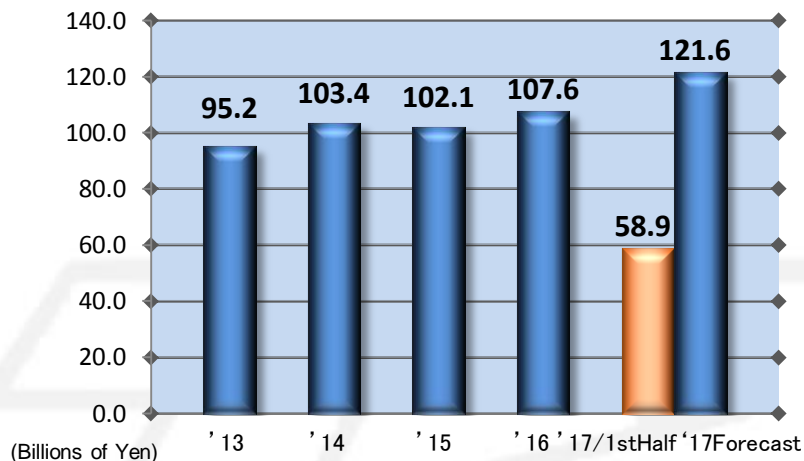




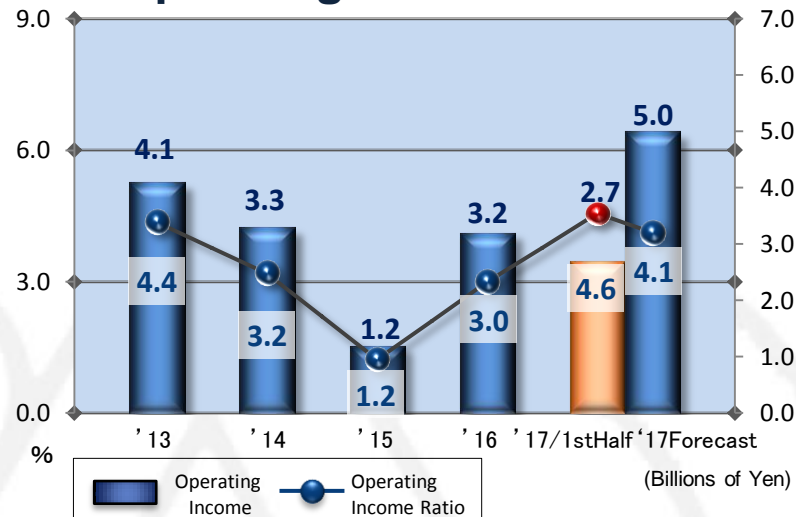
# **Financial Results Briefing for 2nd Quarter of FY 2017**

