Survey on Planned Capital Spending for Fiscal Years 2018, 2019 and 2020

(Conducted in June 2019)

Eighth Straight Year of Increase, Led by Non-manufacturing

Amid Uncertainties for Manufacturing in Particular

August 1, 2019

DBJ Development Bank of Japan

Economic & Industrial Research Department

Outline of the Survey

1. Survey subjects

(1) Planned capital spending

Carried out since 1956, the survey provides an overview of capital spending in Japan by analyzing capital spending activity by Japanese firms (domestic non-consolidated; domestic and overseas consolidated). By-industry investment trends, motivating factors, and other items are examined.

(2) Opinion poll

This survey is mainly designed to identify the attitudes and perspectives of firms on key current issues.

This year's survey focuses on corporate "investment in a broader sense," including tangible fixed asset investment, R&D and M&A, as well as on environmental, social and governance–related activities.

2. Companies surveyed

The survey covers private corporations capitalized at JPY 1 billion or more, excluding those in the finance and insurance industries.

(For the regional breakdowns, corporations with capital of JPY 100 million up to JPY 1 billion were added.)

3. Survey period

June 24, 2019. Most of the responses to the questionnaire were obtained in June.

4. Response (questionnaires sent to 3,141 firms)

Number of firms giving responses on domestic capital spending: 2,016 (response rate, 64.2%)

Number of firms giving responses on overseas capital spending: 774 (response rate, 24.6%)

Number of firms giving responses for the opinion poll: 1,188 (response rate, 37.8%)

5. Detailed results

Please visit https://www.dbj.jp/investigate/equip/index.html (Japanese only).

Contents

Executive Summary

1. Planned domestic capital spending in FY2019 by major firms, capitalized at JPY 1 billion or over, shows an increase for the eighth consecutive year overall, up 11.5%.

   Actual domestic capital spending in FY2018, despite staying within the limits of cash flow, showed the largest increase in 28 years overall, up 11.4%, driven by spending for the enhancement of production capacity and urban functions.

   In FY2019, domestic capital spending is expected to remain robust as a whole, increasing for the eighth consecutive year despite uncertainties in investment of manufacturing against the backdrop of trade friction, as investment continues in non-manufacturing mainly for the enhancement of urban functions.

2. Characteristics of domestic capital spending in FY2019 identified from the survey results:

   (1) In the manufacturing sector (up 13.5%), continued investment in new automobile models, including for vehicle electrification, will be accompanied by a rise in spending in chemicals, nonferrous metals and electric machinery for electronic/battery materials, including for use in automobiles.

   (2) In the non-manufacturing sector (up 10.5%), spending will continue for the enhancement of urban functions, including in transportation and real estate. Investment will also continue in stores and logistics to cope with the labor shortage, as well as in the development of digital infrastructure.

3. Planned capital spending overseas shows an increase of 10.2% overall, recording positive growth for the third consecutive year. Although investment in North America is set to taper off, particularly in transport equipment, spending is expected to grow in China in response to the rising local demand, particularly in transport equipment and general machinery, as well as in other parts of Asia.

4. Continuing from the previous year, our opinion poll this year focuses on “investment in a broader sense,” including overseas tangible fixed asset investment, R&D, information technology investment, human investment and M&A, as well as domestic investment in tangible fixed assets.

   As regards R&D, some 30% of firms responded that they are increasingly utilizing open innovation, including over 50% of large-sized firms. Larger firms also tended to report positive impacts of R&D investment on research efficiency. As for information technology investment, about 70% of the firms responded that the digitalization of industry and society through technologies such as artificial intelligence(AI), the Internet of Things(IoT) and 5G will impact their business model and environment.

1. Trends in Domestic Capital Spending

1-1. Total

1-1-1. Trends in Domestic Capital Spending (Overview)

Eighth straight year of increase, led by non-manufacturing

- Actual domestic capital spending in FY2018, despite staying within the limits of cash flow, showed the largest increase in 28 years overall, up 11.4%, driven by spending for the enhancement of production capacity and urban functions.
- In FY2019, domestic capital spending is expected to remain robust as a whole, increasing for the eighth consecutive year, up 11.5%, despite uncertainties in investment of manufacturing against the backdrop of trade friction, as investment continues in non-manufacturing mainly for the enhancement of urban functions.

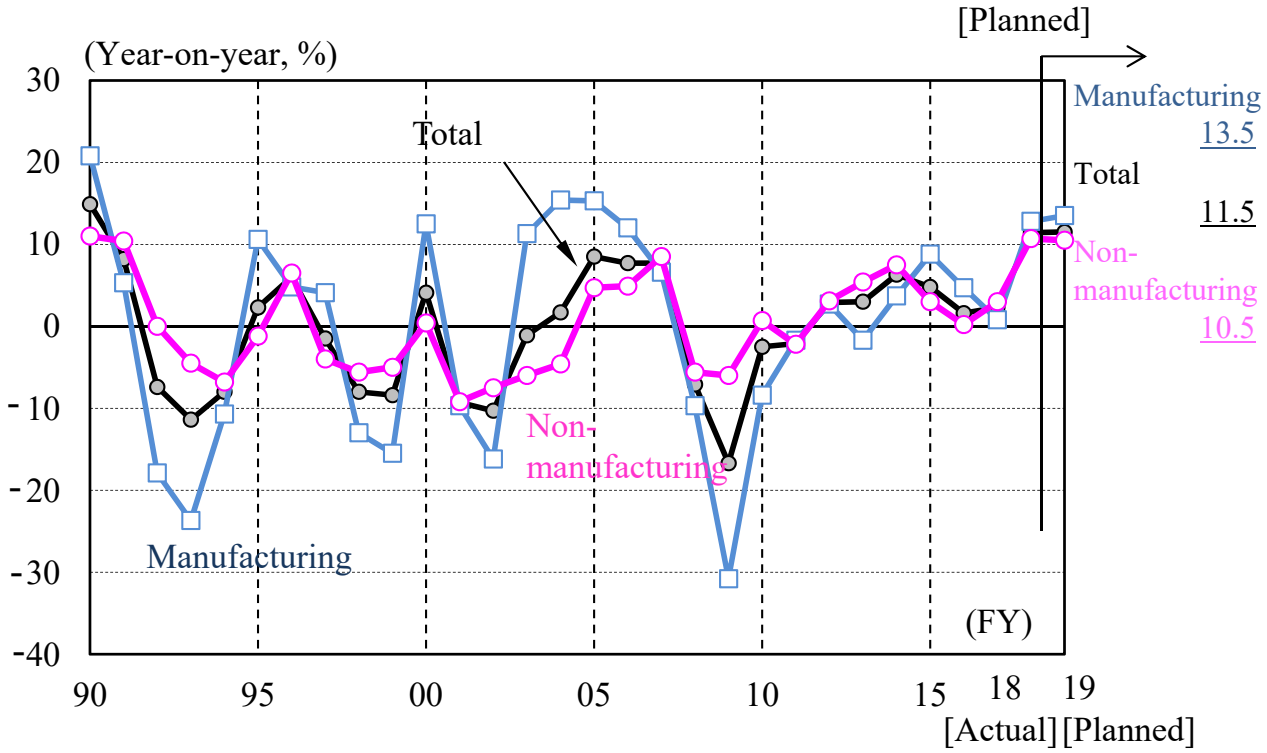
Figure 1-1-1-1. Domestic Capital Spending

(Year-on-year, %)

	FY2018 (actual) (1,873 firms)	FY2019 (planned) (2,016 firms)
Total (excluding electric power)	11.4 [13.7]	11.5 [11.6]
Manufacturing	12.8	13.5
Non-manufacturing (excluding electric power)	10.7 [14.2]	10.5 [10.5]

Note: Based on the "DBJ Survey on Planned Capital Spending"; the same applies hereinafter unless otherwise noted.

Figure 1-1-1-2. Growth in Capital Spending (FY1990-2019)



1-1-2. Planned vs. Actual Figures

- Planned figures for the current fiscal year tend to be revised downward before being materialized, as some of the planned projects do not go as planned due to revision or close examination of the plan or delay in construction works.

Figure 1-1-2-1. Planned vs. Actual Capital Spending Growth (Total)

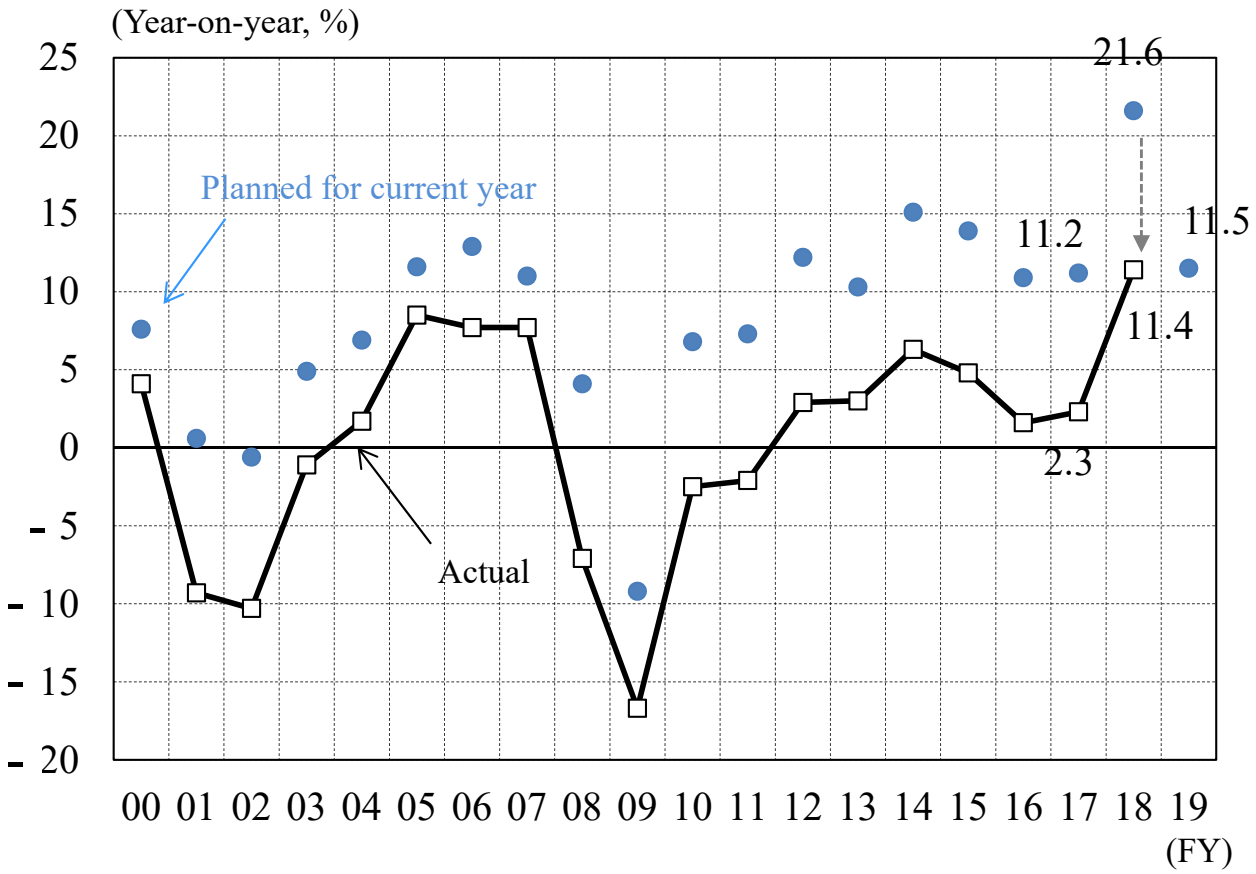
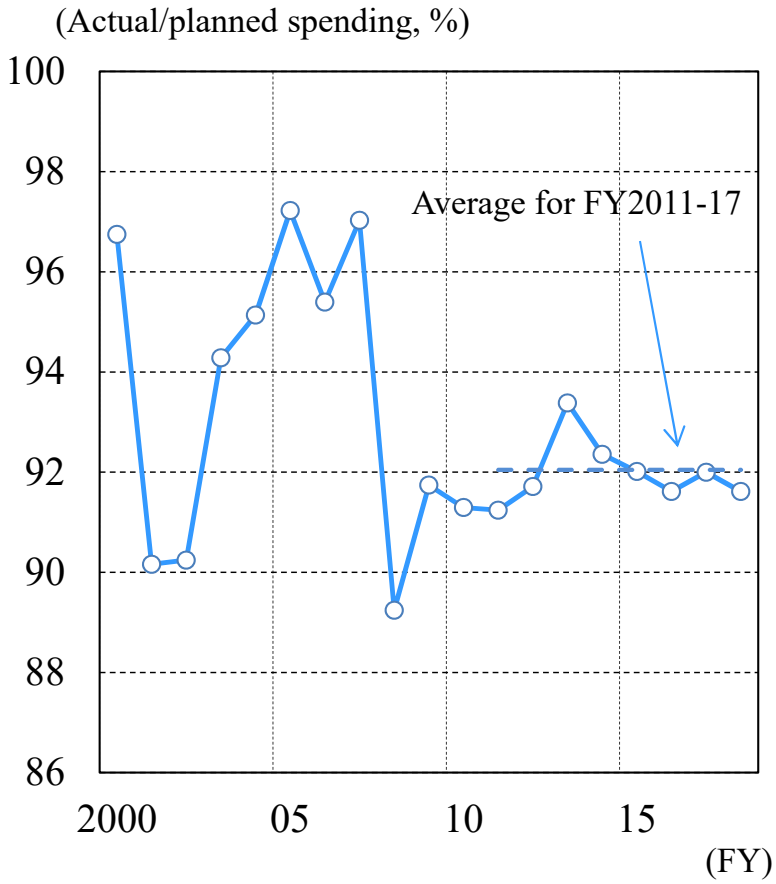


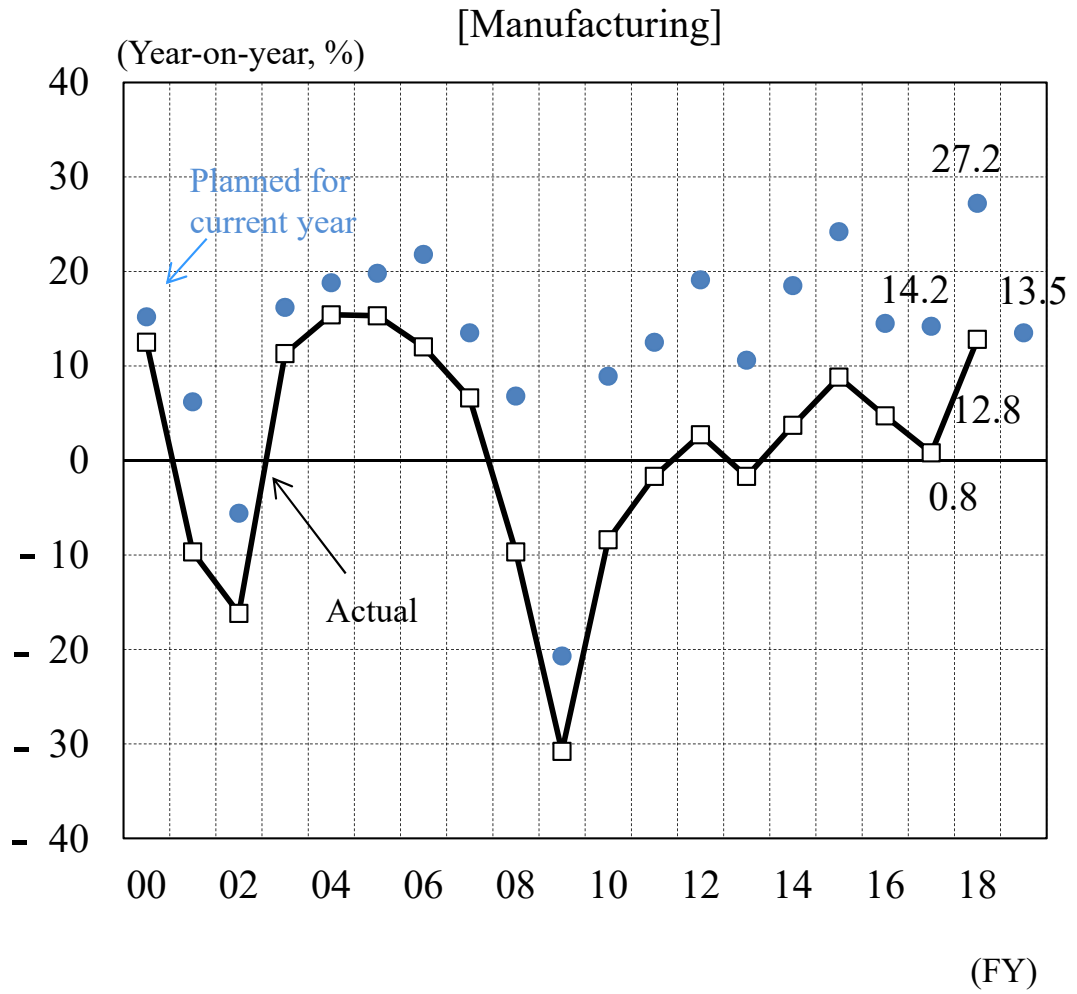
Figure 1-1-2-2. Plan Realization Rate (Total)

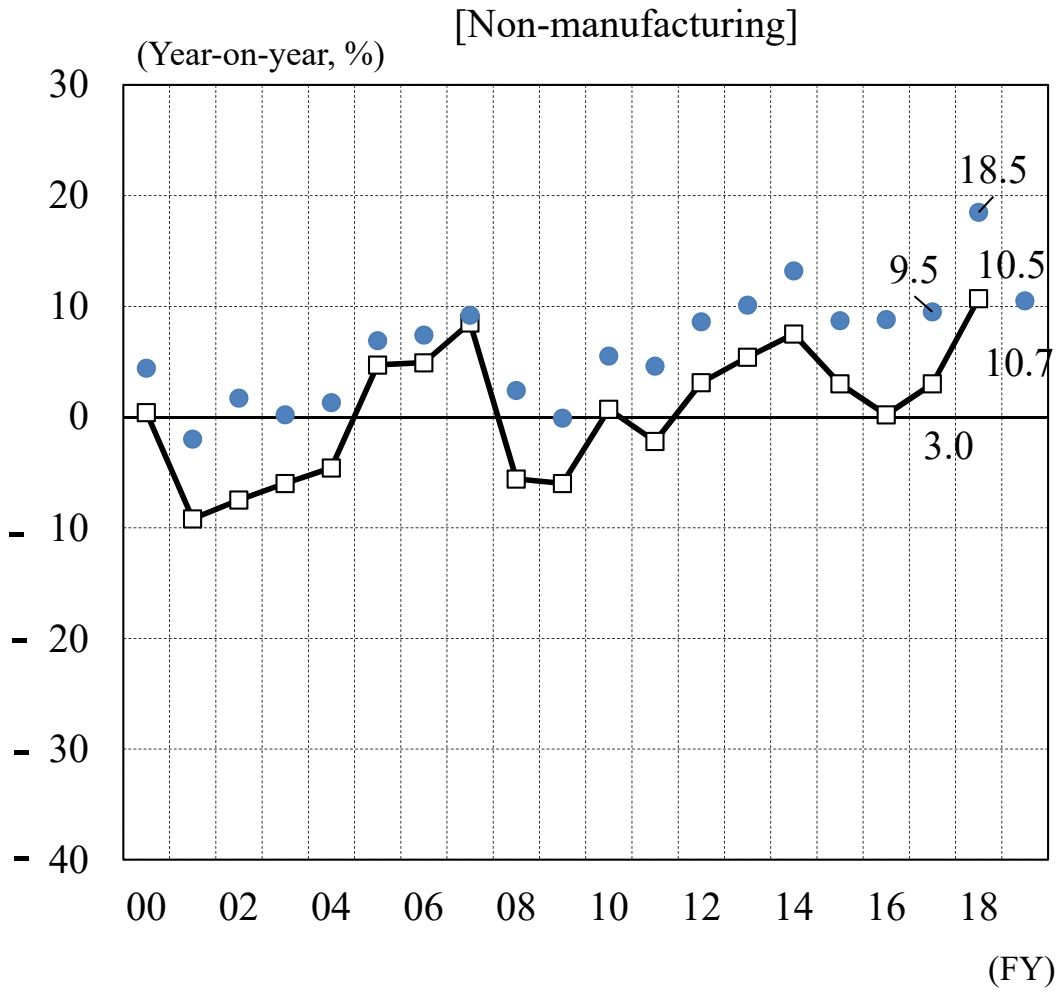


1-1-3. Planned vs. Actual Figures (by Sector)

- In manufacturing, spending in FY2018 was reduced considerably versus the plan, due to delays in completion and revision to the plan, particularly in electric machinery and general machinery. Non-manufacturers reduced their planned spending downward, particularly in transportation, retail and real estate.

Figure 1-1-3. Pattern of Revision to Capital Spending Growth (Planned → Actual)

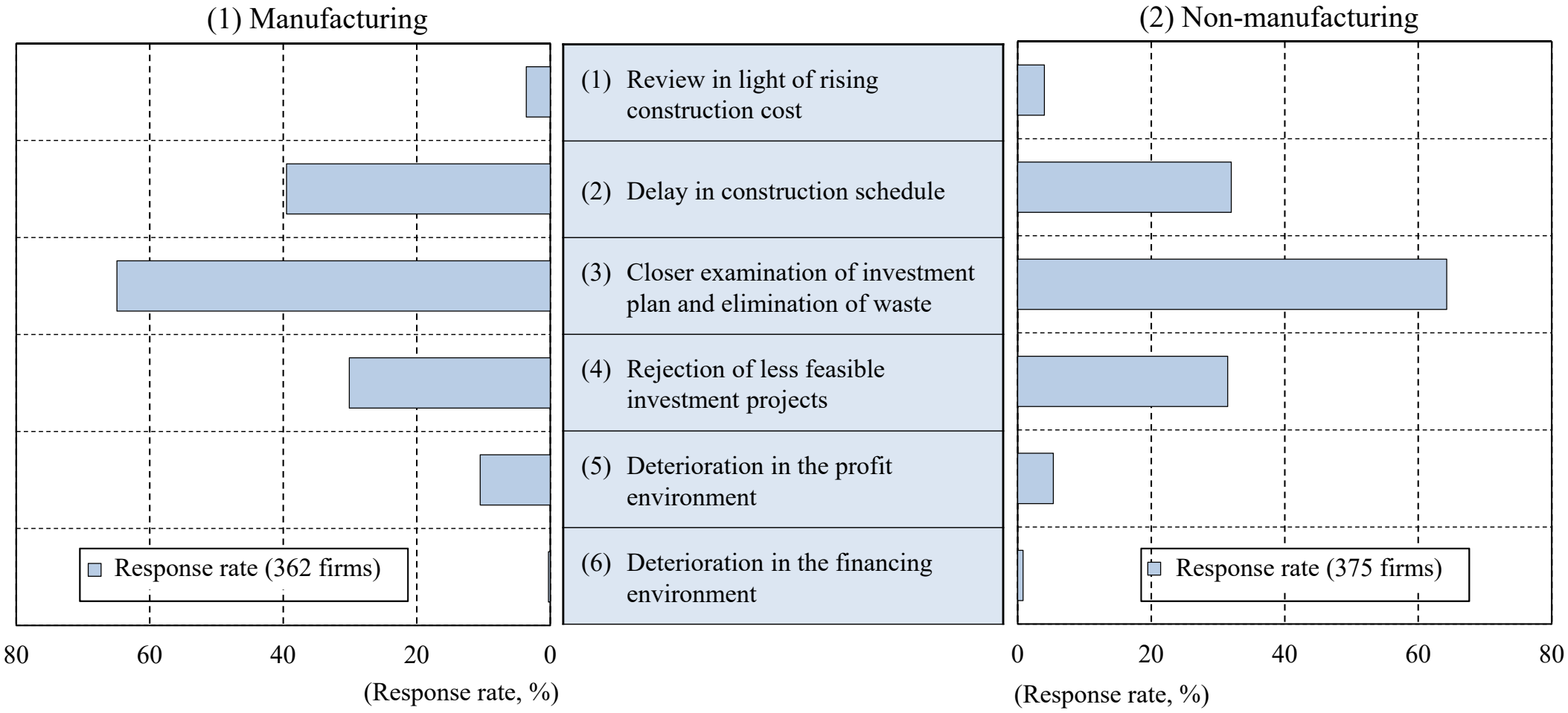




1-1-4. Factors for Downward Revision to Capital Spending in FY2018

- In both manufacturing and non-manufacturing, planned investment was not fully implemented in many cases, due to closer examination of the investment plan and elimination of waste, as well as delays in construction schedules.

Figure 1-1-4. Factors for Downward Revision to Capital Spending in FY2018



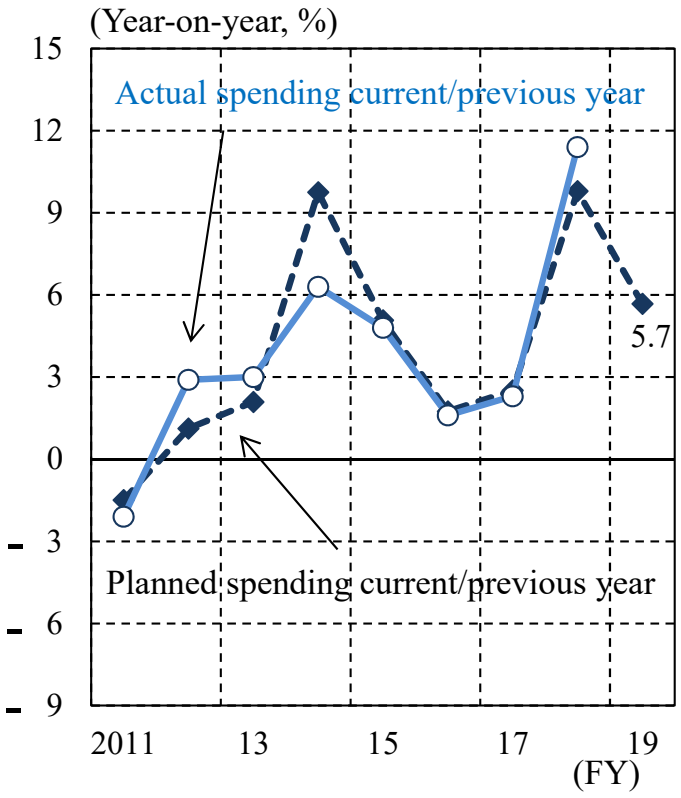
Note: Respondents may choose up to two answers. Data only covers those firms reporting less-than-planned capital spending.

