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Japan's Economic Outlook No. 189

Downside Risk Remains for Japanese Economy Due to Global Economic Factors

In this report we examine the following: (1) stagnant consumption, (2) effects of further postponement of consumption tax increase, and (3) negative interest rates

Japan to see real GDP growth of +0.8% in FY16 and -0.1% in FY17, with nominal GDP growth of +1.4% in FY16 and +1.1% in FY17.

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Main Points

- **Downside risk remains for the Japanese economy due to global economic factors:** In light of the 1st preliminary Jan-Mar 2016 GDP release (Cabinet Office) we have revised our economic growth outlook. We now forecast real GDP growth of +0.8% in comparison with the previous year for FY16 (+0.9% in the previous forecast), and -0.1% in comparison with the previous year for FY17 (-0.1% in the previous forecast). Japan's economy remains in a lull, but we expect it to recover gradually due to the following domestic factors: (1) growth in real wages, (2) low price of crude oil and improvement in terms of trade, and (3) the supplementary budget. However, caution is needed regarding downside risk in the global economy, especially that of China. In this outlook we have kept our previous assumption in place regarding implementation of an increase in consumption tax in April of 2017. However, we also consider the outlook for Japan's economy assuming the consumption tax hike is delayed.

- **Challenges in jumpstarting stagnant personal consumption:** It would not be an exaggeration to claim that the most important challenge currently facing Japan's economy is to get personal consumption back on the road to recovery from its recently stagnant condition. In this report we consider possible prescriptions for the revitalization of personal consumption, looking at consumers by age group and income after first examining trends in personal

consumption since the introduction of Abenomics. Quantitative results provide fundamental support for the implementation of income support policies directed toward the young and persons with low-income, who did not contribute to the upsurge in personal consumption after the introduction of Abenomics. However, in order to encourage consumer spending amongst younger people in the mid to long-term, it is essential that improvements be made in the employment and income environment through various means, including a reform of the labor market.

- **What will happen if the planned consumption tax increase is further delayed?:** The sluggish world economy and the recent earthquake in Kumamoto have given rise to the possibility that the planned consumption tax increase may be further delayed. Using the DIR macro model, we performed a quantitative assessment of the short-term effects increasing the consumption tax would have on the economy and the mid to long-term effects it may have on Japan's fiscal situation. Based on this assessment, the argument that the tax hike should be delayed as a means of promoting economic growth and carrying out fiscal reform is not very convincing. Although a certain amount of attention must be given to short-term economic trends, we believe that it would be best to go ahead with the consumption tax hike as planned, in concert with the formulation of economic measures, as a means of providing a foundation for sustainable economic growth through fiscal reform.

- **Three barriers to the effectiveness of the BOJ's negative interest-rate policy:** The BOJ made the decision to introduce a negative interest rate in January, but this has yet to produce the desired effect on Japan's economy – that of triggering a virtuous circle scenario. The reason is that there are three barriers to the effectiveness of the BOJ's policy. These are (1) turmoil in the global financial markets, (2) weak corporate capex, and (3) worsening of household consumer confidence. As for barrier (1), it would be difficult for the Japanese government or the BOJ to single-handedly cause global market volatility to subside. On the other hand, it can do something about (2) and (3) by responding with appropriate policies. By implementing a sound growth strategy and thereby increasing Japan's anticipated growth rate, improvement of corporate business sentiment can be expected, along with a subsequent increase in capex spending. Meanwhile, by building a sustainable social security system, the government can remove the sense of uncertainty on the part of households regarding the future, and by doing so can also revitalize personal consumption.

- **Risk factors facing Japan's economy:** Risk factors for the Japanese economy are: (1) The downward swing of China's economy, (2) Tumult in the economies of emerging nations in response to the US exit strategy, (3) A strong yen / weak stock market situation brought on by risk-off behavior of investors due to geopolitical risk, and (4) The threat of UK exiting the EU (*Brexit*), and uncertainty regarding Greece. Our outlook for China's economy is optimistic in the short-term and pessimistic in the mid to long-term. Looking at China's economic situation in a somewhat reductive way, the fact is that China's government holds treasury funds totaling between 600 to 800 tril yen with which it is standing up to over 1,000 tril yen in excessive lending and over 400 tril yen in excess capital stock. China is expected to be able to avoid the bottom falling out of its economy for a little while, but in the mid to long-term, there is risk of a massive capital stock adjustment.

- **BOJ's monetary policy:** We expect additional monetary easing measures by the BOJ to be initiated in June 2016 due to fears of an economic downturn.

Our assumptions

- Public works spending is expected to increase by +0.5% in FY16, and then decrease by -5.4% in FY17. An additional consumption tax hike is planned for April 2017.
- Average exchange rate of Y109.0/$ in FY16, and Y109.0/$ in FY17.
- US real GDP growth of +1.8% in CY16, and +2.3% in CY17.

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Summary

Downside risk remains for the Japanese economy due to global economic factors

In light of the 1st preliminary Jan-Mar 2016 GDP release (Cabinet Office) we have revised our economic growth outlook. We now forecast real GDP growth of +0.8% in comparison with the previous year for FY16 (+0.9% in the previous forecast), and -0.1% in comparison with the previous year for FY17 (-0.1% in the previous forecast). Japan's economy remains in a lull, but we expect it to recover gradually due to the following domestic factors: (1) Growth in real wages, (2) Low price of crude oil and improvement in terms of trade, and (3) Supplementary budget. However, caution is needed regarding downside risk in the global economy, especially that of China. In this outlook we have kept our previous assumption in place regarding implementation of an increase in consumption tax in April of 2017. However, we also consider the outlook for Japan's economy assuming the consumption tax hike is delayed.

GDP grows for first time in two quarters, exceeds market consensus

The real GDP growth rate for Jan-Mar 2016 (1st preliminary est) grew by +1.7% q/q annualized (+0.4% q/q), and exceeded market consensus as well (+0.3% q/q annualized, +0.1% q/q). This is the first time in two quarters for real GDP to achieve growth. However, considering the fact that some of this growth is due to extra business days gained in the leap year, we would have to conclude that real GDP gained only slightly, or is actually marking time. As for demand components, personal consumption, public investment, and exports moved into a growth trend, while housing investment, capex and imports suffered declines. All in all, results went according to the DIR outlook, with Japan's economy remaining in a lull.

Personal consumption flat when effects of leap year ignored

Performance by demand component in the Jan-Mar 2016 results shows personal consumption up for the first time in two quarters by +0.5% q/q. However, our assessment is that it is actually marking time if we remove the increase gained from extra business days due to the leap year. Our assessment is that personal consumption remains stagnant. Behind this situation lies real employee compensation, which maintained a firm undertone such that the employment and income environment contributed a plus, but households continued to be more budget minded, with average propensity to consume on the decline. The unseasonably warm January followed by the unusually cold weather in March brought a slowdown in sales of seasonal items, including cold weather clothing, heating equipment, and energy in January and spring clothing in March, thus bringing down overall performance. Looking at performance of specific items in personal consumption, we see that the upward push brought on by the leap year helped goods and services, with positive contributions from durables (+5.0% q/q), semi-durables (+0.7%), and services (+0.2%). The positive margin was especially wide for durable goods, but much of this is likely a rebound from the declines experienced during the previous quarter (-5.9%) and it remains unclear whether this reversal is the real thing. As for non-durables, performance was flat at -0.0%, pointing to four quarters of consecutive declines.

Housing investment declined for the second consecutive quarter at -0.8%. New housing starts, a leading indicator for housing investment as a portion of GDP, have been weak since the middle of 2015, and housing investment, as well as housing starts, which are recorded on a progressive basis, continued their declining trend. However, the extent of the decline is less than the previous period, and considering the fact that housing starts have just recently achieved some growth, it is possible that housing investment is close to bottoming out.

Capex declined for the first time in three quarters at -1.4% q/q, apparently taking a breather from its overall growth trend. While replacement and renovation investment, associated with positive corporate earnings, brought upward pressure on results, the strong yen and a sluggish domestic economy have

brought an increasing sense of uncertainty to the future of corporate earnings. This brings about the possibility that investing in capital expenditure is being put off for the future especially by the manufacturing industry. In addition to this development, operating ratio continues to be weak due to stagnant export volume and domestic demand. Hence from an overall macro point of view, it is difficult in structural terms for corporations to invest in capacity increase, and this has brought a negative contribution. Looking at the actual production capacity index, there are currently no signs of movement toward increasing production capacity in the manufacturing industry overall. The trend toward decreasing capacity is continuing due to attempts in the chemical industry and information & communication electronics equipment to adjust to the law regarding Sophisticated Methods of Energy Supply Structures, as well as the decline in international competitiveness.

While the extent of contribution of private sector inventory growth was slight at -0.0%pt, the final contribution was down for the third consecutive quarter. This was due to the fact that in addition to work in progress inventory and material & supplies inventories, which are provisional on the 1st preliminary GDP estimate, finished goods inventory also brought a negative contribution. Wholesale and retail trade inventory contributed on the positive side, at +0.2%pt.

Public investment grew unexpectedly for the first time in three quarters at +0.3% q/q. Without the effects of economic policy as there was in the past, public investment and several other leading economic indicators have been weak for some time, and the declining trend was expected to continue, but public works projects have been progressing at a faster pace than expected, bringing a positive contribution to GDP. Considering the fact that other leading indicators are beginning to make a comeback, it is possible that public investment is in the process of bottoming out.

Meanwhile, exports grew for the first time in two quarters at +0.6% q/q. As for exports of goods, trade with both the EU and the US grew, bringing a positive contribution. Meanwhile, imports declined for the second consecutive quarter at -0.5%. As a result, overseas demand (net exports) contributed +0.2%pt to GDP.

Though modest, the GDP deflator grew for the sixth consecutive quarter at +0.1% q/q. The domestic demand deflator was down by -0.5%, while the import deflator increased its margin of decline. Hence results were positive overall. (A decline in the import deflator normally would have a positive effect on overall GDP results.) In y/y terms the GDP deflator was up by +0.9%, its ninth consecutive quarter of growth, but the growth rate shrank in comparison to that of the previous period (+1.5%). Meanwhile, nominal GDP was up for the first time in two quarters at +2.0% q/q annualized (+0.5% q/q).

With no clearly driving force, Japan's economy continues to face risk of a possible downturn

Although personal consumption is expected to continue its underlying strength due to improvements in the employment and income environment, the absence of a clearly driving force in the economy colors our basic economic scenario, which sees Japan's economy continuing to face risk of a possible downturn in the future. We urge caution regarding lingering risk factors which could have a negative impact on Japan's economy, especially the downturn in the Chinese economy, turmoil in the global financial markets in response the US exit strategy, and a strong yen / weak stock market situation brought on by risk-off behavior of investors. In addition, one should keep in mind the possible fluctuations in the economy which could occur due to the effects of the recent earthquake in Kumamoto.

Personal consumption is likely to suffer a temporary downturn due to the reactionary decline following the initially positive effects of the leap year, and the effects of the Kumamoto earthquake. However, with the exception of these special factors, there is an overall positive note due to improvements in the employment and income environment. Hence we see personal consumption remaining flat. As for the question of income, real wages according to the monthly labour survey are beginning to make a

comeback, and with the number of employers increasing, real employee compensation (real wages x employment) in the macro sense is exhibiting major growth. Meanwhile, the positive employment environment and the shortage of manpower in certain areas of the non-manufacturing industry will likely lead to the gradual increase in part-timer pay. In addition, the effect of a slower growth rate in the consumer price index promises to continue pushing up real wages, and this should be a factor in providing underlying support for personal consumption. Factors to keep in mind are worsening consumer confidence due to falling stock prices and increasing uncertainty in regard to how personal income will be effected in the future as a result of fears of worsening corporate earnings associated with the strong yen. This could likely be a drag on personal consumption. Other developments to keep in mind are the pension revision rate which was raised in Fiscal 2015 for the first time in sixteen years, and which the government has decided to leave unchanged in Fiscal 2016, and the spring labor offensive in 2016, which may very possibly bring a smaller wage revision rate than in 2015 (final tally results +2.20%). In addition, regarding durable goods, it is quite possible that sales volume of smartphones may suffer a major decline as a result of changes in carrier rates and sales prices.

As for housing investment, signs of an increase are seen in new housing starts, a leading indicator for housing investment, and a gradual comeback is expected. Housing starts were recently held back by an increase in construction costs and sales prices. However, improvements in the employment and income environment, along with the historic lows in interest on housing loans are expected to work together in encouraging a gradual increase in the number of households considering purchase of a new home. Housing starts should also gradually increase. Housing investment is expected to recover to a growth trend in the future, though there is expected to be a time lag between the expected increase in housing starts and the subsequent recovery in housing investment.

As for capex, the gradual recovery is seen continuing, despite some ups and downs, due to the high level of corporate earnings, which provide underlying support for replacement and renovation investment. Favorable corporate earnings and the manpower shortage are expected to encourage replacement investment, labor saving, and energy saving, especially in the non-manufacturing industries. Meanwhile, restoration and reconstruction of production facilities lost or damaged in the recent Kumamoto earthquake are expected to contribute to growth in capital expenditure. However, as was stated earlier in our outlook, the manufacturing industries are still at risk of a downturn in the future, and caution is urged. Factors include the slowdown in the world economy, weakness in the corporate sectors of overseas economies leading to stagnation for exports, and the slow pace of recovery in personal consumption. Additional downward pressure on earnings is brought on by the strong yen, meaning that corporations delaying capex spending may increase in the future, especially amongst manufacturers.

Public investment is expected to continue to be weighed down by the shedding the effects of economic policy which provided support in the past, but progress is being made on the FY2015 supplementary budget and the FY2016 budget, so gradually the situation should bottom out. After that, the new focus on reconstruction associated with the Kumamoto earthquake should bring a gradual return to a growth trend. It should be noted that contracts and orders received, which provide the leading indicators for this area, are showing signs of a comeback.

Meanwhile, exports are expected to remain flat for a while longer, and then make a gradual comeback as overseas economies improve. The US economy is showing a firm undertone and should provide underlying support for exports. However, industrial sectors the world over are suffering from stagnant raw materials prices and excess production capacity. Overseas shipments of electronic parts and devices for smartphones are expected to continue to be sluggish. Considering this fact, the expected shift back into a growth trend for exports of goods will likely not come until after summer. In addition, the export of services, which had been favorable up to now, will be effected by the following factors: (1) The Chinese government has increased customs duty on goods purchased in foreign countries,

causing fears that the "explosive buying" trend by Chinese tourists will likely take a rest, and (2) The number of tourists visiting Japan may decrease due to the recent Kumamoto earthquake. Looking at the current situation by region, we see that a firm undertone continues in US economic expansion centering on the household sector, bringing expectations for a recovery in Japanese exports centering on durables. As for the EU, the economy is expected to move gradually toward a comeback due to the effects of the collapse of crude oil prices and additional monetary easing on the part of the ECB. Exports to the EU are expected to gradually recover to a growth trend. As for the Asian economy, electronic parts and devices for smartphones as mentioned above, as well as iron & steel and materials are expected to be a drag on performance due to China's excess production capacity. Asian exports are expected to continue on the weak side. As for China, whose economic slowdown continues, monetary easing and promotion of automobile sales are helping to lift the real economy, and the effects are beginning to show up in personal consumption and the service sector. There is a good possibility that further declines in consumption can be avoided in the area of consumer goods.

Challenges in jumpstarting stagnant personal consumption

It would not be an exaggeration to claim that the most important challenge currently facing Japan's economy is to get personal consumption back on the road to recovery from its recently stagnant condition. In this report we consider possible prescriptions for the revitalization of personal consumption, looking at consumers by age group and income after first examining trends in personal consumption since the introduction of Abenomics. Quantitative results provide fundamental support for the implementation of income support policies directed toward the young and persons with low-income, who did not contribute to the upsurge in personal consumption after the introduction of Abenomics. However, in order to encourage consumer spending amongst younger people in the mid to long-term, it is essential that improvements be made in the employment and income environment through various means, including a reform of the labor market.

What will happen if the planned consumption tax increase is further delayed?

The sluggish world economy and the recent earthquake in Kumamoto have given rise to the possibility that the planned consumption tax increase may be further delayed. Using the DIR macro model, we performed a quantitative assessment of the short-term effects increasing the consumption tax would have on the economy and the mid to long-term effects it may have on Japan's fiscal situation. Based on this assessment, the argument that the tax hike should be delayed as a means of promoting economic growth and carrying out fiscal reform is not very convincing. Although a certain amount of attention must be given to short-term economic trends, we believe that it would be best to go ahead with the consumption tax hike as planned, in concert with the formulation of economic measures, as a means of providing a foundation for sustainable economic growth through fiscal reform.

Three barriers to the effectiveness of the BOJ's negative interest-rate policy

The BOJ made the decision to introduce a negative interest rate in January, but this has yet to produce the desired effect on Japan's economy – that of triggering a virtuous circle scenario. The reason is that there are three barriers to the effectiveness of the BOJ's policy. These are (1) turmoil in the global financial markets, (2) weak corporate capex, and (3) worsening of household consumer confidence. As for barrier (1), it would be difficult for the BOJ or the Japanese government to single-handedly cause global market volatility to subside. On the other hand, it can do something about (2) and (3) by responding with appropriate policies. By implementing a sound growth strategy and thereby increasing Japan's anticipated growth rate, improvement of corporate business sentiment can be expected, along with a subsequent increase in capex spending. Meanwhile, by building a sustainable social security system, the government can remove the sense of uncertainty on the part of households regarding the future, and by doing so can also revitalize personal consumption.

Risk factors facing Japan's economy

Risk factors for the Japanese economy are: (1) The downward swing of China's economy, (2) Tumult in the economies of emerging nations in response to the US exit strategy, (3) A strong yen / weak stock market situation brought on by risk-off behavior of investors due to geopolitical risk, and (4) The threat of UK exiting the EU (*Brexit*), and uncertainty regarding Greece. Our outlook for China's economy is optimistic in the short-term and pessimistic in the mid to long-term. Looking at China's economic situation in a somewhat reductive way, the fact is that China's government holds treasury funds totaling between 600 to 800 tril yen with which it is standing up to over 1,000 tril yen in excessive lending and over 400 tril yen in excess capital stock. China is expected to be able to avoid the bottom falling out of its economy for a little while, but in the mid to long-term, there is risk of a massive capital stock adjustment.

BOJ's monetary policy

We expect additional monetary easing measures by the BOJ to be initiated in June 2016 due to fears of an economic downturn.

Main Economic Indicators and Real GDP Components (Main scenario)

	FY15	FY16 (Estimate)	FY17 (Estimate)	CY15	CY16 (Estimate)	CY17 (Estimate)
Main economic indicators						
Nominal GDP (y/y %)	2.2	1.4	1.1	2.5	1.1	1.6
Real GDP (chained [2005]; y/y %)	0.8	0.8	-0.1	0.6	0.4	0.5
Domestic demand (contribution, % pt)	0.6	0.7	-0.6	0.1	0.2	0.3
Foreign demand (contribution, % pt)	0.1	0.2	0.5	0.4	0.2	0.2
GDP deflator (y/y %)	1.4	0.6	1.2	2.0	0.7	1.0
Index of All-industry Activity (y/y %)*	0.7	0.6	-0.2	0.4	-0.1	0.8
Index of Industrial Production (y/y %)	-1.4	0.2	-0.4	-1.2	-1.4	1.0
Index of Tertiary Industry Activity (y/y %)	1.3	0.8	-0.1	0.9	0.3	0.8
Corporate Goods Price Index (y/y %)	-3.2	-1.1	2.8	-2.3	-2.3	2.4
Consumer Price Index (excl. fresh food; y/y %)	-0.0	0.2	1.9	0.5	-0.0	1.6
Unemployment rate (%)	3.3	3.2	3.1	3.4	3.2	3.1
Government bond yield (10 year; %)	0.26	-0.10	-0.10	0.35	-0.08	-0.10
Money stock; M2 (end-period; y/y %)	3.6	4.0	4.1	3.7	3.8	4.1
Balance of payments						
Trade balance (Y tril)	0.6	3.4	5.9	-0.6	3.7	4.9
Current balance ($100 mil)	1,478	1,854	2,241	1,356	1,832	2,105
Current balance (Y tril)	17.7	20.2	24.4	16.4	20.2	22.9
(% of nominal GDP)	3.5	4.0	4.8	3.3	4.0	4.5
Real GDP components (Chained [2005]; y/y %; figures in parentheses: contribution, % pt)						
Private final consumption	-0.3 (-0.2)	0.6 (0.4)	-1.4 (-0.8)	-1.2 (-0.7)	-0.1 (-0.0)	-0.2 (-0.1)
Private housing investment	2.4 (0.1)	2.2 (0.1)	-4.8 (-0.1)	-2.5 (-0.1)	1.3 (0.0)	-1.6 (-0.0)
Private fixed investment	1.6 (0.2)	1.4 (0.2)	0.4 (0.1)	1.5 (0.2)	-0.2 (-0.0)	2.3 (0.3)
Government final consumption	1.6 (0.3)	1.5 (0.3)	1.5 (0.3)	1.2 (0.3)	1.8 (0.4)	1.4 (0.3)
Public fixed investment	-2.2 (-0.1)	0.3 (0.0)	-6.0 (-0.2)	-2.5 (-0.1)	-1.2 (-0.1)	-3.3 (-0.2)
Exports of goods and services	0.4 (0.1)	2.0 (0.4)	3.8 (0.7)	2.8 (0.5)	0.7 (0.1)	3.3 (0.6)
Imports of goods and services	-0.1 (0.0)	1.3 (-0.2)	1.0 (-0.2)	0.3 (-0.1)	-0.4 (0.1)	2.2 (-0.4)
Major assumptions:						
1. World economy						
Economic growth of major trading partners	2.8	2.8	3.1	3.0	2.7	3.0
Crude oil price (WTI futures; $/bbl)	45.0	45.0	45.0	48.8	42.2	45.0
2. US economy						
US real GDP (chained [2009]; y/y %)	2.2	1.9	2.3	2.4	1.8	2.3
US Consumer Price Index (y/y %)	0.4	1.5	2.1	0.1	1.2	2.1
3. Japanese economy						
Nominal public fixed investment (y/y %)	-2.2	0.5	-5.4	-1.6	-1.4	-2.6
Exchange rate (Y/$)	120.1	109.0	109.0	121.0	110.6	109.0
(Y/€)	132.5	124.5	125.0	133.7	125.2	125.0

Source: Compiled by DIR.
Note: Due to rounding, actual figures may differ from those released by the government.
* Excl. agriculture, forestry, and fisheries.
Estimate: DIR estimate.

Comparison with Previous Outlook

	Current outlook(Outlook 189)		Previous outlook(Outlook188 update)		Difference between previous and current outlooks	
	FY16	FY17	FY16	FY17	FY16	FY17
Main economic indicators						
Nominal GDP (y/y %)	1.4	1.1	1.4	1.2	-0.1	-0.1
Real GDP (chained [2005]; y/y %)	0.8	-0.1	0.9	-0.1	-0.1	0.0
Domestic demand (contribution, % pt)	0.7	-0.6	0.9	-0.5	-0.2	-0.1
Foreign demand (contribution, % pt)	0.2	0.5	0.0	0.4	0.1	0.1
GDP deflator (y/y %)	0.6	1.2	0.5	1.3	0.0	-0.1
Index of All-industry Activity (y/y %)*	0.6	-0.2	1.6	1.4	-1.0	-1.6
Index of Industrial Production (y/y %)	0.2	-0.4	2.3	1.7	-2.0	-2.1
Index of Tertiary Industry Activity (y/y %)	0.8	-0.1	1.5	1.3	-0.8	-1.4
Corporate Goods Price Index (y/y %)	-1.1	2.8	-0.6	2.8	-0.5	0.0
Consumer Price Index (excl. fresh food; y/y %)	0.2	1.9	0.2	2.0	-0.0	-0.1
Unemployment rate (%)	3.2	3.1	3.2	3.1	0.0	0.0
Government bond yield (10 year; %)	-0.10	-0.10	0.00	0.00	-0.10	-0.10
Money stock; M2 (end-period; y/y %)	4.0	4.1	4.0	4.1	-0.0	0.0
Balance of payments						
Trade balance (Y tril)	3.4	5.9	0.8	1.9	2.6	4.0
Current balance ($100 mil)	1,854	2,241	1,754	1,965	100	276
Current balance (Y tril)	20.2	24.4	19.7	22.1	0.5	2.3
(% of nominal GDP)	4.0	4.8	3.9	4.3	0.1	0.5
Real GDP components (chained [2005]; y/y %)						
Private final consumption	0.6	-1.4	0.8	-0.9	-0.1	-0.5
Private housing investment	2.2	-4.8	2.6	-8.3	-0.4	3.5
Private fixed investment	1.4	0.4	4.5	1.2	-3.1	-0.7
Government final consumption	1.5	1.5	0.9	0.8	0.6	0.7
Public fixed investment	0.3	-6.0	-4.0	-6.4	4.3	0.4
Exports of goods and services	2.0	3.8	2.7	3.5	-0.7	0.2
Imports of goods and services	1.3	1.0	2.9	1.5	-1.6	-0.4
Major assumptions:						
1. World economy						
Economic growth of major trading partners	2.8	3.1	3.1	3.3	-0.3	-0.2
Crude oil price (WTI futures; $/bbl)	45.0	45.0	35.0	35.0	10.0	10.0
2. US economy						
US real GDP (chained [2009]; y/y %)	1.9	2.3	2.2	2.4	-0.3	-0.0
US Consumer Price Index (y/y %)	1.5	2.1	1.6	2.3	-0.1	-0.2
3. Japanese economy						
Nominal public fixed investment (y/y %)	0.5	-5.4	-2.8	-4.5	3.3	-0.9
Exchange rate (Y/$)	109.0	109.0	113.0	113.0	-4.0	-4.0
(Y/€)	124.5	125.0	125.0	125.0	-0.5	0.0

Source: Compiled by DIR.
Notes: Due to rounding, differences do not necessarily conform to calculations based on figures shown.
* Excl. agriculture, forestry, and fisheries.

Main Economic Indicators and Real GDP Components (Sub scenario)

	FY15	FY16 (Estimate)	FY17 (Estimate)	CY15	CY16 (Estimate)	CY17 (Estimate)
Main economic indicators						
Nominal GDP (y/y %)	2.2	1.1	1.1	2.5	1.0	1.2
Real GDP (chained [2005]; y/y %)	0.8	0.5	0.7	0.6	0.4	0.7
Domestic demand (contribution, % pt)	0.6	0.3	0.5	0.1	0.1	0.6
Foreign demand (contribution, % pt)	0.1	0.2	0.2	0.4	0.2	0.1
GDP deflator (y/y %)	1.4	0.6	0.5	2.0	0.7	0.5
Index of All-industry Activity (y/y %)*	0.7	-0.1	1.3	0.4	-0.3	0.9
Index of Industrial Production (y/y %)	-1.4	-0.5	2.2	-1.2	-1.6	1.9
Index of Tertiary Industry Activity (y/y %)	1.3	0.1	1.0	0.9	0.1	0.7
Corporate Goods Price Index (y/y %)	-3.2	-1.1	1.1	-2.3	-2.3	1.1
Consumer Price Index (excl. fresh food; y/y %)	-0.0	0.2	1.0	0.5	-0.0	0.9
Unemployment rate (%)	3.3	3.2	3.1	3.4	3.2	3.1
Government bond yield (10 year; %)	0.26	-0.10	-0.10	0.35	-0.08	-0.10
Money stock; M2 (end-period; y/y %)	3.6	4.0	4.1	3.7	3.8	4.1
Balance of payments						
Trade balance (Y tril)	0.6	3.8	4.8	-0.6	3.7	4.4
Current balance ($100 mil)	1,478	1,901	2,110	1,356	1,839	2,047
Current balance (Y tril)	17.7	20.7	23.0	16.4	20.3	22.3
(% of nominal GDP)	3.5	4.1	4.5	3.3	4.0	4.4
Real GDP components (Chained [2005]; y/y %; figures in parentheses: contribution, % pt)						
Private final consumption	-0.3 (-0.2)	0.0 (0.0)	0.4 (0.3)	-1.2 (-0.7)	-0.2 (-0.1)	0.4 (0.2)
Private housing investment	2.4 (0.1)	-0.2 (-0.0)	0.4 (0.0)	-2.5 (-0.1)	0.1 (0.0)	0.5 (0.0)
Private fixed investment	1.6 (0.2)	0.3 (0.0)	1.1 (0.2)	1.5 (0.2)	-0.2 (-0.0)	1.1 (0.1)
Government final consumption	1.6 (0.3)	1.5 (0.3)	1.5 (0.3)	1.2 (0.3)	1.8 (0.4)	1.4 (0.3)
Public fixed investment	-2.2 (-0.1)	0.3 (0.0)	-5.8 (-0.2)	-2.5 (-0.1)	-1.2 (-0.1)	-3.2 (-0.1)
Exports of goods and services	0.4 (0.1)	2.0 (0.4)	3.8 (0.7)	2.8 (0.5)	0.7 (0.1)	3.3 (0.6)
Imports of goods and services	-0.1 (0.0)	0.7 (-0.1)	3.2 (-0.5)	0.3 (-0.1)	-0.5 (0.1)	3.0 (-0.5)
Major assumptions:						
1. World economy						
Economic growth of major trading partners	2.8	2.8	3.1	3.0	2.7	3.0
Crude oil price (WTI futures; $/bbl)	45.0	45.0	45.0	48.8	42.2	45.0
2. US economy						
US real GDP (chained [2009]; y/y %)	2.2	1.9	2.3	2.4	1.8	2.3
US Consumer Price Index (y/y %)	0.4	1.5	2.1	0.1	1.2	2.1
3. Japanese economy						
Nominal public fixed investment (y/y %)	-2.2	0.5	-5.4	-1.6	-1.4	-2.6
Exchange rate (Y/$)	120.1	109.0	109.0	121.0	110.6	109.0
(Y/€)	132.5	124.5	125.0	133.7	125.2	125.0

Source: Compiled by DIR.
Notes: Due to rounding, differences do not necessarily conform to calculations based on figures shown.
* Excl. agriculture, forestry, and fisheries.