# Financial Results (Consolidated)

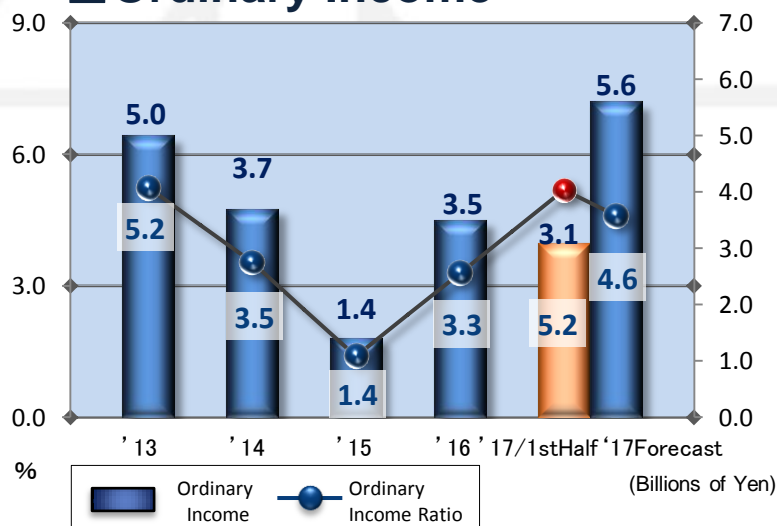
## Net Sales



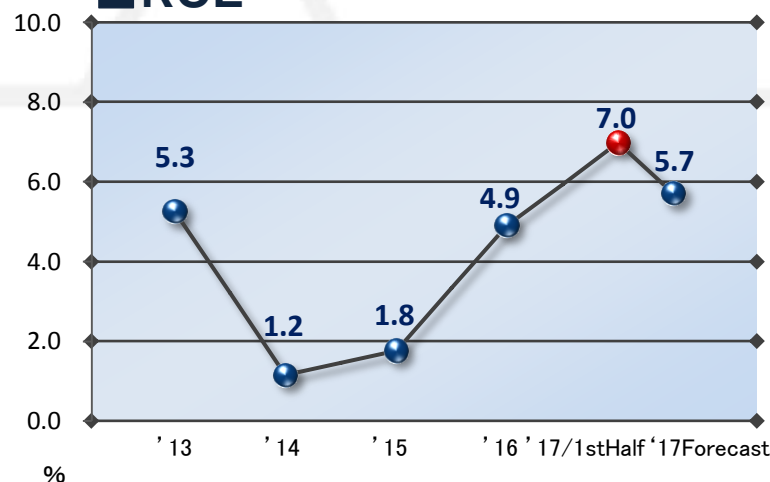
## Operating Income



## Ordinary Income

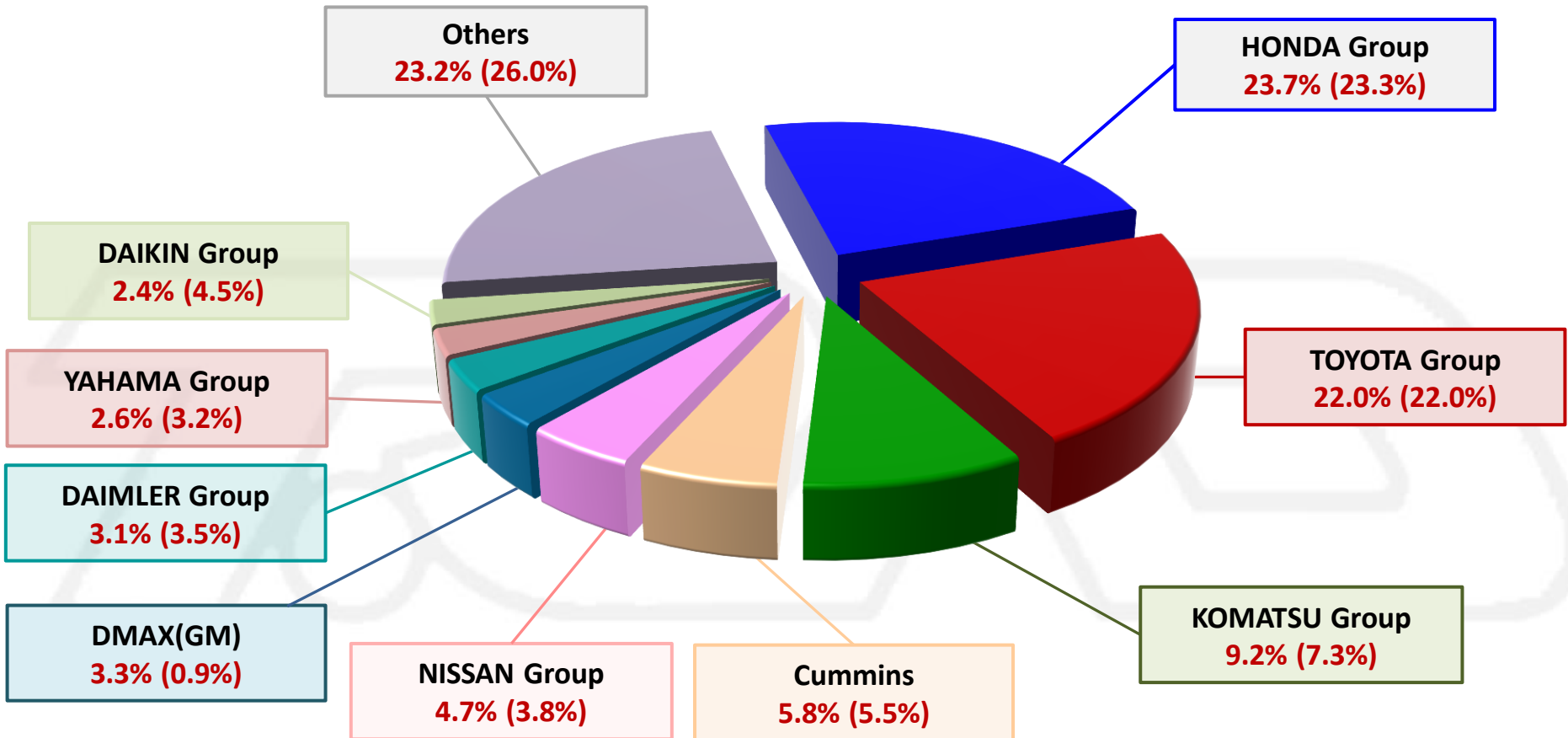


## ROE





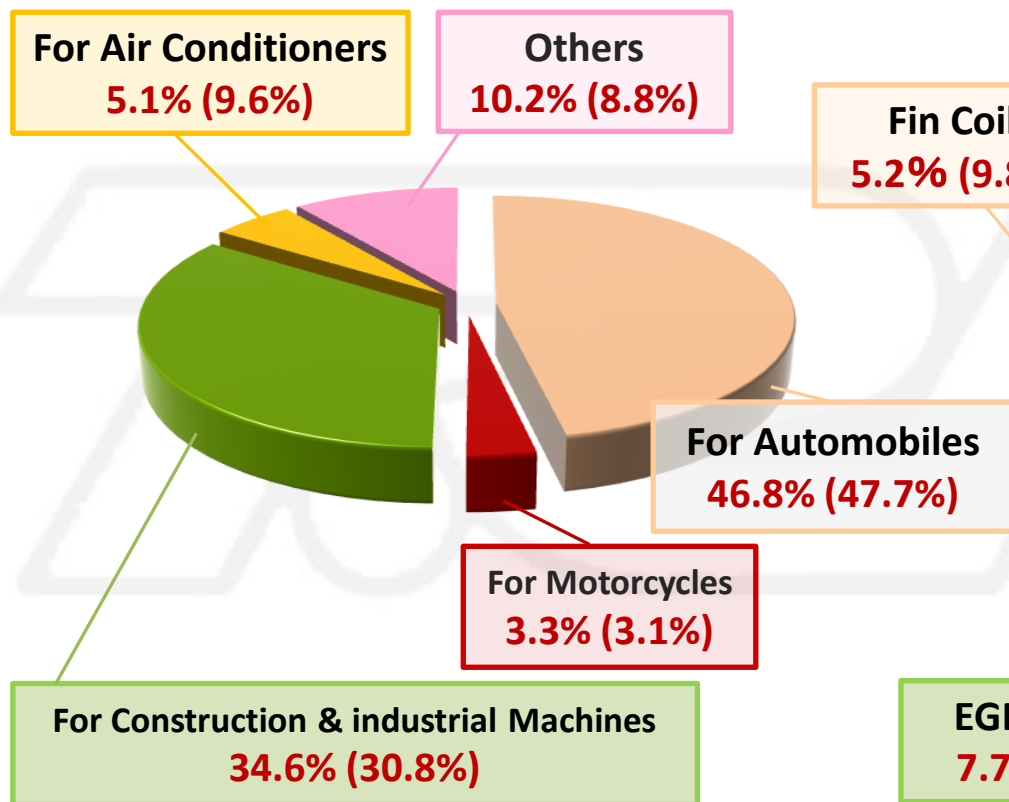
## Sales by Customer Groups in 1st Half of FY2017(Consolidated)



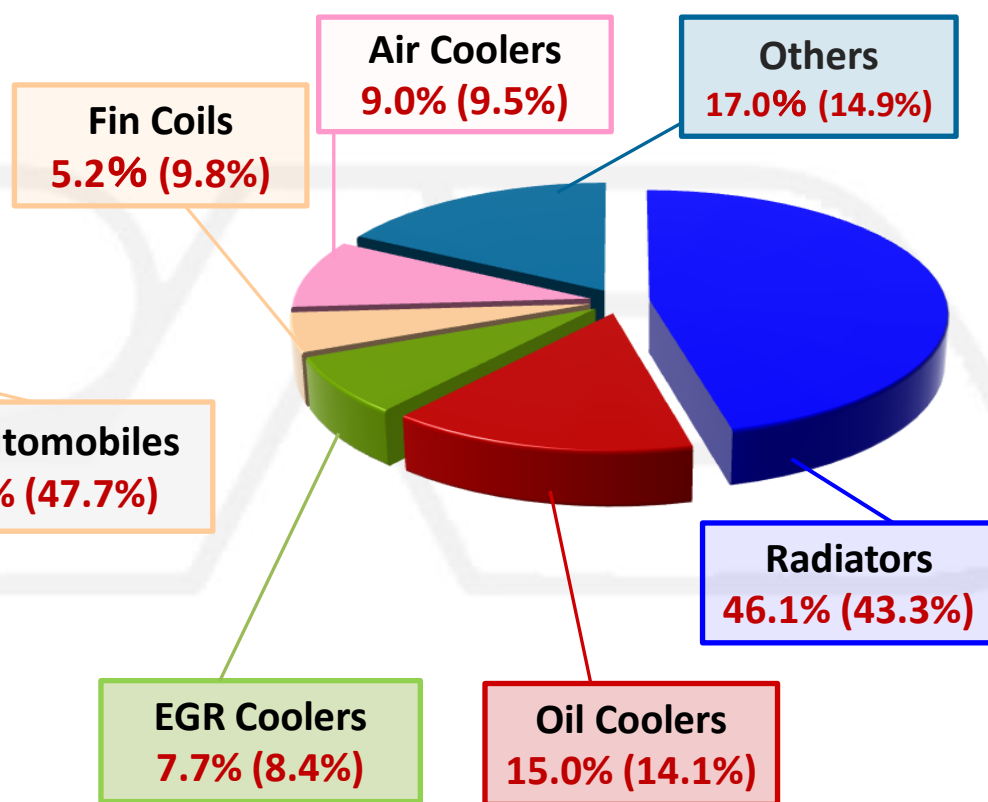
**Our independent mobility and advanced technologies are appreciated by international industry leaders.**