1-1-5. Estimate of Actual Capital Spending vs. Plan

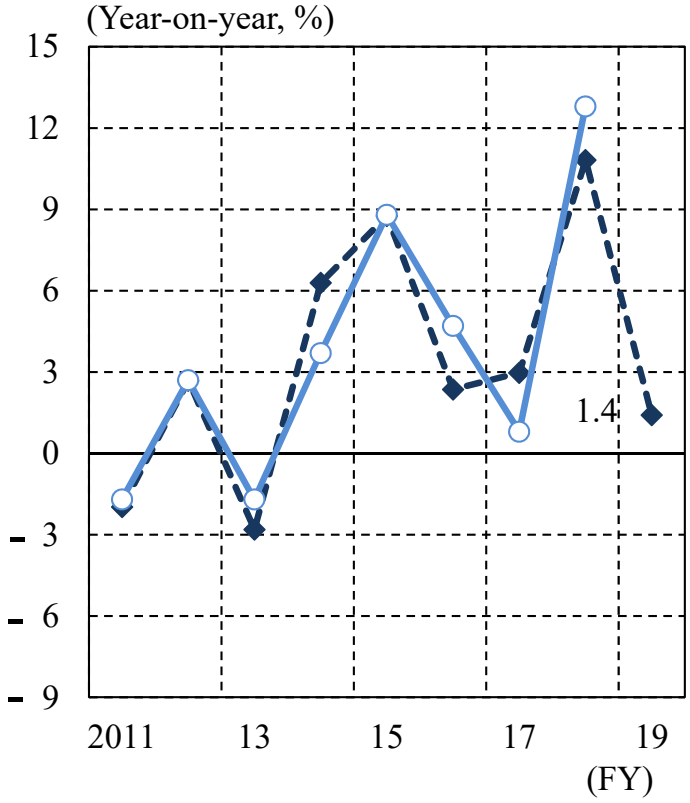
- Experience shows that the change of actual capital spending on the previous year often approximates the year-on-year change of planned capital spending, effectively serving as a reference for forecasting actual performance.
- An estimation regarding the firms reporting their plans for both FY2019 and FY2018 indicates that actual capital spending in FY2019 will increase 5.7% on the previous year in both manufacturing and non-manufacturing.

Figure 1-1-5. Changes in Actual and Planned Capital Spending on Previous Year

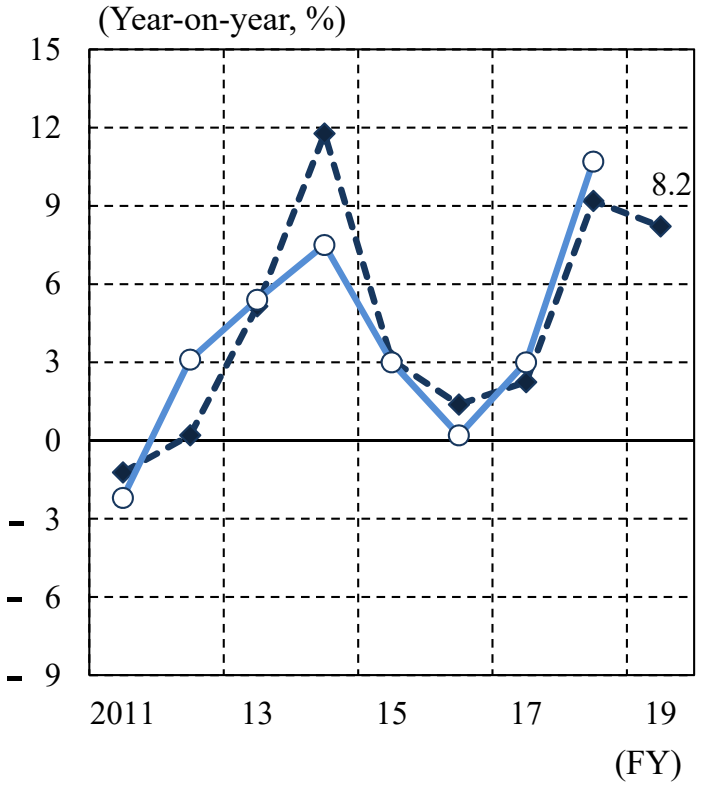
(1) Total



(2) Manufacturing



(3) Non-manufacturing

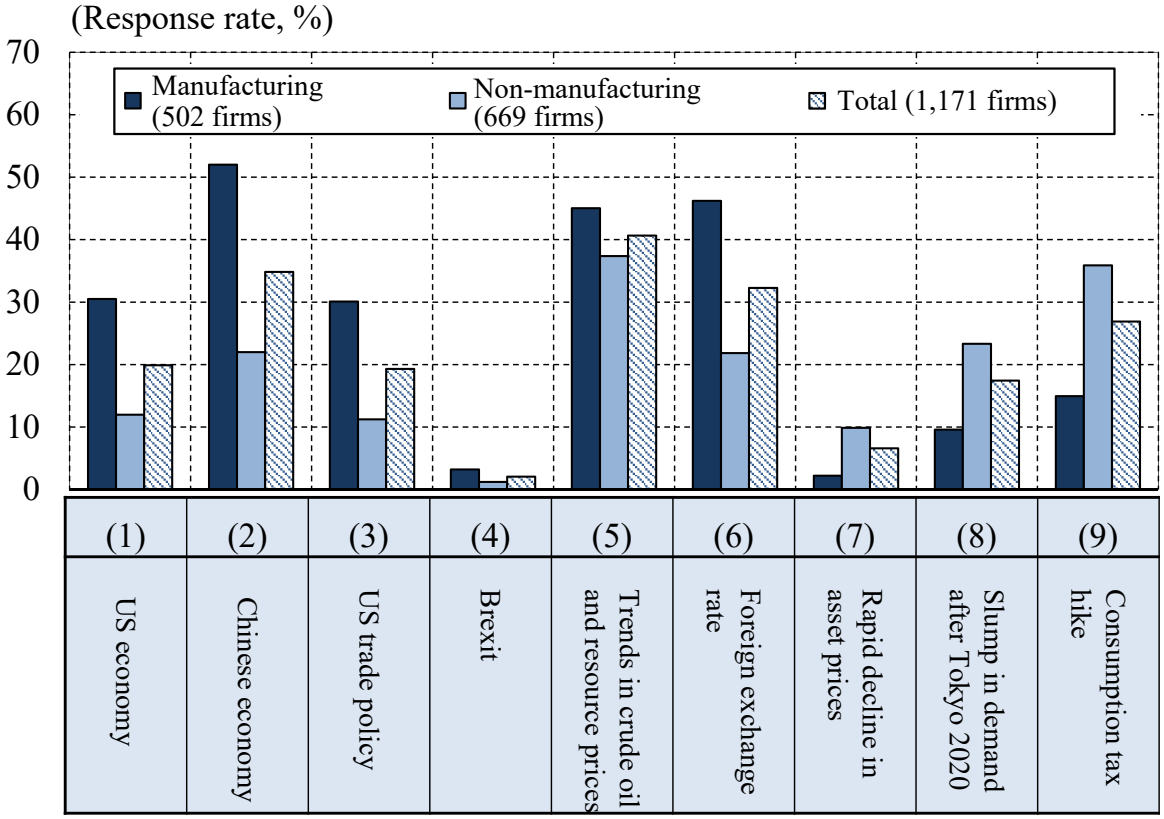


1-1-6. Political and Economic Risks in Business and Prospective Business Confidence

Potential downside risks come from trends in resource prices and foreign exchange rate, as well as US-China trade friction in manufacturing.

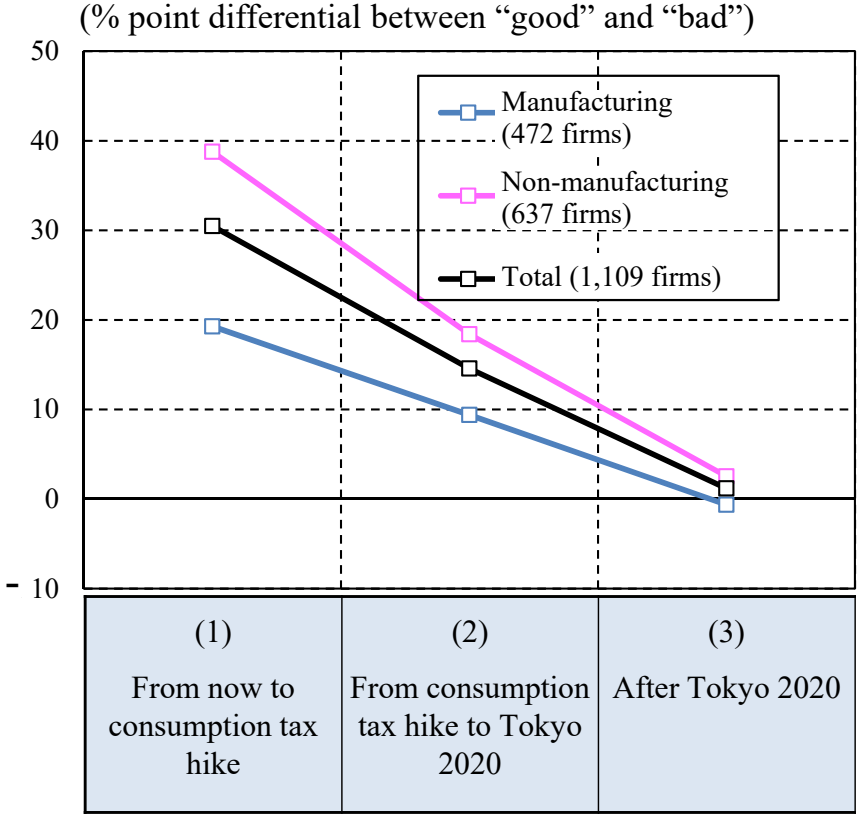
- In manufacturing, perceived risks stem from (5) Trends in crude oil and resource prices and (6) Foreign exchange rate, as well as from (2) Trends in the Chinese economy, and (3) US trade policy, against the backdrop of the ongoing US-China trade friction. In non-manufacturing, perceived risks include (5) Trends in crude oil and resource prices, (8) Slump in demand after Tokyo 2020 and (9) Consumption tax hike.
- Business confidence going forward points to a downturn following the consumption tax hike and Tokyo 2020.

Figure 1-1-6-1. Potential Downside Business Risks



Note: Choose up to three answers.

Figure 1-1-6-2. Diffusion Index on Economic Prospects



1-1-7. Impact of US Trade Policy on Business

Ten percent of manufacturers have reorganized or are considering reorganizing their supply chains.

- Fifty percent of manufacturers report that US trade policy has a negative impact on business performance or capital spending. Ten percent of them have reorganized or are considering reorganizing existing business relationships or production/ operational sites.

Figure 1-1-7-1. Impact on Business Performance or Capital Spending

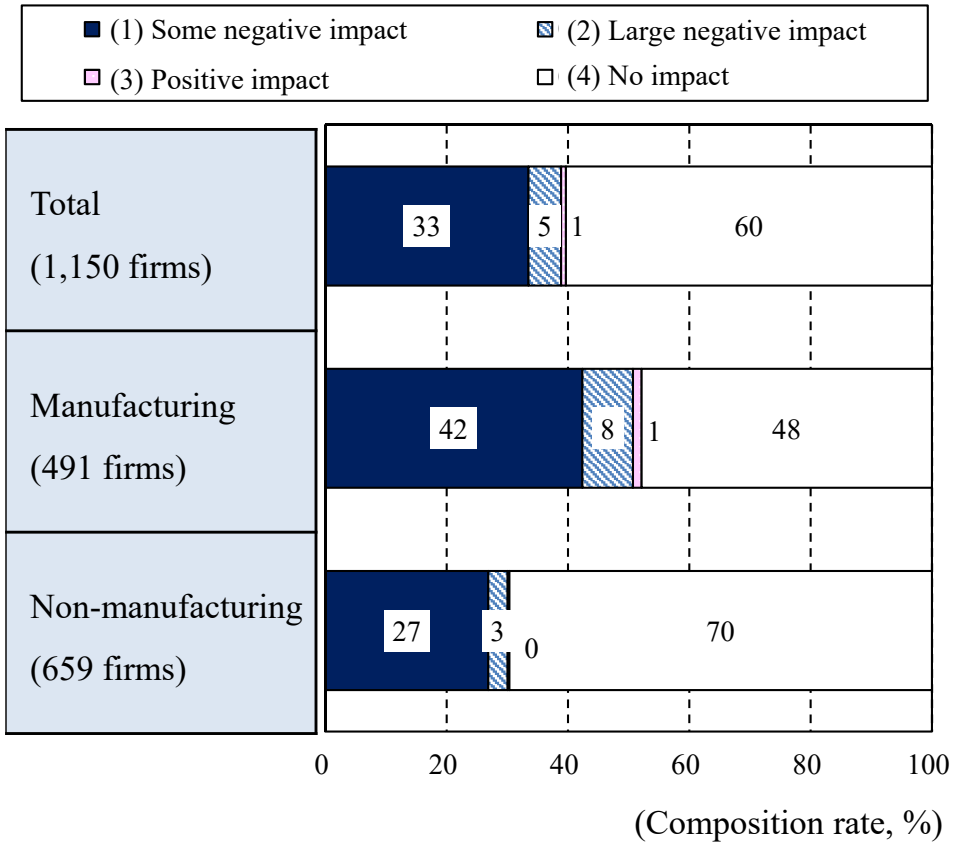
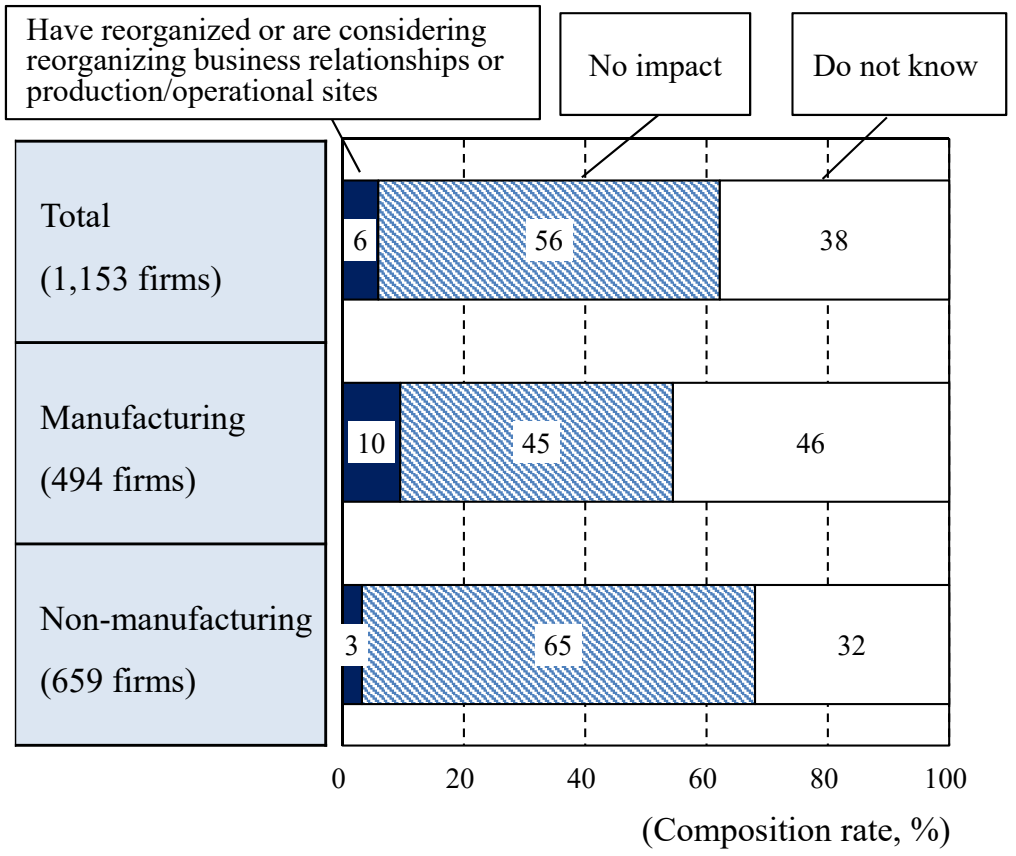


Figure 1-1-7-2. Impact on Supply Chain or Production/ Operational Sites

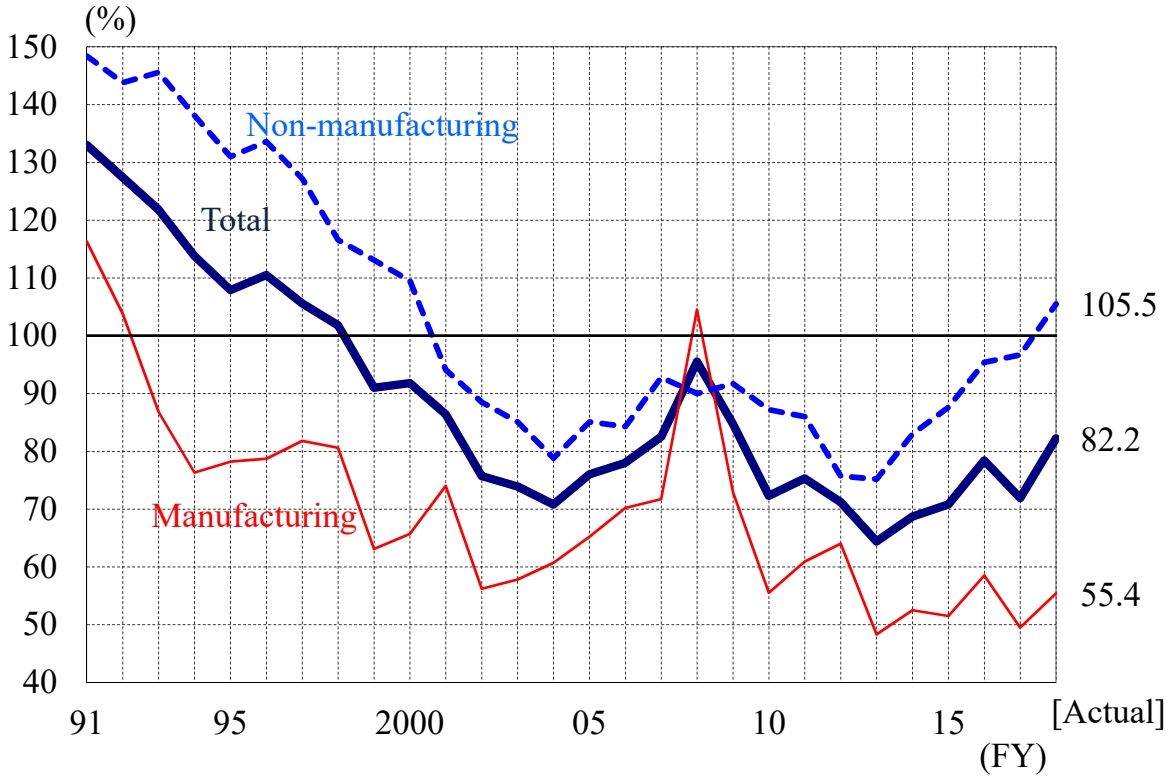


1-1-8. Capital Spending/Cash Flow Ratio and DI on Ordinary Profit

Capital spending/cash flow ratio is rising.

- The capital spending/cash flow ratio remains below 100% overall but showed an increase in FY2018 reflecting the substantial growth of capital spending.
- The Diffusion Index(DI) on ordinary profit remains positive in FY2018 and 2019, despite a huge drop versus FY2017.

Figure 1-1-8-1. Trend of Capital Spending/Cash Flow Ratio



Note: Cash flow is calculated as ordinary profit/2 + depreciation expenses (simplified formula assuming an effective corporate tax rate of 50%).

Figure 1-1-8-2. DI on Ordinary Profit

(% pts)

	DI on ordinary profit		
	FY2017 actual 1,083 firms	FY2018 actual 1,056 firms	FY2019 planned 1,266 firms
Total	20.6	2.3	3.1
Manufacturing	25.9	-3.8	5.2
Non-manufacturing	16.7	6.7	1.4

Note: DI on sales, DI on ordinary profit =

$$\frac{\text{(“increased revenue/profit” – “decreased revenue/profit”)}}{\text{total valid responses}}$$

1-1-9. Planned Capital Spending for FY2019, by Industry

Manufacturing

- Food & beverages (6.4%→11.6%)
  Spending will continue to increase, driven by investment for rationalization including in IoT and in higher value added products.
- Chemicals (25.5%→17.8%)
  A double-digit increase in spending is expected, driven by the enhancement of R&D facilities and capacity investment in advanced function products including electronic/battery materials, as well as in cosmetics and fast moving consumer goods(FMCG).
- Petroleum (15.8%→24.1%)
  Spending will increase for the third consecutive year, led by rationalization investment in refineries and systems, and spending for compliance with marine environment regulations.
- Iron & steel (7.2%→15.6%)
  A double-digit increase in spending is expected, driven by ongoing works including for coke oven repair and investment in automobile materials.
- Non-ferrous metals (10.1%→38.7%)
  A substantial increase is expected with widespread capacity investment, including for automobiles, electronic equipment and semiconductors.
- General machinery (14.9%→1.4%)
  Spending is expected to increase as the completion of major investment projects, including in industrial machines, will be more than offset by capacity investment related to aircraft and metalworking machines and by the enhancement of development centers across the board.
- Electric machinery (9.1%→6.4%)
  Spending will continue to rise, led by capacity investment for vehicle electrification and industrial robots, as well as investment in new products in response to high-speed, larger-capacity data transmission.
- Precision machinery (11.6%→24.9%)
  Spending will increase, driven by continued construction of new plants in semiconductor manufacturing equipment and capacity investment in medical equipment.
- Automobiles (14.7%→12.4%)
  A continued increase in spending is expected, driven by investment in response to CASE, including for the enhancement of production capacity related to electrification, in addition to investment in new models.

Non-manufacturing

- Wholesale & retail (8.1%→11.4%)
  Spending will continue to increase as the completion of major investment projects in department stores will be more than offset by labor-saving investment in convenience stores and spending for outlets in supermarkets.
- Real estate (19.1%→8.5%)
  A continued increase in spending is expected, driven by major development projects in metropolitan areas, despite a decline in spending in commercial facilities.
- Transportation (18.2%→16.3%)
  A third straight year of spending increase is expected, due to continued investment in facilities of logistics and international airports, in addition to investment for increasing the speed of and improving safety in railways and for the expansion of real estate development.
- Electric power (-2.1%→10.5%)
  Spending will rise, driven by nuclear power-related safety investment.
- Telecommunications & information (8.0%→4.6%)
  A third straight year of spending increase is expected as a decline in spending in fixed-line telecommunications will be more than offset by investment in data centers and the development of base stations and networks in view of 5G.
- Services (13.2%→20.8%)
  Spending will increase for the fifth straight year despite a slowdown in hotels, driven by active investment in theme parks for capturing inbound tourists.

Note: Figures in parentheses ( ) indicate changes in capital spending in the industry concerned (FY2018→FY2019).

1-2. Manufacturing

1-2-1. Trends in the Manufacturing Sector (1)

Planned increase in spending led by transport equipment will have a ripple effect on related industries, including chemicals and nonferrous metals.

- In the manufacturing sector, spending will increase for the sixth straight year as continued investment in new automobile models, including for vehicle electrification, will be accompanied by a rise in spending in chemicals, nonferrous metals and electric machinery for electronic/battery materials, including for use in automobiles.

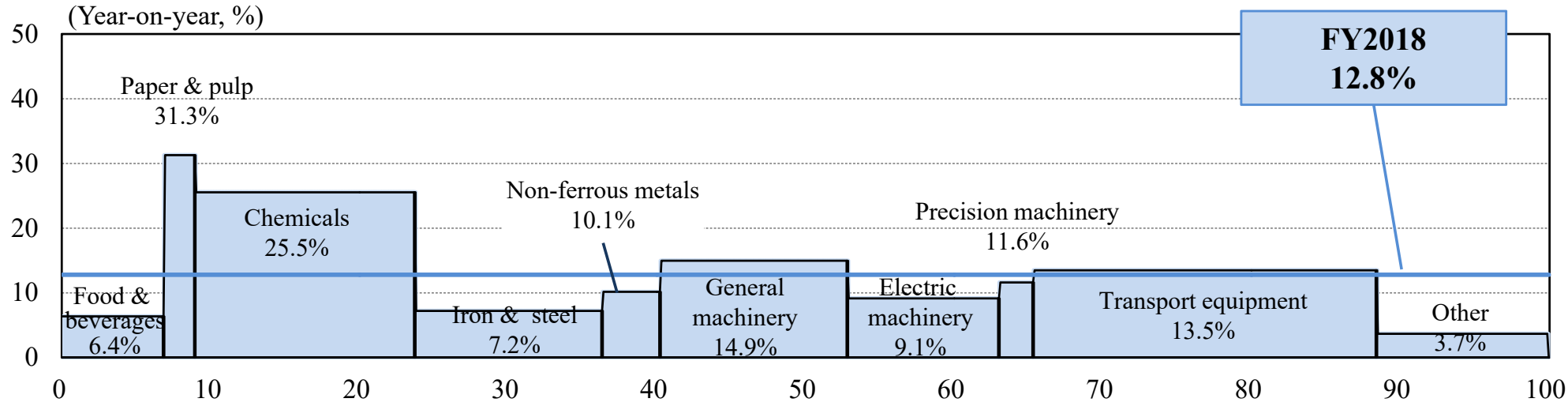
Figure 1-2-1. Industries with the Greatest Contribution to Planned Capital Spending for FY2019 (Manufacturing)

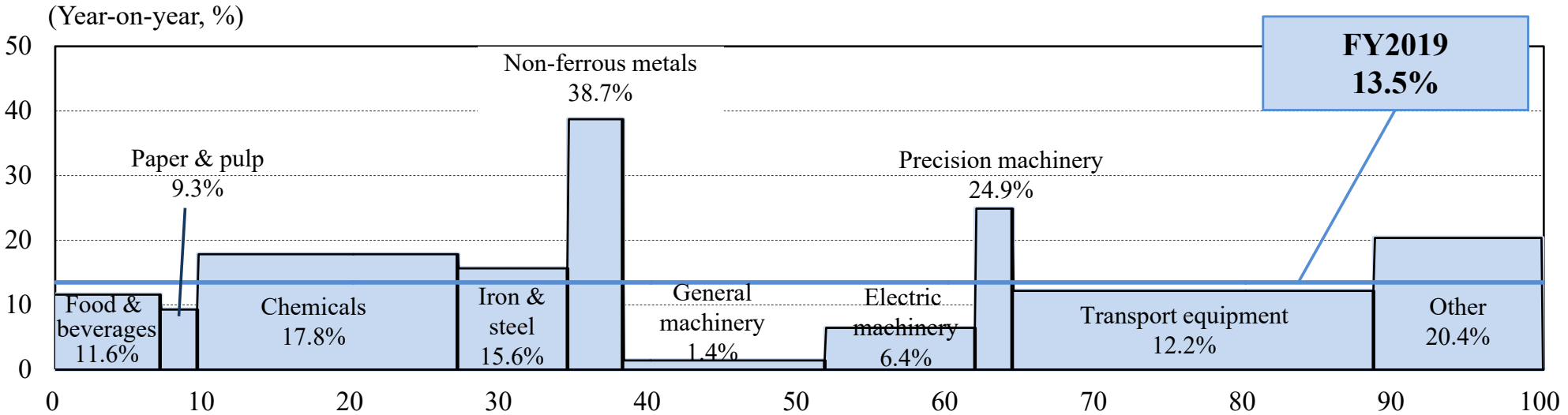
(%)	Year-on-year	Composition rate	Drivers of the increase/decrease
(1) Chemicals	17.8	17.5	Battery materials for automobiles, semiconductor materials, cosmetics and fast moving consumer goods(FMCG)
(2) Transport equipment	12.2	24.3	Investment in new models, including for electrification, and in capacity investment for automobile batteries
(3) Non-ferrous metals	38.7	3.7	Battery materials for automobiles, semiconductor materials
Reference: Electric machinery	6.4	10.1	Electronic parts for automobiles and components for data centers
Manufacturing as a whole	13.5		

Note: Composition ratio is defined as the ratio of capital spending by each industry to that of the whole manufacturing sector in FY2018.

