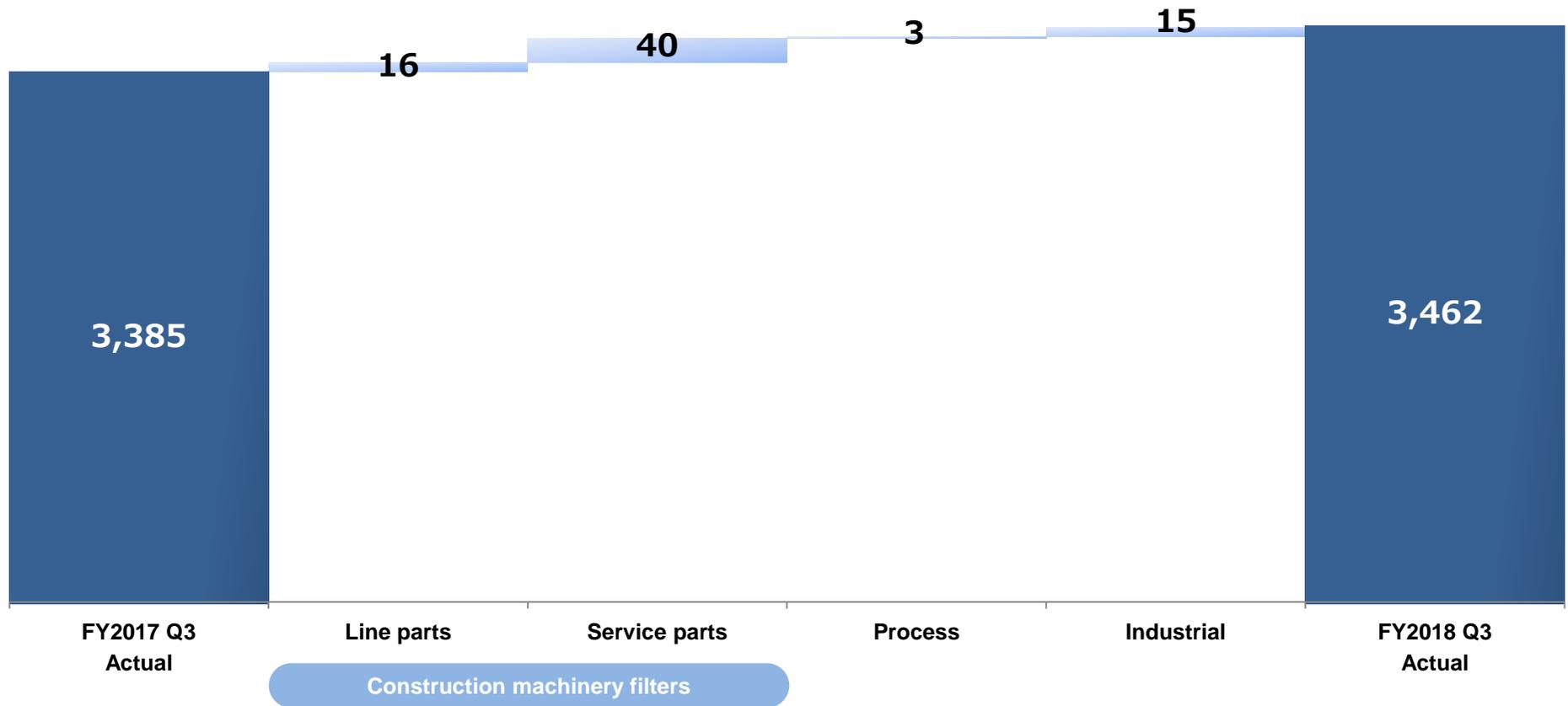
\*Average rate for 9 months from April to December

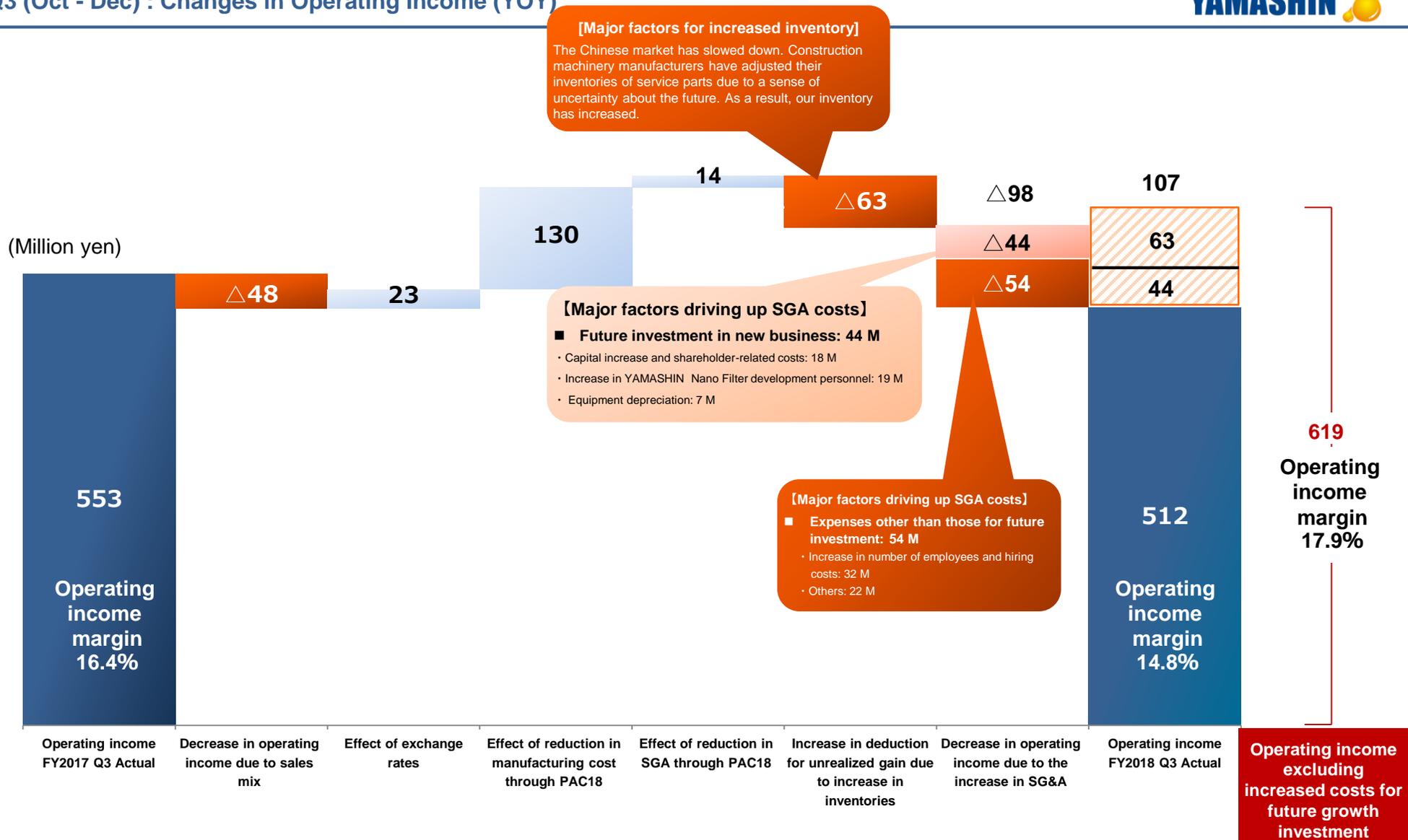
	FY2017 Q3 Actual	FY2018 Q3 Actual	YoY change	
	Amount	Amount	Amount	%
(Million yen)				
Construction machinery filters	3,027	3,084	57	1.9%
Line parts	1,320	1,337	16	1.3%
Service parts	1,707	1,747	40	2.4%
Industrial filters	131	146	15	11.6%
Process filters	227	231	3	1.7%
Total sales	3,385	3,462	76	2.3%

(Million yen)	FY2017 Q3 Actual		FY2018 Q3 Actual		Change	
	Amount (Million yen)	Composition ratio (%)	Amount (Million yen)	Composition ratio (%)	Amount (Million yen)	Composition ratio (%)
Japan	1,684	49.8%	1,679	48.5%	△4	△0.2%
North America	621	18.3%	535	15.5%	△85	△13.7%
China	404	11.9%	345	10.0%	△58	△14.5%
Other Asian countries	368	10.9%	472	13.6%	103	28.3%
Europe	298	8.8%	427	12.4%	129	43.3%
Others (Middle East, etc.)	10	0.3%	1	0.0%	△9	△89.5%
<b>Total sales</b>	<b>3,385</b>	<b>100.0%</b>	<b>3,462</b>	<b>100.0%</b>	<b>76</b>	<b>2.3%</b>

Note: The amounts of sales by region here are calculated based on the locations of corporations to which invoices are sent. So actual regional market trends may be different from the numbers shown.

(Million yen)





\*PAC (Promptly Activated Cost reduction): Company-wide cost reduction project

# FY2018 Q3 Business Performance (April - December)

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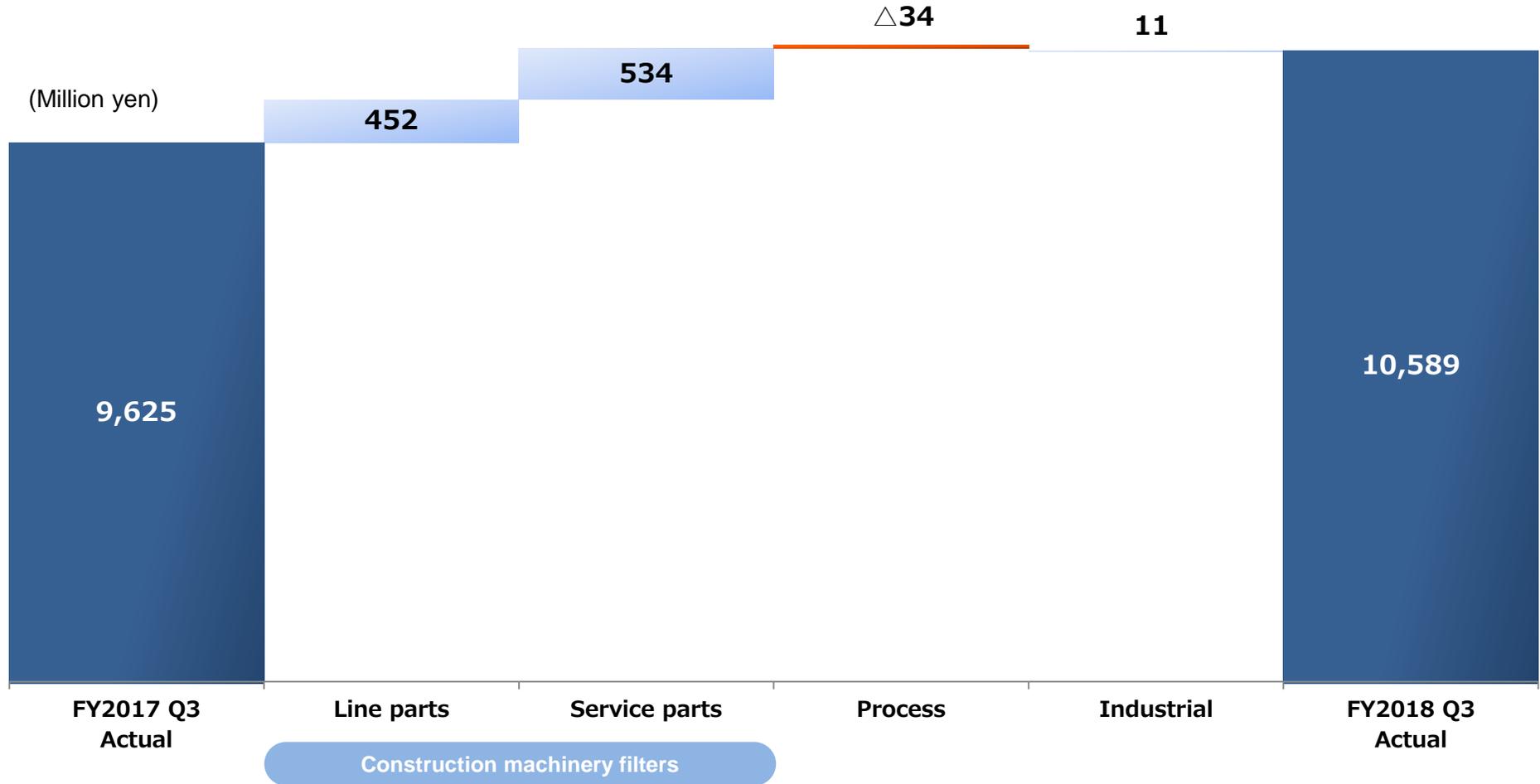
(Million yen)	FY2017 Q3 Actual	FY2018 Q3 Actual	YoY change	
	Amount	Amount	Amount	%
Net sales	9,625	10,589	964	10.0%
Operating income	1,521	1,597	76	5.0%
<b>Operating income margin</b>	<b>15.8%</b>	<b>15.1%</b>	<b>△0.7Pt</b>	
Ordinary income	1,476	1,558	82	5.6%
<b>Ordinary income margin</b>	<b>15.3%</b>	<b>14.7%</b>	<b>△0.6Pt</b>	
Net income	976	1,140	164	16.8%
<b>Net income margin</b>	<b>10.1%</b>	<b>10.8%</b>	<b>0.7Pt</b>	
Exchange rates AR* USD	111.7	111.2	△0.6	△0.5%
EUR	128.5	129.5	1.0	0.8%