1. Japan's Main Economic Scenario

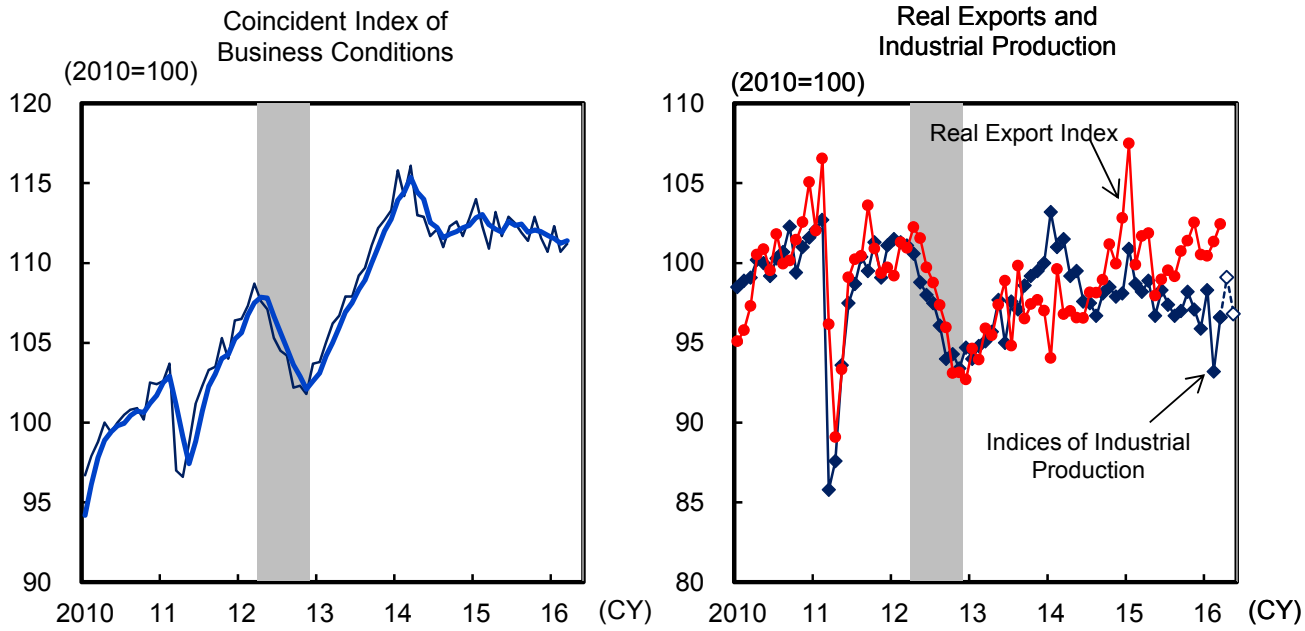
1.1 Downside Risk Continues for the Global Economy

Japan's economy has still been unable to pull out of the lull in which it has remained in recent months. Chart 1 illustrates trends in Japan's composite index (a coincident indicator), real exports, and industrial production. As for the composite index, though it has not completely deteriorated, it has continued weak performance since the middle of 2015. Meanwhile, industrial production continues to fluctuate, suffering a steep decline after a major automobile manufacturer temporarily shut down factory operation in February of 2016. However, if we remove special factors such as this one from the equation, industrial production has been marking time. The one bright spot is that real exports have been edging toward a comeback.

Our outlook for the future of Japan's economy is that it will continue its current lull for a while longer, and then recover gradually due to the following domestic factors: (1) growth in real wages, (2) low price of crude oil and improvement in terms of trade, and (3) the supplementary budget. However, caution is needed regarding downside risk in the global economy, especially that of China, as well as the effects of the Kumamoto earthquake. There are both positive and negative factors, but once through the ups and downs, we expect Japan's economy to gradually recover.

In this chapter we discuss three positive factors supporting the domestic economy based on an overview of global economic conditions which affect Japan's economy.

Coincident Indicator, Real Exports, and Industrial Production **Chart 1**



Source: Cabinet Office, Bank of Japan, Ministry of Economy, Trade and Industry; compiled by DIR.
Note: Shaded areas represent periods of recession. The thick line which represents the composite index is the 3-month moving average.
The most recent two months of industrial production is from METI's production forecast survey.

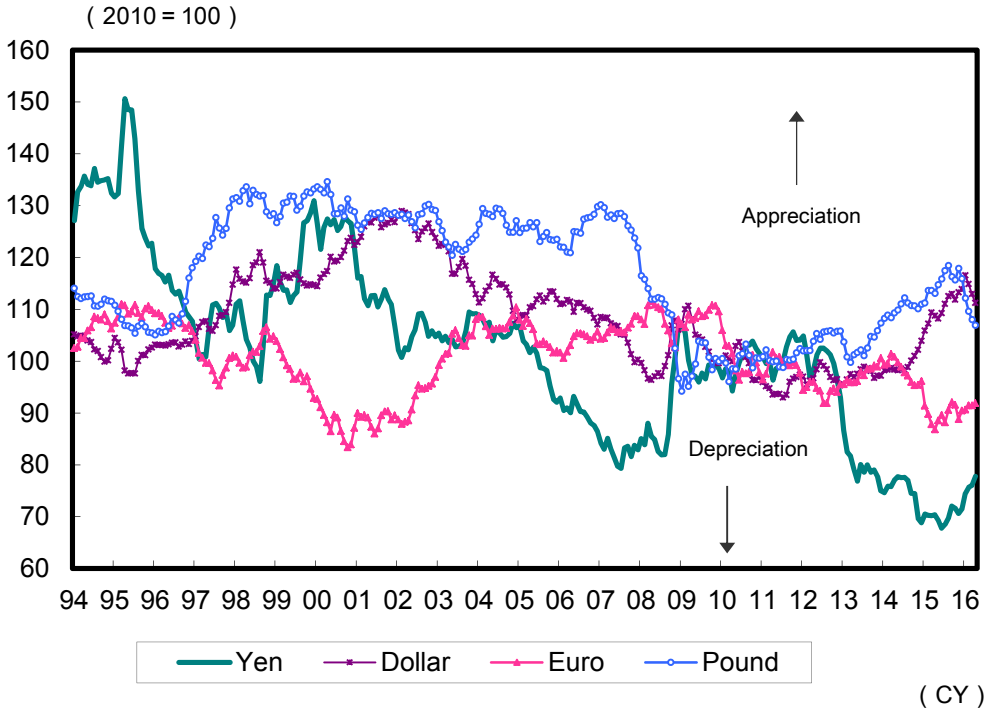
Weak dollar to provide underlying support for world economy

One of the major changes in the global economic environment which can be pointed out as affecting Japan's economy is the shift from a strong dollar to a weak dollar as a result of the predicted slowdown in the pace of the Fed's raising the interest rate. Taking a look at trends in the real effective exchange rate, we see that toward the end of 2015 the dollar appreciated in the face of the Fed's exit strategy (Chart 2). But once into 2016 the Fed began to pull back on the pace of its interest rate hikes

due to turmoil in the global financial markets and fears that the world economy was facing a slowdown. This shift caused the real effective dollar rate to decline.

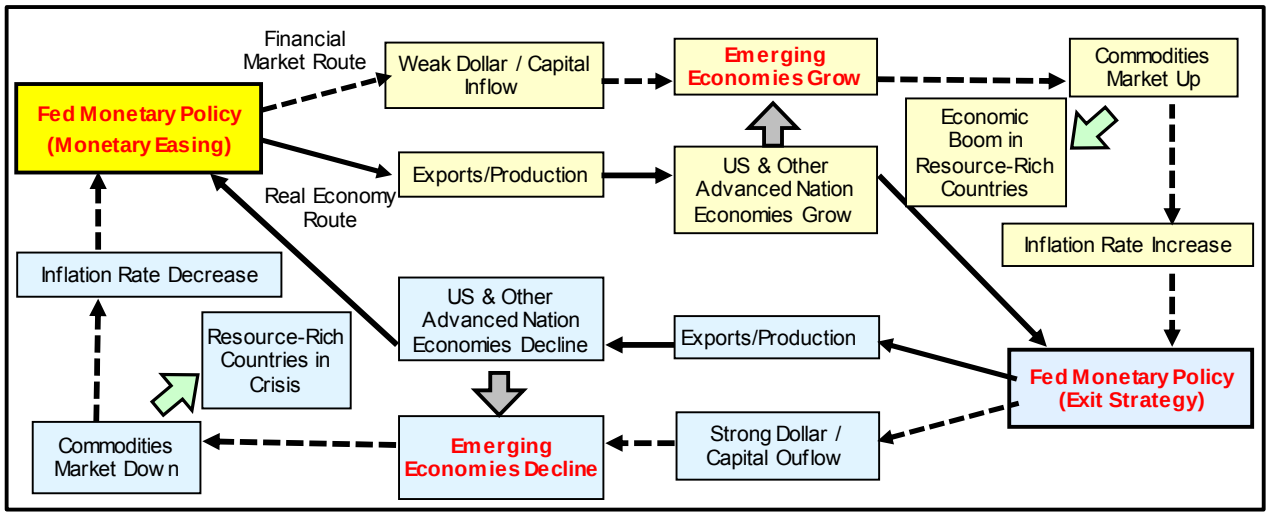
Chart 3 illustrates the worldwide economic cycle with a special focus on Fed decisions regarding interest rates. Based on this cycle, the progressive depreciation of the dollar is actually expected to provide underlying support for the world economy through recovery of the economies of emerging nations. Since the dollar began to decline, stock prices in emerging nations have surged, and hopes have grown stronger that those economies will soon head toward a comeback.

Real Effective Exchange Rates (Broad, Monthly) **Chart 2**



Source: BIS; compiled by DIR.

Worldwide Economic Cycle Focusing on Fed Monetary Policy **Chart 3**



Source: Compiled by DIR.

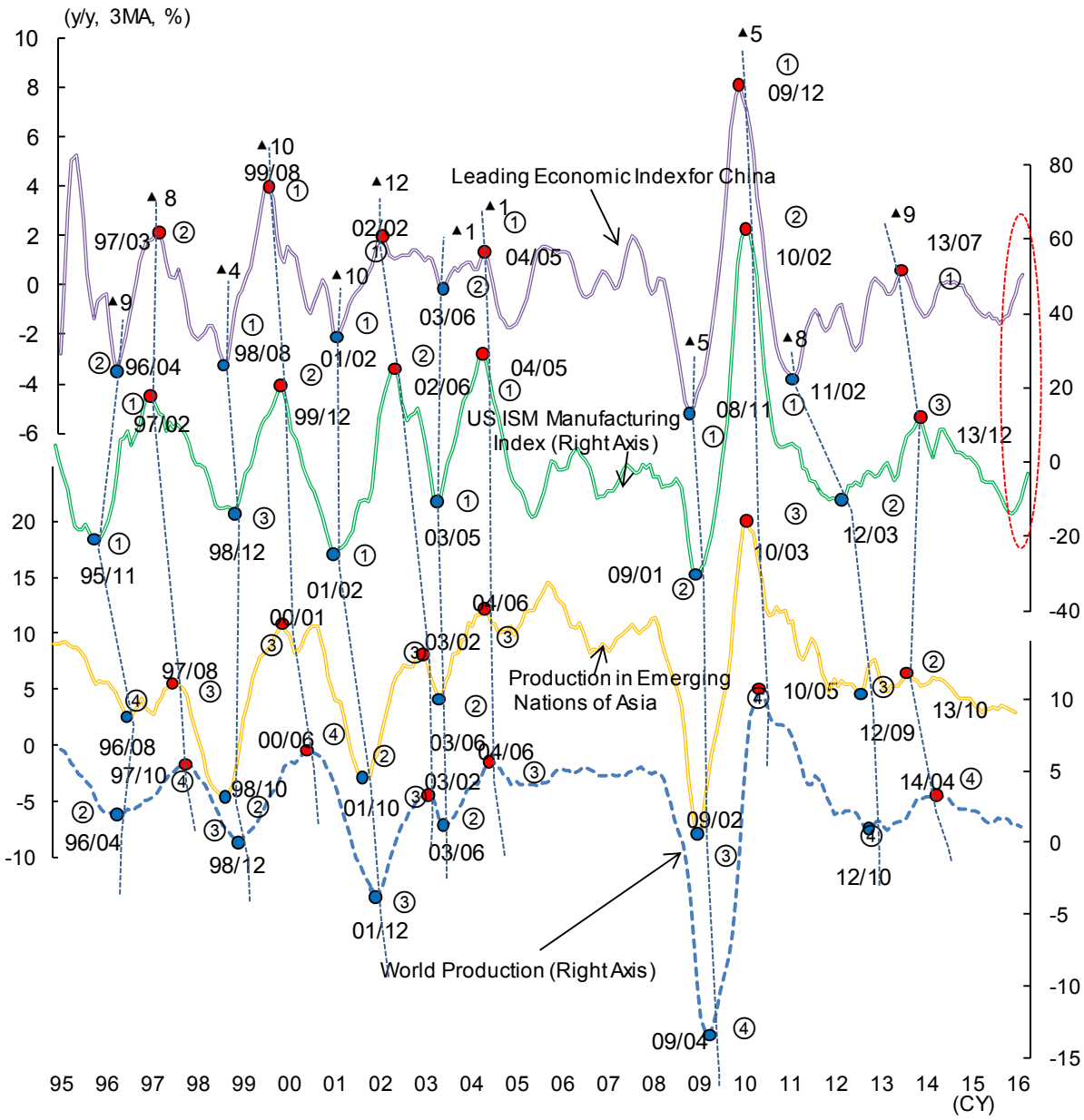
Leading indicators of worldwide production improving

In considering the future of the world economy, we compared and assessed a wide variety of leading indicators and financial data associated with worldwide production. Here we focus in particular on two

of these – China's leading economic index and the US ISM manufacturing index. Chart 4 shows the business cycle based on worldwide production and the various leading indicators. Stages in the cycle are numbered (1)-(4) starting with the earliest stage. Looking at the chart we can observe that China's leading economic index and the US ISM manufacturing index can act as leading indicators for worldwide production. The number of months by which China's leading economic index preceded worldwide production are marked in the chart with a bold triangle next to the number (example: ▲9).

Recently, improvements have been seen in the two leading indicators for worldwide production. From the viewpoint of the business cycle we can then say that the possibility has arisen that worldwide production may be headed toward gradual improvement in the future.

Leading Indicators of World Production: China's Leading Economic Index & US ISM Mfg Index Chart 4



Source: Haver Analytics; compiled by DIR.

1.2 Three Factors Supporting the Domestic Economy

Positive Factor (1): Real wages are on the increase, providing underlying support for personal consumption

In this chapter we discuss three factors which should bring underlying support to the domestic economy in the future. First, real wages are now in a growth trend, and are expected to provide underlying support for the Japanese economy in the form of encouraging the revitalization of personal consumption.

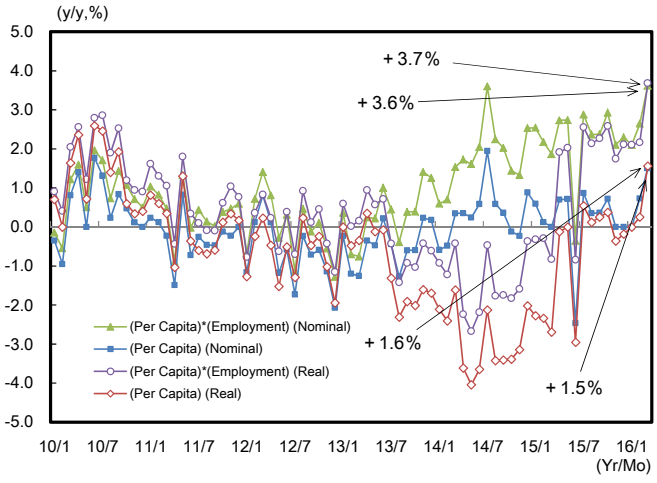
Chart 5 indicates that real per capita wages have recently exceeded levels of the same period of the previous year with regularity, and that the trend is becoming well-established. Wages continued to suffer major declines during FY2014 due to the increase in consumption tax, but once the effect of tax hikes pushing up prices fell away and the price of crude oil collapsed, prices began to fall. This also had the effect of pushing up real wages. Along with the positive factor of prices, supply and demand for labor is tight and the salary scale of workers has increased, working toward pushing nominal wages upwards. The positive income environment continues.

Looking at macro wages (per capita wages x employment), year-to-year growth of +3% or more is continuing and appears to have become well-established. Employment also continues to grow, creating a situation in which upward pressure continues on macro wages.

Moreover, the absolute level of macro wages has also been in a growth trend since the second half of 2015. Its current level exceeds that seen in December 2012 at the time the Abe cabinet was formed (Chart 6).

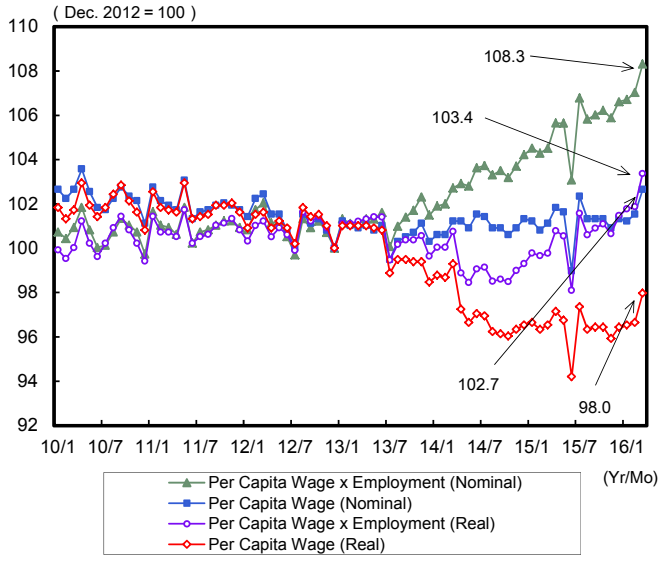
As for the future outlook for employment and the income environment, corporations continue to show brisk demand for labor; hence it is highly possible that employment will continue the current growth pattern. In addition, upward pressure on wages is also expected to continue due mainly to the fact that supply and demand for labor is tight. Moreover, prices are expected to be pushed downwards further due to the price of crude oil dropping further to a new low and a progressively stronger yen. As a result, real wages are expected to experience more upward pressure. This improvement in the income environment in macro terms is expected to give a certain degree of underlying support to personal consumption.

Per capita wages and Macro Wages (y/y) **Chart 5**



Source: Ministry of Health, Labour and Welfare; compiled by DIR.

Per capita wages and Macro Wages (Level) **Chart 6**



Source: Ministry of Health, Labour and Welfare; compiled by DIR.

Positive Factor (2): Low price of crude oil has pushed up Japan's real GDP in FY2016 by +0.85%.

The low price of crude oil is expected to have additional positive effects on the real economy. Chart 7 shows a calculation of the effects of the low price of crude oil on Japan's economy using the DIR macroeconomic model. Results of this simulation suggest that the collapse of the price of crude oil and subsequent decline from its former level of $105/bbl as of June 2014 pushed up Japan's real GDP between fiscal years 2015 and 2017, with an increase of +0.69% in FY2015, +0.85% in FY2016, and an expected +0.90% in FY2017. The effect on the real GDP growth rate was +0.49%pt in FY2015, +0.16%pt in FY2016, and an expected +0.05%pt in FY2017.

Looking at performance by demand component, personal consumption should improve due to the increase in wages, while an increase in housing investment is also seen. In addition, corporate earnings are increasing and this will likely become a factor in pushing up capex spending. The increase in corporate earnings should also lead to an improvement in wages, which will also help households, ultimately contributing to an increase in household demand. At the same time, the collapse in the price of crude oil is also expected to be a factor in pushing down prices, increasing real interest rates, and holding down housing investment and capex. However, these negative effects are expected to be less influential than the increase in income and its related positive effects.

As for prices, the collapse in import prices will bring downward pressure on the CGPI and CPI figures, with the domestic demand deflator experiencing a major decline. A major decline in the import deflator, an item not included in GDP figures, will lead to an increase in the GDP deflator. As a result, nominal GDP is expected to get even more upward pressure than real GDP.

As is made obvious by the above, the low price of crude oil is highly beneficial to Japan's economy.

Effects of the Collapse in the Price of Crude Oil on Japan's Economy **Chart 7**

		Real GDP %	Personal Consumption %	Housing Investment %	Capital Expenditure %	Exports %	Imports %	Nominal GDP %	GDP Deflator %	GDP Growth Rate %
Difference from $105 Scenario	FY2015	0.69	1.11	2.64	2.88	0.47	3.51	3.16	2.45	0.49
	FY2016	0.85	1.28	2.98	4.04	0.66	4.43	4.23	3.35	0.16
	FY2017	0.90	1.32	3.35	4.66	0.73	4.78	4.77	3.84	0.05
Difference from $70 Scenario	FY2015	0.34	0.59	1.32	1.15	0.24	1.72	1.22	0.88	0.27
	FY2016	0.51	0.84	1.72	2.07	0.42	2.66	2.09	1.57	0.18
	FY2017	0.56	0.88	1.96	2.57	0.49	2.97	2.50	1.93	0.05

		Current Account Balance / Nominal GDP %pt	Import Price %	Export Price %	CGPI %	Core CPI %	Industrial Production %	Tertiary Industry Activity Index %	All Industry Activity Index %
Difference from $105 Scenario	FY2015	2.87	-19.21	-2.27	-3.18	-1.30	1.37	0.71	0.79
	FY2016	3.90	-24.17	-3.11	-4.39	-1.65	1.75	0.93	1.01
	FY2017	4.38	-25.81	-3.45	-4.95	-1.70	1.91	1.04	1.13
Difference from $70 Scenario	FY2015	1.13	-9.07	-1.14	-1.57	-0.72	0.65	0.32	0.37
	FY2016	1.97	-14.55	-1.99	-2.76	-1.11	1.02	0.52	0.58
	FY2017	2.35	-16.41	-2.34	-3.29	-1.20	1.15	0.61	0.67

Source: Compiled by DIR.
Notes: 1) Simulation using the DIR short-term macro model. Values shown in the chart represent the rate of deviation from the standard solution.
2) In the WTI = $105 scenario, the assumption is that after the most recent peak for WTI in June 2014, the price remains flat at $105/bbl. In the WTI = $70 scenario, the assumption is that after the FY2015 Jan-Mar period, the price remains flat at $70/bbl.

Improvement in terms of trade provides underlying support for real employee compensation

The low price of crude oil also brings an improvement in terms of trade, which in turn contributes to the increase in real compensation per employee. In order to confirm this claim we examine real compensation per employee by performing a factor analysis on the following three items: (1) labor's relative share (= employee compensation ÷ nominal GDP), (2) labor productivity (= real GDP ÷ employment), and (3) terms of trade (= GDP deflator ÷ private consumption deflator) (Chart 8). According to this analysis, growth in labor's relative share, which is the worker's share of added value

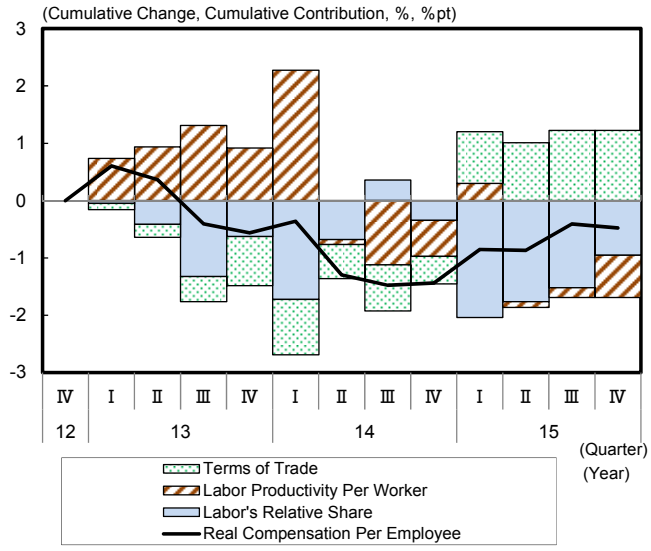
produced by the country, improvement in labor productivity, which is added value produced by the individual worker, and improvement in terms of trade, which means inflow of earnings from overseas, contributes positively to real compensation per employee.

When we look at the cumulative change which has occurred since the Oct-Dec 2012 period when the Abe cabinet was formed, we see that on the whole, the factor of labor's relative share has been in the negative range. Hence, in order to stimulate growth in real compensation per employee, it is necessary for Abenomics to move on to the next stage in which some attention is paid to redistribution of income. On the other hand, the terms of trade factor, which was making a negative contribution until the end of 2014, has been making a positive contribution since early in 2015, and now provides underlying support for real compensation per employee.

In order to confirm the above, we performed a factor analysis on terms of trade, breaking this factor down based on the deflators for each demand component of GDP. According to this analysis we can see that the main reason terms of trade began making a positive contribution in 2015 was that the import deflator's contribution to GDP was less negative (Chart 9). In other words, the collapse in the price of crude oil and other energy resources since the summer of 2014 caused the import deflator to decline (this has a positive effect on terms of trade), thereby contributing to upward pressure on real compensation per employee.

Factor Analysis of Real Compensation Per Employee

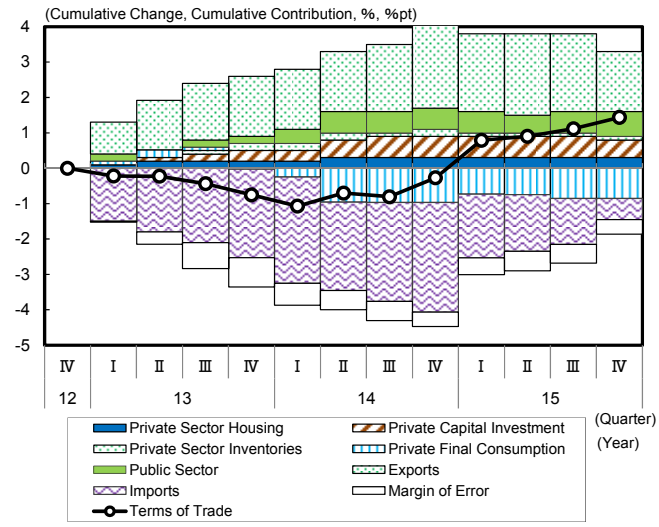
Chart 8



Source: Cabinet Office, Ministry of Internal Affairs and Communications; compiled by DIR.
Note: Real compensation per employee = employee compensation / nominal GDP (labor's relative share) x real GDP / employment (labor productivity per worker) x GDP deflator / private final consumption expenditure deflator (terms of trade).

Factor Analysis of Terms of Trade

Chart 9



Source: Cabinet Office; compiled by DIR.
Notes: 1) Terms of trade = GDP deflator / private final consumption expenditure deflator
2) Factor analysis performed by breaking factor down into the deflators for each demand component of GDP.