1-2-2. Manufacturing Skyline Graph

Figure 1-2-2. Composition and Growth of Capital Spending, by Major Industry





Note: The larger the area, the greater the contribution to total spending.

1-2-3. Trends in the Manufacturing Sector (2)

Spending will increase in a wide range of industries, driven by automobile-related investment.

- In manufacturing, spending will also increase in chemicals and nonferrous metals for battery materials, as well as in electric machinery for electronic parts to be mounted on automobiles, both in response to the development of new car models, including for electrification. Other growth areas include cosmetics and FMCG in response to rising demand, as well as components for data centers.

Figure 1-2-3. Highlights of Planned Capital Spending for FY2019 in the Manufacturing Sector

		Investment in growth areas
Capital goods	**General machinery**	Machine tools and aircraft parts
	Precision machinery	Semiconductor production equipment, medical equipment
Materials/ components, Intermediate goods	**Chemicals**	Battery materials, semiconductor materials, cosmetics, FMCG
	Iron & steel	Components for reducing body weight
	Non-ferrous metals	Battery materials, semiconductor materials
	Electric machinery	Electronic parts for automobiles, components for industrial robots and components for data centers
Final demand	**Automobile**	New models, including for electrification and batteries
	Food & beverages	High-value-added foods
	Petroleum	Compliance with international environmental regulations

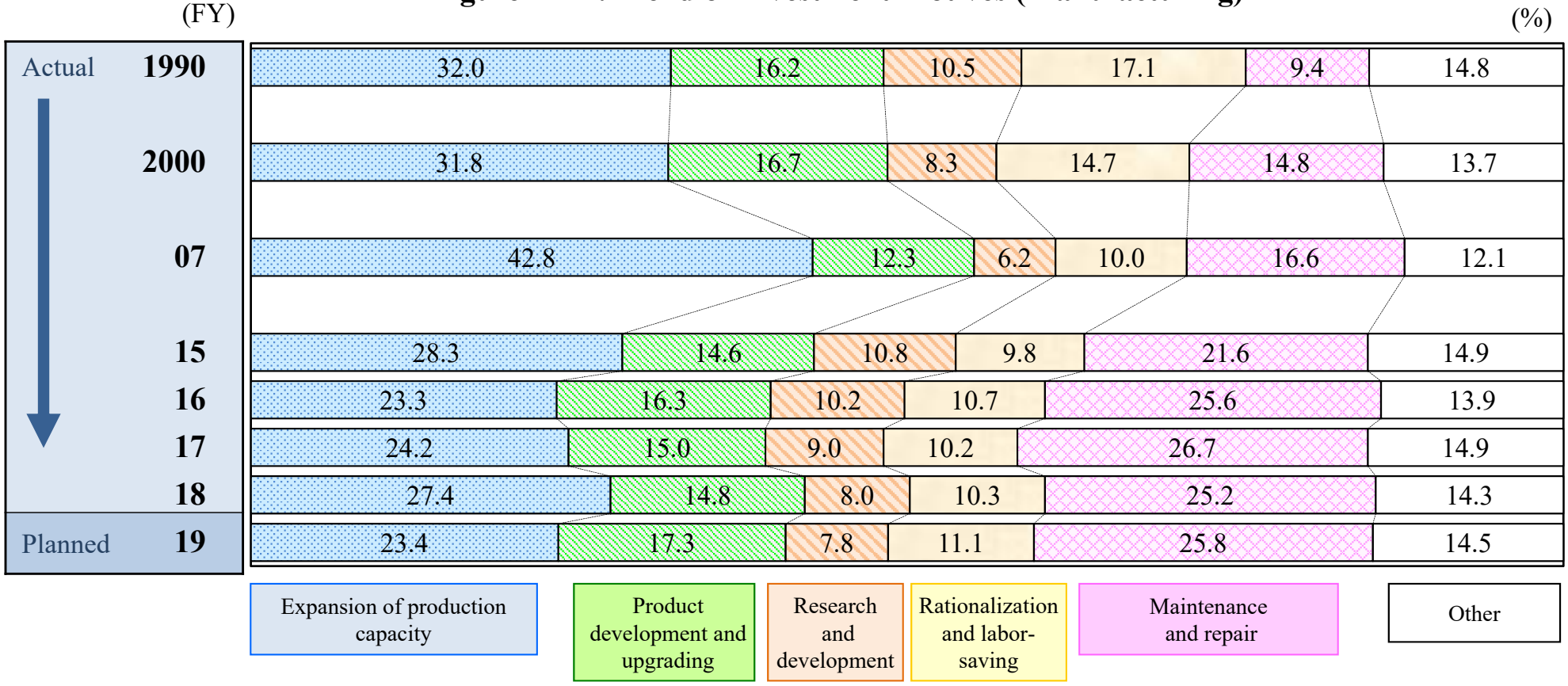
Note: Areas primarily related to automobiles are shown in orange.

1-2-4. Investment Motives (Composition)

The resurgence of expansion of production capacity is coming to a halt.

- The share of "Expansion of production capacity" is leveling off in FY2019 after a substantial surge in the previous year, as "Product development and upgrading" and "Rationalization and labor-saving" increase their shares. "Maintenance and repair" remains substantial.

Figure 1-2-4. Trend of Investment Motives (Manufacturing)

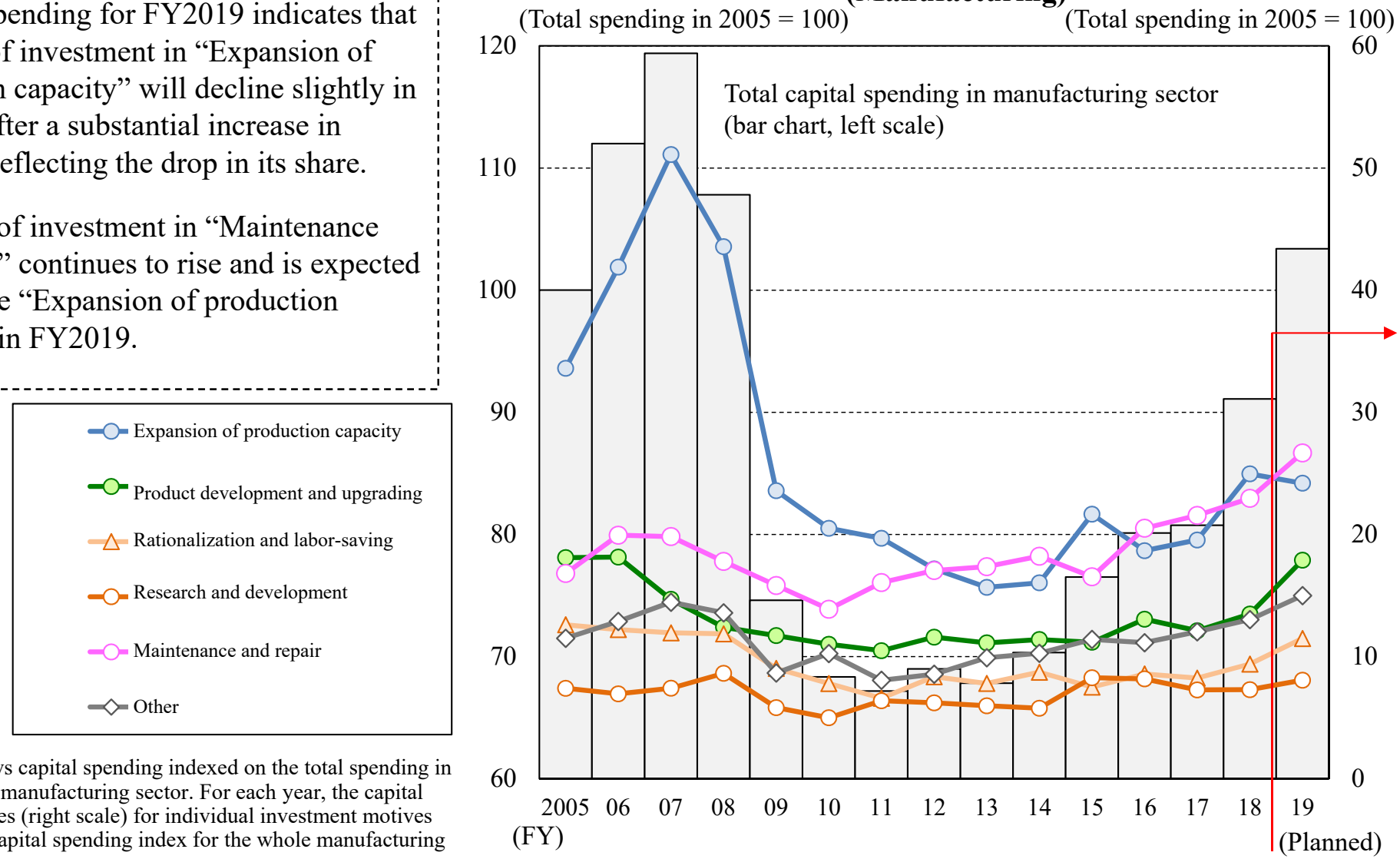


Note: Share of each investment motive in total capital spending, by value.

1-2-5. Investment Motives (Absolute Levels)

- Planned spending for FY2019 indicates that the level of investment in “Expansion of production capacity” will decline slightly in FY2019 after a substantial increase in FY2018, reflecting the drop in its share.
- The level of investment in “Maintenance and repair” continues to rise and is expected to overtake “Expansion of production capacity” in FY2019.

Figure 1-2-5. Historical Capital Spending, by Investment Motive (Manufacturing)



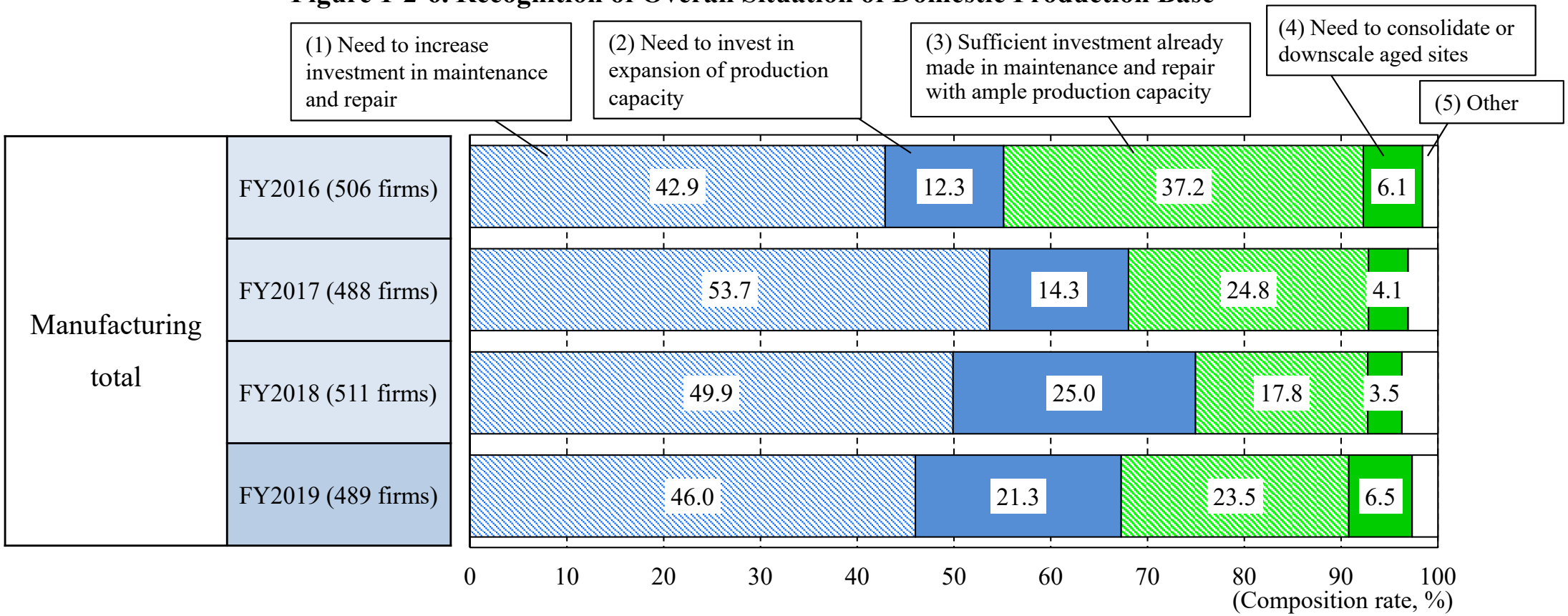
Note: The chart shows capital spending indexed on the total spending in FY2005 in the manufacturing sector. For each year, the capital spending indices (right scale) for individual investment motives add up to the capital spending index for the whole manufacturing sector.

1-2-6. Current Situation of Primary Domestic Production Base

Slightly fewer firms indicate the need to increase capacity investment.

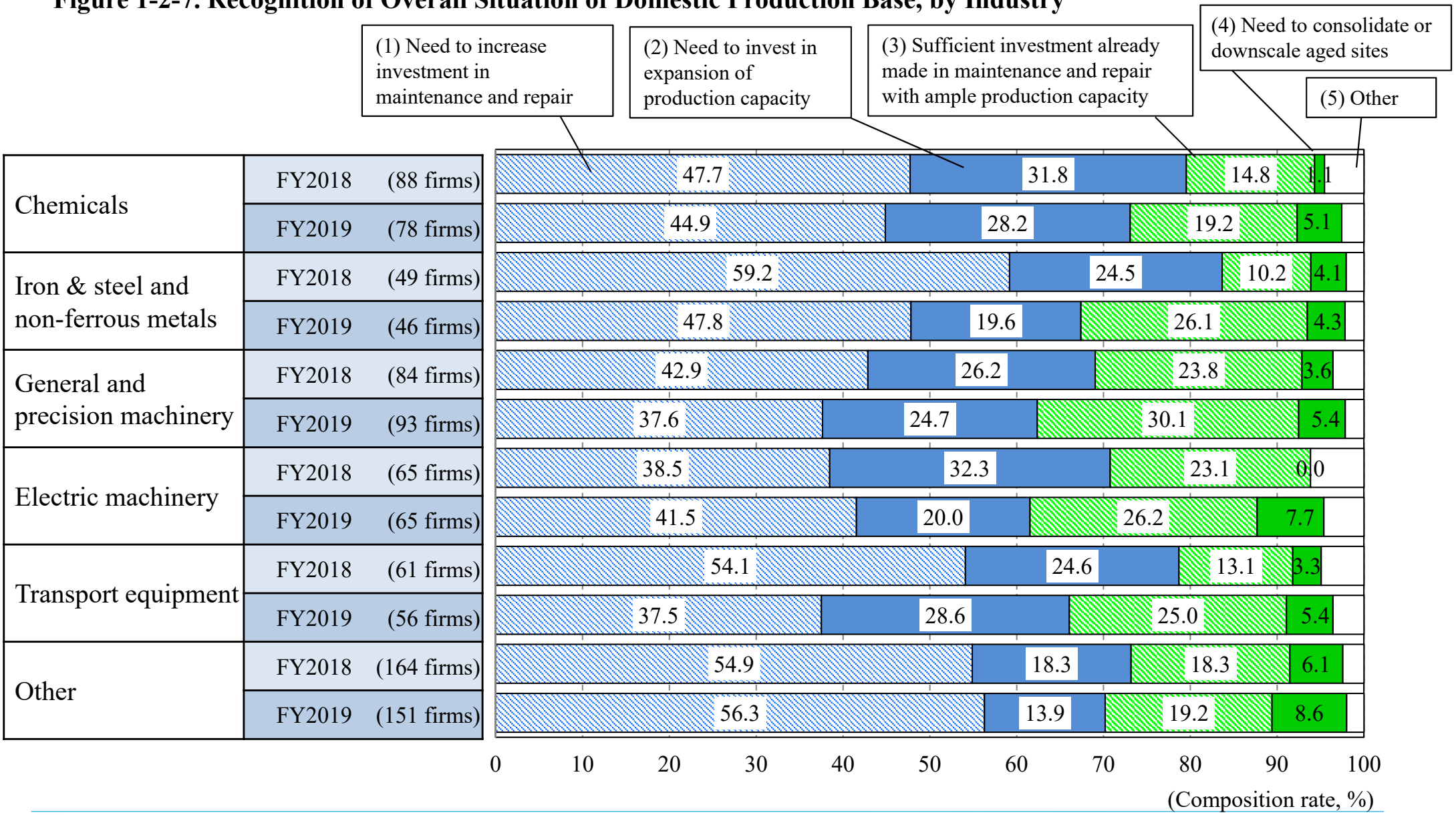
- Following the substantial increase in capacity investment in FY2018, slightly fewer respondents in FY2019 indicate (2) Need to invest in expansion of production capacity in. A larger number of respondents also choose (3) Sufficient investment already made in maintenance and repair with ample production capacity.
- Although about half of the manufacturers still feel (1) Need to increase investment in maintenance and repair, the share shows a decline for the second consecutive year, pointing to progress in the maintenance and repair of aging manufacturing facilities.

Figure 1-2-6. Recognition of Overall Situation of Domestic Production Base



1-2-7. Current Situation of Primary Domestic Production Base (Major Industries)

Figure 1-2-7. Recognition of Overall Situation of Domestic Production Base, by Industry



1-3. Non-manufacturing

1-3-1. Trends in the Non-manufacturing Sector (1)

Spending increase is planned for the eighth straight year.

- In the non-manufacturing sector, planned investment shows an increase for the eighth consecutive year, as spending will continue for the enhancement of urban functions, including in transportation and real estate. Investment will also continue in stores and logistics to cope with the labor shortage, as well as in the development of digital infrastructure.

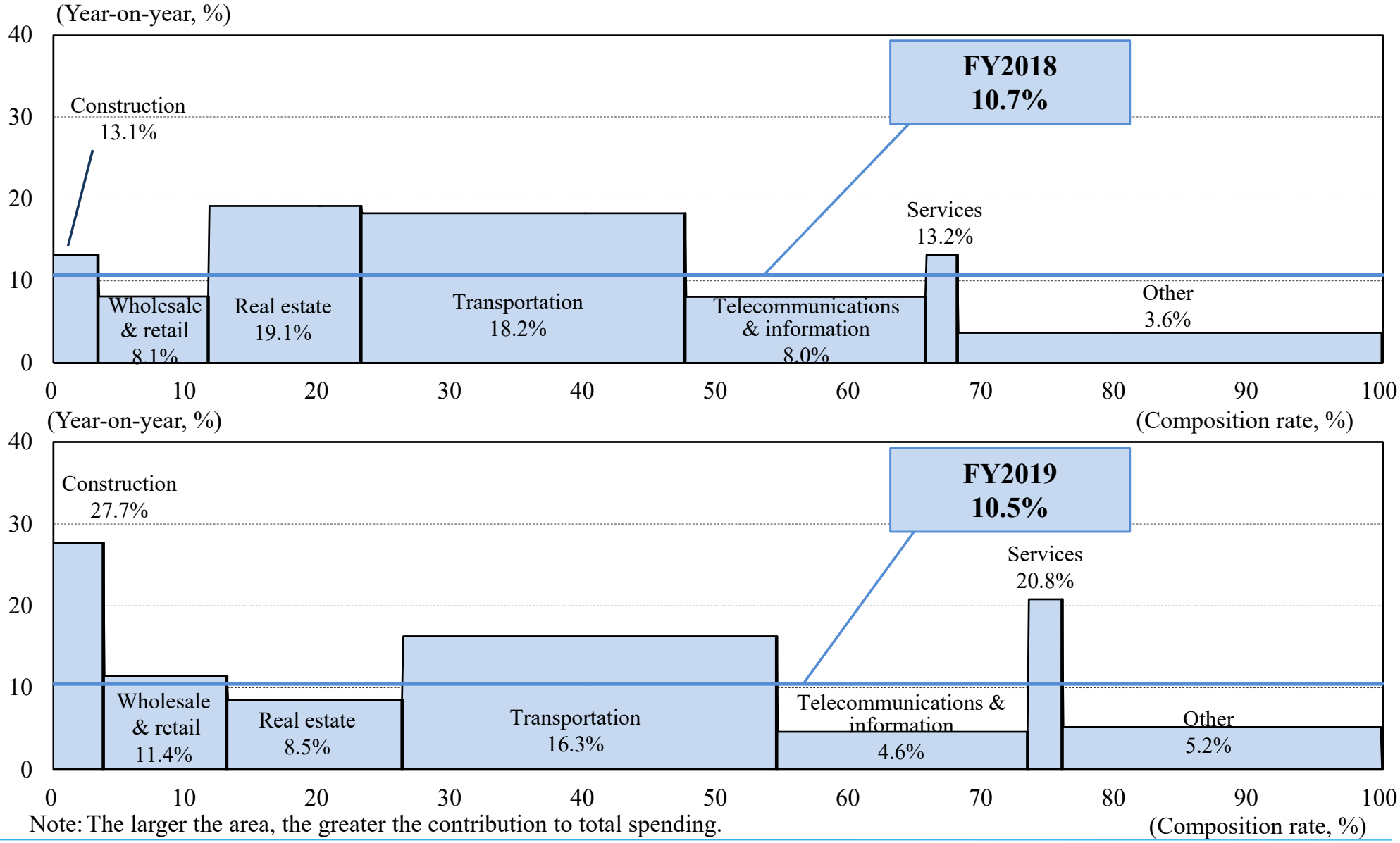
Figure 1-3-1. Industries with the Greatest Contribution to Planned Capital Spending for FY2019 (Non-manufacturing)

(%)	Year-on-year	Composition rate	Drivers of the increase/decrease
(1) Transportation	16.3	28.2	Measures to increase speed and improve safety in railways, real estate development, development of logistics facilities
(2) Real estate	8.5	13.2	Development projects in central Tokyo, including international business hubs and large complex facilities
(3) Wholesale & retail	11.4	9.3	Labor-saving investment in convenience stores, development of logistics facilities in wholesale
Reference: Services	20.8	2.6	Investment in theme parks to attract inbound tourists, other
Reference: Telecommunications & information	4.6	18.9	Investment in data centers and development of base stations and networks in preparation for 5G technology
Non-manufacturing as a whole	10.5		

Note: Composition ratio is defined as the ratio of capital spending by each industry to that of the whole non-manufacturing sector in FY2018.

1-3-2. Non-manufacturing Skyline Graph

Figure 1-3-2. Composition and Growth of Capital Spending, by Major Industry



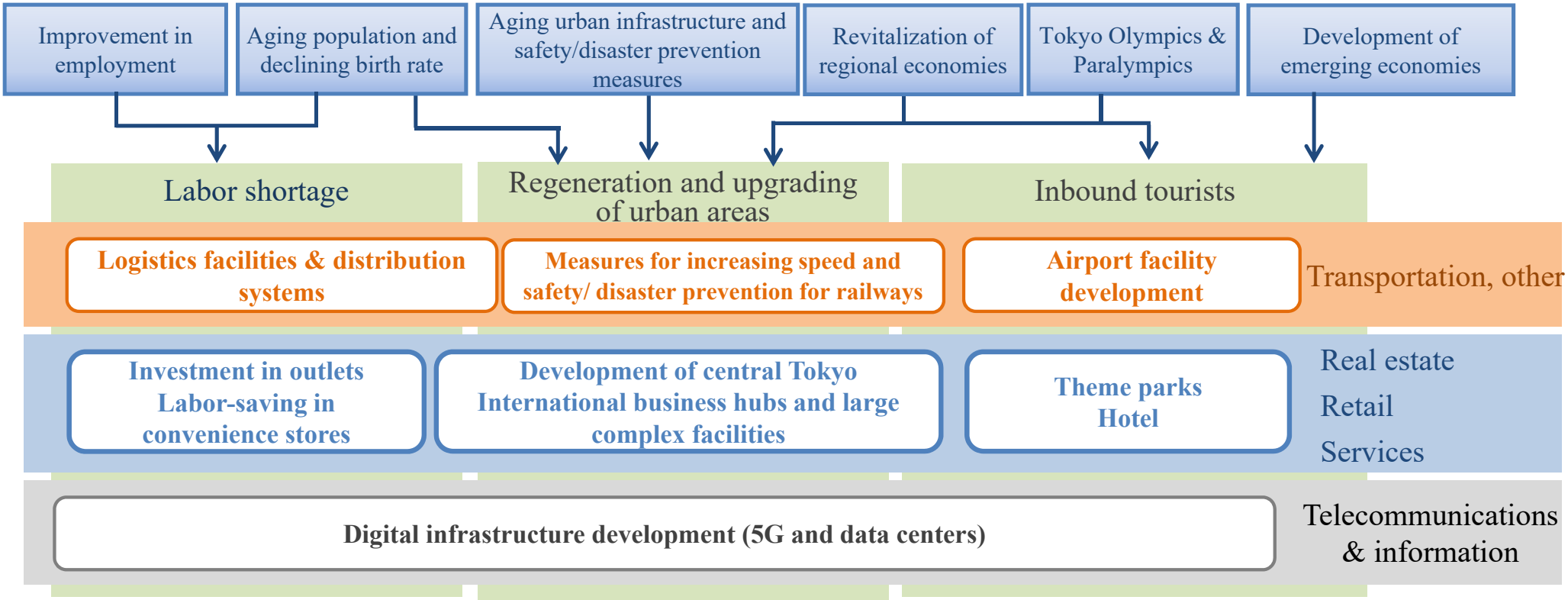
Note: The larger the area, the greater the contribution to total spending.