\*Figure in parentheses is share of sales in the same period of the previous year.

## Sales by applications



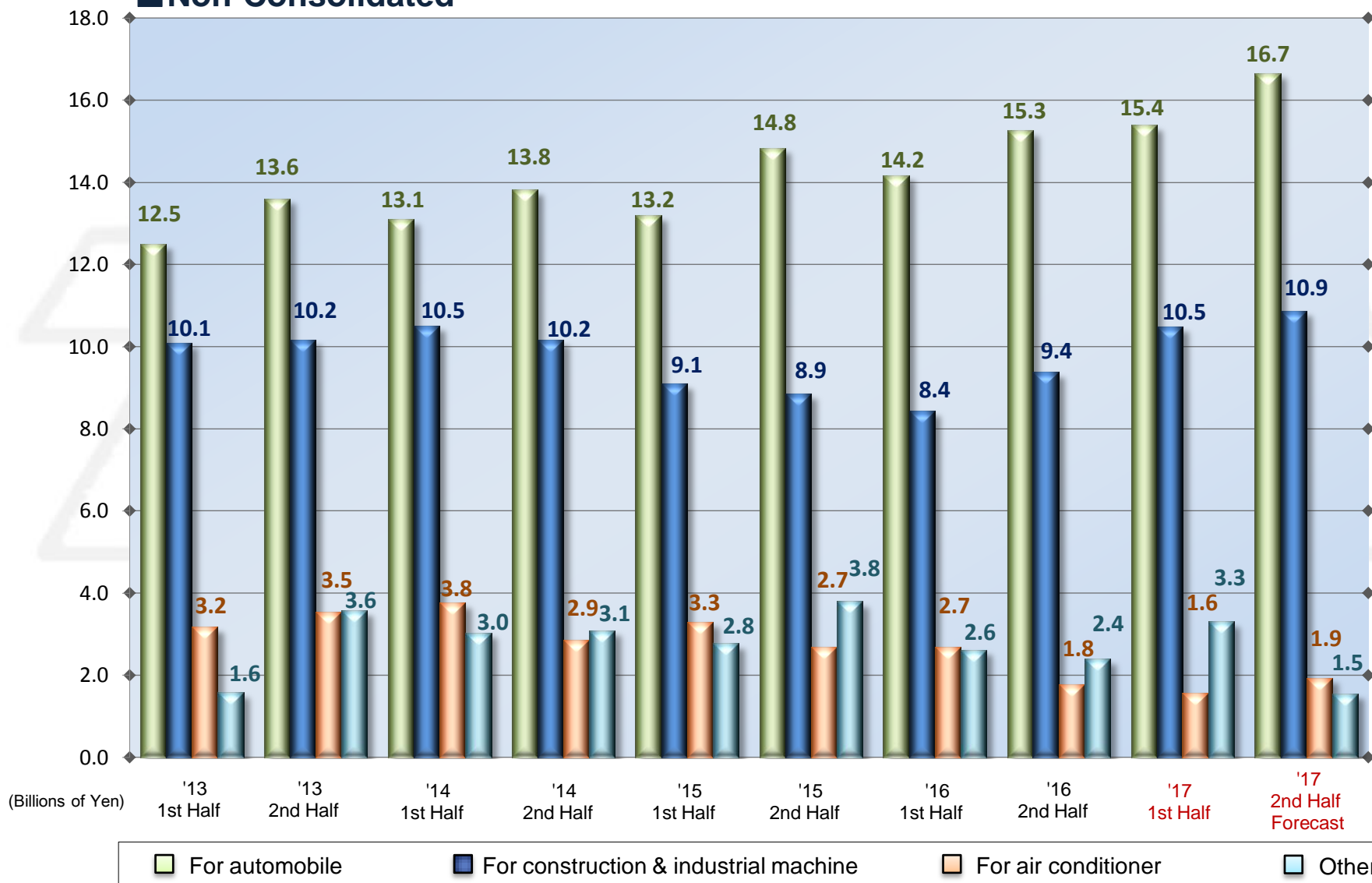
## Sales by Product types



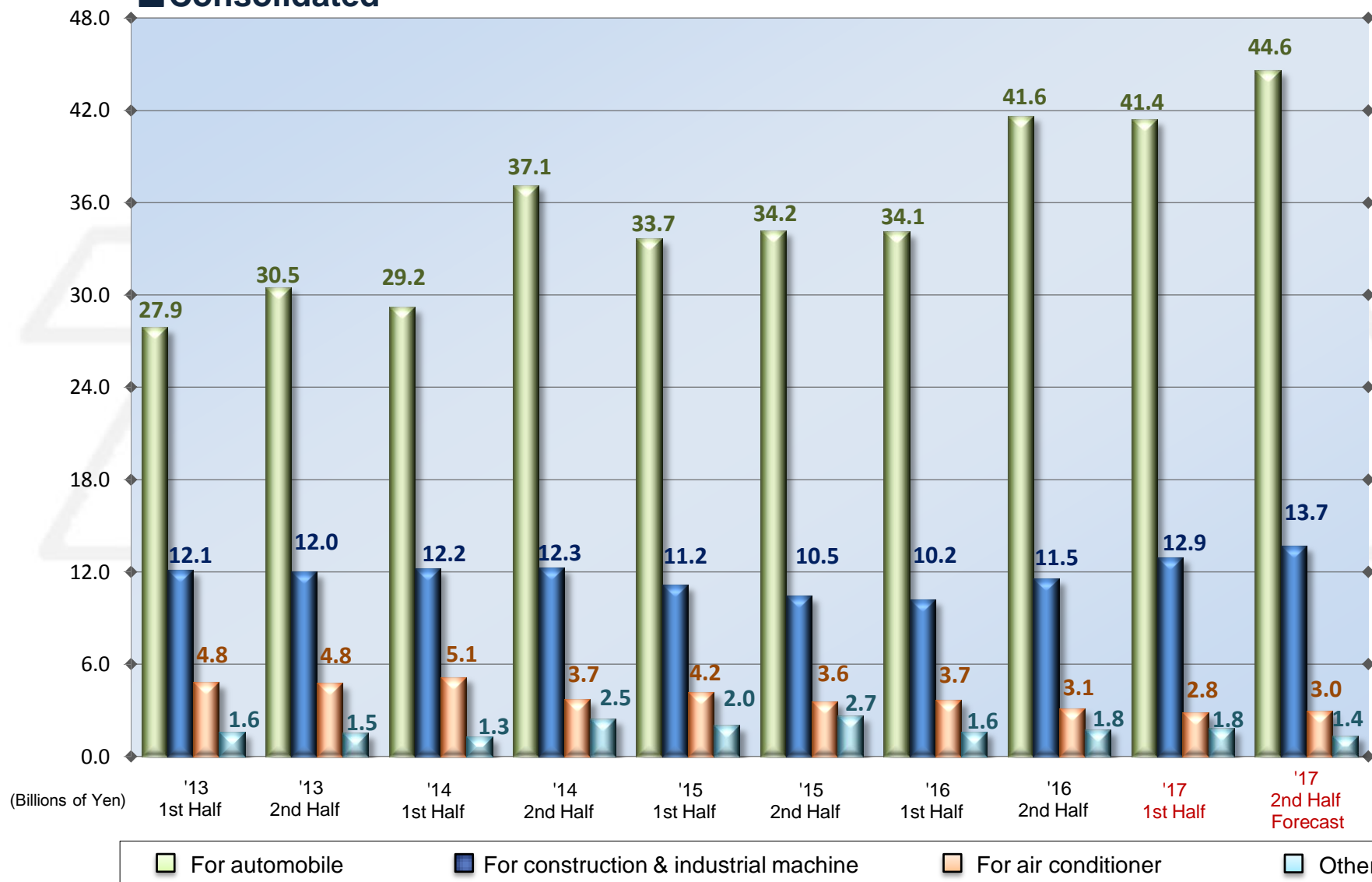
Our products are applicable to various applications that