

Section 4 Towards the virtuous cycle of income and investment: enhancing productivity and innovation through incorporating global growth

This section examines the challenges that the Japanese economy faces in enhancing productivity and innovation and creating a virtuous cycle of income and investment by incorporating global growth.

1. Challenges in Japanese manufacturing industries' global growth and expansion

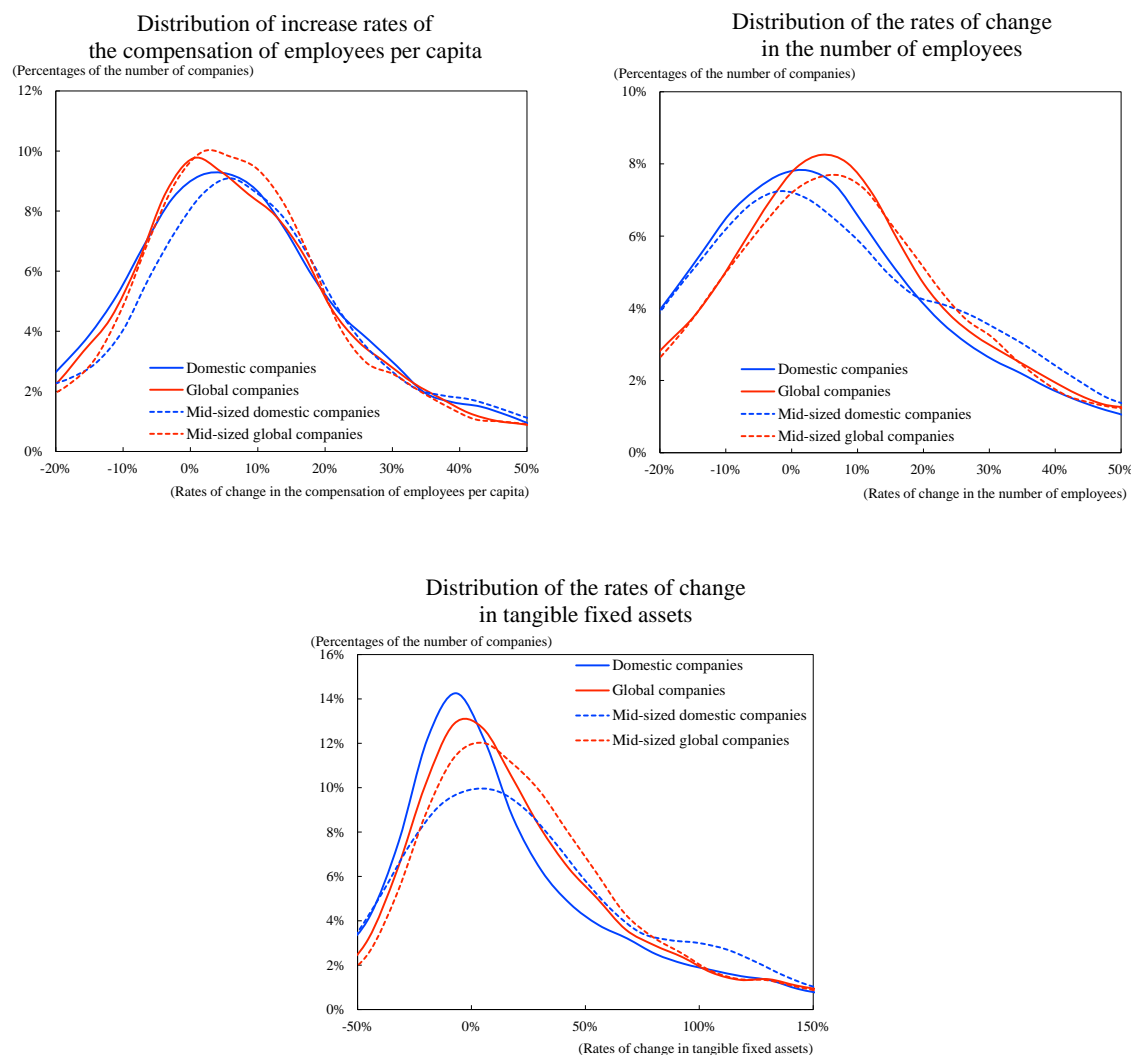
This paragraph first looks at the status of wage hikes, employment, and investment in Japanese manufacturing industries and then analyzes how companies use funds by visualizing the flow of corporate funds in order to find ways to enable Japanese manufacturing industries to achieve growth and expansion globally. Based on the analysis, we focus on and verify the effects that intangible asset investments and direct investments have on companies' growth from the viewpoint that companies accelerate their growth and achieve global expansion.

(1) Status of wages, employment, and investment in Japanese manufacturing industries

First, we look at the status of activities related to wages, employment, and investment in Japanese manufacturing industries over the past 10 years. Figure II-2-4-1 shows the distribution of companies, divided into two groups—one comprised of companies that have overseas subsidiaries (global companies) and the other comprised of companies that do not have overseas subsidiaries (domestic companies)—in terms of the rate of change in compensation of employees per capita, the rate of change in the number of employees, and the rate of change in the value of tangible fixed assets in the period from FY2012 to FY2021 based on individual data from the Basic Survey of Japanese Business Structure and Activities, compiled by the Ministry of Economy, Trade and Industry. The figure also shows the distribution of mid-sized enterprises²¹⁹ included in each of the two groups. According to the figure, in the group of global companies, the percentage of companies with high rates of growth in employment and in the value of tangible fixed assets is higher than in the group of domestic companies. As for the situation of mid-sized enterprises in particular, the percentage of those with a high rate of growth in employment and in the value of tangible fixed assets is high not only in the group of global companies but also in the group of domestic companies. In short, both global and domestic companies contribute to increases in employment and investments in Japan.

²¹⁹ In manufacturing industries, mid-sized enterprises are defined as companies with between 301 and 2,000 employees that do not fall under the SME category.

Figure II-2-4-1. Distribution of the rates of change in the wages, employment, and tangible fixed assets of manufacturing companies (FY2012 →FY2021)



Note: The figures show the distribution of the estimated rates of the given targets in the total value based on the results of kernel density estimation.

Source: *Basic Survey of Japanese Business Structure and Activities* (METI).

(2) Current status of use of funds in Japanese manufacturing industries

Given that on a balance sheet, total assets are always equal to the sum of liabilities and net assets, it can be deemed that funds recorded as items under liabilities, which represents how the company raises funds, invariably correspond to some items or other under assets, which represents how the funds raised are used (Figure II-2-4-2).

Figure II-2-4-2. Sample of balance sheet

Assets		Liabilities	
Current assets	1500	Current liabilities	1000
Cash and deposits	500	Bills payable	500
Accounts receivable	500	Accounts payable	500
Inventories	500	Fixed liabilities	500
Fixed assets	1500	Long-term borrowings	500
Tangible fixed assets	500	Total liabilities	1500
Intangible fixed assets	500	Net assets	
Investment and other assets	500	Equity capital	500
		Retained earnings	500
		Other net assets	500
		Total net assets	1500
Total assets	3000	Sum of liabilities and net assets	3000

Source: METI.