1-3-3. Trends in the Non-manufacturing Sector (2)

Expansion of spending in response to urban renovation and higher functionality, inbound tourists, labor shortage, other

- Spending in transportation and real estate will be led by measures to increase speed and improve safety/disaster prevention in railways, as well as investment in real estate development, mainly in central Tokyo, and the development of local logistics facilities.
- Investment related to infrastructure and theme parks to capture opportunities created by the rising number of inbound tourists and Tokyo 2020 will remain robust, as well as labor-saving investment in convenience stores and logistics facilities to cope with the labor shortage.
- Spending on the development of base stations/networks and data centers will also continue, in view of the commercialization of 5G in 2020.

Figure 1-3-3. Backdrop of Capital Spending in the Non-manufacturing Sector



2. Attitudes toward “Investment in a Broader Sense”

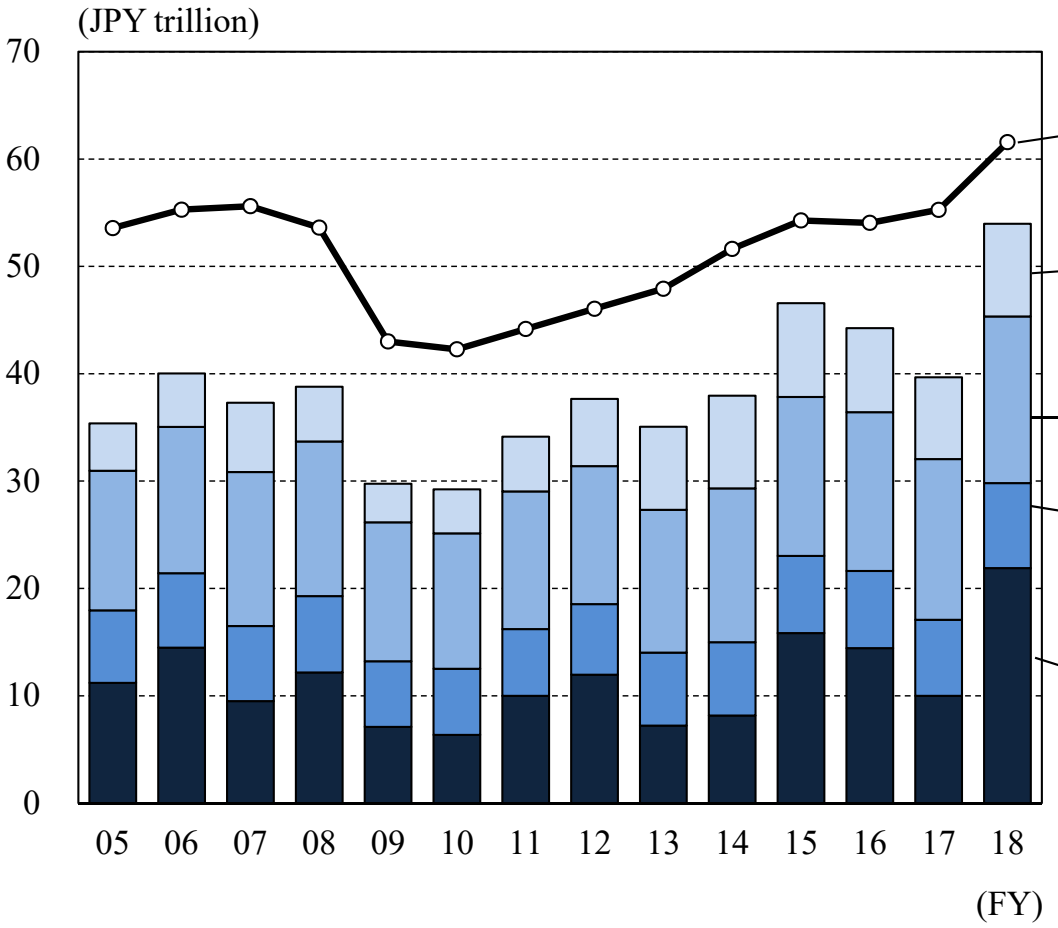
2-1. Concept of “Investment in a Broader Sense”

2-1-1. Corporate Approach to Future

Corporate approach to future
"Investment in a broader sense"

→ General actions for corporate growth, survival and improvement of business valuation in future

Figure 2-1-1. Domestic Tangible Fixed Asset Investment and Other Investment in a Broader Sense



Investment in a broader sense

Investment in a narrow sense

(1) Domestic tangible fixed asset investment

(2) Overseas tangible fixed asset investment

(3) R&D expenditure

(4) Intangible fixed asset investment
(software investment, other)

(5) M&A

(6) Human investment
(not shown in the chart, as the amount is hard to quantify)

Sources:

(1), (3) and (4) Cabinet Office

"Annual Report on National Accounts"

(2) METI

"Basic Survey on Overseas Business Activities"

Fiscal year data for overseas tangible fixed asset investment

(5) RECOF data
Amount represents the total of In-In and In-Out.

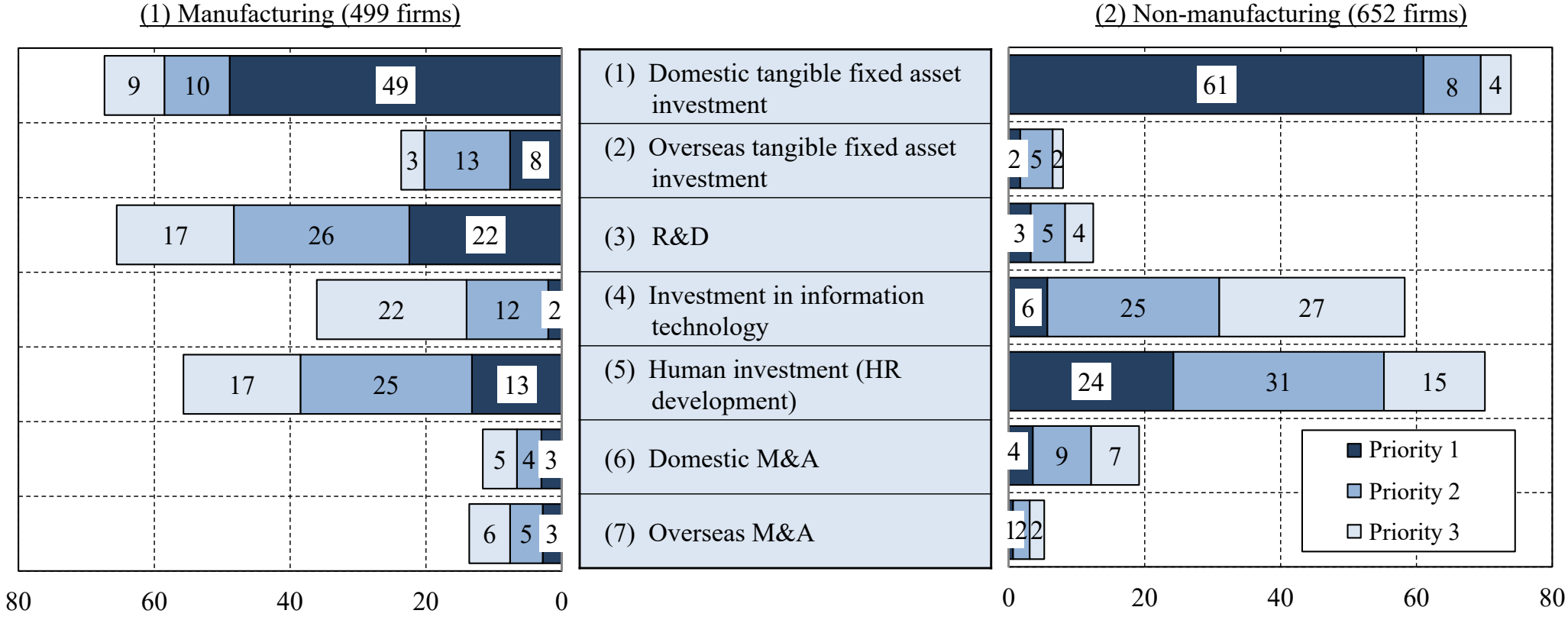
Note: The 2018 data for items (1)-(4) is extrapolated from DBJ Survey on Capital Spending (actual data for FY2018).

2-1-2. Priority of “Investment in a Broader Sense”

The manufacturing sector has three main pillars:
domestic tangible fixed asset investment, R&D and human investment.

- In the manufacturing sector, (1) “Domestic tangible fixed asset investment,” (3) “R&D” and (5) “Human investment (HR development)” form the three main pillars of “investment in a broader sense.” In the non-manufacturing sector, top priority is given to (1) “Domestic tangible fixed asset investment,” followed by (5) “Human investment (HR development).”

Figure 2-1-2. Priority of “Investment in a Broader Sense”



Note: Choose up to three answers.

2-2. Capital Spending Overseas

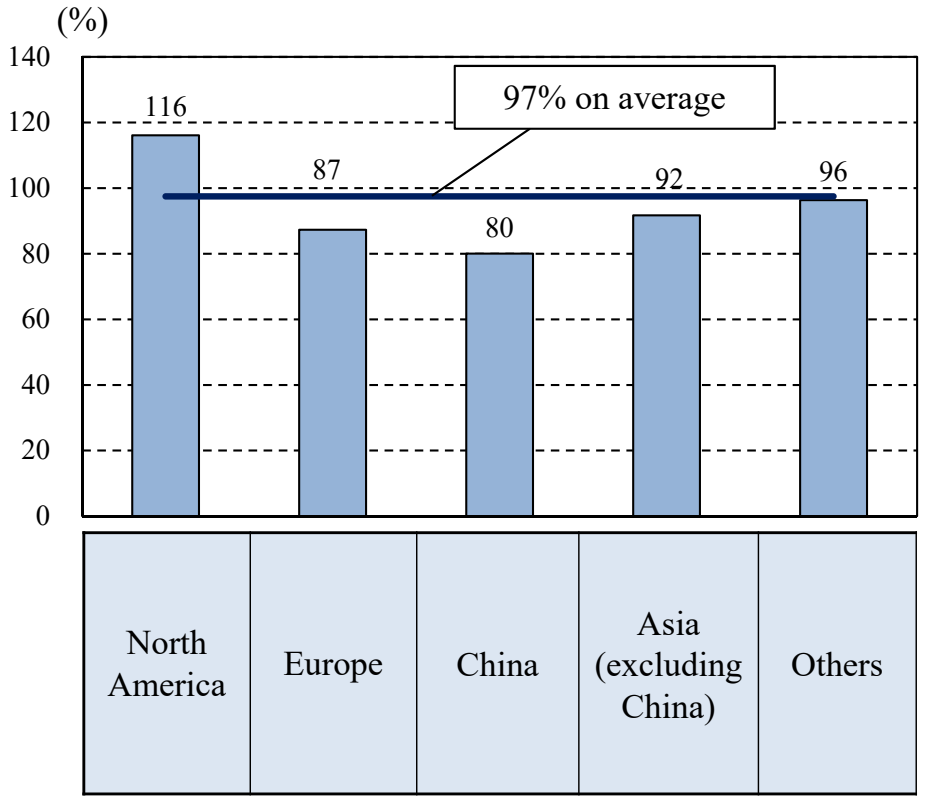
2-2-1. Trend of Capital Spending Overseas (Overview)

- Capital spending overseas (consolidated basis) in FY2018 rose 13.4% on the previous year, driven by transport equipment in the US and Europe. Although investment in China also rose 12.8%, planned spending was substantially revised downward due to concerns about the US-China trade friction, and the slowdown of the Chinese economy.
- Planned spending for FY2019 shows a year-on-year increase of 10.2%. The completion of investment projects in North America will be more than offset by increased spending in China in response to local demand, including for automobile electrification and labor-saving, as well as in other parts of Asia.

Figure 2-2-1-1. Trend of Capital Spending Overseas (Consolidated Basis)

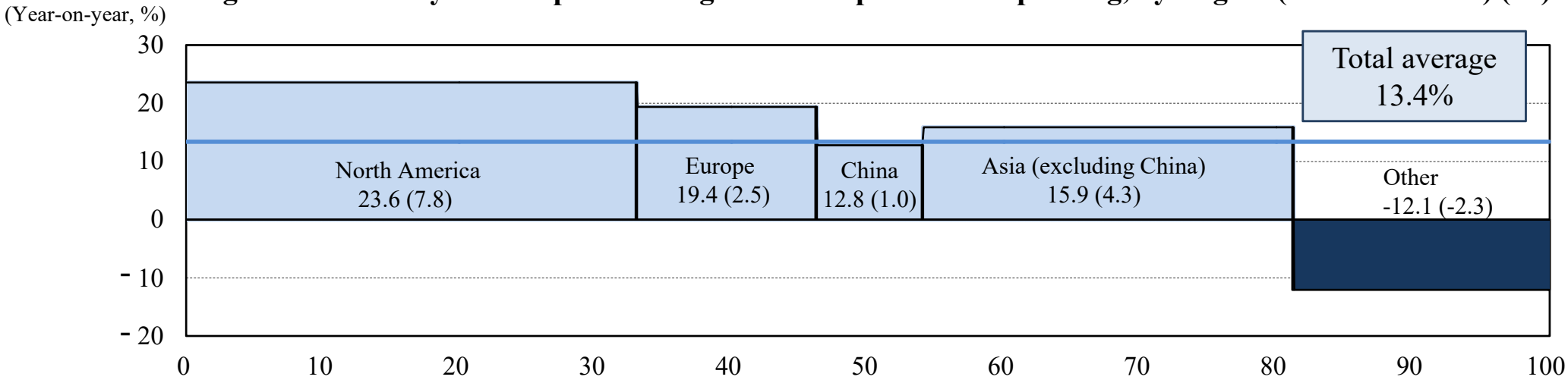
(Year-on-year, %)	FY2018 (actual) (681 firms)	FY2019 (planned) (774 firms)
Total	13.4	10.2
North America	23.6	-0.4
Europe	19.4	9.6
China	12.8	22.7
Asia (excluding China)	15.9	21.8
Others	-12.1	0.9

Figure 2-2-1-2. Actual vs. Planned Spending in FY2018 (by Region)



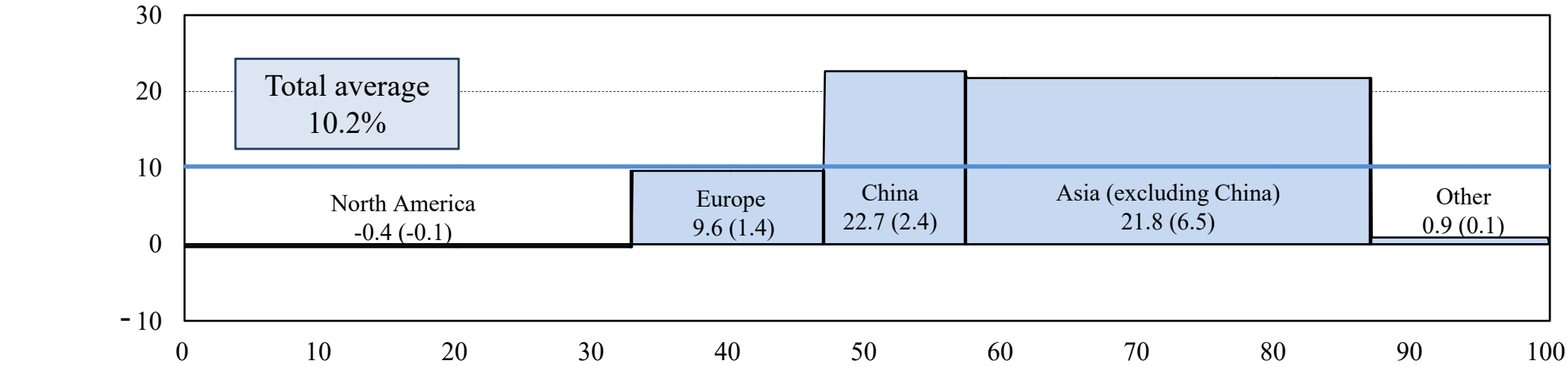
2-2-2. Skyline Graph of Capital Spending Overseas, by Region

Figure 2-2-2-1. Skyline Graph of Change and Composition in Spending, by Region (Actual FY2018) (%)



Note: Figures indicate change in FY2018 actual spending versus FY2017 actual spending. Figures in parentheses indicate contribution to the total spending. (Composition rate, %)

Figure 2-2-2-2. Skyline Graph of Change and Composition in Spending, by Region (Planned FY2019) (%)

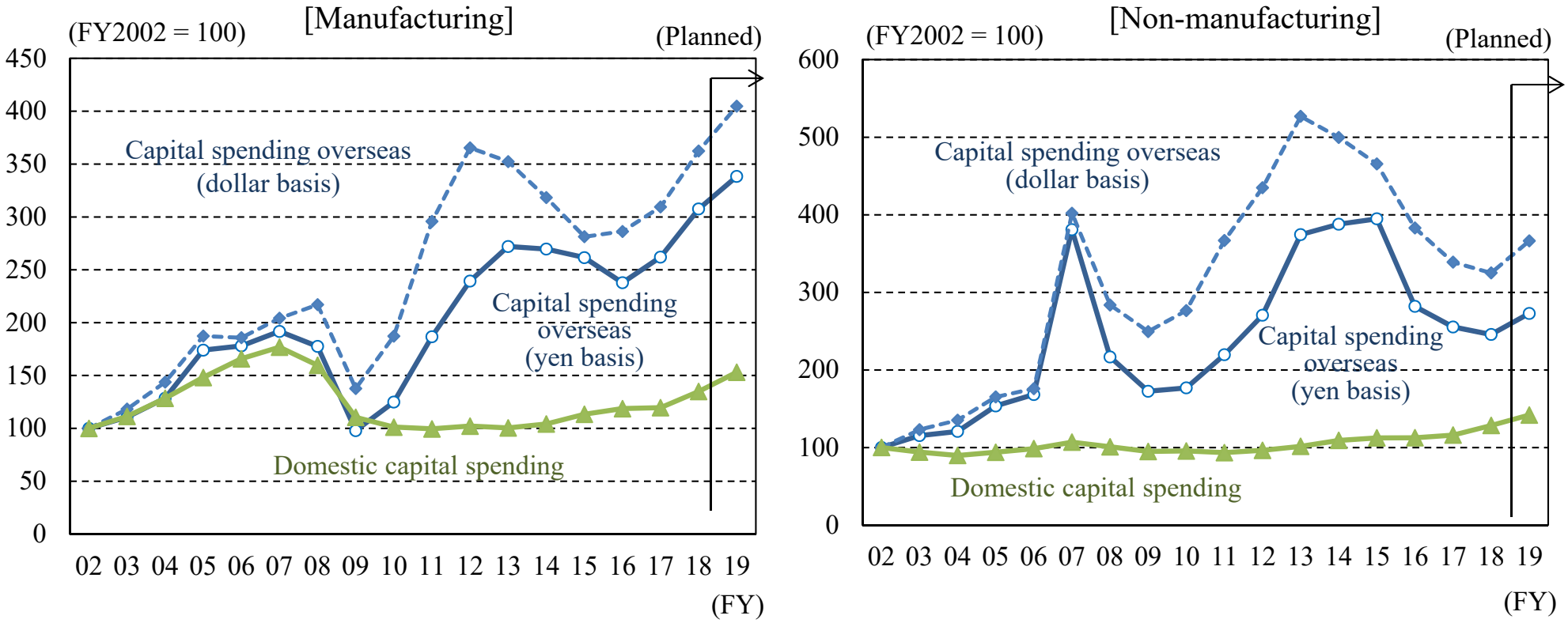


Note: Figures indicate change in FY2019 planned spending versus FY2018 actual spending. Figures in parentheses indicate contribution to the total spending. (Composition rate, %)

2-2-3. Trend of Capital Spending Overseas (Time Series)

- Capital spending overseas by manufacturers was on a downtrend until around FY2016, then recorded back-to-back double-digit increases in FY2017 and 2018, largely thanks to the recovering world economy. An increase is planned in both manufacturing and non-manufacturing for FY2019.

Figure 2-2-3. Trend of Overseas Capital Spending Ratio



2-2-4. Overseas Capital Spending Ratio

The overseas capital spending ratio in manufacturing has risen for three straight years through FY2018.

- In FY2018, overseas investment in the manufacturing sector grew faster than domestic spending, resulting in an overseas capital spending ratio (consolidated) of some 40%, and recording the third straight year of increase. In FY2019, the ratio is expected to remain almost unchanged year-on-year.

Figure 2-2-4-1. Trend of Overseas Capital Spending Ratio (Overseas/(Overseas + Domestic)

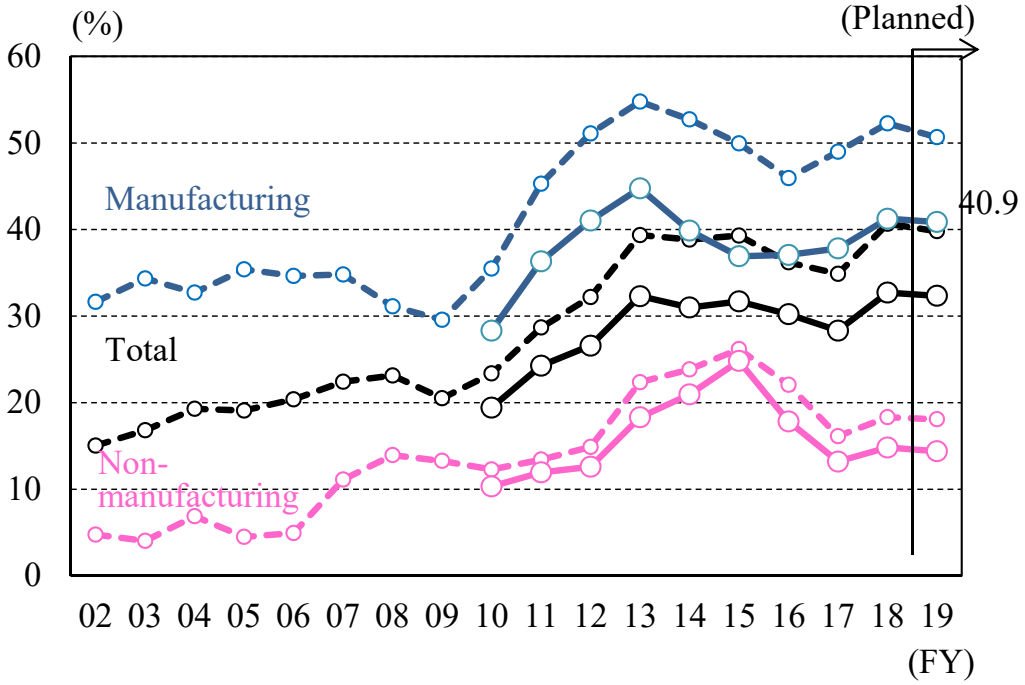
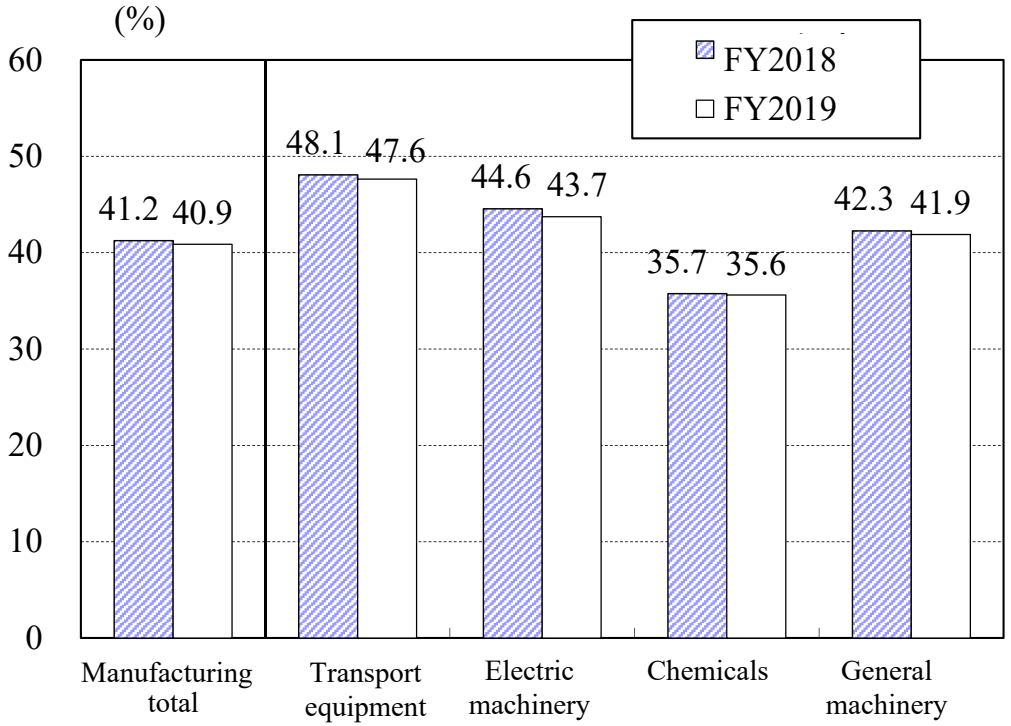


Figure 2-2-4-2. Overseas Capital Spending Ratio, by Industry (Consolidated Basis)



Notes: Dotted lines: consolidated overseas/(non-consolidated domestic + consolidated overseas)
Solid lines: consolidated overseas/(consolidated domestic + consolidated overseas)
*Data on consolidated domestic capital spending have been available since the FY2010 survey.

