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Japan's Economy: Monthly Outlook (Feb 2018)

GDP growth of +1.7% in FY17, +1.3% in FY18, and +0.8% in FY19; five risks facing the global economy

Economic Research Dept.
Shunsuke Kobayashi
Tomoya Kondo
Satoshi Osanai
Kazuma Maeda
Yota Hirono

Summary

- In light of the 1st preliminary Oct-Dec 2017 GDP release we have revised our economic growth outlook. We now forecast real GDP growth of +1.7% in comparison with the previous year for FY17 (+1.8% in the previous forecast), +1.3% in comparison with the previous year for FY18 (+1.1% in the previous forecast), and +0.8% in comparison with the previous year for FY19 (+0.6% in the previous forecast). Japan's economy has continued accelerated growth due to the following factors: (1) favorable overseas demand, (2) inventory investment, and (3) replacement demand for durables. However, the effects of these three factors will gradually fade away in the future, while the consumption tax increase planned for October 2019 is expected to have a negative impact on income. Hence we expect Japan's economy to continue to slow down through FY2019.
- In this report we examine five risks facing the global economy, which could affect our outlook for the Japanese economy as outlined in the above. These are (1) Risk of global stock price lows and global production decline triggered by the US stock market: while there is still a chance that US stock prices may be on the high side, we do not think that the situation will go so far as to cause global production declines. (2) US & EU exit strategies are expected to bring downward pressure on the global economy, with -0.07% seen in 2018 and -0.26% expected in 2019. (3) Yen appreciation: we urge caution regarding the possibility that the US may adopt a weak dollar policy. Yen appreciation of 10 yen will bring downward pressure of around -1.9 tril yen on current profits of Japanese corporations. (4) Increase in price of oil: crude oil was at 57.9 dlrs/bbl as of December 2017. If the price increases by 10 dlrs/bbl, it will bring negative pressure of around -0.12% on real GDP between the years 2018 and 2020. And finally, (5) China's excessive debt continues to be a concern. This factor makes China especially susceptible to the negative effects of higher interest rates.

Economy to Continue Favorable Growth, but Pace of Growth to Peak Out in FY2017

In light of the 1st preliminary Oct-Dec 2017 GDP release we have revised our economic growth outlook. We now forecast real GDP growth of +1.7% in comparison with the previous year for FY17 (+1.8% in the previous forecast), +1.3% in comparison with the previous year for FY18 (+1.1% in the previous forecast), and +0.8% in comparison with the previous year for FY19 (+0.6% in the previous forecast). Japan's economy has continued accelerated growth due to the following factors: (1) favorable overseas demand, (2) inventory investment, and (3) replacement demand for durables. However, the effects of these three factors will gradually fade away in the future, while the consumption tax increase planned for October 2019 is expected to have a negative impact on income. Hence we expect Japan's economy to continue to slow down through FY2019.

GDP wins eighth consecutive quarter of growth, but lacks strength

The real GDP growth rate for Oct-Dec 2017 grew for the eighth consecutive quarter by +0.5% q/q annualized (+0.1% q/q), while falling slightly below market consensus (0.9% q/q annualized, +0.2% q/q). The main reason for these low figures was a decline in private sector inventory. Generally speaking, domestic demand was relatively strong, contributing +0.1%pt to overall GDP growth. Meanwhile, imports grew due to the recovery in domestic demand, while overseas demand marked time, contributing -0.0%pt to overall GDP.

Leaders in domestic demand were private sector final consumption and capex with the major concern being the continued negative performance of housing investment. Meanwhile, expanding consumption appeared to gain major support from replacement demand for durables. Real employee compensation shifted into minus growth leaving something to be desired in the strength of overall performance.

Terms of trade worsened due to an increase in import prices centering on energy costs, while the GDP deflator fell for the first time in three quarters (-0.1% q/q). Nominal GDP declined for the first time in five quarters at -0.1% q/q annualized (-0.0% q/q).

| 2017 Oct-Dec GDP (1 st Preliminary Estimate) | | | Chart 1 | | | | |
|---|------------|-------|---------|---------|---------|---------|---------|
| | | | 2016 | 2017 | | | |
| | | | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec |
| Real GDP | Q/q % | | 0.4 | 0.3 | 0.6 | 0.6 | 0.1 |
| | Annualized | Q/q % | 1.8 | 1.2 | 2.5 | 2.2 | 0.5 |
| Personal consumption | Q/q % | | 0.1 | 0.3 | 0.9 | -0.6 | 0.5 |
| Private housing investment | Q/q % | | 0.8 | 1.2 | 0.9 | -1.5 | -2.7 |
| Private non-housing investment | Q/q % | | 1.6 | 0.1 | 1.2 | 1.0 | 0.7 |
| Change in private inventories (contribution to real GDP growth) | Q/q % pts | | -0.1 | -0.0 | -0.1 | 0.4 | -0.1 |
| Government consumption | Q/q % | | -0.1 | 0.1 | 0.2 | 0.0 | -0.1 |
| Public investment | Q/q % | | -1.8 | -0.2 | 4.7 | -2.6 | -0.5 |
| Exports of goods and services | Q/q % | | 2.7 | 2.0 | 0.0 | 2.1 | 2.4 |
| Imports of goods and services | Q/q % | | 0.6 | 1.7 | 1.9 | -1.2 | 2.9 |
| Domestic demand (contribution to real GDP growth) | Q/q % pts | | 0.1 | 0.2 | 0.9 | 0.0 | 0.1 |
| Foreign demand (contribution to real GDP growth) | Q/q % pts | | 0.4 | 0.1 | -0.3 | 0.5 | -0.0 |
| Nominal GDP | Q/q % | | 0.4 | 0.1 | 0.9 | 0.6 | -0.0 |
| | Annualized | Q/q % | 1.6 | 0.3 | 3.8 | 2.6 | -0.1 |
| GDP deflator | Q/q % | | -0.0 | -0.2 | 0.3 | 0.1 | -0.1 |
| | Y/y % | | -0.1 | -0.8 | -0.3 | 0.2 | 0.0 |

Source: Cabinet Office; compiled by DIR.

Notes: 1) Due to rounding, contributions do not necessarily conform to calculations based on figures shown.
2) Q/q figures seasonally adjusted.

Growth led by domestic demand, but issues remain: (1) decline in housing investment, (2) weak consumption, and (3) capital investment deflator brings unease

Private sector final consumption expenditure achieving growth for the first time in two quarters by +0.5% q/q. Stock price highs and the growing global economy brought support to an improvement in consumer confidence, while in addition, continued expansion of consumption was helped along by growth in consumption of durable goods (+3.6%) due to replacement demand. We have seen the gradual dissipation of the negative effects of pre-consumption over demand and Eco-car related tax breaks, which helped to increase consumption since 2009 along with the Ecopoint program effecting household electronics, as well as last-minute demand prior to the increase in consumption tax. Since 2016, moderate replacement demand for durables appeared. On the other hand, consumption of goods other than durables left something to be desired. While the consumer price index grows centering on the price of fresh foods and energy, real employee compensation fell by -0.4% and there are hints that on the other side of the recent demand for durables lies an increasing tendency to pinch pennies. As for trends in goods and services, semi-durables continue to expand at +1.8%, while non-durables suffered a decline of -0.1% and services grew +0.3%, leaving overall performance marking time.

Housing investment declined for the second consecutive quarter at -2.7% q/q. The positive effects of strategies in dealing with inheritance tax are beginning to disappear, and rising prices may be putting a damper on demand. Meanwhile, housing inventory continues to accumulate.

Capital expenditure grew for the fifth consecutive quarter at +0.7% q/q. Capital expenditure continues to maintain an undercurrent of growth due to the expansion of production activities associated with recent growth in exports, and the growing seriousness of the shortage of manpower. In addition, ample funds allow corporations to promote a stable expansion of capital expenditure. However, caution should be exercised, as demand for capital expenditure nears the limits of supply as can be seen in the balance of machinery orders which continue to accumulate at an unprecedented rate. This indicates that the growth rate in quantitative capital expenditure (in real terms) will remain at a more moderate rate in comparison to the strength of demand for the time being. Hence manufacturers who benefit from capex spending are expected to move toward improved earnings due to rising prices and higher profitability. However, as of this point, a definite increase in the capital investment deflator.

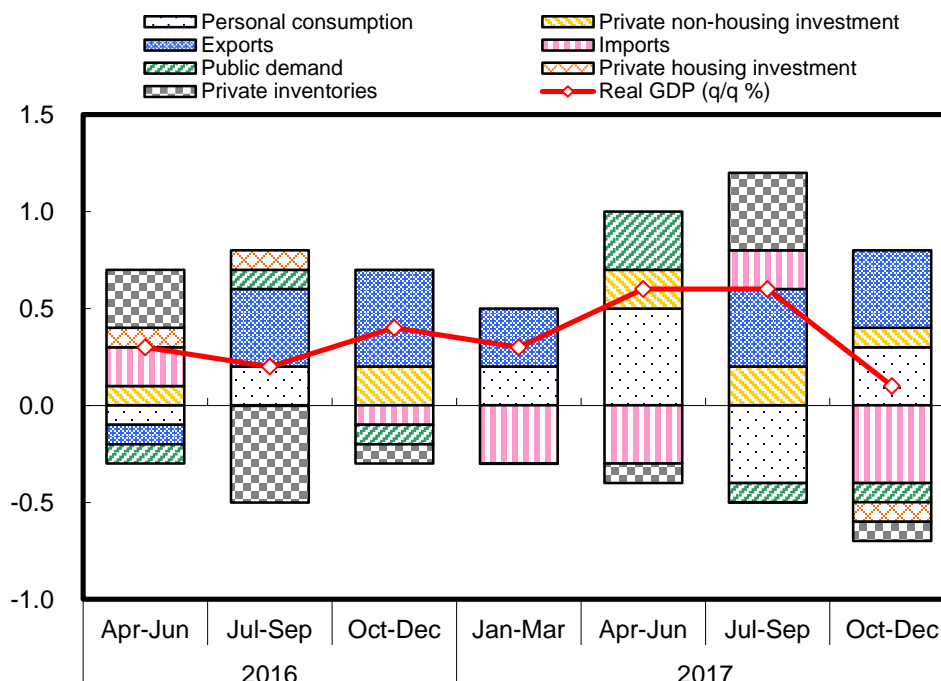
Private sector inventory experienced a decline in its contribution to GDP growth for the first time in two quarters at -0.1%pt. Material & supplies inventory, and work in progress inventory, which are provisional on the 1st preliminary GDP estimate, contributed -0.1%pt and -0.0%pt respectively, while finished goods and distribution inventory contributed +0.1%pt and -0.0%pt.

Public investment suffered a decline for the second consecutive quarter at -0.5% q/q. The balance of orders is at a high level, and with the FY2016 supplementary budget carried out mostly during the Apr-Jun period, a moderate decline was experienced after that point.

Exports grew for the sixth consecutive quarter at +2.4% q/q. According to trade statistics for the Oct-Dec period, exports to the US declined due to a downturn for automobiles, while semiconductor manufacturing equipment and ICs were favorable, leading to growth in exports to the EU and Asia. On the other hand, imports grew by +2.9% for the first time in two quarters due to the recovery in domestic demand. As a result, contribution of overseas demand to GDP growth marked time at -0.0%pt.