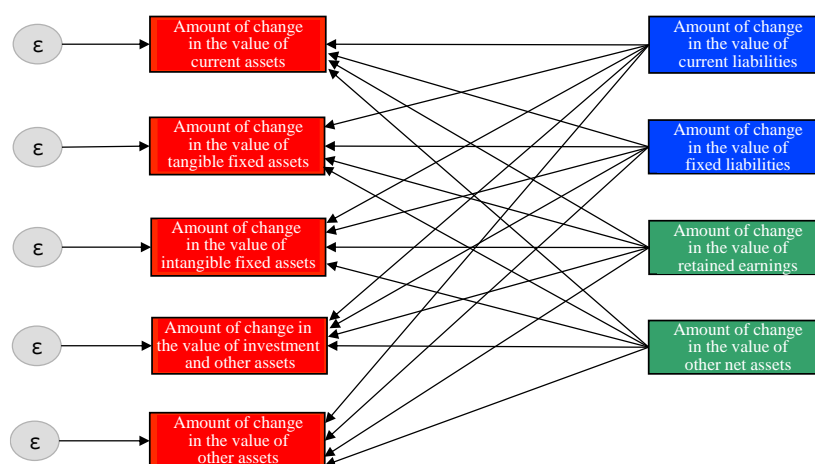
However, even though a balance sheet shows us any change in the value of individual items under assets, liabilities, and net assets, it does not enable us to identify flows of funds, that is, how the funds raised and recorded as a particular liability item or net asset item are used and specifically which asset item those funds correspond to. Therefore, we use an approach known as structural equation modeling (SEM) to estimate an overall fund flow structure in sample companies by looking at how their funds raised during a certain period of time were used. This approach has been adopted in view of the balance sheet's fundamental equation—that total assets are always equal to the sum of liabilities and net assets, which means that the amount of change from one year to the next in assets is equal to the amount of change in the sum of liabilities and net assets. The SEM approach refers to a “method of analysis in which the relationships between large numbers of variables set as hypotheses are modeled as linear combinations” (an excerpt from Appended Note 1-4-1, “2018 White Paper on Small and Medium Enterprises in Japan,” Small and Medium Enterprise Agency²²⁰).²²¹ Below, we use a structural equation model developed under the assumption, based on the balance sheet concept, that changes in the values of liability and net asset items simultaneously affect changes in the values of asset items, as shown in Figure II-2-4-3. In this case, on the balance sheet, a change in the value of a particular liability or net asset item is always reflected on changes in the various asset items, with the total amount of changes in the various asset items matching the amount of change in that particular liability or net asset item. In short, the amount of change in the value of that particular liability or net asset item is deemed to be allocated to the various asset items. As a result, the impact of a change in a particular liability or net

²²⁰ <https://www.chusho.meti.go.jp/pamflet/hakusyo/H30/h30/index.html> (viewed on April 3, 2024).

²²¹ “Structural equation modeling makes it possible to conduct analyses that integrate correlation analysis, regression analysis and factor analysis. Other merits of the method are that it offers the ability to conduct analyses that incorporate latent variables (factors that cannot be directly measured), and allows the setting of multiple dependent variables in a single analysis.” (an excerpt from Appended Note 1-4-1, “2018 White Paper on Small and Medium Enterprises in Japan,” Small and Medium Enterprise Agency). However, as the purpose of this analysis is to examine the effects between variables that can be observed on the balance sheet, only observed variables have been adopted, with latent variables excluded.

asset item on the change in the value of each of the various asset items can be interpreted to be equivalent to the proportion of the amount of change in the value of that liability or net asset item that is allocated to each asset item (allocation ratio) during a certain period. When using data to estimate the coefficients, the amount of change between two different points in time is calculated on a company-by-company basis,²²² and the obtained figure is divided by the total value of all asset items at the initial point (the sum of total liabilities and net assets) for the purpose of standardization. As a result of the standardization, the amount of change for each company is expressed in proportional terms, so the analysis is controlled for differences in the balance sheet size across companies. This makes it possible to examine the average trend in the allocation of the amounts of changes in the values of liability and net asset items to asset items through a statistical approach.

Figure II-2-4-3. Conceptual chart of structural equation model assumed



Note: The charting of the structural equation model is based on Toyoda (1998).²²³ The squares represent endogenous and exogenous variables, the arrows represent assumed pathways, and “ε” represents the error term. The endogenous and exogenous variables are standardized by dividing the amount of change between two points in time by the total value of asset items in the reference year. In an actual estimation process, because of the nature of the balance sheet, the coefficient (allocation ratio) for “the amount of change in other assets” is uniquely determined when the coefficients (allocation ratios) for the other four asset items have been determined, so “the amount of change in other assets” is excluded from the structural equation model. As a result of this procedure, the number of endogenous variables becomes equal to the number of exogenous variables, making it possible to identify the structural equation.

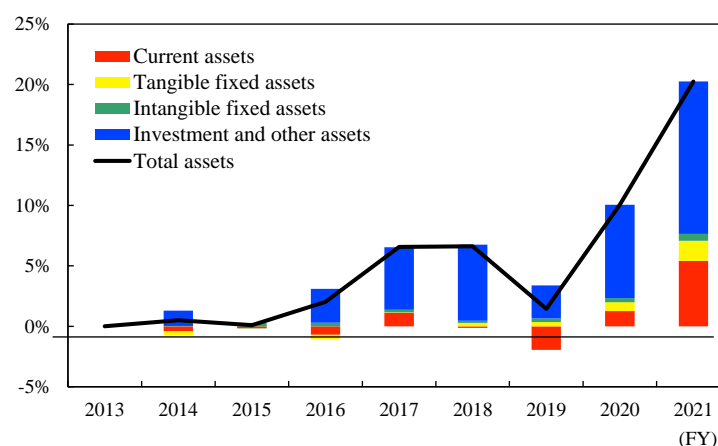
Source: METI.

²²² It is presumed that company-specific time-invariant factors (fixed effects) are controlled for due to the adoption of the amount of change between two points in time as a variable.

²²³ Toyoda, H. (1998), *KYUBUNSAN KOUZOU BUNSEKI <NYUUMONHEN>—KOUZOUHOUTEISHIKI MODERINU*, Asakura Publishing.

Figure II-2-4-4 shows the trends in total assets and each asset item between FY2013 and FY2021 at manufacturing companies with a capital amount of 1 billion yen or higher. The figure indicates that while the values of “current assets” and “tangible fixed assets” generally stayed flat, the value of “investment and other assets” was trending upward.

Figure II-2-4-4. Change in the values of asset items at manufacturing companies with a capital amount of 1 billion yen or higher



Note: The above figure indicates the amount of change in each fiscal year compared with FY2013.

Source: *Basic Survey of Japanese Business Structure and Activities* (METI).

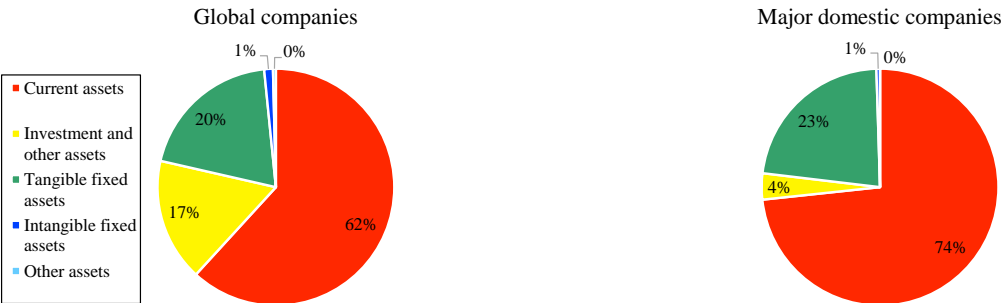
Next, using the Basic Survey of Japanese Business Structure and Activities and focusing on manufacturing companies with a capital amount of 1 billion yen or higher of which no more than a third of the ownership is held by foreign interests, we conducted structural equation estimates using the abovementioned approach with respect to two groups of companies—one comprised of 859 companies that owned at least one foreign subsidiary or affiliate in each of 2013 and 2019 (referred to as “global companies” in the SEM-based estimation below) and the other comprised of 344 companies that did not (referred to as “major domestic companies” in the SEM-based estimation below), with regard to the amounts of changes in the values of liability and net asset items between 2013 and 2019. Figure II-2-4-5 shows the average ratios of the amount of changes in the values of liability items allocated respectively to the various asset items based on the estimation results (for detailed information on the estimation method and results, see Note 2.1).