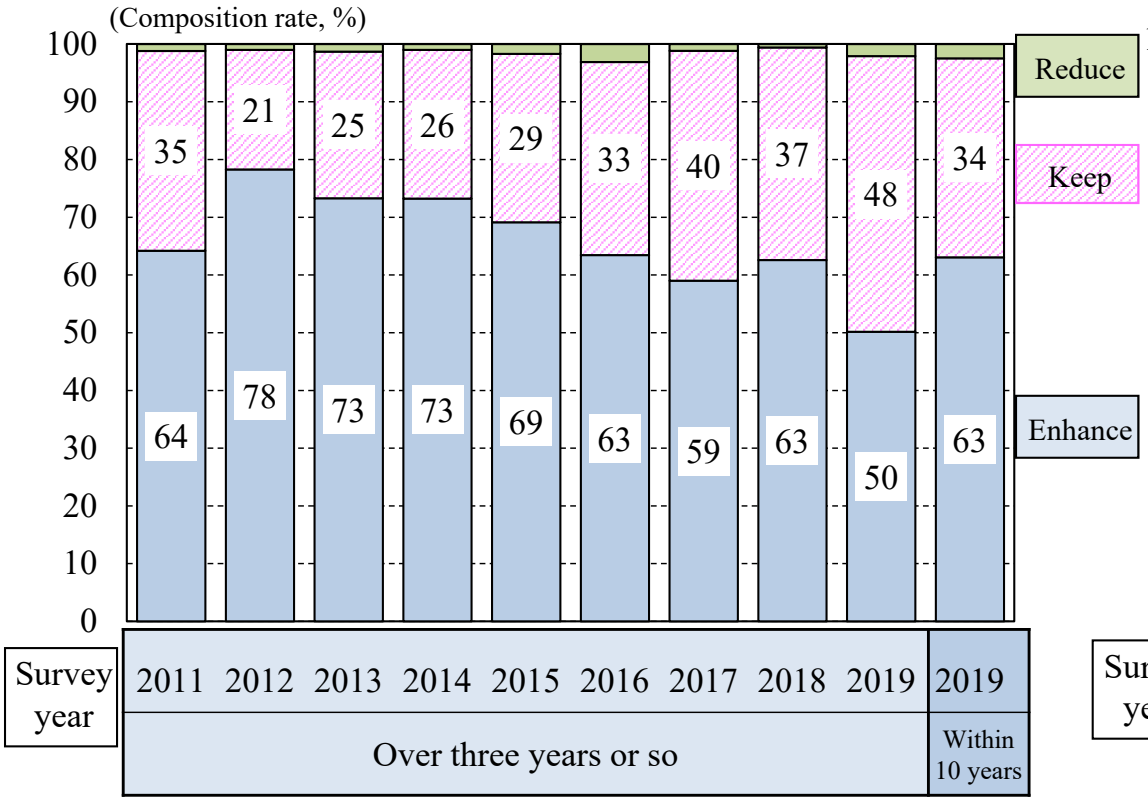
2-2-5. Domestic and Overseas Operation: Medium-Term Outlook (Manufacturing)

Spending overseas will become less aggressive over the coming three years or so.

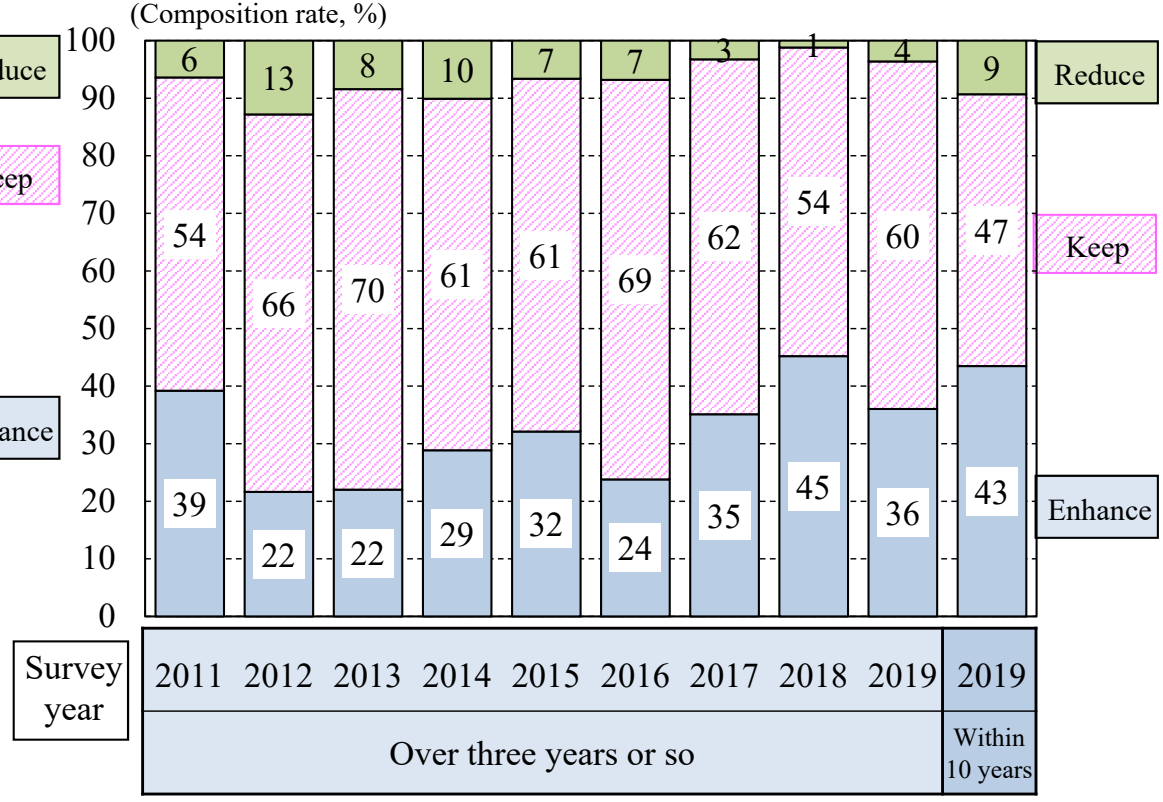
- Asked about their outlook for medium-term supply capacity over the coming three years or so, only some 50% of manufacturers report that they will enhance operations overseas, reacting to aggressive investment behavior a year earlier. However, some 60% of manufacturers intend to increase their spending overseas within 10 years.
- In the domestic market, about 60% of manufacturers are willing to maintain the current supply capacity over the next three years or so, but some 10% of the firms intend to reduce operations in Japan within 10 years.

Figure 2-2-5. Medium-Term Domestic and Overseas Supply Capacity (Manufacturing)

(1) Overseas production sites



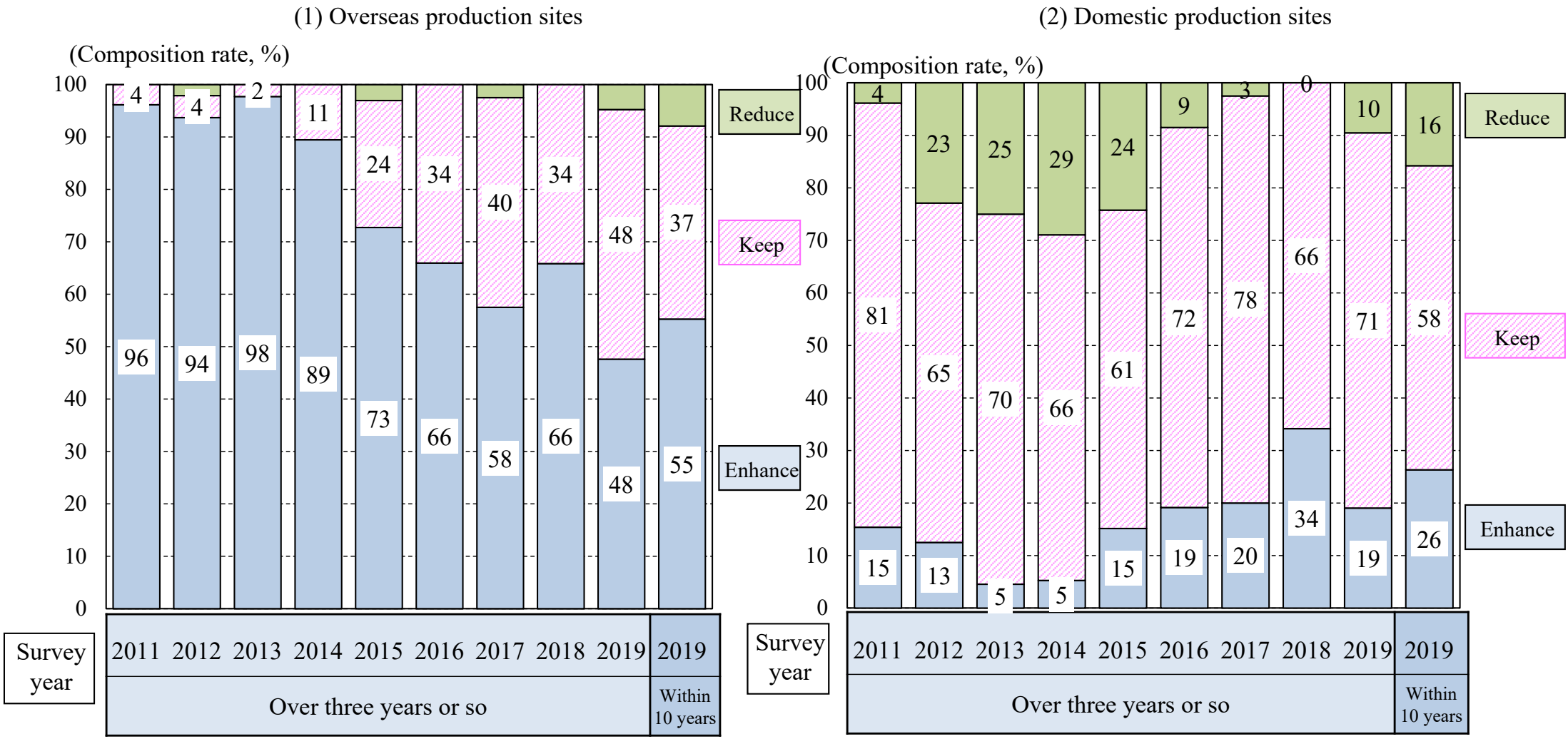
(2) Domestic production sites



Note: Data covers the firms reporting both domestic and overseas operations (333 firms in FY2019).

2-2-6. Domestic and Overseas Operation: Medium-Term Outlook (Transport Equipment)

Figure 2-2-6. Medium-Term Domestic and Overseas Supply Capacity (Transport Equipment)



Note: Data covers the firms reporting both domestic and overseas operations (42 firms in FY2019).

2-3. R&D Activities

2-3-1. R&D Expenditure

Planned R&D expenditure shows a continued uptrend.

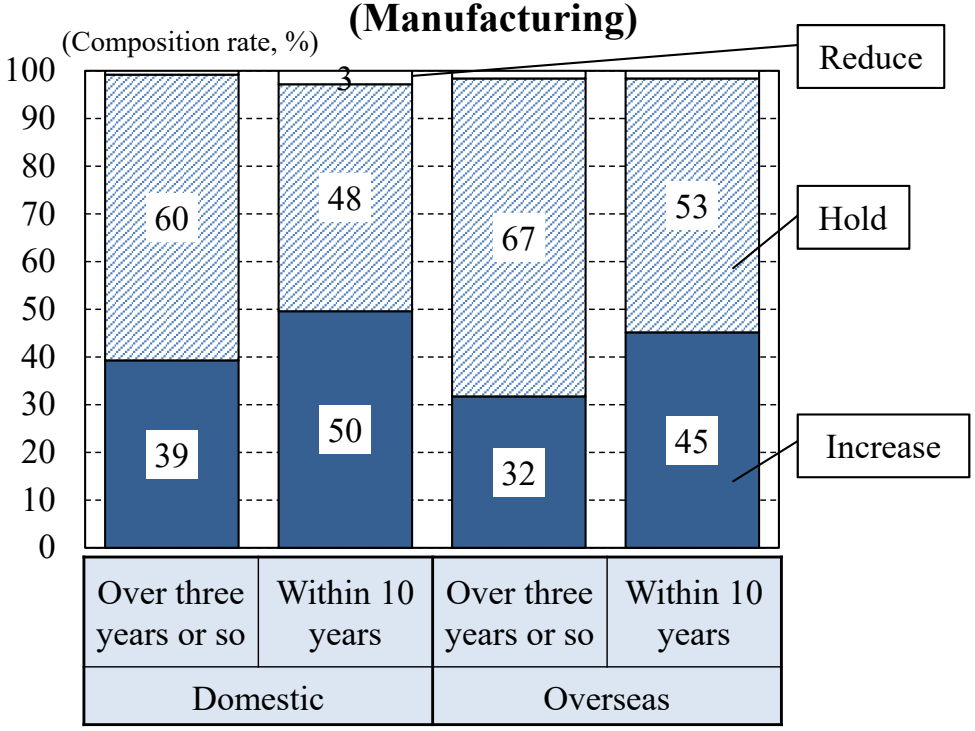
- R&D expenditure in FY2018 (on a consolidated basis) rose 3.6% overall, with planned expenditure for FY2019 showing another increase of 6.9%. The continued uptrend is led by transport equipment with the development of advanced technologies for the future including drive assist/autonomous driving functions and electrification.
- Among the respondents, forty percent expect that R&D activities will increase in Japan over the coming three years or so. Although only 30% of firms report that they will increase R&D in the near future, R&D activities overseas are expected to be increased within 10 years.

Figure 2-3-1-1. R&D Expenditure (Consolidated Basis)

Year-on-Year, %	FY2018 (Actual) (682 firms)	FY2019 (Planned) (757 firms)	Composition rate, % (FY2018)
Total	3.6	6.9	100.0
Manufacturing	3.5	6.8	98.5
Transport equipment	4.7	5.6	47.3
Chemicals	5.2	13.7	18.9
Electric machinery	1.4	3.5	18.8
Non-manufacturing	6.9	13.8	1.5

Note: For the purpose of this survey, R&D expenditure comprises all costs related to R&D, including personnel cost, raw materials cost, depreciation cost and allocated overhead.

Figure 2-3-1-2. Prospects for R&D Activities (Manufacturing)



Note: Firms reportedly conducting R&D activities both in Japan and overseas (252 firms in FY2019).

2-3-2. Utilization of Open Innovation and Other External Resources

Utilization of open innovation differs depending on the size of the firm.

- About 30% of respondents report increased utilization of open innovation, but the ratio exceeds 50% among firms capitalized at JPY 10 billion or over.
- Problems in partnerships include (1) Time-consuming bureaucracy (in the case of large companies); (4) Risk of technology/information leakage (in the case of small companies and overseas institutions); and (7) Few practical research outcomes (in the case of Japanese universities and research institutes).

Figure 2-3-2-1. Opportunities for Utilizing Open Innovation and Other External Resources

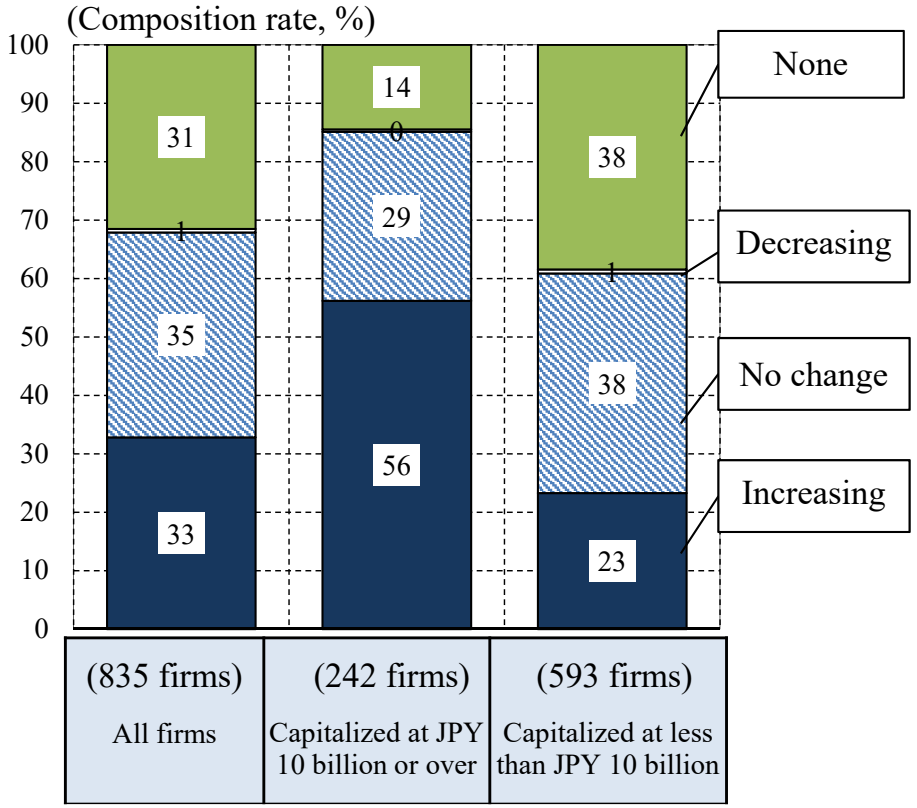
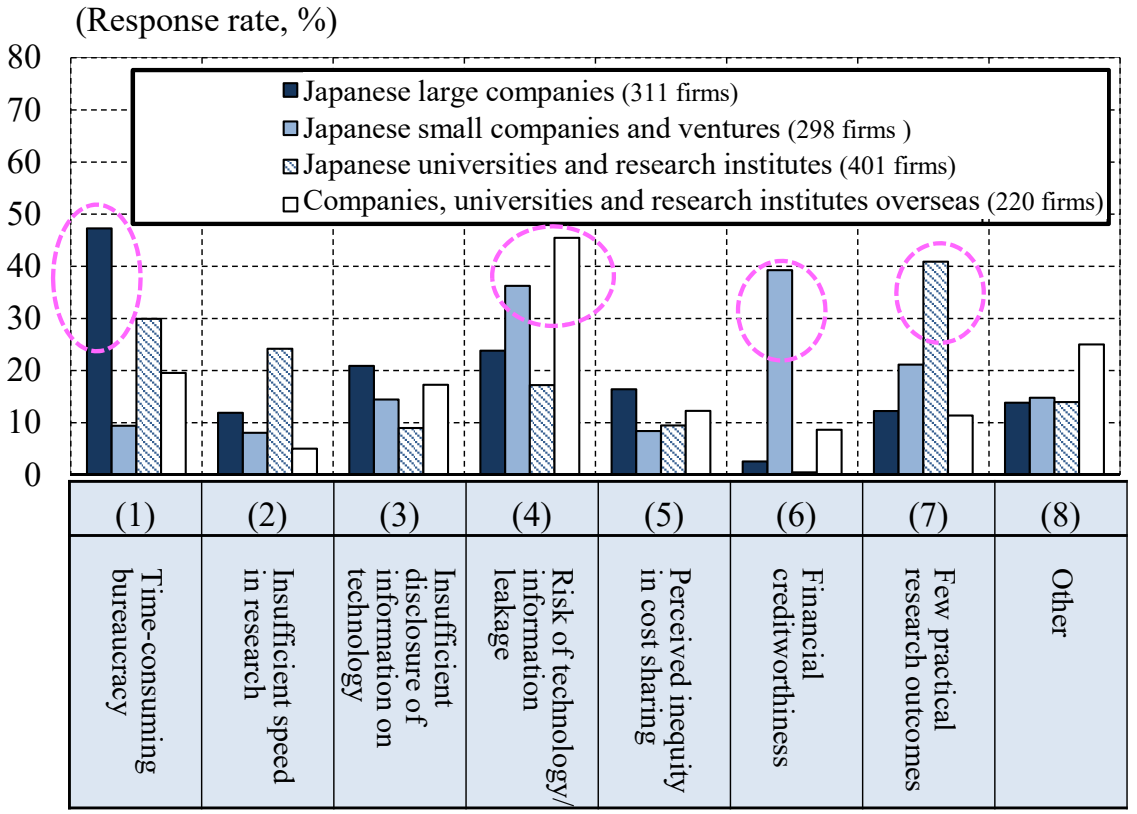


Figure 2-3-2-2. Problems with Partners in Open Innovation



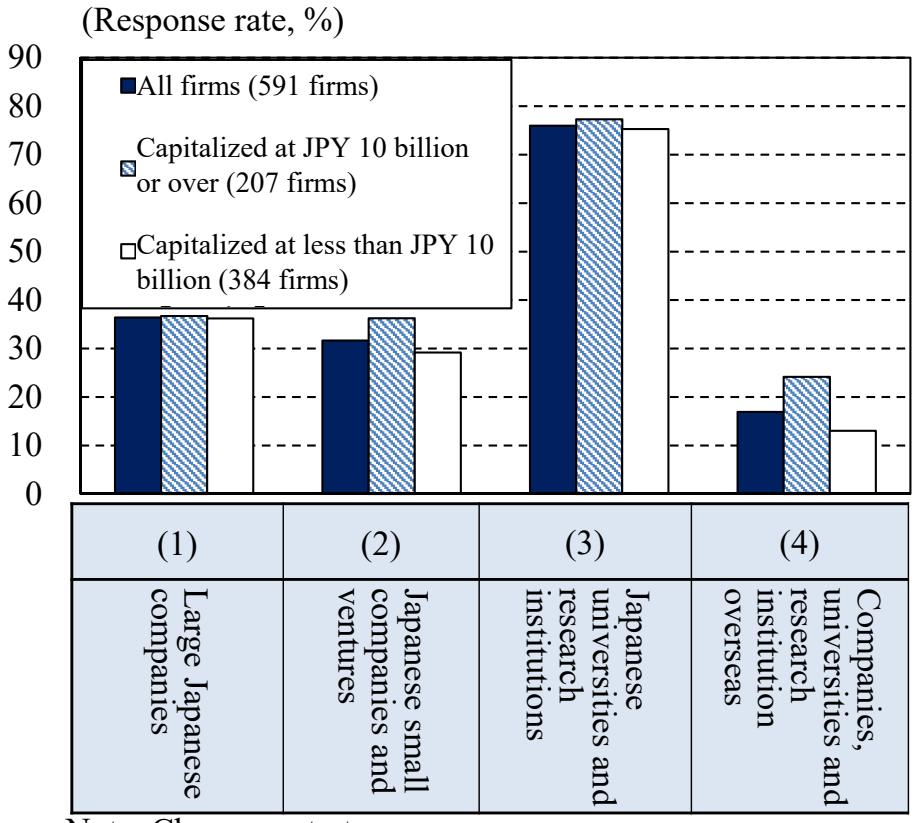
Notes: Up to two answers per partner.

2-3-3. Partners and Effect of Open Innovation

Larger firms have more diversified partners in open innovation.

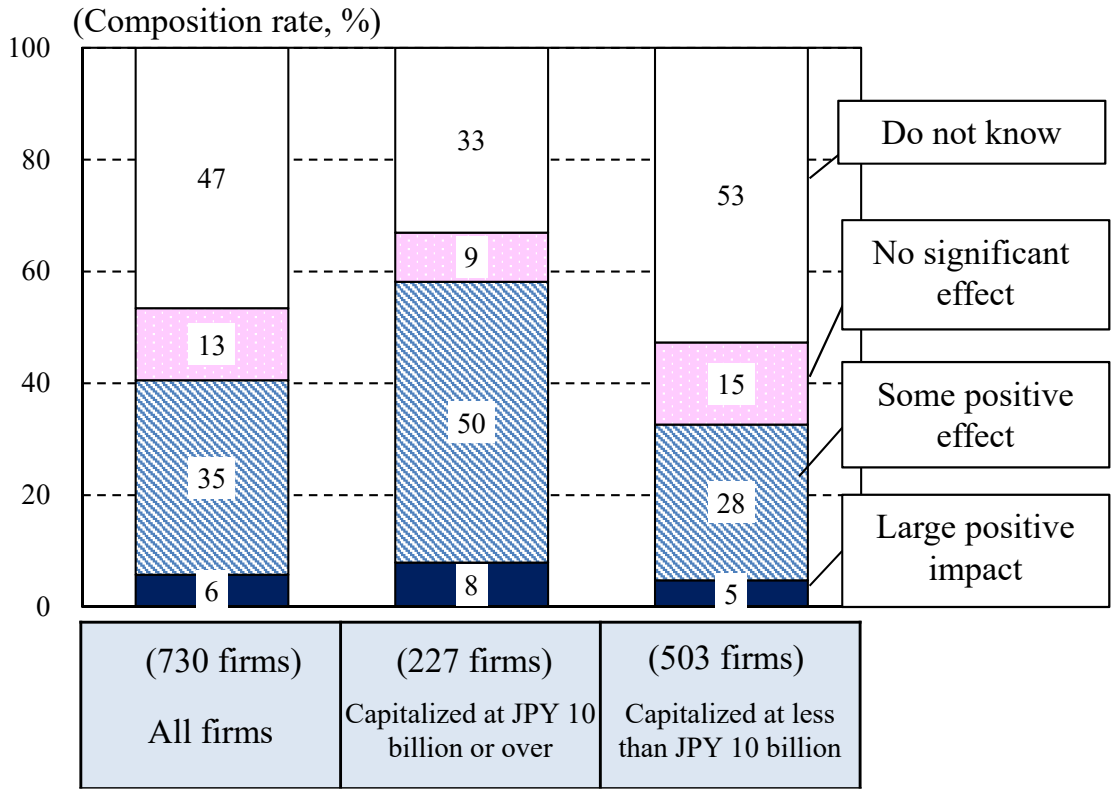
- Partners in the implementation of open innovation are mostly Japanese universities and research institutes, but the firms capitalized at JPY 10 billion or over are relatively active in partnering with small companies, ventures and foreign institutions. About 60% of the firms capitalized at JPY 10 billion or over report a positive impact of open innovation on research efficiency.

Figure 2-3-3-1. Partners in Open Innovation



Note: Choose up to two answers.

Figure 2-3-3-2. Effect of Open Innovation on Product Development, Research Efficiency etc.



2-4. Investment in Information Technology

2-4-1. Trend of Investment in Information Technology (1)

Substantial growth of IT investment continues.

- In FY2018, information technology investment rose 11.8% on the previous year on the back of system replacement investment in transport machinery in the manufacturing sector, and spending on store operation systems in retail in the non-manufacturing sector.
- A substantial increase of 35.4% on the previous year is planned for FY2019. The manufacturing sector will be led by investment for factory efficiency in general and electric machinery, while spending in the non-manufacturing sector will be propped up by maintenance operation systems in electric power & gas.

Figure 2-4-1. Plan for IT Investment

(Year-on-year, %)

Industry	FY2018 Actual (909 firms)	FY2019 Planned (1,027 firms)	Project examples in FY2018 and 2019
Total	11.8	35.4	
Manufacturing	10.1	34.5	
General machinery	-11.7	52.6	Automation of production lines with the IoT and smart factories
Electric machinery	-20.6	32.4	Integrated production management at multiple factories in Japan by introducing the IoT
Transport equipment	22.6	29.8	Renovation of aging factory systems
Non-manufacturing	13.4	36.6	
Wholesale & retail	7.5	18.0	Introduction of checkout and other store operation systems
Transportation	4.5	40.9	Investment to improve convenience in airline passenger cabins
Electric power & gas	24.8	72.8	Operation/maintenance systems at power stations

Note: Includes IT investment accounted for as expenses.