Contribution to Real GDP (% pt; seasonally adjusted basis)

Chart 2



Source: Cabinet Office; compiled by DIR.

Negative factors of the previous year had run their course by 2017, and balanced growth was recorded

Looking at the 2017 real GDP growth rate based on calendar year, we see that growth sped up in y/y terms to +1.6%, recording the sixth consecutive year of growth for GDP. As for contribution to growth, domestic demand was responsible for +1.0%pt, while overseas demand brought +0.5%pt, indicating a continuation of balanced growth with domestic demand leading growth in relative terms. The year 2016 experienced turmoil in the global financial markets and the effects of a strong yen, while additionally, a negative wealth effect appeared in association with stock price lows. Neither exports, capital expenditure nor consumption were influenced by these events, but negative factors were indeed present, and finally played themselves out, paving the way for each of the demand components to recover and head toward balanced growth, which seems to summarize the events of 2017. However, the concern is that the effects of price pass through are still weak while import prices have risen, causing the GDP deflator to record negative growth at -0.2%. As a result, the nominal growth rate remained at +1.4%.

Looking at growth rate by demand component, we see that private sector final consumption expenditure was up by +1.1% y/y, representing a major increase in growth rate. The effects of the previously explained replacement cycle are thought to have contributed greatly, but it is also very possible that stock prices rising in comparison to the lows experienced in 2016, as well as the positive effect on consumption produced by the asset effect amongst wealthy and retired persons, also contributed to the subsequent improvement of consumer confidence. Meanwhile, there are various undercurrents providing support for growth in consumption especially amongst younger people and women, including growth in employment, as well as growth in hourly wages and improvement in employment conditions such as changing employee status from non-regular to regular, implemented by corporations as a means of dealing with the labor shortage. Meanwhile, we should not ignore the positive effect of growth in the number of dual income households and the increase in the number of hours worked by women employees bringing the issue of the need to reduce number of hours worked to the fore.

Growth Rates Based on Calendar Year, and Changes in Demand Components

Chart 3

Real Gross Domestic Expenditure (chained [2011]; Y tril)

| (CY) | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Real GDP | 492.0 | 491.5 | 498.8 | 508.8 | 510.7 | 517.6 | 522.5 | 530.8 |
| (Y/y %) | 4.2 | -0.1 | 1.5 | 2.0 | 0.4 | 1.4 | 0.9 | 1.6 |
| Domestic demand | 490.6 | 494.1 | 505.6 | 517.7 | 519.7 | 524.7 | 526.6 | 532.2 |
| (Y/y %) | 2.4 | 0.7 | 2.3 | 2.4 | 0.4 | 1.0 | 0.4 | 1.1 |
| Private final consumption | 287.4 | 286.3 | 292.1 | 299.0 | 296.4 | 296.3 | 296.5 | 299.6 |
| (Y/y %) | 2.4 | -0.4 | 2.0 | 2.4 | -0.9 | -0.0 | 0.1 | 1.1 |
| Private housing investment | 13.7 | 14.3 | 14.7 | 15.9 | 15.2 | 15.0 | 15.9 | 16.3 |
| (Y/y %) | -3.7 | 4.9 | 2.5 | 8.0 | -4.3 | -1.0 | 5.6 | 2.7 |
| Private capital investment | 66.7 | 69.4 | 72.2 | 74.9 | 79.0 | 81.7 | 82.2 | 84.5 |
| (Y/y %) | -0.9 | 4.0 | 4.1 | 3.7 | 5.4 | 3.4 | 0.6 | 2.8 |
| Change in private inventories | 0.1 | 1.0 | 1.2 | -0.6 | -0.3 | 1.2 | 0.2 | -0.6 |
| Government final consumption | 97.3 | 99.2 | 100.9 | 102.4 | 102.9 | 104.5 | 105.9 | 106.0 |
| (Y/y %) | 1.9 | 1.9 | 1.7 | 1.5 | 0.5 | 1.5 | 1.3 | 0.1 |
| Public fixed capital formation | 25.5 | 23.9 | 24.5 | 26.2 | 26.4 | 25.9 | 25.9 | 26.2 |
| (Y/y %) | -2.2 | -6.3 | 2.7 | 6.7 | 0.7 | -1.7 | -0.1 | 1.0 |
| Change in public inventories | -0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Export of goods and services | 73.5 | 73.3 | 73.3 | 73.8 | 80.7 | 83.1 | 84.2 | 89.9 |
| (Y/y %) | 24.9 | -0.2 | -0.1 | 0.8 | 9.3 | 2.9 | 1.3 | 6.8 |
| Import of goods and services | 71.8 | 76.0 | 80.1 | 82.7 | 89.6 | 90.3 | 88.5 | 91.7 |
| (Y/y %) | 11.2 | 5.8 | 5.4 | 3.3 | 8.3 | 0.8 | -1.9 | 3.6 |

Nominal Gross Domestic Expenditure (Y tril)

| (CY) | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Nominal GDP | 500.4 | 491.4 | 495.0 | 503.2 | 513.9 | 532.0 | 538.4 | 545.8 |
| (Y/y %) | 2.2 | -1.8 | 0.7 | 1.7 | 2.1 | 3.5 | 1.2 | 1.4 |
| Domestic demand | 493.0 | 494.1 | 502.6 | 514.8 | 526.5 | 534.2 | 533.2 | 540.8 |
| (Y/y %) | 1.3 | 0.2 | 1.7 | 2.4 | 2.3 | 1.5 | -0.2 | 1.4 |
| Private final consumption | 289.0 | 286.3 | 290.2 | 296.7 | 300.1 | 301.2 | 299.9 | 303.5 |
| (Y/y %) | 0.9 | -0.9 | 1.4 | 2.2 | 1.1 | 0.4 | -0.4 | 1.2 |
| Private housing investment | 13.6 | 14.3 | 14.6 | 16.1 | 16.0 | 15.9 | 16.7 | 17.5 |
| (Y/y %) | -4.5 | 5.1 | 1.6 | 10.5 | -0.9 | -0.2 | 4.9 | 4.5 |
| Private capital investment | 67.6 | 69.4 | 72.0 | 74.9 | 79.9 | 83.4 | 83.2 | 86.0 |
| (Y/y %) | -2.0 | 2.7 | 3.7 | 4.1 | 6.7 | 4.3 | -0.3 | 3.4 |
| Change in private inventories | -0.1 | 0.9 | 1.1 | -0.7 | -0.3 | 1.2 | 0.1 | -0.8 |
| Government final consumption | 97.5 | 99.2 | 100.2 | 101.5 | 103.6 | 105.3 | 106.5 | 107.0 |
| (Y/y %) | 1.5 | 1.7 | 1.0 | 1.2 | 2.1 | 1.7 | 1.1 | 0.5 |
| Public fixed capital formation | 25.5 | 23.9 | 24.4 | 26.3 | 27.2 | 27.1 | 26.9 | 27.6 |
| (Y/y %) | -2.8 | -6.3 | 2.2 | 7.8 | 3.4 | -0.4 | -0.9 | 2.7 |
| Change in public inventories | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 |
| Export of goods and services | 75.2 | 73.3 | 72.0 | 80.1 | 90.1 | 93.6 | 86.8 | 96.6 |
| (Y/y %) | 22.8 | -2.5 | -1.8 | 11.2 | 12.6 | 3.8 | -7.2 | 11.3 |
| Import of goods and services | 67.9 | 76.0 | 79.6 | 91.7 | 102.8 | 95.8 | 81.6 | 91.6 |
| (Y/y %) | 15.9 | 11.9 | 4.8 | 15.2 | 12.1 | -6.8 | -14.9 | 12.3 |

Deflator (chained [2011])

| (CY) | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------------------|-------|-------|------|-------|-------|-------|-------|-------|
| GDP deflator | 101.7 | 100.0 | 99.2 | 98.9 | 100.6 | 102.8 | 103.1 | 102.8 |
| (Y/y %) | -1.9 | -1.7 | -0.8 | -0.3 | 1.7 | 2.1 | 0.3 | -0.2 |
| Domestic demand | 100.5 | 100.0 | 99.4 | 99.4 | 101.3 | 101.8 | 101.3 | 101.6 |
| (Y/y %) | -1.1 | -0.5 | -0.6 | 0.1 | 1.9 | 0.5 | -0.5 | 0.4 |
| Private final consumption | 100.6 | 100.0 | 99.4 | 99.2 | 101.2 | 101.6 | 101.1 | 101.3 |
| (Y/y %) | -1.4 | -0.6 | -0.6 | -0.1 | 2.0 | 0.4 | -0.5 | 0.2 |
| Private housing investment | 99.7 | 100.0 | 99.2 | 101.4 | 105.0 | 105.9 | 105.2 | 107.0 |
| (Y/y %) | -0.8 | 0.3 | -0.8 | 2.3 | 3.5 | 0.9 | -0.7 | 1.7 |
| Private capital investment | 101.3 | 100.0 | 99.6 | 100.1 | 101.2 | 102.1 | 101.2 | 101.8 |
| (Y/y %) | -1.1 | -1.3 | -0.4 | 0.4 | 1.2 | 0.9 | -0.9 | 0.6 |
| Government final consumption | 100.2 | 100.0 | 99.4 | 99.1 | 100.6 | 100.7 | 100.5 | 100.9 |
| (Y/y %) | -0.5 | -0.2 | -0.6 | -0.3 | 1.5 | 0.1 | -0.2 | 0.3 |
| Public fixed capital formation | 100.0 | 100.0 | 99.6 | 100.6 | 103.3 | 104.7 | 103.9 | 105.6 |
| (Y/y %) | -0.6 | 0.0 | -0.4 | 1.0 | 2.7 | 1.4 | -0.8 | 1.6 |
| Export of goods and services | 102.3 | 100.0 | 98.2 | 108.5 | 111.7 | 112.6 | 103.1 | 107.4 |
| (Y/y %) | -1.7 | -2.3 | -1.8 | 10.4 | 3.0 | 0.8 | -8.5 | 4.2 |
| Import of goods and services | 94.6 | 100.0 | 99.4 | 110.9 | 114.8 | 106.1 | 92.1 | 99.8 |
| (Y/y %) | 4.3 | 5.8 | -0.6 | 11.5 | 3.5 | -7.5 | -13.2 | 8.4 |

Source: Cabinet Office; compiled by DIR.

On the other hand, while the employment and income environment is improving for the younger generation and women, promotions and raises for middle senior male regular employees are being delayed, resulting in a fairly moderate growth rate for overall nominal compensation of employees. The growth rate in real compensation of employees peaked out in the middle of 2017 due mostly to growth in the price of fresh foods and energy. Because of these factors, the environment surrounding consumption is somewhat patchy.

Housing investment registered its second consecutive year of growth at +2.7% y/y, but the growth rate is now slowing down. Housing investment declined in 2014 and 2015 due to the reaction to last minute demand which appeared just prior to the increase in consumption tax in 2014, but then the use of housing investment as a strategy in dealing with inheritance taxes brought upward pressure, while low interest on housing loans contributed to growth in demand. However, by the latter part of the year rising prices began to bring downward pressure on demand, and housing inventory accumulated. Hence housing investment declined during the latter part of 2017 in comparison to earlier in the year.