\*Average rate for 9 months from April to December

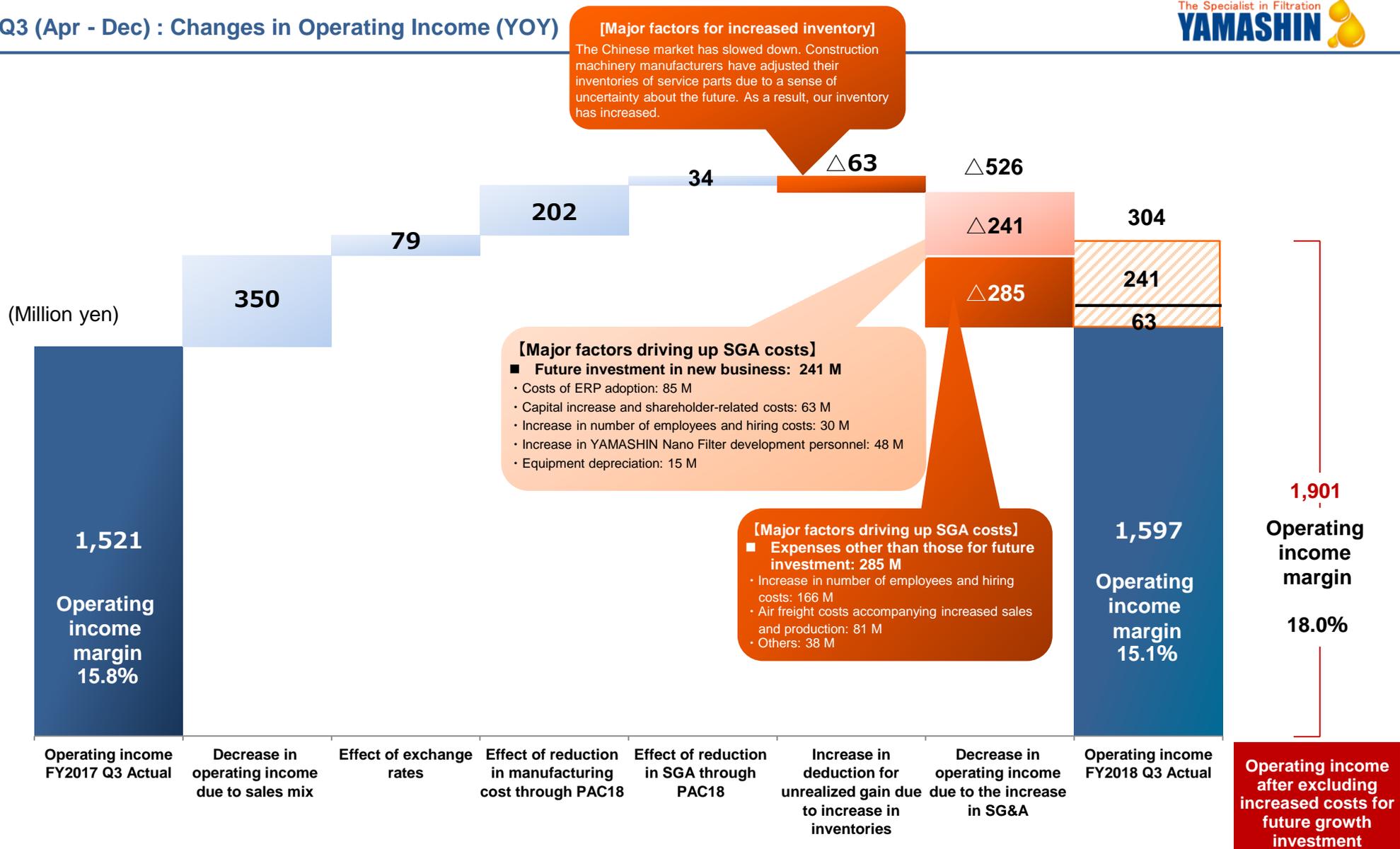
	FY2017 Q3 Actual	FY2018 Q3 Actual	YoY change	
	Amount	Amount	Amount	%
(Million yen)				
Construction machinery filters	8,544	9,531	987	11.6%
Line parts	3,784	4,237	452	12.0%
Service parts	4,759	5,294	534	11.2%
Industrial filters	407	419	11	2.9%
Process filters	674	639	△34	△5.2%
Total sales	9,625	10,589	964	10.0%

	FY2017 Q3 Actual		FY2018 Q3 Actual		Change	
	Amount (Million yen)	Composition ratio (%)	Amount (Million yen)	Composition ratio (%)	Amount (Million yen)	Composition ratio (%)
Japan	4,822	50.1%	5,025	47.5%	202	4.2%
North America	1,618	16.8%	1,700	16.1%	82	5.1%
China	1,140	11.9%	1,347	12.7%	207	18.2%
Other Asian countries	1,130	11.7%	1,390	13.1%	260	23.1%
Europe	867	9.0%	1,122	10.6%	255	29.4%
Others (Middle East, etc.)	46	0.5%	3	0.0%	△43	△93.5%
<b>Total sales</b>	9,625	100.0%	10,589	100.0%	964	10.0%

Note: The amounts of sales by region here are calculated based on the locations of corporations to which invoices are sent. So actual regional market trends may be different from the numbers shown.



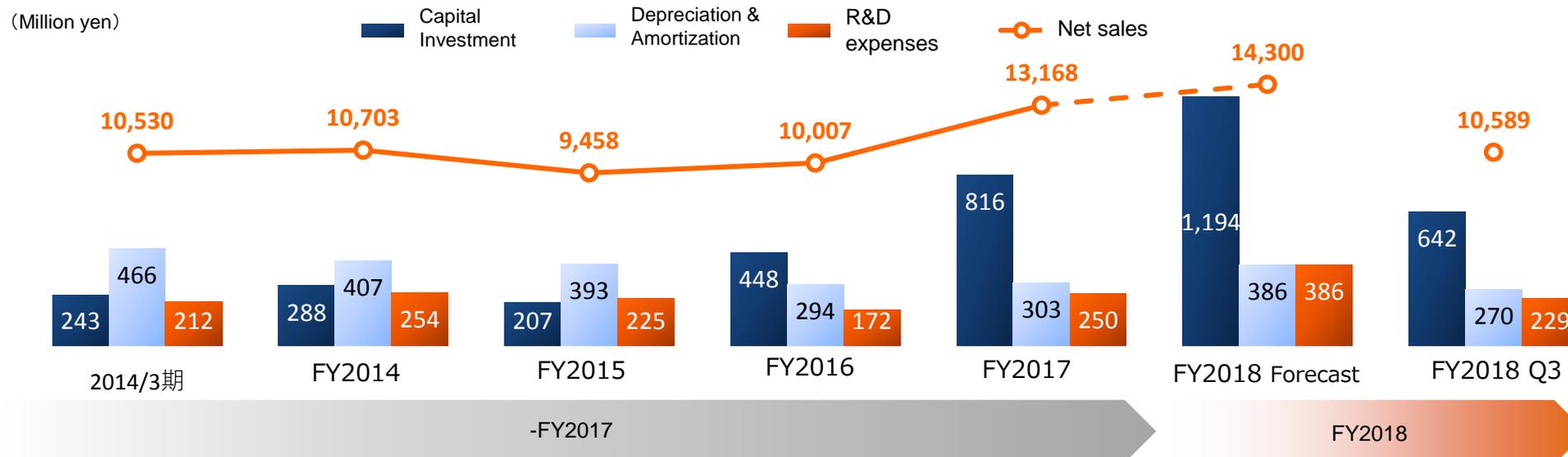
# Q3 (Apr - Dec) : Changes in Operating Income (YOY)



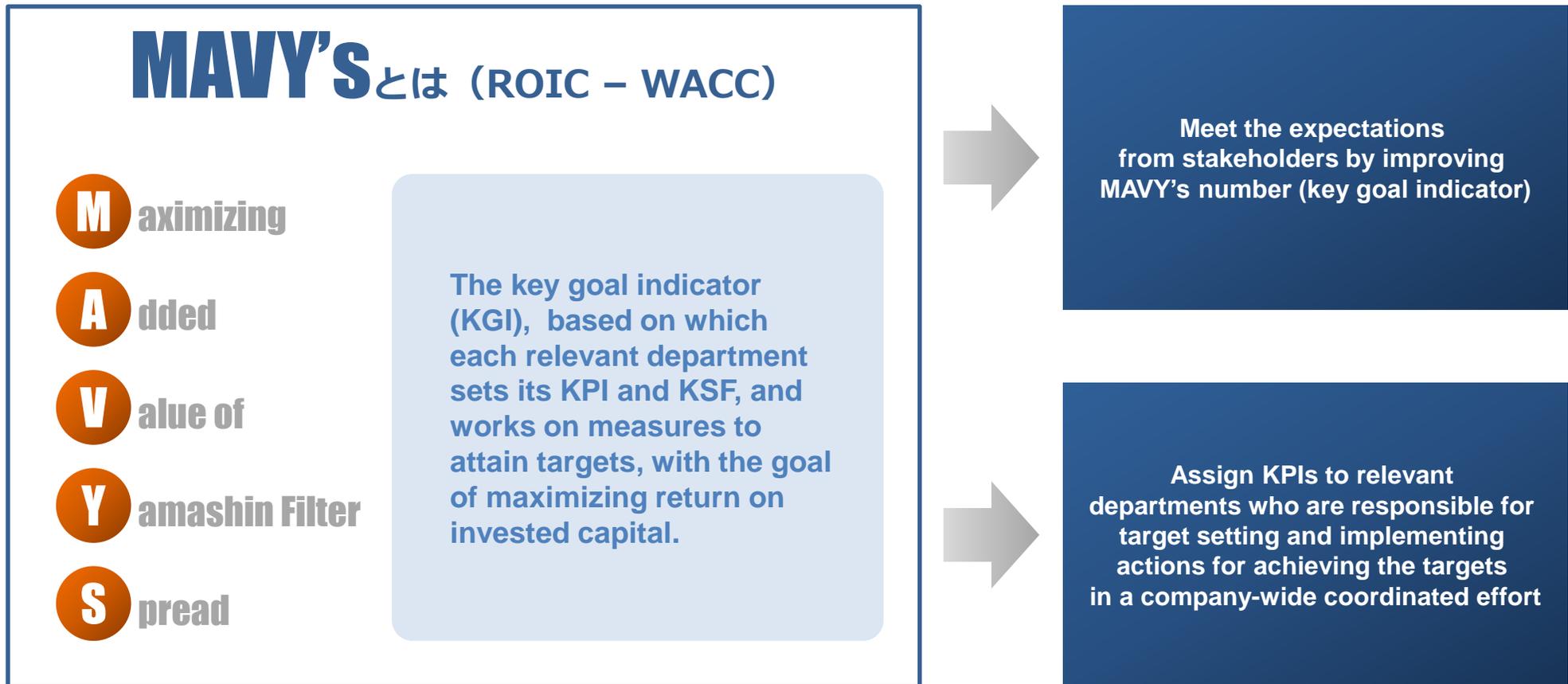
\*PAC (Promptly Activated Cost reduction): Company-wide cost reduction project

(Million yen)	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2018
	Actual	Actual	Actual	Actual	Actual	Full-year forecast	Q3 Actual
Net sales	10,530	10,703	9,458	10,007	13,168	14,300	10,589
Capital investment	243	288	207	448	816	1,194	642
<b>Composition ratio</b>	<b>2.3%</b>	<b>2.7%</b>	<b>2.2%</b>	<b>4.5%</b>	<b>6.2%</b>	<b>8.3%</b>	<b>6.1%</b>
Depreciation & amortization	466	407	393	294	303	386	270
<b>Composition ratio</b>	<b>4.4%</b>	<b>3.8%</b>	<b>4.2%</b>	<b>2.9%</b>	<b>2.3%</b>	<b>2.7%</b>	<b>2.5%</b>
R&D expenses	212	254	225	172	250	386	229
<b>Composition ratio</b>	<b>2.0%</b>	<b>2.4%</b>	<b>2.4%</b>	<b>1.7%</b>	<b>1.9%</b>	<b>2.7%</b>	<b>2.2%</b>

## Net sales and capital investment and depreciation & amortization



To share target figures related to improving our corporate value, in both management (administrative) and other operating departments.



Key Goal Indicators (KGI)	Key Performance Indicators (KPI)	Key Success Factors (KSF)	Relevant departments	Management Policies	Targets for FY2018 (action plan)		
<p><b>MAVY's</b></p> <p>Prv: 4.1% Cur: 1.4%</p> <p><b>ROIC</b></p> <p>Prv: 7.0% Cur: 9.2%</p> <p><b>WACC</b></p> <p>Prv: 2.9% Cur: 7.8%</p> <p><b>ROE</b></p> <p>Prv: 10.6% Cur: 9.6%</p> <p><b>ROA</b></p> <p>Prv: 8.1% Cur: 8.1%</p>	<p><b>Operating income margin</b></p> <p>Prv: 14.5% Cur: 16.8%</p> <p><b>SG&amp;A ratio</b></p> <p>Prv: 31.6% Cur: 31.7%</p> <p><b>Operating capital turnover rate</b></p> <p>Prv: 4.1 Cur: 3.9</p> <p><b>Investment capital turnover rate</b></p> <p>Prv: 0.8 Cur: 0.8</p> <p><b>FA turnover rate</b></p> <p>Prv: 3.7 Cur: 3.4</p>	<p><b>Sales growth ratio</b></p> <p>Prv: 31.6% Cur: 8.6%</p> <p><b>Sales cost ratio</b></p> <p>Prv: 53.9% Cur: 51.5%</p> <p><b>Depreciation and amortization ratio</b></p> <p>Prv: 2.3% Cur: 2.7%</p> <p><b>R&amp;D expense ratio</b></p> <p>Prv: 1.9% Cur: 2.7%</p> <p><b>Personnel expense ratio</b></p> <p>Prv: 12.8% Cur: 13.1%</p> <p><b>AR turnover rate</b></p> <p>Prv: 4.5 Cur: 4.3</p> <p><b>Inventory turnover rate</b></p> <p>Prv: 8.1 Cur: 7.6</p> <p><b>AP turnover rate</b></p> <p>Prv: 5.4 Cur: 5.0</p> <p><b>Tangible FA turnover rate</b></p> <p>Prv: 9.0 Cur: 6.6</p> <p><b>Intangible FA turnover rate</b></p> <p>Prv: 37.3 Cur: 31.7</p>	<p><b>New product development</b> Enhance genuine products market share</p> <p><b>Enhance purchase capacity</b> Improve yield ratio</p> <p><b>Investment plan</b></p> <p><b>Narrowing down themes</b> Prioritization</p> <p><b>Optimal staffing</b></p> <p><b>Credit management</b></p> <p><b>Set appropriate inventory level</b></p> <p><b>Debt management</b></p> <p><b>Equipment plan (R&amp;D, production)</b></p> <p><b>Investment plan</b></p>	<p><b>Sales/Development</b></p> <p><b>Production/Procurement</b></p> <p><b>Management planning/Finance and accounting</b></p> <p><b>R&amp;D</b></p> <p><b>HR and General Affairs</b></p> <p><b>Sales/Finance and accounting</b></p> <p><b>Production Sales</b></p> <p><b>Procurement</b></p> <p><b>Management planning Administration/Producti on/Development</b></p> <p><b>Management planning/Finance and accounting</b></p>	<p><b>Expand business portfolio</b> Deepen existing businesses</p> <p><b>Improve profitability</b></p> <p><b>Expand business portfolio</b></p> <p><b>Expand business portfolio</b></p> <p><b>Establish HR systems</b></p> <p><b>Strengthen governance</b></p> <p><b>Strengthen governance</b></p> <p><b>Strengthen governance</b></p> <p><b>Expand business portfolio</b></p> <p><b>Expand business portfolio</b></p>	<p>•Sales of filters with new materials •Increase shares by conducting seminars •Identify-new markets</p> <p>•PAC18, review suppliers •Cost reduction through SAP utilization</p> <p>•Develop mid-term business plan •Investment recovery effect</p> <p>•Develop new materials •Actions to achieve IoT •Other technological development</p> <p>•Establish and implement the talent management system</p> <p>•Credit management</p> <p>•Monitor working capital •Manage appropriate inventory level</p> <p>•Improve working capital</p> <p>•Optimize investment recovery effect</p> <p>•Optimize investment recovery effect •Utilize SAP</p>	
							*Assumption for KPI calculation Prv: Actual value of FY2017 Cur: Forecasts of FY2018