2-4-2. Trend of Investment in Information Technology (2): Utilization of AI and IoT

Utilization of AI and the IoT differs depending on the size of the firm.

- Among all firms, 80% report that investment in information technology has grown faster than tangible fixed asset investment in recent years.
- Among respondents, 40% are utilizing, or considering utilizing, AI, the IoT, but this ratio rises to some 70% among firms capitalized at JPY 10 billion or over, as more firms report utilization versus two years ago. Although interest is growing among firms capitalized at less than JPY 10 billion, actual utilization has not made headway.

Figure 2-4-2-1. Trend of IT Investment in Recent Years
(Comparison with Tangible Fixed Asset Investment)

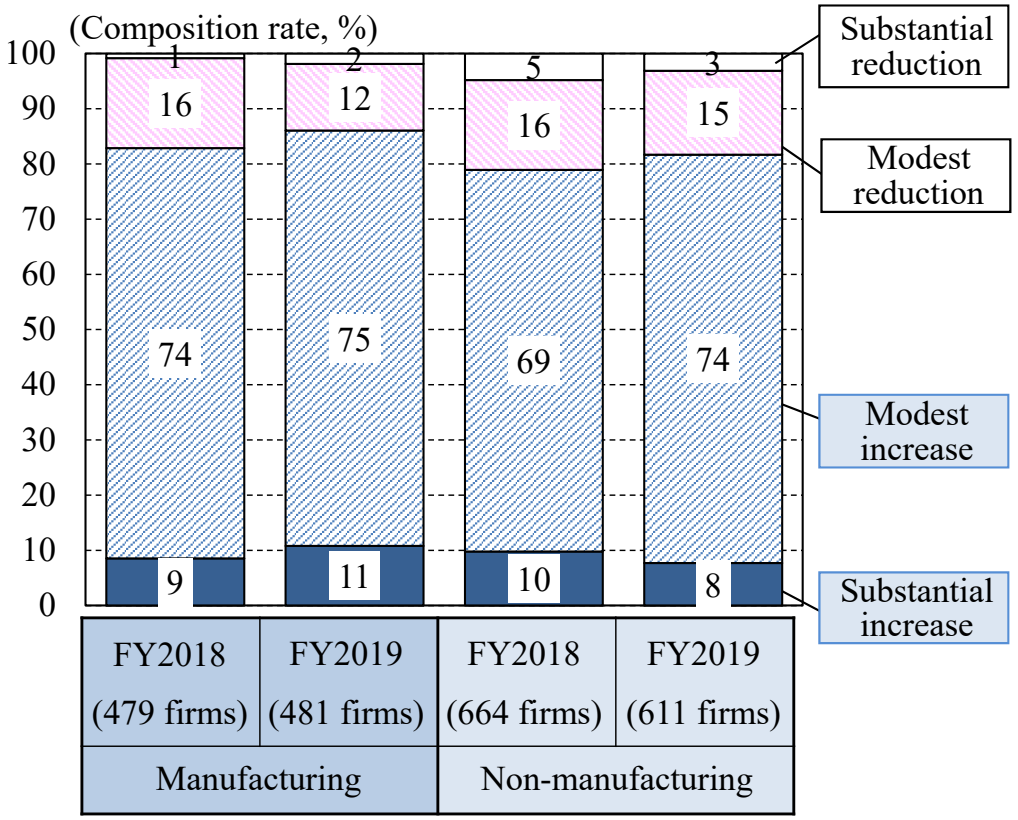
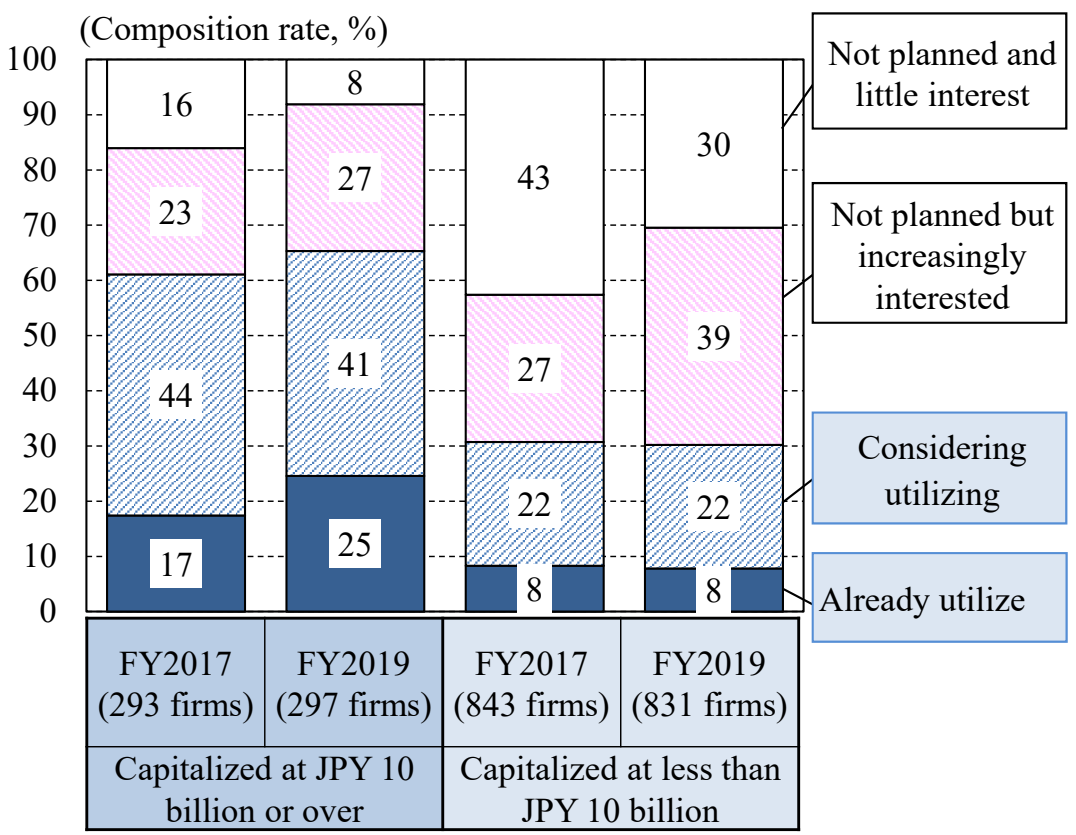


Figure 2-4-2-2. Utilization of AI, IoT



2-4-3. Effect of Utilizing AI and IoT and Challenges for Introduction and Utilization

Among all firms utilizing AI or the IoT, 80% recognize a positive impact.

- About 80% of firms utilizing AI or the IoT report a positive impact.
- As regards major challenges for the introduction and utilization of AI and the IoT, many point to (1) Shortage of experts or (2) Lack of internal understanding or knowledge of technology.

Figure 2-4-3-1. Effect of Using AI and IoT

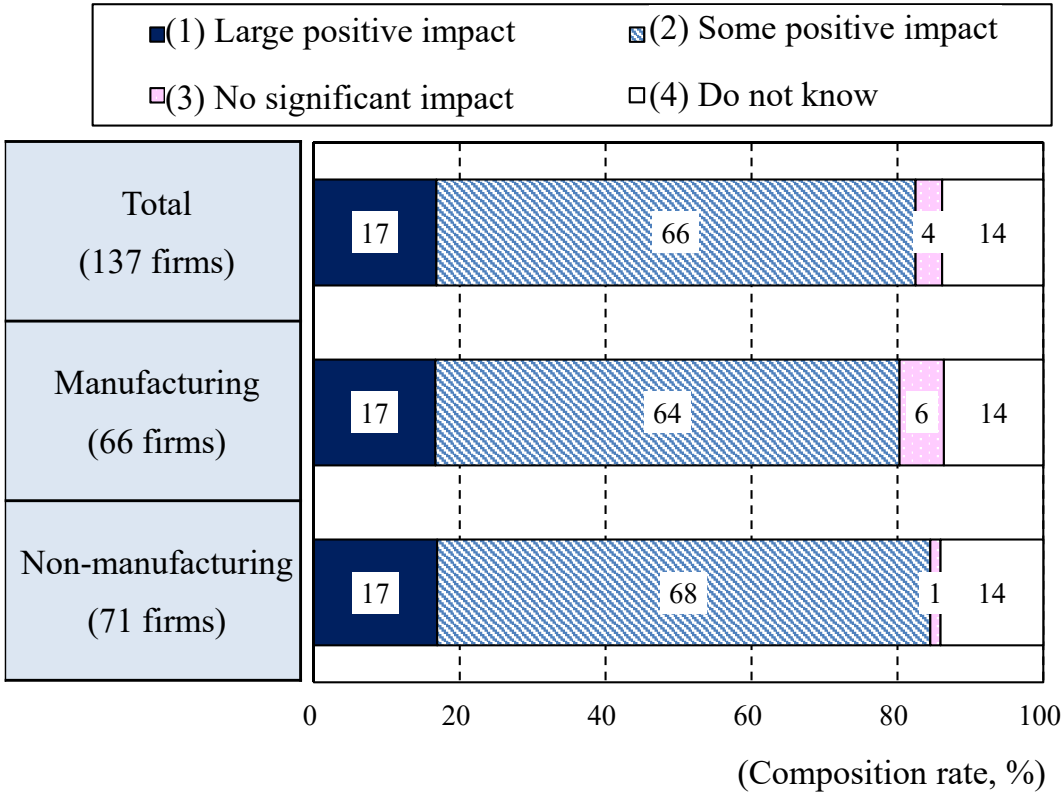
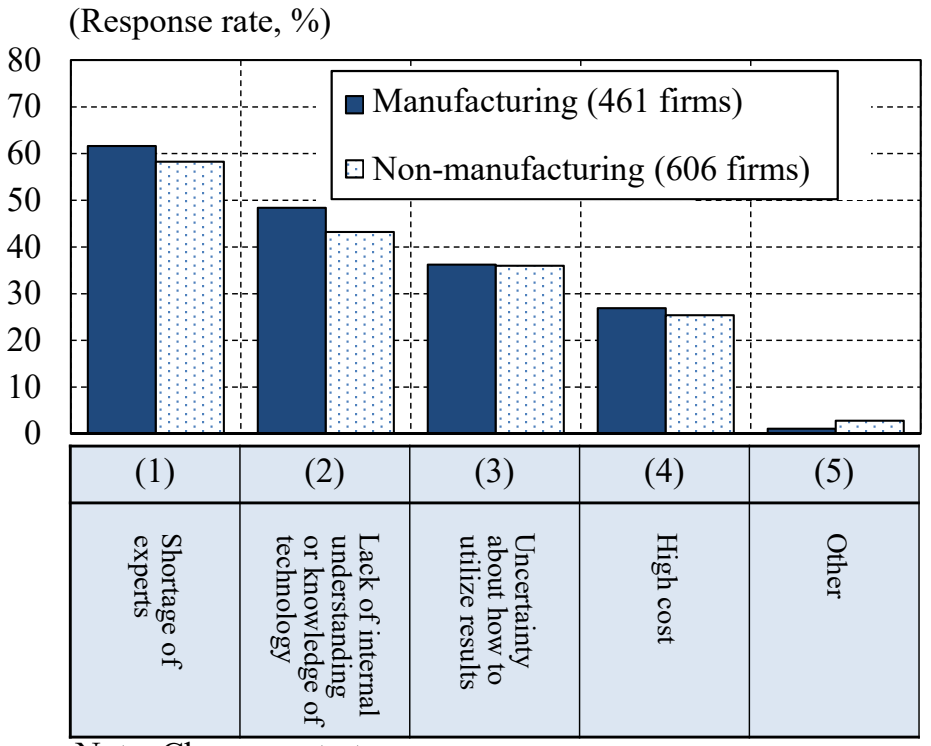


Figure 2-4-3-2. Challenges for Introduction and Utilization of AI and the IoT



Note: Choose up to two answers.

2-4-4. Impact of Digitalization on Business Models

Among all firms, 70% report an impact of digitalization on their business model or environment.

- Asked about impact of digitalization in industries and societies through new technologies such as AI, the IoT and 5G, 70% of firms report an impact on their business model or environment. Among the manufacturers, the impact is strongly felt in the processing and assembly industries.
- The impact mostly manifests itself in (1) Diversification of profit-making opportunities in the processing and assembly industries, and in (3) Radical changes in cost structure in the materials industries.

Figure 2-4-4-1. Impact of Digitalization in Industries and Societies through AI, IoT, 5G and Other New Technologies

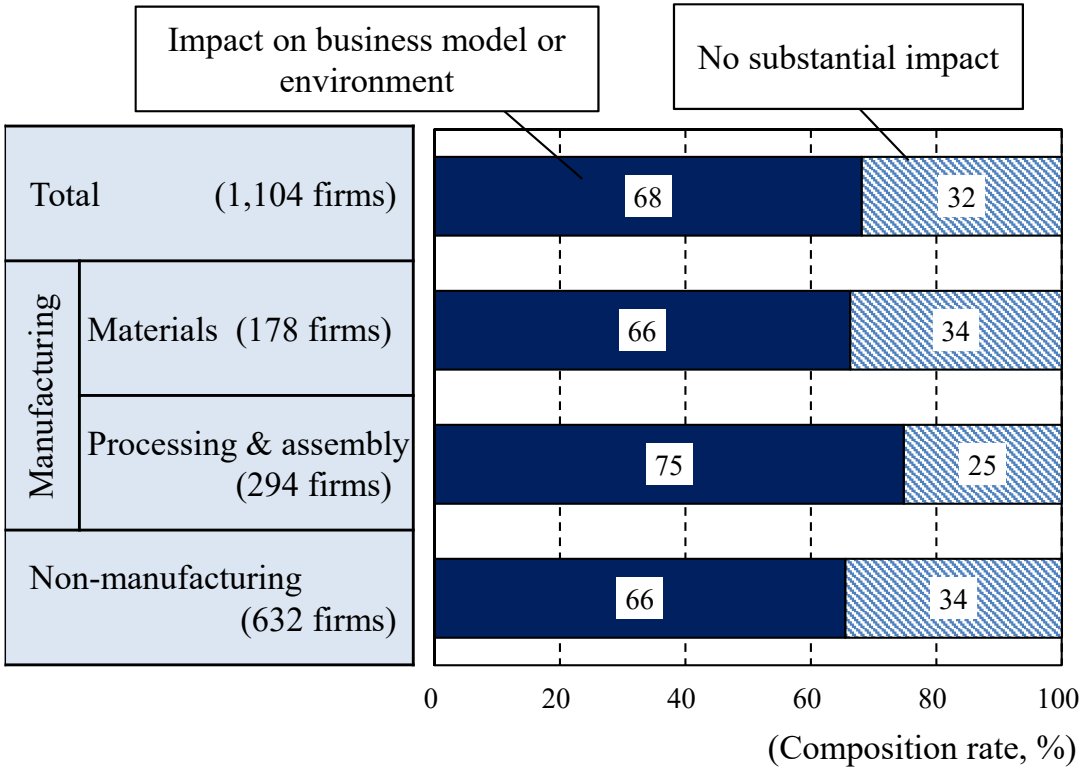
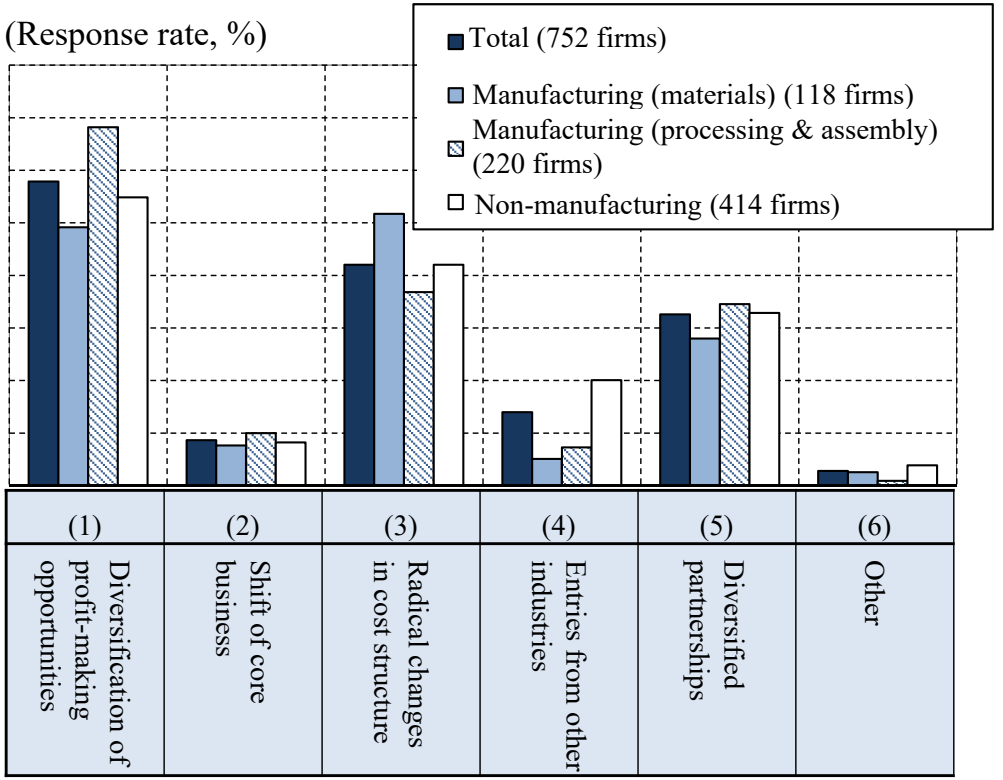


Figure 2-4-4-2. Concrete Impact of Digitalization



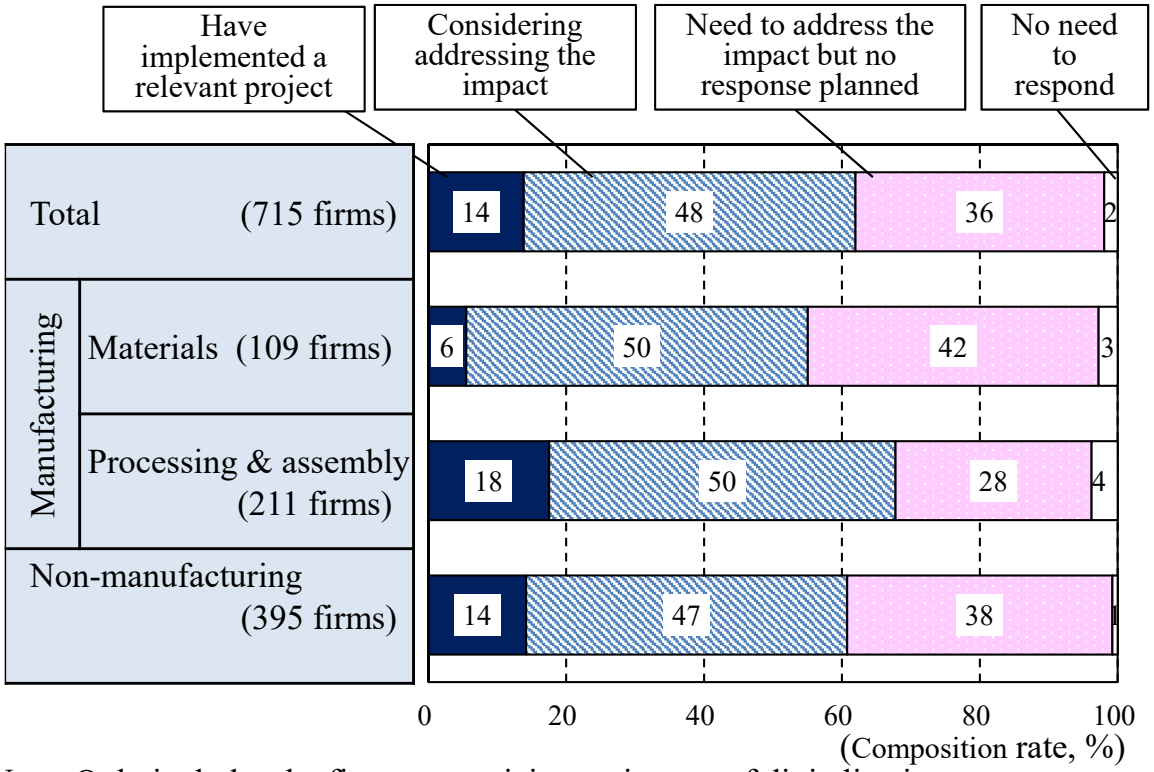
Note: Choose up to two answers.

2-4-5. Response to Impact of Digitalization

Among firms reporting an impact of digitalization, 60% have addressed or are considering addressing it.

- Some 60% of firms recognizing an impact of digitalization have addressed or are considering addressing it, as they feel the need to respond to the impact. The share of firms having addressed or considering addressing the impact reaches 70% in general machinery, electric machinery and other processing & assembly industries in the manufacturing sector, as well as construction and communications & information industries in the non-manufacturing sector.
- Actual examples of responses include remote operation and maintenance, leveraging 5G and other technologies, and the building of new profit-making opportunities through Mobility as a Service(MaaS) projects.

Figure 2-4-5-1. Response to Impact of Digitalization



Note: Only includes the firms recognizing an impact of digitalization

Figure 2-4-5-2. Actual Examples of Responses

	Industry	Example
Manufacturing	General machinery	Remote monitoring of equipment, preventive maintenance
	Electric machinery	Remote maintenance, production automation
	Precision machinery	Telemedicine, AI to support diagnosis
Non-manufacturing	Transportation	Mobility as a Service(MaaS), unattended operation, digital currency
	Wholesale & retail	Enhancement of subscription sales
	Construction & Real estate	Accommodation of 5G base stations, automation of construction works
	Other	Establishment of organs specialized in Digital Transformation(DX), information bank

2-5. Human Investment

2-5-1. Impact of Labor Shortage

The labor shortage is becoming serious.

- In the non-manufacturing sector, more firms report constraints on business operations due to the labor shortage now than in the previous year and anticipate further deterioration within the next three years.
- The labor shortage is also driving some industries, including wholesale & retail, to increase the share of rationalization and labor-saving investment in capital spending as a whole.

Figure 2-5-1-1. Impact of Labor Shortage on Business Development

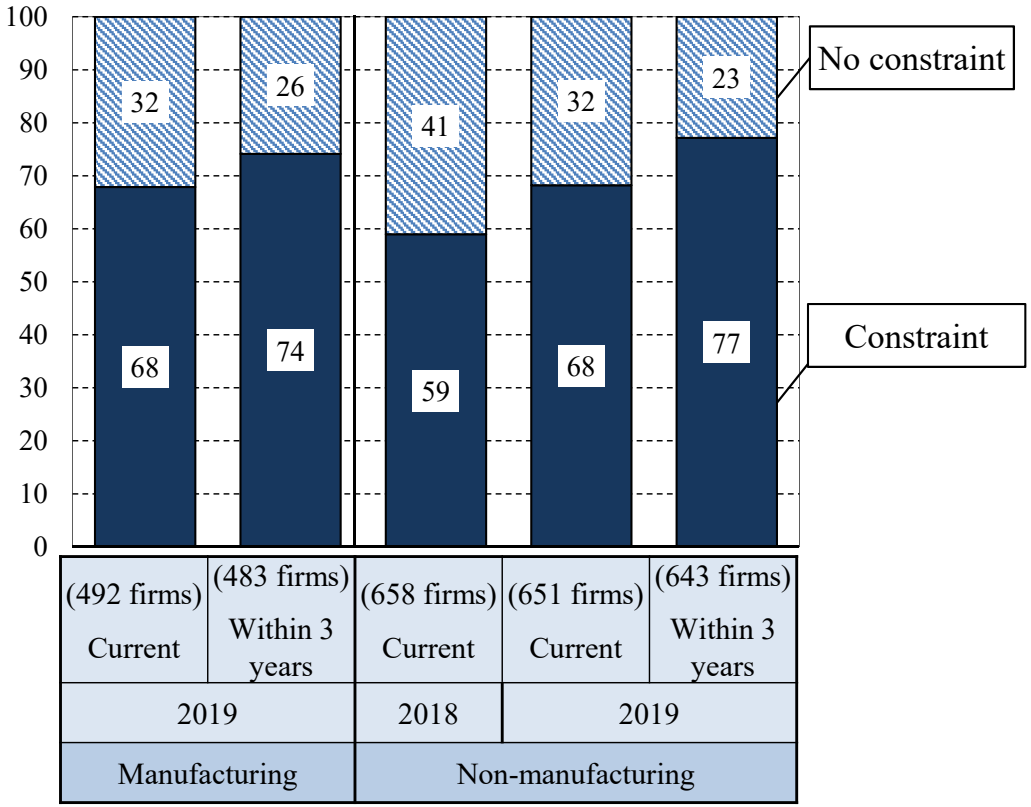
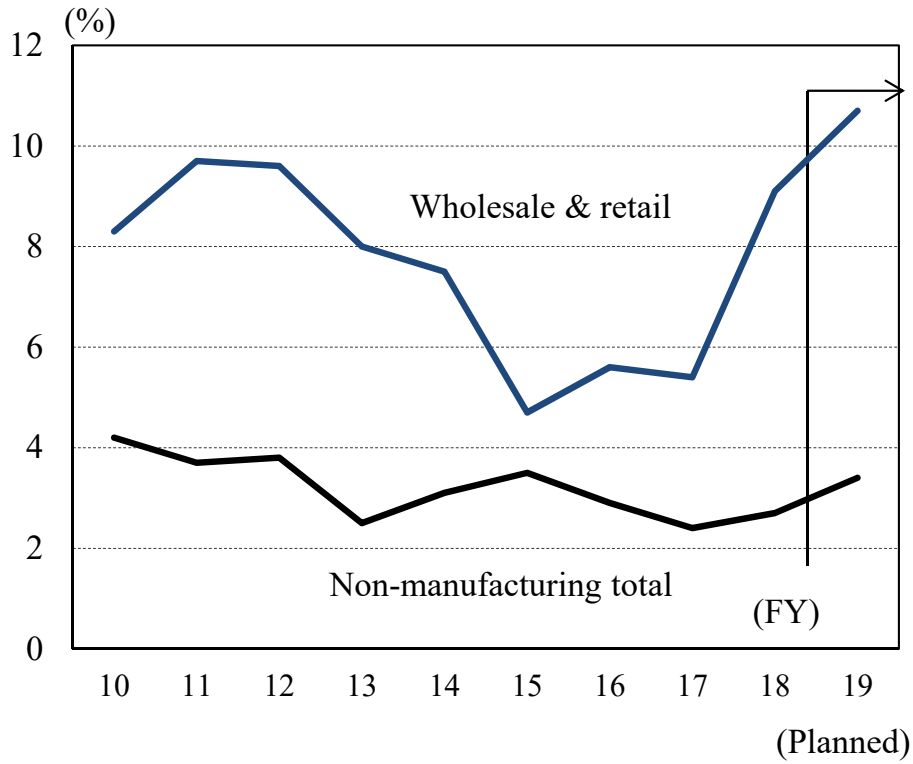


Figure 2-5-1-2. Share of Rationalization & Labor Saving in Investment Motives among Non-manufacturers



2-5-2. Impact of Rising Labor Cost on Selling Prices

Among all firms, 90% have not fully incorporated rising labor costs into selling prices.