Capital expenditure grew for the seventh consecutive year by +2.8% y/y. Capital expenditure continues to maintain an undercurrent of growth due to expansion of production activities associated with recent growth in exports, and the growing seriousness of the shortage of manpower. In addition, ample funds allow corporations to promote a stable expansion of capital expenditure. The rapid appreciation of the yen in 2016 along with turmoil in the global financial markets encouraged the practice of restraint when it came to capital expenditure. But these factors played themselves out by 2017 and the growth rate in capital expenditure increased.

Private sector inventory experienced a decline in its contribution to GDP growth for the second consecutive year at -0.1%pt y/y. Meanwhile, public investment grew for the first time in three years at +1.0%. Implementation of the FY2016 supplementary budget is seen as having increased the rate of contribution to GDP by public investment.

Exports achieved a major increase in growth rate at +6.8% y/y in their fifth consecutive year of growth. The global economy continues to expand, and negative factors experienced in 2016, including appreciation of the yen and turmoil in the global financial markets, played themselves out, opening the way for a rebound. Meanwhile, imports grew for the first time in two years by +3.6%, due to the recovery in domestic demand.

Japan's economy to continue moderate expansion, but risk remains in the future for both domestic and overseas demand

We expect Japan's economy to continue in a moderate expansion phase. Domestic demand is expected to continue its expansion centering on personal consumption, while overseas demand is expected to maintain steady growth backed by the expansion of the world economy, providing support for Japan's economic growth. However, caution should be observed as overseas demand still has a strong sense of uncertainty, and domestic demand may be affected by rising prices and stagnant growth in real income. Moreover, some hesitation as regards capital investment may occur due to the strong yen, and housing investment could suffer a reactionary decline in response to recent growth spurred on by strategies in dealing with inheritance tax.

Personal consumption is expected to continue in a moderate expansion phase. The supply of labor is becoming increasingly tight, and this should provide underlying support for personal consumption through growth in employee compensation. However, caution is advised here as corporations may try to compensate for the cost of wage increases by flattening the wage curve and placing restrictions on overtime. This could create a slowdown in the pace of growth in employee compensation, as well as

the expansion of consumption. Meanwhile, with all eyes on the spring labor offensive which will be working toward an increase in wages, there is a concern that the strong yen may bring a worsening of corporate earnings. Meanwhile, the price of fresh foods and energy continue to grow, hence caution is required in regard to the possible downward pressure this could have on consumption as a result of the situation of real income.

Housing investment is expected to take a breather from its recent growth trend, and then move into a gradual descent from its current plateau. Low interest housing loans continue to provide underlying support. However, the positive effects of strategies in dealing with inheritance tax are beginning to disappear, and a reaction to recent performance may appear in the near future, hence caution is urged. There is a concern that a future slowdown in housing investment could bring down Japan's overall economy along with it. Caution is required regarding the possible ripple effects caused by the decline in construction demand spreading to related industries. Meanwhile, though nothing has been detected as of this point, we also recommend being on the lookout for the possible limiting effects of deteriorating housing prices due to oversupply on consumption and other demand components in the form of the negative wealth effect.

Capex is expected to see moderate growth. Production activities in the manufacturing sector are on the rise due to the expansion of exports thanks to the recovery in the world economy. Meanwhile, investment in labor-saving and rationalization due to the continuing labor shortage is expected to continue its growth. In addition, investment in research & development oriented toward increasing profitability has also been on the rise, and is expected to become a factor in pushing up capex with support provided by improvements in free corporate cash flow. However, as was mentioned previously, caution is required regarding suppliers of products associated with capex spending, as they may be close to reaching their limits in terms of ability to supply. Meanwhile, concerns such as were present in 2016 that the strong yen could lead to a worsening of corporate earnings and hence to the practice of restraint in capital expenditure are beginning to resurface.

As for public investment, we expect to see a gradual decline though retaining relatively high levels, due to the increasing disappearance of the positive effects of the government's FY2016 supplementary budget.

As for exports, with overseas economies continuing moderate growth, we can expect exports to maintain a firm undertone. However, caution is required regarding downside risk. As for the US, the Fed is continuing to implement its tight money policy. There is a risk that the tight money policy may bring downward pressure on both the market and the real economy. The Fed's tight money policy may also cause an acceleration of capital flows from emerging nations. On the other hand, China's economy risks the possibility of slowing down now that the meeting of the National Congress of the Communist Party is over. A reactionary decline in demand could occur now that the economic measures which had kept it artificially high are no longer being implemented. Other issues include geopolitical risk such as rising tensions in North Korea and the Middle East. All of these risks require caution. Our main scenario sees the world economy continuing its moderate growth. However, if uncertainty grows regarding the future of the world economy, Japan's exports are likely to decline, bringing the risk of downward pressure on Japan's economy.

Pitfalls of the Global Economy: Five Risks Facing the Global Economy

Japan's economy is expected to continue its favorable expansion, but what of the global economy? In this chapter we take a look at the pitfalls of the global economy, which require a certain amount of caution. The risk factors to watch out for in the future are (1) global stock price lows and production declines triggered by the US situation, (2) negative influence of US & Eurozone exit strategies on the global economy, (3) yen appreciation, (4) increase in price of oil, and (5) China's excessive debt.

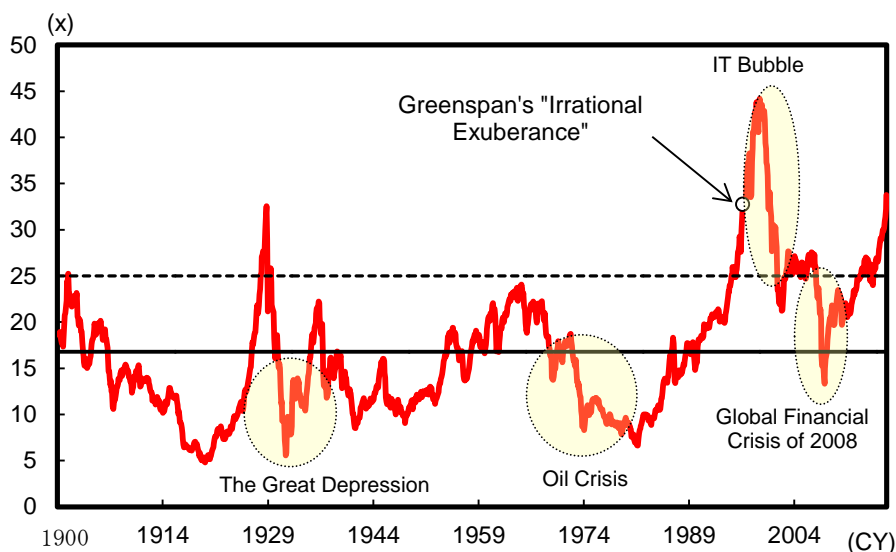
Risk (1): Global stock price lows and production declines triggered by the US situation

Taking the US stock market's temperature using Professor Shiller's formula

The global financial markets began to show signs of modulation around the end of January, and then in February, US stocks declined significantly in response to the increase in the long-term interest rate. This quickly led to declines in stock prices on the global markets. Until this point stock prices around the world had been maintaining favorable performance due to growth in the global economy and accommodative monetary policies – in other words a Goldilocks market had developed. But when the New York Dow recorded its largest decline in recent years on February 5, a chain reaction of panic selling was triggered on the global stock markets. Global financial markets were sent into turmoil.

It is helpful here for us to look at the long-term valuation of US stocks as a means of predicting whether this event was merely temporary, in other words a stock price adjustment, or a sign that a more serious collapse in stock prices lies further up ahead. In considering what the optimal level of US stock prices might be, we make use of the Shiller P/E ratio (CAPE) proposed by Nobel prize winner Professor Robert Shiller of Yale University (Chart 4).¹ Two elements are important here in considering the watershed moment of overvalued and undervalued stocks: (1) averages since the year 1900, and (2) PER 25x. The current level of the Shiller PER exceeds these two figures. Though it is not as high as before the IT bubble, it is a level comparable to that seen prior to the Great Depression. Hence we can assume that US stocks may be overheated. At the same time, however, it should be pointed out that the one shortcoming of the Shiller PER is that it brings in a lot of influence from the past into the equation, while ignoring future earnings expected by corporations. In either case, even when we consider the fact that US corporations expect continued growth in earnings in the future, we cannot simply assume that stock price highs will continue unabated.

¹ The Shiller PER is calculated by taking yearly earnings of the S&P 500 for each of the past ten years, then adjusting these earnings for inflation using the CPI. These values are then averaged. Unlike the usual way to calculate PER, the influence of prices and short-term fluctuations in profits are not taken into consideration. The Shiller PER has gained attention for its usefulness as an index in figuring long-term stock price levels and overvaluation and undervaluation.



Source: Robert Shiller website; compiled by DIR.

Note: The solid black line represents averages since 1900. The dotted line expresses highs and lows as one standard of 25x.

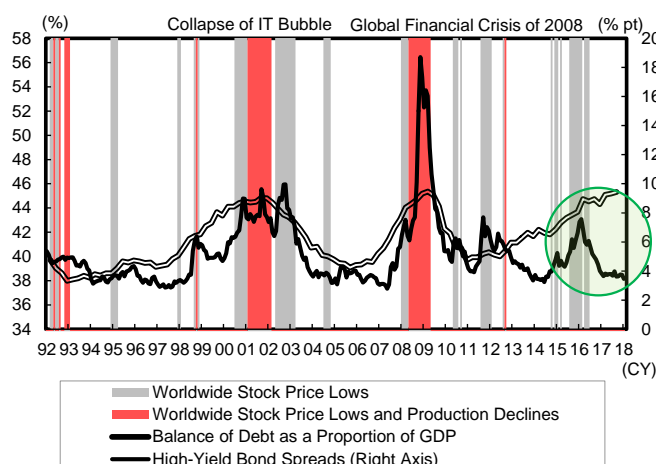
Merkmal indicating global stock price lows and production declines

The first question is will this most recent turmoil in the global financial markets develop into a global economic recession? As a result of comparing and testing the important merkmal that can tell us whether or not the world will lapse into a period of serious stock price lows and production declines, we found that the debt situation of American corporations (private sector non-financial) is extremely important.

In looking at US corporate debt, first we need look at the balance of debt as a proportion of GDP, and the US high yield bond spread (yield on high-yield bond – yield on US 10-year bond). Historically, these two instruments are linked, but in recent years, high yield bond spread has been lower than the balance of debt as a proportion of GDP (Chart 5). However, if the Fed continues raising interest, it may be required that high-yield bonds also have a yield commensurate with corporate debt, and this could cause the situation on the financial markets to deteriorate further. Then high-yield bond spreads would become even higher. Based on past experience, there is more risk of global stock price lows and production declines occurring when both of these grow at the same time.

Meanwhile, it is also helpful to look at the balance of debt as a proportion of GDP combined with the debt-to-equity ratio. When we look at these factors side by side, we can observe how this sequence of events has occurred repeatedly in the past – (1) growth in debt as a proportion of GDP, (2) growth in the debt-to-equity ratio, and (3) serious global stock price lows and production declines (Chart 6). Here we see that when serious global stock price lows and production declines occurred in the past, we can calculate back from the level of the debt-to-equity ratio (see (1) on the chart) to the level of the NY Dow and get 17,000 dlr. So if the NY Dow falls significantly below 20,000 dlr the warning should start flashing that we are headed toward global stock price lows and production declines. The worst case scenario on the Fed's 2018 stress test issued in February assumes a decline in the NY Dow of 9,689 dlr. If this were to occur, the debt-to-equity ratio would see a major increase (see (2) on the chart), and the situation would progress toward global stock price lows and production declines. In conclusion, with continued turmoil in the global financial markets, it is important to check these two indices for any change.

