

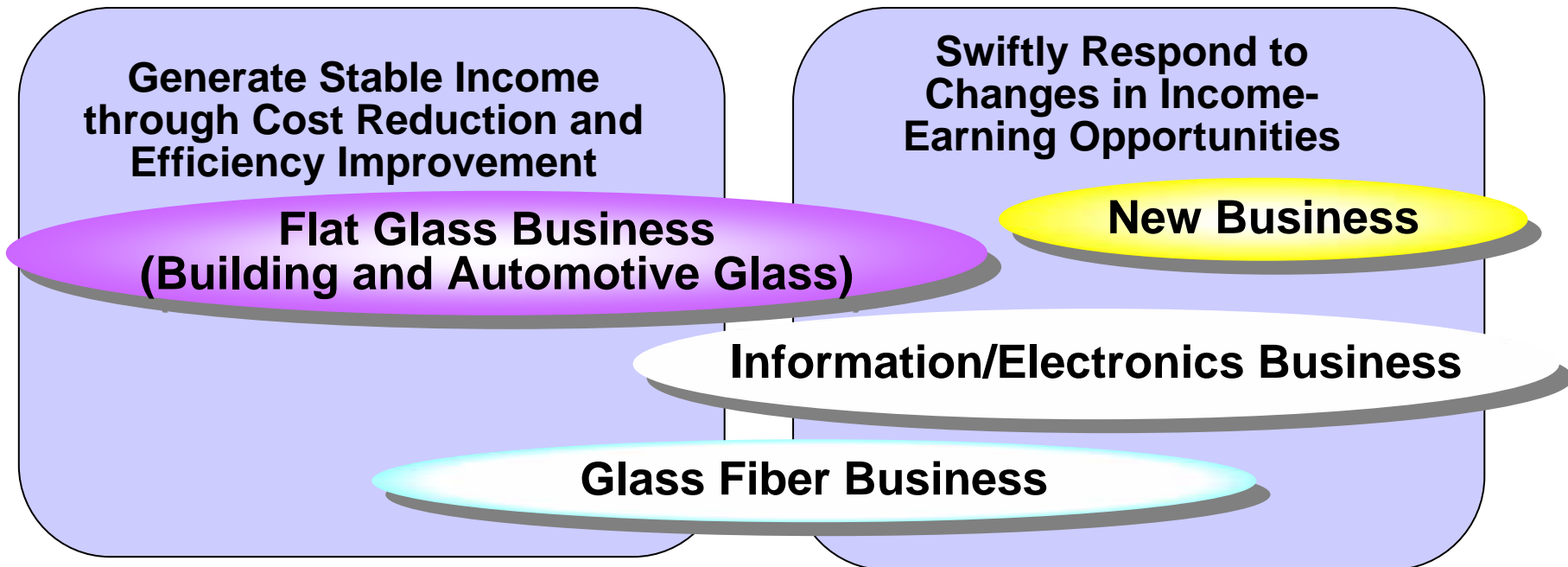
# **Summary of Year End Forecast**

**FY 2004 (to 31 March 2004)**

**Nippon Sheet Glass Co., Ltd.**



# Passage to “New Vision”



## <Directions Aimed>

- (1) Implement drastic cost reductions to achieve global-standard rate of return  
→ Improve the business structure and restructure unprofitable businesses
- (2) Focus on group synergy and expand and strengthen core businesses  
→ Turn non-core business resources into resources for strengthening core businesses  
(through selection and concentration)
- (3) Concentrate R&D efforts in core technologies based on glass material to create and grow new products.

 **Scenario for Achieving Act 21 (Mid-term plan)  
- Operating Income Improvement Plan**

	<b>FY2001</b> Actual	<b>FY2002</b> Actual	<b>FY2003</b> Actual
Flat glass	8.1	7.7	6.4
Information/ Electronics	13.4	-5.7	-6.6
Glass Fiber	4.9	3.0	3.3
Other			1.2
<b>Operating Income</b>	<b>26.4</b>	<b>5.0</b>	<b>4.3</b>
Ordinary Income	23.9	1.0	-1.6
<b>Net Income</b>	<b>31.5</b>	<b>-2.3</b>	<b>-3.2</b>

<b>FY2004</b> Forecast	<b>FY2005</b> Target (as of '02)
6.0	11.0
-2.0	1.0 + $\alpha$
4.5	5.0 - 6.0
-0.5	0.0
<b>8.0</b>	<b>18.0</b>
6.0	15.0
<b>3.0</b>	

## FY2004 Second Half and Full Year forecast (Operating Income and Ordinary Income)



Billion Yen	FY 2003			FY 2004		
	1st half Actual	2nd half Actual	Full year Actual	1st half Actual	2nd half Forecast	Full year Forecast
Flat Glass	2.0	4.4	6.4	2.0	4.0	6.0
Information/ Electronics	-3.2	-3.4	-6.6	-1.9	-0.1	-2.0
Glass Fiber	1.2	2.1	3.3	2.3	2.2	4.5
Other	0.6	0.6	1.2	-0.2	-0.3	-0.5
<b>Total Operating Income</b>	<b>0.6</b>	<b>3.7</b>	<b>4.3</b>	<b>2.2</b>	<b>5.8</b>	<b>8.0</b>
<b>Total Ordinary Income</b>	<b>-2.0</b>	<b>0.4</b>	<b>-1.6</b>	<b>0.0</b>	<b>6.0</b>	<b>6.0</b>
<b>Net Income</b>			<b>-3.2</b>			<b>3.0</b>

# ★ Scenario for Achieving Act 21 - Operating Income Improvement Plan



## New Prospect for Growth after the Phase of Restructuring

### *Restructuring*

#### Survival after the burst of telecommunications bubble

- i. Drastic fixed cost reduction in the optical telecommunications business (FY 2004)

#### Sale of unprofitable businesses

- i. Continuous glass fiber business (FY 2003)
- ii. Glass disk business (March 2004)

### *Growth opportunities*

- ◆ Selfoc lens array (SLA) for multifunctional printers (FY 2004 -)
- ◆ Glass substrate for TFT
- ◆ Glass flake for cosmetics and other glass fiber products

### *Promising New Product*

- ◆ Joint development of SLED with Fuji Xerox .

# ★ Scenario for Achieving Act 21 - Operating Income Improvement Plan



## Generation of Stable Income from Flat Glass Business

### *Building Glass:*

- ◆ Expansion of functional glass sales for construction
- ◆ Integration of fabrication sites and sales offices (FY 2004)
- ◆ Shutdown of polishing lines (April 2003)
- ◆ Sale of shares in Tianjin NSG Float Glass Co., Ltd. (January 2004)
  
- ◆ Starting commercial production of CLEARTECT (February 2004)

### *Automotive Glass:*

- ◆ Drastic structural reform in automotive glass (FY 2005 -)
- ◆ Close down of Aichi Plant (September 2004)

## Reducing Interest-bearing Debt

160.0 b¥ (2003/3)      →      135.0 b¥ (2004/3: est)

# Flat Glass Business

**NSG**  
NIPPON SHEET GLASS Co., Ltd

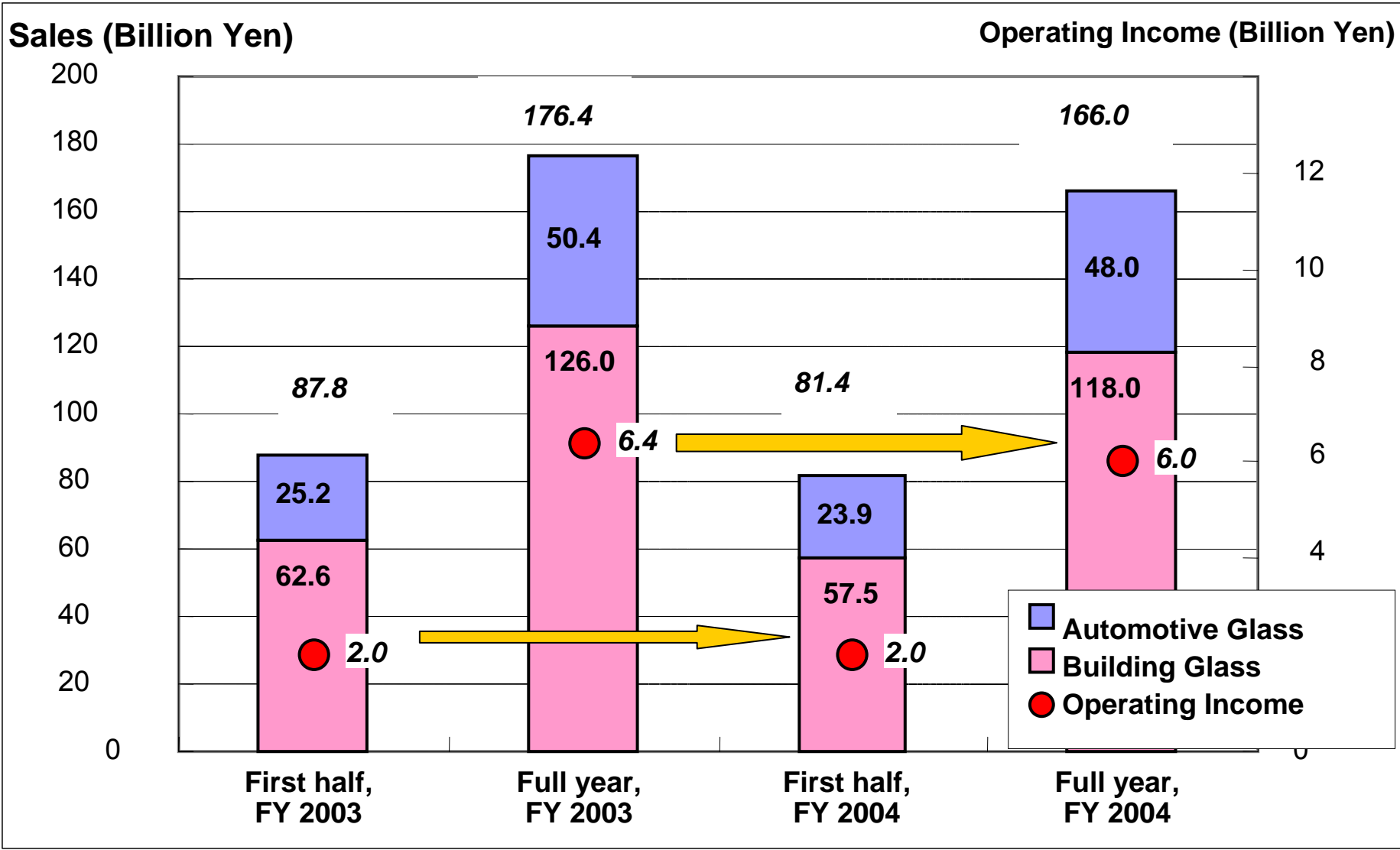


**Building Glass  
(Glass and Materials  
for Construction Use)**



**Automotive Glass  
(Transportation Vehicle  
Glass)**

# Flat Glass: Sales and Operating Income Trend

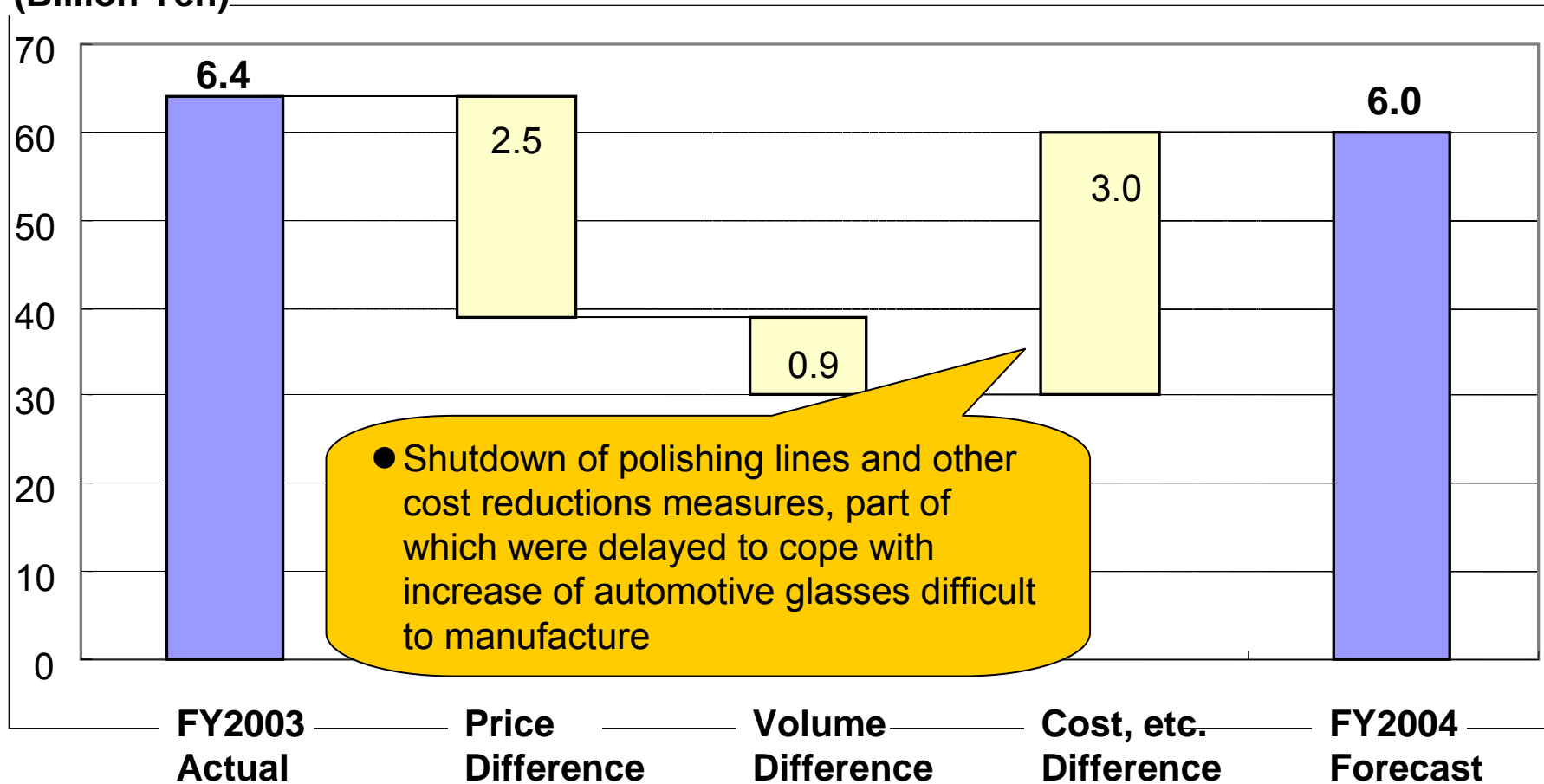




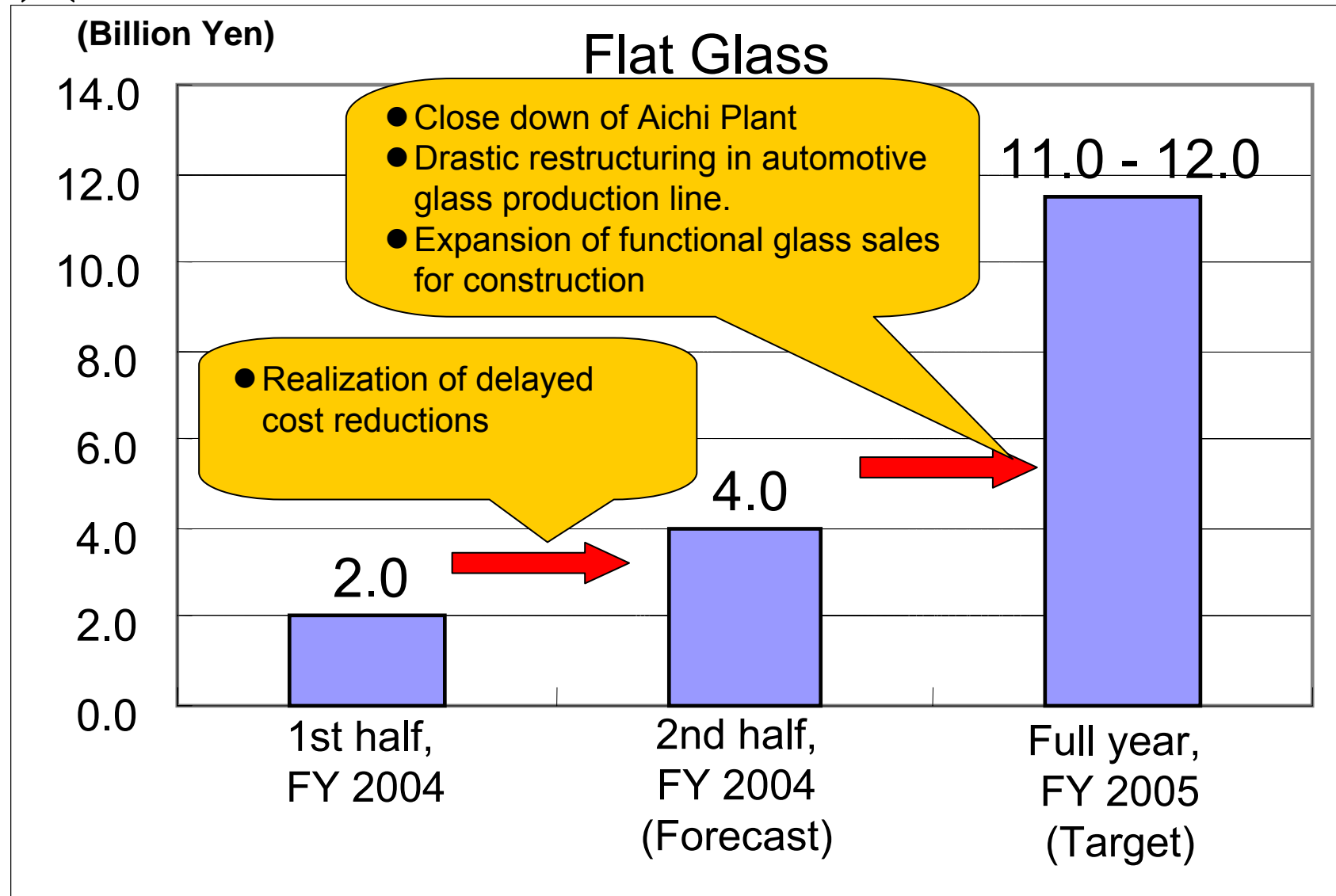
# Flat Glass: Operating Income Analysis FY 2003 to FY 2004



(Billion Yen)



# Flat Glass: Operating Income Analysis FY 2004 to FY 2005



# Information/Electronics Business

**NSG**  
NIPPON SHEET GLASS Co., Ltd

## Display

LCD Substrates, PDP Substrates, etc.