First, a closer look at the allocation of the amounts of changes in the values of liability and net asset items to asset items shows that at global companies, of the amount of change in the value of “current liabilities,” around 62% is estimated to have been allocated to “current assets,” 17% to “investment and other assets,” and 20% to “tangible fixed assets.” On the other hand, at major domestic companies, around 74% is estimated to have been allocated to “current assets,” 4% to “investments and other assets,” and 23% to “tangible fixed assets.” Regarding the allocation of the amount of change in the value of “fixed liabilities” to asset items, at global companies, the allocation ratio is estimated to be around 17% for “current assets,” 62% for “investment and other assets,” and 18% for “tangible fixed assets.” At

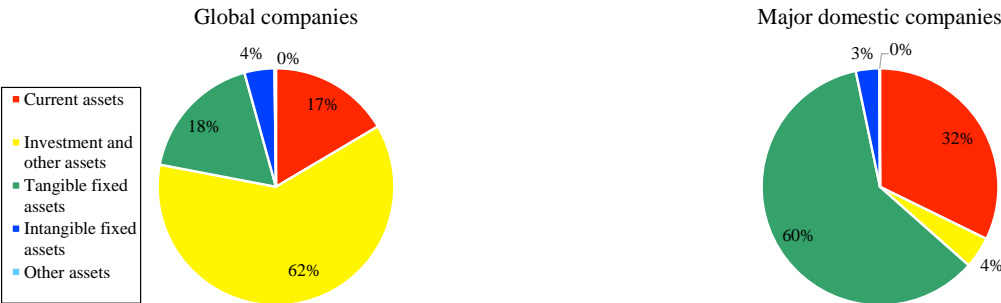
major domestic companies, the allocation ratio is estimated to be around 32% for “current assets,” 4% for “investment and other assets,” and 60% for “tangible fixed assets.” As for the allocation of the amount of change in the value of retained earnings to asset items, at global companies, the allocation ratio is estimated to be around 58% for “current assets,” 20% for “investment and other assets,” and 20% for “tangible fixed assets.” At major domestic companies, the allocation ratio is estimated to be around 66% for “current assets,” 8% for “investment and other assets,” and 24% for “tangible fixed assets.” Regarding the allocation of the amount of change in the value of “other net assets,” at global companies, the allocation ratio is estimated to be around 43% for “current assets,” 36% for “investment and other assets,” and 20% for “tangible fixed assets.” At major domestic companies, the allocation ratio is estimated to be around 50% for “current assets,” 9% for “investment and other assets,” and 30% for “tangible fixed assets.”

Figure II-2-4-5. Results of the estimation of the usage of liability items based on structural equation modeling

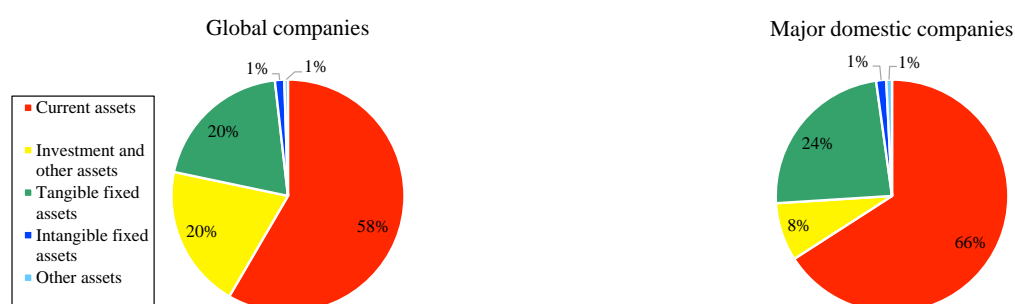
(1) Current liabilities



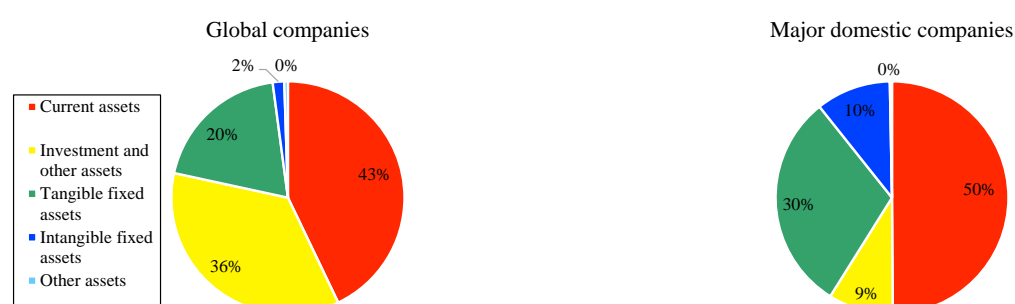
(2) Fixed liabilities



(3) Retained earnings



(4) Other net assets



Note: The pathways from exogenous variables to endogenous variables at global companies and major domestic companies in the manufacturing sector were estimated through structural equation modelling as follows. The amount of change between 2013 and 2019 was calculated with respect to each variable and the obtained figure was standardized by being divided by the total value of the asset items in 2013. As endogenous variables, current assets, investment and other assets, tangible fixed assets, and intangible fixed assets were adopted, and as exogenous variables, current liabilities, fixed liabilities, retained earnings, and other net assets (total net assets minus retained earnings) were adopted. The above figure indicates the estimation results with respect to the pathways from “retained earnings” to endogenous variables.

Source: Estimates based on *Basic Survey of Japanese Business Structure and Activities* (METI).

The above findings indicate that at major manufacturing companies, while the values of “current assets” and “tangible fixed assets” in the asset column generally remained flat, the value of “investment and other assets” was trending upward between 2013 and 2019. As for flows of funds from the fund-raising side to the use side, it has been found that there is a marked difference in the approach to use fund regarding fixed liabilities between global companies and major domestic companies—“fixed liabilities” were allocated mainly to “investment and other assets” at global companies, whereas they were allocated mainly to “tangible fixed assets” at major domestic companies. Regarding retained earnings, at global companies, the ratio of “fixed liabilities” allocated to “investment and other assets” is almost equal to the ratio of “fixed liabilities” allocated to “tangible fixed assets,” but at major domestic companies, the ratio of “fixed liabilities” allocated to “tangible fixed assets” is higher. However, it would

be premature to conclude that the presence of the tendency of “retained earnings” being allocated to “current assets” is evidence that retained earnings are not used for investment purposes. Given that intangible asset investment, such as research and development investment and human capital investment (capacity development investment), is recorded as expenditure related to routine business activity, the presence of “retained earnings” allocated to “current assets” may reflect such investment.

(3) Relationship of direct investment and intangible asset investment with companies’ growth

Below, from the viewpoint of realizing further growth of companies through investment, we examine and identify the relationship of direct investment and intangible asset investment, including human capital investment and research and development (R&D) investment with companies’ growth in terms of labor productivity and sales.

First, we examine the relationship of direct investment and intangible asset investment in companies with labor productivity. Morikawa (2019)²²⁴ used the Basic Survey of Japanese Business Structure and Activities, compiled by the Ministry of Economy, Trade and Industry, to examine the effects of intangible asset investment on labor productivity, and conducted an estimation regarding manufacturing companies in the period between 2013 and 2016 after controlling for the effects of company-specific, year-specific and industry-specific factors. This study found that although the level of productivity tended to be higher when the value of tangible fixed asset investment per employee was higher, there was not a statistically significant correlation between intangible asset investment, including capacity development, R&D, advertising expenditures,²²⁵ and software investment, and labor productivity.²²⁶ In view of this finding, in this paragraph, we extended the duration of the estimation period to between 2013 and 2019 and conducted an estimation using the same approach as the one adopted by Morikawa (2019) after dividing manufacturing companies further, into groups of global companies, defined as companies that owned overseas subsidiaries for one year or longer during the estimation period, and domestic companies, defined as companies that did not (for the details of the estimation, see Note 2.2).