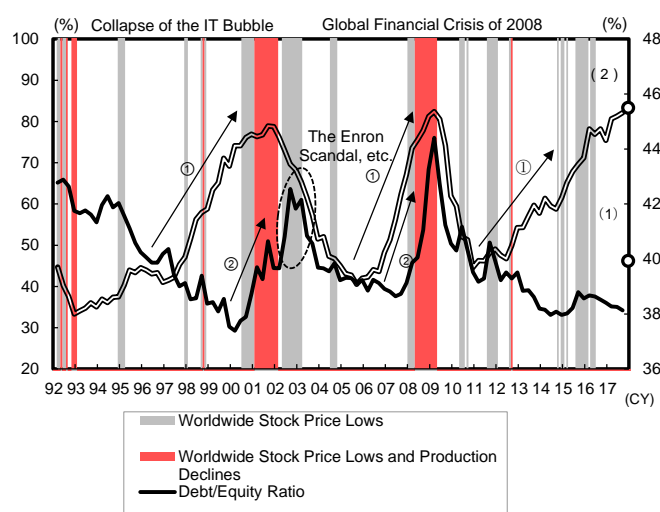
Balance of Corporate Debt as a Proportion of GDP & High-Yield Bond Spread During Times of Global Stock Price Lows & Production Declines Chart 5



Source: FRB, BoA Merrill Lynch, Haver Analytics; compiled by DIR.
Notes: 1) Global stock price lows and production decline phases are set by comparing data from six months previous to that time.

- Debt based on data from non-financial corporations.
- High-yield bond data taken from BoA Merrill Lynch "High Yield Corporate Master II".
- High-yield bond spread = Yield on US high-yield bond – yield on US 10-yr bond.

US Private Sector Non-Financial Corporations During Times of Global Stock Price Lows & Production Declines Chart 6



Source: FRB, Netherlands Economic Policy Analysis Bureau, Haver Analytics; compiled by DIR.

- Global stock price lows and production decline phases are set by comparing data from six months previous to that time.
- NY Dow at 17,000 dlrs. (This is about the same level D/E ratio as the last time there were global stock price lows and production declines.)
- NY Dow at 9,689 dlrs. (This is the value used in the worst case scenario included in the Fed's 2018 stress test.)

Risk (2): US & EU exit strategies downward pressure on global economy

In this section we examine the extent of influence that US and Eurozone exit strategies have on the global economy using the DIR global economic model. Concretely speaking, we perform estimates of the extent to which these factors influence the global economy: (1) US interest rate hikes and asset reduction, and (2) end of Eurozone quantitative easing (Chart 7).

The DIR global economic model looks at the influence of two major factors on the real economy: (1) fluctuation in interest rates and exchange rates amongst the advanced nations influencing the real economy, and (2) fluctuation in interest and foreign exchange rates between advanced nations and emerging nations resulting in fluctuation in foreign reserves and interest spreads. This simulation assumes that the Fed will raise interest rates four times in both the years 2018 and 2019, and that this will spread to long-term interest rates – in other words a fairly strong tightening effect.

The result of calculations using the global economic model shows that influence on the global economy due to changes in monetary policy in the US and the EU ((1) US interest rate hikes and asset reduction + (2) end of EU quantitative easing) will be as follows: -0.08% in 2018 and -0.30% in 2019. The result of the estimate should be taken with a certain grain of salt, but at the same time it does suggest that the possibility of downside risk due to US and EU exit strategies should be taken seriously in predicting the future of the global economy.

The Fed has been carrying out normalization of its monetary policy following the pace of economic recovery. Interest rate hikes and balance sheet reductions are carried out based on the Fed's expectation that the US economy will improve in the future. The focus in the future will likely be how correct the Fed's economic outlook is, as well as trends in the employment rate and prices, which will determine the balance that should be taken in carrying out the exit strategy. At the same time, it is hoped that the Fed will maintain a dialogue with the realities of the market as its exit strategy progresses.

Influence of US and EU Exit Strategies

Chart 7

| | | ① US Interest Rate Hikes & Balance Sheet Reductions | ② EU Continues Quantitative Easing | US Interest Rate Hikes & Balance Sheet Reductions + EU Continuation of Quantitative Easing (① + ②) | ③ Eurozone Ends Quantitative Easing | US Interest Rate Hikes & Balance Sheet Reductions + EU Ends Quantitative Easing (① + ③) |
|------------------|------|---|------------------------------------|--|-------------------------------------|---|
| | | | | | | |
| US | 2017 | -0.08% | 0.03% | -0.05% | 0.01% | -0.07% |
| | 2018 | -0.29% | 0.11% | -0.16% | 0.05% | -0.27% |
| | 2019 | -0.49% | 0.17% | -0.28% | 0.04% | -0.47% |
| EU | 2017 | -0.09% | 0.04% | -0.05% | 0.02% | -0.08% |
| | 2018 | -0.33% | 0.17% | -0.14% | 0.07% | -0.28% |
| | 2019 | -0.57% | 0.26% | -0.25% | 0.07% | -0.52% |
| Emerging Nations | 2017 | -0.07% | 0.03% | -0.04% | 0.01% | -0.07% |
| | 2018 | -0.27% | 0.10% | -0.15% | 0.04% | -0.24% |
| | 2019 | -0.46% | 0.16% | -0.25% | 0.04% | -0.43% |
| World | 2017 | -0.08% | 0.03% | -0.04% | 0.02% | -0.07% |
| | 2018 | -0.29% | 0.12% | -0.15% | 0.05% | -0.26% |
| | 2019 | -0.49% | 0.19% | -0.26% | 0.05% | -0.46% |

Source: Produced by DIR using the DIR global economic model.

Notes: 1) Yield on the US 10-yr government bond to grow by 25bp each quarter, while the Fed's balance sheet is to be reduced by 60 bil dlrs during the 2018 Jan-Mar period, 90 bil dlrs during the Apr-Jun period, 120 bil dlrs during the Jul-Sep period, and after that, by 150 bil dlrs each quarter.

2) The ECB balance sheet is expected to increase by 90 bil euros each quarter between now and September 2018. After that, it is expected to remain flat.

3) Figures for "World" are the total of those for the US, EU, and the emerging nations (covers about 82% of world GDP).

Risk (3): Yen Appreciation

Attention on US currency strategy

The yen/dollar exchange rate has been moving in the direction of yen appreciation since the beginning of 2018. One of the developments behind this is instability in the US stock market, which causes the "flight to quality" on the part of investors. The yen is a currency associated with a country which has a current account surplus, and hence when there is instability in the world it becomes a "safe currency" or "refuge currency" which is attractive to investors (a sad fate though this may seem to Japanese corporations).

As will be explained further in the below, yen appreciation brings pressure on the earnings of Japanese corporations, and has the risk of bringing downward pressure on the Japanese economy. In order to predict what may happen with the exchange rate in the future, the key is to look at the stance taken by the US currency authorities. Over the past few decades or so, US currency strategy has repeated the same cycle, traveling through the following phases: (1) Strong dollar policy → (2) Weak dollar policy → (3) Stable dollar policy. The yen/dollar exchange rate has historically been linked to this cycle.

The US currency strategy cycle is defined by the following three factors (Chart 8): (1) US current account balance, (2) US inflation, and (3) US financial markets. First, when anxieties grow regarding (1) US current account balance, policy tends to shift from (1) Strong dollar policy to (2) Weak dollar policy. Later, once current account deficit has peaked out, policy shifts to (3) Stable dollar policy. Secondly, when (2) US inflation pressure is limited, policy shifts from (1) Strong dollar policy to (2) Weak dollar policy. Finally, when (3) US financial markets are stable, strategy move to (2) Weak dollar policy, and when there are fears that the financial markets are too volatile, threatening to bring on the three lows (stock price lows, weak dollar, and bond market lows), then policy shifts to (3) Stable dollar policy.

The US has a strong incentive to keep the dollar strong since it depends on foreign investment for its financing. When President Trump was first nominated during the election his statements seemed to support a strong dollar. This include the following factors: (1) economic stimulus as a result of public spending on infrastructure and a review of the Dodd-Frank Act, and (2) tax cuts encouraging the

repatriation of corporate profits kept overseas until now to the domestic US, and (3) the introduction of a border tax adjustment. All of this indicates a strong dollar policy.

Currently, the US has a major current account deficit. Moreover, the US financial markets fell into turmoil in February this year, though they are now gradually regaining some calm. Considering all of the above, if inflationary pressures can be kept at bay in the future, the US may shift from strong dollar policy to a weak dollar policy.

US Currency Strategy Cycle and its Three Defining Factors **Chart 8**

| | (1) Strong Dollar Policy | → | (2) Weak Dollar Policy | → | (3) Stable Dollar Policy |
|------------------------------|--------------------------|---|------------------------|---|--------------------------|
| ① US Current Account Balance | | | Deficit expands | | Deficit shrinks |
| ② US Inflation | | | Prices stabilize | | Fears of inflation grow |
| ③ US Financial Markets | | | Stable | | Volatile |

Source: Compiled by DIR.

Yen appreciation of 10 yen will bring downward pressure of around -1.9 tril yen on current profits of Japanese corporations

How much influence does yen appreciation have on Japan’s economy? We estimated the influence of yen appreciation on Japanese corporations using the DIR macro model, assuming that yen appreciation of 10 yen continues for a period of a year. According to the result (for all industries and corporations of all sizes), we found that Yen appreciation of 10 yen will bring downward pressure of around -1.9 tril yen on the current profits of Japanese corporations.

In our estimates we considered the progression of yen appreciation from two viewpoints – (1) direct effects and (2) the ripple effect (Chart 9). Direct effects on corporations include a decline in exports which leads to a decline in sales, but at the same time a decline in import prices. Ripple effects include the volume effect and price pass through issues caused by the decline in exports, which then has the effect of slowing down transactions between companies. The decline in domestic final demand then brings further downward pressure on corporate earnings. Finally, we should also note that these findings should be taken with a certain grain of salt as it is basically hypothetical.

In looking at direct effects, we estimate that large manufacturers whose sales are accounted for by a large proportion of exports will see their current profit squeezed by around -900 bil yen on an annual basis. On the other hand, small to middle sized manufacturers and non-manufacturers (all industries and all sizes) will only see direct effects of a very minor scale. There will actually be a plus for them – lower input costs due to the decline in import prices. Current profit for these two categories is expected to be around +10 bil yen and around +900 bil yen respectively. As a result, direct effects on current profit for all corporations of all industries and all sizes is expected to be around +60 bil yen.

Yen appreciation will become the starting point of ripple effects which will cause an overall slowdown in the domestic economy. First it will contribute to a decline in current profit for corporations of all types. Non-manufacturing will be more effected by the ripple effects than is manufacturing (something to take note of). This is because a worsening domestic economy will be a negative influence for non-manufacturing which depends on domestic demand. We estimate that the ripple effects alone will push down current profits of all corporations of all sizes in all industries by around -2 tril yen.

