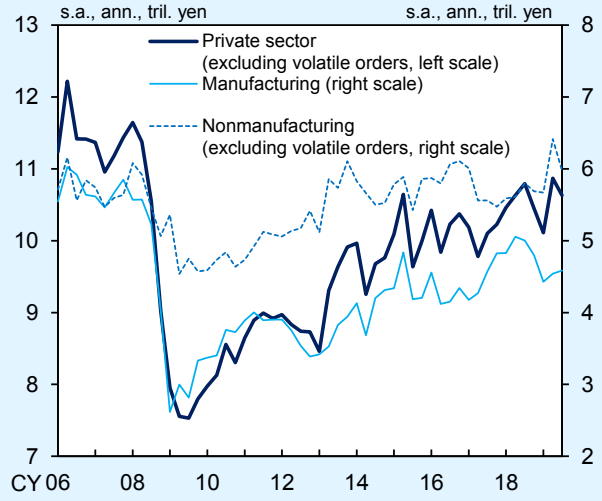
(Box 4) Steady Business Fixed Investment despite the Slowdown in Overseas Economies (1): Machinery and Software Investments as well as R&D Investment

Although the slowdown in overseas economies has affected exports as well as manufacturers' sentiment and corporate profits, overall business fixed investment has maintained an uptrend. Boxes 4 and 5 examine business fixed investment by type with regard to the reasons why it has remained steady thus far despite the slowdown in overseas economies. This box starts by looking at machinery and software investments as well as research and development (R&D) investment.

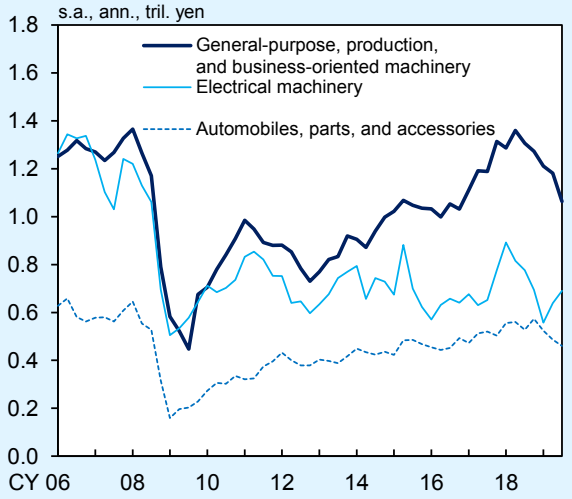
Chart B4-1: Machinery Orders



Source: Cabinet Office.
Notes: 1. Volatile orders: orders for ships and orders from electric power companies.
2. Figures for 2019/Q3 are July-August averages.

Looking at machinery orders, a leading indicator of machinery investment, the manufacturing sector has continued to show some weakness recently (Chart B4-1). By industry, "general-purpose, production, and business-oriented machinery" has declined clearly, reflecting the weakness in capital goods exports (Chart B4-2). "Electrical machinery" has been at a low level from a somewhat longer-term perspective, although it has picked up to some extent recently. While "automobiles, parts, and accessories" had followed a moderate uptrend, it has been somewhat weak recently, mainly for "metal cutting machines." Machinery investment in the manufacturing sector will likely remain somewhat weak for a while, with the timing of a pick-up in the growth pace of overseas economies being delayed.

Chart B4-2: Machinery Orders (Manufacturing)



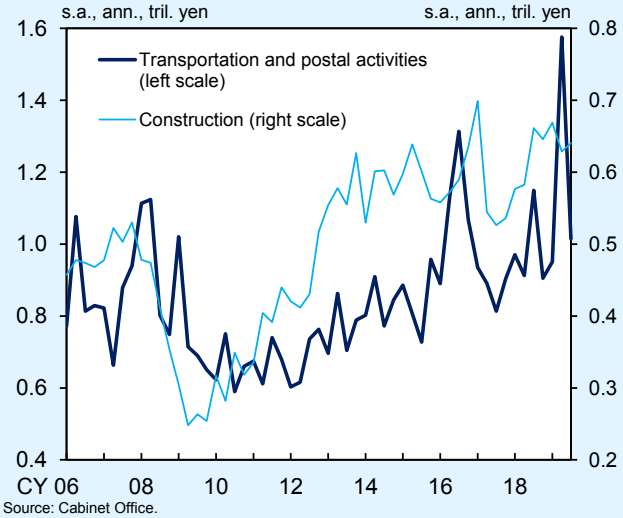
Source: Cabinet Office.
Notes: 1. Figures for general-purpose, production, and business-oriented machinery up through 2011/Q1 are the sum of figures for general machinery and precision instruments under the previous industrial classification.
2. Figures for 2019/Q3 are July-August averages.