As a result of the estimation, we found that in the group of global manufacturing companies, the higher the level of each of tangible fixed asset investment, capacity development, and advertising expenditures per employee was, the higher the level of labor productivity was. On the other hand, neither R&D expenditure nor software investment per employee had a statistically significant correlation with labor productivity. In the group of domestic companies, while we found a positive correlation between the level of tangible fixed asset investment per employee and labor productivity, neither capacity development expenditure, R&D expenditure, software development investment, nor advertising expenditure per employee had a statistically significant correlation with labor productivity. Figure II-2-

²²⁴ Morikawa, M. (2019), “Employer-Provided Training and Productivity: Evidence from a Panel of Japanese Firms,” RIETI Discussion Paper Series 19-E-005.

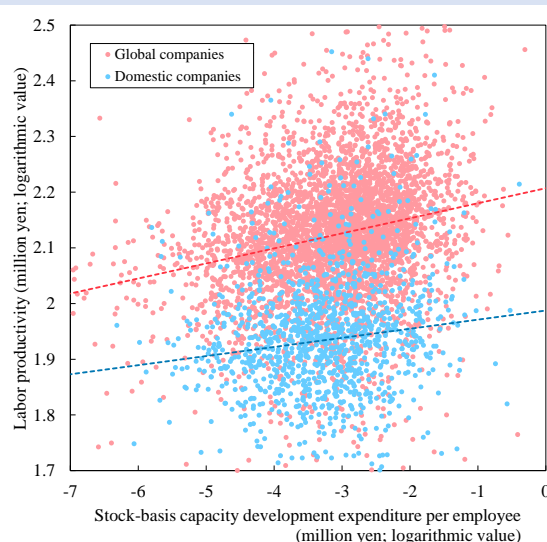
²²⁵ Morikawa (2019) conducted an estimation after converting capacity development, R&D and advertising expenditures into stock-basis variables through the perpetual inventory method.

²²⁶ However, according to Morikawa (2019), when the estimation for the same period was conducted using a sample that included both manufacturing and service companies, it was found that each of capacity development, R&D and advertising expenditures, and software investment had a statistically significant positive correlation with labor productivity.

4-6 shows the correlation between capacity development expenditure and labor productivity in each of the groups of global companies and domestic companies.

The above findings indicate the tendency of productivity rising due to an increase in tangible fixed assets regardless of ownership of overseas subsidiaries, and this means that making tangible fixed asset investment may be effective in raising labor productivity in manufacturing industries. On the other hand, the findings indicate that the effects of intangible asset investment on labor productivity may vary widely depending on the presence or absence of overseas subsidiaries and the item of investment. As for capacity development and advertising expenditures, the findings showed that in the group of global companies, the higher the levels of those expenditures were, the higher the level of labor productivity was. On the other hand, in the group of domestic companies, we did not find such tendency, and this indicates that how effectively those investments were used vary from company to company in this group. Regarding software investment, we did not find positive effects on labor productivity regardless of the presence or absence of overseas subsidiaries. This finding presumably reflects the importance of not merely increasing software investment but also improving the skills of employees who use software programs (improvement of human capital) in order to raise labor productivity. Also with regard to R&D expenditure, we did not find significant effects on labor productivity regardless of the presence or absence of overseas subsidiaries, and this finding presumably indicates that the relationship between these two is such that companies with a high level of labor productivity can make R&D investment, rather than that making more R&D investment leads to a higher level of productivity. The findings by Ito and Lechevalier (2010),²²⁷ for example, indicate that at Japanese manufacturing companies, the level of labor productivity has significant effects on the decision concerning R&D investment and that companies with a high level of labor productivity can make R&D investment because they can accept the sunk cost of such investment.

Figure II-2-4-6. Relationship between human capital investment and labor productivity



²²⁷ Ito, K. and LECHEVALIER Sebastian (2010), “Why Do Some Firms Persistently Outperform Others? An investigation of the interactions between innovation and export strategies,” RIETI Discussion Paper Series 10-E-037.

Note: METI used labor productivity (value added per employee) as a dependent variable and the following as independent variables: capacity development expenditure, R&D expenditure, software investment, advertising expenditure, tangible fixed assets (all per-employee variables), and the rate of non-regular workers. Then, after controlling for the fixed, company-specific, year-specific and industry-specific factors, it conducted estimation regarding global and domestic manufacturing companies in the period between 2013 and 2019. The labor productivity on the vertical axis is based on the results of the estimation and shows the figures obtained by deducting the independent variables other than the capacity development expenditure and the impacts of the fixed effects from the dependent variable. When conducting the estimation, it converted the capacity development, R&D, and advertising expenditures into stock-basis variables according to the method of Morikawa (2019).

Source: Estimates based on *Basic Survey of Japanese Business Structure and Activities* (METI).

Next, we examine the relationship between R&D investment and sales. As a general rule, it is presumed that companies with a high level of labor productivity tend to have larger sales per employee because of higher efficiency. The analysis results mentioned above also indicate that companies with a higher level of labor productivity are active in making R&D investment. Therefore, we estimated the effects of domestic R&D investment made by each of the groups of global companies and domestic companies²²⁸ on global sales, including sales of overseas subsidiaries, while taking into consideration the effects of labor productivity per employee on sales in addition to the effects of company-specific, year-specific, and industry-specific factors. Given that the effects of labor productivity were taken into consideration, we assume that the estimation results represent the relationship between R&D investment and sales under the condition of a uniform level of labor productivity (for the details of the estimation, see Note 2.3).

As a result of conducting an estimation regarding manufacturing companies in the period between 2013 and 2019, we found that under the condition of a uniform level of labor productivity, the higher the value of domestic R&D investment per employee,²²⁹ including employees at overseas subsidiaries, was, the higher the value of sales per employee,²³⁰ including employees at overseas subsidiaries, was. This tendency was more prominent among global companies than among domestic companies. We also found a positive correlation between labor productivity and sales per employee. However, attention should be paid to the point that labor productivity may positively affect growth in sales per employee not only directly, through efficiency improvement, but also indirectly, by way of an increase in R&D investment induced by labor productivity improvement. On the other hand, in view of the abovementioned results of the analysis of the relationship between investment and labor productivity,

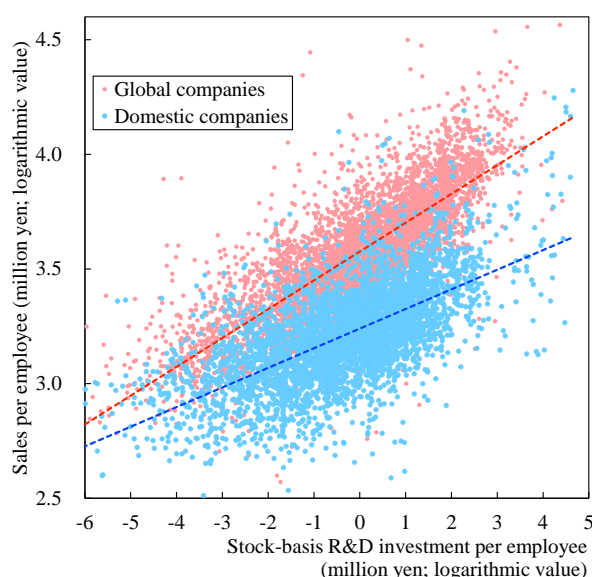
²²⁸ As in the case of the abovementioned examination, global companies are defined as companies that owned overseas subsidiaries for one year or longer during the estimation period, and domestic companies are defined as companies that did not.

²²⁹ (Domestic R&D expenditure on a stock basis) / (number of employees at domestic business establishments + number of employees at overseas subsidiaries)

²³⁰ (Domestic sales + sales at overseas subsidiaries) / (number of employees at domestic business establishments + number of employees at overseas subsidiaries)

the possibility is presumably small that an increase in R&D investment generates indirect positive effects on sales through an increase in labor productivity. These findings indicate that regardless of the presence or absence of overseas subsidiaries, the higher the level of labor productivity is, the higher the value of sales is and the larger the business scale is. The findings also indicate that among companies with similar levels of labor productivity, there is a positive correlation between R&D investment and sales and that in the case of global companies in particular, an increase in R&D investment tends to generate significant positive effects on business scale through an increase in sales. Figure II-2-4-7 shows the relationship between R&D investment and sales.