Finally, small to middle sized enterprises in both manufacturing and non-manufacturing will experience a negative effect on their current profits that exceeds the amount that their profits will be improved by the direct effects. Looking at the overall effects, we see that yen appreciation will bring downward pressure on current profits. Together, direct effects and ripple effects basically bring negative effects to corporate earnings.

Influence of 10 yen in Yen Appreciation on Corporate Earnings

Chart 9

| | | All Business Sizes / All Industries | | | | | | | | | |
|--------------------|---------------------------------|-------------------------------------|--------------------|------------------|------|--------------------|------------------|------|--------|--------------------|------------------|
| | | Manufacturing | | | | Non-Manufacturing | | | | Large Corporations | Small Businesses |
| | | | Large Corporations | Small Businesses | | Large Corporations | Small Businesses | | | | |
| Recurring Profits | Amount Change (Yen Bil) | -1,906 | -1,586 | -1,463 | -124 | -320 | -104 | -216 | -1,567 | -339 | |
| | Share of Recurring Profits (%) | -3.2 | -7.2 | -7.8 | -3.6 | -0.9 | -0.4 | -1.7 | -3.6 | -2.1 | |
| Direct Effects | Amount Change (Yen Bil) | 64 | -859 | -871 | 12 | 923 | 772 | 151 | -99 | 164 | |
| | Share of Recurring Profits (%) | 0.1 | -3.9 | -4.7 | 0.4 | 2.5 | 3.2 | 1.2 | -0.2 | 1.0 | |
| Ripple Effect | Amount Change (Yen Bil) | -1,970 | -727 | -592 | -136 | -1,243 | -876 | -367 | -1,467 | -503 | |
| | Share of Recurring Profits (%) | -3.3 | -3.3 | -3.2 | -4.0 | -3.3 | -3.6 | -2.9 | -3.4 | -3.1 | |
| Personnel Expenses | Amount Change (Yen Bil) | -2,821 | -2,002 | -1,625 | -377 | -819 | -118 | -700 | -1,744 | -1,077 | |
| | Share of Personnel Expenses (%) | 1.7 | 3.8 | 5.0 | 1.9 | 0.7 | 0.3 | 1.0 | 2.2 | 1.2 | |
| capex | Amount Change (Yen Bil) | -479 | -390 | -351 | -38 | -89 | -31 | -58 | -382 | -96 | |
| | Share of capex (%) | 1.4 | 3.3 | 3.8 | 1.5 | 0.4 | 0.2 | 0.9 | 1.5 | 1.0 | |

Source: Ministry of Finance, Bank of Japan, Ministry of Economy, Trade and Industry, Ministry of Internal Affairs and Communications, Cabinet Office; compiled by DIR.

- Notes: 1) Calculated values found using the DIR macro model. Cumulative value assuming yen appreciation of 10 yen in comparison to baseline continuing for a period of one year.
 2) Direct effect is the total of effects due to increase in exports and increase in import price due to weak yen. Ripple effect is the effect of increase in final demand associated with weak yen, effects stemming from the increase in transactions between corporations, including price pass-through.
 3) Influence on personnel expenses and capex estimated based on the assumption that labor's relative share and the capex/cash flow ratio remain constant.

Risk (4): High Price of Oil Due to Tensions in the Middle East

Increase in price of oil of 10 dlr/bbl would bring downward pressure of around -0.12% on real GDP

Rising oil prices are also a risk to Japan's economy. The price of crude oil began rising rapidly around the middle of 2017. It fell steeply again after the beginning of February 2018, but it is still high.

Chart 10 estimates the effects the high price of crude oil on the Japanese economy using a macro-economic model. According to the results of this simulation, the price of crude oil rose 10 dlr/bbl from its price of 57.9 dlr/bbl as of December 2017. This effects the level of real GDP for the years 2018-2020, bringing downward pressure on GDP of -0.11% in 2018, -0.13% in 2019, and -0.12% in 2020.

Looking at the situation by demand component, we see that real wages would decline, meaning that personal consumption and housing investment could also be expected to decline. In addition, the decline in corporate earnings would be a factor in pushing down capital investment. Meanwhile, the decline in corporate earnings would also bring a decline in wages, and this would put pressure on households. The decline in corporate income contributes to a decline in household demand. Higher prices due to the increase in the price of crude oil would bring a decline in the real interest rate. While this encourages housing investment and equipment investment (capex), the benefits would be less than the negative effect coming from the decline in income.

An increase in import prices would encourage growth in CGPI and CPI, but the domestic demand deflator would also rise significantly, meaning that the import deflator (an item which is deducted) would also see major growth, and this would cause the GDP deflator to decline. As a result, nominal GDP would receive a greater amount of downward pressure than would real GDP.

The price of imported natural resources, which account for just under 40% of total imports in Japan, would experience major growth, and this would contribute to a significant expansion of the trade

deficit, meaning we could also expect the extent of Japan's current account surplus to shrink significantly. These figures indicate exactly how extremely disadvantageous an increase in the price of crude oil would be for Japan's economy. Hence we recommend keeping a close watch on the risk of future increases.

Influence of Fluctuation in Oil Prices on Japan's Economy

Chart 10

| | | Real GDP | Real Personal Consumption | Real Housing Investment | Real Capital Expenditure | Real Exports | Real Imports | Nominal GDP | GDP Deflator |
|--|--------|----------|---------------------------|-------------------------|--------------------------|--------------|--------------|-------------|--------------|
| | | % | % | % | % | % | % | % | % |
| \$10 /bbl Increase in Price of Crude Oil | FY2018 | -0.11 | -0.18 | -0.34 | -0.43 | -0.09 | -0.55 | -0.48 | -0.37 |
| | FY2019 | -0.13 | -0.22 | -0.51 | -0.48 | -0.09 | -0.66 | -0.45 | -0.32 |
| | FY2020 | -0.12 | -0.20 | -0.41 | -0.52 | -0.09 | -0.62 | -0.49 | -0.37 |

| | | Current Account Balance / Nominal GDP | Import Price | Export Price | CGPI | Core CPI | Industrial Production | Tertiary Industry Activity Index | All Industry Activity Index |
|--|--------|---------------------------------------|--------------|--------------|------|----------|-----------------------|----------------------------------|-----------------------------|
| | | %pt | % | % | % | % | % | % | % |
| \$10 /bbl Increase in Price of Crude Oil | FY2018 | -0.45 | 3.76 | 0.45 | 0.60 | 0.21 | -0.21 | -0.11 | -0.12 |
| | FY2019 | -0.43 | 3.79 | 0.45 | 0.61 | 0.31 | -0.25 | -0.13 | -0.15 |
| | FY2020 | -0.48 | 3.80 | 0.45 | 0.62 | 0.29 | -0.24 | -0.13 | -0.14 |

Source: Produced by DIR.

Notes: 1) Simulation using the DIR short-term macro model. Figures shown in the chart are the deviation rates or divergence from the standard solutions.

2) Standard scenario: WTI flat at December 2017 average of \$57.9/bbl. Crude oil price high scenario: WTI flat at \$67.9/bbl.

Risk (5): China's excessive debt

Growth of Chinese corporate debt is a risk factor for the global economy

Lastly, we discuss a risk directly faced by the Japanese economy. In this section we examine the problem of China's excessive debt.

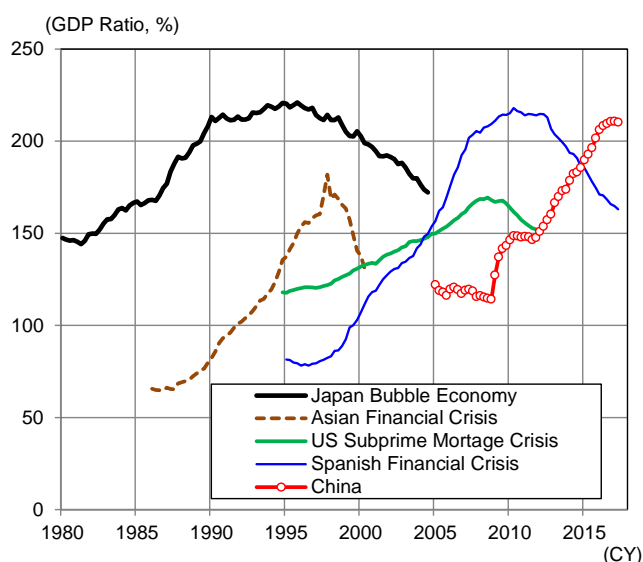
In 2017 China's economy registered growth exceeding that of the previous year for the first time in seven years at +6.9%, prompting the IMF and other institutions to revise their outlook for short-term growth rate. Extremely pessimistic opinions on China's situation seemed to have receded since that time. China's private sector non-financial debt balance (includes non-financial corporations and households, expressed as a proportion of nominal GDP) grew rapidly since 2012, and has been a serious concern as a potential risk to the global economy. Compared to global financial crises of the past, China's balance of debt is huge, rivaling even the collapse of Japan's economic bubble, it exceeds both the Asian currency crisis of the latter 1990s and the US subprime mortgage problem when it was at its peak in the latter 2000s.

Granted, the Chinese government has been working at liquidating excessive debt despite the fact that the balance remains high. There was actually even a moderate decline in the balance of non-financial corporate debt (as a proportion of nominal GDP) as of end June 2017 when it fell to 163.4% from its peak of 166.8% recorded at the end of June in 2016.

The Bank for International Settlements (BIS) provides helpful information in determining whether or not China's situation has reached the crisis stage. When we look at the credit-to-GDP gap which the bank derives from the level of debt of a country, we see that most countries fall in the minus range, while China shows a major plus. However, the gap has shrunk since peak figures were recorded in March 2016, and by June 2017 had fallen to a level not seen since 2013. On the other hand, when we look at the relationship between interest expenses and income flow, we see that the debt service ratio (DSR) shows no signs of improving, remaining at the high originally recorded in 2016.

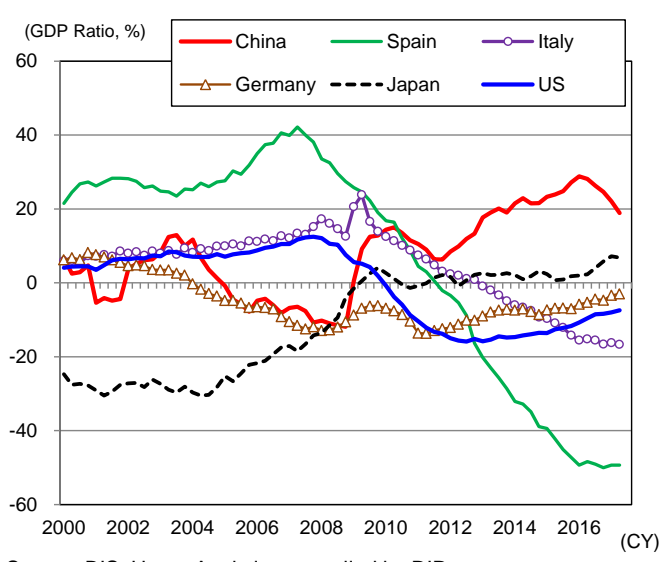
The conclusion is that even though China has been able to avoid the situation worsening any more, the BIS and the IMF have expressed concern that risk of a financial crisis caused by China's credit bubble remains. In the future, the Fed may speed up the pace of its raising of interest rates in response to rising inflation pressure, and this could bring an increase in the US long-term interest rate. There is concern that this could trigger capital outflows from the emerging nations. China's economy is of course susceptible to problems produced by growth in interest rates. Hence, with the world currently in a high-interest phase, we advise continued caution regarding this point.