Positive Factor (3): The government's FY2015 supplementary budget will increase GDP by +0.28%

Implementing a supplementary budget is expected to provide underlying support for Japan's economy in FY2016. We estimate that the supplementary budget will increase real GDP in FY2016 by +0.28%.

The FY2015 supplementary budget was devoted mostly to projects related to the Abe administration's new social policy "Promoting Dynamic Engagement of All Citizens." Payment of benefits to the elderly appears to have attracted the most attention in the mass media, and has been criticized as being merely an attempt to buy votes. But more realistically speaking, its major role has actually been to

provide support for consumption expenditures on the part of the elderly whose financial positions became more tenuous after the increase in consumption tax. The effect of holding down pension payments has led to a notably worsening income environment for the elderly in comparison to worker households after the increase in the consumption tax. This development also led to a deterioration of consumer confidence amongst the elderly. This situation continues today, with weak consumption amongst elderly households contributing to the sluggishness of personal consumption overall. It seems that taking a practical approach to supporting personal consumption by paying benefits to the elderly in order to prevent the bottom from falling out of the economy is at least to a certain extent acceptable.

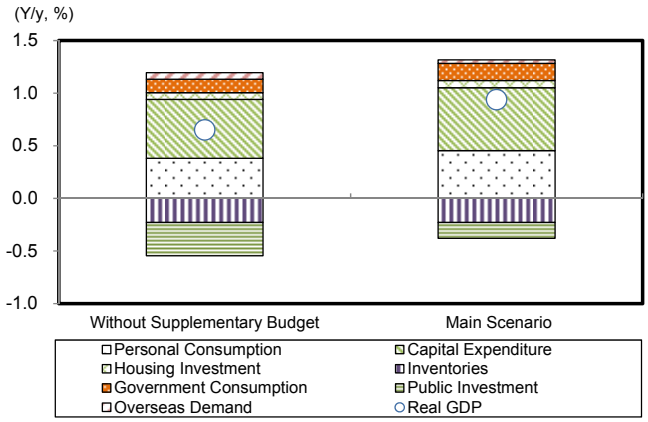
The supplementary budget will place more focus on public investment going to projects related to disaster recovery and restoration. It is hoped that this will contribute to preventing an economic downturn. Not only will public investment carry its usual role as an important demand component contributing to raising the GDP, but is expected to have a ripple effect which can encourage wage hikes and an increase in employment centering on the construction industry. Increasing public investment was actually the original second arrow of Abenomics though it has only now become more prominent. A rapidly tightening supply and demand situation for labor has been observed in the construction industry as well as developments leading to growth in wages. It is thought that the supplementary budget will provide further support for these developments.

Having implemented the supplementary budget expeditiously and in a sound manner may very well have quickened the pace of progress on projects, focusing especially on public works projects with an immediate effect, more than had originally been thought. Public investment became an unexpected plus for growth on the Jan-Mar 2016 1st Preliminary GDP report. Recently amount of contracts and orders received, leading indicators of public investment, have been moving toward a comeback, which gives the impression that the budget has been front-loaded. As a result, public investment is expected to continue moving toward a comeback beyond the Apr-Jun period. In addition, the acceptance of applications for benefits to the elderly began in April, and this is expected to have the effect of increasing consumption.

Economic Benefits of the FY2015 Supplementary Budget **Chart 10**

	Govt. Expendi-ture	Effect on GDP (%)
1 Urgent Policies for Implementation of *Dynamic Engagement of All Citizens*	1.2 Tril Yen	0.10
(1) Urgent policies associated with Target birthrate of 1.8 and Zero Attrition Rate in Nursing Care (2) Boosting Consumption and social security that supports peace of mind to ensure that the fruits of Abenomics are shared equally amongst all citizens. (3) Promoting investment and a revolution in productivity (4) Full-scale development of regional revitalization		
2 Measures toward broad outline of T P P related policies	0.3 Tril Yen	0.03
(1) Converting to more aggressive agriculture, forestry, and fisheries (strengthening policy) (2) Promoting ways of putting T P P to work, realizing a strong economy through T P P		
3 Disaster recovery and restoration projects	0.5 Tril Yen	0.08
◆ Disaster recovery ◆ Restoration projects		
4 Speeding up restoration	0.8 Tril Yen	0.00
5 Other urgent issues	0.3 Tril Yen	0.05
(1) Ensuring the safety and security of people's lives (2) Support for small business and agriculture, forestry, and fisheries		
6 Others	0.4 Tril Yen	0.02
	3.5 Tril Yen	0.28

Source: Ministry of Finance; compiled by DIR.



Source: Cabinet Office; compiled by DIR.
Note: Real GDP figures are for FY2016.

1.3 Issues Regarding Future of Capex and Earnings Structure

Chances are good for increase in capex focusing on replacement and renovation investment

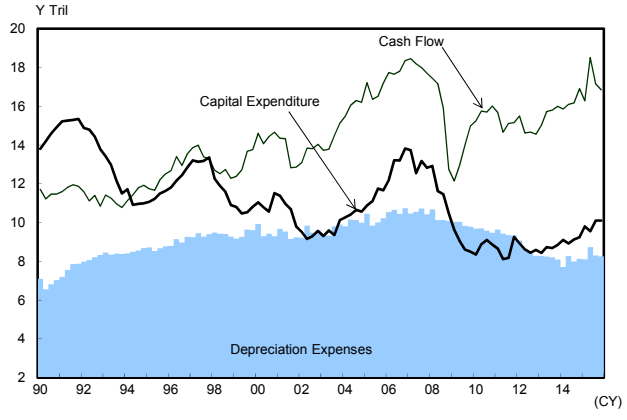
As for the future of capex, we expect movement toward a gradual comeback, with underlying support from replacement and renovation investment backed by a high level of corporate earnings. In addition, restoration and reconstruction of production facilities lost or damaged in the recent Kumamoto earthquake may also contribute to growth in capital expenditure.

First we look at Chart 11, which indicates trends in capital expenditure according to corporate statistics, cash flow, and depreciation expenses. Capital expenditure suffered a steep decline falling below depreciation expenses due to the rapid economic downturn which occurred after the global financial crisis of 2008, but has been in a moderate growth trend since the middle of 2012. Behind this development is the improvement in corporate earnings which has brought growth in cash flow, creating an environment which makes it easier for corporations to carry out capital investment. Corporate earnings are expected to maintain a steady undertone, especially in the non-manufacturing industries, and this is a factor which will provide underlying support for capex.

Next we consider corporate investment motive based on a survey carried out by the Development Bank of Japan (Chart 12). This chart indicates that maintenance and repair made an especially large contribution to investment motive in FY2015. This is interpreted as being due to the utilization of abundant cash flow backed by the high level of corporate earnings. During the economic downturn which occurred after the global financial crisis of 2008, corporations drastically cut back on capital investment. Hence another factor contributing to replacement and renovation investment was the progression of aging and obsolescence of production facilities.

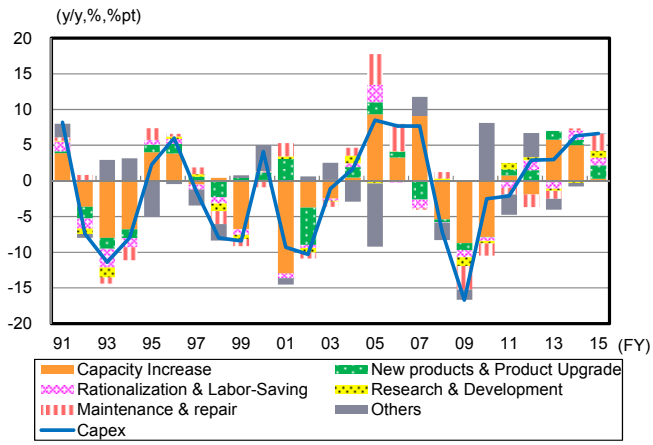
Finally, investment in labor saving and energy saving due to the manpower shortage, as well as rationalization and upgrading are also expected. Chart 12 indicates that investment in new products and upgrades, as well as rationalization and energy saving made positive contributions in FY2015. Corporations appear to be taking a positive view in the mid to long-term, and are seriously considering capital investment.

Capital Expenditure and Cash Flow **Chart 11**



Source: Ministry of Finance; compiled by DIR.
Notes: 1) Seasonally adjusted figures for Depreciation Expenses calculated by DIR.
2) Cash Flow = Recurring Profits / 2 +Depreciation Expenses.

Factor Analysis of Capital Expenditure Based on Investment Motive **Chart 12**



Source: Development Bank of Japan; compiled by DIR.

Growth in sales volume holds key to full-scale capital investment

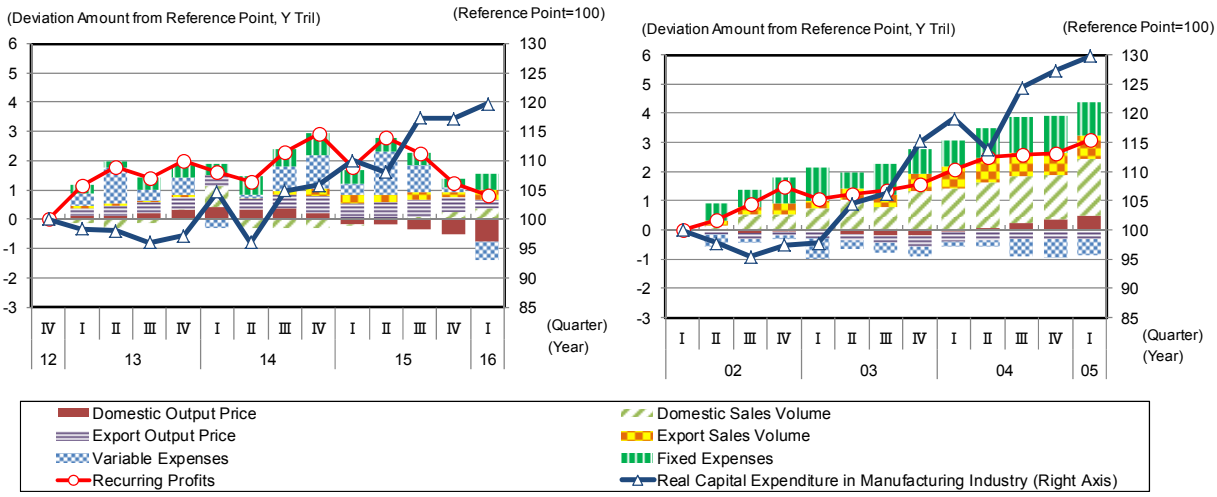
On the other hand, one problem which is often pointed out regarding recent trends in capex is that considering how favorable corporate earnings are, capital spending does not seem to grow as much as one would expect. In this section we examine the factors involved in the sluggish pace of growth in capital investment through an analysis of the relationship of corporate earnings structure to capex.

Chart 13 is a breakdown of corporate earnings by output price, sales volume and other factors. During the profit growth phase after the Oct-Dec period of 2012, variable expenses and export output prices stand out as factors contributing greatly to growth in comparison to the profit growth phase in the Jan-Mar period of 2002. In contrast, the influence of export sales volume was extremely limited.

Looking at the correlation between corporate earnings components and capital investment, we see that correlation is strongest with domestic sales volume and export sales volume (Chart14). On the other hand, the correlation between variable expenses and export output price is not very strong. In other words, earnings growth attributed to volume has a greater effect on growth in capital spending than do other factors. Earnings growth attributed to price is more difficult to associate with growth in capital spending.

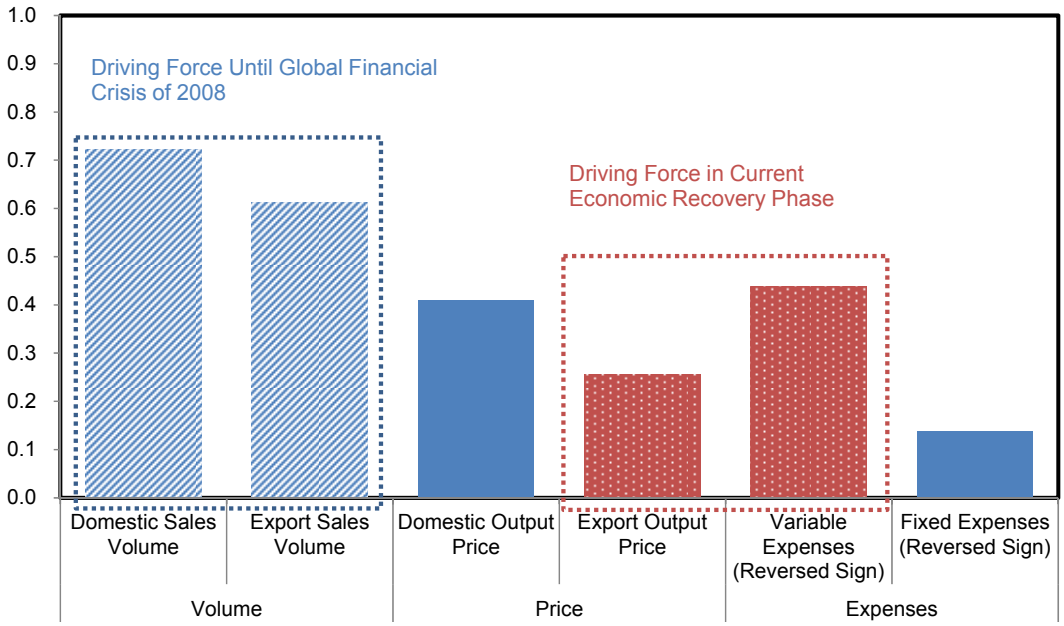
Based on these relationships we can conclude that growth in domestic sales volume and export sales volume is key to capital investment's becoming full-scale.

Factor Analysis of Corporate Earnings **Chart 13**



Source: Ministry of Finance, Bank of Japan; compiled by DIR.

Correlation Coefficient of Capital Investment and Corporate Earnings Components **Chart 14**



Source: Cabinet Office, Ministry of Finance, Ministry of Economy, Trade and Industry; compiled by DIR.
Note: Coefficient with the greatest absolute value out of 4-quarter time-difference correlation is displayed.

1.4 Kumamoto Earthquake: Restoration and Reconstruction

The greatest challenge is efforts toward restoration and reconstruction

In considering the future of the Japanese economy, we must keep in mind the possible fluctuations in which could occur due to the effects of the recent earthquake in Kumamoto. The first priority is of course efforts towards restoration and reconstruction, including providing full support to victims of the disaster so that their lives can return to normal as soon as possible. The supplementary budget for FY2016 was formulated on May 17 with an aggregate amount of 778 billion yen. It is now of the utmost importance to formulate a plan for restoration and reconstruction, and to make sure progress on its implementation. Meanwhile, the process of reconstruction must take into consideration the necessity of not only replacing damaged or destroyed structures, but to build a stronger and safer city for the future, which can better withstand a natural disaster.

The amount of damage in the Kumamoto Earthquake may not be nearly as much as in past natural disasters such as that experienced in the Pacific coast of Tohoku Earthquake, which was in effect a complex disaster involving not only an earthquake, but tsunami and nuclear accident as well (Chart 15). On the other hand, unlike other disasters in recent times, aftershocks continued to hit Kumamoto and Oita Prefectures for quite some time after the initial shock, causing major problems. This additional damage due to aftershocks could cause problems for restoration and reconstruction activities.

Taking a look at the industrial structure of Kumamoto and Oita Prefectures, we see that agriculture, forestry and fisheries, as well as mining, account for an especially large share of the national total for these markets (Charts 16 & 17). The recovery of these industries from losses suffered in the earthquake must be carried out as quickly as possible along with the recovery of social infrastructure. Meanwhile, the manufacturing industry suffered damages as well. Supply lines in the automobile manufacturing industry were cut, bringing major downward pressure on production activities throughout the country. Recovery has been taking place gradually since the beginning of May, and excessive worry is not thought to be necessary here.

Scale of Past Natural Disasters — Chart 15

		Amount of Damages	As a Portion of GDP	2005 Equivalent
Great Kanto Earthquake	1923	5.6 Bil Yen	37.50%	-
Ise Bay Typhoon	1959	303.5 Bil Yen	2.30%	991.6 Bil Yen
Niigata Earthquake	1964	267.4 Bil Yen	0.90%	699 Bil Yen
Southern Hyogo Prefecture Earthquake	1995	9 Tril 926.8 Bil Yen	1.98%	8 Til 485.5 Bil Yen
The Pacific coast of Tohoku Earthquake	2011	16 Tril 915.8 Bil Yen	3.59%	17 Tril 245.3 Bil Yen

Source: Compiled by DIR.
Note: The amount of damages in Southern Hyogo Prefecture Earthquake was estimated by Hayashi et al, while others are by DIR.

Industrial Structure of Kumamoto Prefecture — Chart 16

	Amount (Bil Yen)	Component Ratio (%)	Share of Nationwide Total (%)
Industrial Production Value	4,743	100.0	1.1
Agriculture, Forestry & Fishing	188	4.0	3.5
Mining	4	0.1	1.0
Manufacturing	980	20.7	1.1
Transport Equip Related	501	10.6	1.4
Construction	297	6.3	1.2
Electricity, Gas & Water	72	1.5	0.7
Wholesaling & Retailing	623	13.1	0.9
Finance & Insurance	190	4.0	0.8
Real Estate	758	16.0	1.1
Tranportation & Telecommunications	432	9.1	0.9
Services	1,199	25.3	1.2

Source: Cabinet Office; compiled by DIR.
Note: Transport related industries include general machinery, electrical machinery, transport related machinery, and precision equipment.

Industrial Structure of Kumamoto and Oita Prefectures — Chart 17

	Amount (Bil Yen)	Component Ratio (%)	Share of Nationwide Total (%)
Industrial Production Value	8,320	100.0	1.9
Agriculture, Forestry & Fishing	280	3.4	5.2
Mining	16	0.2	3.8
Manufacturing	1,949	23.4	2.1
Transport Equip Related	911	10.9	2.5
Construction	533	6.4	2.1
Electricity, Gas & Water	206	2.5	2.0
Wholesaling & Retailing	1,025	12.3	1.5
Finance & Insurance	328	3.9	1.4
Real Estate	1,250	15.0	1.8
Tranportation & Telecommunications	742	8.9	1.5
Services	1,991	23.9	2.0

Source: Cabinet Office; compiled by DIR.
Note: Transport related industries include general machinery, electrical machinery, transport related machinery, and precision equipment.

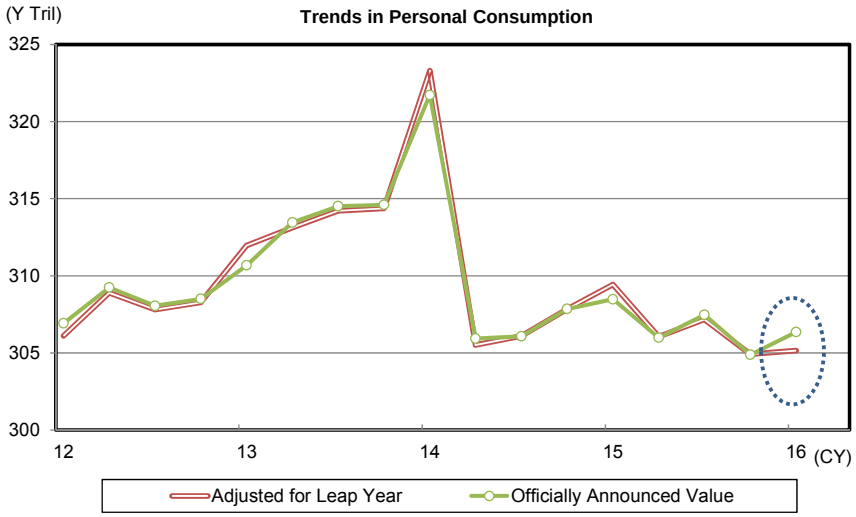
2. Challenges in Jumpstarting Stagnant Personal Consumption

2.1 Leap Year Factor Pads Personal Consumption

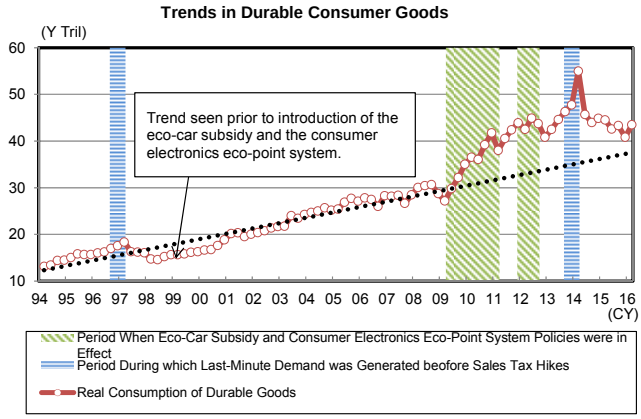
It would not be an exaggeration to claim that the most important challenge currently facing Japan's economy is to get personal consumption back on the road to recovery from its recently stagnant condition. Personal consumption on a GDP basis during the Jan-Mar period of 2016 increased in q/q terms for the first time in two quarters. However, the leap year effect had major influence on these results. When personal consumption is recalculated subtracting the extra days gained from the leap year, we see that it has continued to crawl along the bottom since the consumption tax hike of 2014 (Chart 18). It is our opinion that behind sluggish personal consumption lies two factors – that of increased adjustment in durable consumer goods due to various economic policies in the past, and the downtrend in non-essential services due to a decline in income confidence. (See Japan's Economic Outlook No. 188 , April 1, 2016, by Mitsumaru Kumagai.)

On the other hand, when we look at personal consumption from a viewpoint other than categories such as goods and services, we find that there are other implications. In this chapter we examine personal consumption by age group and income level, and survey trends in personal consumption since the advent of Abenomics. In this way we hope to suggest prescriptions for reviving personal consumption.

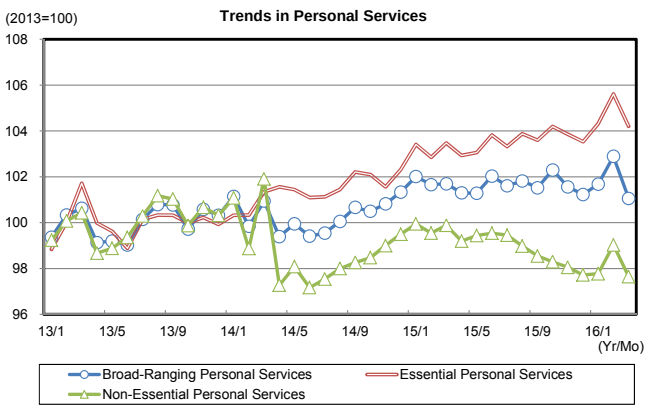
Overview of Trends in Consumption **Chart 18**



Source: Cabinet Office; compiled by DIR.



Source: Cabinet Office; compiled by DIR.



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

2.2 Trends in Consumption by Age Group and Income Level

Young adults and low-income bracket reap few benefits from Abenomics

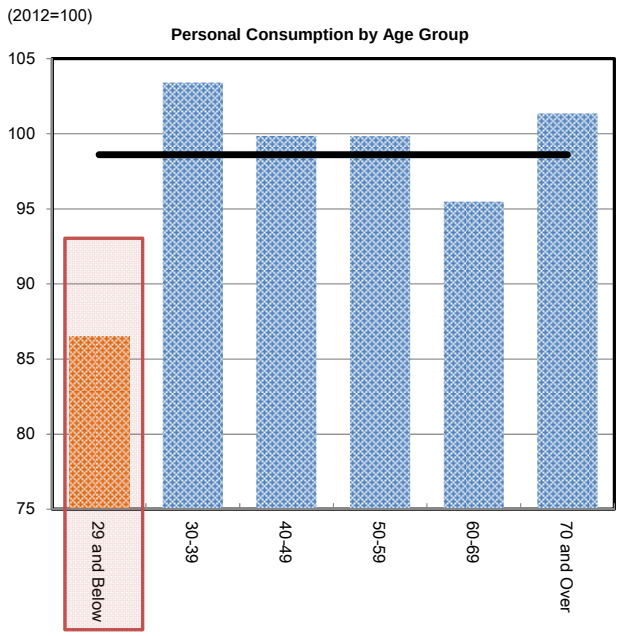
The initial effect of economic recovery through Abenomics was the increase in personal consumption as a result of the asset effect. However, the benefits from this improvement were not felt equally amongst the entire populace.

Chart 19 shows the difference between consumption expenditure in 2012 before the stock price highs due to Abenomics appeared, and recent consumption expenditure by age group and income level. The chart on the left is a comparison with other age groups. Especially notable is the decline in consumption expenditure amongst households in the 29-years-old-and-below bracket.

When the same analysis is performed on income brackets, we see that consumer expenditure amongst households in the first quantile is sluggish. The general understanding is that the higher the income the more financial assets held, hence there will be more cases in which a higher income household will have been able to reap the benefits of the asset effect. Since the year 2012, the higher the income bracket the more consumer expenditure has tended to expand. Meanwhile, looking at consumer confidence around the time of the last consumption tax hike by income level, we see that the higher income bracket maintained a steady undertone in consumer confidence, while consumer confidence in the low income bracket began to worsen before the consumption tax hike and continued at a low ebb for some time after the tax increase. This difference in consumer confidence suggests that consumers in the low income bracket may have experienced an increasing sense of resistance to the tax increase.

According to this analysis personal consumption was revitalized during the initial period of Abenomics due to the asset effect as seen from an overall macro-economic viewpoint. However young adults and persons in the low income bracket did not reap many benefits. It therefore follows that the key to getting personal consumption back on the road to recovery is for the government to give more attention to the young adult and lower income brackets, including the forming of an income support policy.

Personal Consumption by Age Group and Income Bracket (2016 Jan-Mar Period) **Chart 19**



Source: Ministry of Internal Affairs and Communications; compiled by DIR.
Note: Seasonal Adjustment by DIR. Thick bold line indicates average of all households.

Source: Ministry of Internal Affairs and Communications; compiled by DIR.
Note: Seasonal Adjustment by DIR. Thick bold line indicates average of all households.

2.3 Economic Effect of Income Support Policy for Young Adults and Low-Income Bracket Would be Large

Effectiveness of income support policy for young adults and low-income bracket backed up by quantitative data

Next we examine the question of whether or not an income support policy directed towards young adults and the lower income bracket can be rationalized not only from the viewpoint of providing aid for the socially disadvantaged, but from that of producing a positive economic effect. In this section we estimate consumption functions for age groups and income brackets and evaluate the characteristics of consumer behavior for each category.

The top portion of Chart 20 shows the estimation results of consumer expenditure for each age group. Here we see that the disposable income parameters for households in the 29 and under and 30-39 age groups are remarkably high. What this tells us is that an income support policy directed toward these two age groups in particular would have a much greater effect on increasing consumption expenditure through an increase in disposable income than would one directed toward other age groups. However, excessive dependence on an income support policy is to be avoided. This is because when it comes to the factor of anxiety regarding the future, the age 29 and below category has parameters well into the negative numbers. It will be several decades before this age group needs to make use of social security benefits such as pensions. There is a strong tendency in this age group to respond to anxiety regarding the future by holding down its consumption behaviors (or in other words increasing savings). Hence, though a short-term income support policy directed toward young adults may be valid, it would be necessary to design a clear-cut policy with a time limit in order to avoid this group's tendency to hold down consumption as a means of dealing with anxiety regarding the future.

Next we look at the bottom portion of Chart 20. Here we see that the low income bracket also has large parameters when it comes to disposable income, meaning that an income support policy for this group would be especially effective in revitalizing personal consumption. At the same time we see that the financial asset parameters of the high income group are also quite large. The high income group holds more financial assets such as stocks than any other group, indicating how large the asset effect has been. An income support policy directed toward the low income bracket could gain a positive reaction on the stock market causing stock prices to rise, thereby indirectly benefiting the high income bracket as well, due to the asset effect.

The above considerations suggest that an income support policy directed towards young adults and the lower income bracket, both groups which did not contribute much to the increase in personal consumption which occurred after the advent of Abenomics, would be economically effective, and that there is quantifiable data to support this hypothesis.

Consumption Function Estimation Results by Age Group and Income Bracket **Chart 20**

	Estimation of Consumption Functions by Age Group					
	Age 29 and Below	30-39	40-49	50-59	60-69	Age 70 and Over
Disposable Income	0.91***	0.97***	0.67***	0.79***	0.49***	0.46***
Financial Assets	0.08	-0.04	-0.05	0.16***	0.11	0.54***
Anxiety Regarding the Future	-0.32***	-0.11***	-0.15***	-0.06*	0.00	0.11
Trend Term	0.00	0.00**	0.00	0.00*	0.00***	0.00**

	Estimation of Consumption Functions by Income Bracket		
	Low Income	Middle Income	High Income
Disposable Income	0.85***	0.84***	0.75***
Financial Assets	0.15***	0.17***	0.26***
Anxiety Regarding the Future	-0.01	-0.02**	-0.07***

Source: Produced by DIR.
Notes: 1) The asterisks *, **, *** indicate that the coefficients are statistically different from zero at the 1%, 5%, and 10% levels.
2) The factor of anxiety regarding the future is Japan's outstanding obligations as a percentage of GDP.