Figure II-2-4-7. Relationship between R&D investment and sales



Note: METI used sales per employee of manufacturing companies (including overseas subsidiaries) as a dependent variable and the following as independent variables: a dummy variable of a global company = 1, a domestic R&D expenditure per employee (including overseas subsidiaries), an interaction term between the dummy variable of a global company = 1 and the domestic R&D expenditure per employee (including overseas subsidiaries), domestic labor productivity (value added per employee), and overseas subsidiaries' labor productivity (value added per employee). Then, after controlling for the fixed, company-specific, year-specific and industry-specific factors, it conducted estimation regarding manufacturing companies in the period between 2013 and 2019. The sales per employee of manufacturing companies (including overseas subsidiaries) on the vertical axis are based on the results of the estimation and show the figures obtained by deducting the impacts of the fixed effects from the dependent variable. When conducting the estimation, it replaced the sales of overseas subsidiaries of domestic companies and the labor productivity with 0.001 (million yen) and the number of workers at overseas subsidiaries with 1 (worker). Also, it converted the R&D expenditure into stock-basis variables according to the method of Morikawa (2019).

Source: Estimate based on *Basic Survey of Japanese Business Structure and Activities* (METI).

Finally, we examine the relationship between direct investment and sales. Specifically, while taking into consideration the effects of the labor productivity of domestic business establishments and overseas subsidiaries on sales, we examine the relationship between the outstanding balance of companies' investments in and loans to companies with a capital relation per employee (including both domestic and cross-border investments and loans),²³¹ including employees at overseas manufacturing subsidiaries in the previous year²³² and sales per employee,²³³ including employees at overseas manufacturing subsidiaries, in the current year after controlling for company-specific, year-specific, and industry-specific factors. In this estimation, global companies are defined as companies for which data on the outstanding balance of investments in and loans to foreign companies with a capital relation for one year or longer during the estimation period were available, while domestic companies are defined as companies that did not own overseas subsidiaries (for the details of the estimation, see Note 2.3).

As a result of conducting an estimation regarding manufacturing companies and their overseas manufacturing subsidiaries in the period between 2013 and 2019, we found that among companies owning overseas subsidiaries, under the condition of a uniform level of labor productivity, the higher the value of investments in companies with a capital relation per employee in the previous year was, the higher the value of sales per employee in the current year was. On the other hand, among companies owning only domestic business establishments, we did not find a statistically significant correlation between the value of investment per employee in companies with a capital relation per employee in the previous year and the value of sales per employee in the current year under the condition of a uniform level of labor productivity. We also found that the higher the level of productivity was, the higher the value of sales per employee, including employees at overseas subsidiaries, was. These findings indicate that global companies tend to expand their business scale by increasing domestic and foreign investments outside their own groups but that among domestic companies, the effects of domestic direct investments outside their own groups on the expansion of business scale are limited. Figure II-2-4-8 shows the relationship between the value of investments in companies with a capital relation and sales.

With respect to the relationship between companies' foreign direct investments (ownership of overseas subsidiaries) and their productivity, according to Wakasugi et al. (2008)²³⁴ and other studies, theoretical and empirical analyses so far conducted in the field of economics have showed that companies owning overseas subsidiaries generally tend to have a higher level of productivity than companies owning only domestic business establishments. On the other hand, as to the causal

²³¹ $(\text{Outstanding balance of investments in and loans to domestic companies with a capital relation} + \text{outstanding balance of investments in and loans to foreign companies with a capital relation}) / (\text{number of employees at domestic establishments} + \text{number of employees at overseas subsidiaries})$

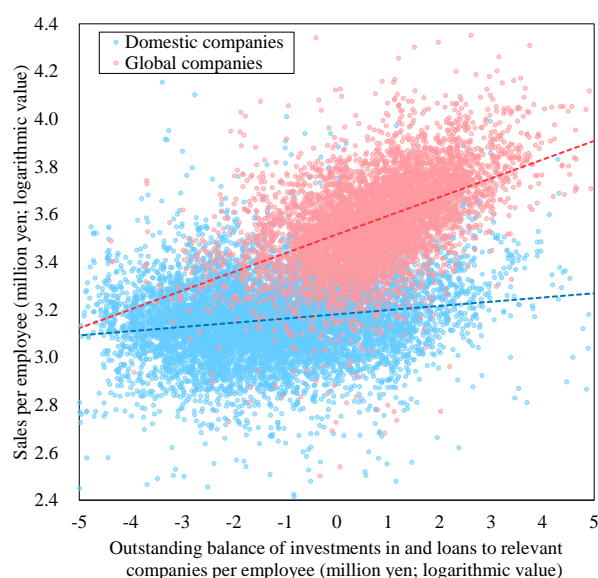
²³² It is also conceivable that there is also an inverse correlation—that is, an increase in sales may lead to an increase in investment in a company with a capital relation—and therefore, the value of investment in the previous year is used as a variable. It is inconceivable that an increase in sales in the current year leads to an increase in investment in the previous year, so the use of investment in the previous year controls for the effects of the inverse correlation.

²³³ $(\text{Domestic sales} + \text{sales at overseas subsidiaries}) / (\text{number of employees at domestic establishments} + \text{number of employees at overseas subsidiaries})$

²³⁴ Wakasugi, R., Y. Kodo, H. Sato, S. Nishioka, T. Matsuura, A. Tanaka, and B. Ito (2008), "KOKUSAIKA SURU NIHON KIGYOU NO JITSUZOU—KIGYOU REBERU DEETA NI MOTOZUKU BUNSEKI," RIETI Discussion Paper Series 08-J-046.

relationship behind the tendency of companies with overseas subsidiaries to have a higher level of productivity, it has been widely confirmed that the natural selection hypothesis, which maintains that companies with a high level of productivity can choose the option of making foreign direct investment, is valid. On the other hand, regarding the learning hypothesis, which maintains that companies can improve productivity by absorbing knowhow and technology through foreign direct investment, it is not clear whether the hypothesis is valid. For example, in the White Paper on International Economy and Trade 2023,²³⁵ we compared manufacturing companies that had expanded abroad with companies with similar corporate attributes that had not expanded abroad, using the propensity score matching method, and as a result, we did not find the presence of positive effects of the start of overseas business expansion on productivity. In view of those previous studies, the possibility is presumably small that the analysis of the relationship between investment outside own groups and sales will confirm that an increase in foreign investments will generate indirect positive effects on sales per employee through a rise in productivity.

Figure II-2-4-8. Relationship between the value of investments in relevant companies and sales



Note: METI used sales per employee of manufacturing companies (including overseas subsidiaries) as a dependent variable and the following as independent variables: the outstanding balance of companies' investments in and loans to domestic and overseas relevant companies per employee, domestic labor productivity (value added per employee), labor productivity of overseas subsidiaries (value added per employee), and a dummy variable of a global company = 1. Then, after controlling for the fixed, company-specific, year-specific and industry-specific factors, it conducted estimation regarding manufacturing companies in the period between 2013 and 2019. The sales per employee of manufacturing companies (including overseas subsidiaries) on the vertical axis are based on the results of the estimation and show the figures obtained by deducting the impacts of the fixed effects from the dependent variable. When conducting the estimation, it

²³⁵ https://www.meti.go.jp/report/tsuhaku2023/whitepaper_2023.html (viewed on April 5, 2024).