Private Sector Non-Financial Debt Balance – Comparison with Past Crises
Chart 11



Source: IMF, BIS; compiled by DIR.

Private Sector Non-Financial Credit-to-GDP Gap
Chart 12



Source: BIS, Haver Analytics; compiled by DIR.

Note: Rate of deviation between credit-to-GDP gap and balance of debt and its long-term trend.

Underlying strength of housing price expected to ease effect of falling stock prices

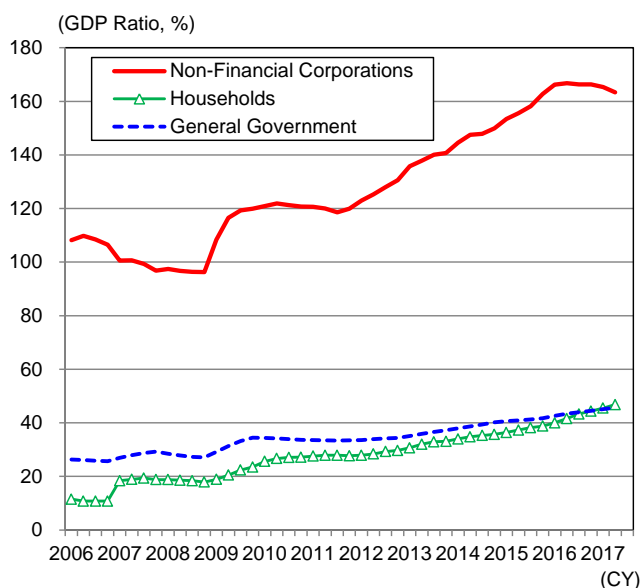
The Chinese government has dealt with a wide variety of financial excesses ever since the global financial crisis of 2008, but in the midterm it has been seeking for ways to shift from a growth model which is dependent on excesses in the area of investment and exports to one which is led by consumption. The proportion of nominal GDP accounted for by personal consumption is on the rise, and industrial structure is changing also, with tertiary industries now accounting for over half of overall GDP, exceeding secondary industries such as manufacturing. In this sense, the activities of households have now become a major factor in moving China's economy.

The balance of debt held by non-financial corporations has been placed somewhat under control over the past year, but in contrast to this, the balance of household debt has continued moderate growth, increasing by 5%pt over the past year. According to the IMF's outlook for debt through the year 2022, household debt is expected to continue a high pace of growth, moving from a GDP ratio of 44.2% in 2016 to 60.5% in 2022. Generally speaking, the increase in household debt could become a negative factor for the economy in the long-term. Concretely speaking, an increase in debt breeds instability in the economy and in finance. It is related to the deterioration of consumption and employment, and increases the possibility that a financial crisis might occur. If the balance of household debt (GDP ratio) grows by 1%pt, it is estimated that it would cause long-term growth to decline by 0.1%pt in the long-term.

No matter how much debt balloons, it is believed that as long as there is sufficient growth in assets, the risk of a crisis can be averted for the short-term. Looking at the rate of increase or decrease in China's representative housing price index, which records prices of new homes in 70 Chinese cities (m/m, number of cities recording growth – number of cities recording declines), we see that the number of

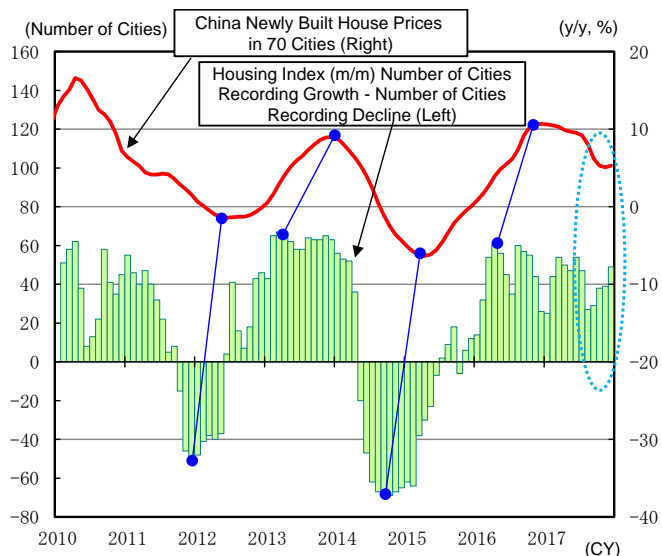
cities recording declines grew until around the middle of 2017, but by the end of the year, around 80% of cities recorded growth. As a result of policies meant to keep demand under control on the part of the Chinese authorities after 2016, the growth rate of the housing price index peaked out soon after the beginning of 2017 and has slowed moderately since then, and the 6-month leading trend (rate of increase or decrease) has recently shown a reversal. Hence it is expected that housing prices will maintain at a steady pace for some time. Meanwhile, China's stock market has fallen significantly since the end of January in response to the change of tone on the US stock market, but as has been the case in the past, China managed to avoid both the stock market and real estate prices moving into an adjustment phase at the same time. In other words, the underlying strength of housing prices has somewhat eased the negative effect of the decline in stock prices on personal consumption.

Changes in China's Balance of Debt by Sector
Chart 13



Source: BIS, Haver Analytics; compiled by DIR.

Changes in Chinese Housing Prices
Chart 14



Source: National Bureau of Statistics of China; compiled by DIR.
Note: China Newly Built House Prices-Housing Index covering 70 cities: simple average of 70 cities used.

Japan's Economic Outlook: Growth Rate to Peak Out in FY2017

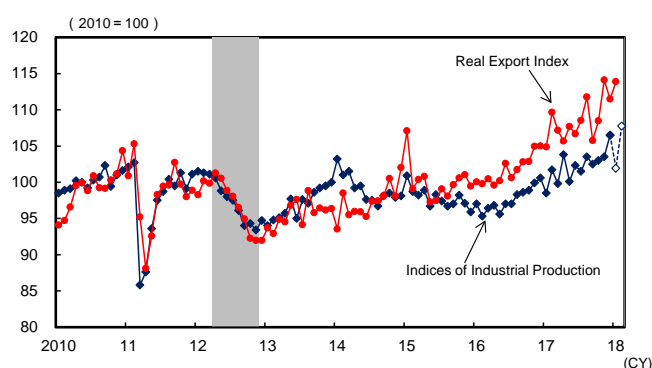
Three factors supporting accelerated growth in FY2017 to gradually fade away

Japan's economy has continued accelerated growth due to the following factors: (1) favorable overseas demand, (2) inventory investment, and (3) replacement demand for durables. However, the effects of these three factors will gradually fade away in the future. Hence we expect Japan's economy to gradually slow down in the future to a growth rate near cruising speed.

First, as was discussed in the last chapter, there are multiple downside risks centering on overseas factors, which cannot be ignored in considering the future of Japan's economy. Meanwhile, there are other factors present, including the inventory investment cycle entering the accumulation phase, and replacement demand for durables, which had provided support until now, likely to play itself out in the near future.

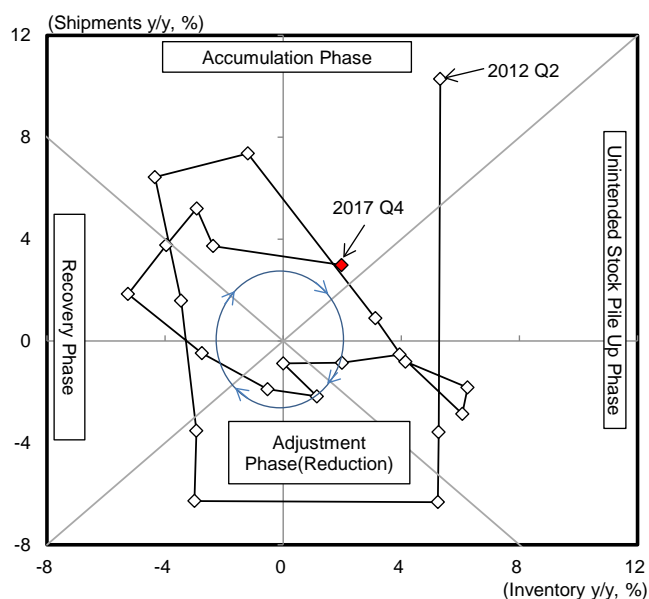
Chart 16 provides an illustration of the inventory cycle. Here we see that Japan's economy was in the adjustment phase (reduction) in 2015, then entered the recovery phase in 2016, after which it moved into the accumulation phase in 2017. In 2014 just as inventory had accumulated, the Chinese yuan rate was cut and China's economy lost speed, while in addition, business sentiment amongst Japanese corporations deteriorated due to the decline in shipments, and in 2015 Japanese corporations began to carry out inventory reduction. However, China's economy gradually regained calm throughout 2016, and a recovery in the US economy looked more promising after the presidential election, and business confidence improved. Then in the course of the year 2017 the inventory cycle came around and again entered the accumulation phase. The Japanese economy is now positioned somewhere between the inventory recovery and accumulation phases. Therefore, there is a good chance that Japan will be able to reap the benefits of the cycle for a while. However, it goes without saying that the inventory cycle is merely a short-term factor, and the recovery-accumulation phase will have to end, most likely sooner than later. There is also a very good chance that the positive effects of the inventory cycle on Japan's economy will gradually fall away.

Japan's Real Exports and Industrial Production
Chart 15



Source: BOJ, METI and Cabinet Office; compiled by DIR.
Notes: 1) Shaded areas represent periods of economic decline.
2) Most recent two months of industrial production uses values from METI's production forecast survey.

The Inventory Cycle
Chart 16



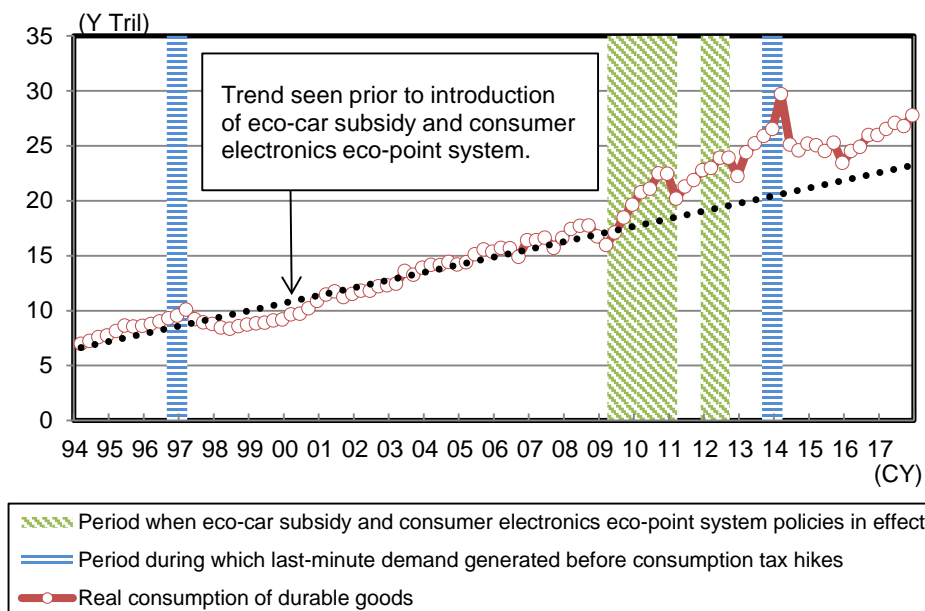
Source: Ministry of Economy, Trade and Industry; compiled by DIR.