are not partial to the specific industries or products.

\*Figure in parentheses is share of sales in the same period of the previous year.

## ■ Non-Consolidated



## Consolidated







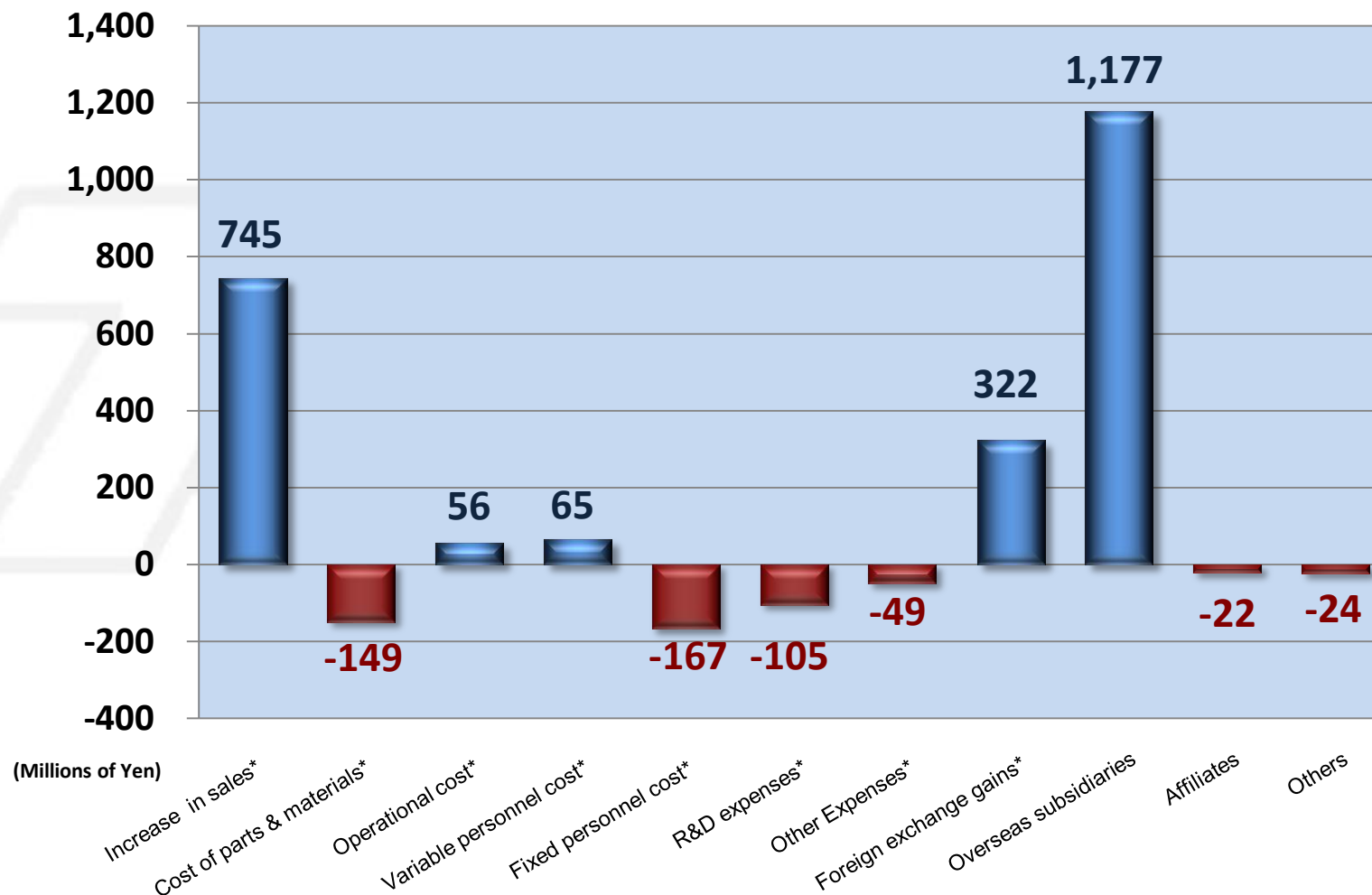
# Financial Results and Forecast

(Billions of Yen)

