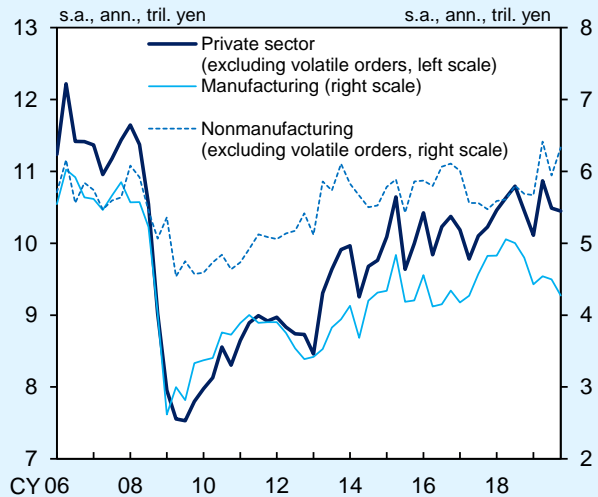


(Box 3) Background to the Recent Steady Business Fixed Investment

Although exports, production, and business sentiment have shown some weakness, mainly affected by the slowdown in overseas economies and natural disasters, firms' positive fixed investment stance has been maintained on the whole. Under the circumstances, business fixed investment is expected to continue on a moderate increasing trend. This box examines such outlook by type of investment.

Looking at machinery orders, a leading indicator of machinery investment, the manufacturing sector has continued to show some weakness since end-2018 against the background of weak exports due to the slowdown in overseas economies (Chart B3-1). Looking at the manufacturing sector by industry, orders by "electrical machinery" have turned to a pick-up since around mid-2019, reflecting the global cycle for IT-related goods shifting toward a phase of improvement; on the other hand, those by "general-purpose, production, and business-oriented machinery," which account for the largest share of total machinery orders, have continued to decline clearly, reflecting weak demand for global business fixed investment. In addition, regarding orders by "automobiles, parts, and accessories," demand for such items as metal cutting machines has been somewhat weak recently due to a decrease in automobile-related exports. Looking at the deviations of machinery orders by the manufacturing sector and real exports from their trends, the correlation between the two is extremely high, which indicates that manufacturers -- in response to changes in

Chart B3-1: Machinery Orders

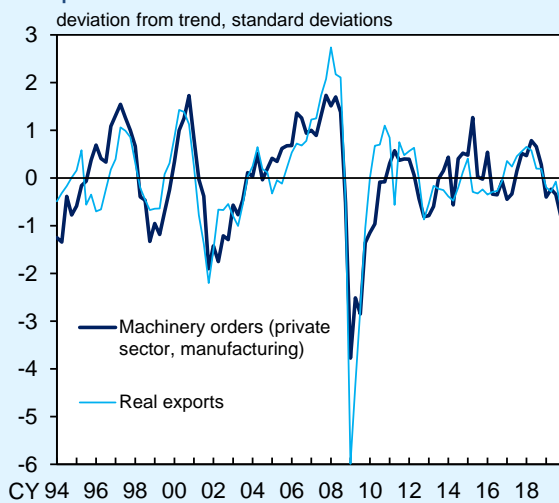


Source: Cabinet Office.
 Notes: 1. Volatile orders: orders for ships and orders from electric power companies.
 2. Figures for 2019/Q4 are October-November averages.

exports -- make adjustments to their orders for such items as metal cutting machines in a highly sensitive manner (Chart B3-2). Given these observations, the outlook for machinery investment by manufacturers is expected to remain somewhat weak for the time being until the effects of the slowdown in overseas economies wane and real exports begin to pick up.