- Among all firms, 90% report not having fully incorporated into selling prices the rising labor costs caused by labor shortages. In the non-manufacturing sector, however, slightly more firms have fully passed on the labor cost since the previous year.
- Asked about why they have not increased selling prices to account for rising labor costs, some 60% of firms cited (1) Expected decline in demand after price hike. The share of non-manufacturers citing (3) Absorption of rising cost through labor-saving investment or improvement in operational efficiency has also increased on the previous year.

Figure 2-5-2-1. Passing on to Selling Prices the Rising Labor Cost Caused by Labor Shortage

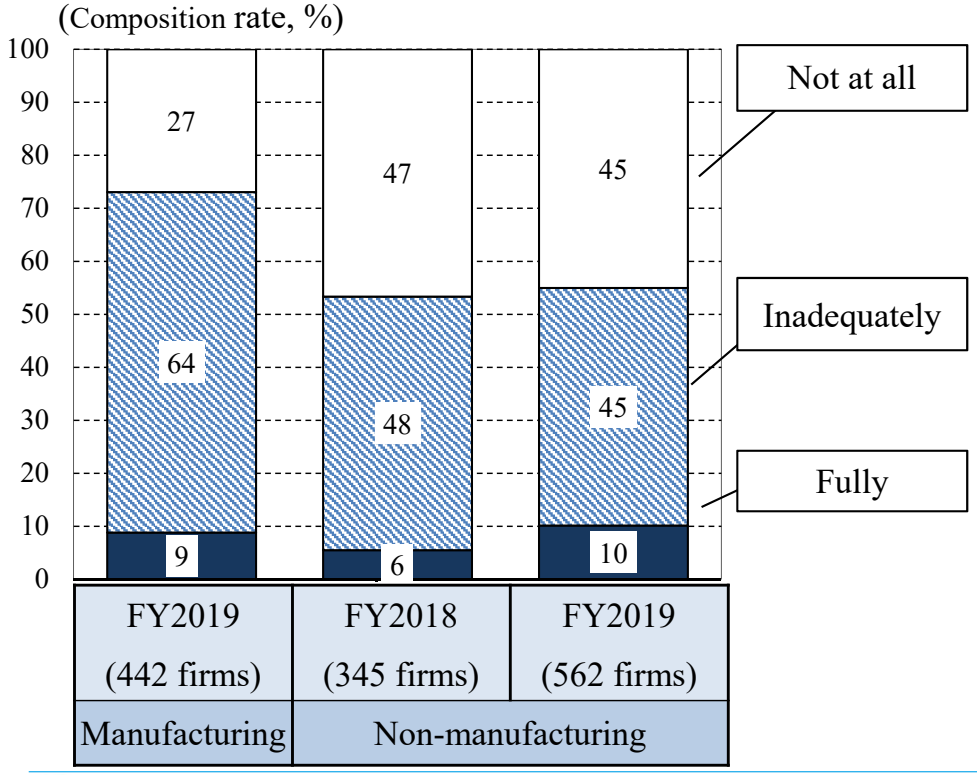
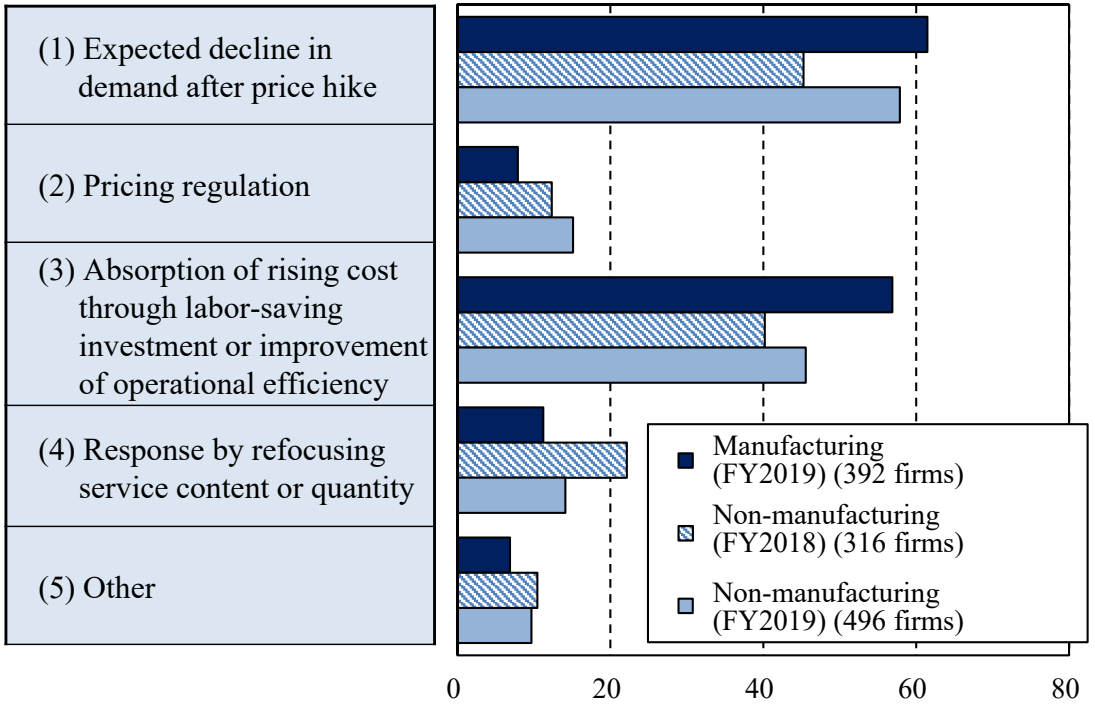


Figure 2-5-2-2. Reasons for Not Passing on to Selling Prices the Rising Labor Cost Caused by Labor Shortage



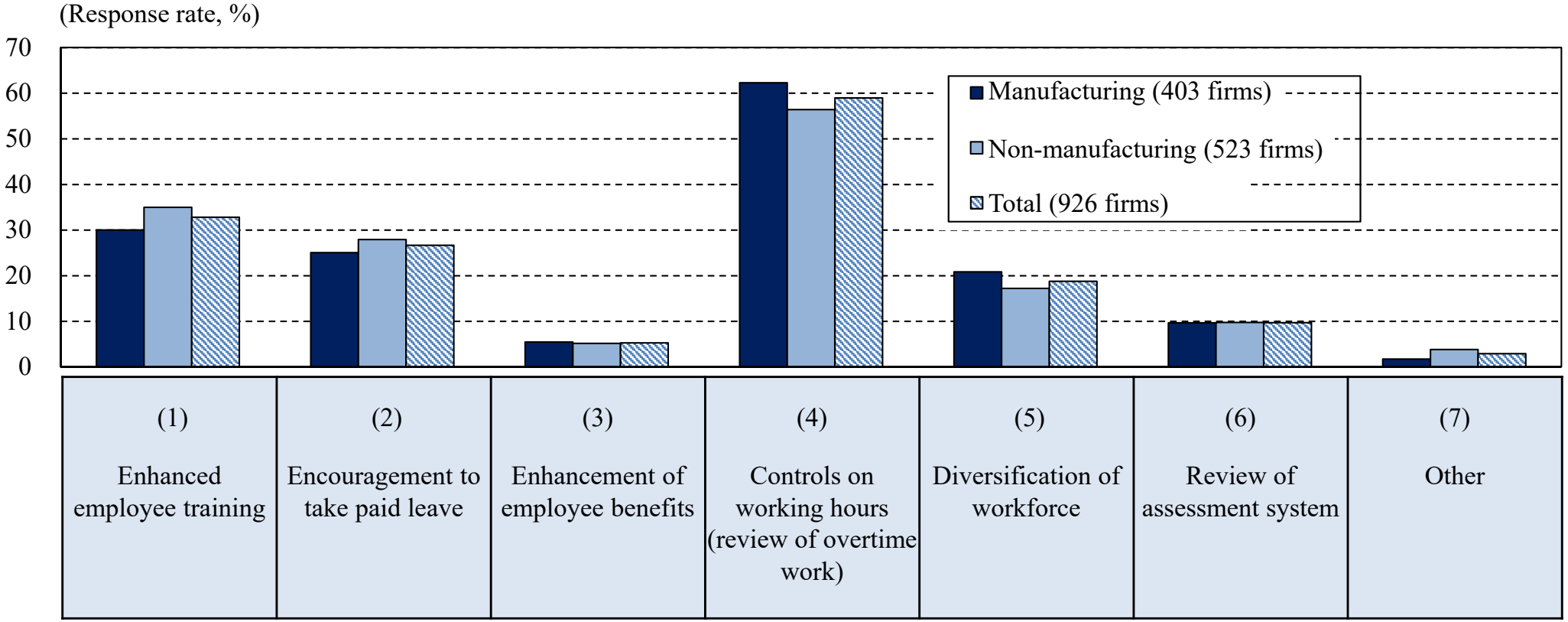
Note: Choose up to two answers.

2-5-3. Key HR Measures to Improve Labor Productivity

Working hours are being controlled to improve labor productivity.

- Asked about key human resource measures and initiatives to effectively improve labor productivity, about 60% of firms cite (4) Controls on working hours, followed by (1) Enhanced employee training and (2) Encouragement to take paid leave. Only 20% cite (5) Diversification of workforce.

Figure 2-5-3. Key HR Measures and Initiatives to Improve Labor Productivity



Note: Choose up to two answers.

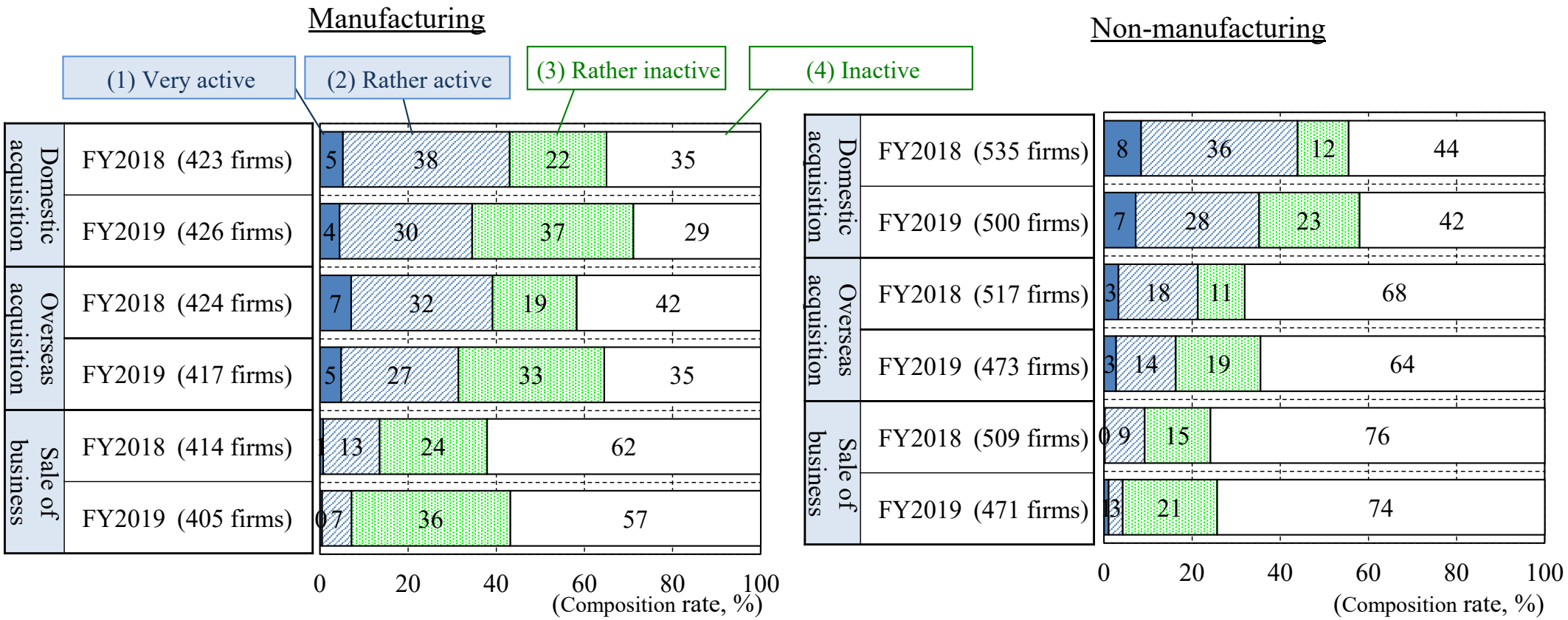
2-6. M&A

2-6-1. Attitude toward M&A

The attitude toward M&A is less aggressive than in the previous year.

- The number of firms claiming to be (1) Very active or (2) Rather active in business acquisition in Japan and overseas shows a slight decrease on the previous year, largely in reaction to the expansion of M&A deals in FY2018.

Figure 2-6-1. Attitude toward M&A

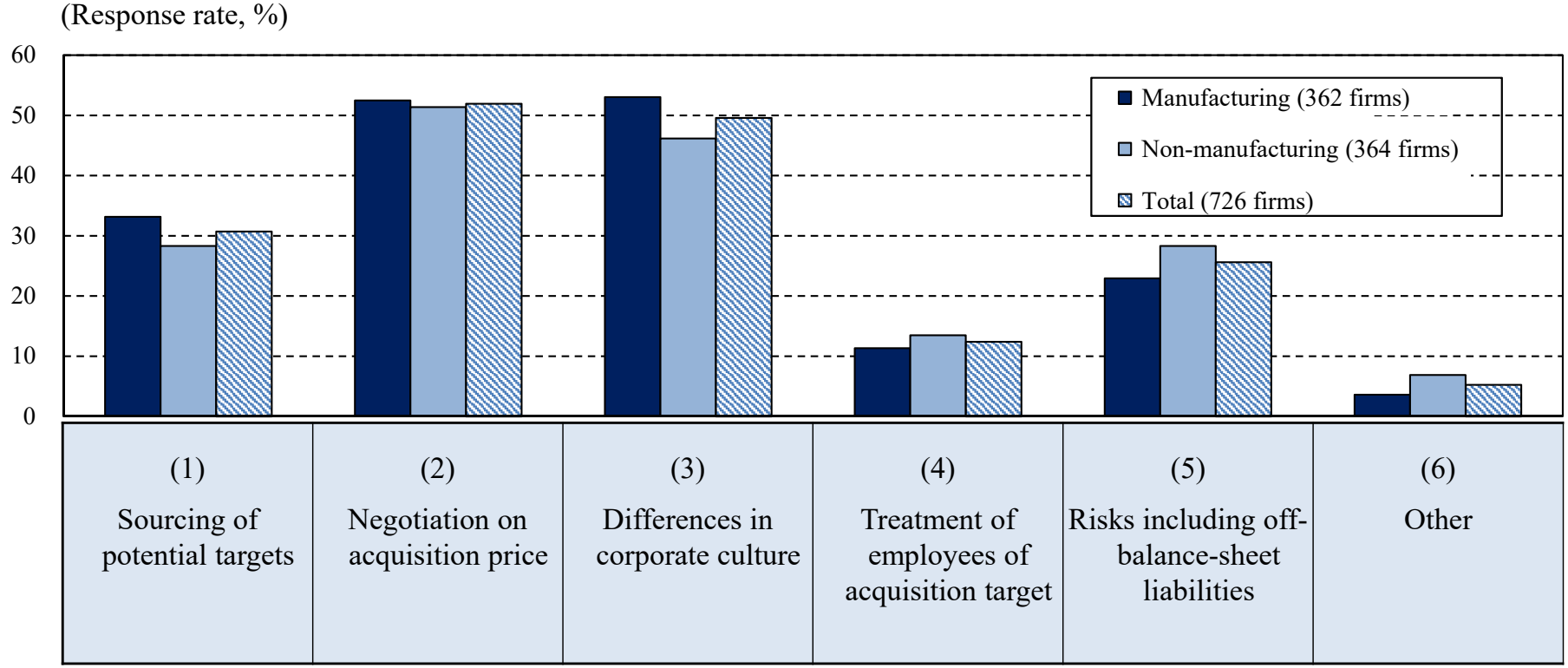


2-6-2. Challenges in Business Acquisition

Challenges in business acquisition include negotiation on the acquisition price and differences in corporate culture.

- The most commonly cited challenge in business acquisition is (2) Negotiation on acquisition price, followed by (3) Difference in corporate culture.

Figure 2-6-2. Challenges in Business Acquisition



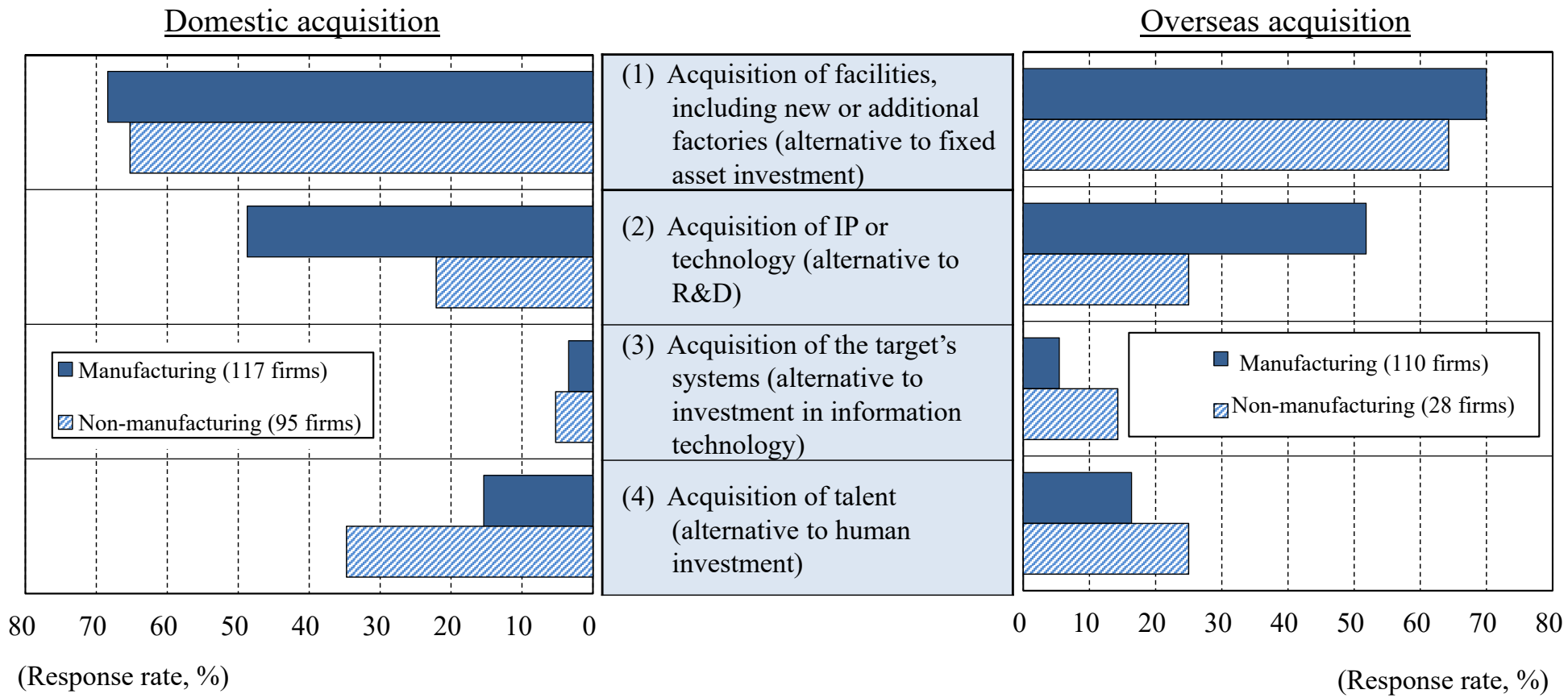
Note: Choose up to two answers.

2-6-3. M&A as Alternative to Other Types of Investment

Purposes of M&A include expansion of scope and acquisition of intellectual property.

- Many respondents utilize M&A as an alternative to other types of investment for the purpose of (1) “Acquisition of facilities including new or additional factories,” revealing that many firms implement M&A to expand the scope of their business. Also, a considerable number of respondents cite (2) “Acquisition of IP or technology,” indicating the use of M&A as an alternative to R&D.

Figure 2-6-3. Utilization of M&A as Alternative to Other Types of Investment



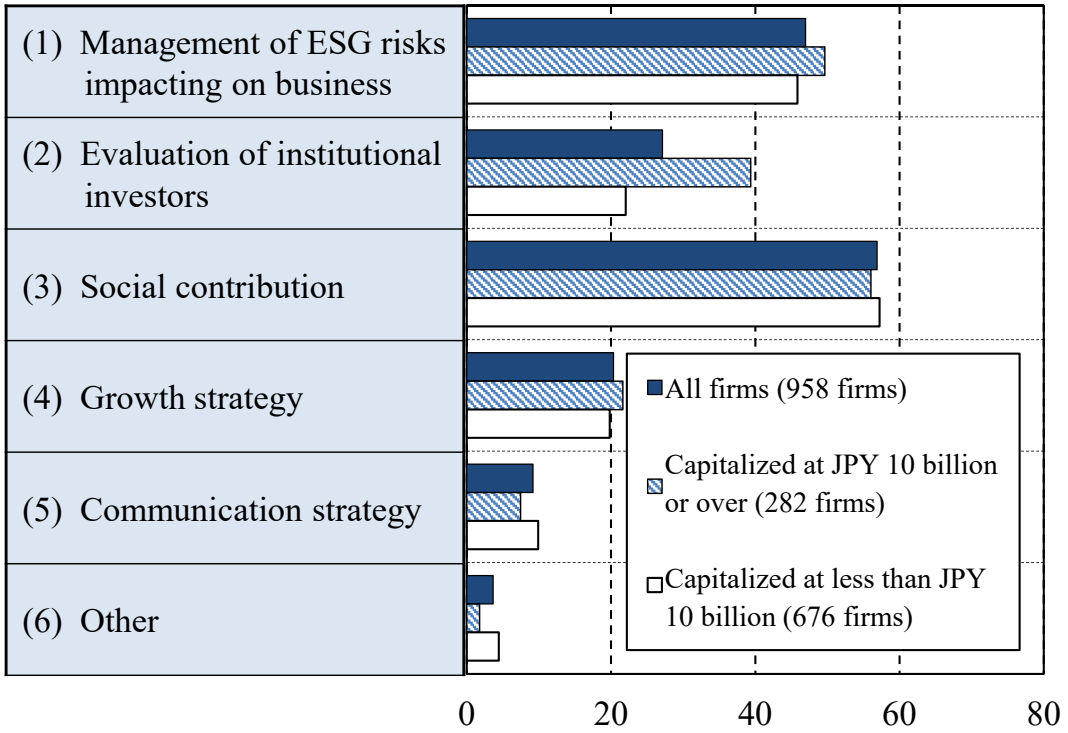
3. ESG Activities

3-1. Objective and Focus of ESG Activities

Environmental, social and governance activities are for social contribution and risk management purposes.

- The most common objective of ESG activities is (3) Social contribution, followed by (1) Management of ESG risks. A relatively large number of firms capitalized at JPY 10 billion or over also cite (2) Evaluation of institutional investors.
- Asked about the focus of ESG activities, over half the companies cite (6) Corporate governance. The response differs depending on the size of the firms; however, larger firms capitalized at JPY 10 billion or over tend to cite climate change or resources recycling.

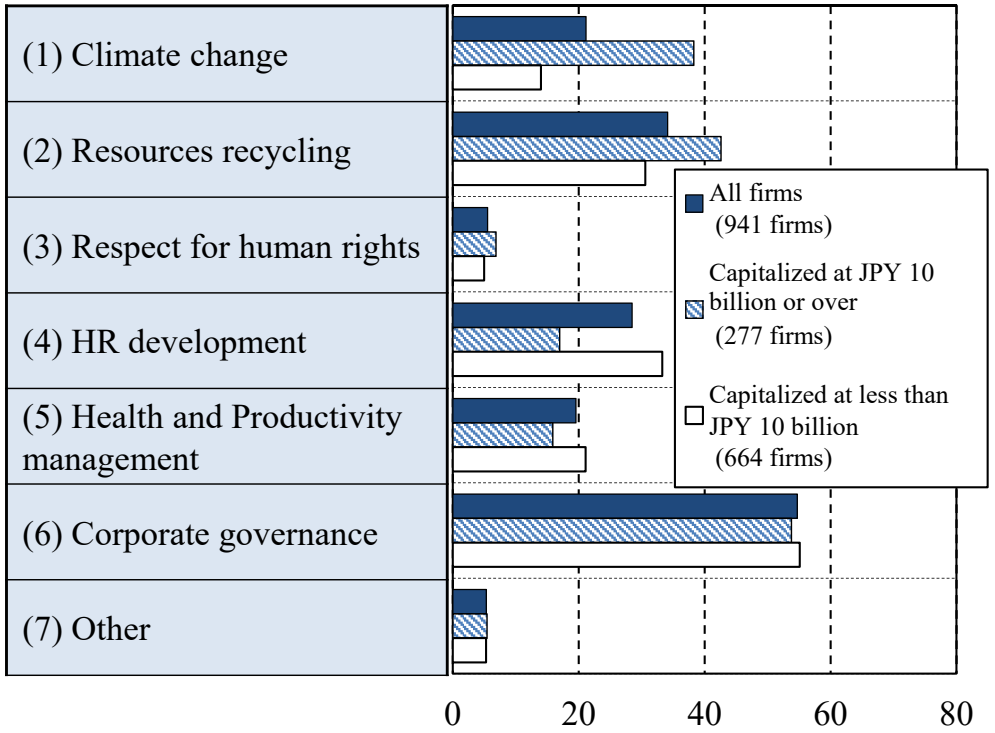
Figure 3-1-1. Objective of ESG Activities



Note: Choose up to two answers.

(Response rate, %)

Figure 3-1-2. Focus of ESG Activities



Note: Choose up to two answers.