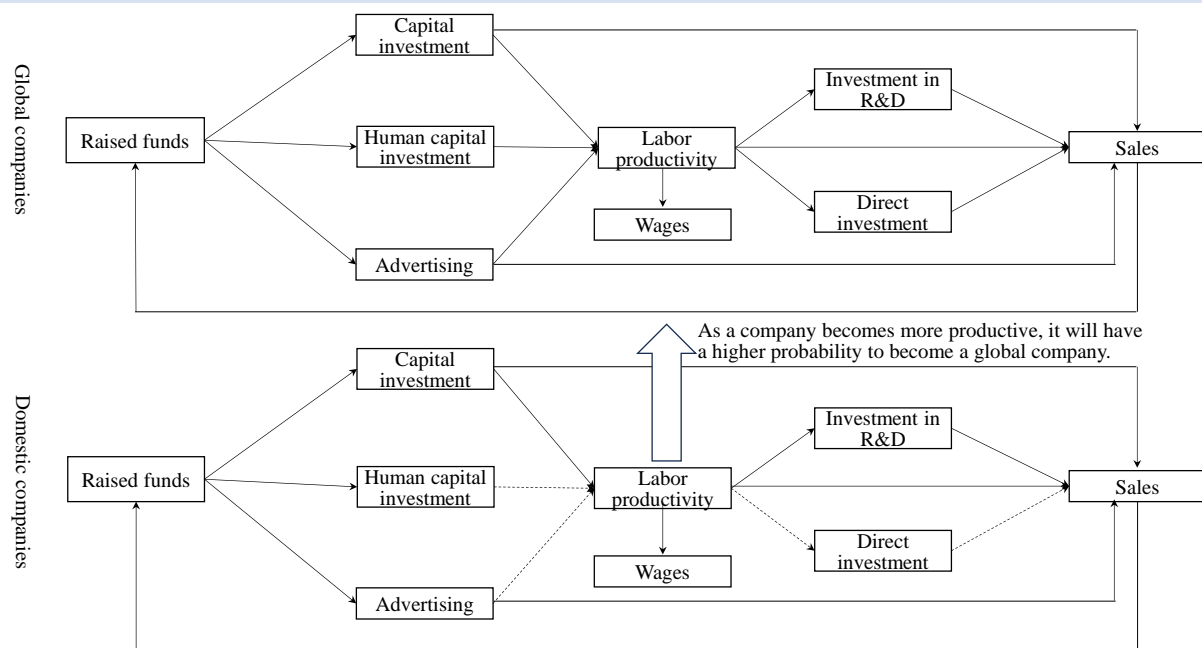
replaced the sales of overseas subsidiaries of domestic companies, the labor productivity, and the outstanding balance of investments in and loans to overseas subsidiaries with 0.001 (million yen) and the number of workers at overseas subsidiaries with 1 (worker). Also, regarding companies whose investments in and loans to domestic relevant companies are zero, it converted the variable into 0.001 (million yen).

Source: Estimates based on *Basic Survey of Japanese Business Structure and Activities*, and *Basic Survey on Overseas Business Activities* (METI).

Figure II-2-4-9 shows the summary of the results of the examination of the relationships between corporate investment, productivity, and sales per employee explained above. The examination found that the effects of investment on corporate growth may vary depending on the presence or absence of overseas subsidiaries and the type of investment. It also found the following points: that global manufacturing companies raised productivity by making use of intangible asset investment, such as human capital investment in addition to tangible asset investment; that a high level of productivity at those companies led to increases in foreign direct investment and R&D investment; and that those companies expanded business scale through those investments. Those points indicate that global manufacturing companies use those investments in order to achieve growth in terms of productivity improvement and business scale expansion. In particular, as global companies have access not only to domestic markets but also to foreign markets, it is presumed that R&D investment generates greater positive effects on business scale compared with the case of domestic companies and that investment in companies with a capital relation also has positive effects on business scale. On the other hand, although domestic manufacturing companies use tangible fixed asset investment in order to improve productivity, the use of intangible asset investment varies from company to company. However, we also found that, among domestic companies, companies with a higher level of productivity tended to have a larger business scale and that an increase in R&D investment tended to expand business scale. This indicates that although domestic companies face some difficulty in improving productivity through investment, they are using investment for the purpose of expanding business scale.

The above findings indicate that it is important for companies aiming for future growth, including domestic companies, to improve labor productivity as the first step because labor productivity improvement is expected to increase the likelihood that business scale will be expanded through R&D investment and foreign direct investment, raising the prospects for further growth.

Figure II-2-4-9. Diagram showing companies' growth and expansion in light of analysis results, etc.



Source: METI.

So far in this paragraph, we have examined the status of wages, employment and investment in Japanese manufacturing industries and shown that among global companies, the percentage of those with a high rate of growth in employment and investment is higher than among domestic companies and that in the case of mid-sized enterprises, the percentage of those with a high rate of growth in employment and investment is high among both global and domestic companies. We have also used a structural equation modeling to make the flow of corporate funds visible based on balance sheets, conducted an analysis focusing on how the funds raised are used, and examined the relationship between corporate investment and growth. The examination indicated that companies can achieve growth through the processes of using the funds raised for capital investment and human capital investment in order to improve labor productivity and expanding business scale through productivity improvement, R&D investment, and direct investment. The examination found the following points regarding global manufacturing companies in particular: that global manufacturing companies allocate more funds to investment compared with domestic companies; that investment generates greater positive effects on labor productivity at global manufacturing companies; that global manufacturing companies can make foreign direct investment because of higher labor productivity; and that investment generates greater positive effects on business scale at global manufacturing companies because of increased access to foreign markets. In short, these findings indicate that global manufacturing companies achieve higher growth through the investment and other activities mentioned above. The findings also indicate that it is important for companies aiming for future growth to raise labor productivity by investing in tangible fixed assets and human capital as the first step because a rise in labor productivity is expected to increase the likelihood that business scale will be expanded through R&D investment and foreign direct investment, raising the prospects for further growth. However, in the case of domestic companies, the

failure to make effective use of capacity development investment and advertising expenditure in order to raise labor productivity has become a pronounced challenge, indicating the need to make more effective use of such investment and to obtain support in these efforts.

In order to enable companies to achieve global growth and expansion, it is important to develop an underlying business environment favorable for their global activities, so the next section will discuss the activities that Japan carries out for that purpose.

2. Japan's activities to capture global growth and realize a virtuous cycle of investment, innovation and income

In order to enable the Japanese economy to capture global growth, achieve further growth, and create a virtuous cycle of investment, innovation and income, it is important to develop an underlying environment favorable for those activities. Below, we will look at the activities that Japan will conduct from four viewpoints—securing a free and fair international order and economic security, promoting exports, promoting outward foreign direct investment, and promoting inward foreign direct investment.

First, from the viewpoint of securing the free and fair international order and economic security, Japan will conduct activities while exploring possible cooperation with countries outside the G7 as well based on the policy reaffirmed at the G7 Hiroshima Summit, which was held in May 2023 with Japan serving as president. Specifically, as described in Part II, Chapter 1, Section 6, Japan will build resilient supply chains while contributing to maintaining the rules-based international economic order and giving consideration to the viewpoint of economic security. At the same time, Japan will develop relationships of co-existence and co-prosperity with countries around the world, including the Global South countries. Regarding the viewpoint of securing economic security in particular, Japan will conduct such activities as securing technological superiority, increasing supply chains concerning critical goods, energy and social infrastructure facilities, and ensuring information security. Regarding the securing of technological superiority, based on the Economic Security Promotion Act, Japan will implement the Key and Advanced Technology R&D through Cross Community Collaboration Program (K Program),²³⁶ which promotes R&D on advanced, critical technologies that are indispensable elements of the activity to enable Japan to maintain its solid position in the international community in the medium to long term, and provide an integrated set of support measures for the whole technology development process, from R&D to technology demonstration. Next, in order to increase the resilience of supply chains, Japan will make revisions and additions to the list of Specified Critical Goods, which have been designated as such under the Economic Security Promotion Act and which are important goods indispensable for the survival of the people or on which the people's everyday lives and economic activity depend widely, and provide support for capital investments intended to secure companies' domestic manufacturing infrastructure that is necessary for securing stable supply of those goods. Regarding the essential infrastructure that constitutes the foundation of the people's everyday lives and economic activity, such as energy, traffic/transportation, telecommunication, and financial systems, Japan will establish a prior examination system, whereby business operators engaging in specified social infrastructure business