2.4 Improvement in Employment & Income Environment for Young Adults through Labor Market Reform is Key

Labor market reform is essential in the mid to long-term

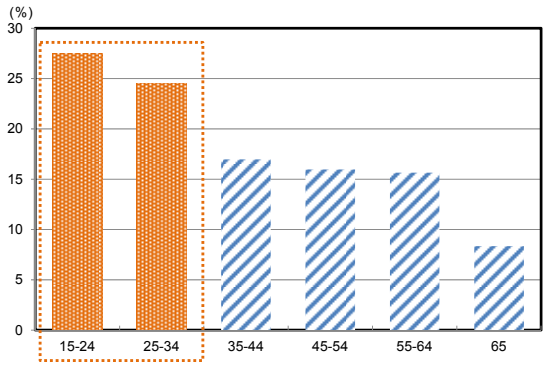
In order to encourage consumption expenditure amongst young adults in the mid to long-term, it is essential to bring about improvements in the employment and income environment. This is best done by implementing labor market reforms.

First of all it is important to decrease the number of instances where young adults find themselves in involuntary, irregular employment situations. Chart 21 shows overall irregular employees and the percentage of the total accounted for by people who are involuntarily in that type of employment. As becomes clear in looking at this chart, the ratio of young adults in involuntary irregular employment situations is extremely high – significantly more than any other age group. While irregular employment has the benefit of allowing one to work when it is personally convenient, it also has the disadvantage of being an insecure form of employment providing only a low wage. Behind this lies the fact that the introduction of the principle of equal pay for equal work in Japan has led to the polarization of the labor market into two extremes – regular employees with benefits and lifetime employment and irregular or non-regular employees who lack benefits and security, and who often work for much less. This system must be corrected. Improving the treatment of irregular employees is an urgent matter. Realizing reform and creating a situation where those now working as involuntary irregular employees can find a more satisfying work environment is expected to bring the additional benefits of removing worker anxiety regarding the future and an increase in wages and lifetime earnings. Ultimately it should also encourage the expansion of consumption expenditure.

Next is the need to resolve the problem of mismatch. This is important as a means of decreasing the unemployment rate amongst young adults. Chart 22 shows structural and frictional unemployment by age group. In comparison to other age groups, young adults aged 15-24 and 25-34 have a higher structural unemployment rate. Looking at past trends as well we see that since the mid-1990s there has been rapid growth in structural unemployment amongst young adults. This gives us the impression that employment mismatch amongst young adults has been increasing over the long-term. If the problem of employment mismatch can be resolved and the longstanding unemployment rate amongst young people reduced, this should lead to an increase in income and a decrease in the sense of anxiety regarding the future in that age group. This promises to lead to the revitalization of personal consumption in that age group as well.

Involuntary Irregular Employee Ratio (2015)

Chart 21

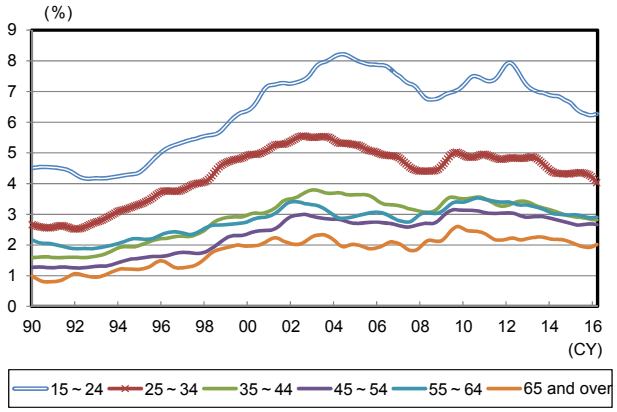


Source: Ministry of Internal Affairs and Communication; compiled by DIR.

Notes: 1) Number of irregular employees accounted for by individuals who became an irregular employee because there were no regular employee positions open.
2) Number of irregular employees in the 15-24 age group does not include individuals still going to school.

Structural and Frictional Unemployment Rates by Age Group

Chart 22



Source: Ministry of Internal Affairs and Communication, Ministry of Health, Labour and Welfare; compiled by DIR.

Note: Estimated values calculated by DIR.

3. What will happen if the Planned Consumption Tax Increase Is Further Delayed?

3.1 Effect on Economy of Delaying the Tax Hike

Delaying consumption tax hike could increase FY2017 real GDP by +0.7%pt

Although we have retained the assumption that the consumption tax will again be increased in April 2017 in our main economic scenario for Japan, the sluggish world economy and the recent earthquake in Kumamoto have given rise to the possibility that the planned consumption tax increase may be further delayed. Delaying the tax hike is proof that the Abe administration is giving attention to the short-term economy, and may therefore gain a positive reaction from the stock market. However, in the mid to long-term this means that the road to fiscal reform will be a steep one. The delay of the tax hike could even trigger an event which would be the biggest possible risk for Japan's economy – that of a major decline in the government bond market. In this chapter, we present a quantitative assessment of the short-term effects that postponing the increase in consumption tax would have on the real economy and the mid to long-term effects it may have on Japan's fiscal situation.

First, we estimate the effect of delaying the tax hike on the real economy in the short-term. Delaying the planned April 2017 increase in consumption tax would affect real GDP as follows: FY2016 -0.3%pt, FY2017 +0.7%pt.

Since delaying the tax hike would mean that the phenomenon of last minute demand would not occur, bringing some downward pressure on the FY2016 real GDP growth rate. However, the decline in real income which would occur if there was a tax hike in FY2017 would also be avoided. Therefore there is a very good possibility that personal consumption and housing investment will get a lift from the decision.

In addition, delaying the tax hike will have a major effect on the trend in inventory investment. Without the tax hike major fluctuations in demand will also be absent. This is the phenomenon of last minute demand (triggering a decrease in inventories) and then reactionary decline after the spike in demand (bringing an increase in inventories). Therefore inventory investment in FY2016 is likely to bring some upward pressure on real GDP. But then in FY2017 it is likely to bring downward pressure on real GDP.

Effect on Real Economy if April 2017 Consumption Tax Hike is Delayed **Chart 23**

	① Main Scenario		② Tax Hike Delayed		Difference (②-①)	
	FY2016 (Est)	FY2017 (Est)	FY2016 (Est)	FY2017 (Est)	FY2016 (Est)	FY2017 (Est)
Real GDP Growth Rate (2005 Chain Price)	0.8	-0.1	0.5	0.7	-0.3	0.7
Contribution of Domestic Demand	0.7	-0.6	0.3	0.5	-0.4	1.1
Contribution of Overseas Demand	0.2	0.5	0.2	0.2	0.1	-0.3
Private Consumption	0.6 (0.4)	-1.4 (-0.8)	0.0 (0.0)	0.4 (0.3)	-0.6 (-0.3)	1.9 (1.1)
Private Housing Investment	2.2 (0.1)	-4.8 (-0.1)	-0.2 (-0.0)	0.4 (0.0)	-2.4 (-0.1)	5.2 (0.1)
Private Capital Investment	1.4 (0.2)	0.4 (0.1)	0.3 (0.0)	1.1 (0.2)	-1.1 (-0.1)	0.7 (0.1)
Government Final Consumption Expenditure	1.5 (0.3)	1.5 (0.3)	1.5 (0.3)	1.5 (0.3)	0.0 (0.0)	0.0 (0.0)
Public Investment	0.3 (0.0)	-6.0 (-0.2)	0.3 (0.0)	-5.8 (-0.2)	0.0 (0.0)	0.2 (0.0)
Exports of Goods & Services	2.0 (0.4)	3.8 (0.7)	2.0 (0.4)	3.8 (0.7)	0.0 (0.0)	0.0 (0.0)
Imports of Goods & Services	1.3 (-0.2)	1.0 (-0.2)	0.7 (-0.1)	3.2 (-0.5)	-0.6 (0.1)	2.2 (-0.3)

Source: Produced by DIR.

Note: Figures in parenthesis indicate rate of contribution to GDP.

3.2 Effect of Delaying Tax Hike on Tax Revenue

Delaying consumption tax hike will bring a decrease in government tax revenue

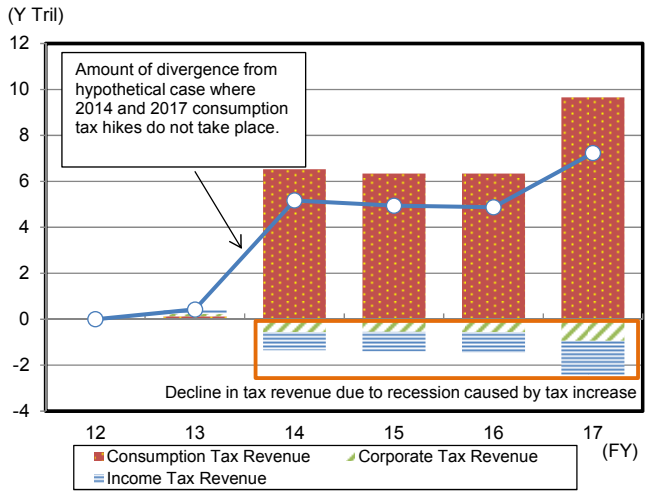
Next we examine the implications of results obtained from a simulation of the effect on tax revenue assuming that the consumption tax hike is delayed.

First we take a look at the effect which the April 2014 increase in consumption tax had on tax revenue (Chart 24, left side). According to our simulation, we estimate that on average, tax revenue was increased by around 5 tril yen. This estimate contradicts the opinion that tax revenue actually decreased since there was a recession due to the 2014 tax hike. Granted, corporate tax revenue and revenue from income tax, which are closely linked to economic trends, declined due to the slowdown in the economy which occurred in reaction to the increase in consumption tax. However, our thinking is that the increase in revenue from consumption tax compensated for that decline. But the increase in tax revenue due to the tax hike only went a bit over 6 tril yen, and increase in tax revenue is considered to be 2.7 tril yen per each percentage point of increase (so in other words, an increase of 3%pt in the consumption tax rate should bring in 8.1 tril yen). According to this calculation, the increase in tax revenue was not large. If we assume, hypothetically, that there is a 5% fixed tax rate in place and the consumption tax rate is increased to 10% in 2017, it is estimated that increase in tax revenue would be around 7 tril yen in comparison.

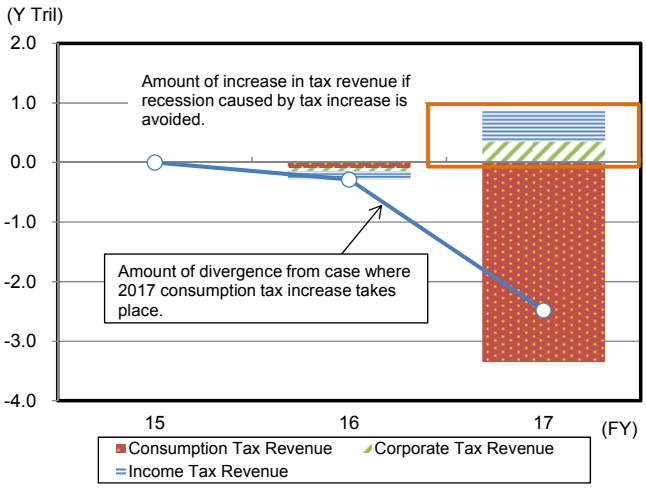
Next we look at the amount by which tax revenue will decline assuming that the planned increase in consumption tax in April 2017 is delayed (Chart 24, right side). We estimate that revenue from consumption tax will decline by around 3.5 tril yen due to the delay in the consumption tax hike. At the same time, a worsening of the economy due to a tax hike would be avoided, and this would trigger a revenue increase effect of around 1.0 tril yen when we total corporate tax and income tax, which are closely linked to economic trends. Therefore, we estimate a decrease in tax revenue of around 2.5 tril yen due to delaying the increase in consumption tax planned for April 2017.

Based on the above considerations, our conclusion is that, although delaying the tax hike will be beneficial to the economy in the short-term, there is danger that efforts to carry out fiscal reform will become even more difficult in the mid to long-term due to the decline in revenue from consumption tax. In other words, delaying the consumption tax hike will do major harm to the stability of tax revenue. It is our opinion that it is necessary to keep in mind the fact that a major decline in revenues from consumption tax, which normally should provide stable revenue, would be difficult to compensate for through revenues from income tax and corporate tax revenue alone, since these have a tendency to fluctuate considerably.

Tax Revenue Simulation **Chart 24**



Source: Produced by DIR.
Notes: 1) Simulation results using DIR short-term macro model.
2) FY2017 revenue from consumption tax takes into consideration the amount of decline in tax revenue due to the reduced tax rate.



Source: Produced by DIR.
Notes: 1) Simulation results using DIR short-term macro model.
2) FY2017 revenue from consumption tax takes into consideration the amount of decline in tax revenue due to the reduced tax rate.

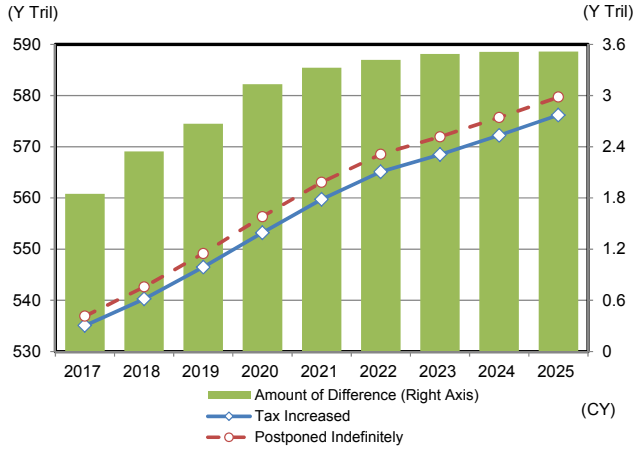
Simulation using midterm macro model

Next, using the DIR midterm macro model, we simulate effects on the Japanese economy assuming that increase in consumption tax is postponed indefinitely. Chart 25 displays the results of estimates of the effect on the real economy.

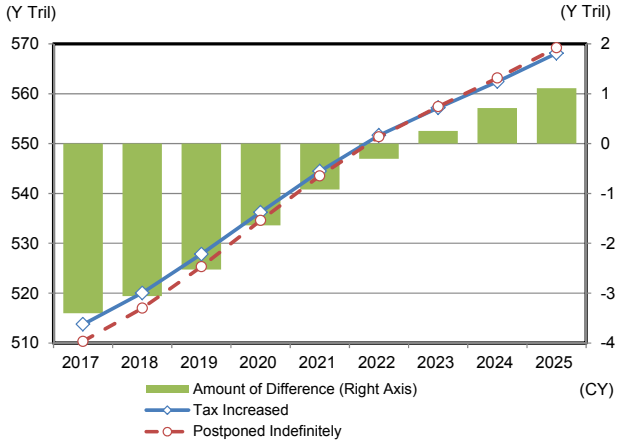
The simulation shown on the left side of Chart 25 indicates that real GDP would be increased by around 3.5 tril yen if the consumption tax hike were to be postponed indefinitely. Looking at the positive economic effect by component we see that the upward thrust in private final consumption expenditure is significant. But at the same time, net exports decline in comparison to the expansion of domestic demand since imports increase, thereby offsetting the short-term beneficial effect. However, in the mid to long-term growth in wages accompanying the expansion in domestic demand bring additional growth to consumption. Moreover, private capital investment responds to the expansion of consumption by also expanding. In other words, it nurtures a domestic virtuous circle. Consequently, the results of the estimates show real GDP ultimately getting an upwards push of around 3.5 tril yen.

Meanwhile, the right side of Chart 25 shows a simulation of nominal GDP. Here results of estimates show lingering negative influence due to technical factors, mainly the short-term decline of deflators. However, in the mid to long-term influence on nominal GDP moves to the positive side. Looking at the components of GDP we see that real private final consumption expenditure and real private capital investment improve as they did in the previous example. As before, the beneficial effect is partially offset by a decline in net exports accompanying the growth in imports. In addition, improvement in the supply-demand gap helps deflators to increase in the mid to long-term, hence nominal GDP receives an upward push from both volume and price components.

Effects of Indefinite Postponement of Consumption Tax Hike on Japan's Economy (Left: Real GDP, Right: Nominal GDP) **Chart 25**



Source: Estimates using DIR Midterm Macro Model.



Source: Estimates using DIR Midterm Macro Model.

It would be best to go ahead with the consumption tax hike as planned, in concert with the formulation of economic measures

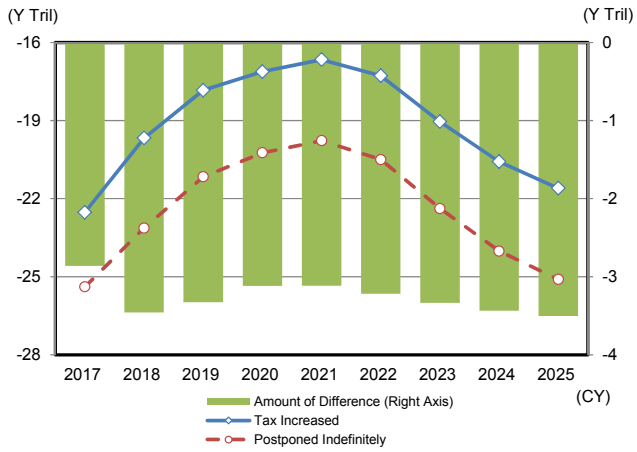
As was pointed out earlier, there would be certain beneficial effects on the real economy if the consumption tax hike were to be postponed indefinitely. But then we also have to ask whether, with the consumption tax frozen, tax revenue from consumption tax, when on the high side, would be enough to improve fiscal balance. In this section we consider the arguments and examine the results of estimates of the effect on Japan's fiscal condition of permanently freezing the consumption tax rate (Chart 26).

The left side of Chart 26 is a simulation of general government fiscal balance. Not surprisingly, results of estimates show that if the consumption tax rate were frozen, an increase in fiscal deficit would be unavoidable. No doubt tax revenue sources other than consumption tax, such as income tax revenue and corporate tax revenue, would be on the high side due to the effect of pumping up the economy by freezing the consumption tax. Meanwhile, on the expenditure side, government expenditure associated with economic policy centering on public capital formation is expected to decline. Government consumption expenditure linked to prices would be on the low side in comparison to the situation where an increase in consumption tax is implemented. However, the amount of increase expected in revenues and decrease expected in expenditures which would compensate for the amount of decrease in revenue from consumption tax is not nearly enough.

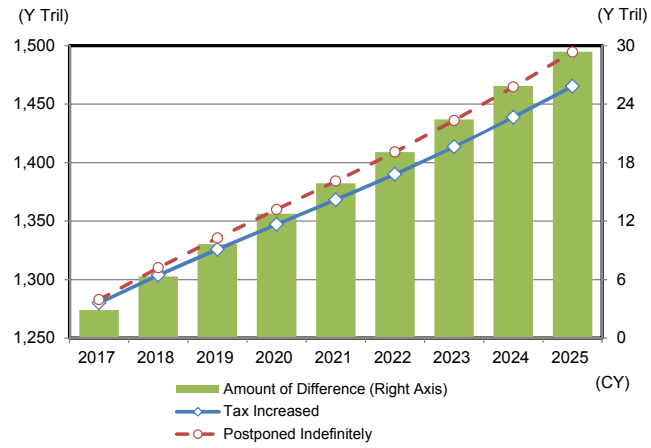
The right side of Chart 26 shows a simulation of general government debt. The chart shows a straight line heading toward increase in debt. This is due to the cumulative effect of an expanding fiscal deficit associated with having frozen the consumption tax rate. Along with growth in government debt comes rising interest payments, hence flow-based fiscal deficit expands even more. Ultimately, general government fiscal deficit, including the increased amount in interest payments, is expected to grow to over 3 tril yen.

It suffices to say that the idea of using economic growth to prop up fiscal reform in place of the needed revenue from a consumption tax hike is not very convincing in light of these results. Although a certain amount of attention must be given to short-term economic trends, we believe that it would be best to go ahead with the consumption tax hike as planned, in concert with the formulation of economic measures, as a means of providing a foundation for sustainable economic growth through fiscal reform.

Simulation of Fiscal Balance
(Left: General Government Fiscal Balance, Right: General Government Debt) **Chart 26**



Source: Estimates using DIR Midterm Macro Model.



Source: Estimates using DIR Midterm Macro Model.

4. Three Barriers to the Effectiveness of the BOJ's Negative Interest-Rate Policy

Over four months have passed now since the BOJ made the decision to introduce a negative interest rate. The introduction of the negative interest rate has so far cut yield on both short-term and long-term government bonds including 20-year and 30-year bonds, hence successfully bringing down the long-term prime rate and interest on housing loans. At the same time, this has made things difficult on financial institutions with the decline in yield on corporate bonds and a shrinking loan-deposit interest spread. It also means that deposits held by households have interest of around 0%, meaning a major decline in interest income.

It would be difficult to claim at this point that negative interest has produced any noticeable benefits to the Japanese economy. However, as pointed out by Bank of Japan Governor Kuroda, if the negative interest rate had not been implemented, Japan's economy would likely have deteriorated even more than it has with the world economy moving further into a slowdown. Moreover, there tends to be a time-lag of several months before positive effects associated with negative interest appear. Hence it is only a matter of time before we begin to see improvements.

In this chapter, we present an analysis of changes in the environment surrounding Japan's economy since the negative interest rate was introduced, and factors which act as barriers to the activation of a virtuous circle. We also offer arguments regarding measures needed to put Japan's economy back on the road to a virtuous circle.

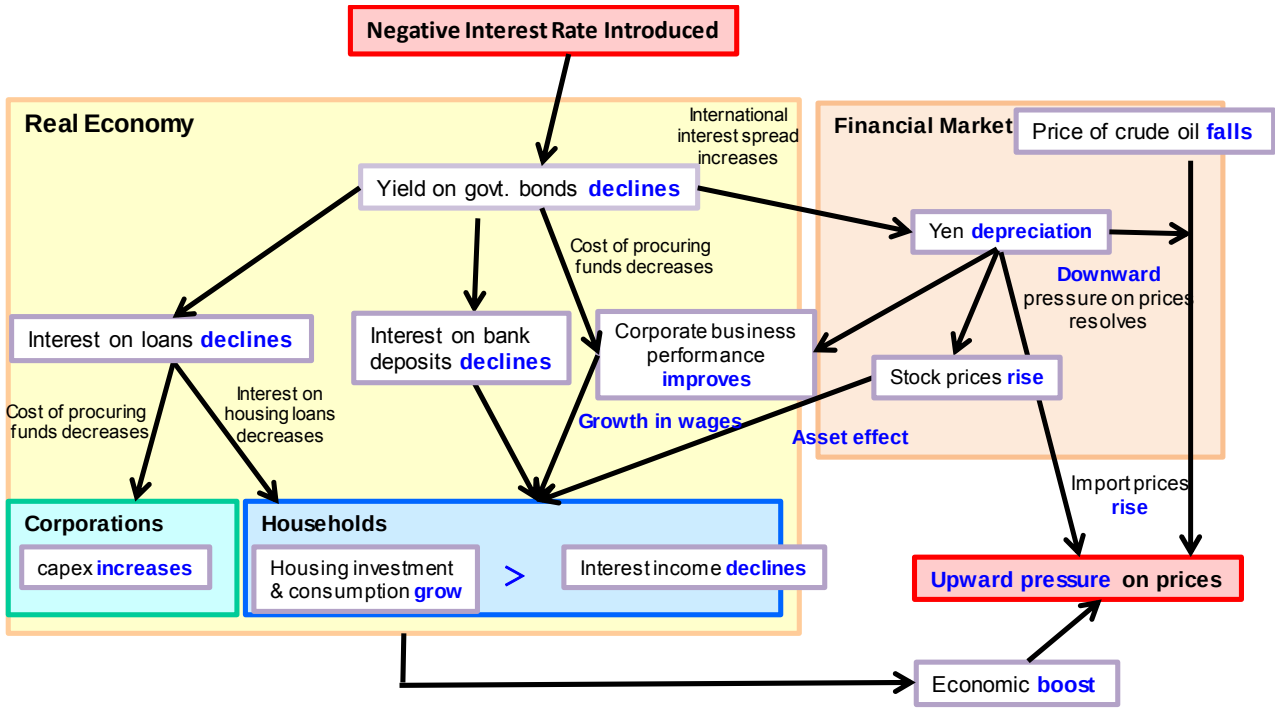
4.1 The Virtuous Circle Scenario Expected for the Economy and Prices by Introducing a Negative Interest Rate

First, we look at Chart 27, which provides a simple overview of exactly what the promised virtuous circle for the economy and prices as a result of introducing the negative interest rate consists of.

The introduction of the negative interest rate is expected to have a positive effect on both the financial markets and the real economy. As for the financial markets, positive influence is expected to come in the form of currency stability (a low yen rate) and stock price highs. Generally speaking, when interest rates are lowered the international interest spread grows (i.e. the difference between domestic and overseas interest rates). This brings pressure on exchange rates so that the yen weakens. Since a weak yen pushes import prices up, the consumer price index also moves upward. As the value of the yen dwindles, the business performance of export-driven corporations improves, causing the stock market to rally.

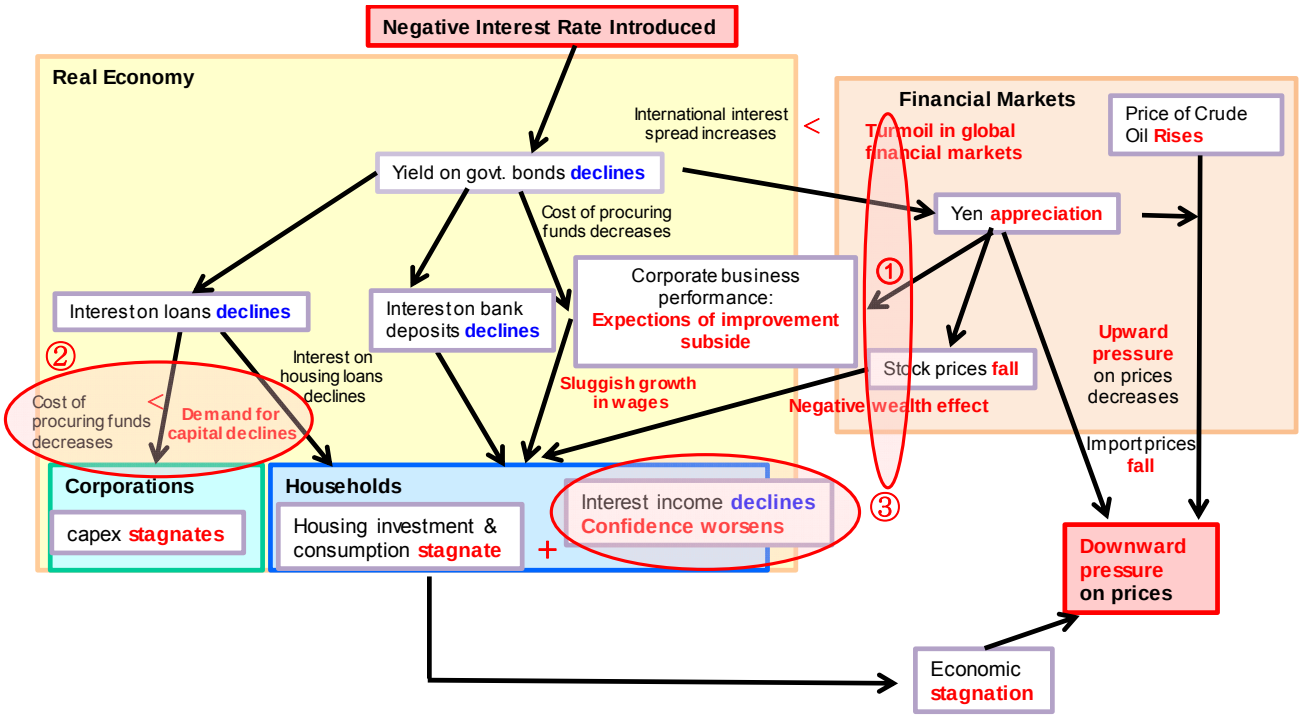
As for the real economy, yield on government bonds declines, bringing declines in interest on loans to corporations and on housing loans. This in turn has the effect of stimulating the willingness to engage in capex spending on the part of corporations and home purchases by households. Meanwhile, positive effects much like those mentioned above in the financial markets appear in the real economy as well. Since corporate business performance improves as a result of the weak yen, wages can also be expected to grow, while rising stock prices encourage the appraised value of assets held by households to grow. This brings more economic confidence to households. By introducing a negative interest rate, a virtuous circle scenario such as that described here promises to be activated, bringing a lift to the economy. This can also bring upward pressure on prices, helping the real economy as well.