One of the outstanding characteristics of FY2017 was the disappearance of factors which had suppressed consumption in the past, thereby leading to growth in consumption. Three factors led to stagnant personal consumption in the past. These were (1) elimination of the special case pension

category, (2) increased tax and insurance burden for the working-age generation, and (3) reactionary decline following past economic stimulus measures. These factors lost their negative effects, bringing in their stead positive factors for the outlook for personal consumption. However, factors encouraging the expansion in consumption will gradually disappear in the course of the year 2018. However, improvements in employee compensation are expected to encourage consumption to continue expanding.

Change in Real Consumption Amount of Durable Goods

Chart 17



Source: Cabinet office; compiled by DIR.

Localized incidents of wage inflation seen

How fast will the pace in improvement in employee compensation be? In conclusion, though there are localized incidents of wage inflation beginning to appear, there are still factors which offset this effect. We therefore are of the opinion that more time will be required before genuine improvement in the employment environment to the extent that a virtuous circle driven by domestic demand is triggered can begin.

Japan's economic growth has continued to exceed its potential growth rate, while at the same time corporate earnings have expanded to reach the highest levels recorded in the past, but hourly wages of regular employees have remained stagnant. On the other hand, part-time workers have seen improvements in hourly wage and employment. Behind this lies the fact that corporations have been cautious regarding the expansion of regular employment due to the strict regulations governing dismissal under Japan's unique lifetime employment system.

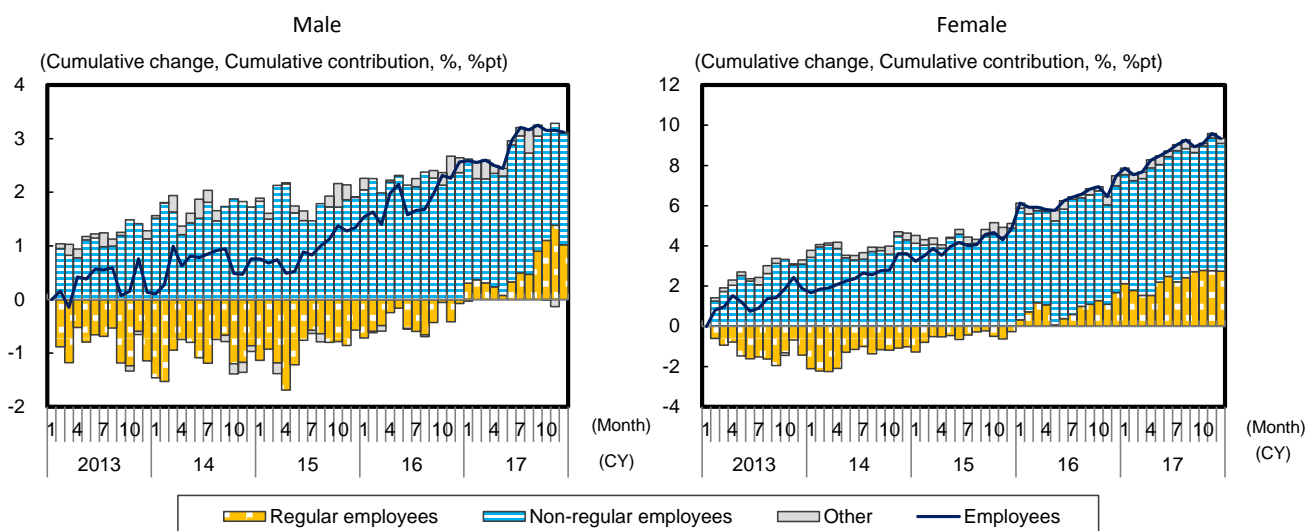
But the tide has begun to turn. Chart 18 suggests that since around the year 2016, non-regular employment has stopped growing, and instead, growth in regular employment has accelerated. One of the reasons behind this change is that the hourly wages of non-regular employees are no longer that much cheaper than regular employees. However, more importantly, this is one of the symptoms of Japan's having entered the era of chronic shortages in manpower. Over the past four years, Japan's working age population has declined by nearly four million, due to its low birthrate and aging population. Even so, the working age population has actually grown of late. The reason is that the employment rate has recorded major growth centering on women and the elderly. However, it would be difficult to expect major growth in the labor participation rate in the future. This is because the distinctive M curve associated with women's labor participation rate has disappeared after years of growth in women's employment, and has now reached about the same level as that seen in the US. We

will have to accept that there is not as much room left for further growth in women's labor participation rate as there has been in the past.

In conclusion, the effective opening-to-application ratio for part-timers has reached an unprecedented level. Under these circumstances it has become difficult to find part-time workers, and hence corporations have begun, somewhat tentatively at first, to increase the number of regular employees. As a result, the effective opening-to-application ratio for regular employees hit a historic high of 1.07x in December 2017, exceeding 1x. These developments may indicate that the countdown to wage inflation is already underway.

Factor Analysis of Employment

Chart 18



Source: Ministry of Internal Affairs and Communications; compiled by DIR.
Note: Seasonal adjustment performed by DIR.

Improvements in productivity are essential before a virtuous circle driven by domestic demand can be triggered

However, there is still quite a bit of distance to cover before said wage inflation reaches the point of triggering a virtuous circle brought about by domestic demand. Simple wage inflation from the viewpoint of corporations is not only a factor bringing negative pressure on earnings, but could even lead to scaling down their business or to the hollowing out effect. Sustainable wage inflation depends on IT investment, research & development or in some cases carrying out mergers & acquisitions, as well as whether or not corresponding labor productivity can also be attained in tandem. Meanwhile, since labor productivity such as this can take time to achieve, companies suffering from rising unit labor costs (nominal wages \div productivity) may very likely have to keep total labor costs under control by flattening the wage curve and placing restrictions on overtime, rationalizing the latter by dressing it up as “workstyle reform.” The practice of increasing the hourly wage at which new regular employee hires are taken on (both new graduates and non-regular employees who have gained the status of regular employees), and then holding down the total salaries of existing regular employees may likely continue for some time.

Capex expected to maintain underlying strength while nearing the limit of supply constraints

Despite the advice of caution in the previous section, the incentive to carry out investments oriented toward rationalization & labor saving in the face of the worsening labor shortage is actually stronger than it has been in the past, and few have any doubts about whether or not this is a wise move. But if

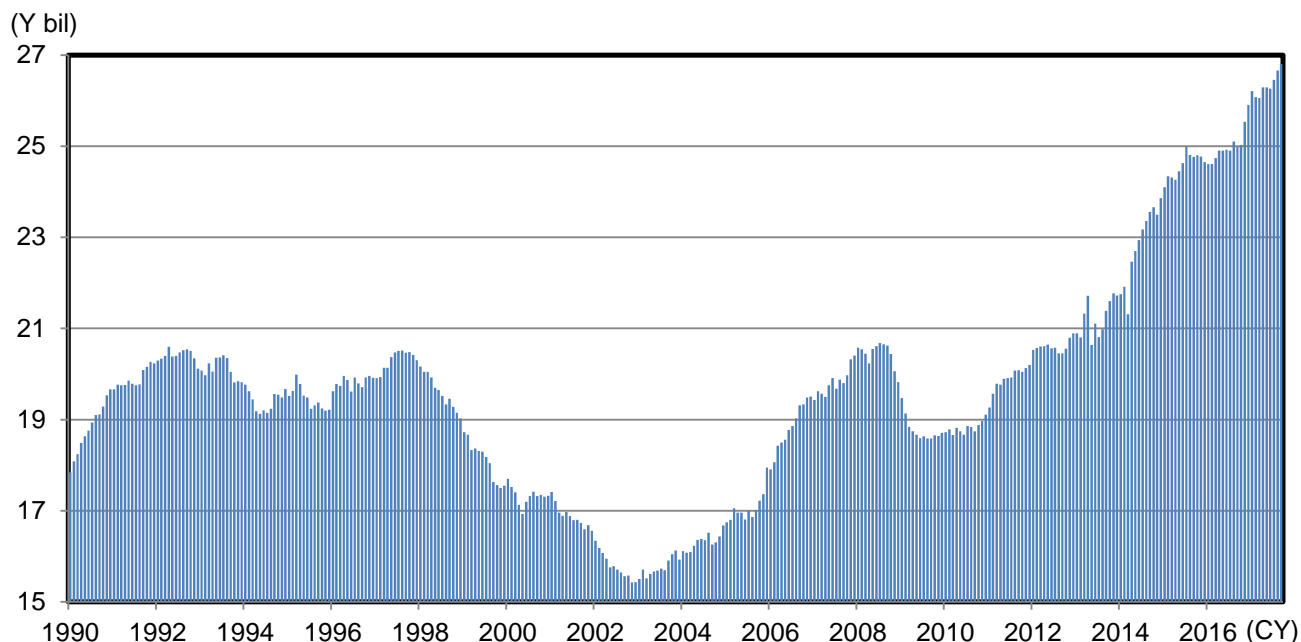
serious wage increases including those affecting regular employees occur in the future, unit labor cost will increase as well, bringing pressure on corporate earnings, unless labor productivity or profitability can be raised to the degree that they can offset wage increases. For this reason, investments in research & development, and upgrading & renovation with an aim to improve earnings in addition to investment in rationalization and labor-saving directly linked to improving productivity will likely continue to achieve moderate growth in the future.

On the other hand, the fact is that capex spending does not grow as much as one might expect when compared to favorable corporate earnings. Japan's capital stock cycle is now in the maturation phase as is the US. In order to extend the stock accumulation phase, it is essential that the anticipated growth rate be increased. In addition, factory operating rates are at a lower level than they have usually been during past periods of growth in capital expenditure and this is a worrisome point. In order to predict whether or not capital expenditure will move into full swing, we have to confirm that the following conditions have been met: along with growth in production volume, factory operating rates must exceed a certain threshold and continue performing at that level.

When we consider investment motives behind the capital investment plans of Japanese corporations, we see that capacity increase is not touched upon. However, plans involving maintenance and repair of existing and aging facilities are extremely common. It appears that there is a growing number of corporations which protect their bottom line by extending the life of existing facilities. Meanwhile, the proportion of capex spending accounted for by investment in rationalization and energy saving is not necessarily growing either. Behind this lies a shortage of engineers, creating a bottleneck on the supply side. Even though demand is strong, the tendency is growing for orders to simply keep piling up (Chart 19).

Long-Term Change in Balance of Machinery Orders

Chart 19



Source: Cabinet Office; compiled by DIR.
Note: Excluding ships, seasonally adjusted.

How will the consumption tax hike in October 2019 affect personal consumption?