		FY2016				FY2017				Increase, Decrease (-)			
		1st Half Results		FY2016 Results		1st Half Results		FY2017 Forecast		'17/1st Half-'16/1st Half		'17Forecast-'16Results	
		Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Net Sales	Consolidated	49.6	100.0%	107.6	100.0%	58.9	100.0%	121.6	100.0%	9.3	18.7%	14.0	13.0%
	Non-Consolidated	27.9	100.0%	56.8	100.0%	30.9	100.0%	61.8	100.0%	3.0	10.7%	5.0	8.7%
Operating Income	Consolidated	1.3	2.5%	3.2	3.0%	2.7	4.6%	5.0	4.1%	1.4	112.8%	1.8	55.5%
	Non-Consolidated	0.2	0.6%	0.8	1.4%	0.8	2.6%	0.3	0.4%	0.6	376.5%	-0.5	-67.1%
Ordinary Income	Consolidated	1.2	2.4%	3.5	3.3%	3.1	5.2%	5.6	4.6%	1.8	152.6%	2.1	58.0%
	Non-Consolidated	0.8	2.8%	2.9	5.0%	2.8	9.2%	3.2	5.2%	2.1	259.7%	0.3	12.0%
Profit attributable to owners of parent	Consolidated	0.8	1.7%	2.0	1.9%	1.5	2.5%	2.4	2.0%	0.6	75.3%	0.4	18.7%
	Non-Consolidated	0.3	1.2%	1.9	3.4%	2.0	6.6%	2.1	3.4%	1.7	530.1%	0.2	10.3%

# Analysis of Increase Factor of the Consolidated Ordinary Income (FY2017 1st Half vs. FY2016 1st Half)

**Increase in the consolidated ordinary income by ¥1,849 million**



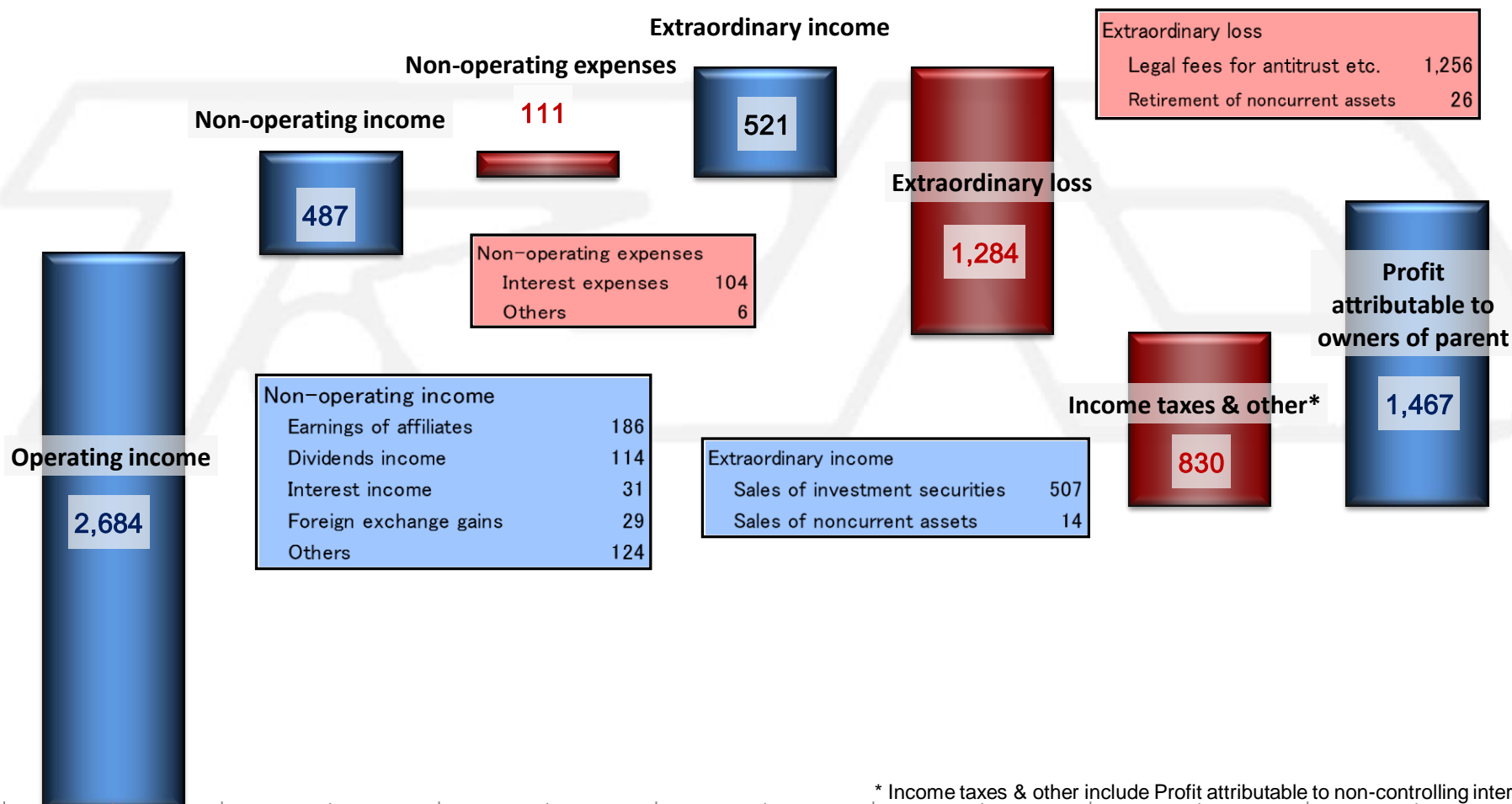
(\*Fluctuation factor of non-consolidated)