Virtuous Circle Scenario Expected for Economy & Prices by Introducing Negative Interest Chart 27



Source: Produced by DIR.

Issues of Concern Brought on by Introducing Negative Interest Chart 28



Source: Produced by DIR.

4.2 Issues of Concern Brought on by Introducing Negative Interest

After negative interest was introduced in Japan some new developments have occurred, or could occur, bringing about the possibility of a very different scenario than the virtuous circle scenario shown in Chart 27. A more threatening scenario containing issues of concern in the future is shown in Chart 28. Elements in the chart which remain the same as in the virtuous circle scenario are shown in blue, while those in red are situations which move in the opposite direction and a more worrisome one.

First we take a look at the financial markets. Since yield on both short and long-term bonds has declined since the introduction of negative interest, the factor of interest rates continues to act according to the virtuous circle scenario. However, exchange rates see the yen strengthening against the dollar and the euro. Meanwhile, Japan's stock market begins to fall in reaction to the strong yen, making the appearance of the asset or wealth effect less likely. On the other hand, the real economy does not do as badly since yield on government bonds declines, bringing down interest on loans to corporations and housing loans. Both corporations and households are still able to reap the benefits of the negative interest rate. But as for capital investment and housing investment which had been expected to expand on into the future, it is still unclear at this time.

The original purpose of the Bank of Japan's introducing a negative interest rate was to encourage the consumer price index to reach the targeted growth rate of +2% annually as quickly as possible. This is the BOJ's target for price stability. However, if things continue as they are now, import prices will fall due to the progressively strong yen, and the real economy will be effected by insufficient demand associated with the economic slowdown. This is expected to bring downward pressure on the consumer price index. Looking at the actual growth rate of the consumer price index, we see that it has recently moved into negative territory in year-to-year terms. If downward pressure on prices increases in the future, demands for the Bank of Japan to implement additional monetary easing measures are likely to increase.

Three barriers to realizing the virtuous circle scenario

It would of course be unrealistic to expect the virtuous circle scenario to play itself out exactly as it is on paper. That would be too optimistic. But then what's wrong with the virtuous circle scenario? What is getting in the way of Japan's easily moving into a virtuous circle? We believe that there are three barriers to the activation of a virtuous circle, one which would move toward reflation and growth in prices, which emerged after the introduction of the negative interest rate. These are (1) turmoil in the global financial markets, (2) weak corporate capex, and (3) worsening of household consumer confidence. In the next section we take a close look at each one of these barriers and consider why they have occurred.

4.3 Three Barriers to Japan's Economy Attaining a Virtuous Circle

Barrier (1): Turmoil in the global financial markets

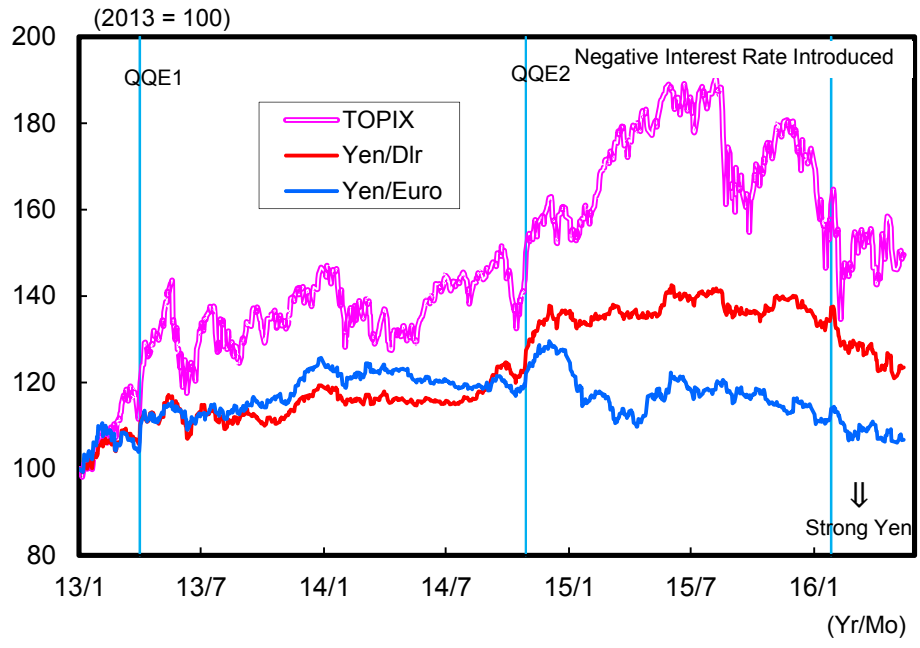
The first barrier is turmoil in the global financial markets. Chart 29 shows trends in yen/dollar and yen/euro rates since 2013, as well as trends on TOPIX. In the past, when the Bank of Japan announced quantitative and qualitative monetary easing measures QQE1 and QQE2, investors sold off yen holdings and TOPIX rallied. However, in January 2016 when the introduction of the negative interest rate was announced there was a different reaction.

Immediately after the Bank of Japan's announcement of its introduction of a negative interest rate at the end of January this year, the yen fell against all of the world's major currencies and TOPIX made major gains. As of that point the financial markets appeared to be reacting positively to the move. However, that reaction turned negative after that point. The reason was that the core of this new policy, interest rates, meant for many in the financial world that monetary easing, which until then had been very successful by increasing quantity, was now nearing its limit. If the BOJ had continued purchasing 80 tril yen in government bonds annually the bank's holdings would have reached over 70% of the outstanding issuance of government bonds by the end of 2020. If it were to purchase 100 tril yen in government bonds annually, its share of holdings would reach over 80% of total outstanding issuances of government bonds. In other words, we can conclude that the bank was gradually reaching its limit in terms of the extent that it could continue making use of the factor of quantity in its monetary policy.

The introduction of a negative interest rate has an unfavorable relationship from all sides. The general awareness is that you can't go very deep in carrying out monetary easing by adjusting interest rates. This is at least one of the reasons that the financial markets shifted to a negative reaction. In addition, the sense of uncertainty regarding the future of the world economy was increasing around the same time the negative interest rate was introduced. Not only had the Fed decided to slow down the pace of its interest rate hikes, but the ECB had also cut its rate a notch, and these developments triggered the purchase of yen. All of these negative factors just happened to stack up at around the same time, leading to the yen's appreciation on the currency markets, as well as the unavoidable collapse of TOPIX.

The strengthening yen and turmoil in the global economy led to fears that the business performance of export-driven corporations would worsen. This also led to dwindling hopes that wages would be increased. Meanwhile, falling stock prices led to a reverse-wealth effect, meaning that there is a possibility that personal consumption will be negatively influenced in the future.

Historical Trends in Yen Rate against the Dollar and Euro, and TOPIX Trends **Chart 29**



Source: Bloomberg; compiled by DIR.

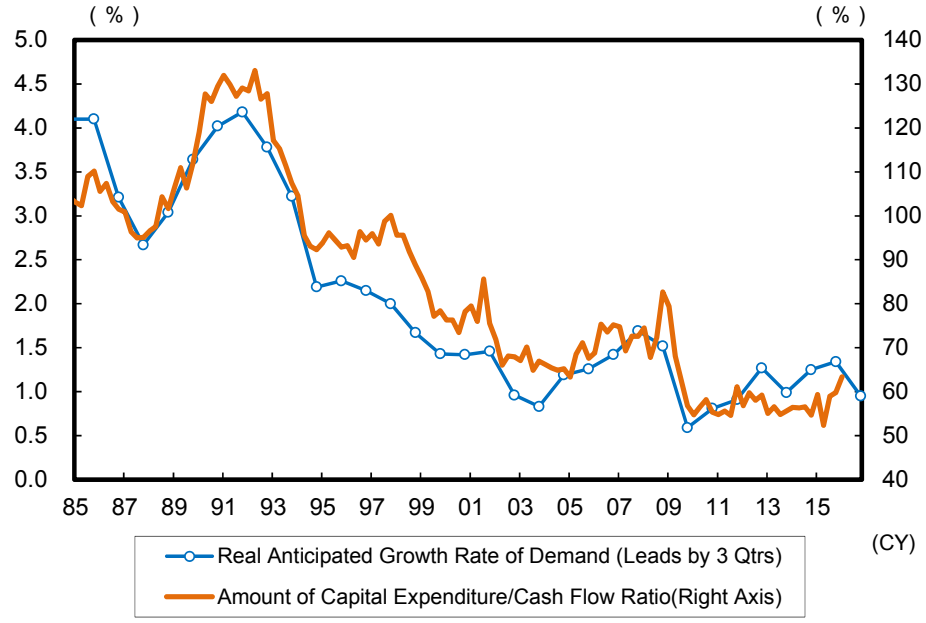
Barrier (2): Weak corporate capex

As for the future of capital expenditure, our outlook sees a moderate growth trend. However, recent capex spending by corporations is sluggish, despite the fact that the introduction of a negative interest rate has improved the environment for procuring capital. Some would say that it is still too early to assess the effect of the decline in interest on capital procurement going toward capex, but we argue in this section that there are structural factors causing capex to become sluggish.

One of the major structural factors causing stagnant corporate capex is the decline in Japan's anticipated growth rate. Chart 30 shows the real anticipated growth rate of demand and trends in the ratio between amount of capital expenditure and cash flow. During the latter half of the 1980s when Japan was still in the midst of its high-growth period, the real anticipated growth rate of demand was high, and corporations were carrying out capital expenditure in excess of cash flow. But once into the first half of the 1990s when Japan's economic bubble burst, the anticipated growth rate began to decline. More recently it was at a level just below 1%. Along with the change in the 1990s, the ratio between amount of capital expenditure and cash flow declined. Since the year 2009 it has settled at around 50%. Corporations now have plenty in cash holdings, and with low expectations for future growth, there is not much incentive for becoming more aggressive in capital expenditure and increase borrowings from financial institutions despite the low interest. Another factor behind sluggish capital expenditure is that having come through the financial crisis, there are fewer corporate managers who still have the raw ambition to succeed.

The findings of the Bank of Japan's April Regional Economic Report (*the Sakura Report*) seem to be consistent with the above argument. The report lists the following reasons that corporations are cautious regarding domestic capital expenditure: (1) An increasing sense of uncertainty regarding the future, (2) The anticipated growth rate is low, so there is no reason to invest more, (3) Priority is on improving weak financial condition, (4) Lack of personnel who can take over management of the company in the future, and general shortage of manpower, (5) Increase in overseas onsite production, and (6) Lack of desire or motivation to expand business.[1]

Real Anticipated Growth Rate of Demand, and Amount of Capital Expenditure/Cash Flow Ratio
Chart 30



Source: Ministry of Finance, Cabinet Office; compiled by DIR.
Note: Real anticipated growth rate of demand is an all-industry figure. Indicates outlook five-years into the future.

[1] Bank of Japan Regional Economic Report (*Sakura Report*), April 2016.

Barrier (3): Worsening of household consumer confidence

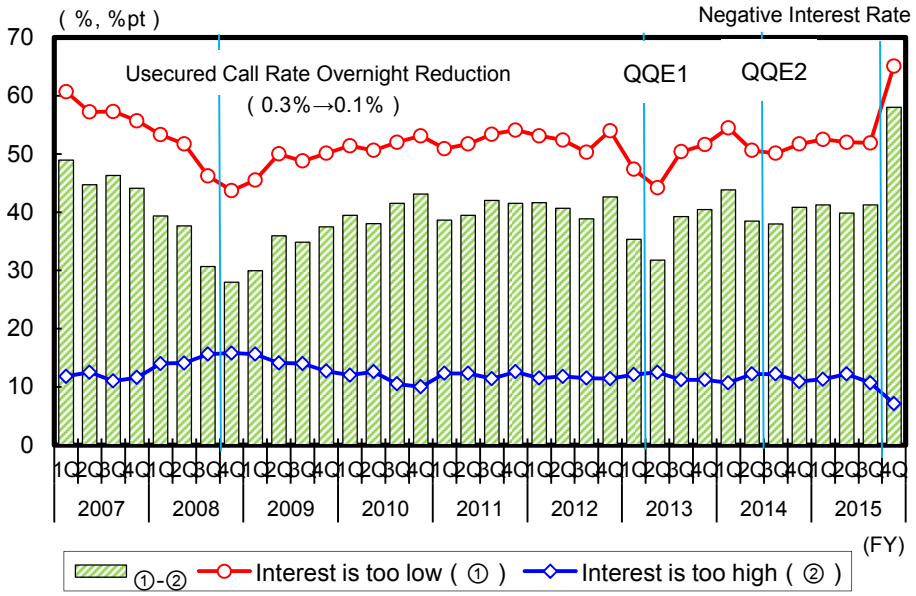
The third barrier which we will discuss here is the deterioration of household consumer confidence.

As was pointed out earlier, fears are rising that the business performance of export-driven corporations may deteriorate, due to the progressively strong yen since the beginning of the year and a slowdown in the world economy. If business performance worsens, its influence could cause a ripple effect leading all the way to the household sector through the restraining of wage hikes and cutting back on bonus payments, and ultimately cutbacks in hiring. Currently these negative effects have not yet appeared, but if the sense of anxiety regarding employment increases in the future, household consumer confidence will experience a chilling effect.

Feelings of strong dissatisfaction in regard to the fact that interest on bank deposits has fallen to around 0% in association with the introduction of the negative interest rate may also be affecting household consumer confidence. This point can be confirmed by referring to the Bank of Japan's *Opinion Survey on the General Public's Views and Behavior*, which indicates the opinions of individuals regarding the interest level (Chart 31). The Bank of Japan reduced the policy interest rate (the unsecured overnight call rate) from 0.3% to 0.1% in December 2008. Then in 2013 and 2014 the bank implemented QQE1 and QQE2. But at that time the difference between the ratio of survey respondents who answered that the interest rate was too low to those who responded that the interest rate was too high ((1)-(2)) was flat. But when the survey was taken again after the introduction of the negative interest rate, the ratio of survey respondents who answered that the interest rate was too low grew sharply, many adding that the rate was already low enough before. The result was that many more respondents thought that the interest rate is now too low than respondents who thought it was too high.

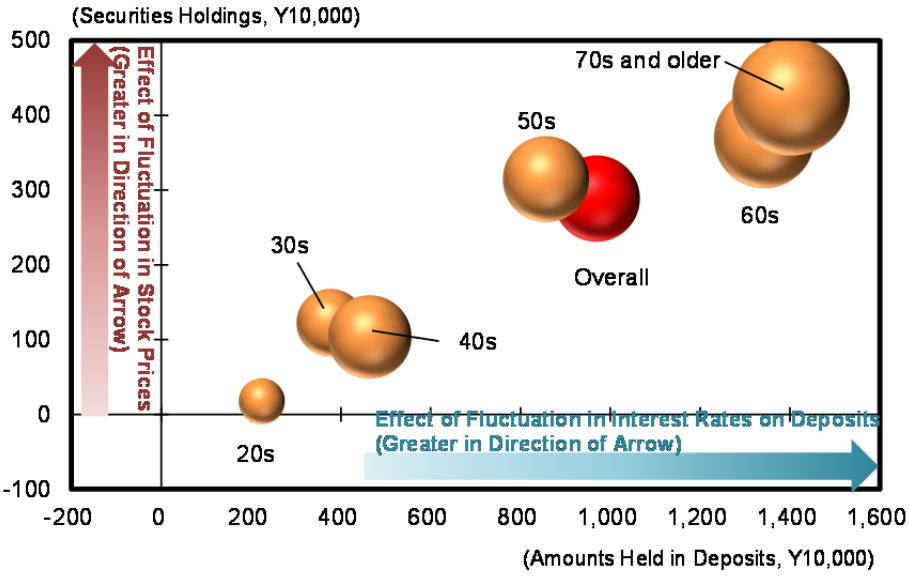
The decline in interest on bank deposits has a major influence on the lives of private citizens, especially the elderly who have a large amount in savings. Another characteristic of the elderly is that they also tend to hold more in stock shares than do young adults (Chart 32). It is likely that the reverse-wealth effect is affecting the elderly much more as well, due to the collapse of stock prices with the turmoil in the financial markets. This in turn is expected to have a negative effect on consumer confidence. Looking at consumer expenditure by age group we see that the elderly are comparatively higher in expenditure than young adults. The number of elderly households is growing yearly due to the phenomenon of the super-aged society to the point where the number of elderly households has a huge influence on personal consumption as well. The worsening of consumer confidence amongst the elderly creates a much heavier than expected weight on statistics regarding the consumer activity of the household sector in the macro sense, and this is something which must be kept in mind when viewing said statistics.

Individual Opinions Regarding Level of Interest Rate — Chart 31



Source: Bank of Japan; compiled by DIR.
Note: Ratio of responses to survey regarding level of interest rate (too low : too high).

Deposits and Securities Holdings by Age of Head of Household (Households Holding Financial Assets, 2015) — Chart 32



Source: The Central Council for Financial Services Information, Ministry of General Affairs and Communication; compiled by DIR.
Note: Size of circles represents number of households as of 2015. Overall category is a simple average of number of households.

4.4 Handling the Three Barriers will open the Way to Defeating Stagnation in Japan's Economy

In this chapter we have demonstrated how certain problems or barriers stand in the way of Japan's economy attaining a virtuous circle. These barriers are (1) turmoil in the global financial markets, (2) weak corporate capex, and (3) worsening of household consumer confidence. The question now is how to break through these barriers as a means of activating the virtuous circle scenario. Here we discuss the possibility of opening the way to defeating stagnation in Japan's economy.

The Japanese government and the Bank of Japan do not have the power to bring a stop to turmoil in the global financial markets

As for how to handle the first barrier, turmoil in the global financial markets, the Japanese government could bring a stop (at least to a point) to the rapidly appreciating yen in the short-term through verbal intervention. However, the Japanese government and the Bank of Japan do not have the power to dramatically change the recent strong yen/weak dollar trend as long as the Fed has indicated its stance toward slowing the pace of raising the US interest rate. The Fed has a huge amount of influence on the world's financial markets. The Fed is now slowing the pace of raising the FF rate in response to the gradual slowing down of the US economy since interest rate hikes began at the end of last year.

On the other hand, there is room for improvement in the Bank of Japan's ability to communicate its policies to the markets. During his time as governor of the Bank of Japan, Kuroda has poured his heart and soul into producing a series of surprises, such as announcing a bold monetary easing policy greatly exceeding market expectations. But then at the April BOJ Monetary Policy Meeting he went against market expectations and announced a delay in further monetary easing, hence causing sudden and extreme fluctuations in exchange rates and stock prices. Many are of the opinion that the BOJ Monetary Policy Meeting itself had become a factor in creating turbulence in the market. It is hoped that in the future the Bank of Japan will find a better way of communicating its monetary policy so as to avoid creating turmoil in the markets.

Reliable implementation of original Third Arrow (growth strategy to stimulate capex) is the point

The key to successfully activating the virtuous circle scenario in Japan's economy is to handle the other two barriers – weak corporate capex and worsening of household consumer confidence. Unlike the first barrier (turmoil in the global financial markets) this is something which can actually be dealt with and improved by implementing the right policies.

The government's reliable implementation of Abenomics' original *Third Arrow* (growth strategy to stimulate capex) is essential in order to activate the virtuous circle scenario. While the Bank of Japan continues a proactive monetary easing policy, the government must accelerate its efforts to liberalize Japan's bedrock policies and lower the effective corporate tax rate. If the government can shift its attention to executing mid to long-term improvements and structural reform of fundamental economic institutions, the future will become more promising and corporate willingness to carry out capital expenditure will begin to improve.

At the April Council on Economic and Fiscal Policy the government suggested acceleration of growth strategy as the major thrust in its policy efforts. This includes investment in human resources and capital investment, as well as increasing productivity through efforts toward a new industrial revolution. The policy proposal calls for the execution and realization of change and innovation in Japan's industrial structure as a means of improving the value added characteristics of industry. This would be carried out through the promotion of industrial regeneration and regulatory reform.[2] We consider this to be an appropriate decision on the part of the government as a means of implementing the original *Third Arrow* of Abenomics.

[2] 7th Council on Economic and Fiscal Policy, 2016

Building a sustainable social security system is essential to raising household consumer confidence

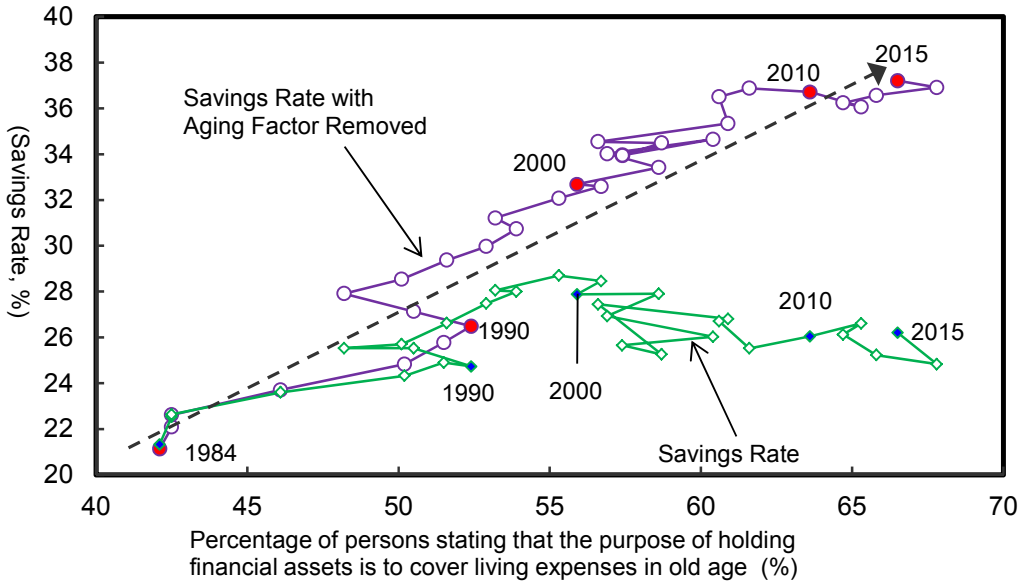
As for personal consumption, skepticism regarding the sustainability of Japan's pension system creates a sense of anxiety regarding the future, and this may contribute to keeping household consumer confidence in check. Looking at the Ministry of Internal Affairs and Communications survey regarding the purpose of holding financial assets, we see that since the 1980s, the percentage of Japanese citizens holding financial assets in order to cover living expenses in old age has been on the increase. In other words, we can infer that many people are increasing savings and holding back on consumption due to anxiety regarding old age.

Chart 33 displays the results of the Ministry of Internal Affairs and Communications survey on the purpose of holding financial assets. The vertical axis shows the savings rate based on a household survey, and the horizontal axis shows the percentage of persons responding that the purpose is to cover living expenses in old age. As Japan's society progressively ages, the number of citizens gradually using up their savings as a means of covering living expenses is on the rise. This is why Japan's actual savings rate overall has been in a decline since the year 2000. However, if we remove the aging factor from the mix and calculate Japan's overall savings rate without the elderly population, we see that it is actually growing at the same time anxiety regarding the future is on the rise in the younger age groups.

The fact that the savings rate is on the rise due to anxiety regarding the future means that Japanese citizens are holding back on consumption. In other words, skepticism regarding the sustainability of Japan's social security system is creating a sense of anxiety regarding the future, thus causing the savings rate to grow, while also possibly becoming a factor in holding down personal consumption. It follows from this observation that in order to revitalize personal consumption, Japan's social security system must be restructured so that it becomes a sustainable one. It is essential to remove the factor of the Japanese people's anxiety regarding the future.

The subject of reforming the social security system, including the possible necessity of holding down benefit payments, is one that citizens depending on those benefits do not want to hear about, and elected representatives avoid dealing with since it could become such a hot-button issue. All one can say is that the nation awaits a wise decision on the part of the Abe administration – one which properly takes Japan's future into consideration.

Financial Planning for Life After Retirement and Household Savings Rate **Chart 33**



Source: Ministry of Internal Affairs and Communications, Bank of Japan; compiled by DIR.

Note: Savings rate from household survey "Rate of Surplus". Aging factor found by estimating savings rate. The forecast formula is as follows: Savings rate = 18.01 – 0.75 x aging rate + 0.16 x anxiety regarding the future +0.01 x household assets (-2). Aging rate and household asset factors have a significance of 1%. Anxiety regarding the future has a significance of 5%. Anxiety regarding the future is the percentage of persons stating that the purpose of holding financial assets is to cover living expenses in old age in reply to surveys regarding the purpose of holding financial assets.

5. Risk Factors Facing Japan's Economy: Focus on Chinese Economy

Four risks facing Japan's economy

Risk factors for the Japanese economy are: (1) The downward swing of China's economy, (2) Tumult in the economies of emerging nations in response to the US exit strategy, (3) A weak stock market situation brought on by risk-off behavior of investors due to geopolitical risk, and (4) The threat of UK exiting the EU (*Brexit*), and uncertainty regarding Greece.

In this chapter we place focus on the China's economy which is of the utmost concern, and we provide an in-depth analysis of the situation. Our outlook for China's economy is optimistic in the short-term and pessimistic in the mid to long-term. Looking at China's economic situation in a somewhat reductive way, the fact is that China's government holds treasury funds totaling between 600 to 800 tril yen with which it is standing up to over 1,000 tril yen in excessive lending and over 400 tril yen in excess capital stock. China is expected to be able to avoid the bottom falling out of its economy for a little while, but in the mid to long-term, there is risk of a massive capital stock adjustment.

5.1 Overview of Problems that China's Economy Faces

Optimistic in the short-term and pessimistic in the mid to long-term

Since the summer of 2015 fears have grown rapidly regarding the imminent collapse of China's economic bubble. China's sudden step towards devaluation of the renminbi triggered a seismic event in the global financial markets. How are we to understand the risks now facing the Chinese economy? (More detail on this subject can be found in *Japan's Economic Outlook No. 186* , September 10, 2015, by Mitsumaru Kumagai.)

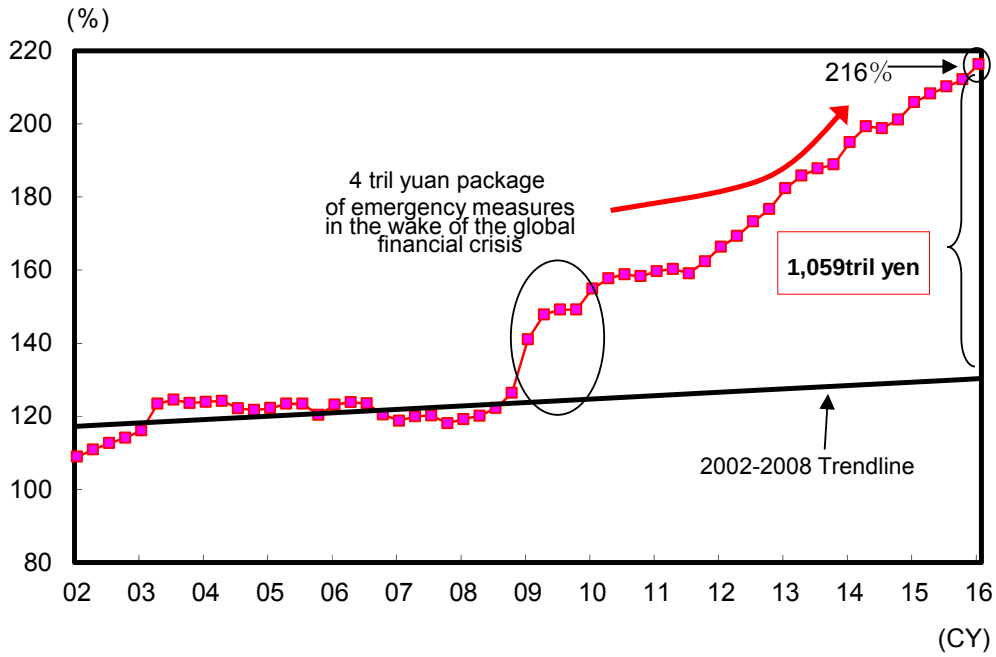
In a word, our view of China's economy is optimistic in the short-term but pessimistic in the mid to long-term. Since China is a Socialist country, it can give its economy a shot in the arm mostly in the form of public investment, thereby delaying the inevitable for another year or two. But in another three to five years the risk of China's economic bubble bursting will again come to the fore.