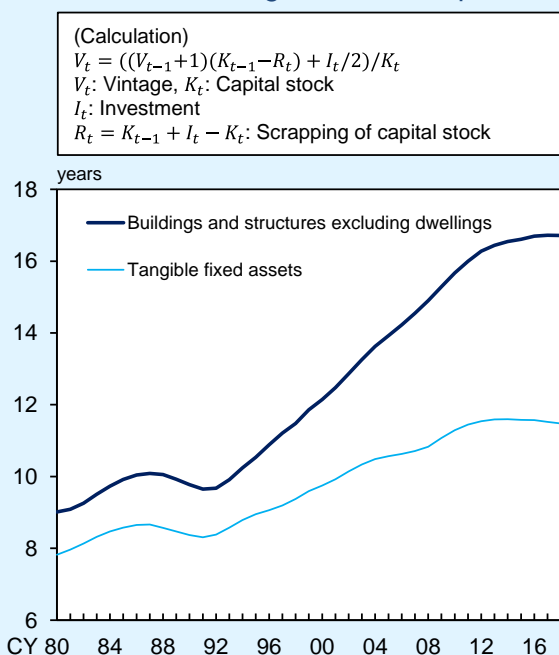
Next, construction starts, a leading indicator of construction investment, have continued on an uptrend without a significant drop even after the start of fiscal 2019, when Olympic Games-related demand seems to have peaked out (Chart 22). With regard to recent new construction projects such as office buildings, hotels, and commercial facilities that have supported this steady growth in construction investment, many projects appear to aim at rejuvenating vintage building stock, such as replacement of aging existing buildings, rather than constructing additional buildings. Estimating the vintage of the capital stock based on a certain assumption, that of buildings and structures has continued on an uptrend, reflecting the prolonged weakness in construction investment since the bubble burst (Chart B3-3). Under these circumstances, demand for replacing existing buildings built under the old earthquake resistance standards seems to have become evident in recent years, supported in part by highly accommodative financial conditions. Office building vacancy rates are extremely low, partly reflecting the fact that many recent urban redevelopment projects involve replacing existing buildings in good locations with high-performance buildings. Such increase in replacement demand also can be confirmed by a frequency spectrum

Chart B3-2: Machinery Orders and Real Exports



Sources: Cabinet Office; Bank of Japan; Ministry of Finance.
Note: Figures for 2019/Q4 are October-November averages.

Chart B3-3: Vintage of Fixed Capital Stock



Sources: Cabinet Office; Research Institute of Economy, Trade and Industry; Ministry of Internal Affairs and Communications.

Note: Based on the private sector. Figures are based on staff calculations using figures from the "1970 National Wealth Survey" as initial values and employing data from the SNA (as well as the "Japan Industrial Productivity Database" for the period before 1980). The initial value of "buildings and structures excluding dwellings" is the vintage of "buildings and fixtures" and "structures" in the "1970 National Wealth Survey" that is adjusted for the vintage of the dwellings estimated based on the "Housing and Land Survey."

decomposition of construction starts (Chart B3-4). This shows that the medium- to long-term (15- to 50-year) cycle, which seems to roughly correspond to the replacement cycle, has contributed to the uptrend in construction starts in recent years. As for the outlook, given the high vintage of building stock, there seems to remain reasonable potential replacement demand, which is likely to underpin construction investment for a long time on the back of highly stimulative financial conditions.

Meanwhile, software and R&D investments also have continued to increase steadily. The share of these investments in total business fixed investment has been on an uptrend from a long-term perspective, reaching about 30 percent since the 2010s (Chart B3-5). These software and R&D investments are (1) relatively less susceptible to short-term fluctuations in profits than, for example, machinery investment and (2) less likely to be linked directly to an expansion in production capacity and lead to an increase in pressure stemming from capital stock adjustments. Thus, the growing share of these investments in recent years seems to contribute to the recent steady business fixed investment as a whole.

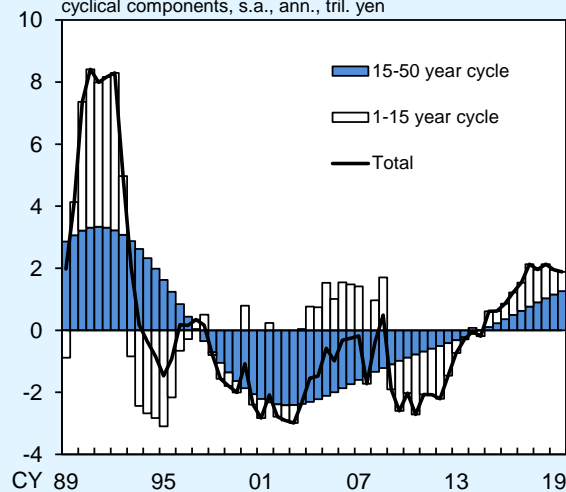
Although an increase in software investment thus far was mainly observed in labor-intensive nonmanufacturing industries with strong demand for improving efficiency and saving labor in a situation of acute labor shortage, aggressive IT investment recently seems to be increasing steadily across industries, including in manufacturing (Chart B3-6). Specifically, it is

Chart B3-4: Frequency Spectrum Decomposition of Construction Investment

1. Useful Life of Buildings

Wooden buildings, etc.	15-25 years approx.
Steel-frame reinforced concrete buildings, etc.	30-50 years approx.