²³⁶ See the website of the Cabinet Office (https://www8.cao.go.jp/cstp/anzen_anshin/kprogram.html).

based on the Economic Security Promotion Act that have been designated by competent ministers should seek permission when outsourcing operations, such as introducing, maintaining, and managing critical equipment in order to ensure the stable provision of services. From the viewpoint of cybersecurity, which is becoming more and more important amid the advance of digitalization, including the development of generative AI, which is rapidly spreading, and the increasing severity and sophistication of cyberattacks, Japan will build a framework for providing a clear view of activities conducted by individual companies by defining cross-industrial standards for security measures while managing and integrating the guidelines for strengthening security measures on a supply chain-wide basis. As a pilot case, Japan will start partially operating a system to evaluate the security conformity of IoT products on a four-grade scale in FY2024 and use it for government procurement, among other purposes. Regarding the K Program, which was mentioned earlier, Japan will designate technologies relevant to understanding the situation of cyberspace and to cyber defense as critical technologies and support research and development. Finally, regarding the information security system, in May 2024, the Security Clearance System was legislated, and Japan will appropriately enforce the system, under which access to government-owned information designated as information critical for national security is granted to persons who need access to such information on condition that the government conduct screening and confirm their trustworthiness. When developing and promoting measures to ensure economic security, on the domestic front, Japan will analyze threats and risks and exchange opinions with industry about increasing the resilience of supply chains concerning critical goods, and on the international front, it will step up dialogue with like-minded countries while using the G7 and other international platforms.

Next, regarding the promotion of exports, Japan will develop an environment favorable for exports by Japanese companies, particularly by providing support to small and medium-size enterprises that have little or no experience of export business and by promoting services trade. With respect to the development of a favorable export environment, Japan will use the SEED (Support to Expand Emerging Deals) scheme, which was established in May 2023²³⁷ to promote the improvement of the export environment for Japanese companies by requiring foreign companies to which Nippon Export and Investment Insurance (NEXI) provides loan insurance to make active efforts to start and expand transactions with Japanese companies, including start-ups, in the future. Japan will also introduce a subsidy program to promote the use of trade platform services, which have been increasingly introduced by private-sector companies in recent years in order to enable data sharing among multiple stakeholders involved in trade operations, including not only importers and exporters but also transportation companies and tax authorities, and promote cost reduction using digital technology related to export procedures by holding discussions on the significance of and challenges for trade DX (digital transformation) at a study group²³⁸ comprised of stakeholders involved in trade and by calling for the revision of the international standards concerning trade finance in order to enhance data linkage. As for measures focusing on regions, Japan will support ASEAN countries' activities to implement a roadmap

²³⁷ A press release published by Nippon Export and Investment Insurance on May 12, 2023 (<https://www.nexi.go.jp/topics/newsrelease/2023042704.html>).

²³⁸ See the website of the Ministry of Economy, Trade and Industry (https://www.meti.go.jp/shingikai/external_economy/digital_trade_platform/index.html).

for the efforts to promote trade digitization between ASEAN and Japan,²³⁹ formulated in FY2023. Next, regarding the promotion of exports by small and medium-size enterprises, Japan will promote and enhance the 10,000 New Exporters Support Program,²⁴⁰ whose menu of support measures include a free-of-charge consulting service by professionals and a subsidy program to cover expenditure related to export promotion and which is targeted at companies with no experience of export. Japan aims to build a mechanism to promote the self-sustained expansion of exports by small and medium-size enterprises while fostering export support business by private-sector business operators. With respect to the promotion of services trade, Japan will conduct activities to create demand related to in-bound tourism (travel to Japan by foreign tourists) and to resolve the deficit in the international balance of payments concerning computer services (so-called digital deficit). As for the creation of in-bound demand, Japan will strategically conduct activity to create demand based on the Action Plan for Expanding Inbound Tourism for the New Era,²⁴¹ formulated in May 2023. In order to deal with the concerns raised over the negative effects of tourist-related problems, such as excessive congestion and violations of social norms, on local residents' lives in some regions during some times of the day and on the level of satisfaction among tourists, Japan will further promote efforts to encourage tourists to visit local regions and diversify tourist destinations, for example by creating high value added through investment in landscape and architecture designs and arts that draw out the individualities of local tourism locations. In addition, paying attention to the need to visit and stay in Japan for an extended period of time from business travelers, who may be attracted despite a lack of tourism resources of world renown, the government of Japan aims to create a new business inbound market in cooperation with local governments across the nation. For the moment in particular, by taking advantage of an international expo (Expo 2025 Osaka, Kansai), scheduled to be held in Japan in 2025, Japan will promote efforts to encourage tourists to visit various regions across the nation and attract business travelers from abroad. Regarding the resolution of the deficit in the international balance of payments concerning computer services, Japan will enhance the capacity to develop cloud programs and AI and secure a stable supply of computing resources indispensable to the development of those technologies and a supply of semiconductors that support the digital industry based on the Strategy for Semiconductors and the Digital Industry,²⁴² the revised version of which was worked out in June 2023. As for computer services, represented by various cloud services, disruptive technological innovations, such as the practical application of quantum computers, are expected to proceed. This is an advanced technology sector that is critical for economic security. Therefore, under the Action Plan to Strengthen

²³⁹ See the website of the AEM-METI (ASEAN-JAPAN) Economic and Industrial Cooperation Committee (https://ameicc.org/aseanjapan_economic_co-creation_forum/summary/_data/Dissemination%20of%20Digitalization%20in%20ASEAN%20and%20Japan.pdf).

²⁴⁰ See the website of JETRO (<https://www.jetro.go.jp/ichiman-export.html>).

²⁴¹ See the website of the Ministry of Land, Infrastructure, Transport and Tourism (<https://www.mlit.go.jp/kankocho/content/001612100.pdf>).

²⁴² See the website of the Ministry of Economy, Trade and Industry (https://www.meti.go.jp/policy/mono_info_service/joho/conference/semiconductors_and_digital.pdf).

Supply Chain and Technological Basis for Economic Security,²⁴³ formulated in October 2023, Japan will consider setting targets, including numeral targets for resolving the digital deficit (a benchmark, such as “digital self-sufficiency”), under a top-down approach. Finally, with respect to the discharge of ALPS treated water²⁴⁴ from Tokyo Electric Power’s Fukushima Daiichi Nuclear Power Station, which started on August 24, 2023, Japan, in cooperation with the International Atomic Energy Agency (IAEA), has conducted the monitoring of fishery products and seawater and published the results. It has been confirmed that the discharge has been conducted in a safe manner according to plan. While some countries/regions have introduced import restriction measures not founded on scientific evidence, Japan will continue to call for the immediate removal of those measures and do its utmost to provide support to the fishery industry, including measures to find alternative export destinations and to strengthen the domestic processing system.²⁴⁵

Regarding the promotion of outward foreign direct investments by Japanese companies, the government of Japan will concentrate efforts on supporting cooperation with Global South countries—particularly support for advancing into regions where Japanese companies are relatively lagging in creating presence, such as India and Africa, support for training of workers in those regions, and fund-raising support. With respect to cooperation with Global South countries, in October 2023, the group to promote cooperation with Global South countries²⁴⁶ held its first meeting at the Prime Minister’s Office and at a meeting in June 2024, this group adopted New Policy toward Enhanced Cooperation with Global South Countries. It has been confirmed that under that policy, Japan will realize co-creation of social values through dialogue and collaboration so as to suit the respective circumstances and needs of Global South countries, which have diverse backgrounds in terms of history, culture, religion, political system, and economic development level. Japan also aims to foster harmony in the international community under that policy. While strengthening economic cooperation based on the policy, the government will conduct field surveys and formulate region-by-region strategies in order to develop flagship projects to co-create future industries that will contribute to both the resolution of the various social challenges faced by Global South countries and the advancement of Japan’s industrial structures under the Global South Future-Oriented Co-Creation Project, to which 140 billion yen has been allocated under the FY2023 supplementary budget (the budget funds include a treasury debt commitment; the items covered by the budget include some projects to accelerate a fair decarbonization transition in Asia). Regarding cooperation with regions such as the Middle East and Africa in particular, Japan will build a framework of third-country cooperation to be promoted jointly with countries such as India, which has a large presence as a supply hub for those regions, and use the framework as the starting

²⁴³ See the website of the Ministry of Economy, Trade and Industry (https://www.meti.go.jp/policy/economy/economic_security/231031actionplan.pdf).