China's excesses: (1) Excessive lending of over 1,000 tril yen

In this section we discuss China's two huge excesses. The first financial excess is excessive lending. Excessive lending in China is estimated at a total of 1,000 tril yen (see Chart 34). If a certain percentage of this amount becomes irrecoverable, it would mean hundreds of trillions of yen in non-performing loans. When Japan's economic bubble burst it carried non-performing loans totaling 100 tril yen. Considering this fact, it is not an overstatement to call this the biggest economic bubble in history.

The global financial markets are increasingly nervous about the possible risk scenarios, including (1) China drawing down its foreign currency reserves (around $3.2 tril as of end January 2016) to deal with non-performing debt, causing long-term interest rates to surge in the US, and (2) the yen appreciating from a global flight to quality.

China's Total Social Financing (% of GDP) Chart 34



Source: People's Bank of China, National Bureau of Statistics of China; compiled by DIR.
Note: Outstanding balance of total social financing as of end-Dec 2001 to be 1.1 times bank lending

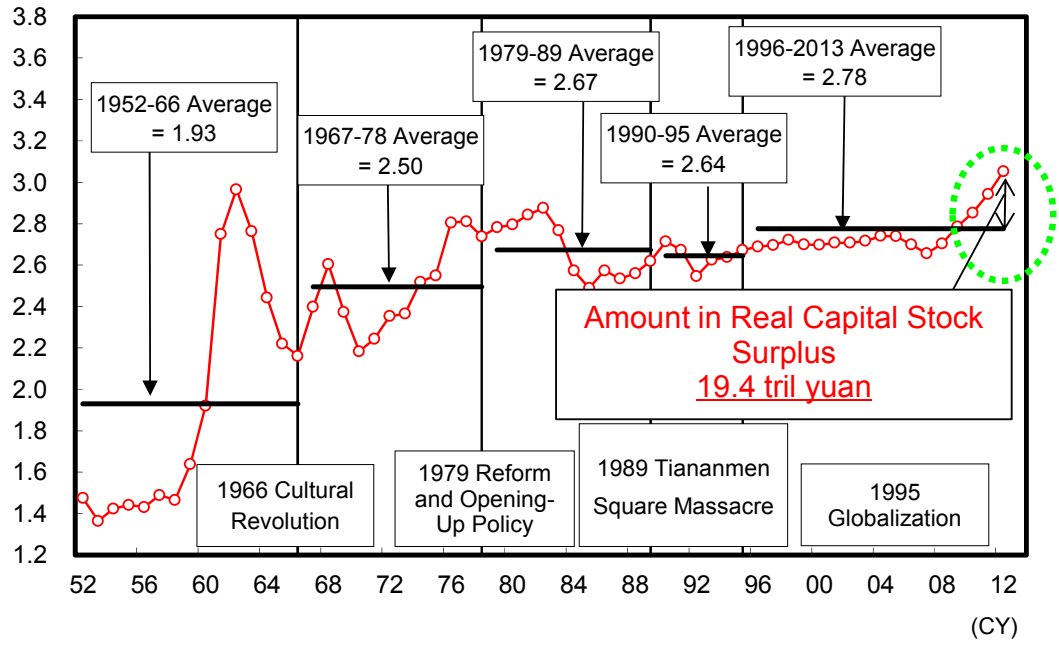
China's excesses: (2) Excess capital stock totaling over 400 tril yen

China's second excess is in the area of surplus factories and machinery, in other words excess capital stock. The gross amount in capital stock is estimated at over 400 tril yen. China now stands at a major crossroads in its economic growth model, which until now was a hand-to-mouth approach to managing an economy, focusing on attracting foreign investment and using that to increase capital stock which would stimulate growth.

Chart 35 shows long-term change in China's capital coefficient (= real capital stock / real GDP). This chart indicates that China's policies for handling the aftermath of the financial crisis of 2008 led to the carrying out of large-scale capital investment, and we see that in recent years, the capital coefficient has been on the rise. Recently, the coefficient has moved further upwards on the chart, diverging markedly from the trend of the past twenty years. It appears that the sense of overcapacity is increasing.

Using the rate of deviation from past trends in the capital coefficient, we can calculate the amount of surplus in real capital stock. This shows us that as of the year 2013, China held a surplus of over 19.4 tril yuan (about 12% of real capital stock and 400 tril yen in nominal terms).

Changes in China's Capital Coefficient **Chart 35**



Source: National Bureau of Statistics of China, CEIC, Haver Analytics, World Bank; compiled by DIR.
Notes: 1) Capital coefficient = real capital stock / real GDP
2) Figures from the year 2010 are used for both real capital stock and real GDP.

Room for around 600-800 tril yen in public spending

How much fiscal expenditure is China able to come up with in order to deal with this problem? Assuming that like other countries this would mean expanding the balance of debt on a stock basis, we estimate that there is room for around 600-800 tril yen in public spending.

According to data from the IMF on general government debt-to-GDP ratio in 2014, the G5 nations (except for Japan) had an average value of 90%, while the GIIPS nations (except for Greece) had an average value of 118%. In comparison to these figures, China's is relatively low 41% (see Chart 36). Moreover, in comparison to Japan, whose fiscal condition is the worst amongst the major industrialized nations at 246%, China weighs in at only one sixth that amount.

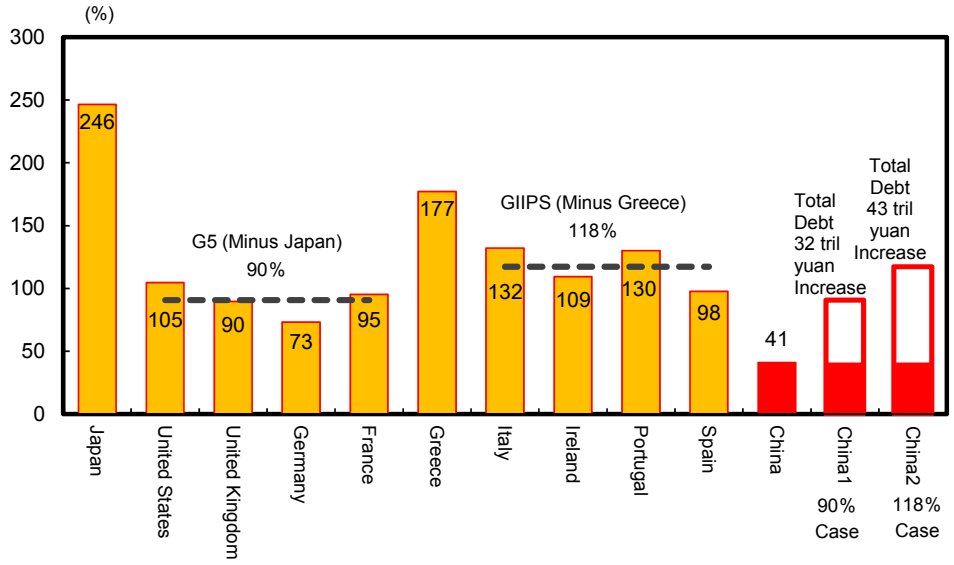
Presuming that China's general government debt-to-GDP ratio has room to grow to 90%, or around the same amount as the G5 nations (except for Japan) we can estimate the margin China has for public spending at around 32 trillion yuan. This means that in an international comparison, China has a large margin for mid to long-term public spending.

Problems facing China's economy: the big picture

To explain the situation which China's economy now faces in as simple terms as possible, it holds over 1,000 tril yen in excessive lending and over 400 tril yen in excess capital stock in relation to which the Chinese government has funds of around 600-800 tril yen in its treasury.

It is simply not possible to take an optimistic view of China's economy in the mid to long-term view. Even if the Chinese government carries out major public spending it cannot solve the intrinsic structural problems the economy has. As long as China does not handle the many fundamental problems facing state-owned enterprises, attempting to apply a quick cure such as public spending will merely put off the problems for another few years. The worst case scenario, in which an even more colossal bubble bursts in the future, may be unavoidable.

General Government Debt-to-GDP Ratio (2014) Chart 36



Source: IMF; compiled by DIR.

5.2 Potential Magnitude of the Collapse of China's Economic Bubble

If China's economic bubble bursts, what would be the magnitude?

Here we take a quantitative look at the potential magnitude of the collapse of China's economic bubble assuming it occurs. According to our simulation, a meltdown scenario caused by surplus capital stock adjustment would cause China's potential growth to fall to 1.6%, while the real economic growth rate would be in the negative numbers (See Chart 37).

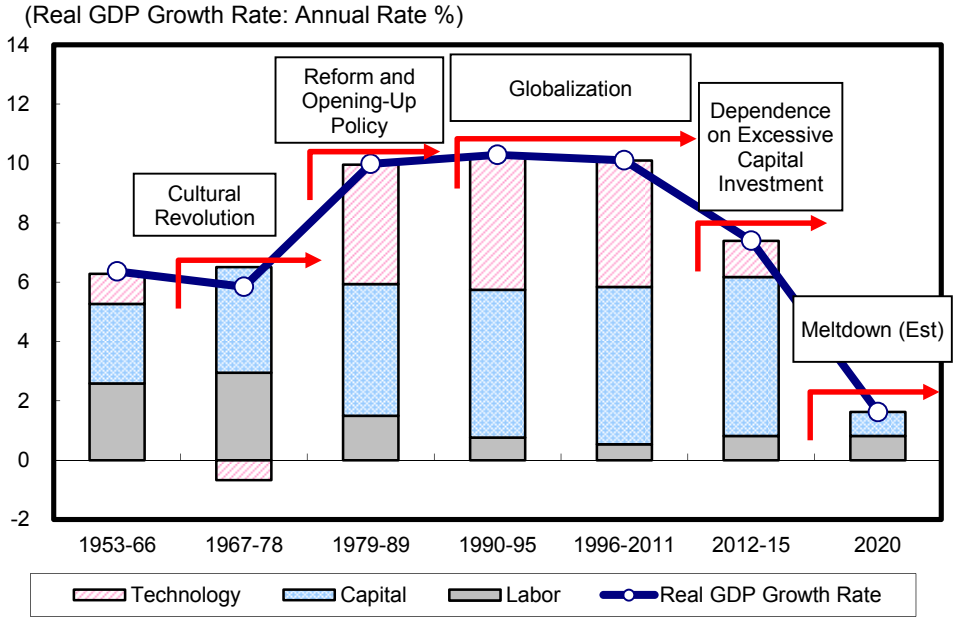
In terms of the effect on Japan's economy, there is still of course the general argument that it is the US which drives the world economy, not China, and hence even if China's economy slows down somewhat, the effect on Japan would be only slight.

However, if China's economy were to experience a meltdown, it would be an entirely different story. The impact of such an event would more than likely send the world economy into a tailspin.

It is hoped that China's policymakers will recognize the situation they are in and implement mid to long-term structural reforms, while using short-term measures to stimulate the economy. With the right balance it may be possible to guide China's economy to a soft landing.

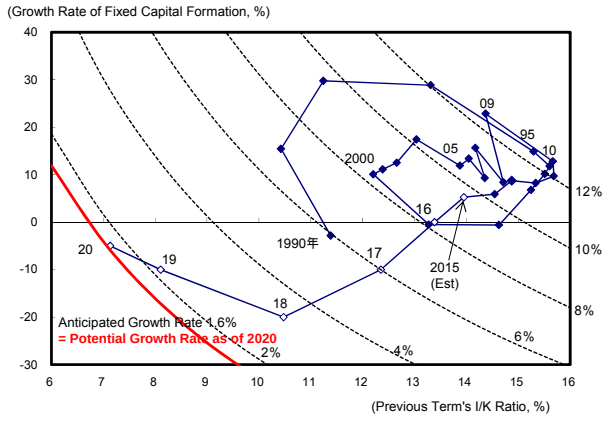
Simulation: China's Economy (Meltdown Scenario) **Chart 37**

Factor Analysis of Potential Growth Rate

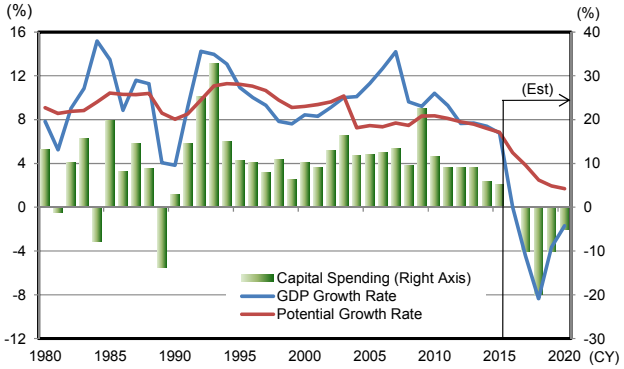


Source: CEIC, World Bank; compiled by DIR.
Note: Major events: 1966 – The Cultural Revolution, 1978 - Reform and Opening-Up Policy, 1989 – Tiananmen Square Massacre

Capital Stock Circulation



Economic Growth Rate



Source: CEIC, World Bank; compiled by DIR.

Source: National Bureau of Statistics of China, Haver Analytics, World Bank; compiled by DIR.

5.3 Policy Measures Seen Holding up China's Economy for the Time Being

China's business cycle signal index sees economy bottoming out

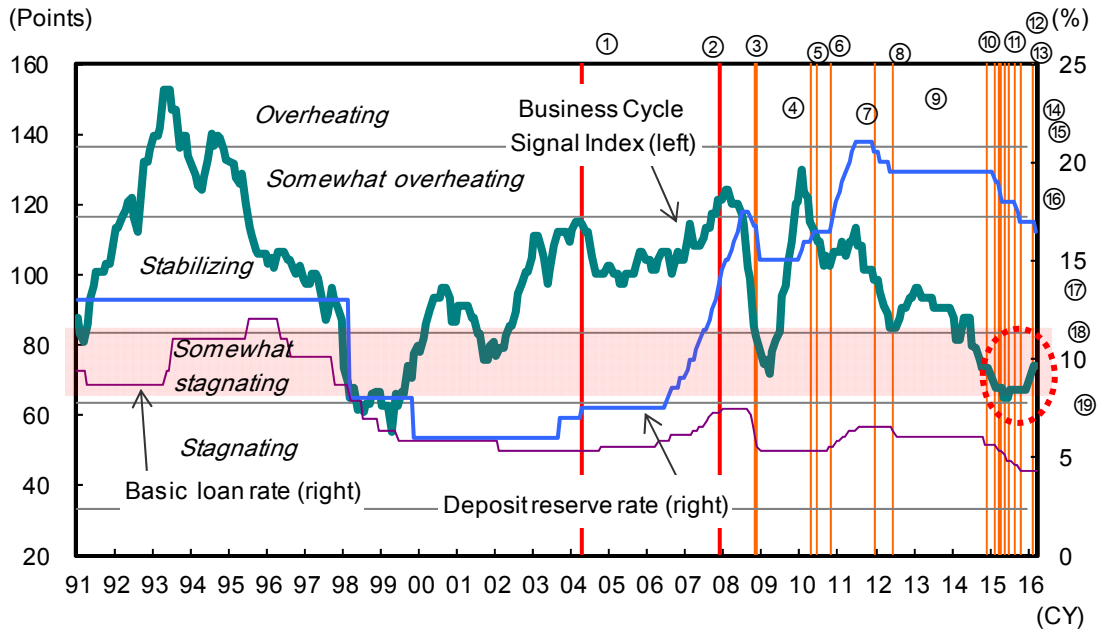
Despite what we have stated in the previous section, looking at a time span of 1-2 years, China's economy is expected to be propped up by policy measures.

Looking at China's business cycle signal index (see Chart 38), we see that the economy began strengthening its downward trend after the beginning of 2014, and now remains in the zone indicating economic decline (63.33-83.33). However, with the help of recent fiscal and monetary measures, the index now shows that China's economy is bottoming out.

Key words: Socialist market economy, collective leadership, and gradualism

China does not have a truly Capitalist system, but what is called a socialist market economy, and this fact may provide underlying support for the time being. Since economic problems could cause political instability, China's political leaders would of course prefer to avoid the bottom falling out of the economy as much as possible. Since China is not a truly capitalist society, they could delay having to deal directly with the problems for 1-2 years, and would likely do everything they can to delay the problems for as long as possible. Since political decision-making is by a collective leadership working under a philosophy of gradualism, the Chinese economy can probably avoid seeing the bottom fall out in the short-term.

China's Business Cycle Signal Index **Chart 38**



1. Apr 2004: Restrictions on aggregate loans strengthened
2. Oct 2007: Restrictions on aggregate loans strengthened
3. Oct 2008: Restrictions on aggregate loans eased
4. Nov 2008: Stimulus package of 4 tril yuan announced
5. Apr 2010: Real estate regulations strengthened
6. Jun 2010: More flexible regime for control of yuan exchange rate
7. Oct 2010-Jul 2011: Period of loan rate hikes
8. From Dec 2011: A series of deposit reserve rate low ering moves began
9. From Jun 2012: A series of loan rate cuts began
10. Nov 2014: Loan rate cuts
11. Feb 2015: A series of deposit reserve rate low ering moves began
12. Mar 2015: Loan rate cuts
13. Apr 2015: A series of deposit reserve rate low ering moves began
14. May 2015: Loan rate cuts
15. Jun 2015: Loan rate cuts
    A series of deposit reserve rate low ering moves began
16. Jul 2015: Price keeping operation
17. Aug 2015: Reserve deposit rate cut, interest rates low ered
18. Oct 2015: Reserve deposit rate cut, interest rates low ered
19. Feb 2016: Reserve deposit rate cut,

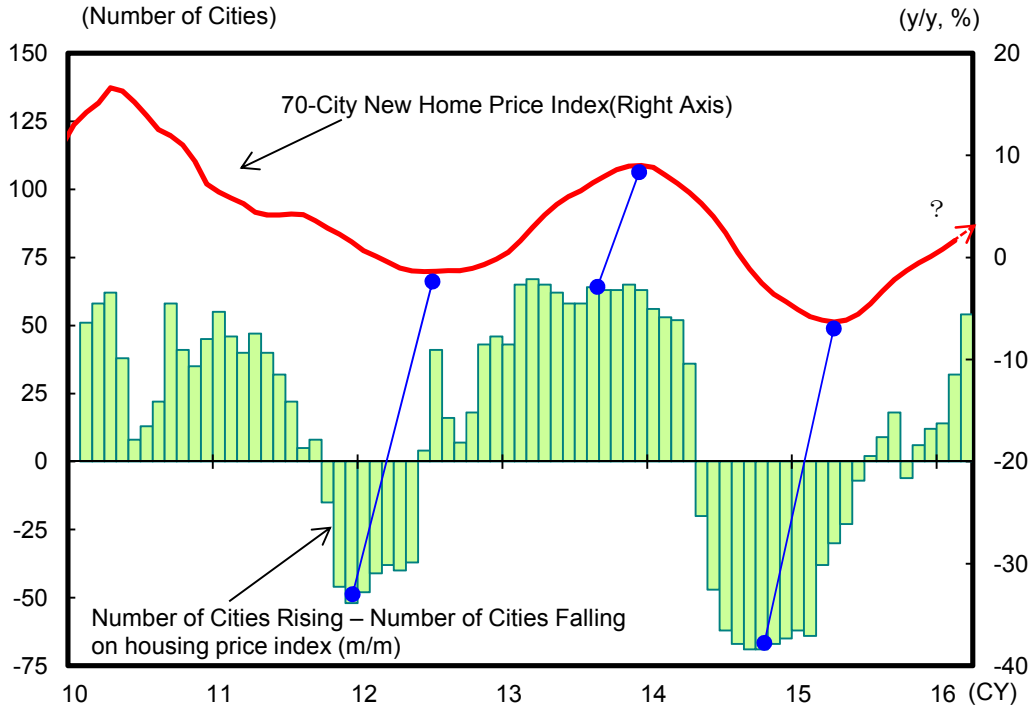
Source: National Bureau of Statistics of China, People's Bank of China, CEIC; compiled by DIR.

Real estate prices in China linked to personal consumption seen bottoming out

We should also note here that the leading index of the 70-City New Home Price Index (y/y change) is now moving upward (Chart 39). The "number of cities rising – number of cities falling" category under the Respective City Price Index (m/m change) of China's 70-City New Home Price Index tends to lead the 70-City New Home Price Index (y/y change) by six months. Taking a look at changes in the "number of cities rising – number of cities falling" category, we see that it has been gradually rising after having hit bottom in September of 2014, and has picked up the pace of growth since March 2015. The 70-City New Home Price Index, lagging behind the "number of cities rising – number of cities falling" index by seven months, hit bottom in April 2015, and since then has been in a growth phase. The "number of cities rising – number of cities falling" index has recently been continuing its growth phase. Hence there is a good possibility that the 70-City New Home Price Index will also continue to rise.

According to DIR quantitative analysis, China's personal consumption is determined by real estate prices rather than stock prices. Considering this fact, it is likely that real estate prices will continue in a growth trend for some time. This is an extremely positive factor for China's economy overall.

China's 70-City New Home Price Index **Chart 39**



Source: National Bureau of Statistics of China; compiled by DIR.
Note: The 70-City New Home Price Index is the simple average value of home prices in 70 cities.

6. Supplement: Alternative scenarios

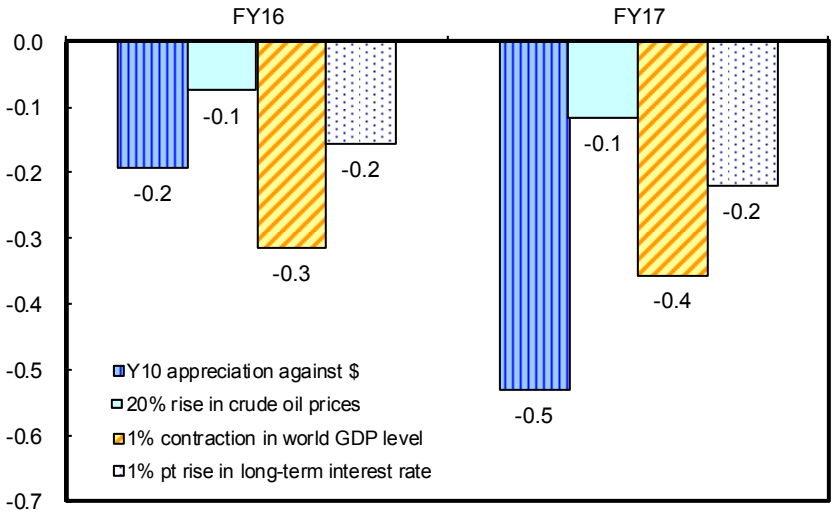
Here, we estimate likely economic effects from changes in our assumptions. The assumptions and effects of alternative scenarios are shown in the two charts below. The charts below show the effects on real GDP based on the assumptions used in our standard scenario, as well as cases in which one of the four risk scenarios covered earlier in this report actually occurs. We assume alternative scenarios might emerge from Jul-Sep 2016.

Standard and Alternate Scenario Assumptions

	Standard scenario		Alternate scenario (in each quarter in both years)
Case 1: Forex rate	Y109.0/$ in FY16 and Y109.0/$ in FY17	→	Y10 appreciation against $
Case 2: Crude oil prices (WTI futures)	$45.0/bbl in FY16 and $45.0/bbl in FY17	→	20% rise
Case 3: World GDP	+2.7% y/y in CY16 and +3.0% y/y in CY17	→	1% contraction in world GDP level
Case 4: Long-term interest rate	-0.10% in FY16 and -0.10% in FY17	→	1% pt rise

Source: Compiled by DIR.

Effects on Real GDP (% change from standard scenario) **Chart 40**



Source: Compiled by DIR.

6.1 Yen appreciation

Appreciation of the yen could result in a decline in exports via weakened price competitiveness, which in turn would curb the production of export industries (electrical machinery, transportation equipment) and operations of related non-manufacturing industries (transportation, electric utilities, commerce), resulting in lower sales and profits, reducing cash flow, and worsening expectations of economic growth. Thus, capex would be restricted. Meanwhile, lower import prices (reflecting a stronger yen) would reduce general domestic prices, meaning lower prices of corporate and consumer goods. Thus, although the real purchasing power of households would increase, a stronger yen could adversely affect consumption because the decline in corporate profits could impact households through deterioration in the employment and income environment. However, considering the long time lag before effects on consumption are felt, the likely impact within our simulation period would be minimal. If the yen appreciates as indicated in our alternative scenario, real GDP level is forecast to shrink 0.2% and 0.5% in FY16 and FY17, respectively, compared to our standard scenario.

6.2 Surge in crude oil prices

If crude oil prices rise by 20% above our standard scenario, real GDP level is forecast to shrink 0.1% in FY16 and 0.1% again in FY17 compared to our standard scenario.

Higher crude oil prices would increase the import deflator, which would increase nominal import value, a drag on net export value. This would lower nominal GDP. At the same time, higher oil prices would increase energy prices and push up the prices of final goods through higher material prices. This would lower the real purchasing power of the household sector and depress personal spending.

Higher material costs would lower corporate profits, leading to a slowdown in capex. Weakened business sentiment would negatively affect capex the following year. Meanwhile, lower corporate profits would worsen employment and income conditions, dampening consumer sentiment. This would also depress personal spending.

6.3 Contraction of world GDP

If world demand (GDP) contracts by 1% from our standard scenario, Japan's real GDP level would shrink 0.3% in FY16 and 0.4% in FY17 compared to our standard scenario.

A slowdown in world demand would reduce exports from Japan, and the lower sales of the manufacturing sector would worsen corporate profits. Also, the decline of production activities in the manufacturing sector would spread to the non-manufacturing sector and would broadly undermine corporate profits. In addition to the decrease in corporate profits, capex would diminish due to a lower capacity utilization rate stemming from the waning of industrial production and due to the growing sentiment of excess capacity. Moreover, the decrease in corporate profits would place downward pressure on wages, and demand in the household sector in the form of personal consumption and housing investment would falter with a lag. Should such a situation arise, imports would also contract from the decrease in domestic demand.

6.4 Higher interest rates

If long-term interest rates rise 1 % point above our standard scenario, real GDP level would contract 0.2% in FY16 and 0.2% again in FY17 compared to our standard scenario. Increased fund-raising costs due to higher interest rates would curb capex and housing investment. Such an adverse impact would accelerate once it took hold.

The direct impact on individuals would depend on the amount of net interest-bearing liabilities. In the case of households, interest-bearing assets have exceeded interest-bearing liabilities. Earned income will suffer a decline due to the slowing of investment, but this will be offset by an increase in income from property. Therefore we believe the effect on personal consumption will be minor.

As in the other cases, we did not allow for changes in the external environment when estimating the impact of higher interest rates. Interest rates do not usually rise independently, but increase in response to economic recovery or a shift to a positive economic outlook. In such instances, the expected rate of inflation also increases, which restricts the rise of real interest rates. As a result, the marginal return on investment (difference between return on investment and real interest rates) remains unchanged, which is not particularly negative for capex. It is therefore possible that our simulation overemphasizes the adverse effects of higher interest rates.

However, increases in long-term interest rates due to worsening of the fiscal balance (owing to economic stimulus measures and other fiscal commitments to spending) translate into crowding out of

capex and housing investment. Thus, the impact of higher interest rates on the economy would likely be similar to that of our simulation.