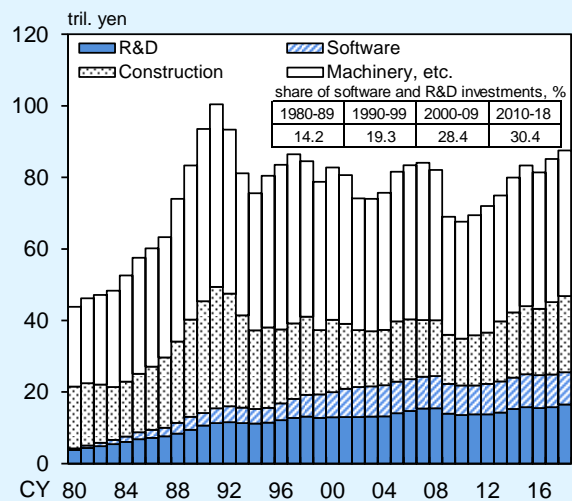
2. Frequency Spectrum Decomposition (Construction Starts, Estimated Costs)
cyclical components, s.a., ann., tril. yen



Sources: National Tax Agency; Ministry of Land, Infrastructure, Transport and Tourism.
Notes: 1. The useful life of buildings is based on useful life tables by the National Tax Agency.

2. The cycles are extracted by applying frequency spectrum decomposition to estimated construction costs of nonresidential buildings reported by private-sector builders. The estimation period is 1988/Q2-2019/Q4. Figures for 2019/Q4 are October-November averages.

Chart B3-5: Software and R&D Investments



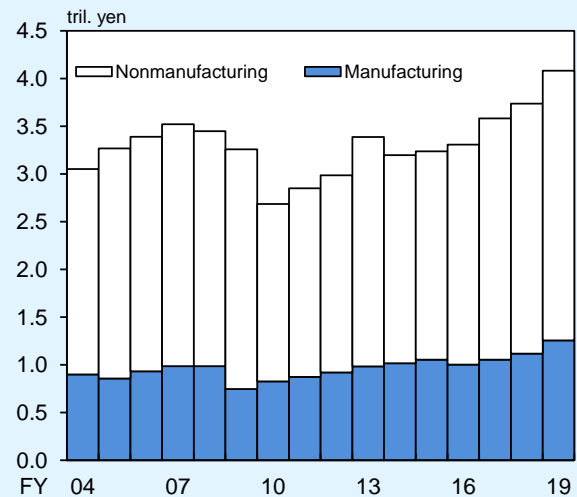
Source: Cabinet Office.

Note: The chart shows fixed capital formation other than "dwellings" in the private sector in the Cabinet Office's "Gross Fixed Capital Formation of Assets classified by Institutional Sectors and Economic Activities" in current prices.

noteworthy that firms not only have invested in robotic process automation (RPA) to save labor and raise productivity but also gradually are becoming active in investment related to big data, artificial intelligence (AI), and the Internet of Things (IoT), with the aim of creating new businesses, expanding sales channels, analyzing data, and promoting use for marketing (Chart B3-7).

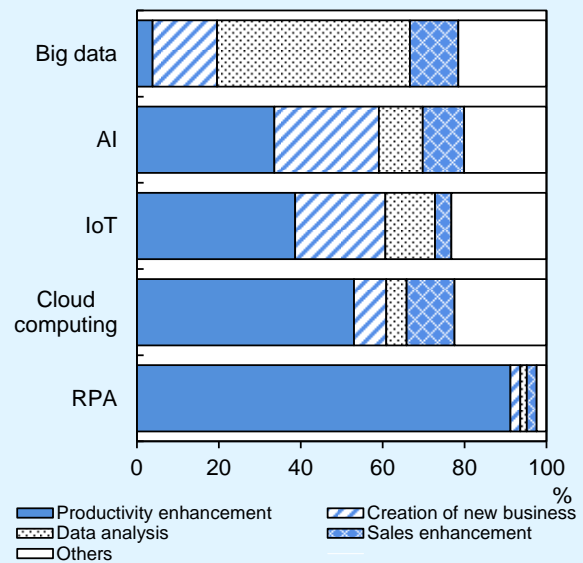
Taking into account these developments, business fixed investment is expected to remain steady overall as firm investments in construction as well as in software and research and development offset weak machinery investment by manufacturers. However, since some weakness has continued in exports and production -- particularly in automobile-related goods and capital goods, both of which have a large impact on Japan's economy -- due attention needs to be paid to the possibility that firms' investment stance may become cautious if profits in these sectors decline further.

Chart B3-6: Software Investment (*Tankan*)



Source: Bank of Japan.
 Note: All enterprises. Figures for fiscal 2019 are adjusted based on average changes of comparable figures for fiscal 2004-2018 from planned investment in the December surveys to actual investment.

Chart B3-7: Firms' Use of Information Technology



Source: Japan Users Association of Information Systems.
 Note: Survey for fiscal 2018. Figures for "cloud computing" are the weighted averages of the share of responses for "public cloud computing (IaaS, PaaS)" and "public cloud computing (SaaS)" in the survey.