**KPI:** Operating income margin  
Gross profit ratio  
Sales growth rate

**Key Success Factor (KSF)**

- New product development
- Enhance genuine products market share

**Relevant departments**

**Sales/ Development**

**Management policies**

- Expand business portfolio
- Deepen existing business

**Targets for FY2018 (action plan)**

- Sales of filters with new materials
- Increase shares by conducting seminars
- Identify new markets



Targets for this period

Begin sales of filters with new materials

Increase shares by conducting seminars

Identify new markets

**Specific initiatives**

FY2018 H1

FY2018 H2/FY2019 onwards

Launch the supply of hybrid filters

Install new equipment for producing new materials

Organize seminars to increase rate of use of genuine products

Agricultural insulating materials: Begin supply

Air filters: Prepare samples

Mass production target date

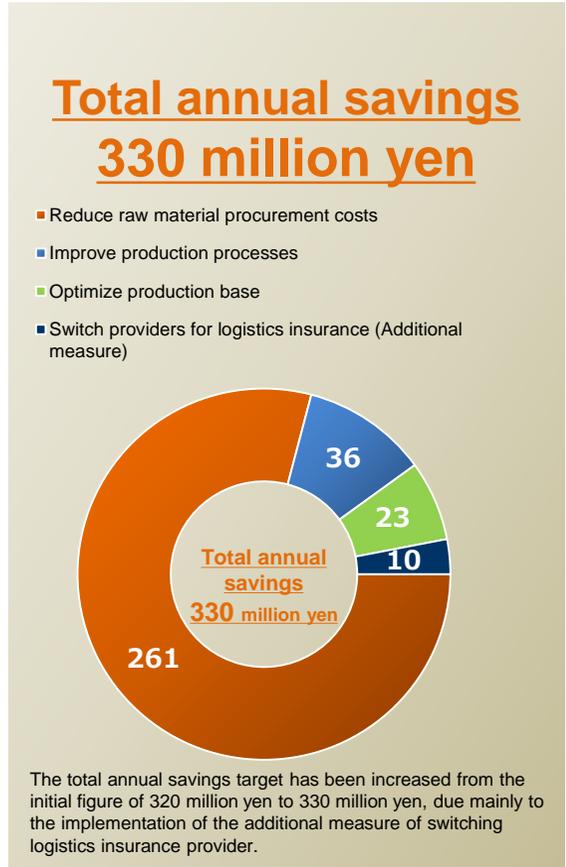
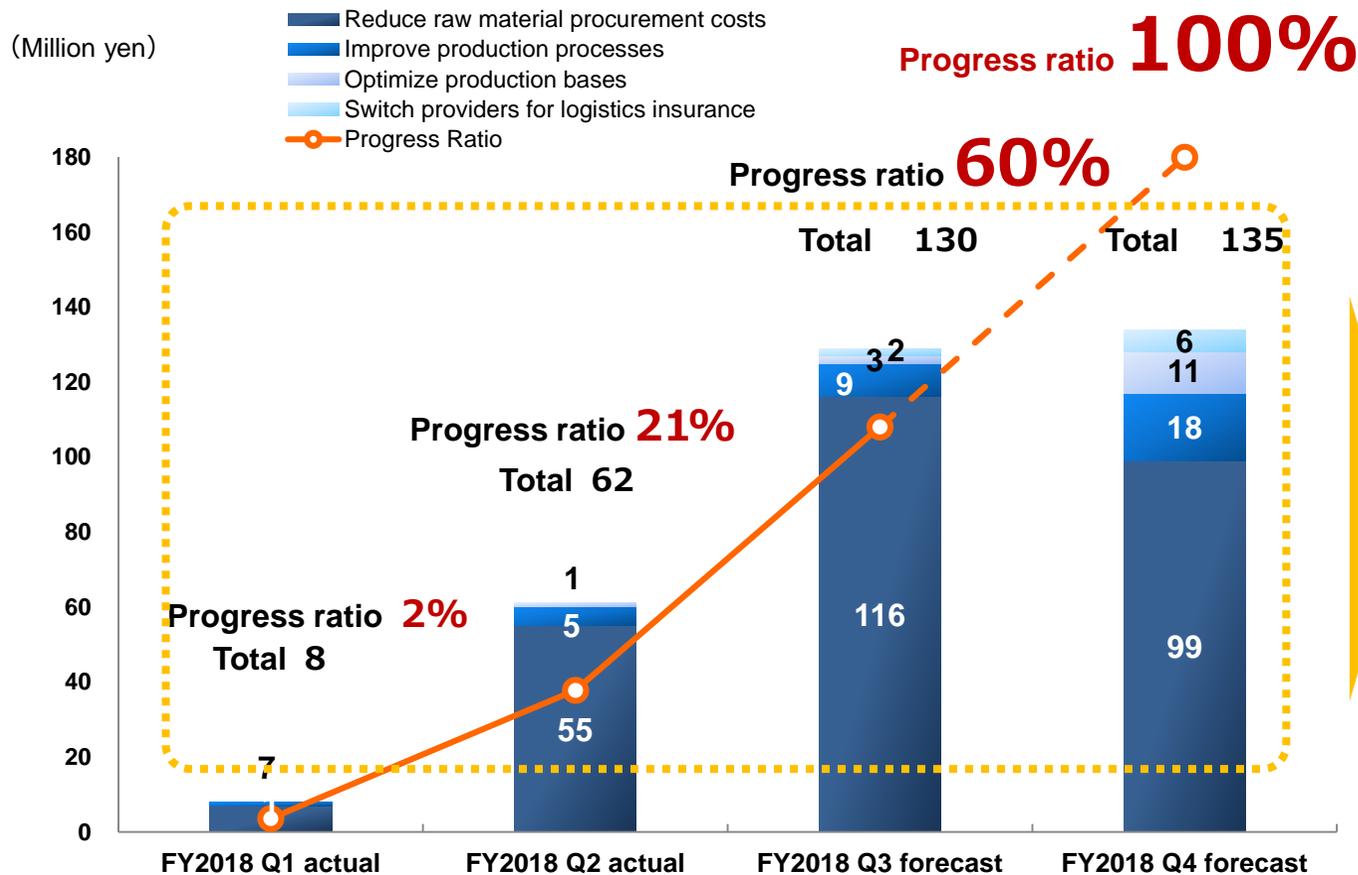
- Implement comprehensive improvements in production technology, operation management and systems to strengthen the profit structure.

**PAC18**      **P**romptly      **A**ctivated      **C**ost reduction      20**18**

Background	Cost category	Action plan	Reduction targets (Annual targets)	H1 Actual	Q3 Actual	Achievement ratio (of annual target)
Establish strong foundation and a profit making structure	Manufacturing cost	To streamline production To strengthen supply chain, etc.	330 million yen	71,456 (1K yen)	130,614 (1K yen)	60%
	SG&A	To reduce sales and general administrative cost	50 million yen	20,029 (1K yen)	13,842 (1K yen)	68%

**We focused our efforts on reducing raw material procurement costs in FY2018 Q3.  
The annual achievement ratio improved significantly.**

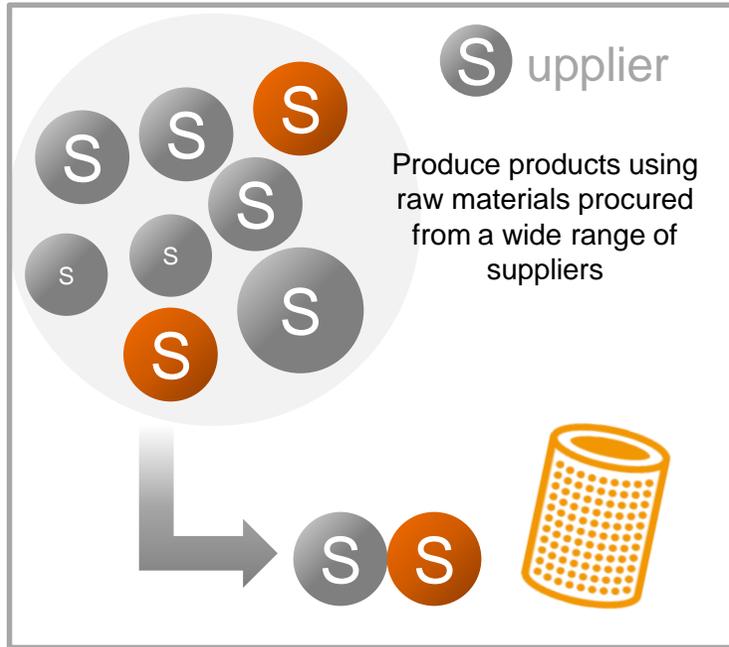
<b>PAC18</b>	<b>Reduce raw material procurement costs</b>	Change suppliers of main raw materials, and change raw materials purchased and cut unit costs through VA proposals
	<b>Improve production processes</b>	Reduce raw material volumes and labor requirements through improved production technologies
	<b>Optimize production bases</b>	Optimize production sites by contracting to overseas producers
	<b>Switch providers for logistics insurance</b>	Reduce costs by carefully selecting new insurance provider for supply chain and logistics for procured materials



Reduce raw material procurement costs



- ◆ Change materials procured and cut unit procurement costs, by VA proposals and changing suppliers for main raw materials

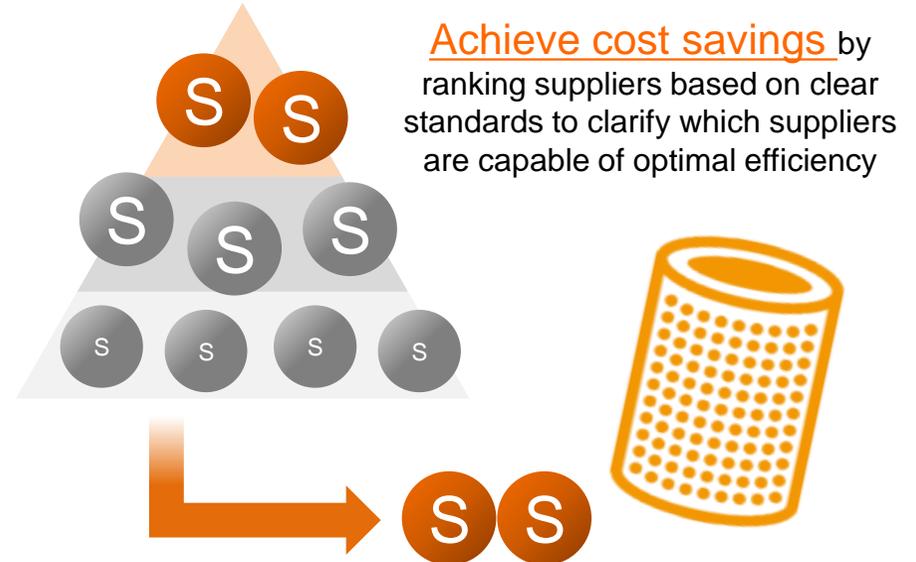


**1**  
VA proposals

Value analysis (VA) proposals:

Propose cost improvements based on fine-tuned combinations of raw materials and other aspects without reducing the quality of products delivered to customers

**2** Change suppliers of main raw materials



Customer approval is complete; cost savings will be realized in FY2018, Q3, and Q4 by switching to new raw materials, starting in H2.

- PAC18 measures will contribute significantly to profits in H2.