Looking back on the effects of the consumption tax hike of April 2014

The major focal point in predicting the growth rate in FY2019 is how the consumption tax hike planned for October will influence the economy. Increasing the consumption tax influences personal consumption in a three-phase process as follows: (1) last minute demand is triggered prior to the consumption tax increase, (2) then after the consumption tax hike there is a reactionary decline in demand, then (3) consumption is further suppressed due to the decline in real income which occurs after the consumption tax has been raised. In this section we perform a quantitative analysis of the influence of the consumption tax hikes of April 2014 and October 2019 on personal consumption, using a consumption function to obtain an estimate.

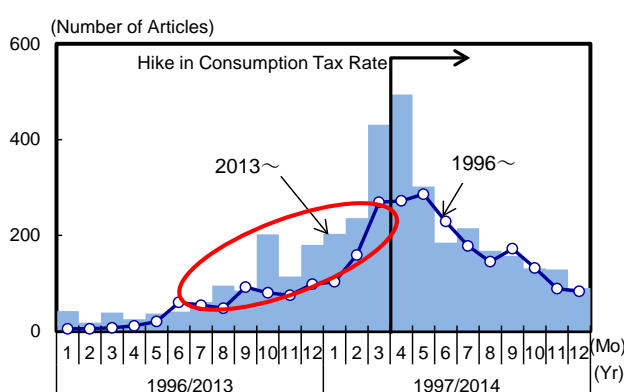
First, based on data regarding changes in personal consumption, we can see that in past instances of last minute demand prior to a consumption tax hike have begun several quarters before the date of the tax hike and have tended to focus on durables. Then during the quarter before the tax hike last minute demand grows sharply. This fact is inferred by the number of news articles regarding last minute demand which appeared at the time of consumption tax hikes in April 1997 and in April 2014 (Chart 20).

Next we estimate the influence of the April 2014 consumption tax hike on real personal consumption (private sector final consumption expenditure). The results are around +3.4 tril yen in last minute demand, and around -3.3 tril yen in reactionary decline in demand. As for the effect on income after the tax hike we estimate short-term influence of -3.9 tril yen (Chart 21). Together, these factors added up to around -7.2 tril yen in personal consumption after the consumption tax hike, or a rate of -2.4% in negative influence on real personal consumption. Meanwhile, it is important to note that, considering the fact that the decline in real income in relation to a consumption tax hike is long-lasting, the potential negative effects on income could be around -2.3 tril yen.

Finally, based on the DIR midterm macro model, we estimate that the decline in personal consumption in the form of the reactionary decline in demand after the consumption tax hike in 2014 and the short term effect on income, brought downward pressure on real GDP of around -0.4%.

Number of News Articles Regarding Past Instances of Last Minute Demand

Chart 20

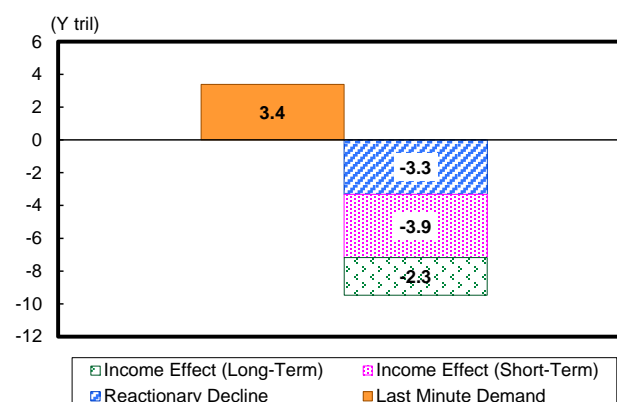


Source: Nikkei Telecom; compiled by DIR.

Note: Number of articles containing the words "last minute demand" and "consumption tax". Three general newspapers referenced (Yomiuri, Asahi, and Mainichi), and two specialist newspapers including Nikkei and Sankei.

Degree of Influence of Consumption Tax Hike on Real Personal Consumption (Tax Hike of 2014)

Chart 21



Source: Cabinet Office; compiled by DIR.

- Notes: 1) Income effect as estimated here has short-term influence based on marginal propensity to consume. In the long-term, a negative income effect could occur equivalent to the following formula: tax burden x average propensity to consume – income effect (short-term). Hence its influence is also shown here.
 2) Last minute demand covers period from 2013 Q3 to 2014 Q1. Reactionary decline covers the period from 2014 Q2 to 2015 Q1.
 3) Results of estimates are based on certain assumptions, and are hypothetical. Hence these figures should be taken with a certain grain of salt.

Real personal consumption expected to come under downward pressure of around -0.1% in FY2019

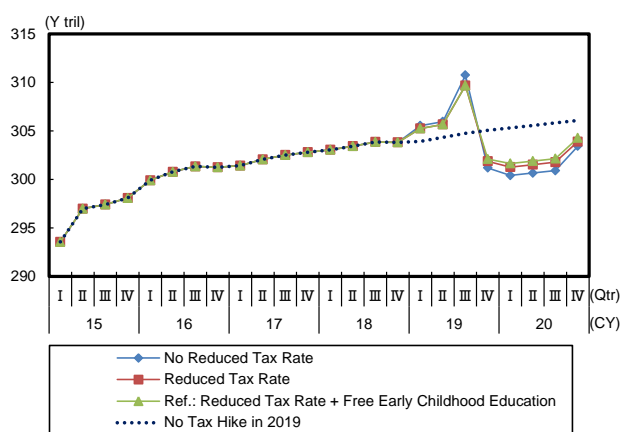
We used the same method in considering the consumption tax hike planned for October 2019. First of all, we have to take some other factors into consideration when looking at the next instance of a consumption tax hike planned for the future. These include (1) the planned rate of increase in consumption tax in 2019 is 2%pt, a lower rate than in April 2014 when it was increased by 3%pt, (2) a reduced tax rate is expected to be introduced, and (3) there will be a change in how the increased revenue due to the tax hike is used. Revenue from the tax increase will go toward free early childhood education and daycare, which will lighten the financial burden of households. Meanwhile, the effects of last minute demand and reactionary decline will occur within the same fiscal year. This means that the two factors will cancel each other out. The effect on the growth rate for the year in which the tax hike occurs is therefore expected to be limited in comparison to past instances of consumption tax hikes.

Charts 22 and 23 outline the path of real personal income by scenario at the time of the consumption tax hike and the degree of influence it has.

Taking a look at the degree of influence on real personal income assuming a reduced tax rate is introduced, last minute demand would be +1.9 tril yen with a reactionary decline of -1.9 tril yen. Since the rate of increase will be lower than the last time, the degree of influence is also smaller. Meanwhile, the residual effects from replacement demand for durable consumer goods, which have a long service life, are still being felt now to some extent after the last time the consumption tax was increased, hence both last minute demand and reactionary decline are expected to be smaller in scale in 2019. As for the income effect following the consumption tax hike, we estimate short-term influence at -2.2 tril yen and long-term influence at -1.3 tril yen.

Looking at this on a fiscal year basis, real personal consumption in comparison to the situation where there is no consumption tax hike would be +0.3 tril yen in FY2018 (a positive effect of +0.1%), -0.2 tril yen in FY2019 (-0.1% in downward pressure), and -3.1 tril yen in 2020 (-1.0%). The formula used here is last minute demand + reactionary decline + short-term income effect. Then, using the DIR midterm macro model, we estimate the effects on real GDP due to fluctuations in personal consumption to be +0.2 tril yen in FY2018 (+0.0%), -0.1 tril yen in FY2019 (-0.0%), and -2.0 tril yen in FY2020 (-0.4%).

Path of Real Personal Consumption at Time of Consumption Tax Hike (2019)
Chart 22

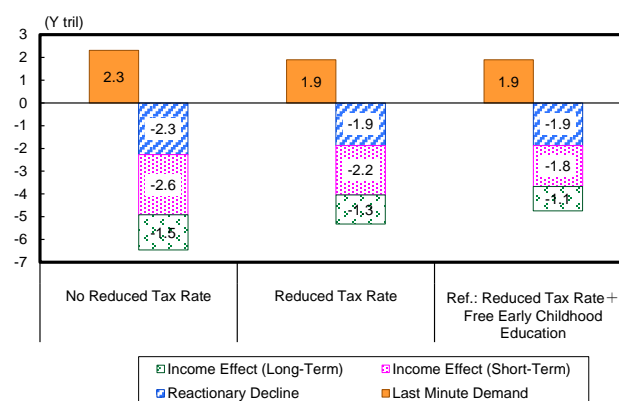


Source: Cabinet Office; compiled by DIR.

Notes: 1) Annualized values used. The exogenous variable is assumed to grow 1% annually based on recent performance.

- 2) A reduced tax rate also means less last minute demand and less reactionary decline. However, we assume no influence due to free education. We assume early childhood education to be free for ages 3-5, and for ages 0-2 free only for household incomes of less than 3.6 mil yen. However, the rule may change to household incomes under 2.6 mil yen, and if this is the case, there would be a bit less positive influence on consumption.
- 3) Results of estimates are based on certain assumptions, and are hypothetical. Hence these figures should be taken with a certain grain of salt. It should also be noted that figures differ from the DIR economic outlook.

Degree of Influence of Consumption Tax Hike on Real Personal Consumption (Tax Hike of 2019)
Chart 23



Source: Cabinet Office; compiled by DIR.

- Notes: 1) Income effect as estimated here has short-term influence based on marginal propensity to consume. In the long-term, a negative income effect could occur equivalent to the following formula: tax burden x average propensity to consume – income effect (short-term). Hence its influence is also shown here. It should also be noted that figures differ from the DIR economic outlook.
- 2) Last minute demand covers period 2019 Q1 to Q3. Reactionary decline covers the period from 2019 Q4 to 2020 Q3.
 - 3) We assume early childhood education to be free for ages 3-5, and for ages 0-2 free only for household incomes of less than 3.6 mil yen. However, the rule may change to household incomes under 2.6 mil yen, and if this is the case, there would be a bit less positive influence on consumption.
 - 4) Results of estimates are based on certain assumptions, and are hypothetical. Hence these figures should be taken with a certain grain of salt.

Economic Indicators and Interest Rates Chart 24

| Indicator | 2017 | | 2018 | | | | FY16 | FY17 | FY18 | FY19 |
|--|---------|---------|---------------|---------|---------|---------|--------|---------------|------|------|
| | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | | | | |
| | Actual | | DIR estimates | | | | Actual | DIR estimates | | |
| Real GDP | | | | | | | | | | |
| Q/q %, annualized | 2.2 | 0.5 | 1.8 | 1.1 | 1.2 | 1.2 | | | | |
| Y/y % | 1.9 | 1.5 | 1.7 | 1.4 | 1.1 | 1.3 | 1.2 | 1.7 | 1.3 | 0.8 |
| Current account balance SAAR (Y tril) | 24.7 | 22.5 | 23.3 | 23.4 | 23.4 | 23.4 | 20.4 | 22.6 | 23.7 | 24.9 |
| Unemployment rate (%) | 2.8 | 2.8 | 2.7 | 2.7 | 2.7 | 2.6 | 3.0 | 2.8 | 2.7 | 2.6 |
| CPI (excl. fresh foods; 2015 prices; y/y %) | 0.6 | 0.9 | 0.8 | 0.9 | 1.0 | 0.8 | -0.2 | 0.7 | 0.9 | 1.3 |
| 10-year JGB yield (period average; %) | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | -0.05 | 0.05 | 0.05 | 0.05 |

Source: Compiled by DIR.

Note: Estimates taken from DIR's *Japan's Economic Outlook No. 196 (Summary)*