On the other hand, machinery orders by the nonmanufacturing sector have maintained their

firmness, albeit with fluctuations. By industry, growth in "transportation and postal activities" and "construction" has accelerated recently -- mainly for "industrial machinery," including "conveying, elevating, materials handling machinery," and for "electronic and communication equipment" such as computers -- due to strong demand for improving efficiency and saving labor to address labor shortage (Chart B4-3). This strong demand also has led to an increase in software investment in the nonmanufacturing sector. Looking at the *Tankan*, software investment has seen a clear increase in recent years, mainly in industries such as "retailing," "accommodations, eating and drinking services," and "construction," which are labor-intensive and where labor shortage tends to constrain businesses (Chart B4-4). In fiscal 2019, software investment is expected to maintain its steady increase, due in part to the introduction of the multiple consumption tax rates associated with the tax hike and of cashless payments.

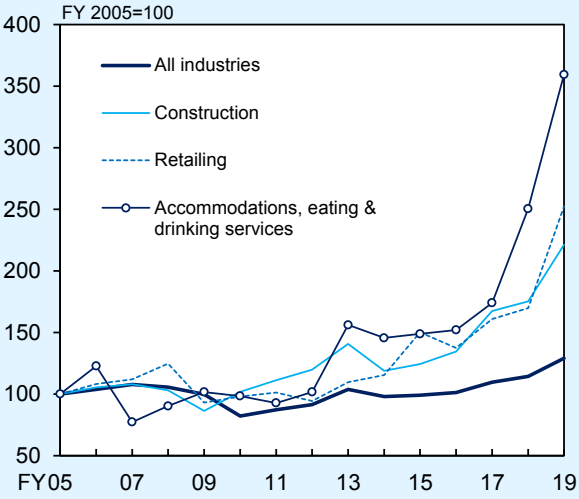
Meanwhile, the increasing trend in R&D investment for growth areas has continued (Chart B4-5). According to a survey by the Development Bank of Japan, R&D investment plans for fiscal 2019 by industry show that "transport equipment" -- which accounts for more than 40 percent of total R&D expenditure -- is expected to maintain its growth pace with the aim of developing advanced technologies for the future, such as assisted and automated driving as well as vehicle electrification, despite the decline in global automobile sales. "Chemicals," which accounts for the second largest share of R&D expenditure following "transport equipment," also is projected to increase substantially, mainly for the development of new materials in the fields of

Chart B4-3: Machinery Orders (Nonmanufacturing)



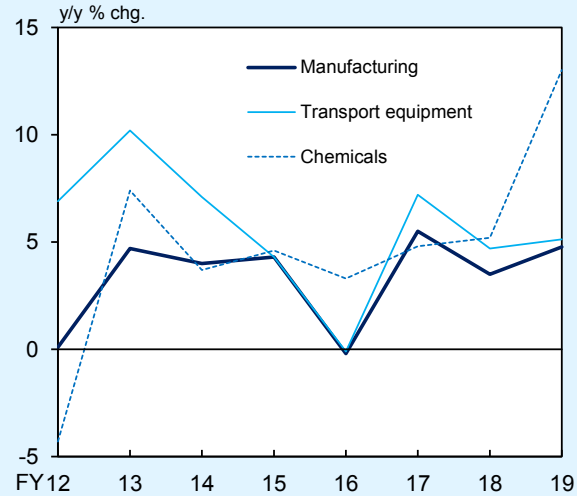
Source: Cabinet Office.
Notes: 1. Excluding orders for ships.
2. Figures for 2019/Q3 are July-August averages.

Chart B4-4: Software Investment (*Tankan*)



Source: Bank of Japan.
Note: Figures up through fiscal 2018 are actual results. Figures for fiscal 2019 are forecasts from the September 2019 survey.

Chart B4-5: R&D Expenditure



Source: Development Bank of Japan.
Note: Figures are of firms with capital of 1 billion yen or more on a consolidated basis. Figures for fiscal 2019 are based on staff calculations, in which figures for planned expenditure for fiscal 2019 are adjusted for average changes from planned to actual expenditure for fiscal 2012-2018.

automobiles and electronics as well as the product development related to pharmaceuticals and biotechnology.

The aforementioned machinery and software investments aimed at improving efficiency and saving labor in order to deal with labor shortage and R&D investment for growth areas are less susceptible to short-term economic developments such as fluctuations in overseas economies, and thus appear to underpin overall business fixed investment. From a somewhat longer-term perspective, these investments are expected to raise the potential growth rate through, for example, (1) an improvement in labor productivity due to a rise in capital intensity and (2) an increase in total factor productivity mainly brought about by developing new products.

However, it is necessary to pay attention to the possibility that firms' investment stance will become cautious though a further deterioration in their sentiment and corporate profits if the slowdown in overseas economies is prolonged for a longer period or the growth rates of overseas economies decline further.