Improve production processes



- ◆ Reduce labor requirements and raw material volumes via mechanization and changes in product designs

Optimize production bases



- ◆ Reduce manufacturing costs and procurement unit costs by optimizing production sites

Switch providers for logistics insurance



- ◆ Reduce freight costs by contracting with carefully selected logistics vendors and insurers for imported raw materials starting in H2

FY2018

1Q

2Q

3Q

4Q

Preparatory period

Changes involving raw materials

Cost savings effects

# Full-year Forecasts for FY2018

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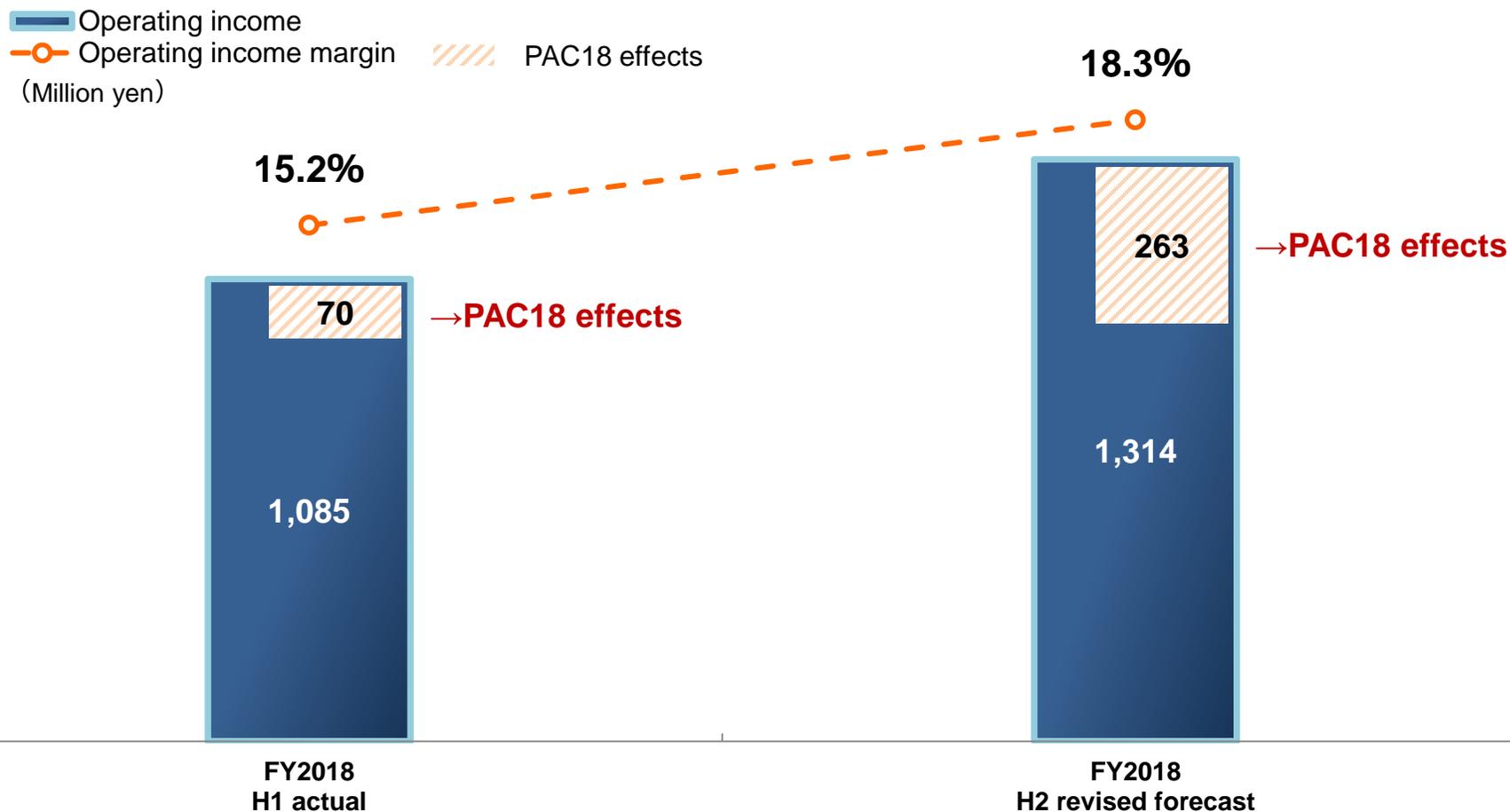
(Million yen)	FY2016 Actual	FY2017 Actual	FY2018 Initial forecasts	FY2018 Revised forecasts*	FY2018 Initial forecasts vs. Revised forecasts
	Amount	Amount	Amount	Amount	Amount
Net sales	10,007	13,168	14,000	14,300	300
Gross profit	4,463	6,074	6,740	6,940	200
<b>Gross profit ratio</b>	<b>44.6%</b>	<b>46.1%</b>	<b>48.1%</b>	<b>48.5%</b>	<b>0.4Pt</b>
SG&A	3,505	4,163	4,390	4,540	150
<b>SG&amp;A ratio</b>	<b>35.0%</b>	<b>31.6%</b>	<b>31.4%</b>	<b>31.7%</b>	<b>0.3Pt</b>
Operating income	957	1,910	2,350	2,400	50
<b>Operating income margin</b>	<b>9.6%</b>	<b>14.5%</b>	<b>16.8%</b>	<b>16.8%</b>	-
Ordinary income	934	1,824	2,340	2,370	30
<b>Ordinary income margin</b>	<b>9.3%</b>	<b>13.9%</b>	<b>16.7%</b>	<b>16.6%</b>	<b>△0.1Pt</b>
Net income	640	1,249	1,600	1,700	100
<b>Net income margin</b>	<b>6.4%</b>	<b>9.5%</b>	<b>11.4%</b>	<b>11.9%</b>	<b>0.5Pt</b>
Exchange rates AR USD	108.4	110.9	110.0	110.0	
EUR	118.8	129.7	135.0	135.0	

\*Announced on November 5, 2018

	FY2018 Q1 Actual	FY2018 Q2 Actual	FY2018 Q3 Actual	FY2018 H2 Revised forecasts*	FY2018 Revised forecasts*
(Million yen)	Amount	Amount	Amount	Amount	Amount
Net sales	3,492	3,635	3,462	7,172	14,300
Gross profit	1,662	1,713	1,622	3,564	6,940
<b>Gross profit ratio</b>	<b>47.6%</b>	<b>47.1%</b>	<b>46.9%</b>	<b>49.7%</b>	<b>48.5%</b>
SG&A	1,141	1,148	1,109	2,249	4,540
<b>SG&amp;A ratio</b>	<b>32.7%</b>	<b>31.6%</b>	<b>32.0%</b>	<b>31.4%</b>	<b>31.7%</b>
Operating income	521	564	512	1,314	2,400
<b>Operating income margin</b>	<b>14.9%</b>	<b>15.5%</b>	<b>14.8%</b>	<b>18.3%</b>	<b>16.8%</b>
Ordinary income	524	551	482	1,293	2,370
<b>Ordinary income margin</b>	<b>15.0%</b>	<b>15.2%</b>	<b>13.9%</b>	<b>18.0%</b>	<b>16.6%</b>
Net income	421	386	332	891	1,700
<b>Net income margin</b>	<b>12.1%</b>	<b>10.6%</b>	<b>9.6%</b>	<b>12.4%</b>	<b>11.9%</b>
Exchange rates AR USD	109.1	110.2	111.2	110.0	110.0
EUR	130.1	129.6	129.5	135.0	135.0

\*Announced on November 5, 2018

● Plan to improve profitability by achieving PAC18 targets



\*PAC (Promptly Activated Cost reduction): Company-wide cost reduction project

	FY2017 Actual		FY2018 Initial forecasts		FY2018 Revised forecasts*		FY2018 Initial forecasts vs. Revised forecasts*	
	Amount (Million yen)	Composition ratio (%)	Amount (Million yen)	Composition ratio (%)	Amount (Million yen)	Composition ratio (%)	Amount (Million yen)	Change in ratio (%)
Construction machinery filters	11,768	89.4%	12,564	89.7%	12,906	90.2%	342	2.7%
Line parts	5,342	40.6%	5,567	39.7%	5,718	40.0%	151	2.7%
Service parts	6,425	48.8%	6,996	50.0%	7,187	50.2%	191	2.7%
Industrial filters	526	4.0%	537	3.8%	566	4.0%	29	5.4%
Process filters	873	6.6%	898	6.5%	827	5.8%	△71	△7.9%
<b>Total sales</b>	13,168	100.0%	14,000	100.0%	14,300	100.0%		

\*Announced on November 5, 2018

	FY2017 Actual		FY2018 Initial forecasts		FY2018 Revised forecasts*		FY2018 Initial forecasts vs. Revised forecasts*	
	Amount (Million yen)	Composition ratio (%)	Amount (Million yen)	Composition ratio (%)	Amount (Million yen)	Composition ratio (%)	Amount (Million yen)	Change in ratio (%)
Japan	6,443	48.9%	6,545	46.8%	6,753	47.3%	207	3.2%
North America	2,201	16.7%	2,468	17.6%	2,491	17.4%	22	0.9%
China	1,753	13.3%	2,149	15.4%	2,048	14.3%	△100	△4.7%
Other Asian Countries	1,522	11.6%	1,771	12.7%	1,850	12.9%	79	4.5%
Europe	1,204	9.2%	1,064	7.5%	1,153	8.1%	88	8.3%
Others (Middle East, etc)	42	0.3%	0	0.0%	2	0.0%	2	
<b>Total sales</b>	<b>13,168</b>	<b>100.0%</b>	<b>14,000</b>	<b>100.0%</b>	<b>14,300</b>	<b>100.0%</b>	<b>300</b>	<b>2.1%</b>

Note: The amounts of sales by region here are calculated based on the locations of corporations to which invoices are sent. So actual regional market trends may be different from the numbers shown.

\*Announced on November 5, 2018

The annual dividend will be increased to 6.0 yen per share, including an interim dividend of 2.5 yen and year-end dividend of 3.5 yen per share.

	FY2016	FY2017	FY2018 Initial forecasts	FY2018 Revised forecasts*
Dividend per share	2.4 yen* <sup>1</sup>	3.6 yen* <sup>1</sup>	5.0 yen	6.0 yen
DOE	2.3%	1.9%	1.9%	2.4%
Total return ratio* <sup>2</sup>	25.6%	21.6%	23.8%	26.5%

Note) The Company conducted a 5-for-1 stock split that became effective on December 1, 2017.

\*Announced on November 5, 2018

\*1 For the dividends for FY2016 and FY2017, the amounts shown as a reference value are calculated based on the above stock split.

\*2 Total return ratio = (Total dividend + Treasury stock acquired + Shareholder benefit) ÷ Net income



# II Conditions in the Construction Machinery Market

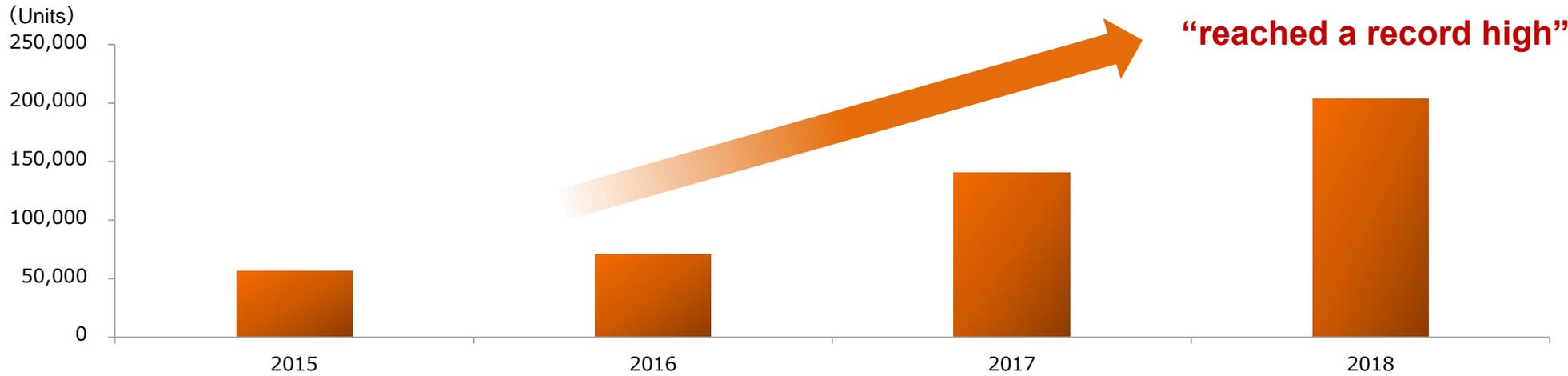
[Summary]

- Signs of an economic slowdown in China have become visible. Public investment has also diminished.
- The above have also resulted in the trend for a decrease in the operation hours of construction machinery. Construction machinery manufactures have adjusted their inventories of service parts in light of the sense of uncertainty about the future.