## Information Devices

SLA, SLED, Chemically Enhanced Glass, etc.,  
Parts for Office Equipment such as Printers,  
Scanners and Copiers



## Glass Magnetic Disk

Glass Magnetic Disks

To sell the business  
by the end of this fiscal year

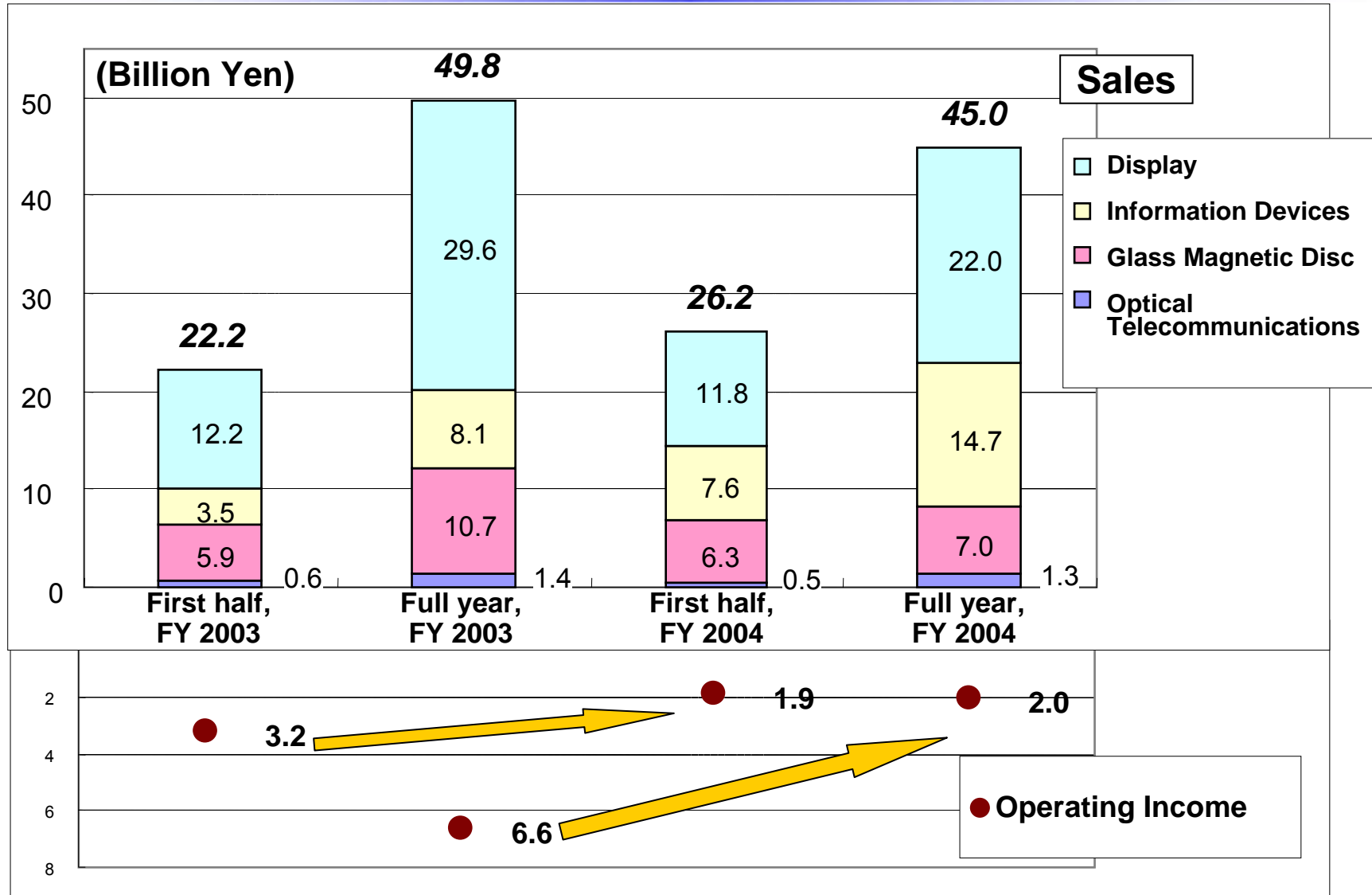


## Optical Telecommunications

Selfoc Microlens,  
Planar Microlens, etc.



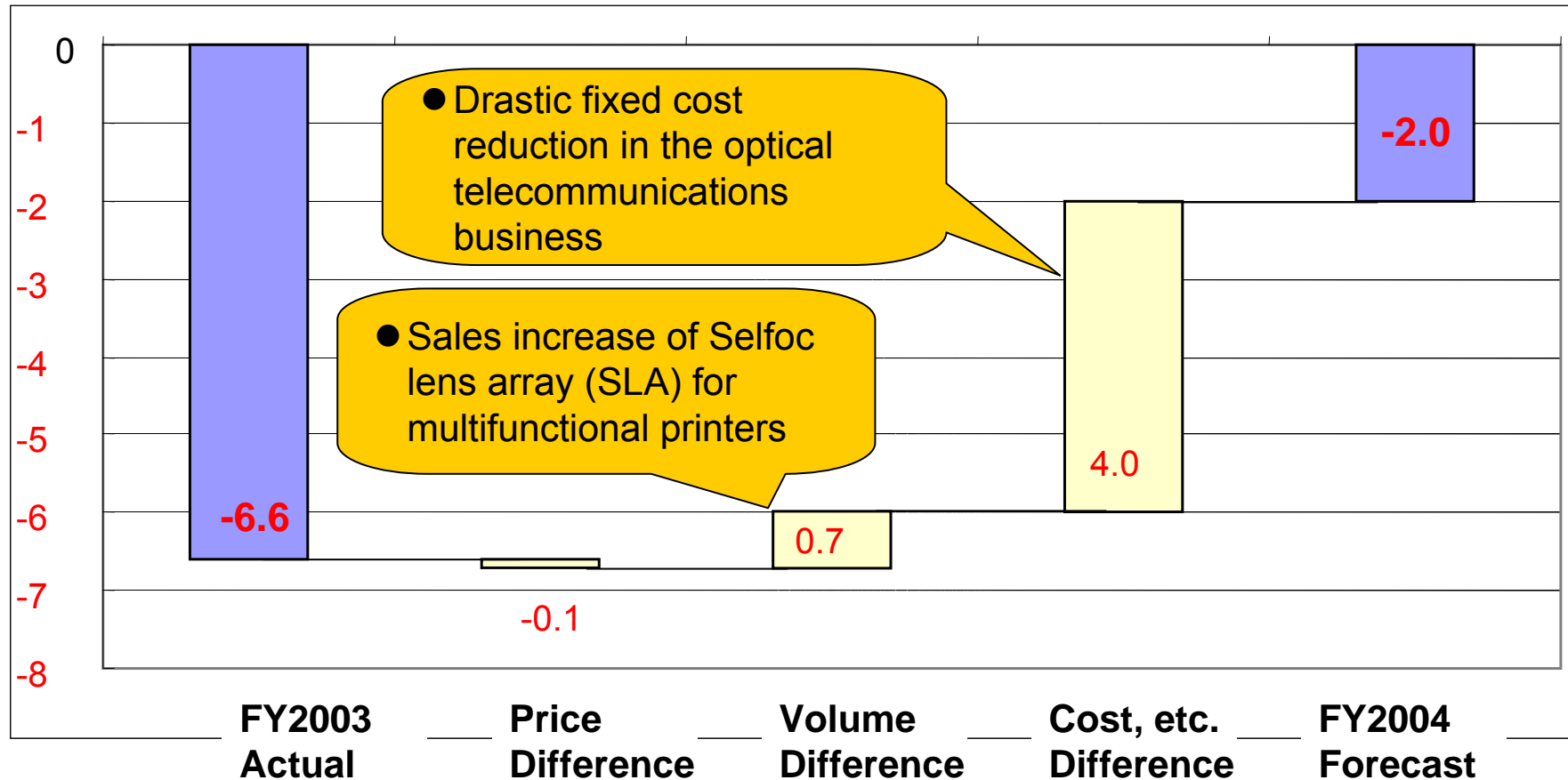
# Information/Electronics: Sales and Operating Income Trend



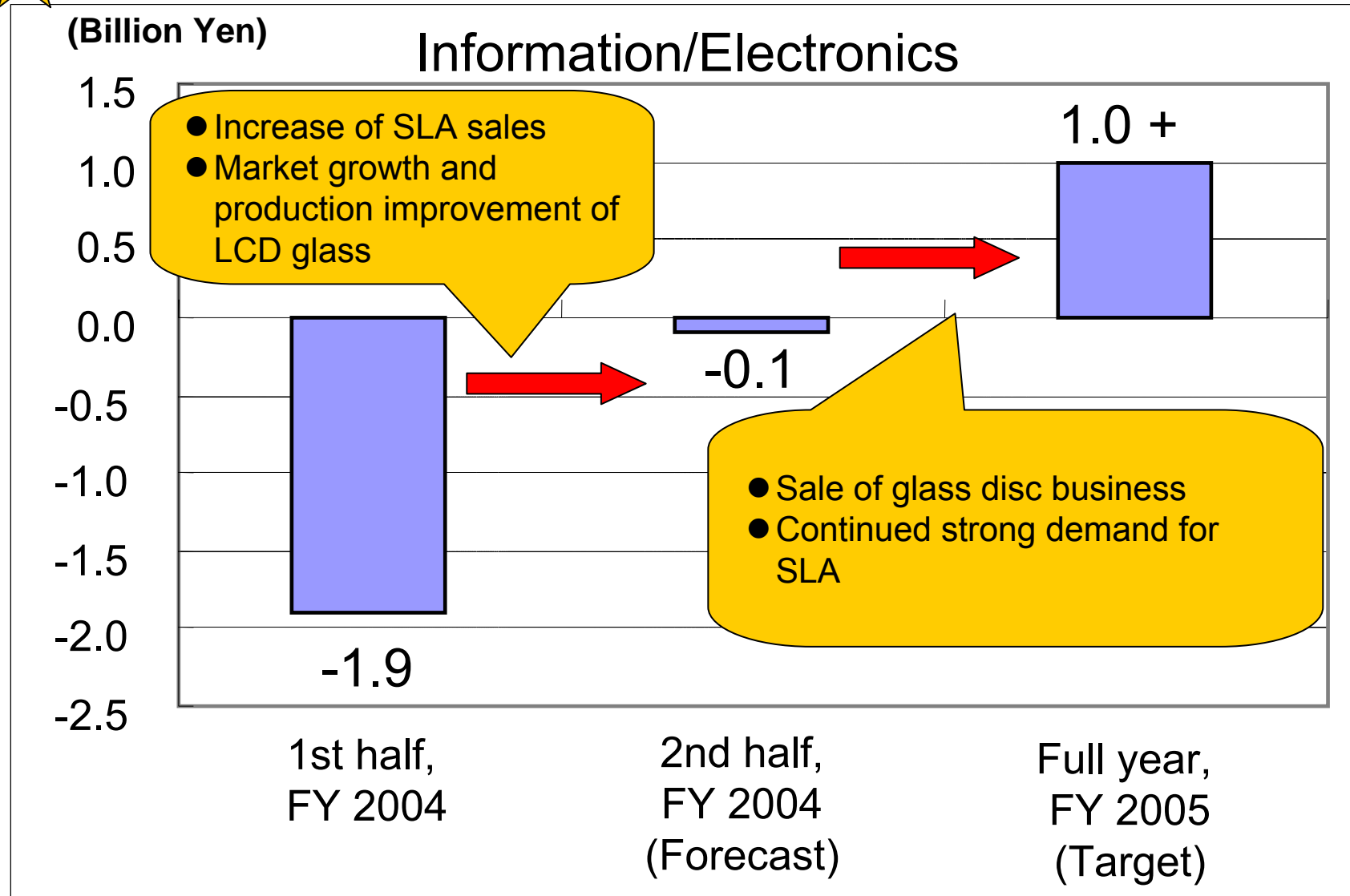
# Information/Electronics: Operating Income Analysis FY 2003 to FY 2004



(Billion Yen)



# Information/Electronics: Operating Income Analysis FY 2004 to FY 2005



# Glass Fiber Business

**NSG**  
NIPPON SHEET GLASS Co., Ltd

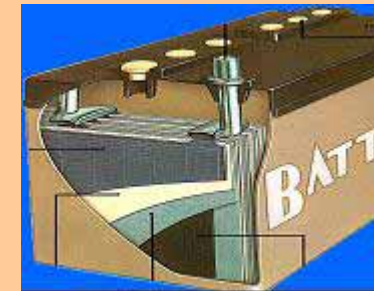
## Glass Cord

For Automotive Timing Belts



## Battery Separator

For Lead-Acid Batteries for Automobiles, Uninterrupted Power Supply Equipment, etc.



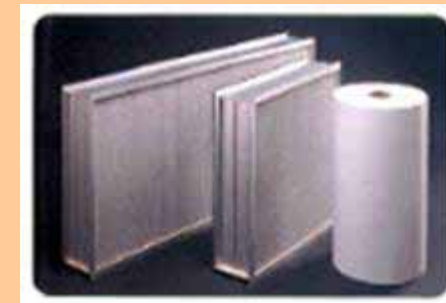
## Glass Flake, etc.

Plastic Reinforcement and Anticorrosion Filler .  
Highly Glittering Metallic Pigment .

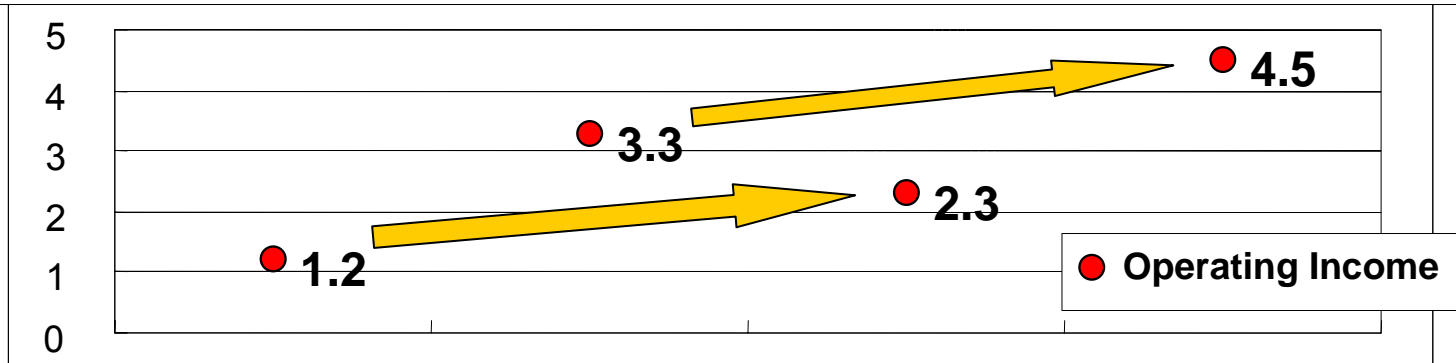
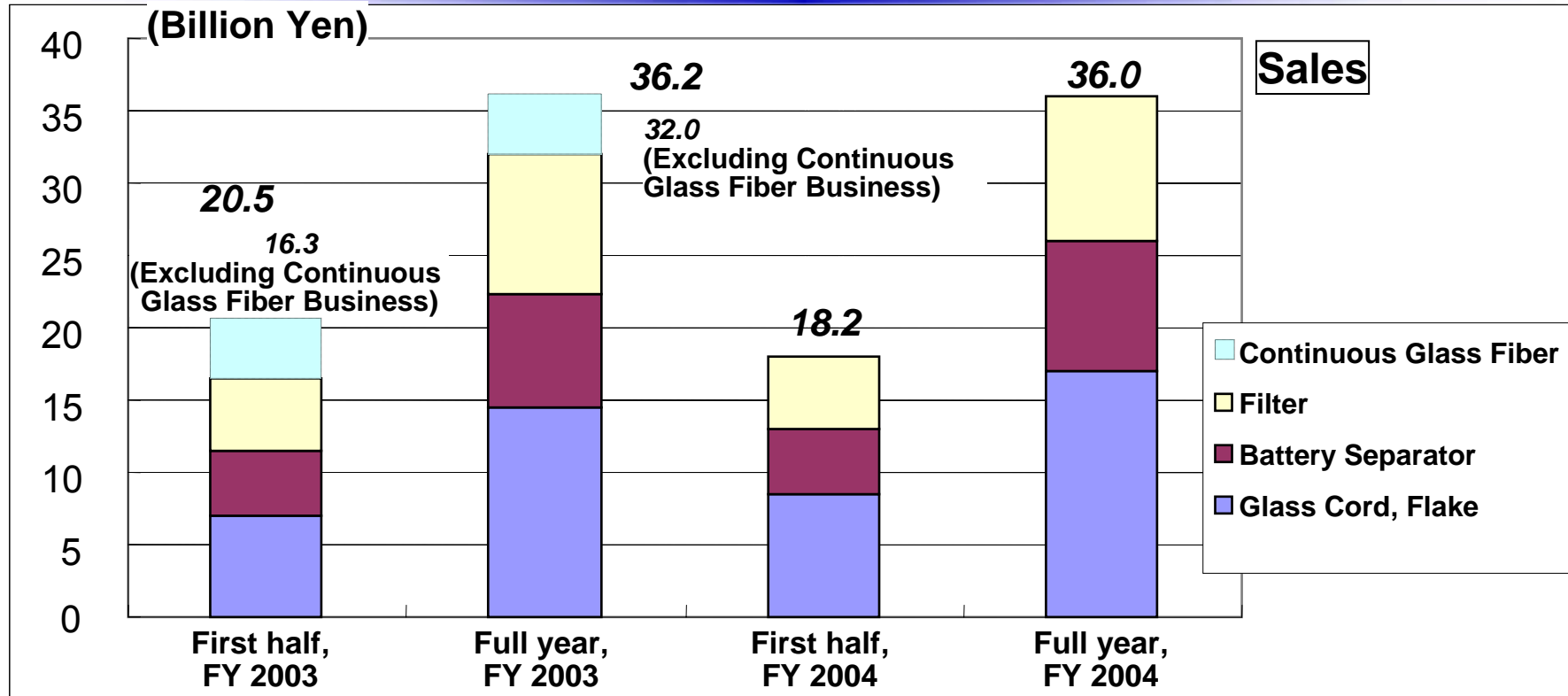


## Air Filter

For Clean-Rooms, etc.