²⁴⁴ ALPS treated water refers to water that was contaminated with radioactive substances when it was inside the building of Tokyo Electric Power Company’s Fukushima Daiichi Nuclear Power Station but which has been purified so as to reduce the concentrations of radioactive substances other than tritium to levels that meet the safety standards.

²⁴⁵ See the website of the Ministry of Economy, Trade and Industry (<https://www.meti.go.jp/press/2023/09/20230905001/20230905001-1.pdf>).

²⁴⁶ See the website of the Prime Minister’s Office (https://www.kantei.go.jp/jp/101_kishida/actions/202310/17globalsouth.html).

point for implementing strategic activities targeting particular priority sectors and countries through a package of measures, including infrastructure building and strengthening of finance. Next, regarding support for regions where Japanese companies are relatively lagging in creating a presence, such as India and Africa, the government will support business demonstration projects implemented jointly with local partner companies. The government will also support training for workers so that Japanese companies can locally hire necessary workers when conducting business in those regions. With respect to fund-raising support, in order to support companies' efforts toward global expansion through the trade insurance scheme of NEXI amid the drastic change in the international economic environment, the government will promote the strengthening of risk management and the financial foundation. When doing that, in areas of high policy priority, including the strengthening of supply chain resilience, GX, and international cooperation, the government will facilitate the provision of insurance as a priority in order to support companies' efforts toward global expansion.

Finally, regarding the promotion of inward direct investment, under the Action Plan for Attracting Human and Financial Resources from Overseas,²⁴⁷ which was formulated in April 2023, the government raised the target of the outstanding balance of inward direct investment in 2030 from 80 trillion yen to 100 trillion yen and aims to achieve the target early (the outstanding balance was 50.5 trillion yen in 2023). Under the plan, the government's activities will center on the following five pillars: (i) stimulating investment in strategic sectors and restructuring global supply chains in light of changes in the international environment; (ii) strategies for the formation of Asia's largest startup hub; (iii) attracting highly-skilled foreign professionals, and improving the system for establishing a center for global knowledge exchange; (iv) improving the business and living environment to attract human resources and investment from overseas; and (v) fundamentally strengthening all-Japan's efforts for the mechanism to attract investment and to follow up this Action Plan, and globally disseminating these undertakings on the occasion of the G7 and other international events. With respect to the first pillar, in order to attract foreign companies possessing particular technologies in strategic sectors, including semiconductors and GX, the government will conduct a comparative analysis of domestic and foreign industrial bases in terms of locational factors, and based on the analysis results, the national and local governments work together to accelerate measures to attract such foreign companies, including advancing the industrial infrastructure of regions selected as potential investment destinations, inviting top managers of promising foreign companies, and supporting feasibility studies. Regarding the second pillar, the government will build and strengthen networks with domestic and foreign startup ecosystem stakeholders and foster a mutual understanding and develop relationships of trust, as it did at the ASEAN-Japan Young Business Leaders' Summit and the ASEAN-Japan Generation Z Business Leaders' Summit,²⁴⁸ which were held concurrently in December 2023 with the participation of business persons who are expected to become business leaders in the future. The government will also promote partnerships and collaboration between Japanese and foreign companies through the JETRO's J-

²⁴⁷ See the website of the Cabinet Office (http://www.invest-japan.go.jp/committee/action_plan.pdf).

²⁴⁸ A press release published by Ministry of Economy, Trade and Industry on December 17, 2023 (<https://www.meti.go.jp/press/2023/12/20231217003/20231217003.html>).

Bridge²⁴⁹ business platform for generating international open innovation involving Japanese companies and foreign companies, including startups (31 open innovation projects were created in FY2023).²⁵⁰ Regarding the third pillar, the government will not only support the acquisition of human resources but also provide ongoing-support measures, including the improvement of the working environment to help workers settle into a new job and achieve successful results while using the consortiums for promoting the employment of highly-skilled foreign professionals in regional areas²⁵¹ as the centerpiece of this activity, which were launched in six regions (Hokkaido, Tohoku, Hokuriku, Kansai, Chugoku, and Kyushu) in Japan in FY2022 and 2023 in order to provide such support through cooperation between relevant officials from industry, academia and government. Regarding the fourth pillar, the government will cooperate with foreign government organizations, economic associations, companies, and investors in identifying the challenges that exist in Japan's business environment and take necessary actions, such as holding a Meeting of the G7 Members' Chambers of Commerce in Japan (four meetings were held in FY2023), to make improvements, as exemplified by the introduction of an AI-based system to translate Japanese laws and regulations²⁵² into English, which is scheduled to enter operation at all ministries and agencies by the end of FY2024. Finally, with respect to the fifth pillar, the government will steadily implement necessary measures using the Liaison Council on Attracting Regional Investments (meetings of the council were held in Hokkaido, Kinki and Kyushu in FY2023), which was established to discuss region-by-region measures to attract investment and follow-up measures to help foreign companies settle into Japan and make follow-on investments. Moreover, at a meeting in May 2024, Invest Japan conducted a follow-up review of the progress in measures implemented under the Action Plan for Attracting Human and Financial Resources from Overseas and determined the Priority Program for Attracting Foreign Direct Investment, which contain items of activity that require accelerated and deeper efforts, such as securing highly-skilled foreign workers, promoting partnerships between domestic and foreign companies, and improving the business and living environments, in order to further expand foreign direct investment in Japan.

It is also important to strongly support the competitiveness of domestic companies and assist the growth of companies that can survive global competition. In particular, mid-sized enterprises play an important role in expanding business and investment in Japan, thereby contributing to wage increases at the regional level. On the other hand, the percentage of mid-sized enterprises that grow into large companies in Japan is low by international standards, which means that such enterprises have had difficulty in investing in future growth at a level sufficient to enable them to compete with domestic and foreign large companies. Therefore, the government has designated 2024 as the First Year of Growth Promotion for Mid-sized Enterprises and worked out a package of measures²⁵³ to be implemented by ministries and agencies to promote the growth of mid-sized enterprises. By using those measures, the

²⁴⁹ See the website of JETRO (<https://www.jetro.go.jp/j-bridge/>).

²⁵⁰ Regarding the analysis concerning startups, see *White Paper on International Trade and Economy 2023*, Part II, Chapter 2, Section 5.

²⁵¹ See the website of JETRO (<https://www.jetro.go.jp/hrportal/region/>).

²⁵² See the website of the Ministry of Justice (<https://www.moj.go.jp/content/001414686.pdf>).

²⁵³ See the website of the Prime Minister's Office (https://www.kantei.go.jp/jp/singi/katsuryoku_kojyo/seichou_sokushin_wg/dai7/siryoul.pdf).

government will support the growth of mid-sized enterprises that seek to capture shares of global markets while building business bases in Japan.

As explained above, Japan will build resilient supply chains that give consideration to economic security in cooperation with like-minded countries while placing emphasis on maintaining the rules-based, free and open international economic order. At the same time, Japan will achieve further growth and create a virtuous cycle of investment, innovation and income while developing relationships of co-existence and co-prosperity with regions expected to grow, such as the Global South countries, and incorporating global growth.