# Non-operating Income/Expenses and Extraordinary Income / Loss for 1st Half of FY2017(Consolidated)

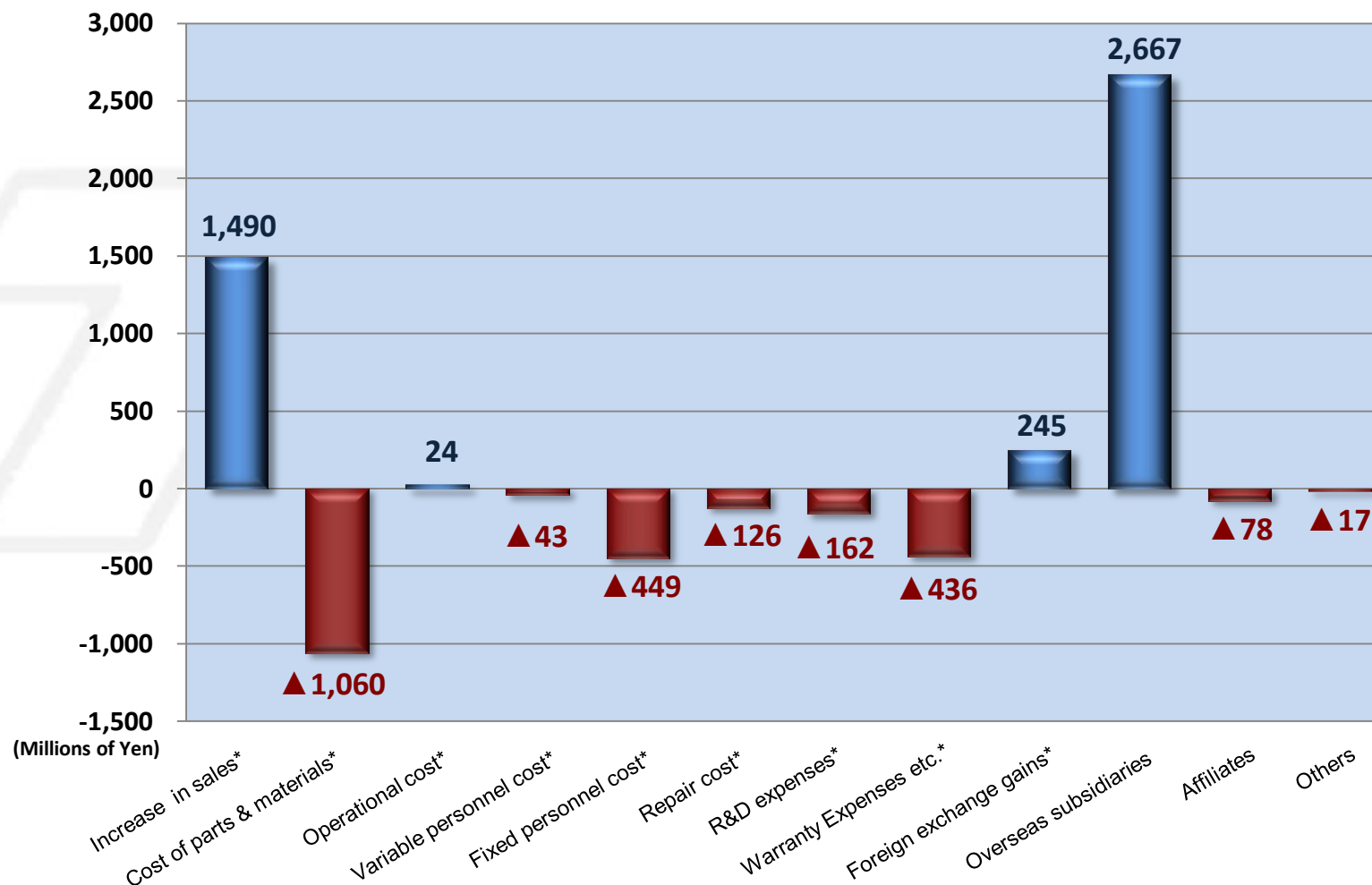
Operating Income 2,684 → Profit attributable to owners of parent 1,467

(Millions of Yen)



\* Income taxes & other include Profit attributable to non-controlling interests.

**Increase in the consolidated ordinary income by ¥2,055 million**



(\*Fluctuation factor of non-consolidated)



# Global Network: Worldwide Business with 5 Regional Bases



## ● Subsidiaries

【North America】	【China】
T.RAD North America, Inc. (USA)	T.RAD (Zhongshan) Co., Ltd. (China)
Tripac International Inc. (USA)	T.RAD (Changshu) Co., Ltd. (China)
	Qingdao Toyo Heat-Exchanger Co., Ltd (China)*
【Asia】	【Europe】
T.RAD (THAILAND) Co., Ltd. (Thailand)	T.RAD Czech s.r.o. (Czech)
PT. T.RAD INDONESIA (Indonesia)	TRM LLC (Russia)
T.RAD(VIETNAM)Co., Ltd. (Vietnam)	T.RAD Sales .Europe GmbH (Germany)

## ● R&D center

North America T.RAD R&D Center (USA)
TACO/T.RAD R&D Centre (India)
T.RAD (Changshu) R&D Center Co., Ltd. (China)

## ● Joint Ventures

TORC Co.,Ltd. (Thailand)
TATA Toyo Radiator Ltd. (India)

\*Subsidiary from October 2017

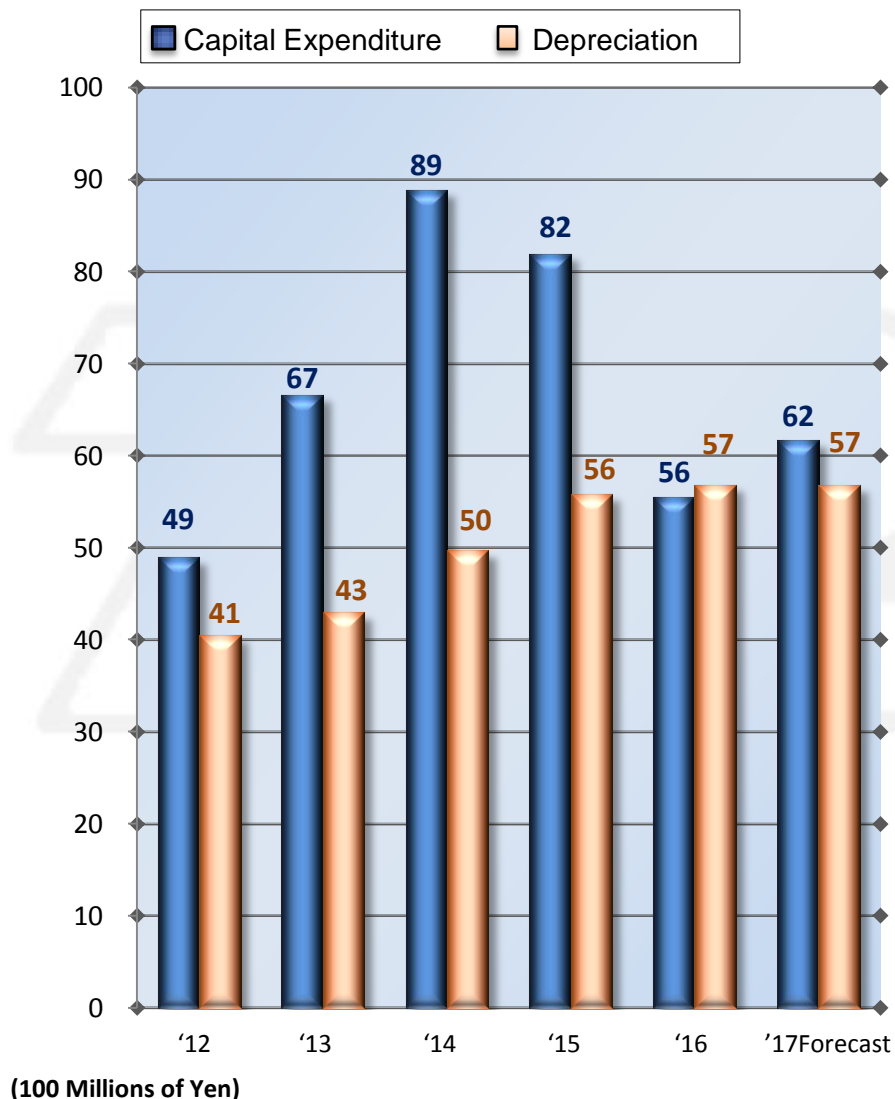


# Business results of the segment

(Billions of Yen)