# Glass Fiber: Sales and Operating Income Trend

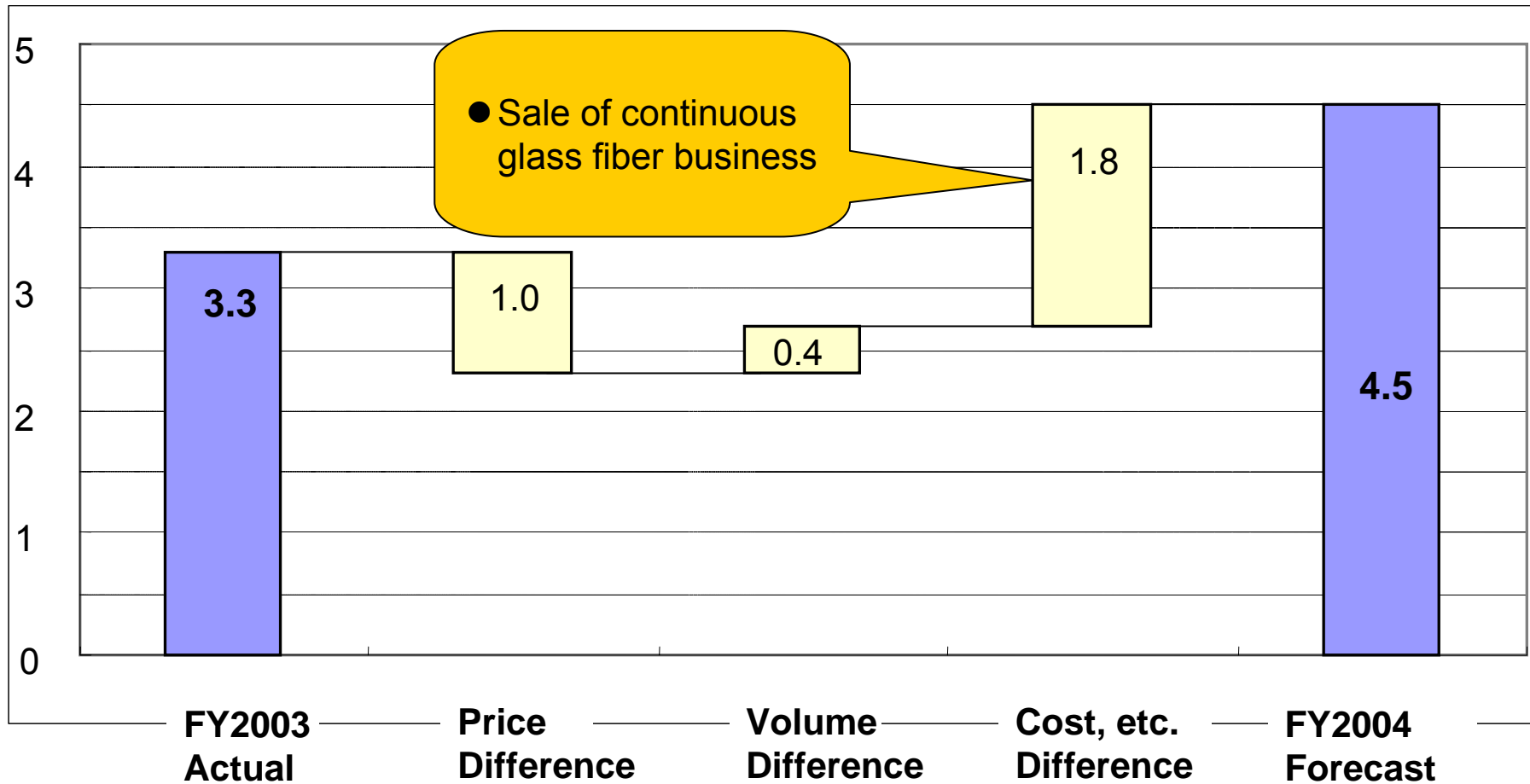




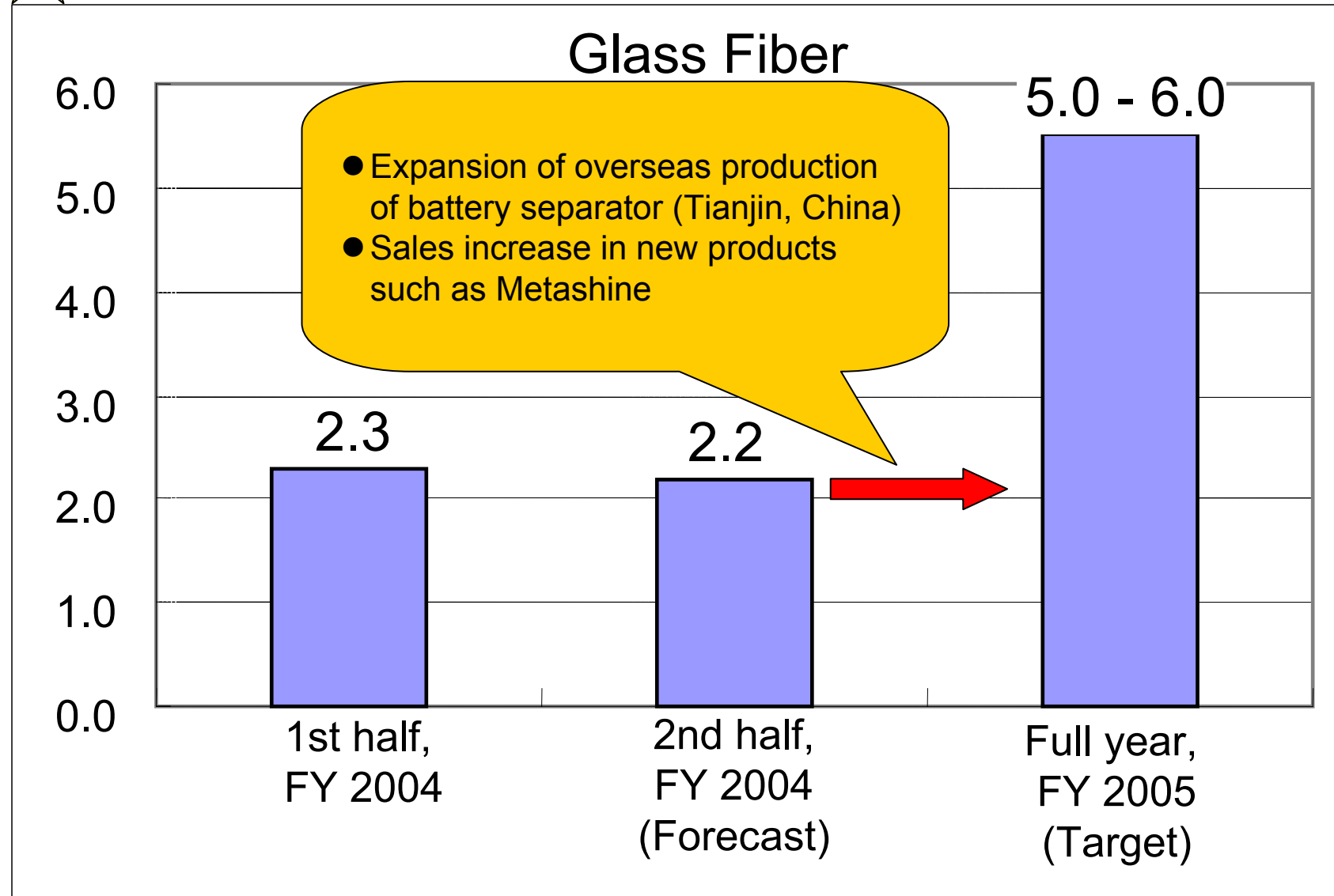
# Glass Fiber: Operating Income Analysis FY 2003 to FY 2004



(Billion Yen)



# Glass Fiber: Operating Income Analysis FY 2004 to FY 2005



# APPENDIX

# Directions and Actions Taken



- (1) Implement drastic cost reductions to achieve global-standard rate of return  
 Improve the business structure and restructure unprofitable businesses

	Details	Effects on business performance
Flat Glass	Consolidation of functional glass production sites	April 2003 -
	Shutdown of unprofitable production lines for building glass	April 2003 -
	Sale of shares in Tianjin NSG Float Glass Co., Ltd.	April 2004 -
	Close down of Aichi Plant	Autumn 2004 -
	Drastic structural reform in automotive glass business	FY2005 -
	Consolidation of building glass branch offices (Sapporo, others)	July 2003 -
Information/ Electronics	Downsizing of optical telecommunications division (2003, 2004)	April 2003 -
	Sale of magnetic disk business	March 2004-
Glass Fiber	Establishment of a new joint venture of continuous glass fiber business through corporate split	September 2002 -

# Directions and Actions Taken



## (2) Focus on group synergy and expand and strengthen core businesses

Turn non-core business resources into resources for strengthening core businesses (through selection and concentration)

	Details	Effects on business performance
Information/ Electronics	Investment in a new plant for TFT substrates in Taiwan by NH Techno Glass Corp.	Second half, FY2004 -
Glass Fiber	Investment in a new production line for battery separator in Tianjin, China	Second half, FY2004 -
Other	Sale of NSG Business Brains Co., Ltd.	September 2003

# Directions and Actions Taken



**(3) Concentrate R&D efforts in core technologies based on glass materials to create and grow new products**

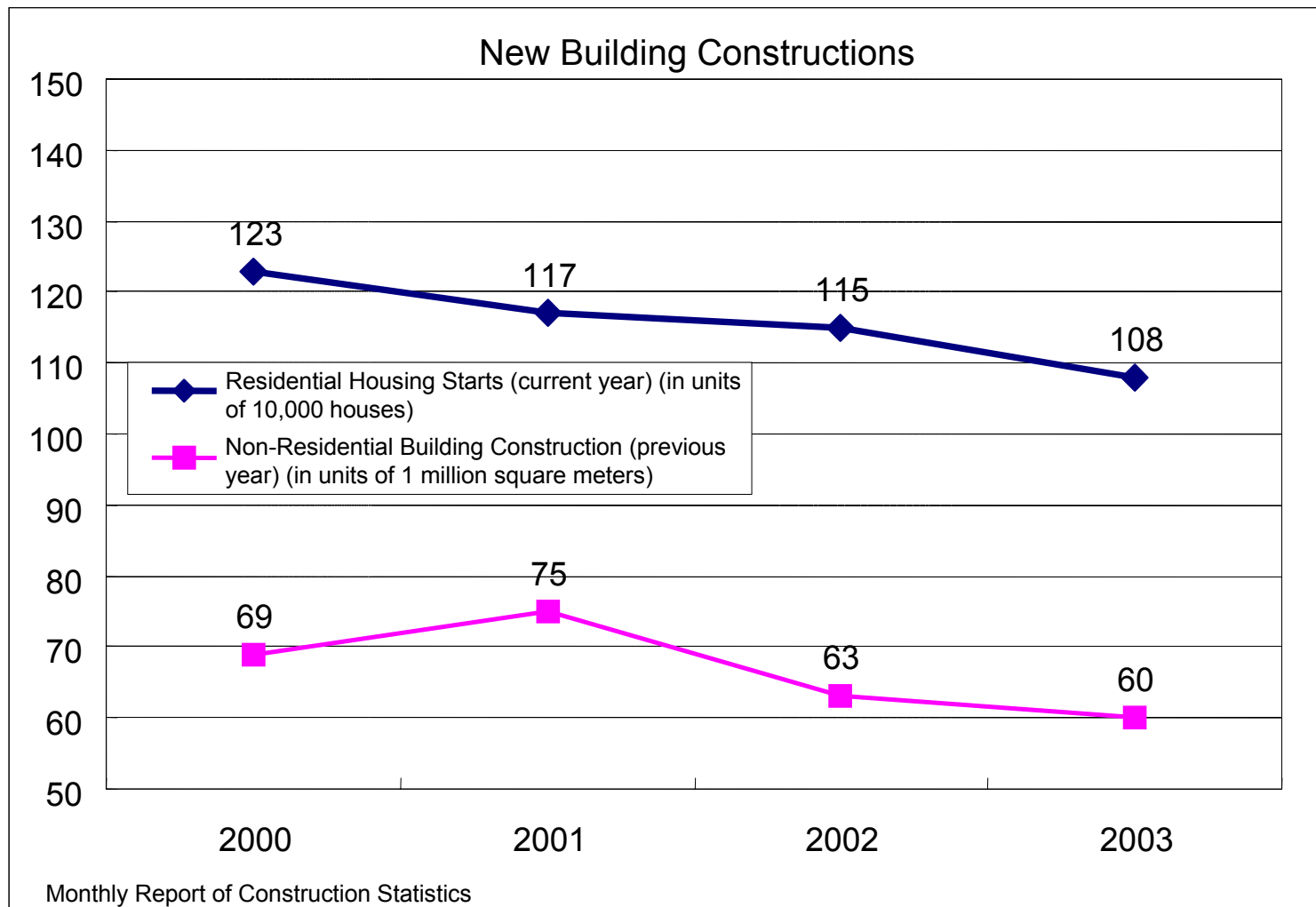
	Details	Effects on business performance
Flat Glass	Introduction of new original products such as security glass, high insulation Spacia and photocatalytic self-cleaning glass	April 2003 -
Information/ Electronics	Scale up of SLED business, joint development with Fuji Xerox Co., Ltd.	FY2005 -
	Application of SLA to multifunctional printers and expansion of sales	First half, FY2004 -
Glass Fiber	Expansion of Metashine's application in cosmetics (commencing sales to L'Oreal, Shiseido, etc.)	First half, FY2004 -
	Development of highly heat-resistant air filters (500°)	Second half, FY2004 -
	Development of separators for electric double-layer capacitors	Second half, FY2004 -