	Past	Current	Future outlook
China	Significant production cutback due to slowdown of real estate investment	Public investment decreased due to the economic slowdown.	Growing investment in the infrastructure is expected.
Southeast Asia	Investment in mining machinery is sluggish, but investment in infrastructure is strong.	Demand is growing overall, centered on Indonesia.	Favorable trends are expected here, as in China.
North America	Demand recovery due to infrastructure investment	Demand is expected to increase further as resource energy development and infrastructure investment progress.	The midterm elections are expected to result in increased public investment.
Japan	Demand increase due to strong domestic infrastructure investment	Backed by strong corporate earnings, demand is growing.	Favorable trends are expected to continue.
Europe	Business was sluggish.	Demand increase in major countries centered on Germany	Strong demand is expected

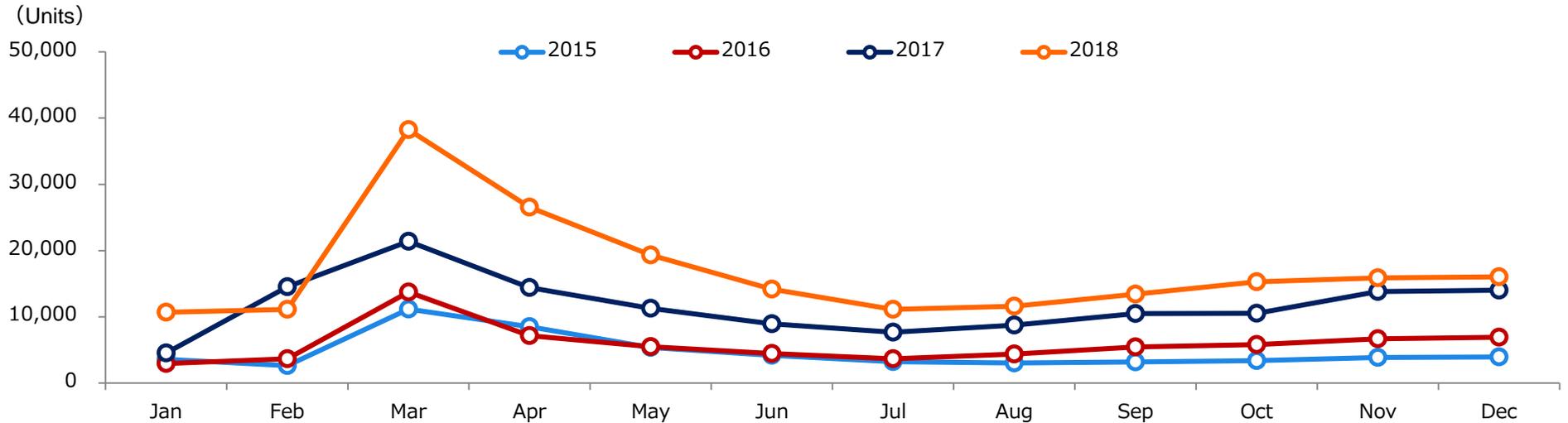
Sales by fiscal year (annual total)

Note: Total figures from January through December



Sales volume in the Chinese market  
**“reached a record high”**

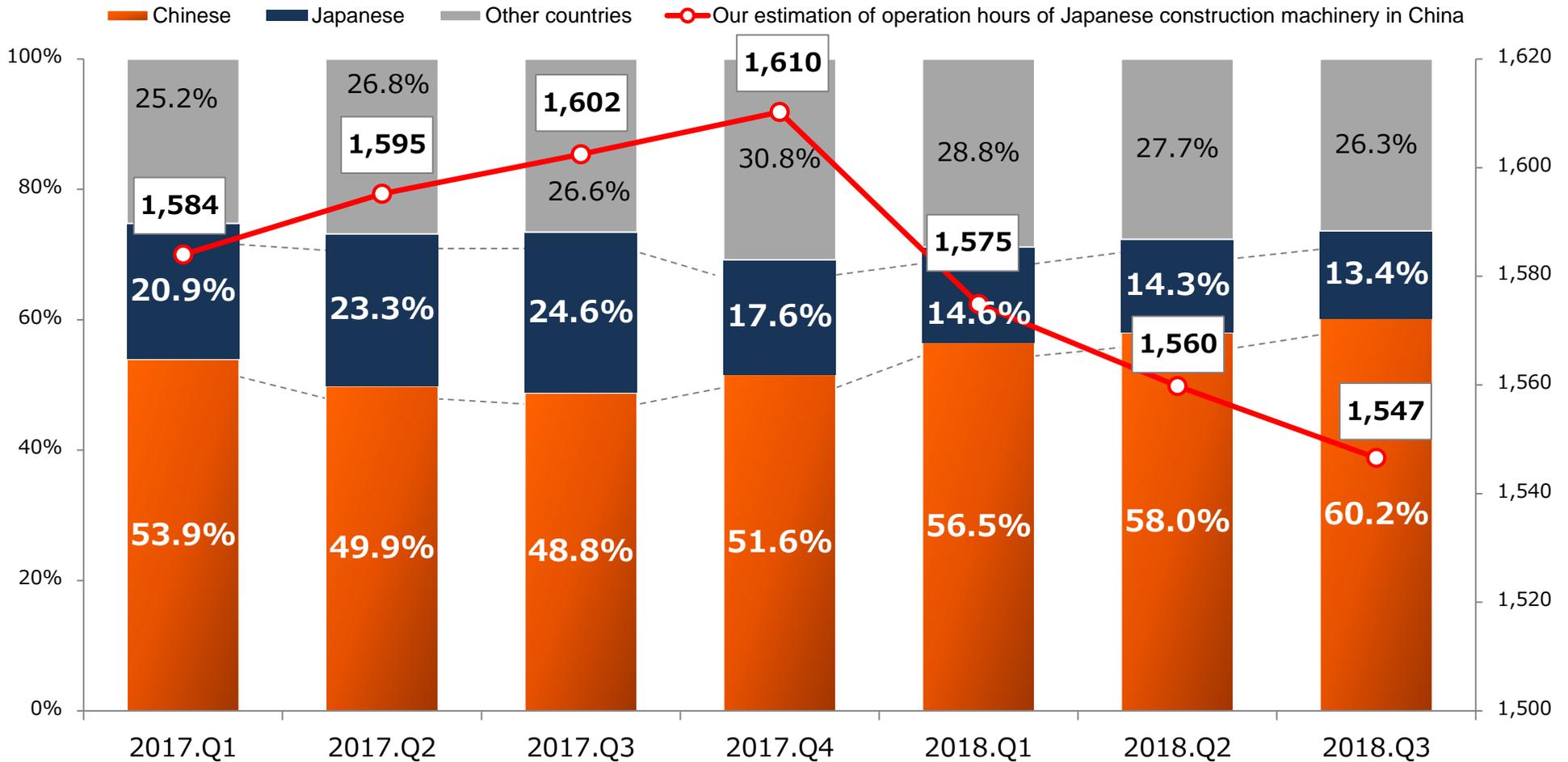
Sales by fiscal year (monthly)



Shares of Japanese manufacturers dropped while those of Chinese manufacturers in the mainland of China increased.

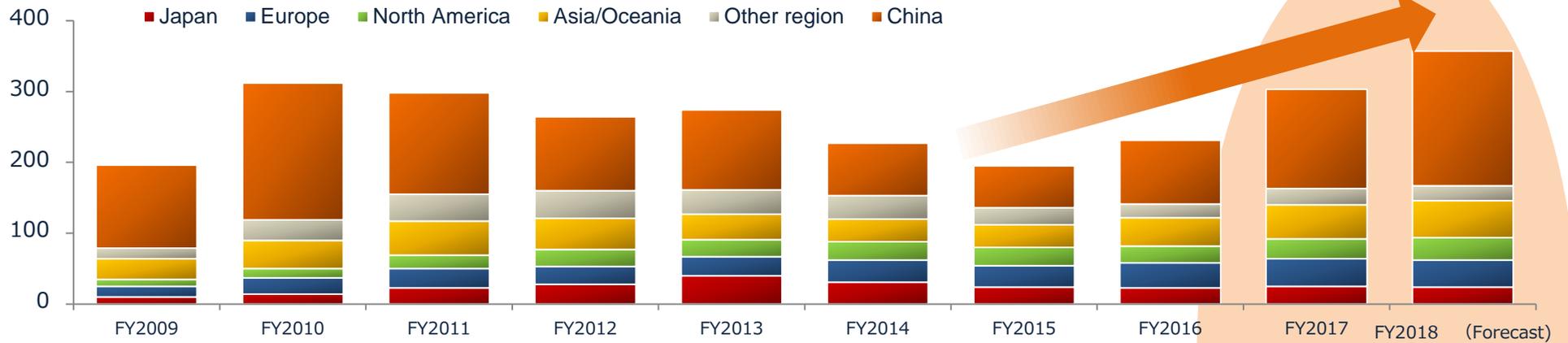
Variations of market share in China

(Annual operation hours)

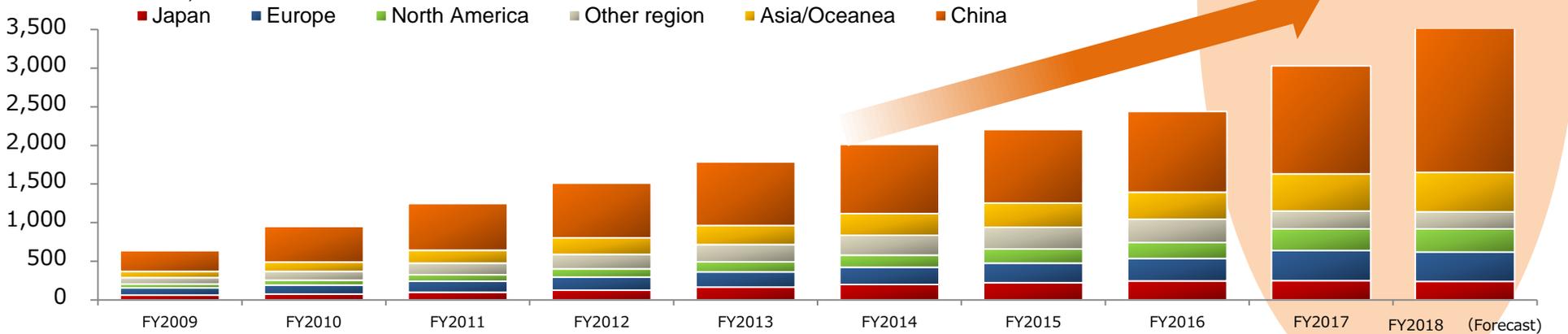


Expansion is still expected despite the slowdown and future uncertainty.

(Thousand machines)



(Thousand machines)



( YAMASHIN's estimates based on the data published by construction machinery manufacturers and industry associations )

		Major actions	Progress
Construction machinery filters	Line parts	Propose failure prediction features, IOT and ICT technology	Pitching SWIFTROCK and Life Sensor installation to major manufacturers; testing in actual equipment continues.
		Propose a return filter made from new materials	Starting mass production of return filters with new materials
		Expand sales to construction machinery manufacturers in China	Proposing filters with new materials to quality-oriented companies
	Service parts	Recapture market share lost due to counterfeit products by holding seminars	Enriching and strengthening seminar activities tailored to market characteristics (Southeast Asia and China)
Industrial filters		Expand and strengthen product lineups	Developing and proposing products with new materials (Proposing SWIFTROCK installation, etc. )
Process filters		Expand and strengthen product line-ups	Identifying new partners
New fields		Launch the YAMASHIN Paradigm Shift project	Making proposals to players in new industries, including air filters, agriculture, construction materials and apparel.



# III

## Future Strategies

**The construction machinery market will be strong in the next 3 to 5 years.  
We will proactively develop business to achieve the goals by utilizing the 10 billion yen capital funds.**

**Expand business portfolio**

**By raising the next growth pillars needed to address a dependence on construction machinery**

**Establish a more robust corporate structure**

**By establishing multiple production bases  
By reconfiguring the global supply chain**

[3 pillars]  
Construction machinery filters ✕ Process and industrial filters  
✕ Expansion of new materials

Cost reduction through PAC18  
Large-scale investment plans for the R&D facilities  
Investment to launch production facilities in the major markets

Establish a new R&D center

Mass produce new materials and increase the productivity of existing products

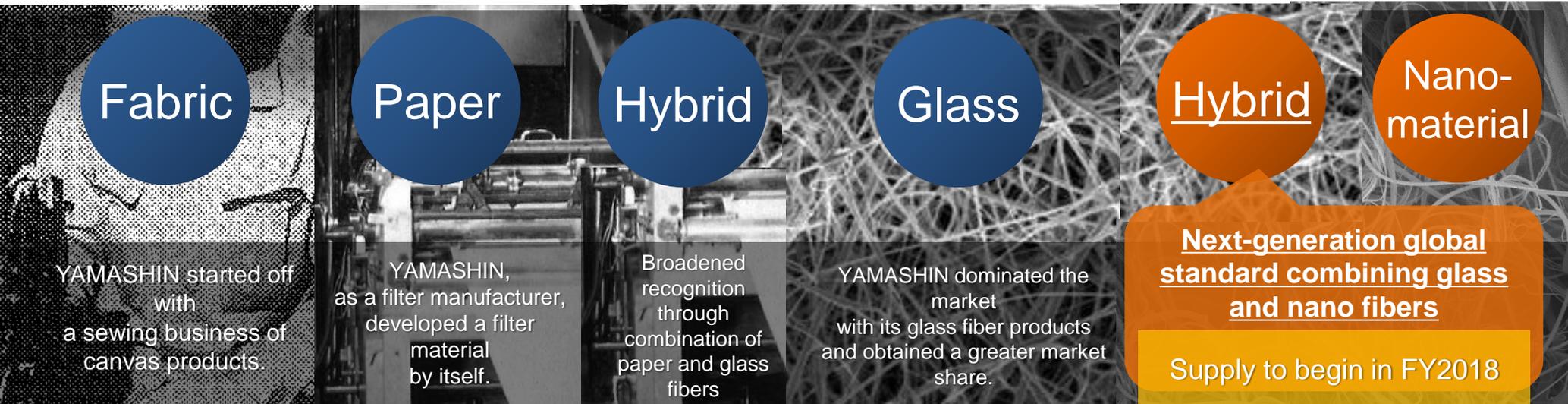
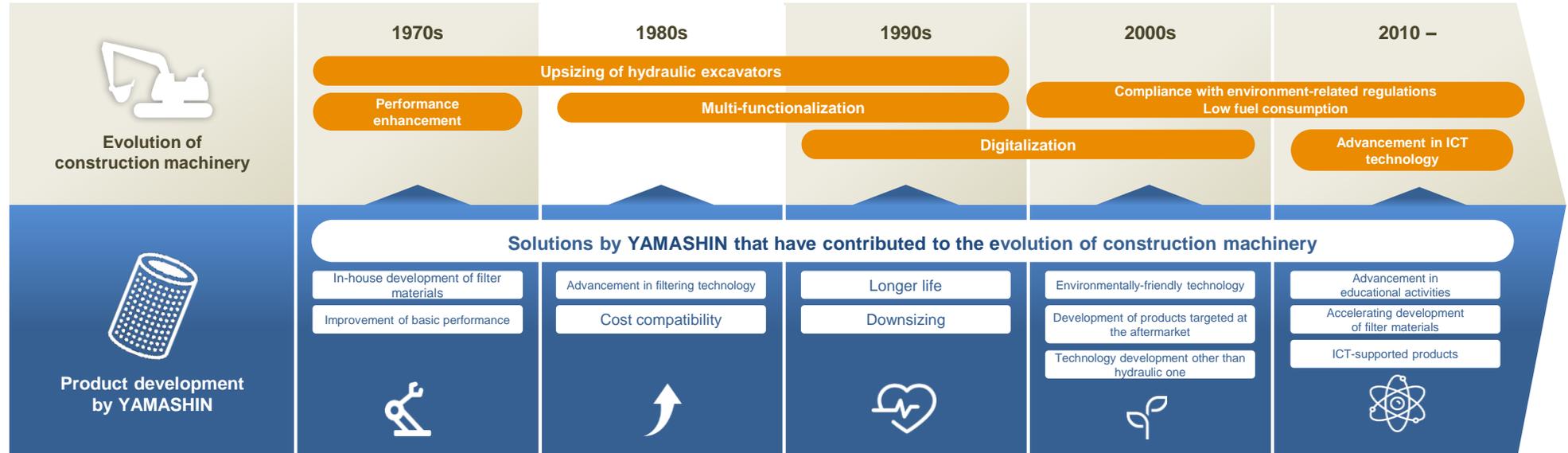
Capital and business tie-ups, including M&A

**3 billion yen**

**3 billion yen**

**4 billion yen**

# Proposal and design capabilities that drive the evolution of construction machinery



**YAMASHIN Nano Filter Product logo**



**YAMASHIN**  
Nano Filter

## **Concept**

This logo represents the properties of materials that filter out nanoscale particles. Evoking water and wind, the colors convey the eco-friendly qualities of these products.