Simulation Results — Chart 41

	Standard Scenario		Case 1 Y10 appreciation against $				Case 2 20% rise in crude oil prices			
	FY16	FY17	FY16		FY17		FY16		FY17	
Nominal GDP (Y/y %)	1.4	1.1	0.9	(-0.5)	0.8	(-0.8)	1.0	(-0.4)	0.9	(-0.6)
Real GDP (Chained [2005]; y/y %)	**0.8**	**-0.1**	**0.6**	**(-0.2)**	**-0.4**	**(-0.5)**	**0.8**	**(-0.1)**	**-0.1**	**(-0.1)**
GDP deflator (Y/y %)	0.6	1.2	0.3	(-0.3)	1.2	(-0.3)	0.2	(-0.4)	1.0	(-0.5)
All-industry Activity Index (Y/y %)	0.6	-0.2	0.2	(-0.4)	-0.4	(-0.6)	0.5	(-0.1)	-0.2	(-0.1)
Industrial Production Index (Y/y %)	0.2	-0.4	-1.1	(-1.4)	-1.1	(-2.0)	0.1	(-0.1)	-0.5	(-0.2)
Tertiary Industry Activity Index (Y/y %)	0.8	-0.1	0.5	(-0.3)	-0.3	(-0.4)	0.7	(-0.1)	-0.2	(-0.1)
Corporate Goods Price Index (Y/y %)	-1.1	2.8	-2.1	(-1.0)	2.5	(-1.3)	-0.6	(0.5)	3.0	(0.7)
Consumer Price Index (Y/y %)	0.2	1.9	0.0	(-0.2)	1.8	(-0.3)	0.3	(0.1)	2.0	(0.2)
Unemployment rate (%)	3.2	3.1	3.2	(0.0)	3.2	(0.0)	3.2	(-0.0)	3.1	(-0.0)
Trade balance (Y tril)	3.4	5.9	3.5	(0.1)	5.4	(-0.4)	1.7	(-1.7)	3.8	(-2.1)
Current balance (US$100 mil)	1,854	2,241	1,966	(113)	2,171	(-70)	1,724	(-130)	2,070	(-171)
Current balance (Y tril)	20.2	24.4	20.0	(-0.2)	21.9	(-2.5)	18.7	(-1.6)	22.6	(-1.9)
Real GDP components (Chained [2005]; y/y %)										
Private consumption	0.6	-1.4	0.6	(-0.0)	-1.5	(-0.1)	0.5	(-0.1)	-1.5	(-0.2)
Private housing investment	2.2	-4.8	2.0	(-0.2)	-5.2	(-0.5)	2.0	(-0.2)	-5.1	(-0.4)
Private non-housing investment	1.4	0.4	0.6	(-0.8)	-0.3	(-1.5)	1.0	(-0.4)	0.2	(-0.6)
Government final consumption	1.5	1.5	1.6	(0.1)	1.7	(0.2)	1.5	(-0.0)	1.5	(-0.0)
Public fixed investment	0.3	-6.0	0.8	(0.5)	-5.9	(0.7)	0.2	(-0.1)	-6.1	(-0.2)
Exports of goods and services	2.0	3.8	1.7	(-0.4)	3.1	(-1.0)	1.9	(-0.1)	3.7	(-0.1)
Imports of goods and services	1.3	1.0	1.0	(-0.3)	1.7	(0.4)	0.9	(-0.4)	0.8	(-0.6)

	Case 3 1% contraction of World GDP				Case 4 1% pt rise in 10-yr JGB yield				(Reference) Y5 depreciation and 20% rise in crude oil prices			
	FY16		FY17		FY16		FY17		FY16		FY17	
Nominal GDP (Y/y %)	1.1	(-0.3)	1.0	(-0.4)	1.2	(-0.2)	1.0	(-0.2)	1.2	(-0.2)	1.1	(-0.2)
Real GDP (Chained [2005]; y/y %)	**0.5**	**(-0.3)**	**-0.1**	**(-0.4)**	**0.7**	**(-0.2)**	**-0.1**	**(-0.2)**	**0.9**	**(0.0)**	**0.1**	**(0.1)**
GDP deflator (Y/y %)	0.6	(-0.0)	1.1	(-0.0)	0.6	(0.0)	1.2	(-0.0)	0.3	(-0.2)	1.0	(-0.4)
All-industry Activity Index (Y/y %)	0.4	(-0.2)	-0.2	(-0.2)	0.5	(-0.1)	-0.2	(-0.1)	0.8	(0.1)	-0.1	(0.2)
Industrial Production Index (Y/y %)	-0.7	(-0.9)	-0.5	(-0.9)	-0.0	(-0.3)	-0.6	(-0.4)	0.8	(0.5)	-0.2	(0.8)
Tertiary Industry Activity Index (Y/y %)	0.7	(-0.1)	-0.2	(-0.1)	0.7	(-0.1)	-0.1	(-0.1)	0.8	(0.1)	-0.1	(0.1)
Corporate Goods Price Index (Y/y %)	-1.2	(-0.0)	2.8	(-0.1)	-1.1	(0.0)	2.8	(-0.0)	-0.1	(1.0)	3.2	(1.4)
Consumer Price Index (Y/y %)	0.2	(-0.0)	1.9	(-0.0)	0.2	(0.0)	1.9	(-0.0)	0.4	(0.2)	2.0	(0.3)
Unemployment rate (%)	3.2	(-0.0)	3.1	(0.0)	3.2	(0.0)	3.2	(0.0)	3.2	(-0.0)	3.1	(-0.0)
Trade balance (Y tril)	2.7	(-0.6)	5.4	(-0.4)	3.7	(0.3)	6.4	(0.5)	1.6	(-1.7)	4.0	(-1.9)
Current balance (US$100 mil)	1,780	(-74)	2,150	(-91)	1,812	(-42)	1,861	(-380)	1,668	(-186)	2,105	(-136)
Current balance (Y tril)	19.3	(-0.9)	23.4	(-1.0)	19.7	(-0.5)	20.3	(-4.1)	18.8	(-1.4)	23.8	(-0.6)
Real GDP components (Chained [2005]; y/y %)												
Private consumption	0.6	(-0.1)	-1.4	(-0.0)	0.6	(-0.0)	-1.4	(-0.0)	0.5	(-0.1)	-1.4	(-0.1)
Private housing investment	2.1	(-0.1)	-5.1	(-0.4)	1.6	(-0.5)	-5.0	(-0.7)	2.1	(-0.1)	-4.9	(-0.2)
Private non-housing investment	1.2	(-0.2)	0.2	(-0.5)	0.4	(-1.0)	-0.2	(-1.6)	1.4	(0.0)	0.5	(0.1)
Government final consumption	1.5	(0.0)	1.6	(0.0)	1.5	(0.0)	1.5	(0.0)	1.5	(-0.0)	1.5	(-0.1)
Public fixed investment	0.3	(0.0)	-6.0	(0.1)	0.3	(-0.0)	-6.0	(0.0)	-0.1	(-0.4)	-6.2	(-0.5)
Exports of goods and services	0.4	(-1.6)	3.8	(-1.6)	2.0	(-0.0)	3.8	(-0.0)	2.1	(0.1)	4.0	(0.4)
Imports of goods and services	1.0	(-0.3)	1.0	(-0.3)	1.0	(-0.3)	0.8	(-0.6)	1.0	(-0.2)	0.5	(-0.8)

Source: Compiled by DIR.
Note: Figures in parentheses indicate changes from those under standard scenario. Due to rounding, they do not necessarily conform to calculations based on figures shown.

7. Quarterly Forecast Tables

1.1 Selected Economic Indicators

	2014			2015				2016	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2014	2015	2014	2015
Nominal GDP (SAAR; Y tril)	487.1	483.8	488.6	498.3	497.6	501.2	500.3	502.8	489.6	500.3	486.9	499.3
Q/q %	-0.1	-0.7	1.0	2.0	-0.1	0.7	-0.2	0.5				
Q/q %, SAAR	-0.4	-2.7	4.1	8.2	-0.6	2.9	-0.7	2.0				
Y/y %	1.9	0.5	1.3	2.2	2.2	3.6	2.2	0.8	1.5	2.2	1.6	2.5
Real GDP (chained [2005]; SAAR; Y tril)	524.1	520.6	523.4	530.3	528.0	530.1	527.8	530.0	524.8	529.0	526.1	529.0
Q/q %	-2.1	-0.7	0.5	1.3	-0.4	0.4	-0.4	0.4				
Q/q %, SAAR	-8.1	-2.7	2.1	5.4	-1.7	1.6	-1.7	1.7				
Y/y %	-0.3	-1.5	-1.0	-1.0	0.7	1.8	0.7	-0.0	-0.9	0.8	-0.0	0.6
Contribution to GDP growth (% pt)												
Domestic demand	-2.9	-0.7	0.2	1.2	-0.1	0.3	-0.5	0.2	-1.6	0.6	0.0	0.1
Foreign demand	0.9	0.1	0.4	0.1	-0.3	0.1	0.1	0.2	0.6	0.1	0.0	0.4
GDP deflator (y/y %)	2.2	2.0	2.3	3.2	1.4	1.8	1.5	0.9	2.4	1.4	1.7	2.0
Index of All-Industry Activity (2010=100)	101.1	101.1	101.7	102.6	102.5	102.5	102.3	102.2	101.7	102.4	102.0	102.5
Q/q %; y/y %	-2.8	0.0	0.6	0.9	-0.1	0.0	-0.2	-0.1	-1.1	0.7	0.1	0.4
Index of Industrial Production (2010=100)	98.8	97.4	98.2	99.3	98.0	97.0	97.1	96.1	98.4	97.0	99.0	97.8
Q/q %; y/y %	-3.1	-1.3	0.8	1.1	-1.3	-1.0	0.0	-1.0	-0.5	-1.4	2.1	-1.2
Index of Tertiary Industry Activity (2005=100)	101.2	101.7	102.2	103.1	103.3	103.4	103.3	103.4	102.1	103.4	102.3	103.2
Q/q %; y/y %	-2.8	0.5	0.6	0.8	0.2	0.1	-0.1	0.1	-1.1	1.3	-0.4	0.9
Corporate Goods Price Index components (2010=100)												
Domestic Company Goods Price Index	106.0	106.5	105.1	103.3	103.7	102.6	101.2	99.8	105.2	101.8	105.1	102.7
Y/y %	4.4	4.0	2.4	0.5	-2.2	-3.6	-3.7	-3.5	2.8	-3.2	3.2	-2.3
CPI (excl. fresh food; 2010=100)	103.3	103.5	103.4	102.7	103.4	103.4	103.4	102.6	103.2	103.2	102.7	103.2
Y/y %	3.3	3.2	2.7	2.1	0.1	-0.1	0.0	-0.1	2.8	-0.0	2.6	0.5
Unemployment rate (%)	3.6	3.6	3.5	3.5	3.4	3.4	3.3	3.2	3.5	3.3	3.6	3.4
Government bond yield (10 year; %)	0.59	0.52	0.40	0.34	0.40	0.38	0.29	-0.01	0.46	0.26	0.53	0.35
Money stock; M2 (y/y %)	3.2	3.0	3.5	3.5	3.9	4.0	3.4	3.2	3.3	3.6	3.4	3.7
Trade balance (SAAR; Y tril)	-9.4	-9.8	-6.2	-0.7	-1.6	-1.5	1.4	3.9	-6.6	0.6	-10.5	-0.6
Current balance (SAAR; $100 mil)	430	437	1,025	1,193	1,316	1,304	1,581	1,711	794	1,478	367	1,356
Current balance (SAAR; Y tril)	4.4	4.5	11.7	14.2	16.0	15.9	19.2	19.8	8.7	17.7	3.9	16.4
(% of nominal GDP)	0.9	0.9	2.4	2.8	3.2	3.2	3.8	3.9	1.8	3.5	0.8	3.3
Exchange rate (Y/$)	102.1	103.9	114.5	119.1	121.4	122.2	121.5	115.4	109.9	120.1	105.8	121.0
(Y/Euro)	139.5	137.8	143.8	132.6	135.0	135.6	131.5	128.0	138.4	132.5	140.3	133.7

Source: Compiled by DIR.
Notes: 1) Quarterly figures (excl. y/y %) seasonally adjusted, other unadjusted.
2) Index of All-Industry Activity Index: excl. agriculture, forestry, and fisheries.
3) Due to rounding, figures may differ from those released by the government.

1.2 Selected Economic Indicators

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
Nominal GDP (SAAR; Y tril)	503.1	504.9	507.9	513.4	511.6	512.0	513.1	515.4	507.3	513.0	504.6	512.5
Q/q %	0.0	0.4	0.6	1.1	-0.4	0.1	0.2	0.5				
Q/q %, SAAR	0.2	1.5	2.3	4.5	-1.4	0.3	0.8	1.8				
Y/y %	1.1	0.7	1.6	2.1	1.7	1.4	1.0	0.4	1.4	1.1	1.1	1.6
Real GDP (chained [2005]; SAAR; Y tril)	529.8	531.2	533.4	538.7	531.8	532.3	533.0	534.9	533.4	533.1	531.2	534.0
Q/q %	-0.0	0.3	0.4	1.0	-1.3	0.1	0.1	0.4				
Q/q %, SAAR	-0.2	1.1	1.7	4.0	-5.0	0.3	0.6	1.4				
Y/y %	0.3	0.2	1.1	1.6	0.4	0.2	-0.1	-0.7	0.8	-0.1	0.4	0.5
Contribution to GDP growth (% pt)												
Domestic demand	-0.1	0.2	0.4	1.2	-1.8	0.0	0.1	0.3	0.7	-0.6	0.2	0.3
Foreign demand	0.0	0.0	-0.0	-0.2	0.6	0.1	0.1	0.1	0.2	0.5	0.2	0.2
GDP deflator (y/y %)	0.7	0.5	0.5	0.5	1.3	1.2	1.1	1.1	0.6	1.2	0.7	1.0
Index of All-Industry Activity (2010=100)	102.0	102.4	103.0	104.6	102.7	102.7	102.8	103.0	103.0	102.8	102.4	103.2
Q/q %; y/y %	-0.2	0.4	0.5	1.6	-1.8	-0.1	0.2	0.2	0.6	-0.2	-0.1	0.8
Index of Industrial Production (2010=100)	95.7	96.6	97.4	99.4	97.2	96.3	96.7	97.1	97.3	96.8	96.4	97.4
Q/q %; y/y %	-0.4	0.9	0.8	2.0	-2.2	-0.9	0.4	0.5	0.2	-0.4	-1.4	1.0
Index of Tertiary Industry Activity (2005=100)	103.3	103.6	104.0	105.6	103.8	104.0	104.1	104.2	104.2	104.1	103.5	104.3
Q/q %; y/y %	-0.1	0.3	0.4	1.5	-1.7	0.1	0.1	0.1	0.8	-0.1	0.3	0.8
Corporate Goods Price Index components (2010=100)												
Domestic Company Goods Price Index	100.2	100.6	100.8	101.0	103.2	103.4	103.6	103.9	100.7	103.5	100.3	102.8
Y/y %	-3.4	-2.0	-0.4	1.3	3.0	2.8	2.7	2.8	-1.1	2.8	-2.3	2.4
CPI (excl. fresh food; 2010=100)	103.1	103.4	103.7	103.4	105.0	105.4	105.7	105.3	103.4	105.3	103.2	104.8
Y/y %	-0.3	-0.0	0.3	0.7	1.9	1.9	1.9	1.9	0.2	1.9	-0.0	1.6
Unemployment rate (%)	3.2	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.2	3.1	3.2	3.1
Government bond yield (10 year; %)	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.08	-0.10
Money stock; M2 (y/y %)	3.8	3.9	4.2	4.1	4.1	4.1	4.1	4.1	4.0	4.1	3.8	4.1
Trade balance (SAAR; Y tril)	3.6	3.5	3.7	2.7	5.3	5.7	6.0	6.4	3.4	5.9	3.7	4.9
Current balance (SAAR; $100 mil)	1,853	1,869	1,895	1,798	2,143	2,206	2,274	2,341	1,854	2,241	1,832	2,105
Current balance (SAAR; Y tril)	20.2	20.4	20.7	19.6	23.4	24.0	24.8	25.5	20.2	24.4	20.2	22.9
(% of nominal GDP)	4.0	4.0	4.1	3.8	4.6	4.7	4.8	5.0	4.0	4.8	4.0	4.5
Exchange rate (Y/$)	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	110.6	109.0
(Y/Euro)	123.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	124.5	125.0	125.2	125.0

Source: Compiled by DIR.
Notes: 1) Quarterly figures (excl. y/y %) seasonally adjusted, other unadjusted.
2) Index of All-Industry Activity Index: excl. agriculture, forestry, and fisheries.
3) Due to rounding, figures may differ from those released by the government.
E: DIR estimate.

2.1 Real Gross Domestic Expenditure (chained [2005]; Y tril)

	2014			2015				2016	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2014	2015	2014	2015
Gross domestic expenditure	524.1	520.6	523.4	530.3	528.0	530.1	527.8	530.0	524.8	529.0	526.1	529.0
Q/q %, SAAR	-8.1	-2.7	2.1	5.4	-1.7	1.6	-1.7	1.7				
Y/y %	-0.3	-1.5	-1.0	-1.0	0.7	1.8	0.7	-0.0	-0.9	0.8	-0.0	0.6
Domestic demand	515.8	512.4	513.4	519.3	518.6	520.2	517.6	518.8	515.4	518.8	518.5	519.0
Q/q %, SAAR	-11.3	-2.6	0.8	4.7	-0.5	1.2	-1.9	0.9				
Y/y %	-0.3	-1.7	-1.9	-2.3	0.6	1.5	0.7	-0.1	-1.6	0.7	-0.0	0.1
Private demand	392.3	388.3	388.9	395.1	393.3	395.1	392.6	393.0	391.3	393.5	394.3	394.0
Q/q %, SAAR	-13.8	-4.1	0.7	6.5	-1.8	1.9	-2.5	0.4				
Y/y %	-0.3	-2.1	-2.4	-3.0	0.3	1.7	0.8	-0.5	-2.0	0.6	-0.1	-0.1
Final consumption	305.9	306.1	307.8	308.5	306.0	307.5	304.9	306.4	307.2	306.2	310.5	306.7
Q/q %, SAAR	-18.2	0.2	2.3	0.8	-3.2	2.0	-3.3	1.9				
Y/y %	-2.5	-2.7	-2.1	-4.1	0.1	0.4	-1.0	-0.6	-2.9	-0.3	-0.9	-1.2
Residential investment	13.8	12.9	12.8	13.1	13.4	13.6	13.5	13.4	13.1	13.5	13.7	13.4
Q/q %, SAAR	-36.4	-25.5	-1.0	8.7	9.0	6.8	-4.1	-3.0				
Y/y %	-2.1	-12.5	-15.5	-15.4	-3.2	5.9	4.8	2.0	-11.7	2.4	-5.3	-2.5
Non-residential investment	70.3	69.9	69.8	72.5	71.3	71.8	72.6	71.7	70.7	71.9	71.0	72.1
Q/q %, SAAR	-17.0	-2.1	-0.7	16.3	-6.2	2.7	4.7	-5.3				
Y/y %	1.5	0.6	-0.1	-1.3	1.3	2.6	4.1	-0.9	0.1	1.6	3.1	1.5
Change in inventories	2.3	-0.6	-1.6	1.0	2.6	2.2	1.6	1.6	0.3	2.0	-0.9	1.9
Public demand	123.5	124.1	124.5	124.2	125.4	125.0	125.0	125.9	124.2	125.3	124.3	124.9
Q/q %, SAAR	-2.7	2.1	1.2	-0.8	3.6	-1.0	-0.0	2.6				
Y/y %	-0.2	-0.4	-0.3	-0.3	1.4	0.8	0.3	1.1	-0.3	0.9	0.2	0.5
Government final consumption	101.8	102.1	102.4	102.7	103.2	103.4	104.2	104.9	102.3	104.0	102.2	103.4
Q/q %, SAAR	-0.9	1.0	1.1	1.2	2.1	0.7	2.9	2.8				
Y/y %	-0.3	-0.2	0.3	0.6	1.4	1.3	1.7	2.1	0.1	1.6	0.1	1.2
Fixed investment	21.6	21.9	22.1	21.5	22.1	21.6	20.9	21.0	21.8	21.3	22.1	21.5
Q/q %, SAAR	-10.4	4.7	3.9	-10.7	12.6	-8.5	-13.1	1.3				
Y/y %	-0.1	-2.6	-2.5	-4.1	2.1	-0.7	-5.2	-3.0	-2.6	-2.2	0.4	-2.5
Change in inventories	0.0	0.1	0.0	0.1	-0.0	-0.0	-0.0	0.0	0.1	-0.0	0.0	0.0
Net exports of goods and services	9.6	10.2	12.3	13.1	10.7	11.7	11.9	12.8	11.3	11.7	9.6	11.9
Exports of goods and services	88.7	90.0	93.0	95.1	90.5	92.9	92.1	92.7	91.7	92.0	90.1	92.6
Q/q %, SAAR	0.0	6.1	14.2	8.9	-17.8	10.8	-3.1	2.4				
Y/y %	5.5	7.5	11.2	7.3	1.9	3.1	-0.9	-2.5	7.9	0.4	8.3	2.8
Imports of goods and services	79.0	79.8	80.7	81.9	79.8	81.1	80.3	79.9	80.4	80.3	80.5	80.8
Q/q %, SAAR	-16.1	4.0	4.6	6.0	-9.8	6.8	-4.3	-1.8				
Y/y %	5.9	5.1	3.6	-0.6	0.8	1.5	-0.5	-2.3	3.4	-0.1	7.2	0.3

Source: Compiled by DIR.
Notes: 1) Subtotals by demand (domestic demand, private demand, and public demand) are simple aggregates of respective components, which differ from figures released by the government.
2) Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.
3) Due to rounding, figures may differ from those released by the government.

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2.2 Real Gross Domestic Expenditure (chained [2005]; Y tril)

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
Gross domestic expenditure	529.8	531.2	533.4	538.7	531.8	532.3	533.0	534.9	533.4	533.1	531.2	534.0
Q/q %, SAAR	-0.2	1.1	1.7	4.0	-5.0	0.3	0.6	1.4				
Y/y %	0.3	0.2	1.1	1.6	0.4	0.2	-0.1	-0.7	0.8	-0.1	0.4	0.5
Domestic demand	518.5	519.7	522.1	528.6	518.7	518.8	519.1	520.5	522.5	519.3	519.9	521.5
Q/q %, SAAR	-0.2	1.0	1.8	5.1	-7.3	0.1	0.2	1.1				
Y/y %	0.0	-0.1	0.9	2.0	0.1	-0.2	-0.7	-1.6	0.7	-0.6	0.2	0.3
Private demand	392.4	393.1	394.7	401.2	391.5	391.6	392.1	392.9	395.5	392.1	393.4	394.2
Q/q %, SAAR	-0.5	0.7	1.7	6.7	-9.3	0.1	0.4	0.9				
Y/y %	-0.3	-0.5	0.6	2.2	-0.2	-0.4	-0.7	-2.1	0.5	-0.9	-0.2	0.2
Final consumption	305.7	306.0	307.6	312.8	304.0	303.1	303.4	304.0	308.1	303.7	306.5	305.9
Q/q %, SAAR	-0.8	0.4	2.0	7.0	-10.7	-1.2	0.4	0.8				
Y/y %	-0.1	-0.4	0.9	2.1	-0.5	-1.0	-1.4	-2.8	0.6	-1.4	-0.1	-0.2
Residential investment	13.4	13.5	13.9	14.1	13.1	13.1	13.1	13.1	13.7	13.1	13.6	13.3
Q/q %, SAAR	0.8	4.9	11.2	6.1	-25.5	-1.2	-0.4	0.5				
Y/y %	-0.0	-0.5	3.4	5.7	-2.0	-3.4	-6.1	-7.3	2.2	-4.8	1.3	-1.6
Non-residential investment	71.7	71.9	72.4	74.9	72.9	73.0	73.2	73.4	72.9	73.2	72.0	73.6
Q/q %, SAAR	0.4	1.1	2.4	14.8	-10.0	0.4	0.8	1.2				
Y/y %	0.7	0.2	-0.4	4.4	1.7	1.5	1.1	-2.0	1.4	0.4	-0.2	2.3
Change in inventories	1.6	1.6	0.9	-0.6	1.4	2.4	2.4	2.4	0.8	2.1	1.4	1.4
Public demand	126.0	126.6	127.4	127.4	127.2	127.2	127.1	127.6	126.9	127.3	126.5	127.3
Q/q %, SAAR	0.6	1.9	2.3	0.2	-0.6	-0.1	-0.4	1.8				
Y/y %	0.8	1.3	1.9	1.3	1.0	0.5	-0.4	-0.0	1.3	0.3	1.3	0.6
Government final consumption	105.0	105.3	105.7	106.1	106.5	107.0	107.2	107.8	105.6	107.2	105.2	106.7
Q/q %, SAAR	0.4	1.2	1.5	1.4	1.6	2.1	0.4	2.4				
Y/y %	1.7	1.8	1.5	1.1	1.4	1.7	1.4	1.6	1.5	1.5	1.8	1.4
Fixed investment	21.1	21.3	21.7	21.3	20.7	20.1	19.9	19.8	21.4	20.1	21.2	20.5
Q/q %, SAAR	1.7	5.2	6.4	-5.8	-10.8	-10.8	-5.0	-1.5				
Y/y %	-4.8	-1.7	3.5	2.1	-1.6	-5.4	-8.1	-7.3	0.3	-6.0	-1.2	-3.3
Change in inventories	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net exports of goods and services	12.8	13.0	12.9	11.6	14.7	15.0	15.5	15.9	12.6	15.3	12.9	14.2
Exports of goods and services	92.6	93.5	94.4	95.1	95.9	96.6	97.9	99.3	93.9	97.4	93.3	96.4
Q/q %, SAAR	-0.4	3.8	4.1	3.2	3.0	3.2	5.3	6.1				
Y/y %	2.4	0.7	2.4	2.7	3.5	3.4	3.7	4.4	2.0	3.8	0.7	3.3
Imports of goods and services	79.7	80.4	81.5	83.5	81.2	81.6	82.4	83.4	81.3	82.2	80.4	82.2
Q/q %, SAAR	-0.8	3.6	5.3	10.4	-10.7	2.0	4.1	4.9				
Y/y %	-0.0	-0.8	1.5	4.5	1.8	1.4	1.2	-0.1	1.3	1.0	-0.4	2.2

Source: Compiled by DIR.
Notes: 1) Subtotals by demand (domestic demand, private demand, and public demand) are simple aggregates of respective components, which differ from figures released by the government.
2) Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.
3) Due to rounding, figures may differ from those released by the government.
E: DIR estimate.

3.1 Nominal Gross Domestic Expenditure (Y tril)

	2014			2015				2016	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2014	2015	2014	2015
Gross domestic expenditure	487.1	483.8	488.6	498.3	497.6	501.2	500.3	502.8	489.6	500.3	486.9	499.3
Q/q %, SAAR	-0.4	-2.7	4.1	8.2	-0.6	2.9	-0.7	2.0				
Y/y %	1.9	0.5	1.3	2.2	2.2	3.6	2.2	0.8	1.5	2.2	1.6	2.5
Domestic demand	501.4	498.1	499.6	504.2	504.0	505.5	503.0	501.8	501.0	503.5	502.1	504.2
Q/q %, SAAR	-5.4	-2.6	1.2	3.7	-0.1	1.2	-1.9	-1.0				
Y/y %	2.4	0.6	0.1	-0.9	0.6	1.5	0.5	-0.6	0.5	0.5	1.9	0.4
Private demand	377.6	373.4	374.4	379.1	378.4	380.1	377.6	375.9	376.2	378.0	377.8	378.8
Q/q %, SAAR	-7.7	-4.4	1.2	5.1	-0.8	1.8	-2.6	-1.8				
Y/y %	2.4	0.2	-0.6	-1.6	0.3	1.8	0.7	-0.9	0.1	0.5	1.8	0.3
Final consumption	292.2	292.6	294.2	293.6	291.7	293.3	290.9	290.6	293.2	291.7	295.4	292.4
Q/q %, SAAR	-12.7	0.6	2.2	-0.8	-2.6	2.2	-3.3	-0.5				
Y/y %	0.2	-0.3	-0.2	-2.9	-0.1	0.2	-1.2	-1.0	-0.8	-0.5	1.1	-1.0
Residential investment	15.2	14.1	14.1	14.4	14.7	14.9	14.8	14.6	14.4	14.8	15.0	14.7
Q/q %, SAAR	-28.7	-26.5	-1.1	10.4	7.9	6.5	-3.4	-5.7				
Y/y %	2.7	-9.0	-13.1	-13.0	-3.4	5.9	5.0	1.1	-8.5	2.2	-2.0	-1.7
Non-residential investment	67.7	67.5	67.7	70.3	69.5	70.0	70.7	69.1	68.4	69.8	68.4	70.1
Q/q %, SAAR	-14.2	-0.9	1.0	16.2	-4.3	2.9	3.9	-8.5				
Y/y %	3.0	2.0	1.5	0.1	2.5	3.6	4.4	-1.5	1.5	2.1	4.5	2.5
Change in inventories	2.5	-0.9	-1.5	0.8	2.5	1.9	1.3	1.7	0.2	1.8	-1.0	1.6
Public demand	123.8	124.8	125.2	125.1	125.6	125.4	125.4	125.9	124.7	125.5	124.3	125.3
Q/q %, SAAR	2.0	3.1	1.4	-0.5	1.9	-0.8	-0.0	1.6				
Y/y %	2.1	2.1	2.1	1.3	1.3	0.5	0.1	0.4	1.9	0.6	2.2	0.8
Government final consumption	100.4	100.8	101.2	101.5	101.5	101.9	102.6	103.1	101.0	102.3	100.5	101.9
Q/q %, SAAR	4.1	1.7	1.5	1.0	0.3	1.4	3.0	2.0				
Y/y %	1.9	1.9	2.7	2.1	1.1	1.0	1.5	1.7	2.2	1.3	1.8	1.4
Fixed investment	23.4	23.8	24.0	23.5	24.1	23.5	22.7	22.7	23.7	23.2	23.8	23.4
Q/q %, SAAR	-5.9	6.8	3.8	-8.2	10.6	-8.8	-12.8	0.1				
Y/y %	3.8	1.2	0.1	-1.9	2.8	-0.5	-5.0	-3.8	0.4	-2.2	3.4	-1.6
Change in inventories	0.1	0.2	0.0	0.1	0.0	-0.0	0.0	0.0	0.1	0.0	0.1	0.0
Net exports of goods and services	-14.3	-14.3	-11.0	-5.9	-6.5	-4.3	-2.8	1.0	-11.4	-3.1	-15.2	-4.9
Exports of goods and services	83.6	86.1	91.7	92.0	88.1	90.1	87.0	84.3	88.4	87.4	86.4	89.3
Q/q %, SAAR	-1.1	12.1	28.7	1.5	-15.8	9.0	-12.9	-12.0				
Y/y %	6.6	9.6	16.3	9.5	5.1	4.8	-4.9	-8.6	10.5	-1.2	11.4	3.4
Imports of goods and services	98.0	100.4	102.7	97.9	94.6	94.4	89.8	83.3	99.8	90.5	101.6	94.2
Q/q %, SAAR	-23.6	10.3	9.3	-17.4	-12.7	-0.9	-18.2	-25.9				
Y/y %	8.7	8.8	7.0	-7.0	-3.8	-5.8	-12.2	-15.2	4.0	-9.3	11.4	-7.3

Source: Compiled by DIR.
Notes: 1)Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.
2) Due to rounding, figures may differ from those released by the government.