# Flat Glass

## <Building Glass>



### Business Environment

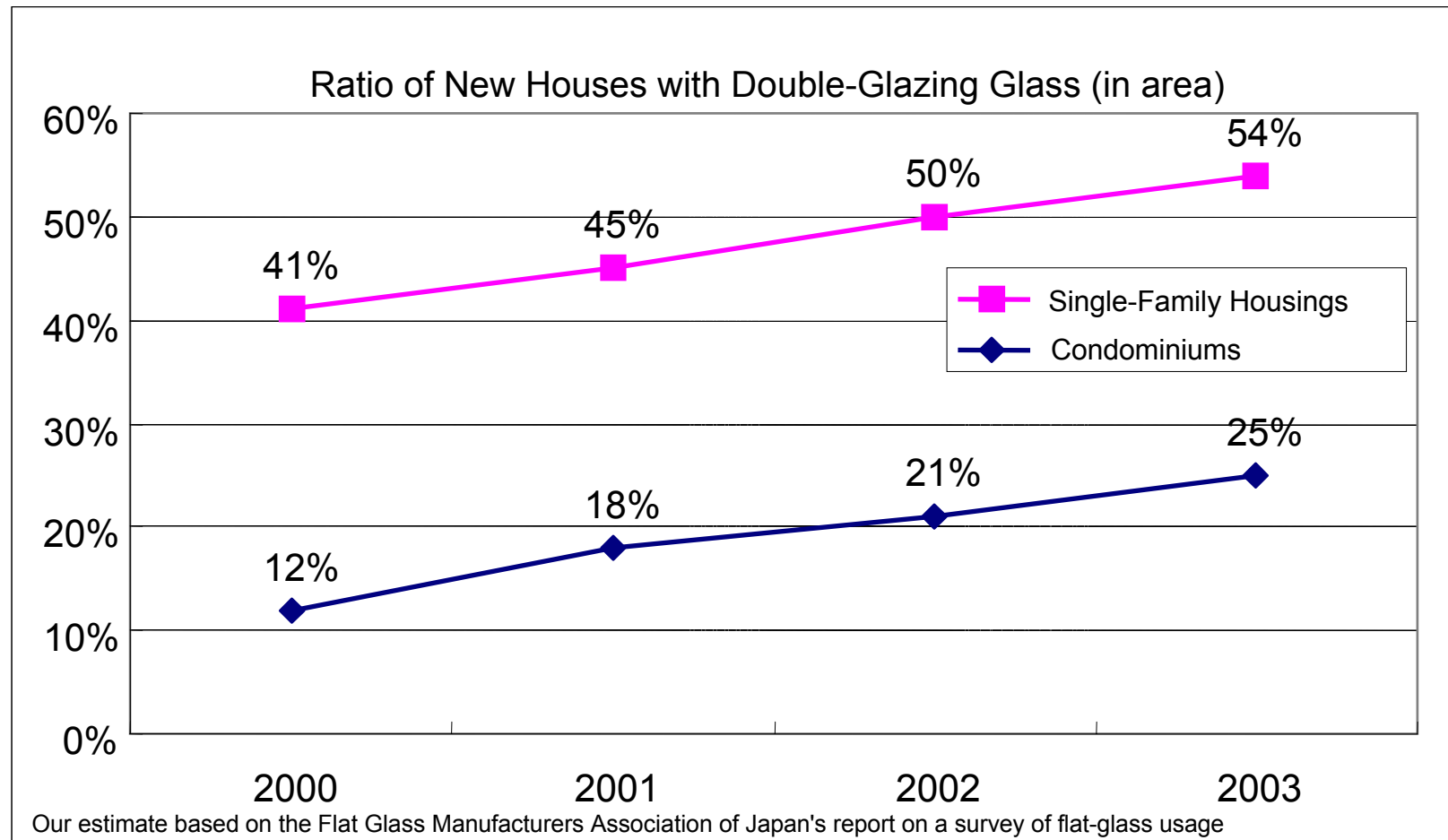


# Flat Glass

## <Building Glass>



### Business Environment



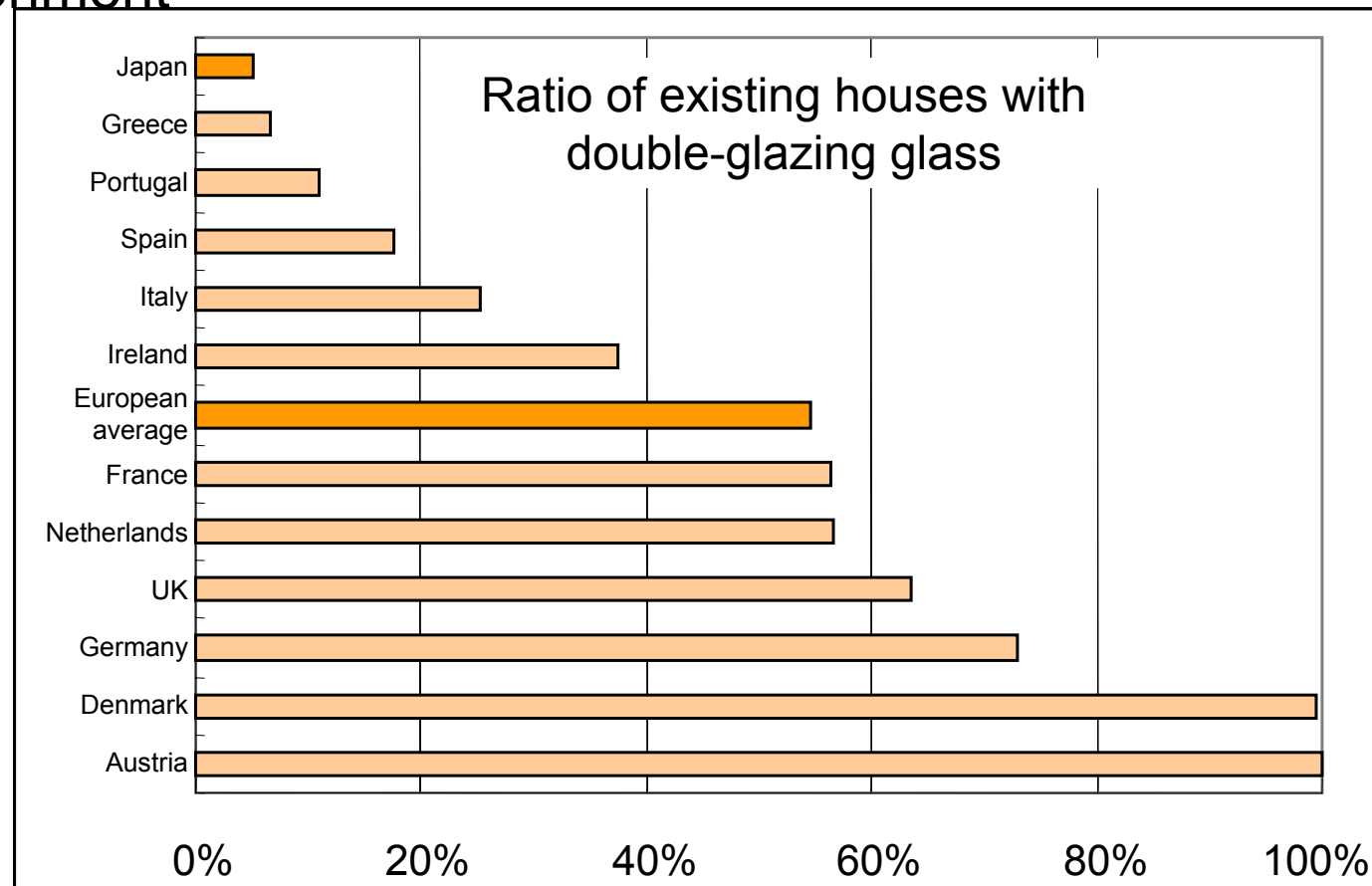


# Flat Glass

## <Building Glass>



### Business Environment



- Environmental effect of introducing double-glazing glass
  - If the glass used by all houses, including existing ones, in Japan is changed to double-glazing glass, carbon-dioxide emissions would be reduced by 17 million tons. Japanese glass manufacturers are requesting the government to introduce relevant legislation.

# Flat Glass

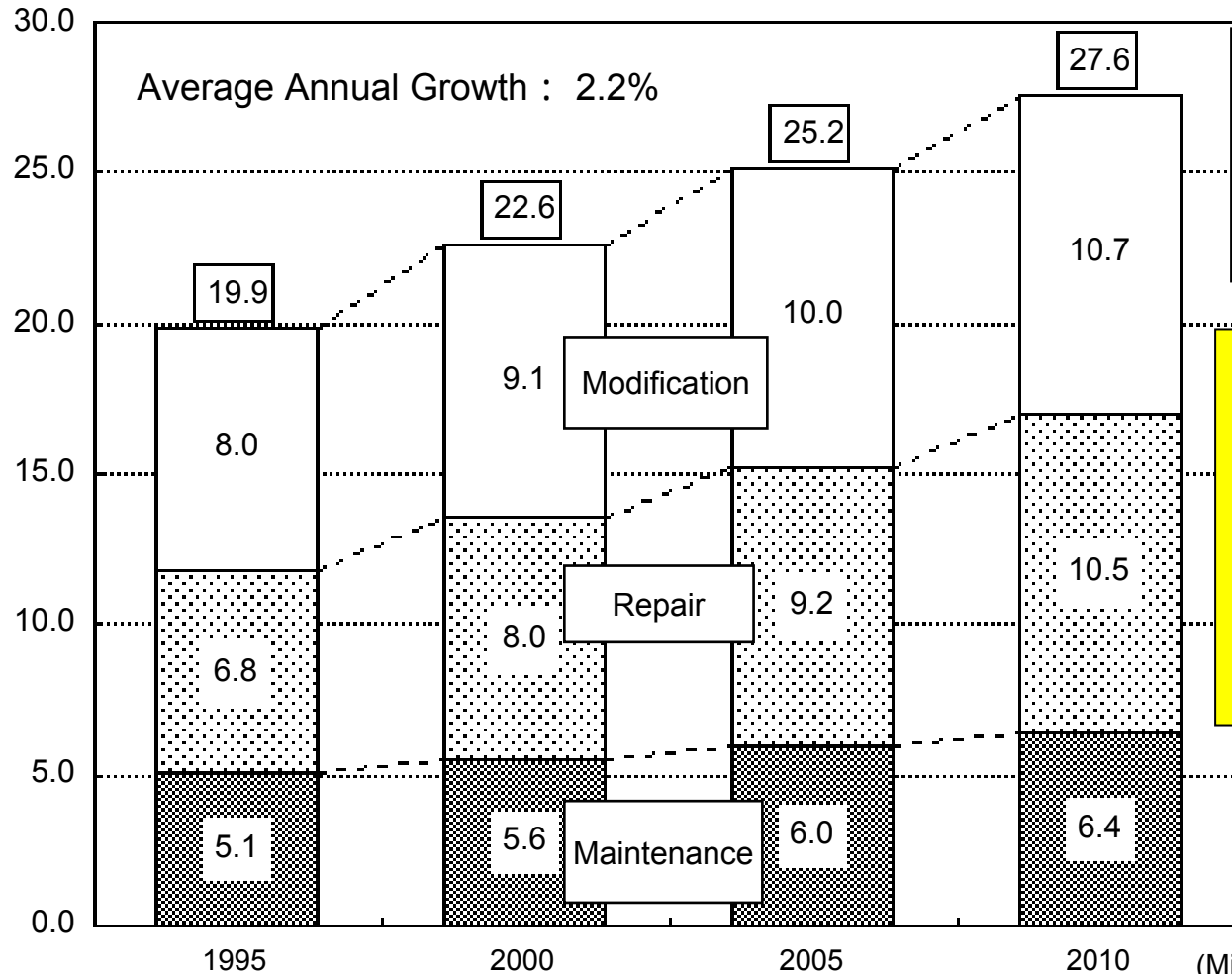
## <Building Glass>



### Business Environment

### Projections for Housing Renovation Market

(Trillion Yen)



Renovation market is becoming as important as new constructions.

Steady increase in demand for SPACIA, competitive in renovation markets, and security glass based on growing security awareness.

(Ministry of Land, Infrastructure and Transport)

# Flat Glass

<Building Glass>

**SPACIA:**  
The World's First  
Evacuated Double-Glazing Glass

**High Performance Heat  
Insulation Glass**

**0.2 mm thick vacuum layer**

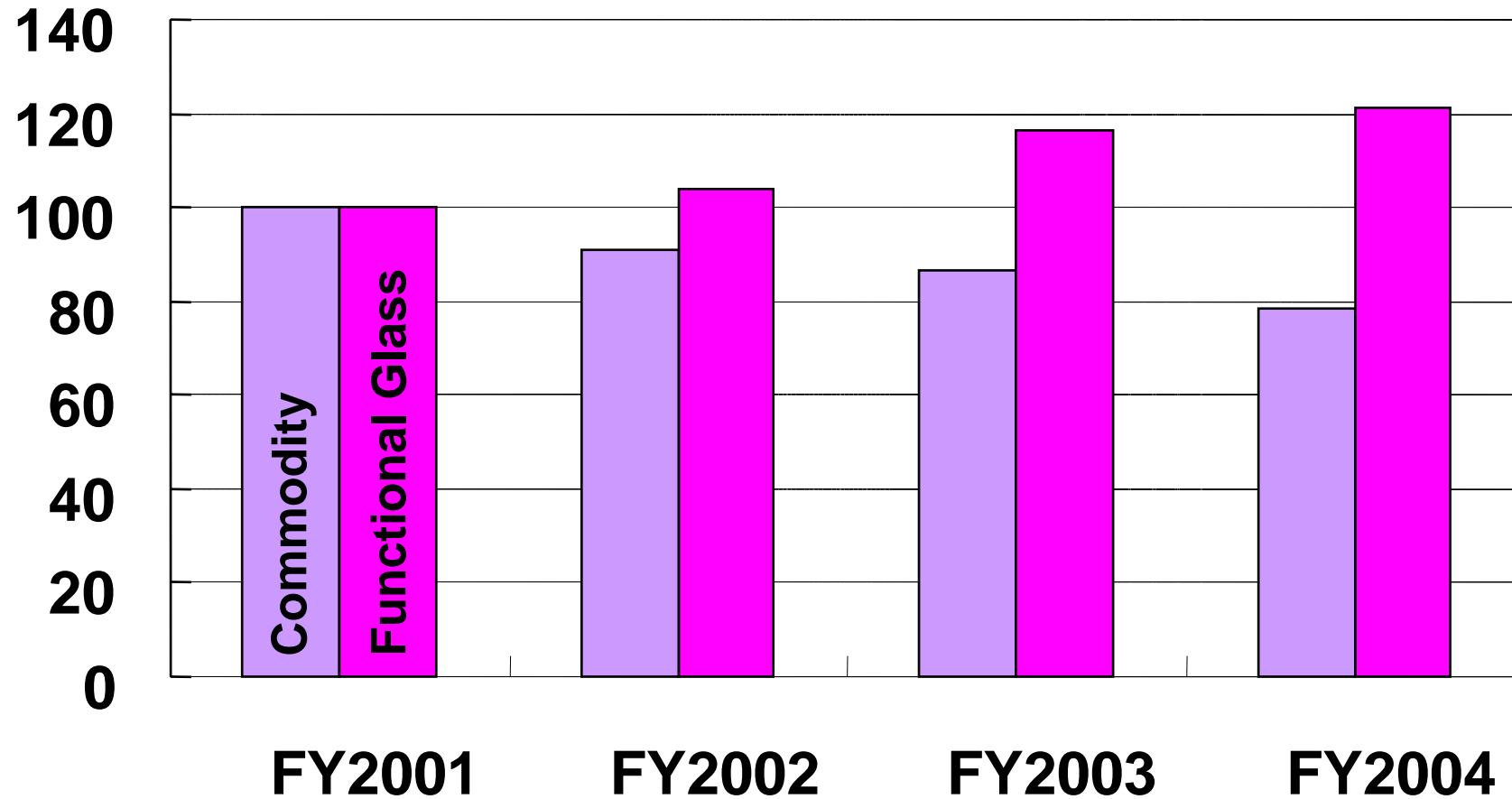


# Flat Glass

## <Building Glass>



### Sales Amount by Glass Type



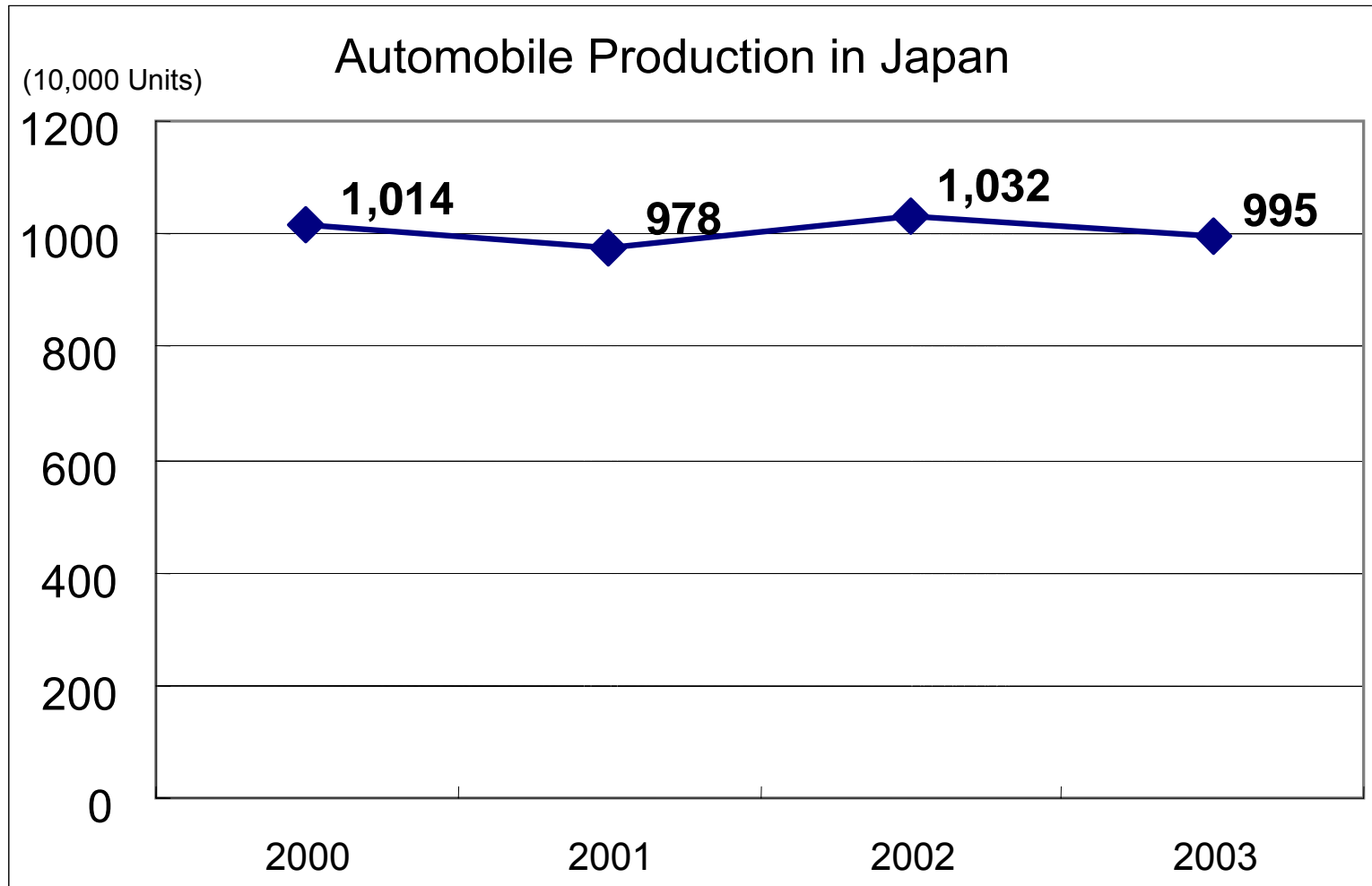
(2000 = 100) Functional glass includes tempered, laminated and double glazing glasses.