Filters for construction machinery

Mass production of filters based on new materials to begin in January 2019



Hybrid filters

Glass fibers and nanofibers

These materials help reduce waste by increasing filter service life threefold and extending the service life of construction machinery.

**Helps reduce environmental impact**

Now proposing its use in the next generation of models from each construction machinery manufacturer



Beyond this, **combining new materials with IoT** to increase added value and grow market share

Service life increased threefold

New materials  
**YAMASHIN Nano Filter**



Enabling failure prediction

Purity sensors

- ✓ Measure purity of oil and water
- ✓ Low cost
- ✓ Compact design

**SWIFTROCK™**

Life Sensors

Monitor particle accumulation in filters, stage by stage

# Drawing on mass-production technologies to deploy YAMASHIN Nano Filters in various sectors.

Considering M&A activities  
in appropriate fields

Phase1  
Now



Advancing into the fields of  
construction machinery, air  
filters, and agricultural  
materials

Phase2  
FY2019



Deployment to automotive and  
apparel

Phase 3  
Medium term

Deployment to fields like  
building materials and  
biosciences (examples)



Paradigm Shift

Contami  
nation

Light

Heat

Noise

Bio

Agricultural materials

Use of nanofibers in multilayered thermal insulating materials: Improving thermal insulation  
Contributing to global warming solutions through CO<sup>2</sup> emissions reductions resulting from decreased use of fossil fuels

Insulation materials inside vinyl greenhouses

**【Current status】**

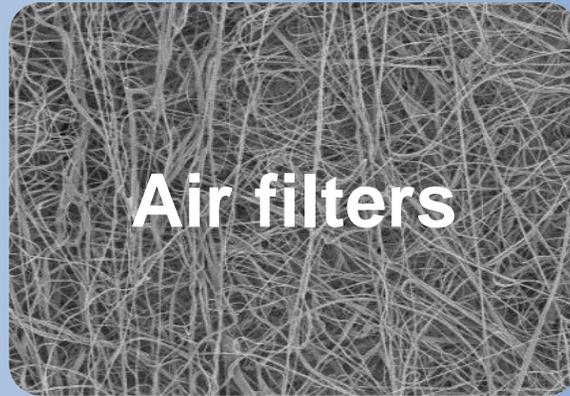
- Samples provided based on specifications
- Assessing match of samples and specifications
- Making arrangements for testing in actual vinyl greenhouses



Air filters

Control of fiber structures enables **mass-production of high-quality precision filters.**

① Major customer  
A



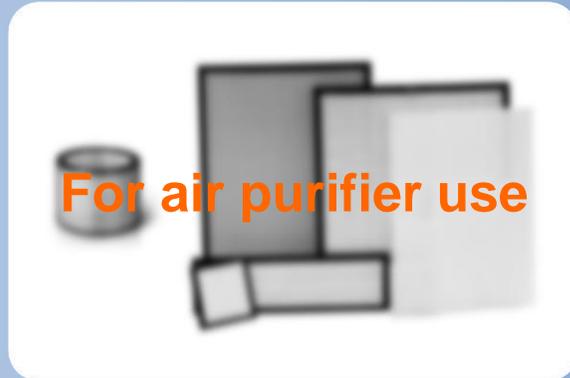
**[Prospect]**

- Replace glass fiber filters

**[Current status]**

- Now producing samples to meet specification values
- Increasing performance of prototypes in leadup to product introduction
- Improving equipment to enable stable production
- Preparing for mass production next year

② Major customer  
B



**[Prospect]**

- Replace glass fiber filters

**[Current status]**

- Need to further improve fiber density and fineness
- Need to increase ambient temperatures during fiber production
- Separate plans call for evaluation of electret materials for air filters with extended life

Others

Control of fiber structures enables **mass-production of high-quality precision filters.**

① Major auto interior parts makers



**[Prospect]**

- Develop higher performance sound absorbing materials (for lower frequencies) compared to products currently found in the market

**[Status]**

- Collecting data on sound absorption effects and ascertaining related tendencies
- Trial production of samples to satisfy required specifications
- Considering specific processes and management methods for product development

② Major building materials makers



**[Prospect]**

- Higher thermal insulation and cooling performance than current products

**[Status]**

- Collecting data on the thermal insulation properties of nanofibers
- Producing prototypes and collecting test data

③ Apparel makers



**[Prospect]**

- Develop thin and light materials (insulating materials to replace down)
- Provide added value to the products currently found in the market

**[Status]**

- Collecting data on the thermal insulation properties of nanofibers
- Producing prototypes and collecting test data

- To establish multiple production bases by reviewing and reorganizing production bases and build a safe and optimized supply chain

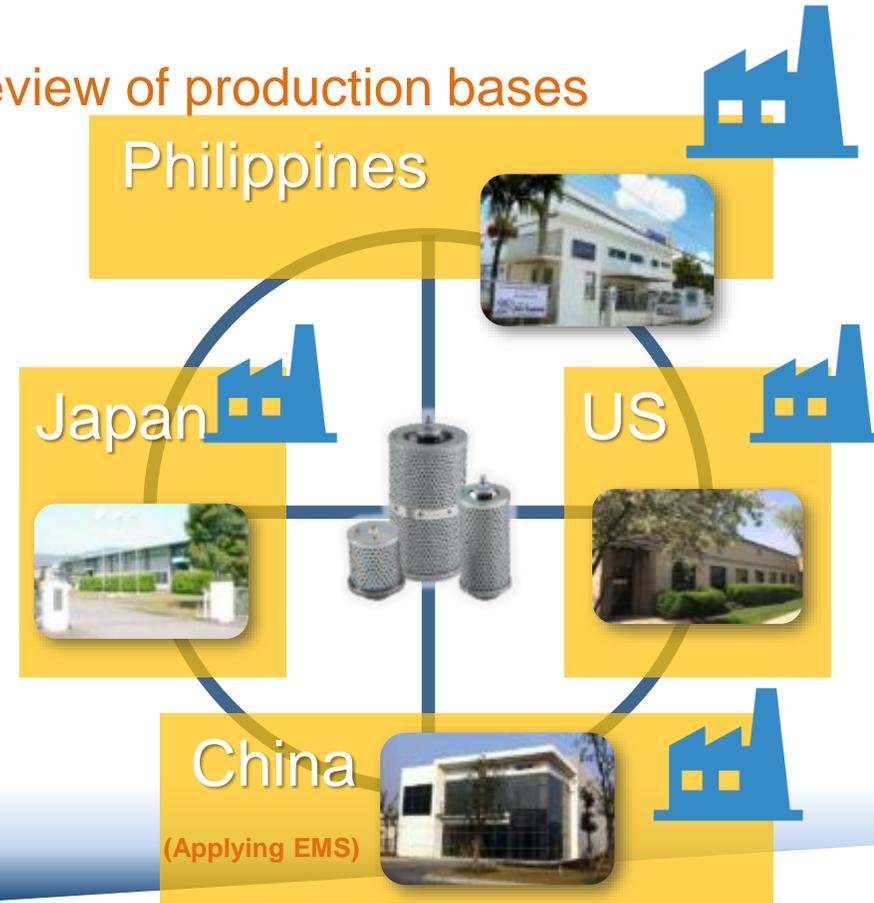
Before review of production bases

Before



After review of production bases

After



## PURPOSES and GOAL

To establish a cross-sourcing productions system



To flexibly respond to customers' needs



To strengthen purchase capacity



To make business continuity plan (BCP)



**We hold a world-leading share in the construction machinery filter business.**

**Backed by increasing investment in infrastructure improvements and aftermarket strengths in most regions, we expect sustained growth in our construction machinery filter business.**

**New business is expected to make significant contributions to both sales and profits.**

**YAMASHIN Nano Filters will drive growth, with emerging use for diverse applications.**



# Reference Materials

## ① Basic Company Information

## Overview of Our Corporate Group

Our Corporate Group has continued to yield solid business results consistently as a manufacturer specializing in filters since the foundation. Our Corporate Group has manufactured filters for construction machinery, industrial filters, and process filters by purchasing glass-fiber and non-woven fabrics to produce filter media (the key component of any filter), and resin goods and processed metal for filter components. Our Corporate Group provides one-stop filter services, including the development, product design, and manufacture of filter media for various filters. We sell our products to customers active in construction machinery, industrial machinery, and other various field.

### Filters for construction machinery

A construction machinery filter is used to filter the fluids used in the hydraulic circuits central to the operation of construction machinery.



Filter elements  
(for construction machinery)

### Filters for various industrial fields beyond construction machinery

An industrial filter is a filter used for filtrating operating fluid and lubricants of hydraulic units applied in various industries other than the construction machinery industry. This filter is used in multitudinous kinds of industrial machinery, such as machine tools, refrigerating compressors, agricultural machinery, vessels, railway vehicles, airplanes, and helicopters.



Line filters  
(for vessels)

### Filters for process lines

A process filter is used for filtration and separation in processes for manufacturing customer products. These filters are used in various industries, including electronic parts, precision parts, liquid crystal displays, and food.

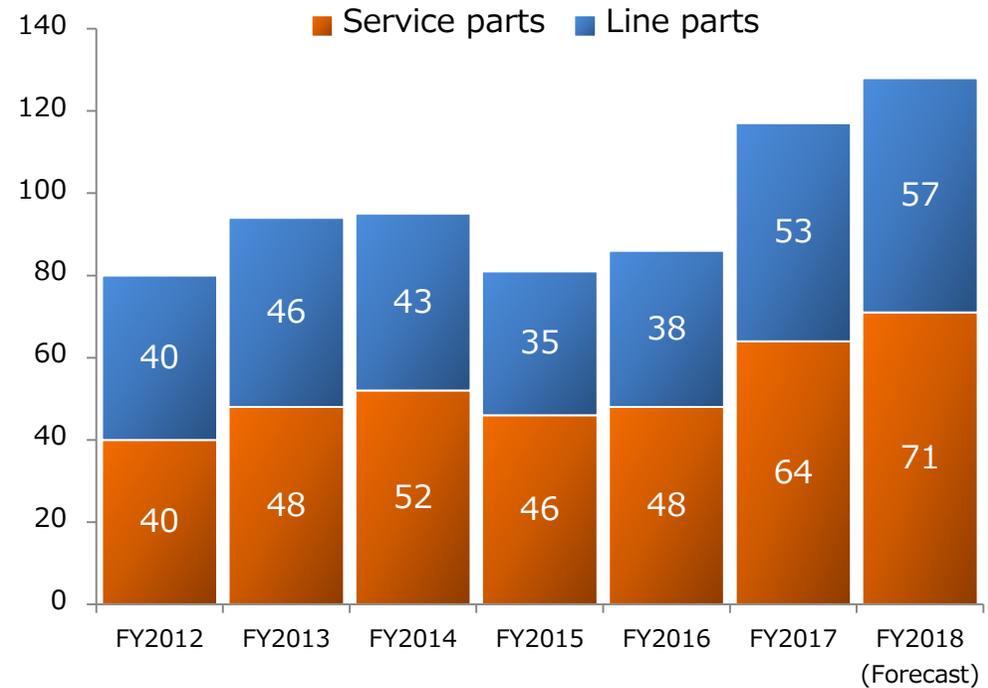


Non-woven filters  
(for electronic parts)

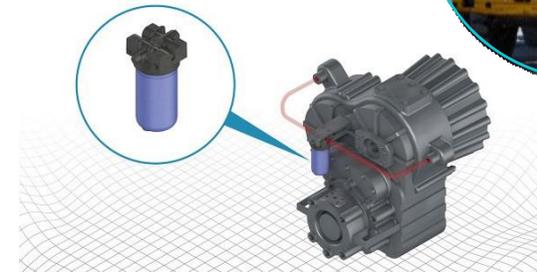
The demand for service parts is expected to expand gradually with increased numbers of construction machines.



(100 million yen)



## YAMASHIN provides an extensive lineup of filters essential to operating construction machinery.

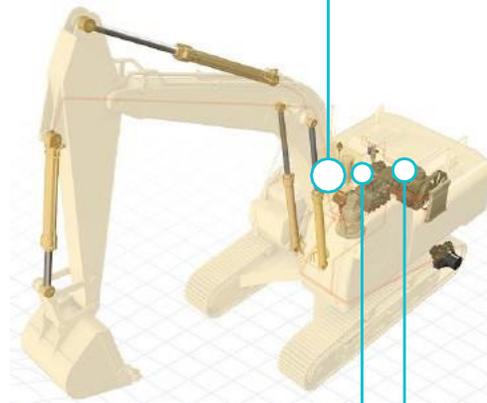
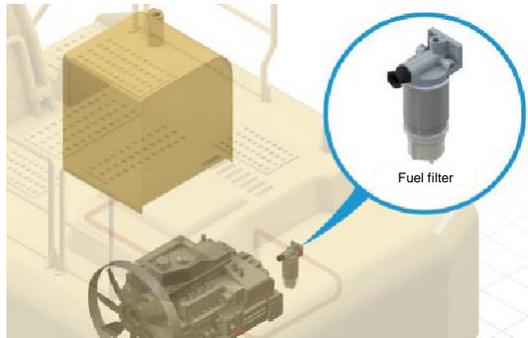


### For hydraulic systems

These filters are installed at several locations of each piece of construction machinery to protect hydraulic equipment, including cylinders. Some 70% of all malfunctions affecting construction machinery are believed to be caused by dust in oil, the presence of which leads to mechanical breakdowns. We provide filters ideal for every need based on the know-how cultivated since our founding

### For fuel

Fuel filters remove particulates from diesel fuel. Increasingly stringent regulations worldwide have strengthened purity requirements for fuel. Demand for this filter is expected to grow, particularly in emerging nations, where fuel quality tends to be lower..