3.2 Nominal Gross Domestic Expenditure (Y tril)

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
Gross domestic expenditure	503.1	504.9	507.9	513.4	511.6	512.0	513.1	515.4	507.3	513.0	504.6	512.5
Q/q %, SAAR	0.2	1.5	2.3	4.5	-1.4	0.3	0.8	1.8				
Y/y %	1.1	0.7	1.6	2.1	1.7	1.4	1.0	0.4	1.4	1.1	1.1	1.6
Domestic demand	502.1	504.1	507.1	514.0	508.9	508.9	509.6	511.5	507.0	509.6	503.8	510.4
Q/q %, SAAR	0.3	1.5	2.4	5.5	-3.9	0.0	0.5	1.5				
Y/y %	-0.3	-0.3	0.9	2.6	1.4	0.9	0.4	-0.6	0.7	0.5	-0.1	1.3
Private demand	375.9	377.1	379.2	385.9	380.6	380.6	381.4	382.6	379.7	381.3	377.1	382.2
Q/q %, SAAR	0.0	1.3	2.3	7.3	-5.4	0.0	0.8	1.3				
Y/y %	-0.7	-0.8	0.5	2.8	1.2	0.9	0.5	-0.9	0.4	0.4	-0.5	1.4
Final consumption	290.3	290.9	292.6	297.9	293.0	291.9	292.3	293.0	292.9	292.6	291.1	293.8
Q/q %, SAAR	-0.4	0.8	2.4	7.4	-6.4	-1.6	0.6	1.0				
Y/y %	-0.5	-0.8	0.6	2.5	1.0	0.3	-0.1	-1.6	0.4	-0.1	-0.4	0.9
Residential investment	14.7	14.9	15.3	15.6	14.8	14.7	14.7	14.8	15.1	14.7	14.9	14.9
Q/q %, SAAR	1.9	6.1	12.5	7.3	-19.1	-1.6	-0.5	1.3				
Y/y %	-0.3	-0.4	3.6	6.9	0.9	-0.9	-4.0	-5.3	2.4	-2.4	1.0	0.6
Non-residential investment	69.3	69.7	70.4	73.1	71.4	71.6	71.9	72.3	70.8	71.8	69.6	72.0
Q/q %, SAAR	1.4	2.2	3.8	16.5	-9.2	1.1	1.8	2.6				
Y/y %	-0.1	-0.4	-0.4	5.7	2.9	2.6	2.1	-1.0	1.4	1.5	-0.6	3.4
Change in inventories	1.7	1.7	0.9	-0.6	1.4	2.5	2.5	2.5	0.9	2.2	1.4	1.4
Public demand	126.2	127.0	127.9	128.0	128.2	128.3	128.2	128.9	127.3	128.3	126.7	128.2
Q/q %, SAAR	1.0	2.4	3.0	0.5	0.6	0.0	-0.2	2.1				
Y/y %	0.8	1.2	2.0	1.8	1.7	1.0	0.1	0.3	1.5	0.8	1.1	1.1
Government final consumption	103.3	103.8	104.3	104.7	105.5	106.1	106.4	107.1	104.0	106.3	103.6	105.7
Q/q %, SAAR	0.8	1.6	1.9	1.8	3.0	2.5	0.8	2.8				
Y/y %	1.8	1.9	1.6	1.5	2.1	2.3	2.0	2.3	1.7	2.2	1.7	2.0
Fixed investment	22.8	23.2	23.6	23.3	22.7	22.1	21.8	21.7	23.3	22.0	23.1	22.5
Q/q %, SAAR	1.7	6.1	7.6	-5.0	-9.6	-10.8	-5.0	-1.5				
Y/y %	-5.1	-1.7	3.7	2.9	-0.5	-4.6	-7.6	-6.9	0.5	-5.4	-1.4	-2.6
Change in inventories	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net exports of goods and services	0.9	0.9	0.7	-0.6	2.8	3.1	3.5	3.9	0.5	3.3	0.9	2.2
Exports of goods and services	84.3	85.4	86.5	87.6	88.6	89.6	91.1	92.8	86.0	90.6	85.1	89.3
Q/q %, SAAR	0.4	4.9	5.5	5.0	4.9	4.6	6.8	7.7				
Y/y %	-4.2	-5.3	-0.7	4.1	5.0	5.0	5.4	5.9	-1.6	5.3	-4.7	4.9
Imports of goods and services	83.4	84.5	85.8	88.1	85.9	86.5	87.6	88.9	85.5	87.2	84.2	87.1
Q/q %, SAAR	0.8	5.3	6.1	11.4	-9.8	3.0	5.1	6.0				
Y/y %	-11.7	-10.6	-4.6	6.0	2.8	2.4	2.2	0.8	-5.5	2.0	-10.6	3.4

Source: Compiled by DIR.
Notes: 1)Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.
2) Due to rounding, figures may differ from those released by the government.
E: DIR estimate.

4.1 Gross Domestic Expenditure, Implicit Deflators (2005=100)

	2014	2015						2016	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2014	2015	2014	2015
Gross domestic expenditure	92.9	92.9	93.4	94.0	94.2	94.5	94.8	94.9	93.3	94.6	92.5	94.4
Q/q %, SAAR	2.0	-0.0	0.5	0.7	0.3	0.3	0.3	0.1				
Y/y %	2.2	2.0	2.3	3.2	1.4	1.8	1.5	0.9	2.4	1.4	1.7	2.0
Private final consumption	95.5	95.6	95.6	95.2	95.3	95.4	95.4	94.9	95.5	95.2	95.1	95.3
Q/q %, SAAR	1.7	0.1	-0.0	-0.4	0.2	0.1	0.0	-0.6				
Y/y %	2.7	2.4	1.9	1.3	-0.2	-0.2	-0.2	-0.4	2.1	-0.2	1.9	0.2
Private residential investment	110.0	109.7	109.7	110.1	109.8	109.7	109.9	109.2	109.9	109.7	109.0	109.9
Q/q %, SAAR	2.9	-0.3	-0.0	0.4	-0.3	-0.1	0.2	-0.7				
Y/y %	4.9	3.9	2.9	2.9	-0.2	0.1	0.2	-0.9	3.6	-0.2	3.5	0.8
Private non-residential investment	96.3	96.6	97.0	96.9	97.4	97.4	97.3	96.4	96.7	97.1	96.3	97.3
Q/q %, SAAR	0.8	0.3	0.4	-0.0	0.5	0.0	-0.2	-0.9				
Y/y %	1.4	1.4	1.6	1.5	1.2	0.9	0.3	-0.6	1.5	0.4	1.3	1.0
Government final consumption	98.6	98.7	98.8	98.8	98.3	98.5	98.5	98.4	98.7	98.4	98.3	98.5
Q/q %, SAAR	1.2	0.2	0.1	-0.0	-0.4	0.2	0.0	-0.2				
Y/y %	2.1	2.1	2.4	1.5	-0.2	-0.3	-0.3	-0.4	2.0	-0.3	1.6	0.2
Public fixed investment	108.1	108.6	108.5	109.3	108.8	108.7	108.8	108.5	108.7	108.7	107.9	108.9
Q/q %, SAAR	1.2	0.5	-0.0	0.7	-0.5	-0.1	0.1	-0.3				
Y/y %	3.9	3.9	2.6	2.3	0.8	0.2	0.3	-0.8	3.1	0.0	3.0	0.9
Exports of goods and services	94.3	95.6	98.5	96.8	97.4	97.0	94.4	90.9	96.4	94.9	95.9	96.4
Q/q %, SAAR	-0.3	1.4	3.0	-1.8	0.6	-0.4	-2.6	-3.7				
Y/y %	1.0	1.9	4.6	2.1	3.1	1.6	-4.0	-6.3	2.4	-1.5	2.8	0.6
Imports of goods and services	124.0	125.8	127.2	119.5	118.5	116.3	111.8	104.2	124.1	112.7	126.2	116.6
Q/q %, SAAR	-2.3	1.5	1.1	-6.0	-0.8	-1.9	-3.9	-6.8				
Y/y %	2.6	3.5	3.3	-6.4	-4.6	-7.2	-11.8	-13.2	0.6	-9.2	3.9	-7.6

Source: Compiled by DIR.
Notes: 1) Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.
2) Due to rounding, figures may differ from those released by the government.

4.2 Gross Domestic Expenditure, Implicit Deflators (2005=100)

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
Gross domestic expenditure	95.0	95.1	95.2	95.3	96.2	96.2	96.3	96.4	95.1	96.2	95.0	96.0
Q/q %, SAAR	0.1	0.1	0.2	0.1	0.9	-0.0	0.1	0.1				
Y/y %	0.7	0.5	0.5	0.5	1.3	1.2	1.1	1.1	0.6	1.2	0.7	1.0
Private final consumption	94.9	95.0	95.1	95.2	96.4	96.3	96.3	96.4	95.1	96.3	95.0	96.0
Q/q %, SAAR	0.1	0.1	0.1	0.1	1.2	-0.1	0.0	0.0				
Y/y %	-0.4	-0.4	-0.3	0.4	1.5	1.3	1.2	1.2	-0.2	1.3	-0.4	1.1
Private residential investment	109.5	109.8	110.1	110.4	112.7	112.6	112.5	112.8	109.9	112.6	109.6	112.0
Q/q %, SAAR	0.3	0.3	0.3	0.3	2.1	-0.1	-0.0	0.2				
Y/y %	-0.3	0.0	0.1	1.1	3.0	2.6	2.3	2.2	0.2	2.5	-0.2	2.2
Private non-residential investment	96.7	96.9	97.2	97.6	97.8	98.0	98.2	98.6	97.1	98.2	96.8	97.9
Q/q %, SAAR	0.2	0.3	0.3	0.4	0.2	0.2	0.2	0.3				
Y/y %	-0.8	-0.6	-0.0	1.2	1.2	1.1	1.0	1.0	0.0	1.1	-0.5	1.2
Government final consumption	98.5	98.6	98.7	98.7	99.1	99.2	99.3	99.4	98.6	99.2	98.5	99.0
Q/q %, SAAR	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1				
Y/y %	0.1	0.1	0.1	0.4	0.6	0.6	0.6	0.6	0.2	0.6	-0.0	0.6
Public fixed investment	108.5	108.7	109.0	109.3	109.6	109.6	109.7	109.7	108.9	109.7	108.7	109.5
Q/q %, SAAR	-0.0	0.2	0.3	0.2	0.3	0.0	0.0	0.0				
Y/y %	-0.3	-0.0	0.2	0.8	1.1	0.9	0.6	0.4	0.2	0.7	-0.2	0.8
Exports of goods and services	91.1	91.4	91.7	92.1	92.5	92.8	93.1	93.4	91.5	92.9	91.2	92.6
Q/q %, SAAR	0.2	0.3	0.3	0.4	0.4	0.3	0.4	0.4				
Y/y %	-6.4	-5.9	-3.0	1.4	1.5	1.6	1.6	1.4	-3.5	1.5	-5.4	1.5
Imports of goods and services	104.6	105.1	105.3	105.5	105.8	106.0	106.3	106.6	105.1	106.1	104.7	105.9
Q/q %, SAAR	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.3				
Y/y %	-11.6	-9.8	-6.0	1.5	1.0	1.0	1.0	0.9	-6.7	1.0	-10.2	1.1

Source: Compiled by DIR.
Notes: 1) Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.
2) Due to rounding, figures may differ from those released by the government.
E: DIR estimate.

5.1 Contribution to Real GDP Growth by Component

	2014			2015				2016	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2014	2015	2014	2015
1) Q/q %												
GDP growth rate	-2.1	-0.7	0.5	1.3	-0.4	0.4	-0.4	0.4	-0.9	0.8	-0.0	0.6
Domestic demand	-2.9	-0.7	0.2	1.2	-0.1	0.3	-0.5	0.2	-1.6	0.6	0.0	0.1
Private demand	-2.8	-0.9	0.1	1.3	-0.3	0.4	-0.5	0.1	-1.5	0.4	-0.1	0.0
Private consumption	-3.0	0.0	0.3	0.1	-0.5	0.3	-0.5	0.3	-1.7	-0.2	-0.5	-0.7
Residential investment	-0.4	-0.2	-0.0	0.1	0.1	0.0	-0.0	-0.0	-0.4	0.1	-0.2	-0.1
Private fixed investment	-0.7	-0.1	-0.0	0.5	-0.2	0.1	0.2	-0.2	0.0	0.2	0.4	0.2
Change in private inventories	1.3	-0.6	-0.2	0.6	0.3	-0.1	-0.1	-0.0	0.6	0.3	0.2	0.6
Public demand	-0.2	0.1	0.1	-0.1	0.2	-0.1	-0.0	0.2	-0.1	0.2	0.1	0.1
Government final consumption	-0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.3	0.0	0.3
Public fixed investment	-0.1	0.1	0.0	-0.1	0.1	-0.1	-0.2	0.0	-0.1	-0.1	0.0	-0.1
Change in public inventories	-0.0	0.0	-0.0	0.0	-0.0	0.0	-0.0	0.0	0.0	-0.0	0.0	-0.0
Net exports of goods and services	0.9	0.1	0.4	0.1	-0.3	0.1	0.1	0.2	0.6	0.1	0.0	0.4
Exports of goods and services	0.0	0.3	0.6	0.4	-0.9	0.5	-0.1	0.1	1.3	0.1	1.3	0.5
Imports of goods and services	0.9	-0.2	-0.2	-0.3	0.5	-0.3	0.2	0.1	-0.7	0.0	-1.4	-0.1
2) Y/y %												
GDP growth rate	-0.3	-1.5	-1.0	-1.0	0.7	1.8	0.7	-0.0	-0.9	0.8	-0.0	0.6
Domestic demand	-0.2	-1.7	-2.0	-2.3	0.6	1.6	0.7	-0.0	-1.6	0.6	0.0	0.1
Private demand	-0.1	-1.6	-1.9	-2.2	0.2	1.4	0.7	-0.3	-1.5	0.4	-0.1	0.0
Private consumption	-1.5	-1.7	-1.3	-2.5	0.0	0.2	-0.6	-0.3	-1.7	-0.2	-0.5	-0.7
Residential investment	-0.1	-0.4	-0.5	-0.5	-0.1	0.2	0.1	0.1	-0.4	0.1	-0.2	-0.1
Private fixed investment	0.2	0.1	-0.0	-0.2	0.2	0.4	0.5	-0.1	0.0	0.2	0.4	0.2
Change in private inventories	1.3	0.4	-0.1	1.0	0.1	0.6	0.6	0.1	0.6	0.3	0.2	0.6
Public demand	-0.1	-0.1	-0.1	-0.1	0.3	0.2	0.1	0.2	-0.1	0.2	0.1	0.1
Government final consumption	-0.1	-0.0	0.1	0.1	0.3	0.3	0.4	0.5	0.0	0.3	0.0	0.3
Public fixed investment	-0.0	-0.1	-0.1	-0.2	0.1	-0.0	-0.3	-0.1	-0.1	-0.1	0.0	-0.1
Change in public inventories	0.0	0.1	-0.0	0.0	-0.0	-0.0	-0.0	-0.0	0.0	-0.0	0.0	-0.0
Net exports of goods and services	-0.2	0.2	1.1	1.4	0.2	0.2	-0.1	-0.0	0.6	0.1	0.0	0.4
Exports of goods and services	0.9	1.2	1.8	1.2	0.3	0.6	-0.2	-0.5	1.3	0.1	1.3	0.5
Imports of goods and services	-1.1	-1.0	-0.7	0.1	-0.2	-0.3	0.1	0.4	-0.7	0.0	-1.4	-0.1

Source: Compiled by DIR.
Notes: 1) Q/q growth rates seasonally adjusted; y/y growth rates and FY and CY figures unadjusted.
2) Due to rounding, figures may differ from those released by the government.

5.2 Contribution to Real GDP Growth by Component

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
1) Q/q %												
GDP growth rate	-0.0	0.3	0.4	1.0	-1.3	0.1	0.1	0.4	0.8	-0.1	0.4	0.5
Domestic demand	-0.1	0.2	0.4	1.2	-1.8	0.0	0.1	0.3	0.7	-0.6	0.2	0.3
Private demand	-0.1	0.1	0.3	1.2	-1.8	0.0	0.1	0.2	0.4	-0.7	-0.1	0.2
Private consumption	-0.1	0.1	0.3	1.0	-1.6	-0.2	0.1	0.1	0.4	-0.8	-0.0	-0.1
Residential investment	0.0	0.0	0.1	0.0	-0.2	-0.0	-0.0	0.0	0.1	-0.1	0.0	-0.0
Private fixed investment	0.0	0.0	0.1	0.5	-0.4	0.0	0.0	0.0	0.2	0.1	-0.0	0.3
Change in private inventories	0.0	0.0	-0.1	-0.3	0.4	0.2	0.0	0.0	-0.2	0.2	-0.1	0.0
Public demand	0.0	0.1	0.1	0.0	-0.0	-0.0	-0.0	0.1	0.3	0.1	0.3	0.1
Government final consumption	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.3	0.3	0.4	0.3
Public fixed investment	0.0	0.1	0.1	-0.1	-0.1	-0.1	-0.0	-0.0	0.0	-0.2	-0.1	-0.2
Change in public inventories	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	0.0	0.0
Net exports of goods and services	0.0	0.0	-0.0	-0.2	0.6	0.1	0.1	0.1	0.2	0.5	0.2	0.2
Exports of goods and services	-0.0	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.4	0.7	0.1	0.6
Imports of goods and services	0.0	-0.1	-0.2	-0.4	0.4	-0.1	-0.2	-0.2	-0.2	-0.2	0.1	-0.4
2) Y/y %												
GDP growth rate	0.3	0.2	1.1	1.6	0.4	0.2	-0.1	-0.7	0.8	-0.1	0.4	0.5
Domestic demand	0.0	-0.1	0.9	1.9	0.1	-0.2	-0.6	-1.6	0.7	-0.6	0.2	0.3
Private demand	-0.2	-0.4	0.4	1.6	-0.2	-0.3	-0.5	-1.6	0.4	-0.7	-0.1	0.2
Private consumption	-0.1	-0.2	0.5	1.2	-0.3	-0.6	-0.8	-1.6	0.4	-0.8	-0.0	-0.1
Residential investment	-0.0	-0.0	0.1	0.1	-0.0	-0.1	-0.2	-0.2	0.1	-0.1	0.0	-0.0
Private fixed investment	0.1	0.0	-0.0	0.7	0.2	0.2	0.1	-0.3	0.2	0.1	-0.0	0.3
Change in private inventories	-0.2	-0.1	-0.1	-0.4	-0.0	0.2	0.3	0.5	-0.2	0.2	-0.1	0.0
Public demand	0.2	0.3	0.4	0.3	0.2	0.1	-0.1	-0.0	0.3	0.1	0.3	0.1
Government final consumption	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3
Public fixed investment	-0.2	-0.1	0.2	0.1	-0.0	-0.2	-0.4	-0.3	0.0	-0.2	-0.1	-0.2
Change in public inventories	0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.0	0.0	0.0	-0.0	0.0	0.0
Net exports of goods and services	0.4	0.2	0.2	-0.2	0.4	0.4	0.5	0.8	0.2	0.5	0.2	0.2
Exports of goods and services	0.4	0.1	0.4	0.5	0.6	0.6	0.7	0.8	0.4	0.7	0.1	0.6
Imports of goods and services	0.0	0.1	-0.2	-0.7	-0.3	-0.2	-0.2	0.0	-0.2	-0.2	0.1	-0.4

Source: Compiled by DIR.
Notes: 1) Q/q growth rates seasonally adjusted; y/y growth rates and FY and CY figures unadjusted.
2) Due to rounding, figures may differ from those released by the government.
E: DIR estimate.

6.1 Major Assumptions

	2014			2015				2016	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2014	2015	2014	2015
1) World economy												
Economic growth of major trading partners												
Y/y %	3.4	3.5	3.3	3.4	3.0	2.8	2.7	2.7	3.4	2.8	3.4	3.0
Crude oil price (WTI futures; $/bbl)	103.0	97.2	73.2	48.6	57.8	46.5	42.2	33.6	80.5	45.0	92.9	48.8
Y/y %	9.4	-8.1	-25.0	-50.7	-43.9	-52.2	-42.4	-30.8	-18.7	-44.1	-5.2	-47.5
2) US economy												
Real GDP (chained [2009]; $ bil; SAAR)	15,902	16,069	16,151	16,177	16,334	16,414	16,471	16,493	16,075	16,428	15,962	16,349
Q/q %, SAAR	4.6	4.3	2.1	0.6	3.9	2.0	1.4	0.5				
Y/y %	2.6	2.9	2.5	2.9	2.7	2.1	2.0	1.9	2.7	2.2	2.4	2.4
Consumer Price Index												
(1982-84 avg=100)	236.8	237.3	237.1	235.4	236.8	237.6	238.1	237.9	236.7	237.7	236.7	237.0
Q/q %, SAAR	1.9	0.9	-0.3	-2.9	2.4	1.4	0.8	-0.3				
Y/y %	2.1	1.8	1.2	-0.1	-0.0	0.1	0.5	1.1	1.3	0.4	1.6	0.1
Producer Price Index												
(Final demand; 2009.Nov=100)	110.9	111.3	111.1	109.8	110.0	110.2	109.7	109.6	110.8	109.9	110.9	109.9
Q/q %, SAAR	2.2	1.2	-0.7	-4.6	1.0	0.6	-1.9	-0.1				
Y/y %	1.9	1.8	1.2	-0.5	-0.8	-0.9	-1.2	-0.1	1.1	-0.8	1.6	-0.9
FF rate (%)	0.25	0.25	0.25	0.25	0.25	0.25	0.50	0.50	0.25	0.50	0.25	0.50
(Target rate for the forecast period, end-period)												
Government bond yield (10 year; %)	2.62	2.50	2.28	1.97	2.17	2.22	2.19	1.92	2.34	2.12	2.54	2.14
3) Japanese economy												
Nominal government final consumption												
Y tril; SAAR	100.4	100.8	101.2	101.5	101.5	101.9	102.6	103.1	101.0	102.3	100.5	101.9
Q/q %, SAAR	4.1	1.7	1.5	1.0	0.3	1.4	3.0	2.0				
Y/y %	1.9	1.9	2.7	2.1	1.1	1.0	1.5	1.7	2.2	1.3	1.8	1.4
Nominal public fixed investment												
Y tril; SAAR	23.4	23.8	24.0	23.5	24.1	23.5	22.7	22.7	23.7	23.2	23.8	23.4
Q/q %, SAAR	-5.9	6.8	3.8	-8.2	10.6	-8.8	-12.8	0.1				
Y/y %	3.8	1.2	0.1	-1.9	2.8	-0.5	-5.0	-3.8	0.4	-2.2	3.4	-1.6
Exchange rate (Y/$)	102.1	103.9	114.5	119.1	121.4	122.2	121.5	115.4	109.9	120.1	105.8	121.0
(Y/€)	139.5	137.8	143.8	132.6	135.0	135.6	131.5	128.0	138.4	132.5	140.3	133.7

Source: Compiled by DIR.
Notes: 1) Japanese consumption tax hike expected in April 2017.
2) Due to rounding, figures may differ from those released by the government.

6.2 Major Assumptions

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
1) World economy												
Economic growth of major trading partners												
Y/y %	2.8	2.8	2.8	3.0	3.0	3.1	3.1	3.1	2.8	3.1	2.7	3.0
Crude oil price (WTI futures; $/bbl)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	42.2	45.0
Y/y %	-22.2	-3.2	6.7	33.8	0.0	0.0	0.0	0.0	-0.1	0.0	-13.5	6.7
2) US economy												
Real GDP (chained [2009]; $ bil; SAAR)	16,597	16,698	16,796	16,888	16,983	17,083	17,186	17,287	16,745	17,135	16,646	17,035
Q/q %, SAAR	2.6	2.5	2.4	2.2	2.3	2.4	2.4	2.4				
Y/y %	1.6	1.7	2.0	2.4	2.3	2.3	2.3	2.4	1.9	2.3	1.8	2.3
Consumer Price Index												
(1982-84 avg=100)	239.4	240.6	241.8	243.1	244.3	245.6	247.1	248.4	241.2	246.4	240.0	245.0
Q/q %, SAAR	2.4	2.1	2.1	2.1	2.0	2.2	2.4	2.2				
Y/y %	1.1	1.2	1.6	2.2	2.1	2.1	2.2	2.2	1.5	2.1	1.2	2.1
Producer Price Index												
(Final demand; 2009.Nov=100)	109.9	110.4	110.9	111.4	111.9	112.4	113.0	113.5	110.7	112.7	110.2	112.2
Q/q %, SAAR	0.9	1.8	1.8	1.8	1.8	1.9	2.1	1.9				
Y/y %	-0.1	0.2	1.1	1.6	1.8	1.8	1.9	1.9	0.7	1.9	0.3	1.8
FF rate (%)	0.75	0.75	1.00	1.00	1.25	1.50	1.75	2.00	1.00	2.00	1.00	1.75
(Target rate for the forecast period, end-period)												
Government bond yield (10 year; %)	2.08	2.31	2.54	2.56	2.72	2.86	2.99	3.18	2.37	2.93	2.21	2.78
3) Japanese economy												
Nominal government final consumption												
Y tril; SAAR	103.3	103.8	104.3	104.7	105.5	106.1	106.4	107.1	104.0	106.3	103.6	105.7
Q/q %, SAAR	0.8	1.6	1.9	1.8	3.0	2.5	0.8	2.8				
Y/y %	1.8	1.9	1.6	1.5	2.1	2.3	2.0	2.3	1.7	2.2	1.7	2.0
Nominal public fixed investment												
Y tril; SAAR	22.8	23.2	23.6	23.3	22.7	22.1	21.8	21.7	23.3	22.0	23.1	22.5
Q/q %, SAAR	1.7	6.1	7.6	-5.0	-9.6	-10.8	-5.0	-1.5				
Y/y %	-5.1	-1.7	3.7	2.9	-0.5	-4.6	-7.6	-6.9	0.5	-5.4	-1.4	-2.6
Exchange rate (Y/$)	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	110.6	109.0
(Y/€)	123.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	124.5	125.0	125.2	125.0

Source: Compiled by DIR.
Notes: 1) Japanese consumption tax hike expected in April 2017.
2) Due to rounding, figures may differ from those released by the government.
E: DIR estimate.