# Flat Glass

## <Automotive Glass>



### Business Environment



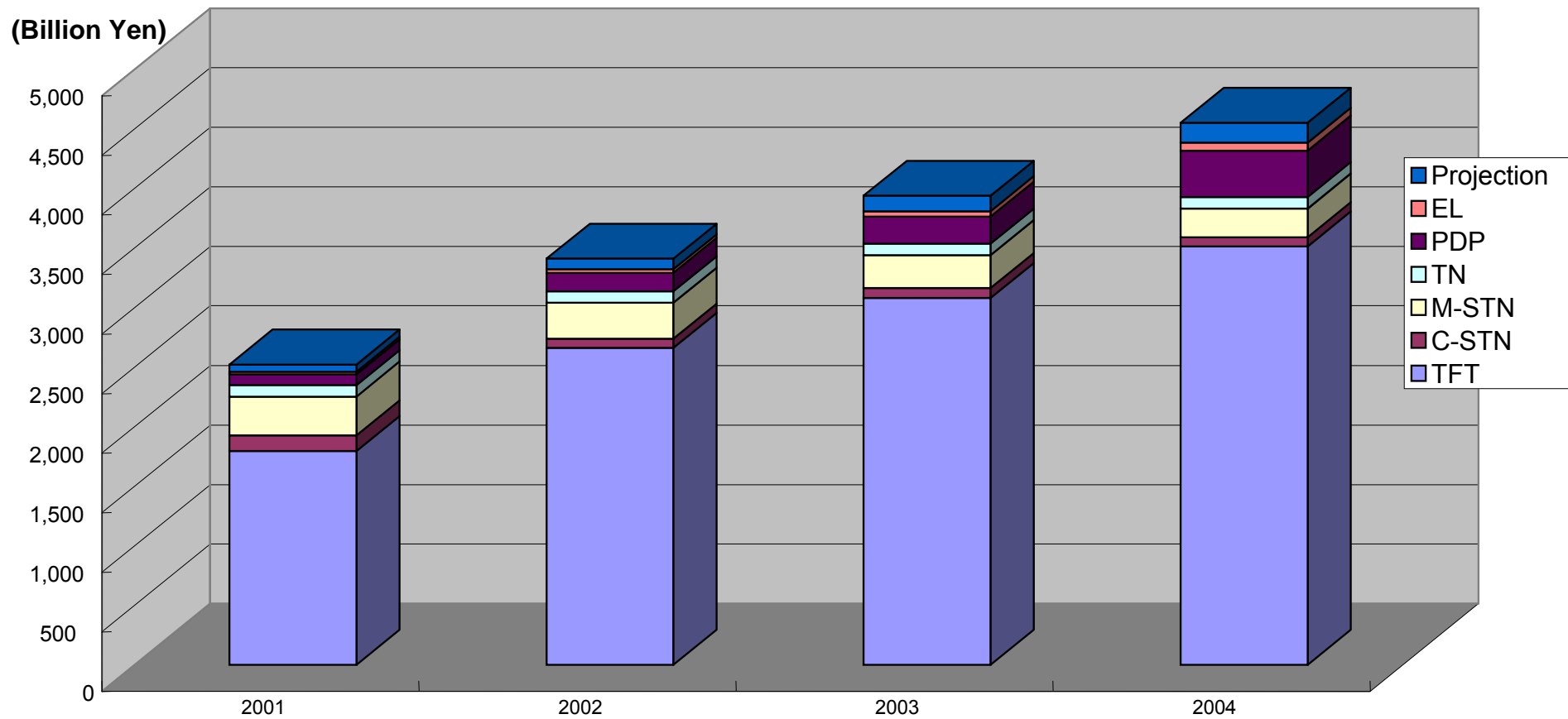
# Information/Electronics

## <Display>



### Business Environment

### FPD Market Demand



# Glass Substrate Business for TFT



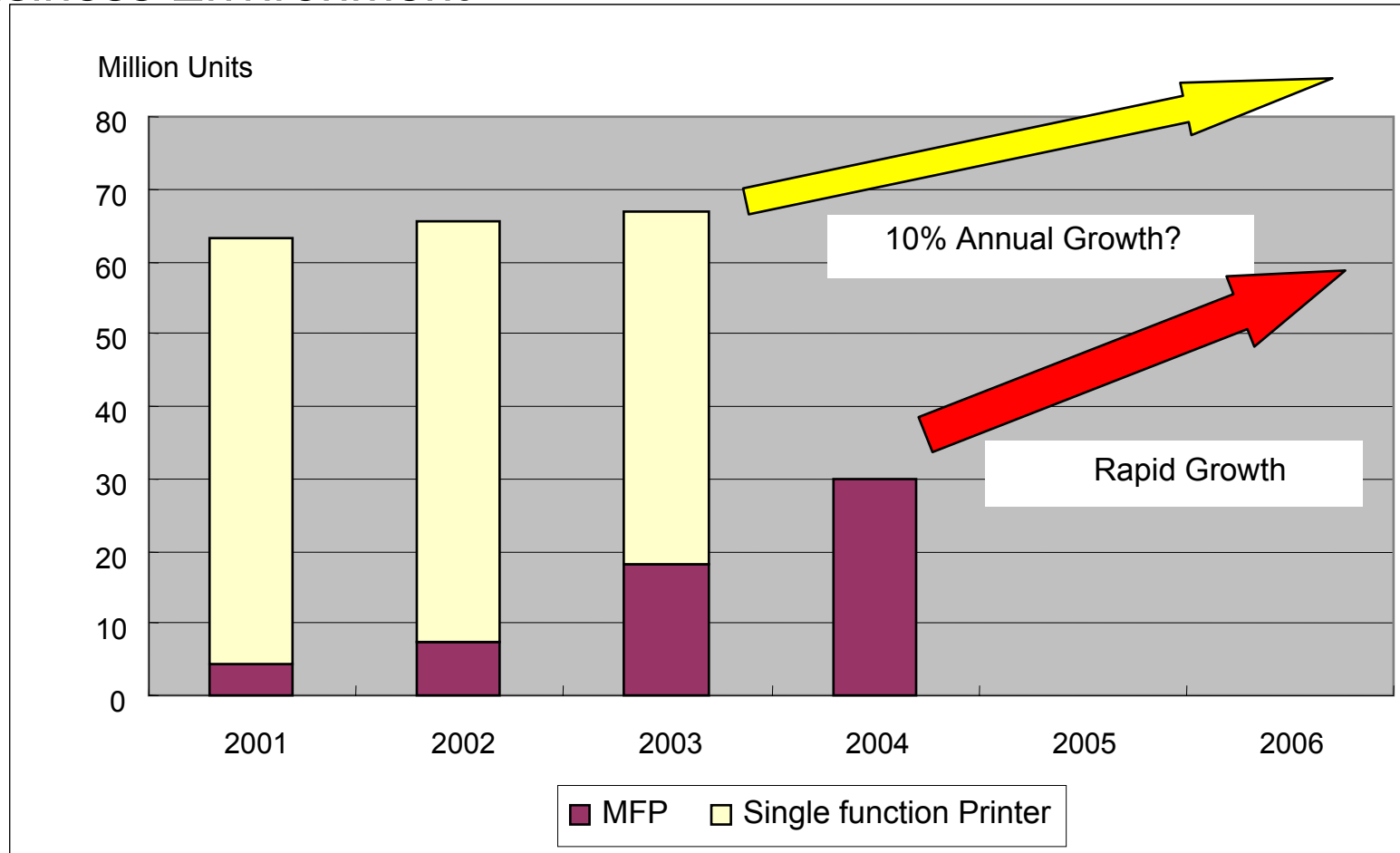
- 1. In 1991 NSG and HOYA established an equally owned joint venture, an affiliate of NSG for which the equity method is applied.**
- 2. The glass melting technology is the fusion method, the same method of Corning and NEG. Different from the float method, it enables to eliminate the polishing process as well as to build smaller furnaces for flexible production.**
- 3. The joint venture operates 5 furnaces in Japan, 2 in Singapore and 1 in Taiwan and is studying the possibility of further capacity expansion in Taiwan and Korea.**
- 4. The production lines in Taiwan and Singapore can cope with substrates for the fifth generation LCD (1200mmX1300mm). The development work for the sixth generation is underway.**



# Information/Electronics

## <Information Devices>

### Business Environment



**MFP will have the biggest share in the Inkjet Printer Market.**



# Market and Product



Market: Finished Product

Inkjet Multifunctional Printer (MFP)



HP: PSC1350

Laser Printer/Copier (Office Use)



Canon: PIXEL2100

NSG Product

Selguide (Color Light Source) (SG)

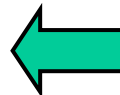
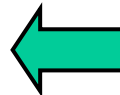
+

Selfoc Lens Array (SLA)

Scanner Platen Glass

+

Self-Scanning Light Emitting Diode (SLED)(SLED): Semiconductor Technology

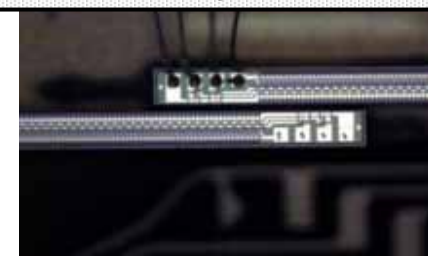
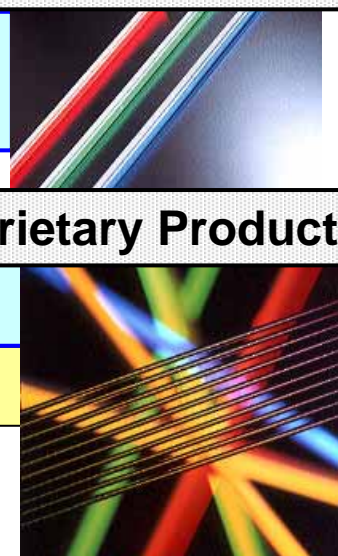


Top Market Share

Proprietary Product

Proprietary Product

Parts for reading and writing text and image data



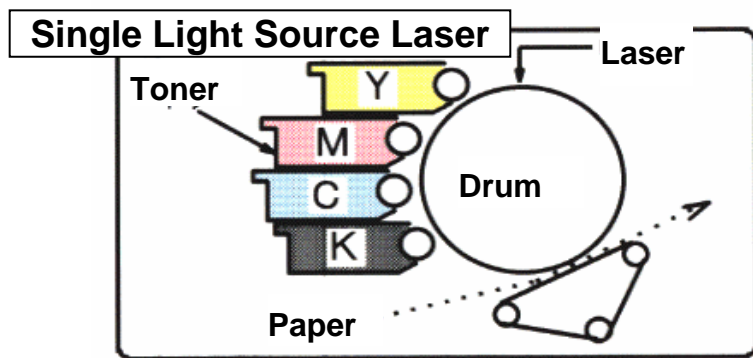
# Information/Electronics

## <Information Devices>

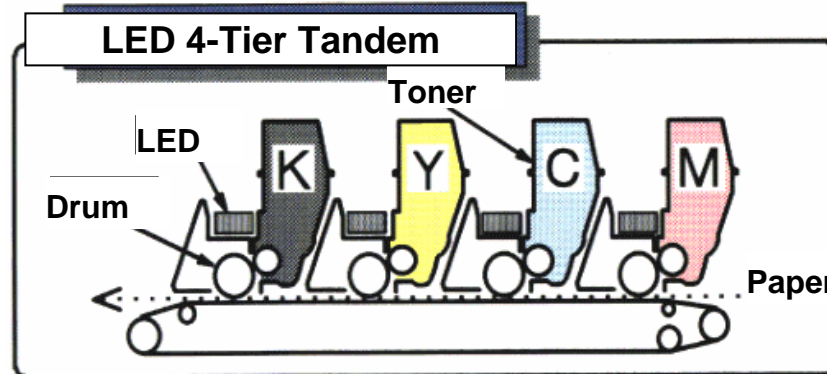
## LED Printer and SLA



### Color Printer



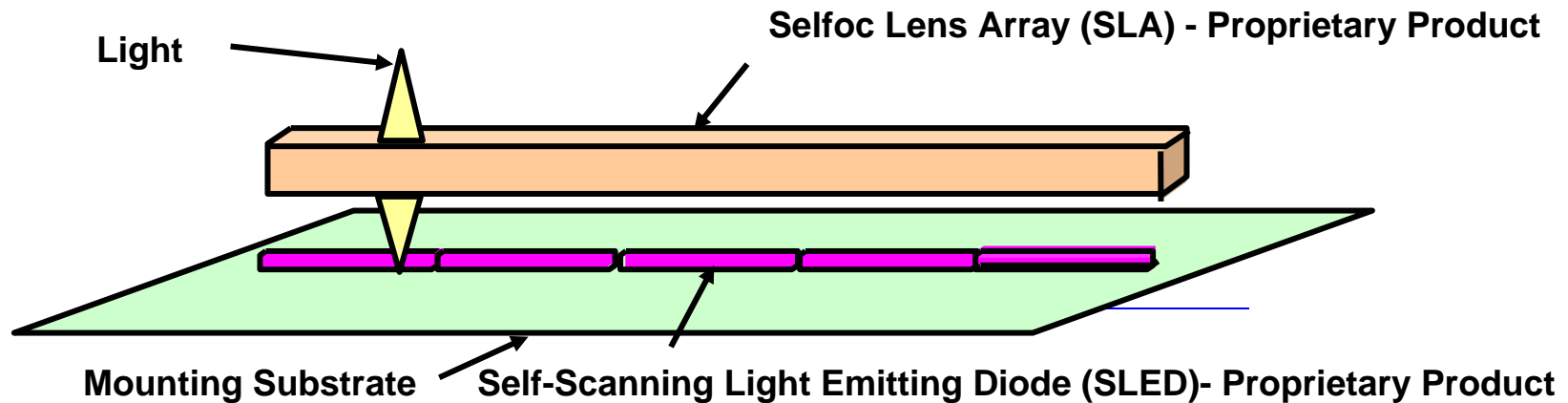
4 Color Paths, 1 Monochrome Path



1 Color Path, 1 Monochrome Path

**Fast and Compact**

### LED Print Head

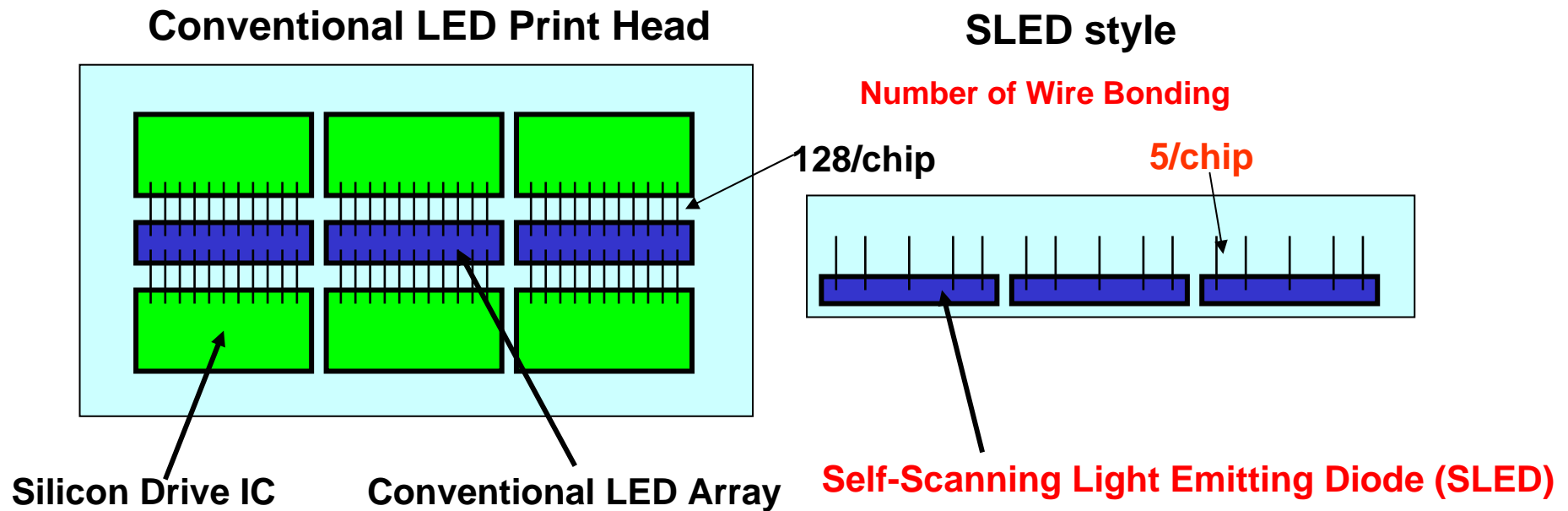


# Information/Electronics

## <Information Devices> Photonic Semiconductors



**SLED = Photonic Semiconductor Integrating LED Devices and Drive Circuits onto a Single Chip**

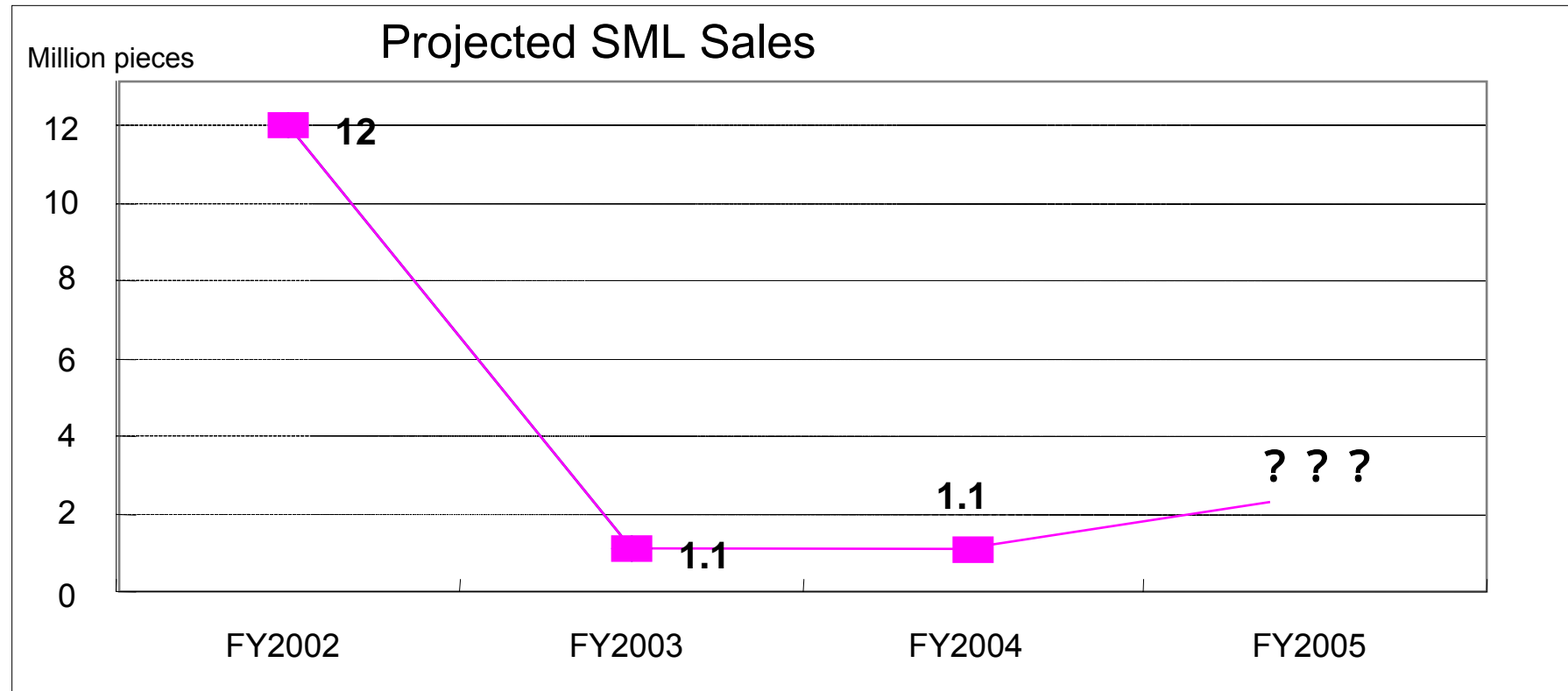


-Fewer wire bonding    Significant cost reduction  
 128 bonding/chip    5 bonding/chip (1/25)

-Incorporated into Canon color copiers, samples shipped to other printer manufacturers.