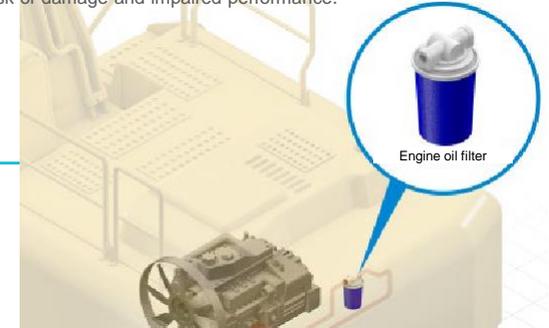


### For transmissions

These filters are found in the transmissions of construction machinery. Transmissions are composed of multiple gears. Friction between these gears produces metal powder and particulates. Our company's filters employ proprietary filter elements and materials to remove these particulates and minimize equipment wear.

### For engine oil

These filters are in various construction machinery engines. Engines contain pistons and other components moving at high speed that generate power. The engine oil filter removes the metal powders and sludge (sediment), caused by abrasion, that accumulate in engine oil during power generation, mitigating the risk of damage and impaired performance.



## Segments and KPI

- Filters for construction machinery are classified as “**line parts**” or “**service parts**”
- Line parts refer to filters installed in new construction machines. The primary indicator is “**the number of new construction machines in demand**”
- Service parts refer to replacement filters. The primary indicator is “**the number of units in operation**” × “**hours of operation**”.

## Sales methods, regional trends, and cost reduction measures

- **Sales format**  
Filters for construction machinery are sold to construction machinery makers (100%). In principle, we do not sell the products directly to end users.
- **Regional trends**  
Sales calculations are based on invoice destinations. Our data may differ from the actual regional market trends
- **PAC18 (Promptly Activated Cost reduction 2018)**  
Our company-wide cost reduction project.

Term	Formula
MAVY's	ROIC - WACC
ROIC	NOPAT ÷ Capital investment
Rate of return on capital investment	(Ordinary income + Interests paid) ÷ Capital investment
Turnover rate of working capital	Net sales ÷ (Accounts receivable + Inventory asset - Accounts payable)
Turnover rate of fixed assets	Net sales ÷ Fixed assets
Turnover rate of accounts receivable	Net sales ÷ Accounts receivable
Turnover rate of inventory asset	Net sales ÷ Inventory asset
Turnover rate of accounts payable	Sales cost ÷ Accounts payable
Turnover rate of tangible fixed assets	Net sales ÷ Tangible fixed assets
Turnover rate of intangible fixed assets	Net sales ÷ Intangible fixed assets

\*The figures in the balance sheet are the averages of the initial and term-end figures.

Before the development of new materials

**STRENGTH**

- Overwhelming share of market for construction machinery filters
- Advanced R&D capabilities
- Robust management base based on PAC and MAVY's

**WEAKNESS**

- Limited business domain
- Filters for construction machinery account for 90% of total sales.
- Overconcentration of production sites

**OPPORTUNITIES**

- To increase our share in the growing Chinese market
- To enhance our presence in the markets for process/industrial filters

**THREAT**

- Decrease of our market share, due to the proliferation of counterfeit filter products for construction machinery
- Change in the construction machinery market
- Sluggish sales growth of process/industrial filters

Business to be grown



Core business (growth)



Business to undergo structural reform

Core business (stable)

After development of new material

**STRENGTH**

- Overwhelming share of market for construction machinery filters
- **Continuing expansion of market share for new materials**
- Advanced R&D capabilities
- Robust management base based on PAC and MAVY's

**OPPORTUNITIES**

- To increase our share in the growing Chinese market
- To enhance our presence in the markets for process/industrial filters
- **Expanding business areas by a leap to status as "comprehensive filter manufacturer"**

**WEAKNESS**

- Filters for construction machinery account for 90% of total sales.

**THREAT**

- Decrease of our market share, due to the proliferation of counterfeit filter products for construction machinery
- Changes in the construction machinery market
- Sluggish sales growth of process/industrial filters
- **Delays in development of new material products**

Plans to obviate the weakness by realizing a comprehensive filter manufacturer

Eliminates counterfeits by using a new material

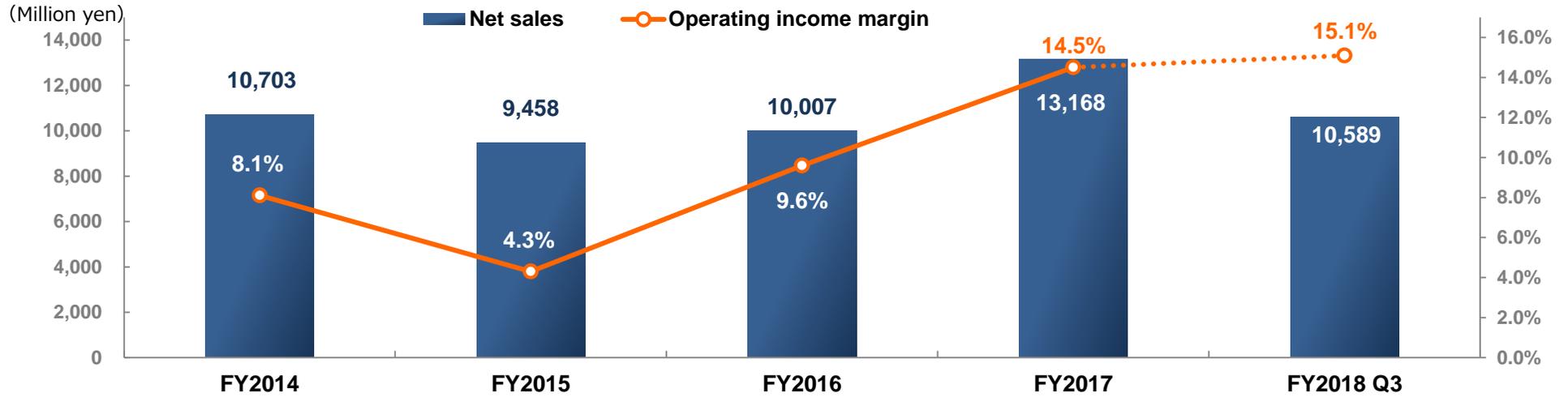




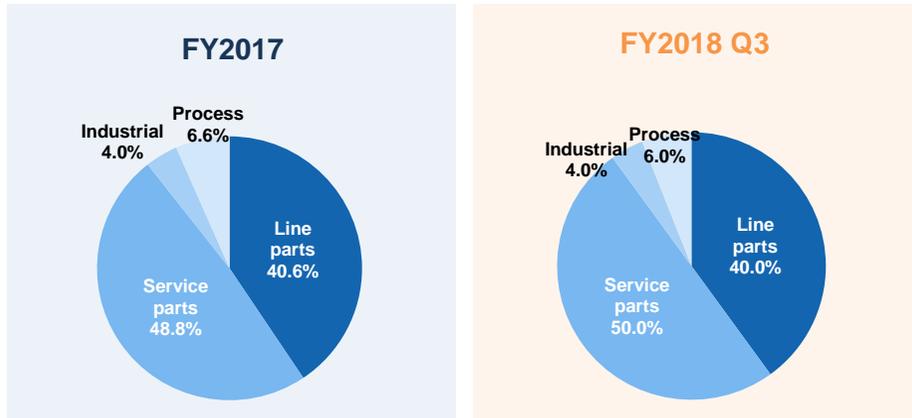
# Reference Materials

## ② Financial Highlights

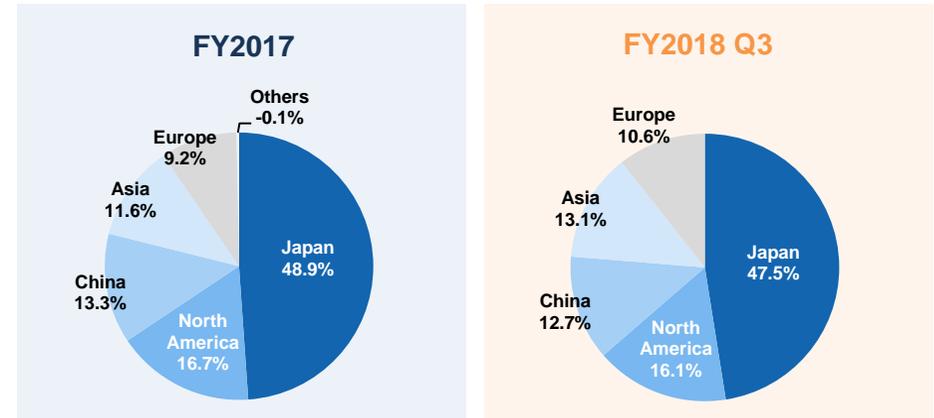
Net sales, Operating income



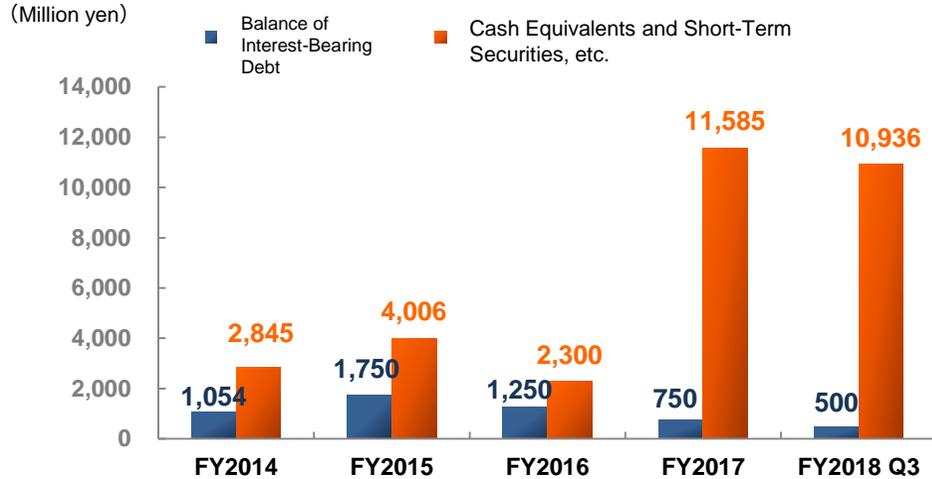
Sales by product



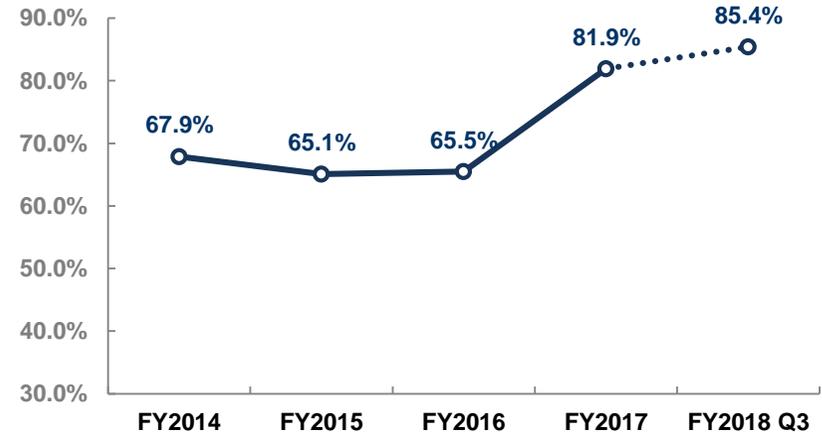
Sales by region



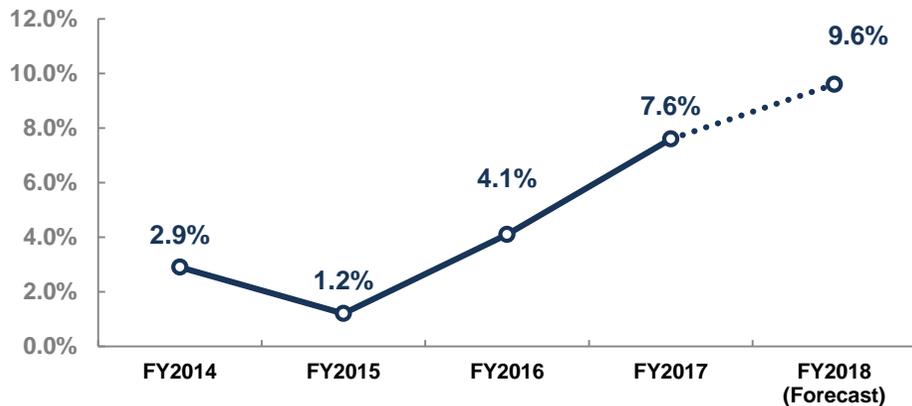
Interest-bearing debt, Cash equivalents, Short-term securities, etc.