	Net Sales						Operating Income(Loss)					
	FY2016 1st Half Results (A)	FY2017 1st Half Results (B)	Increase /Decrease (B)-(A)	Percentage change (on a foreign currency basis)	FY2016 Results	FY2017 Forecast	FY2016 1st Half Results (A)	FY2017 1st Half Results (B)	Increase /Decrease (B)-(A)	Percentage change (on a foreign currency basis)	FY2016 Results	FY2017 Forecast
	Amount	Amount	Amount	(%)	Amount	Amount	Amount	Amount	Amount	(%)	Amount	Amount
Japan	25.1	27.3	2.3	9.0%	51.5	56.0	0.2	0.8	0.6	360.5%	0.8	(0.0)
USA	11.4	15.5	4.0	24.1%	26.0	29.9	0.1	0.2	0.1	165.6%	(0.3)	1.0
Europe	1.7	2.0	0.2	-1.6%	3.9	3.8	(0.1)	(0.2)	-0.0	-15.9%	(0.3)	(0.5)
Asia	7.1	7.9	0.8	-1.8%	15.6	16.2	0.3	0.9	0.6	142.3%	1.0	2.0
China	3.8	5.8	2.0	47.6%	9.6	14.7	0.7	1.0	0.4	44.4%	1.7	2.3
Other	0.5	0.5	0.0	2.1%	1.0	0.9	0.1	(0.1)	-0.2	-174.1%	0.4	0.2
Total	49.6	58.9	9.3	13.5%	107.6	121.6	1.3	2.7	1.4	102.5%	3.2	5.0

Exchange Rate (June.2016⇒June.2017) USD: 102.96⇒112.00, THB: 2.93⇒3.3, CNY: 15.46⇒16.49,  
 CZK: 4.22⇒4.87, IDR: 0.0078⇒0.0084, VDN: 0.0046⇒0.0049, EUR: 114.36⇒127.95, RUB: 1.61⇒1.89  
 Exchange Rate (Dec.2016⇒Dec.2017 Forecast) USD: 116.53⇒110.12, THB: 3.25⇒3.2, CNY: 16.76⇒15.99,  
 CZK: 4.54⇒4.68, IDR: 0.0087⇒0.0083, VDN: 0.0051⇒0.0049, EUR: 122.73⇒124.1, RUB: 1.93⇒1.95



## Capital Expenditure by region (100 millions of Yen)

	FY2016		FY2017 Forecast	
	Capital Expenditure	Share	Capital Expenditure	Share
Japan	24.3	43.7%	30.8	50.0%
North America	19.6	35.4%	14.3	23.2%
Europe	5.2	9.4%	5.8	9.3%
China	2.3	4.2%	3.5	5.7%
Thailand	2.1	3.8%	3.9	6.3%
Indonesia	1.5	2.6%	2.1	3.4%
Vietnam	0.5	0.9%	1.3	2.1%
<b>Total</b>	<b>55.5</b>	<b>100.0%</b>	<b>61.7</b>	<b>100.0%</b>

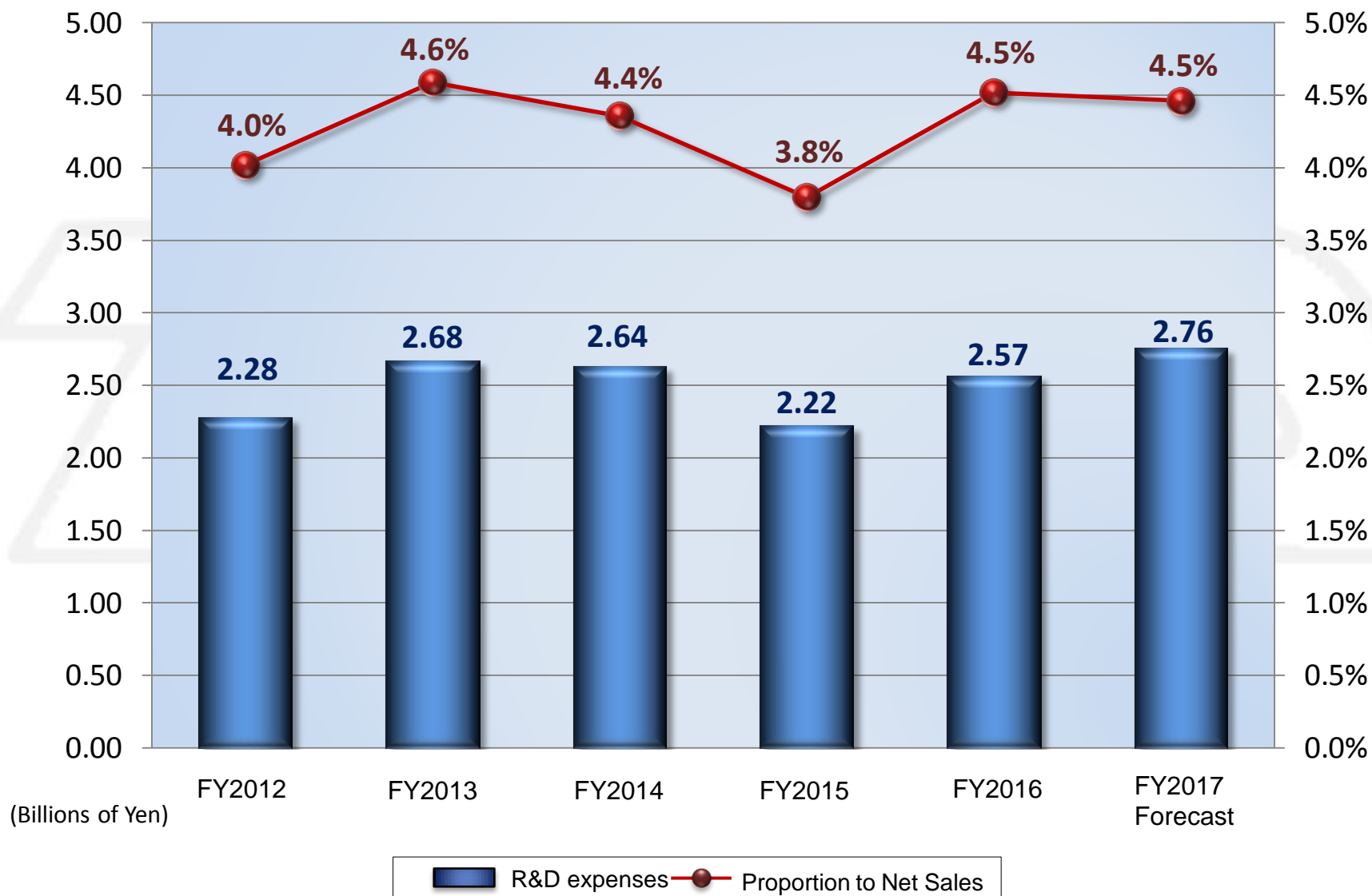
## Depreciation by region (100 millions of Yen)