# Information/Electronics

## <Optical Telecommunications>



# Glass Fiber

## <Glass Cord and Flake>



### Business environment

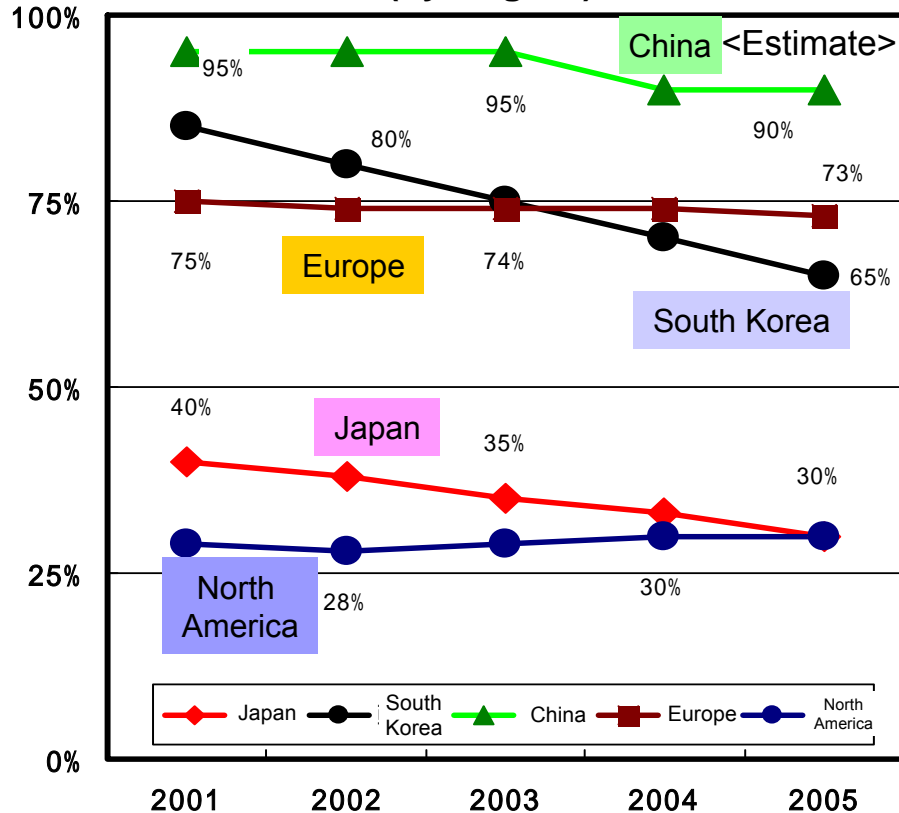
(Glass Cord)

**Global Market Share: 85%**

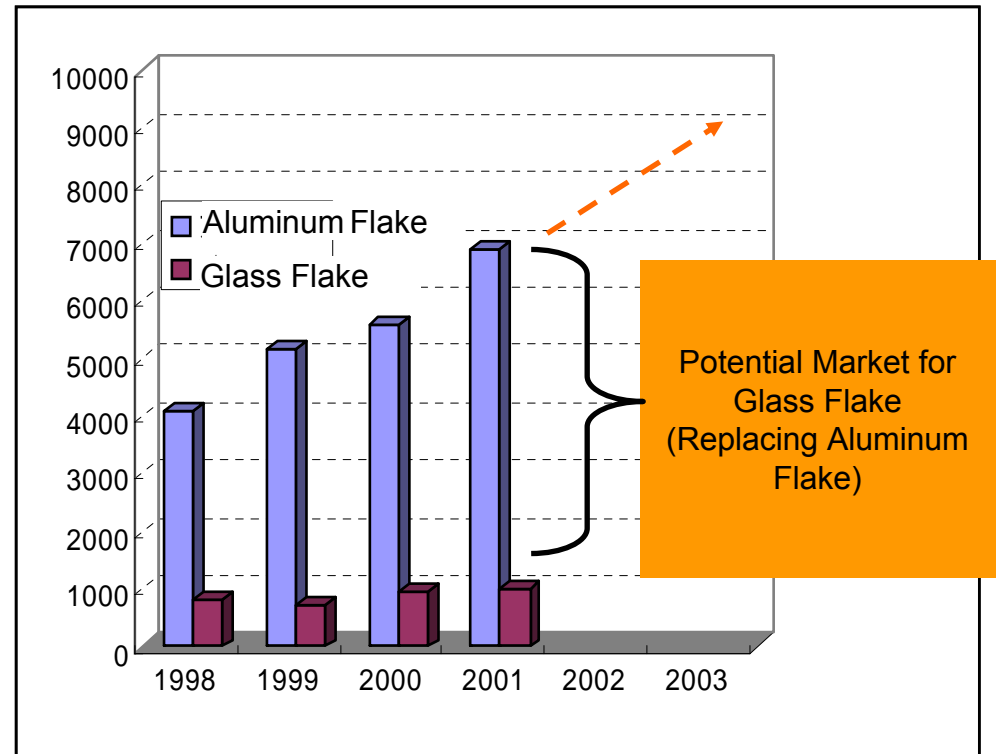
(Flake, Metashine)

**World's only supplier**

Ratio of New Cars with Timing Belts (by Region)



Aluminum Flake vs. Glass Flake® <Paint Market>



# Glass Fiber

## <Battery Separator and Air Filter>

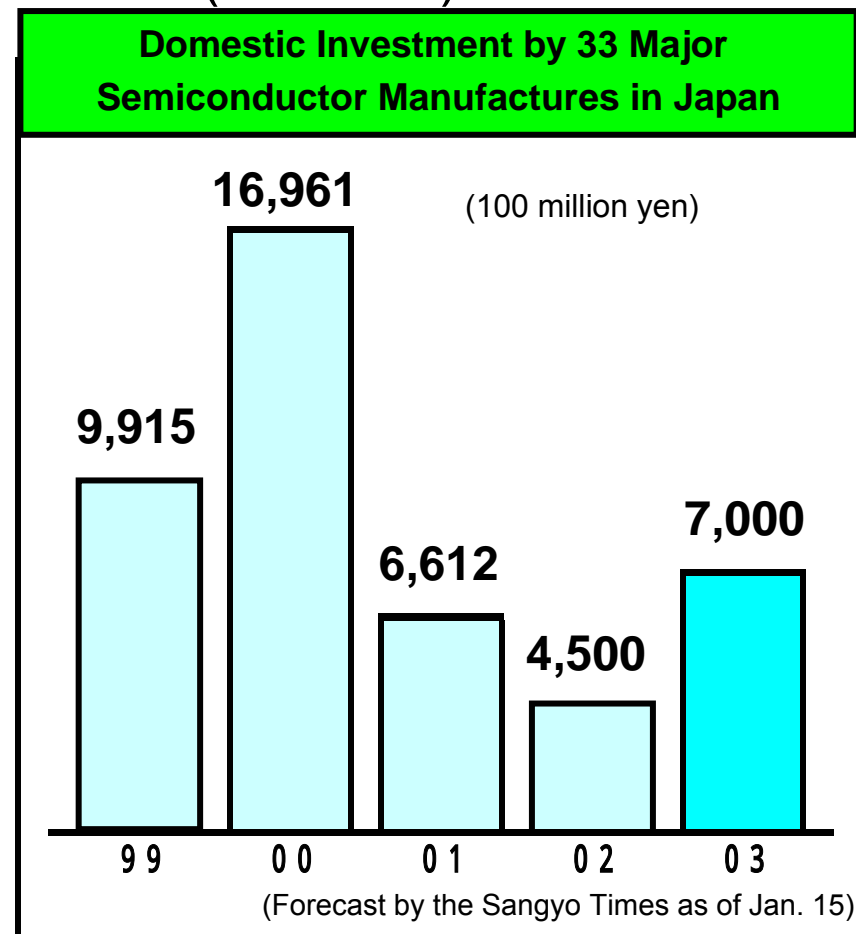
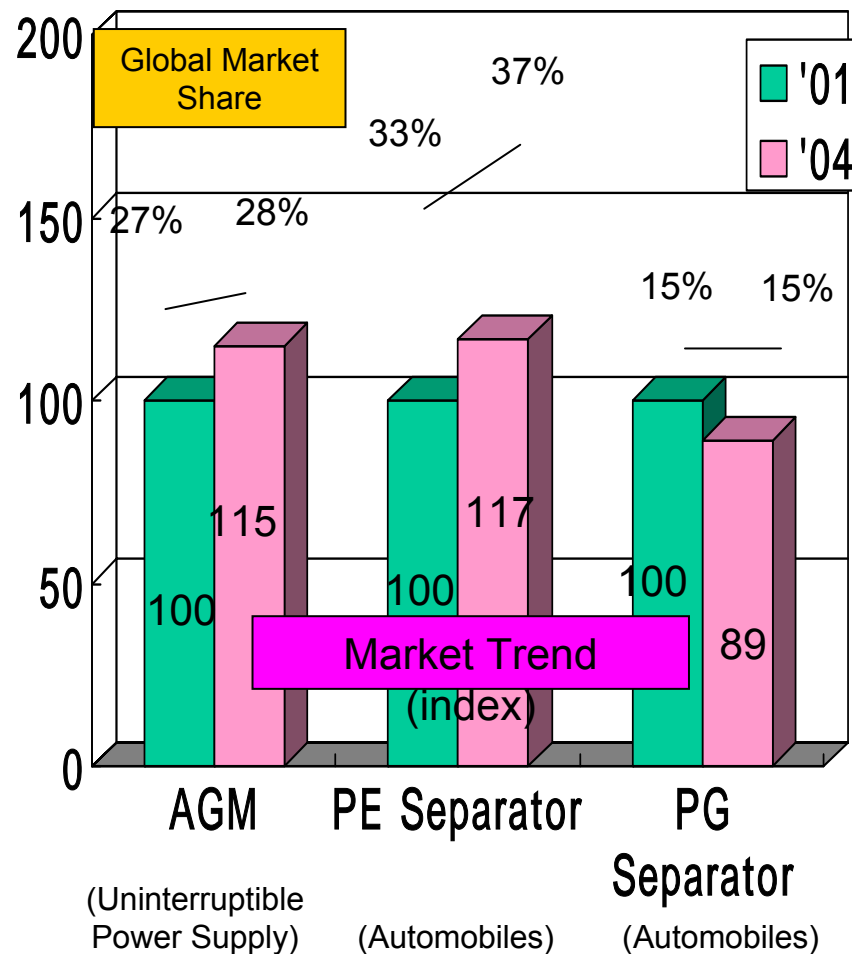


Business environment

(Battery Separator)

(Air Filter)

Global Market Share: >25%



# New Products in Glass Fiber Business



## 1. Heat Resistance Air Filter

**Air filter for the circulation of high temperature air used in production processes of LCD, semiconductor and PDP**

**Only one filter with more than 300 heat resistance**



## 2. Separator for Electric Double Layer Capacitor

**Newly developed separator for electric double layer capacitors, storage device used for condensers. Expected future applications include electric vehicles.**

## 3. Metashine

**Highly glittering pigment, more brilliant than conventional aluminum or mica based pigments**

**Proprietary product of NSG**

**Adopted by major cosmetics suppliers such as L'oreal.**

**Automotive paints are viewed as a potential market.**



## Reference: Key Assumptions



	FY2003, Actual	First Half FY2004, Actual	Second Half, FY2004, Forecast	
Exchange Rate	121	119	125	Yen/US\$
Crude Oil Price	26	28	26	US\$/B
SML Demand	110	50	60	10,000 Units
Domestic Residential Housing Starts	115	60	55	10,000 Houses
Nonresidential Building Construction Starts	63	32	28	Million Square Meters
Domestic Automobile production	1,030	497	510	10,000 Units

- ◆ Effects of fluctuations in crude oil prices:
  - \$1/barrel increase in crude oil prices leads to a cost increase of 130 million yen.
- ◆ Effects of fluctuations in exchange rates:
  - 1-yen appreciation against US dollar leads to an income decrease of 10 million yen.



# Financial Summary



		1999/3	2000/3	2001/3	2002/3	2003/3	2004/3 Forecast
Net Sales	Bil ¥	249.5	270.7	307.4	286.8	280.1	260.0
Operating Income	Bil ¥	2.2	8.4	26.2	5.0	4.3	8.0
Income before Income Taxes	Bil ¥	-1.9	34.7	35.5	-0.2	1.5	6.0
Net Income	Bil ¥	-3.0	14.0	31.5	-2.3	-3.2	3.0
Total Assets	Bil ¥	401.4	452.3	546.3	528.2	452.5	440.0
Shareholders' Equity	Bil ¥	135.9	153.5	233.2	223.2	190.9	196.0
Shareholders' Equity Ratio	%	33.9%	33.9%	42.7%	42.3%	42.2%	44.5%
Depreciation	Bil ¥	14.9	15.7	16.3	18.7	17.8	15.0
Cash Flow	Bil ¥	11.9	29.7	47.8	16.4	14.6	18.0
Capital Expenditure	Bil ¥	17.6	12.2	16.0	19.4	14.4	12.0
R & D	Bil ¥	5.3	6.8	6.1	7.4	8.9	8.0
Interest-bearing Debt	Bil ¥	180.3	186.1	159.2	173.8	160.0	135.5
Employees	Num	8,258	10,993	14,291	13,516	14,830	12,800
Cash Flow per Share	¥	27.2	67.5	108.7	37.0	32.9	40.5
Earnings per Share	¥	-6.8	31.9	71.7	-5.2	-7.2	6.8
Shareholders' Equity per Share	¥	309.3	349.1	530.4	502.8	430.1	441.5
Return on Equity	%	-2.2%	9.1%	13.5%	-1.0%	-1.7%	1.5%
Return on Assets	%	0.7%	1.8%	4.7%	1.5%	1.2%	2.2%
Number of share Outstanding	M	439.5	439.6	439.7	443.9	443.9	443.9

# Segment Information



Net Sales		1999/3	2000/3	2001/3	2002/3	2003/3	2004/3 Forecast
Flat Glass	Bil ¥	155.2	169.5	184.2	185.5	176.4	166.0
Information/Electronics	Bil ¥	47.7	54.6	65.4	38.5	49.8	45.0
Glass Fiber	Bil ¥	46.7	46.6	57.8	62.9	36.2	36.0
Other	Bil ¥					19.8	13.0
Total	Bil ¥	249.5	270.7	307.4	286.8	282.2	260.0

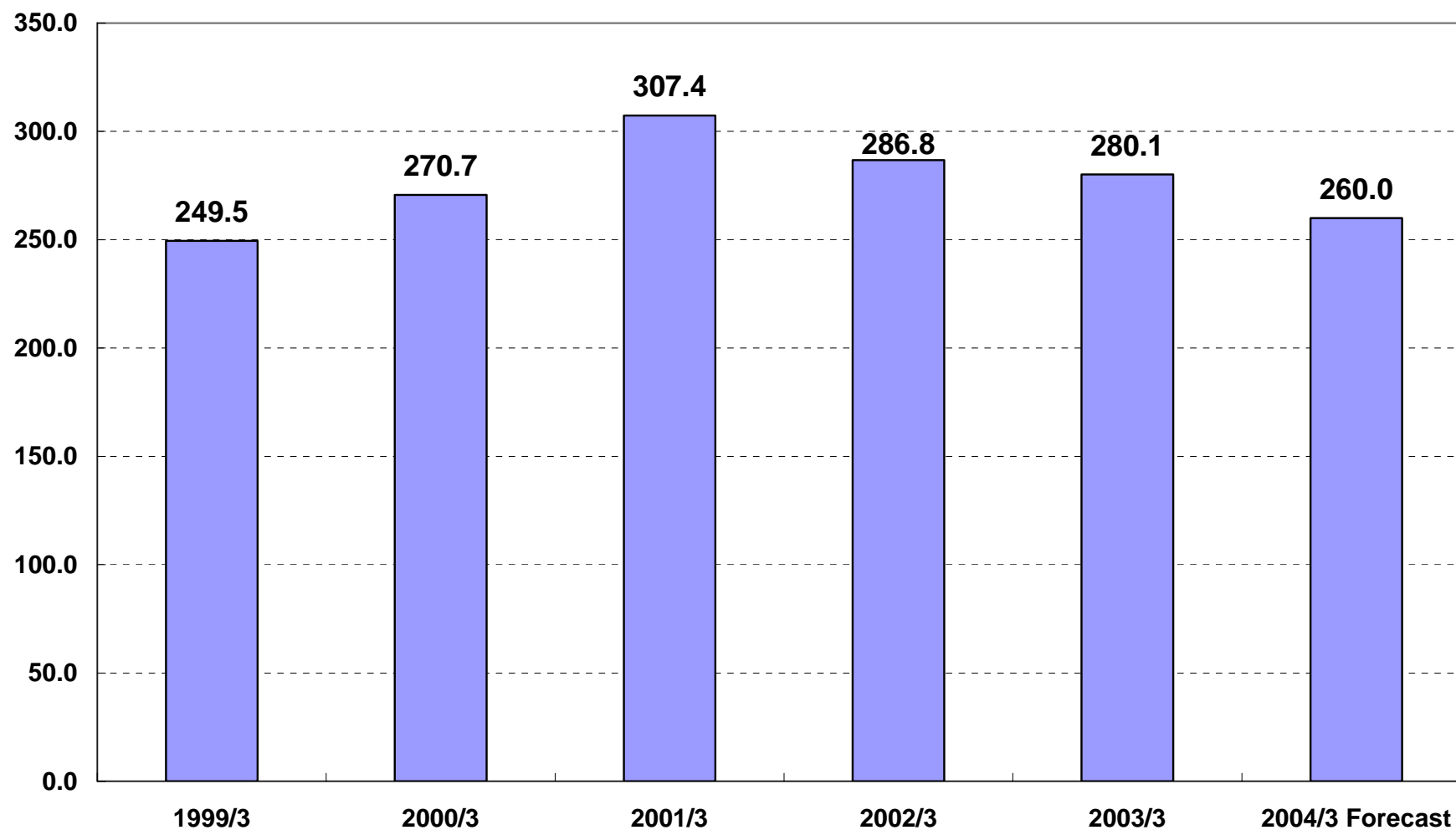
## Operating Income

Flat Glass	Bil ¥	-4.7	1.6	8.1	7.7	6.4	6.0
Information/Electronics	Bil ¥	3.8	4.4	13.4	-5.7	-6.6	-2.0
Glass Fiber	Bil ¥	3.1	2.4	4.9	3.0	3.3	4.5
Other	Bil ¥					1.2	-0.5
Total	Bil ¥	2.3	8.4	26.4	5.0	4.3	8.0