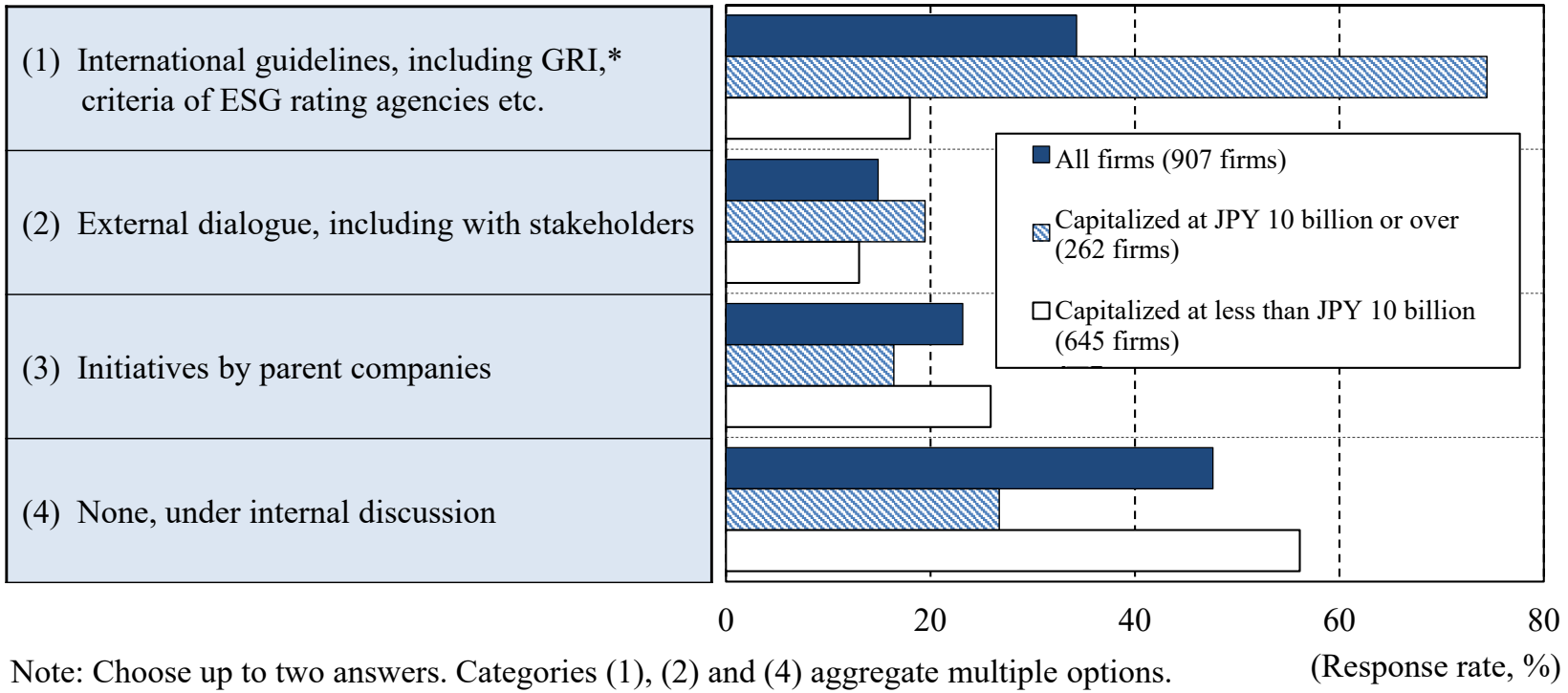
(Response rate, %)

3-2. Policies or Guidelines Consulted in Making ESG Activities

Larger companies mainly consult policies or guidelines for information disclosure.

- Asked about the policies or guidelines consulted in making ESG activities, firms capitalized at JPY 10 billion or over indicate their focus on information disclosure to institutional investors, citing international guidelines and criteria of ESG rating agencies. In contrast, only a limited number of firms are ready to enter into dialog with external stakeholders, including through engagement.

Figure 3-2. Policies or Guidelines Consulted in Making ESG Activities



Note: Choose up to two answers. Categories (1), (2) and (4) aggregate multiple options.

* GRI (Global Reporting Initiative) is a non-governmental organization working to promote the understanding of and support the preparation of sustainability reports by private businesses, government agencies etc.

Appendices

Appendix 1. Capital Spending in FY2018, 2019 and 2020

Figure 1. Domestic Capital Spending in FY2018, 2019 and 2020

(JPY 100 million, %)

	FY2018 (actual) (1,873 firms)			FY2019 (planned) (2,016 firms)			FY2020 (planned) (800 firms)		
	FY2017 Actual	FY2018 Actual	Change	FY2018 Actual	FY2019 Planned	Change	FY2019 Planned	FY2020 Planned	Change
Total	184,152	205,115	11.4	193,470	215,745	11.5	40,789	38,652	-5.2
(Excluding electric power)	157,337	178,853	13.7	177,708	198,321	11.6	39,848	37,236	-6.6
Manufacturing	60,364	68,089	12.8	66,162	75,079	13.5	17,791	16,555	-6.9
Non-manufacturing	123,788	137,027	10.7	127,308	140,665	10.5	22,998	22,097	-3.9
(Excluding electric power)	96,793	110,764	14.2	111,545	123,241	10.5	22,057	20,681	-6.2

Appendix 2. Capital Spending, by Region (Planned for FY2019)

- Planned capital spending for FY2019, by region (responses given by 4,808 firms; see Note), shows an increase for the eighth consecutive year, up 11.3% overall, with investment rising across the board led by transportation, transport equipment, real estate and electric power.
- In FY2018, spending increased for the seventh straight year, up 11.1% overall, as investment rose in eight regions, more than offsetting the decline in Tohoku and Chugoku.

Figure 2-1. Change in Capital Spending, by Region, FY2019/FY2018

Difference from FY2018/FY2017 in parentheses ( )

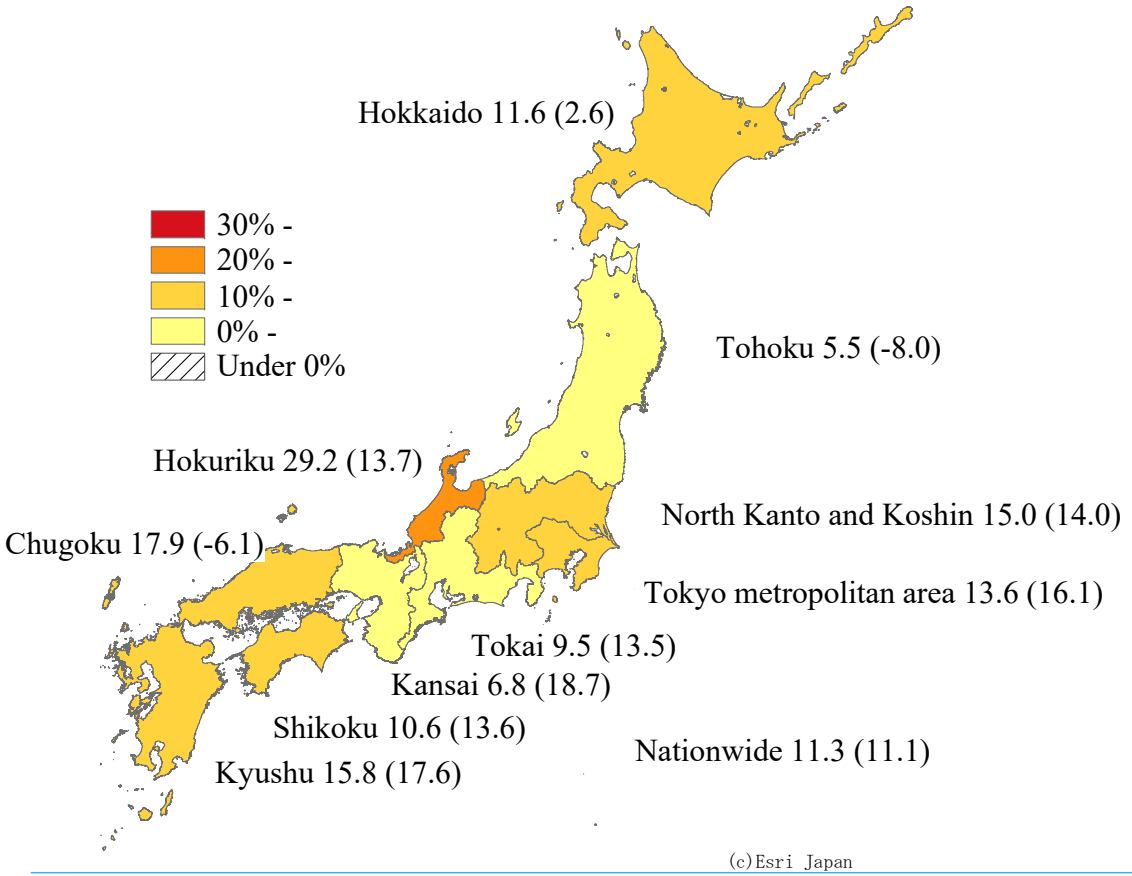


Figure 2-2. Change in Capital Spending, by Region and by Sector, FY2019

(%)

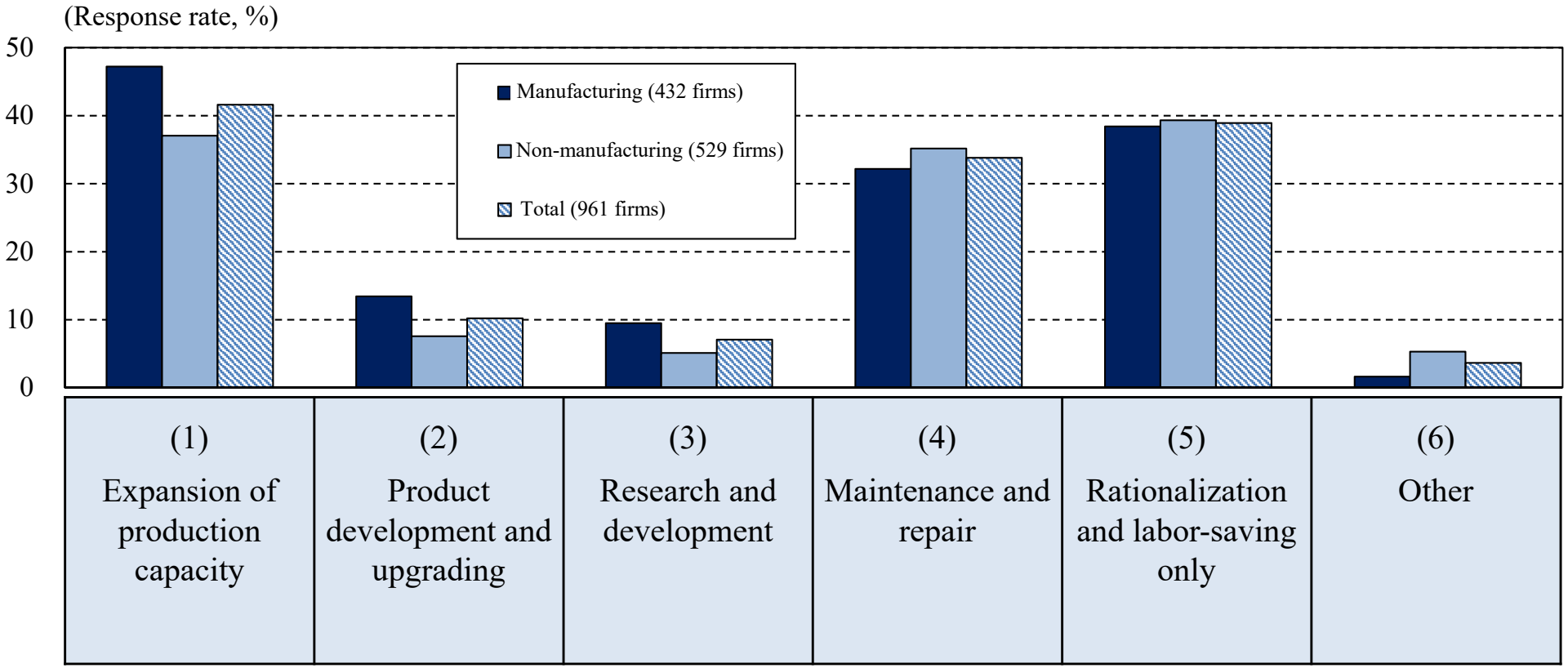
	Total	Manufac-turing	Non-manufac-turing
Hokkaido	11.6	27.8	7.7
Tohoku	5.5	21.0	-11.6
North Kanto and Koshin	15.0	7.8	36.2
Tokyo met. area	13.6	18.6	12.4
Hokuriku	29.2	11.1	44.9
Tokai	9.5	6.3	21.9
Kansai	6.8	34.3	-6.1
Chugoku	17.9	21.8	6.5
Shikoku	10.6	9.0	14.1
Kyushu	15.8	13.2	17.9
Nationwide	11.3	13.5	10.1

Note: Our survey on capital spending, by region, covers medium-sized firms (capitalized at JPY 100 million to 1 billion) as well as large-sized companies. (9,849 firms in total, of which 4,808 firms responded to the questions on planned capital spending, by region)

Appendix 3. Classification of Investment Motives in Addressing the Labor Shortage

- When responding to labor shortages, firms sometimes report the spending motive not only as (5) rationalization and labor-saving, but also as (1) expansion of production capacity or (4) maintenance and repair.
- It appears that spending in response to the labor shortage may effectively serve to expand production capacity or repair production facilities, as well as to save labor.

Figure 3. Classification of Investment Motives in Addressing the Labor Shortage



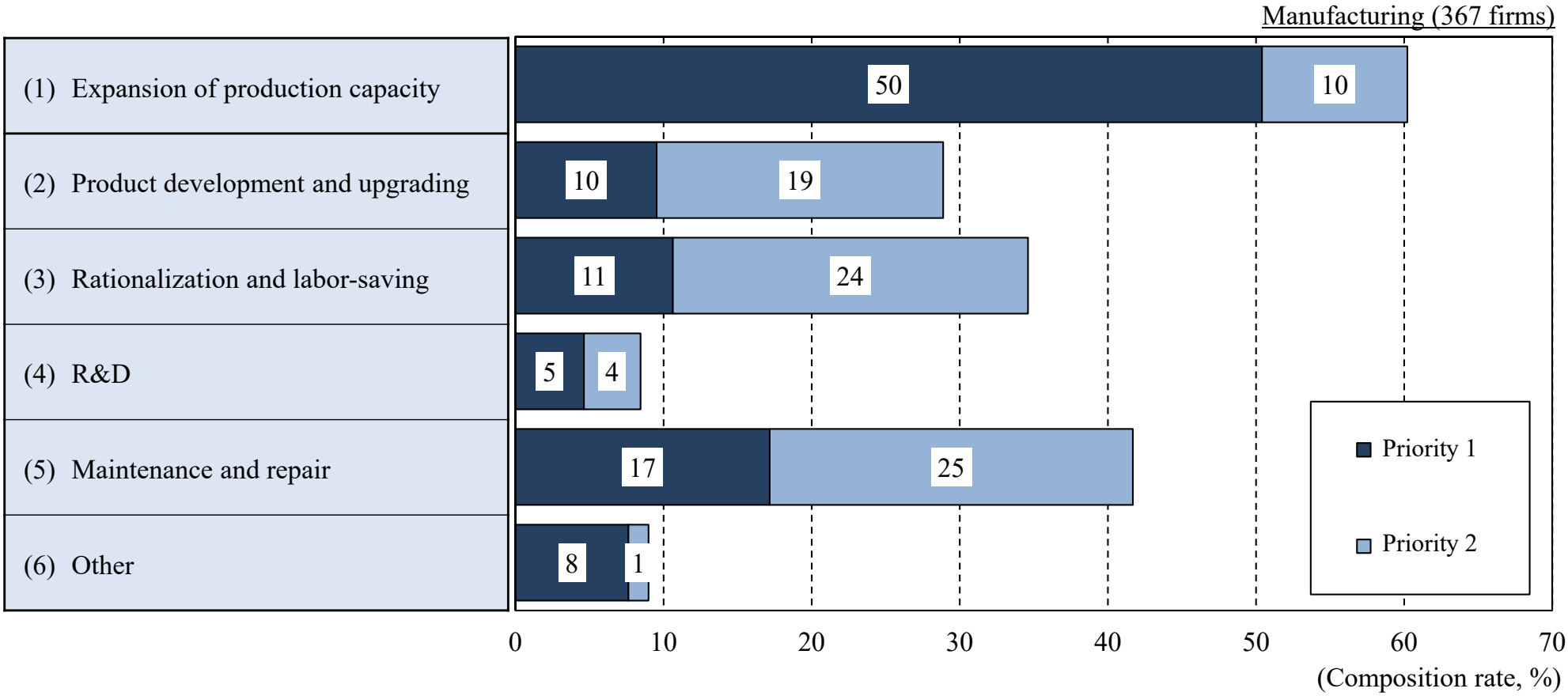
Note: Choose up to two answers.

Appendix 4. Motives for Capital Spending Overseas (Manufacturing)

Investment overseas is primarily intended to expand production capacity.

- (1) "Expansion of production capacity" is the primary motive for investment overseas by manufacturers, seemingly reflecting their intention to increase production capacity on the back of buoyant demand overseas. Many firms also cite (5) "Maintenance and repair" or (3) "Rationalization and labor-saving" to follow up on initial investments made several years ago.

Figure 4. Motives for Capital Spending Overseas (Manufacturing, FY2018)

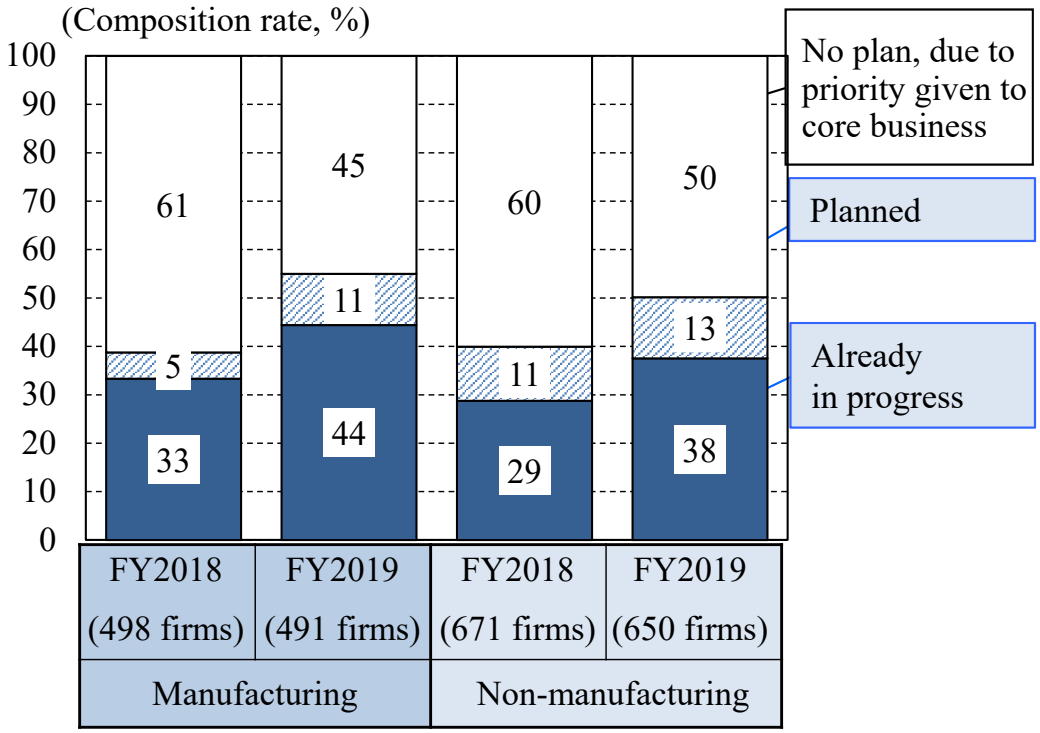


Appendix 5. Exploration of Opportunities in Growth Markets

An increasing number of firms are now exploring opportunities in growth markets.

- About 50% of firms, up from the previous year, say that they are exploring opportunities in growth markets.
- Concrete opportunities in growth markets concern healthcare, batteries and the IoT in the manufacturing sector, and integrated resorts and collaborative robots in the non-manufacturing sector.

Figure 5-1. Medium-Term Actions to Explore Opportunities in Growth Markets



Note: Respondents include group subsidiaries of major firms as well as public-private joint ventures established for specific projects

Figure 5-2. Specific Examples of Exploring Opportunities in Domestic Growth Markets

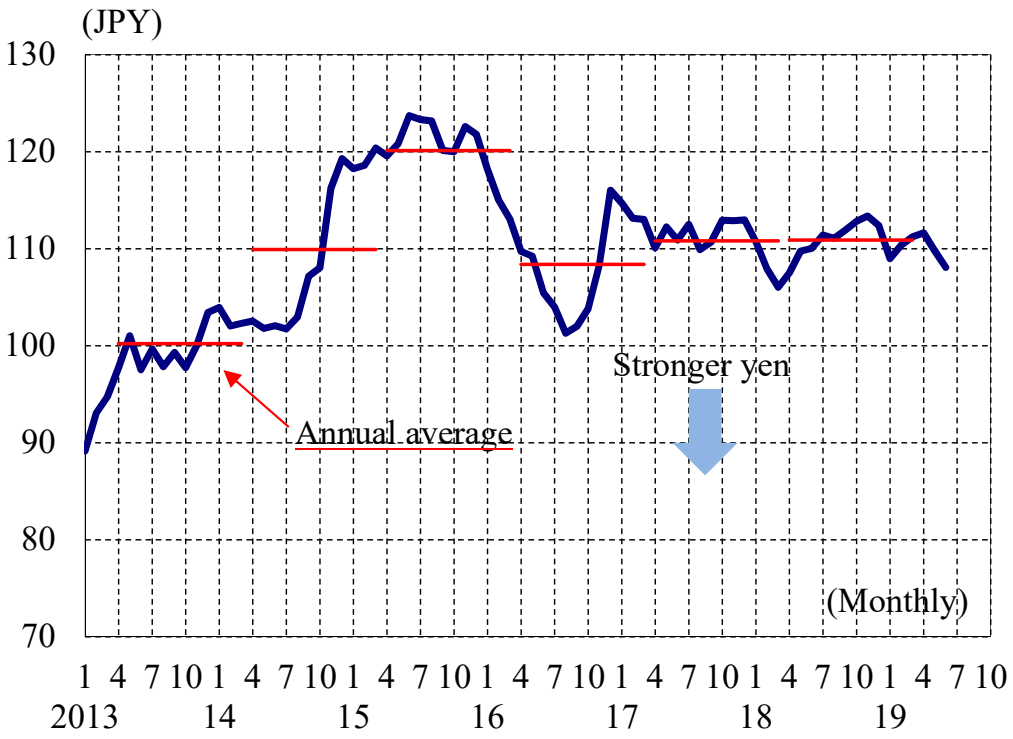
	Industry	Example
Manufacturing	Chemicals	Regenerative medicine, cellular medicine, life science, veterinary drugs
	General machinery	Hydrogen business, resources recycling, integration of IoT technology into products
	Electric machinery	Lithium-ion batteries, wireless power supply, automatic vegetable production
Non-manufacturing	Transportation	Integrated resort development, automated ship operation
	Wholesale & retail	Collaborative robots, accommodation of electronic payment systems, identification of purchasing patterns
	Construction & real estate	Automated construction with AI, construction of aquafarming facilities

Note: Opportunity in growth market = Offering of any new business or service other than the existing core business

Appendix 6. Foreign Exchange Rate Assumed by Manufacturers

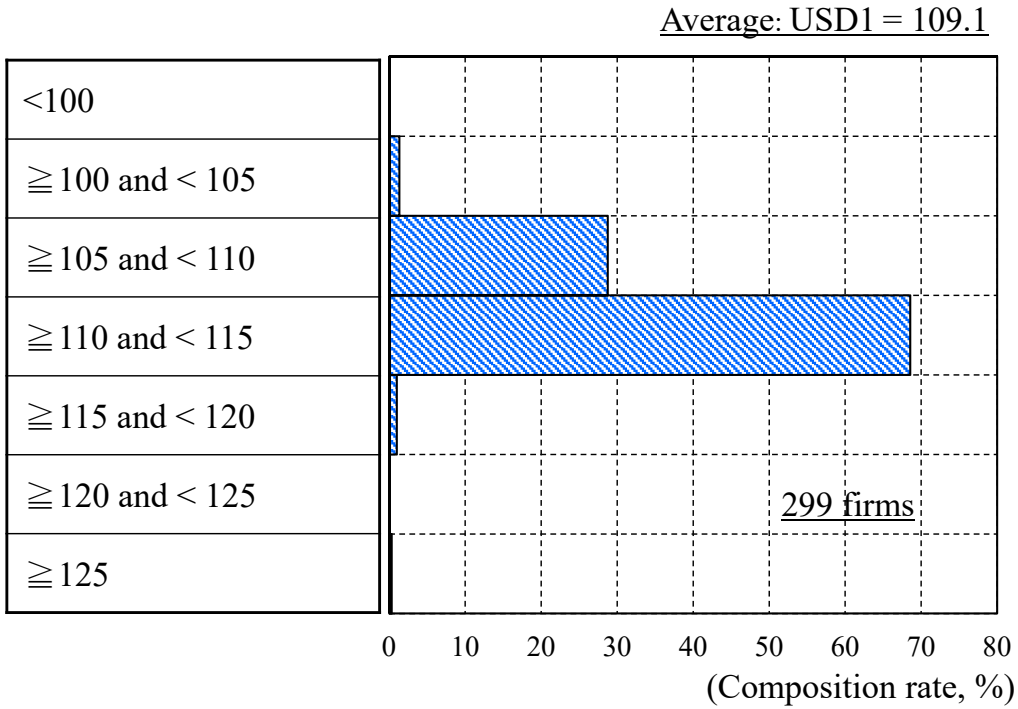
- USD 1 = JPY 110-115 is the foreign exchange rate most commonly assumed by manufacturers, followed by USD 1 = JPY 105-110 , with an average of 109.1 yen to the dollar.

Figure 6-1. Actual USD/JPY Rate



Source: Bank of Japan,
(Monthly average of interbank rate at 17:00).

Figure 6-2. USD/JPY Rate Assumed by Manufacturers



Reference: Assumed EUR/JPY rate

Average of 190 firms: EUR 1 = JPY 125.7
Mode: ≧125 yen and < 130yen

Source: Development Bank of Japan, "Survey on Planned Capital Spending."