Shareholders' equity ratio

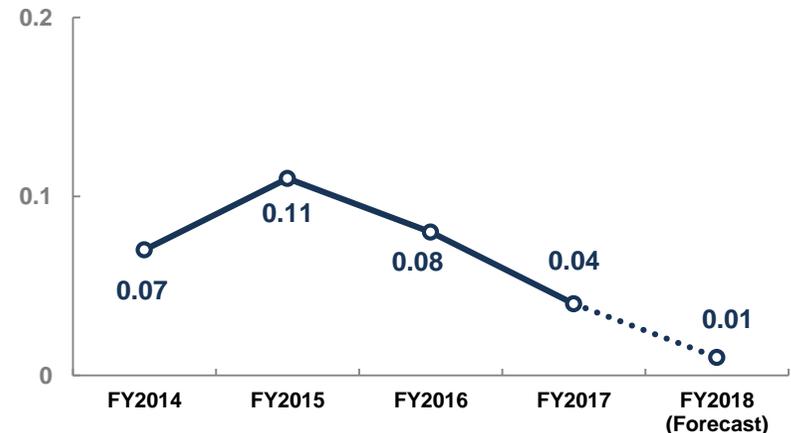


ROE



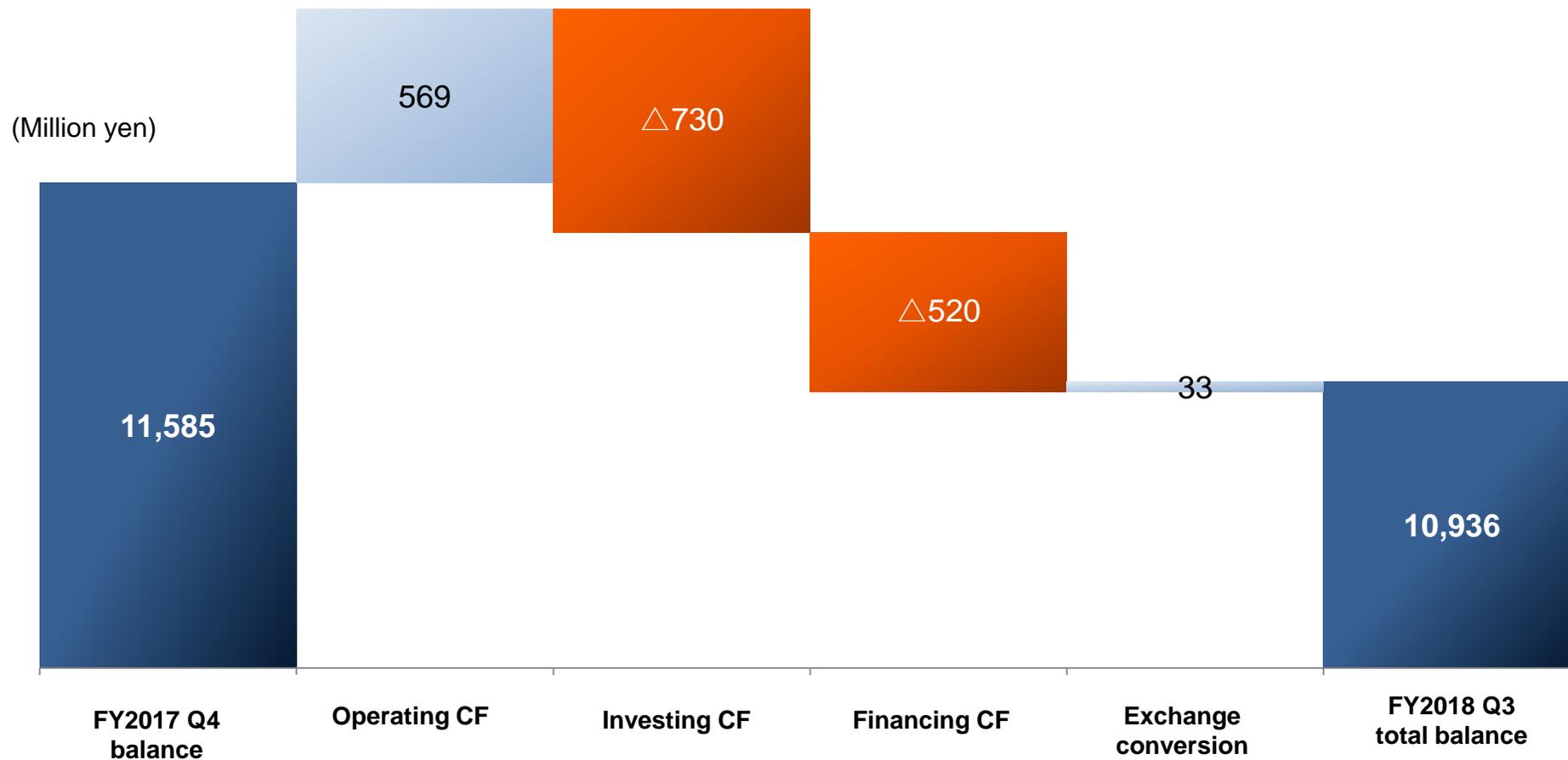
\*Calculated based on the assumption that the capital increase through third-party allotment in FY2017 was implemented from the previous fiscal year.

D/E ratio

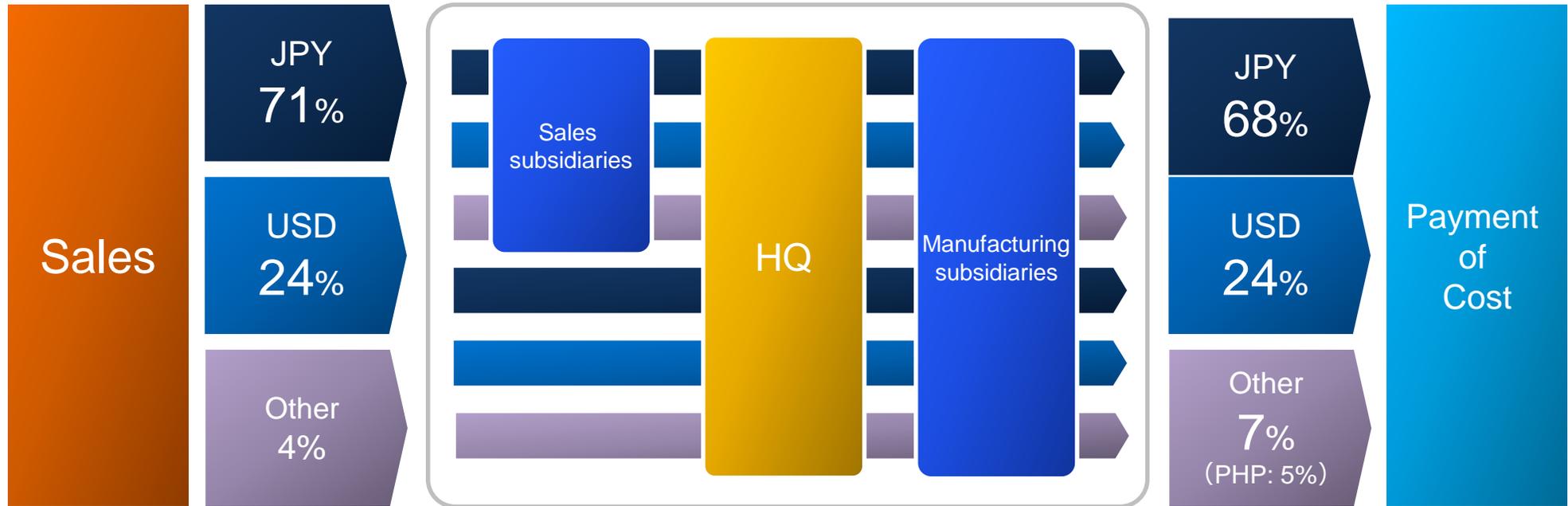


\*Calculated based on the assumption that the capital increase through third-party allotment in FY2017 was implemented from the previous fiscal year.

(Million yen)									
	End of FY2017	FY2018 Q3	Change amount	Change in ratio	End of FY2017	FY2018 Q3	Change amount	Change in ratio	
<b>Current assets</b>	16,977	16,845	△ 132	△0.8%	<b>Current liabilities</b>	2,969	2,384	△ 585	△19.7%
Cash and deposits	11,619	10,936	△ 683	△5.9%	Notes and accounts payable-trade	1,517	1,511	△ 6	△0.4%
Notes and accounts receivable-trade	3,365	3,194	△ 171	△5.1%	Short-term loans payable, Current portion of long-term loans payable and corporate bonds	350	200	△ 150	△42.9%
Merchandise and finished goods, Raw materials and supplies	1,799	2,416	617	34.3%	Other	1,101	672	△ 429	△39.0%
Other	193	297	104	53.9%	<b>Fixed liabilities</b>	797	658	△139	△17.4%
<b>Fixed assets</b>	3,787	3,978	191	5.0%	Corporate bonds	400	300	△ 100	△25.0%
Tangible fixed assets	1,653	1,935	282	17.1%	Net defined benefits liability	175	186	11	6.3%
Intangible fixed assets	412	354	△ 58	△14.1%	Other	222	171	51	23.0%
Investments and other assets	1,721	1,688	△33	△1.9%	<b>Total net assets</b>	16,999	17,781	782	4.6%
<b>Total assets</b>	20,765	20,823	58	0.3%	<b>Total of liabilities and net assets</b>	20,765	20,823	58	0.3%
					* Shareholders' equity ratio	81.9%	85.4%		



- One-yen appreciation against the USD increases operating income by about 2.5 million yen.



70% of transaction currency is JPY.

A “marry and netting” operational hedge was achieved for USD.

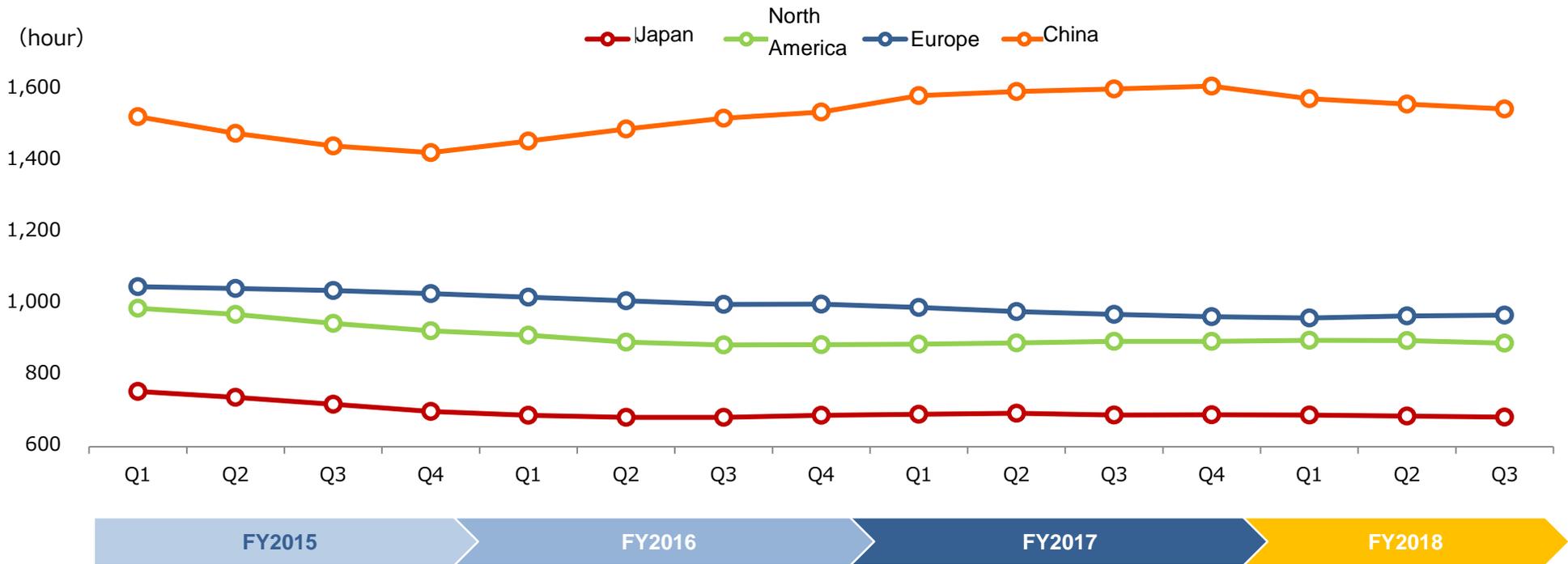
## Conditions of Operational Hedge - "Marry and Netting"

(Million yen)

Currency	Incoming			Outgoing			Net	Average rate during the term (JPY)	In case of yen appreciation (10%)			In case of yen depreciation (10%)		
	Each currency	Yen equivalent (JPY)	Composition ratio	Each currency	Yen equivalent (JPY)	Composition ratio			Each currency	Average rate during the term ▲10% (JPY)	Rate difference	Affected amount (YTD)	Average rate during the term +10% (JPY)	Rate difference
JPY	¥13,800.0	¥13,800.0	71%	¥12,500.0	¥12,500.0	68%	¥1,300.0	-	-	-	-	-	-	-
USD	\$42.5	¥4,686.9	24%	\$40.7	¥4,488.4	24%	\$1.8	¥110.3	¥99.25	¥-11.03	¥-19.85	¥121.31	¥11.03	¥19.85
EUR	€ 5.1	¥662.2	3%	€ 3.2	¥415.5	2%	€ 1.9	¥129.9	¥116.87	¥-13.0	¥-24.67	¥142.84	¥12.99	¥24.67
PHP	PP0.0	¥0.0	0%	PP456.7	¥954.5	5%	PP-456.7	¥2.1	¥1.88	¥-0.2	¥95.45	¥2.30	¥0.21	¥-95.45
THB	฿68.30	¥232.2	1%	฿20.20	¥68.7	0%	฿48.10	¥3.4	¥3.06	¥-0.3	¥-16.35	¥3.74	¥0.34	¥16.35
<b>Total</b>	-	¥19,381.4	100%	-	¥18,427.1	100%	-	-	-	-	¥34.57	-	-	¥-34.57

Economic slowdown in China resulted in decreased operation hours of construction machinery in Q3.

**Utilization of construction machinery in hours (annual total)**



Source: Prepared by YAMASHIN based on a report by Nomura Securities analysts



Forecasts regarding future performance presented in this material are based on information that was available at the time this material was released. Actual results may differ from the forecasts due to various factors such as market trends and business conditions etc.

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