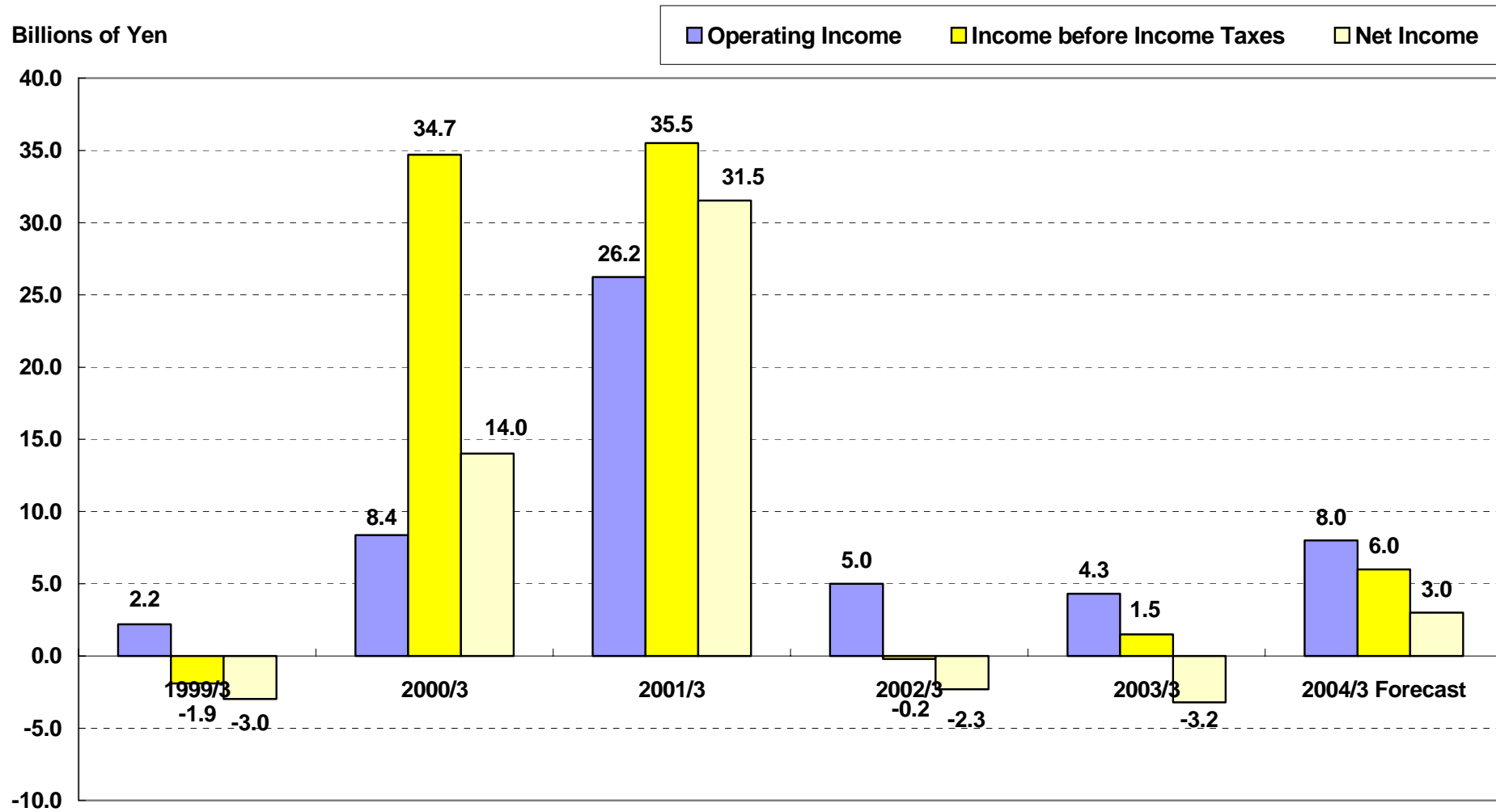
# Net Sales



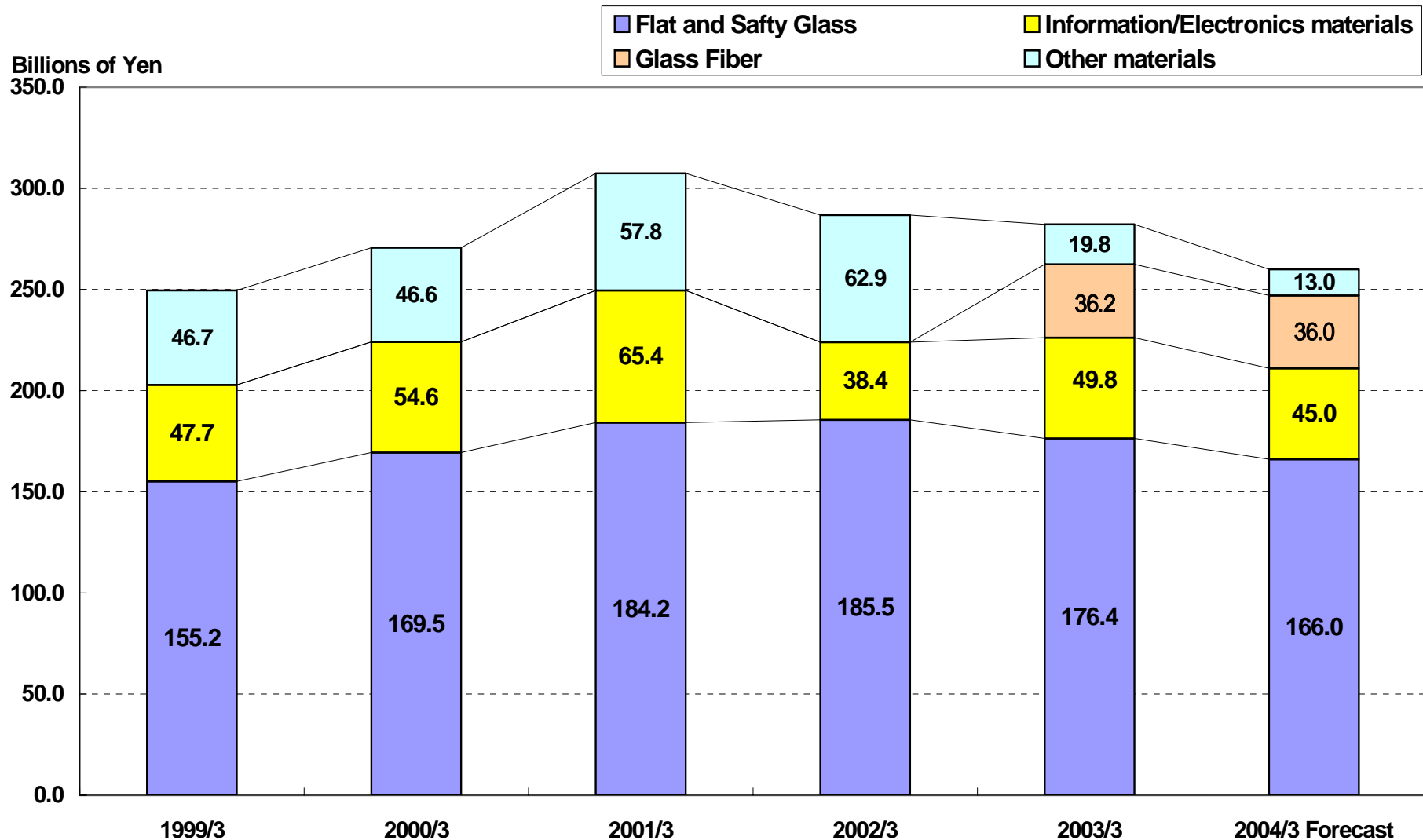
Billions of Yen



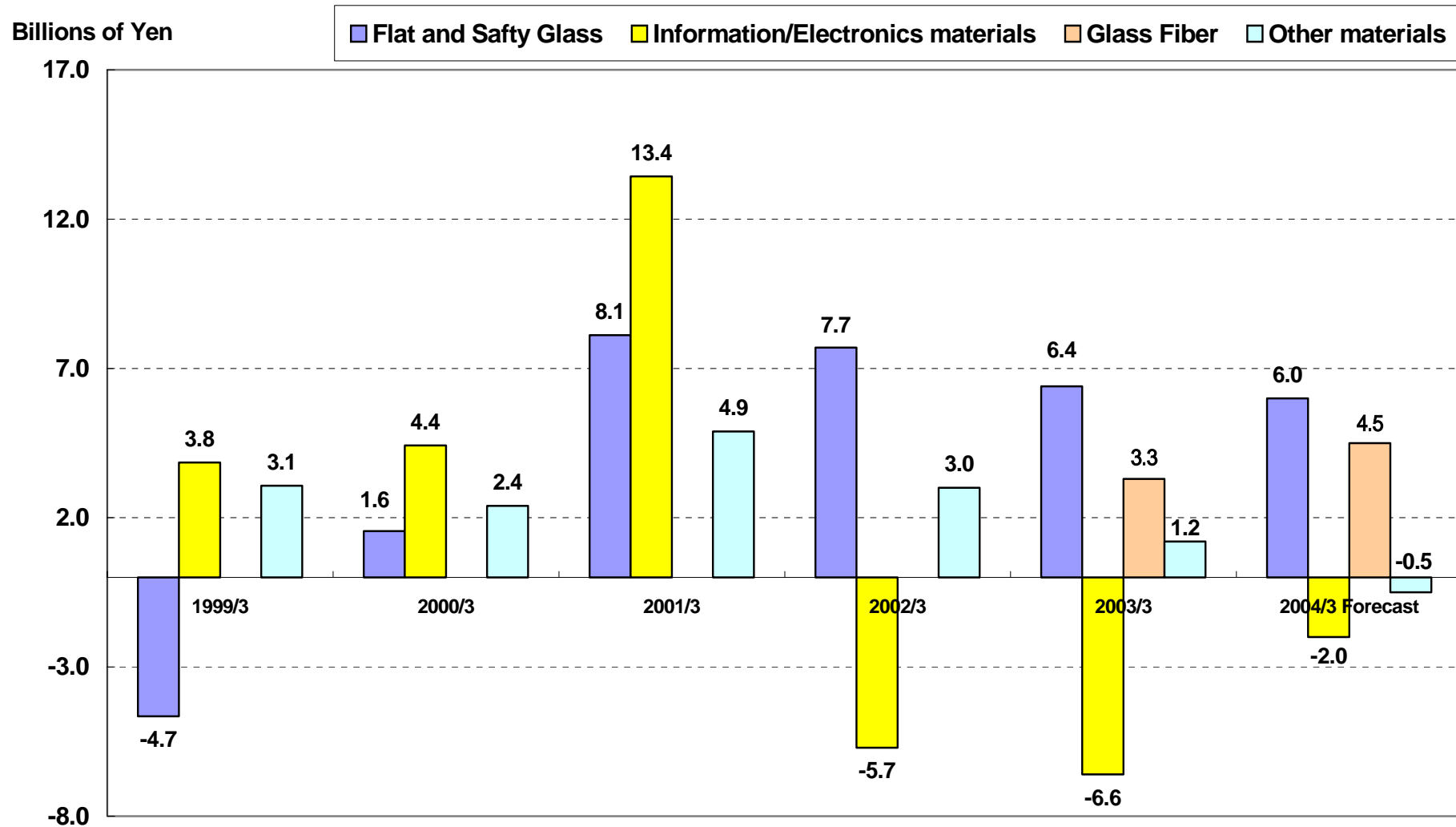
# Profits



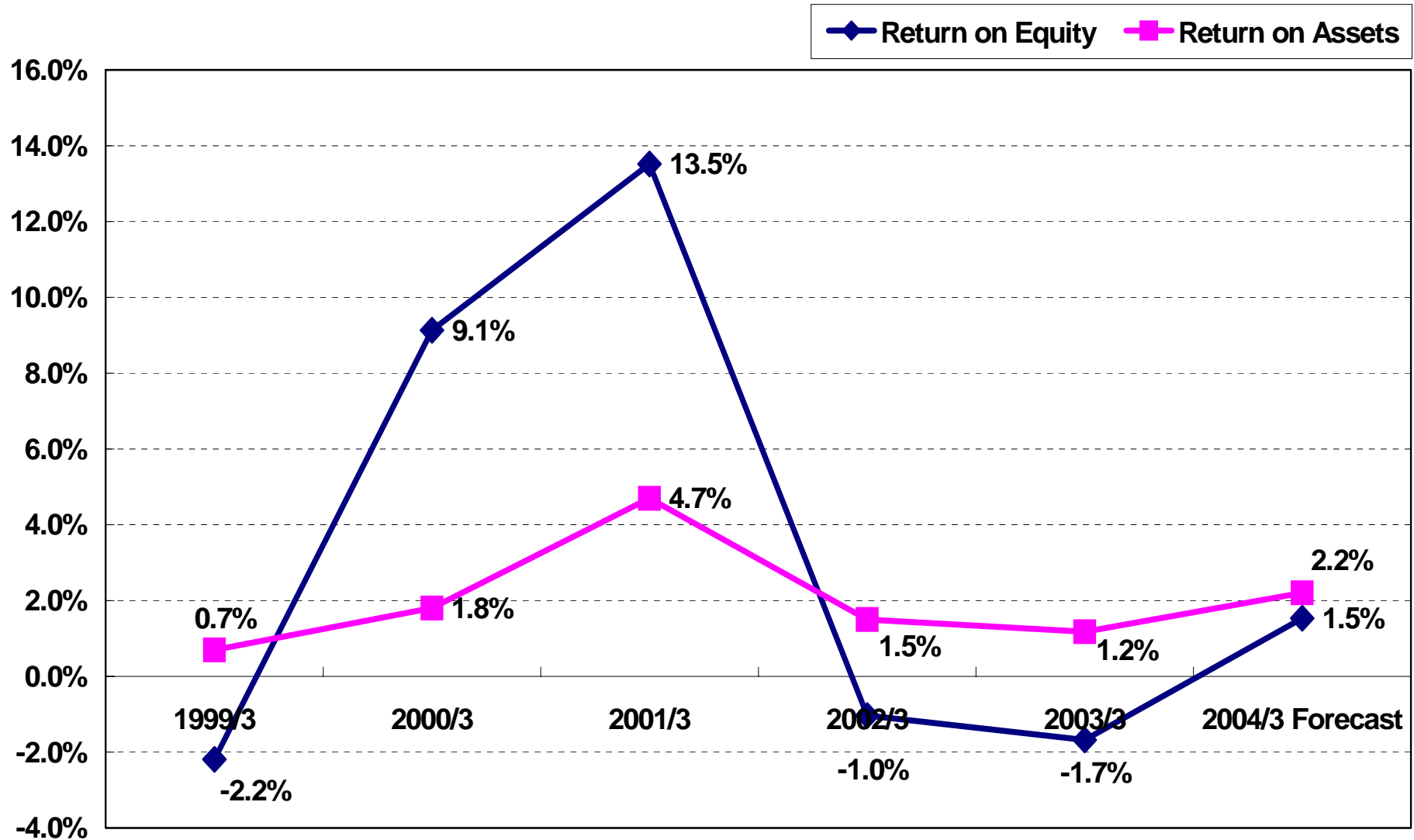
# Business Segment (Net Sales)