	FY2016		FY2017 Forecast	
	Depreciation	Share	Depreciation	Share
Japan	29.1	51.2%	29.7	52.3%
North America	10.5	18.4%	11.4	20.0%
Europe	2.5	4.4%	1.8	3.1%
China	3.4	6.1%	3.8	6.6%
Thailand	5.2	9.1%	4.2	7.4%
Indonesia	4.4	7.7%	3.7	6.6%
Vietnam	1.8	3.1%	2.2	4.0%
<b>Total</b>	<b>56.8</b>	<b>100.0%</b>	<b>56.8</b>	<b>100.0%</b>

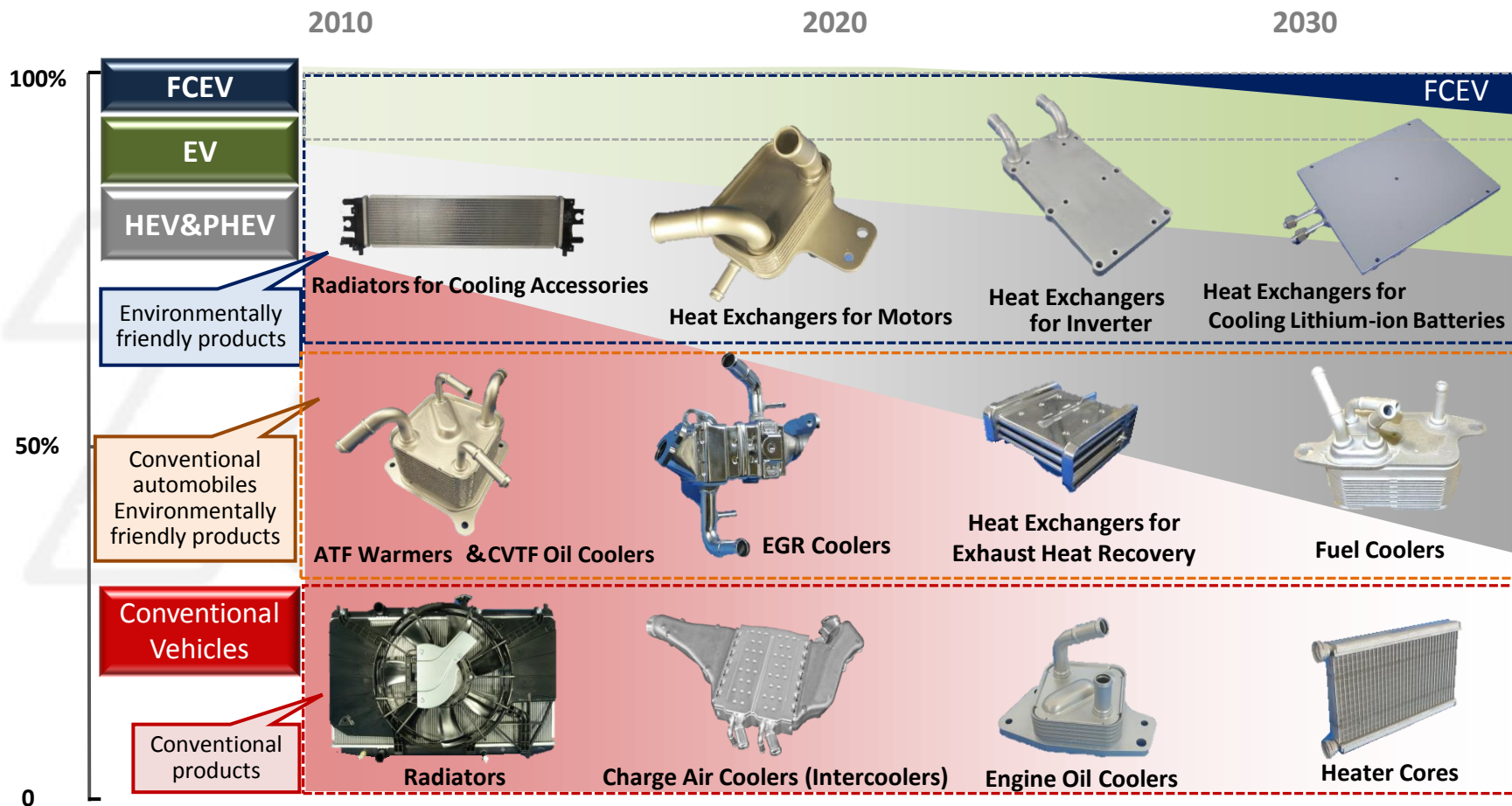




# R&D Expenses (Non-Consolidated)







**Development of heat exchangers corresponding to the change of the markets and customers' needs**



# Automobile Components

name	function
Radiators	cool cooling water that has become hot in engines
Charge Air Coolers	cool intake air that has been pressurized by superchargers, such as turbocharger, and has reached elevated temperature
Engine Oil Coolers	cool engine oil that has become hot in engines
Heater Cores	let high-temperature cooling water partly flow for room heating
ATF Warmers & CVTF Oil Coolers	heat AT and CVT lubricating liquid at the time of warming and cool it when it has become hot
EGR Coolers	cool high-temperature emissions at the time of recirculating the emissions partly
Heat Exchangers for Exhaust Heat Recovery	recover heat in HEV emissions and reusing it for heating and early engine warming
Fuel Coolers	cool fuel that has been pressurized by fuel injection pumps to elevated temperature
Radiators for Cooling Accessories	cool high-temperature cooling water by heat exchangers for accessory components, such as inverters
Heat Exchangers for Motors	cool circulating oil for motor cooling
Heat Exchangers for Inverter	cool HEV and EV inverters
Heat Exchangers for Cooling Lithium-ion Batteries	cool Lithium-ion Batteries used for HEVs and Evs



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