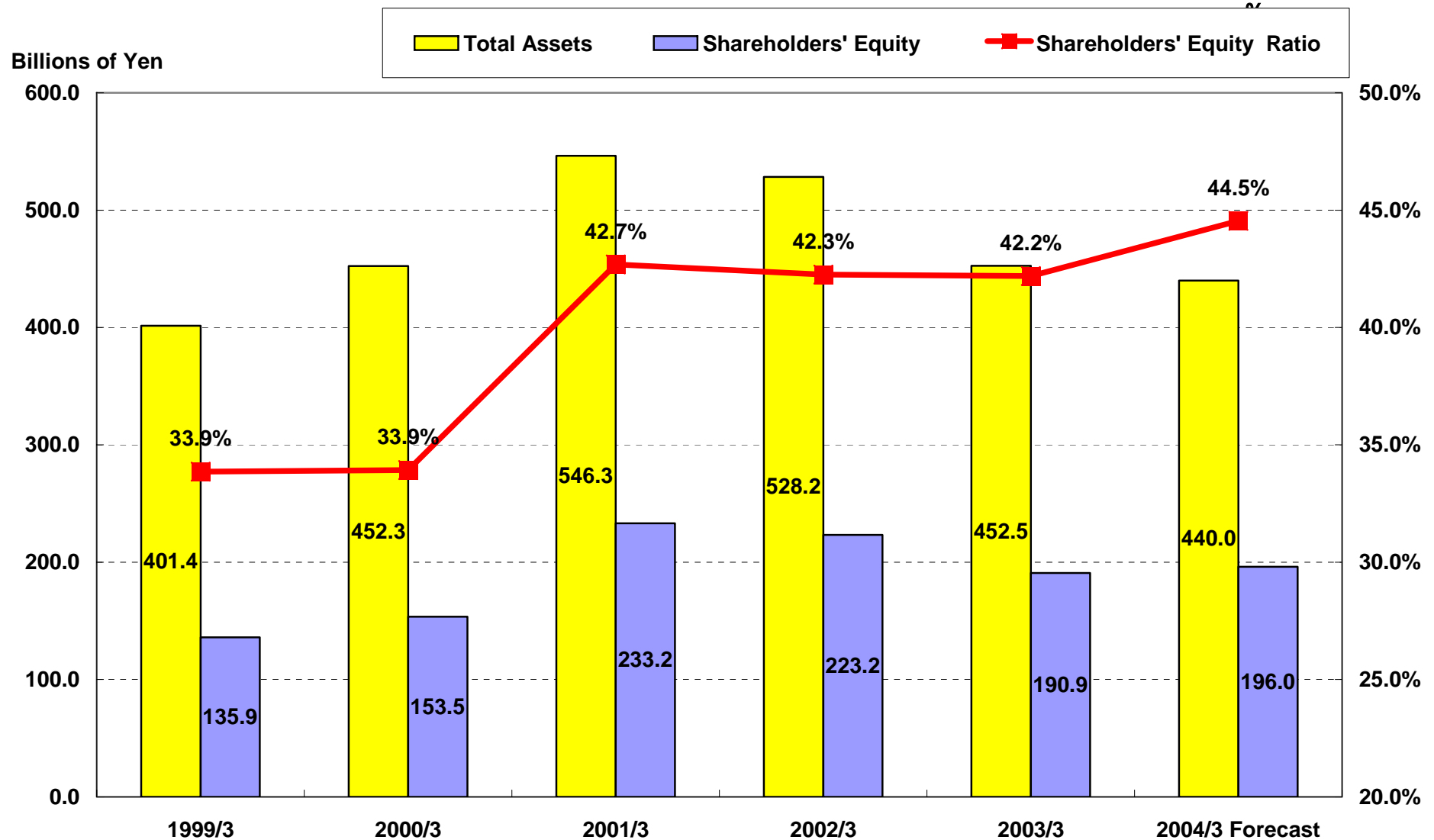
# Business Segment (Operating Income)



# Profitability

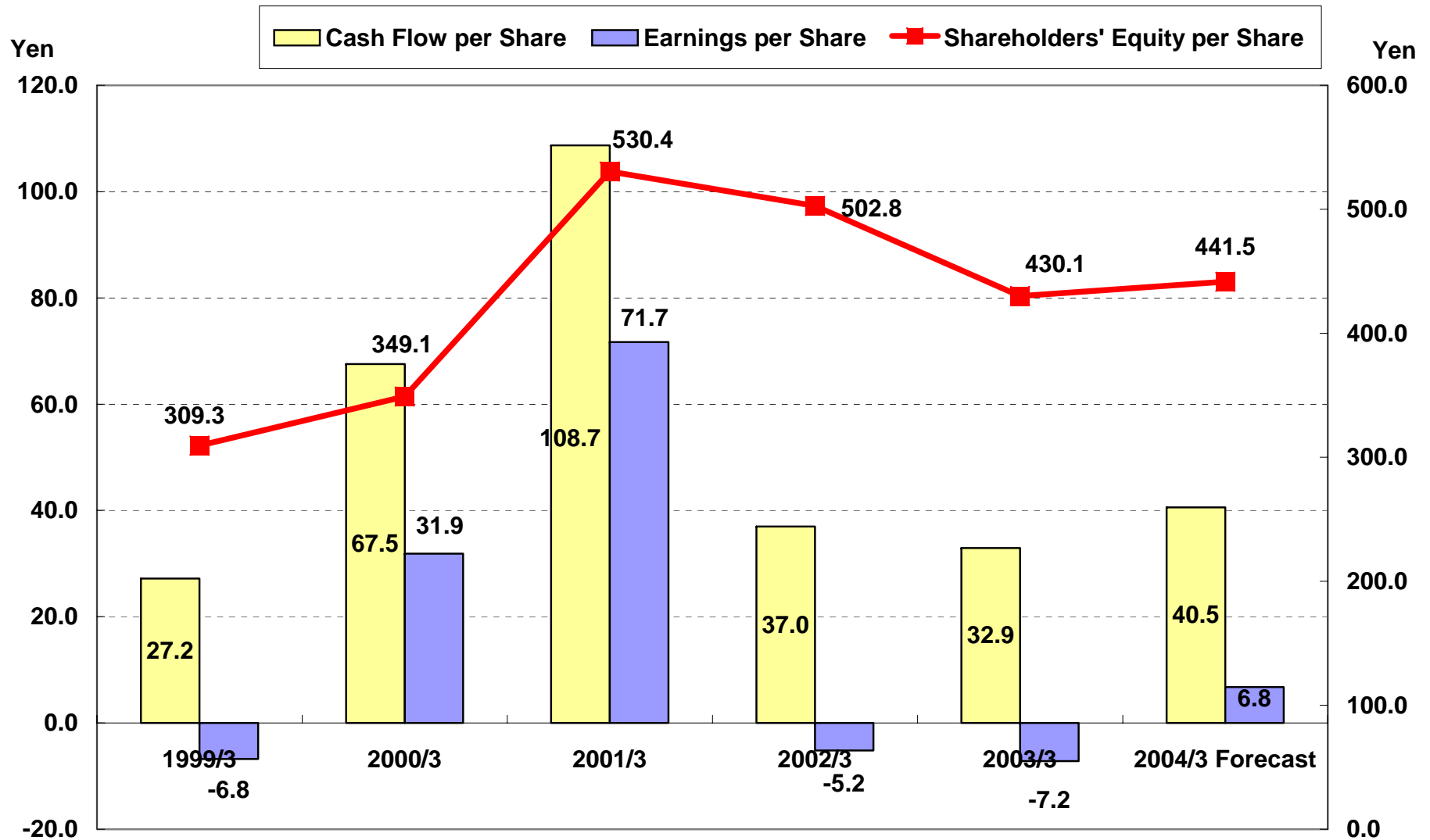


# Shareholders' Equity Ratio

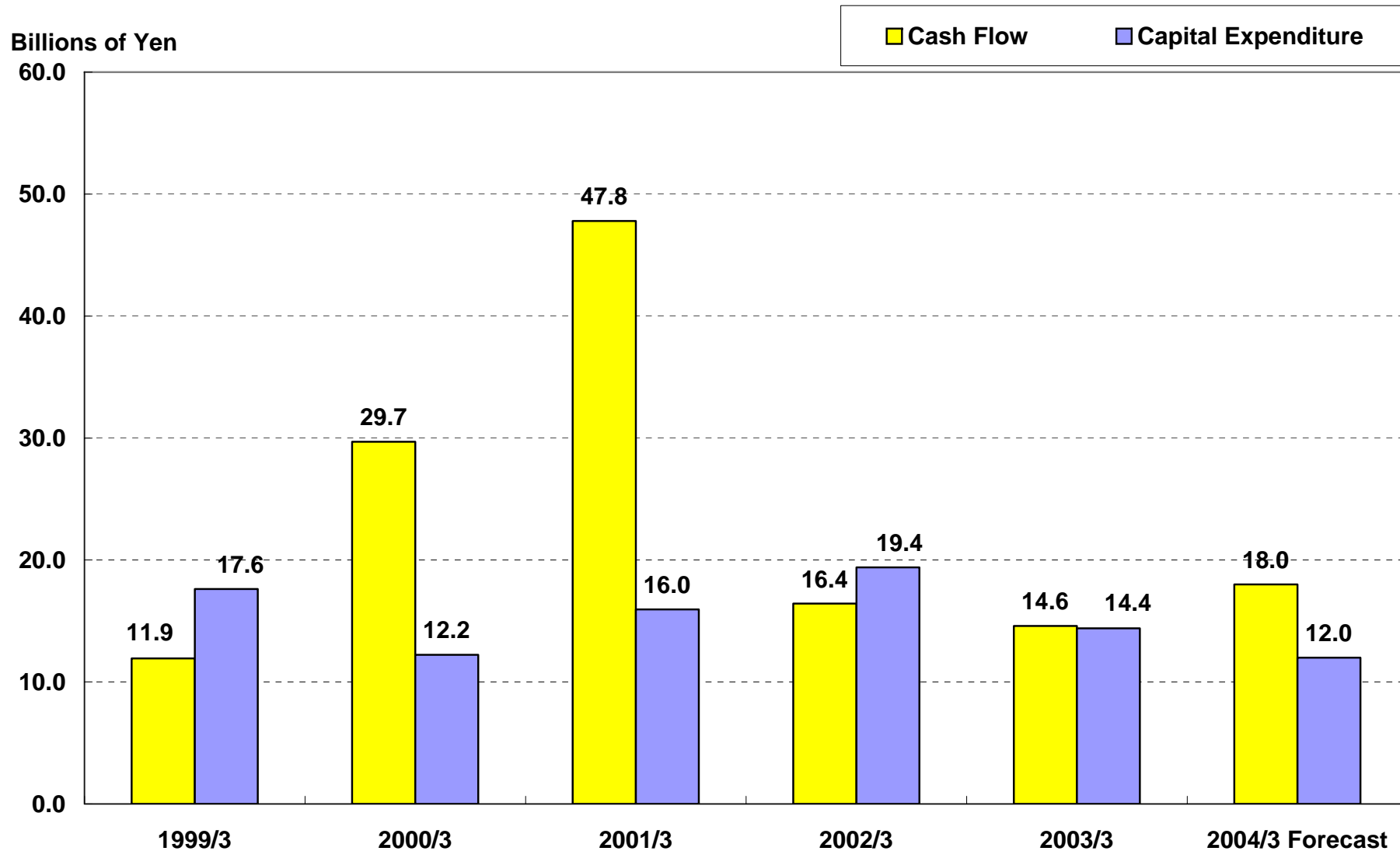




# Profitability Per Share



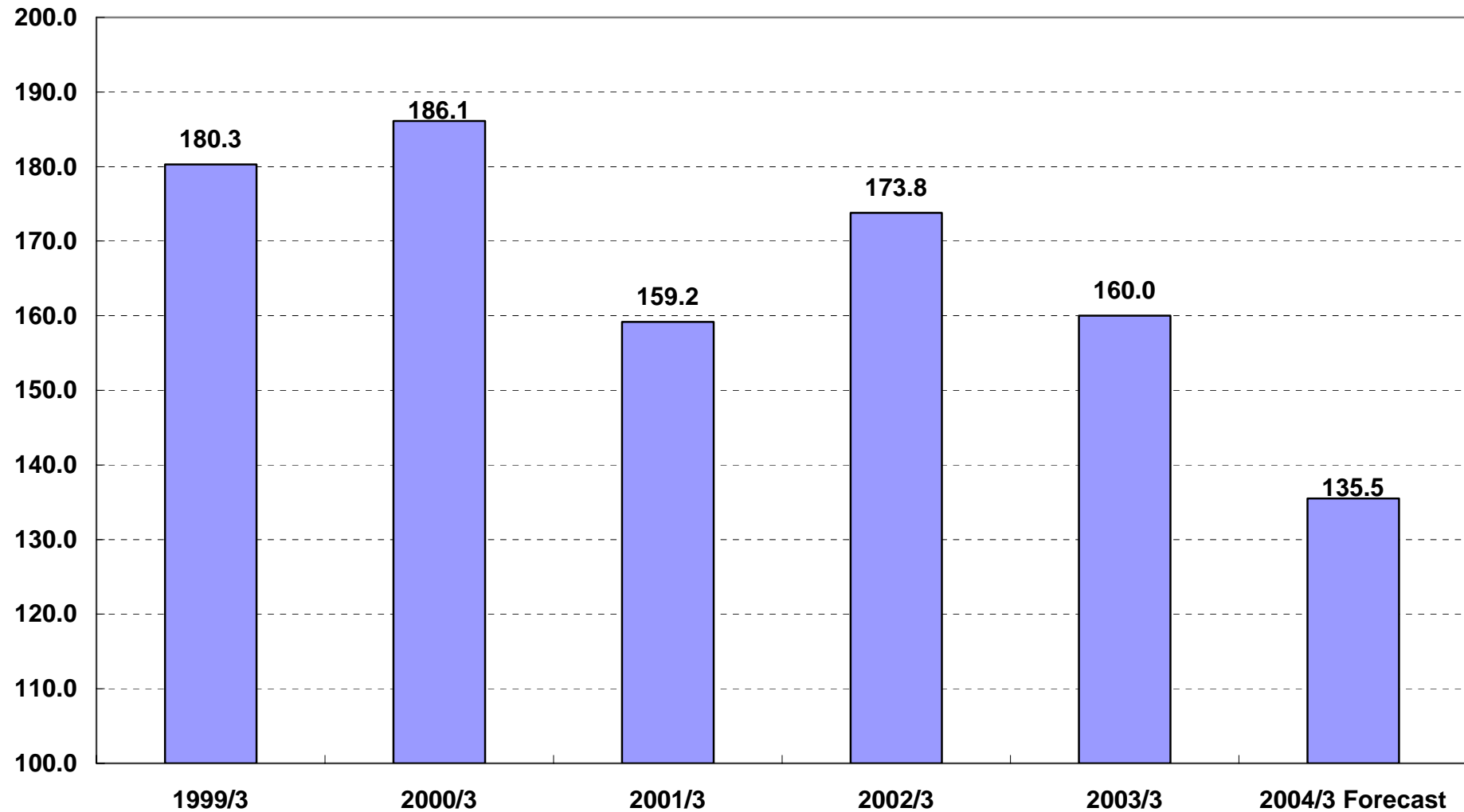
# Capital Expenditure



# Interest-bearing Debt



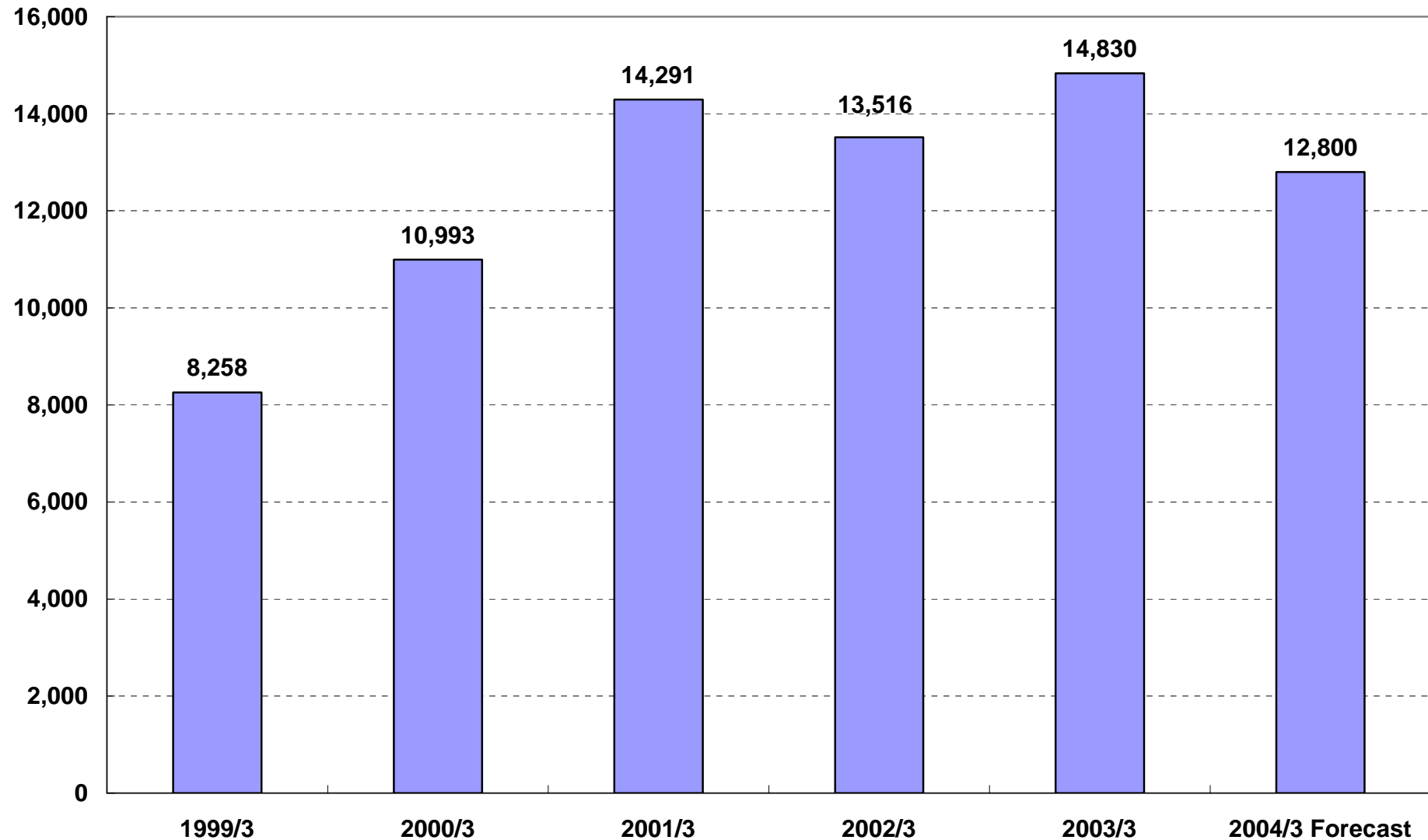
Billions of Yen



# Number of Employees



Number



## Notice

**•The projections contained in this document are based on information currently available to us and certain assumptions that we consider to be reasonable, so the actual results may differ. Among the major factors that may affect the results are the economic environment in major markets (such as Japan, Europe, the US, and Asia), product supply/demand shifts, and currency exchange fluctuations.**