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Japan's Economic Outlook No. 190

What will happen if there is a Recurrence of Financial Instability in the EU? In this report we examine the following: (1) Brexit, (2) The Secular Stagnation Theory, and (3) The Gini Coefficient and Economic Inequality

Japan to see real GDP growth of +0.9% in FY16 and +0.9% in FY17, with nominal GDP growth of +1.6% in FY16 and +1.3% in FY17.

Economic Intelligence Team
Mitsumaru Kumagai
Satoshi Osanai
Keisuke Okamoto
Shunsuke Kobayashi
Tsutomu Saito
Kazuma Maeda
Makoto Tanaka

Main Points

- **Downside risk remains for the Japanese economy due to global economic factors:** In light of the 1st preliminary Apr-Jun 2016 GDP release (Cabinet Office) we have revised our economic growth outlook. We now forecast real GDP growth of +0.9% in comparison with the previous year for FY16 (+0.7% in the previous forecast), and +0.9% in comparison with the previous year for FY17 (+0.7% 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) domestic factors including the development and implementation of an economic stimulus package. However, caution is needed regarding downside risk in the global economy, especially that of China. In this outlook we consider the following issues.

- **What will happen if there is a Recurrence of Financial Instability in the EU Due to Brexit?:** In Chapter 2 we present the results of DIR's quantitative analysis of risks which could occur via the global financial and banking system as a result of the Brexit decision in the UK. The most immediate risk is a possible collapse in real estate prices in the UK. The effects of this occurring would most likely be limited as far as both UK banks and the UK economy are concerned, with limited effect on the world economy as well. Similarly, the problem of the

disposal of nonperforming loans in Italy would be a situation with a fairly strong impact on the Italian economy, but without much serious impact on the world economy. However, if both of these events were to occur simultaneously, the compound effects could push the entire European financial system into a state of crisis, possibly bringing world GDP down by 2.7% and Japan's GDP by as much as 1.9%. The European financial system will likely be watched closely for some time to come.

- **Evaluating economic stimulus packages for Japan in light of secular stagnation theory:** We expect that the advanced nations will actively pursue proactive means of avoiding secular stagnation in the world economy in the future, such as the practice of wise spending. The Japanese government made the decision in August to put together a large-scale supplementary budget. However, with its huge fiscal deficit, Japan is not in the position to engage in excessive spending on economic stimulus. It is therefore essential to push through structural reforms for the purpose of encouraging future growth and to continue promoting growth strategy while the economy is on the up side due to increased public spending. According to our estimates, potential GDP can be increased by around 24 trillion yen by encouraging growth in the labor participation rate through labor market reforms and by extending the work hours of part-time workers.

- **The Gini Coefficient and economic inequality in Japan – economic policy challenges:** In Chapter 4 we take a new look at the problem of income inequality in Japan through an international comparison, and consider future policy issues related to this problem. Looked at from an international perspective, Japan's income gap expanded between the years 1985 and 2000. However, between the years 2000 and 2009 it does not appear to have expanded further. The problem that Japan needs to solve in the future is not income inequality, but decline in income. In order to shake off the problem of income decline, there are three problems which Japan must come to grips with. These are: 1. Resolve the income gap between regular employees and non-regular employees, 2. Handle the problems of the low-income population – in the short-term a policy to provide income support may be quite valid, but from the mid to long-term view, raising the value of human capital is more desirable, and 3. Raise the minimum wage in order to increase the level of overall wages.

- **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 UK's withdrawal from the EU (*Brexit*), and deleveraging at EU financial institutions. 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 under 1,000 tril yen in excessive lending and over 550 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 after September this year. The Bank of Japan has been in a long-term battle with the problem of deflation, and one of its biggest challenges is to restructure its monetary policy in a way that it can become more sustainable.

Our assumptions

- Public works spending is expected to increase by +7.4% in FY16, and then decrease by -2.9% in FY17.
- Average exchange rate of Y103.2/$ in FY16, and Y101.5/$ in FY17.
- US real GDP growth of +1.5% in CY16, and +2.2% 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 Apr-Jun 2016 GDP release (Cabinet Office) we have revised our economic growth outlook. We now forecast real GDP growth of +0.9% in comparison with the previous year for FY16 (+0.7% in the previous forecast), and +0.9% in comparison with the previous year for FY17 (+0.7% 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) domestic factors including the development and implementation of an economic stimulus package. However, caution is needed regarding downside risk in the global economy, especially that of China.

Apr-Jun period real GDP grows by +0.2% q/q annualized (+0.0% q/q)

The real GDP growth rate for Apr-Jun 2016 (1st preliminary est) grew by +0.2% q/q annualized (+0.0% q/q), while falling a bit below market consensus (+0.7% q/q annualized, +0.2% q/q). Considering the fact that some growth during the Jan-Mar period was due to extra business days gained in the leap year, we would have to conclude that current results are maintaining a firm undertone since by now the positive effects of the leap year have worn off. Looking at results by source of demand, we see that positive contributions came from growth in personal consumption, housing investment, and public investment, while declines were experienced in capex, exports, and imports.

Consumption bottoms out, but exports and capex are weak

Performance by demand component in the Apr-Jun 2016 results shows personal consumption up for the second consecutive quarter by +0.2% q/q. Results are seen as favorable, considering the reactionary decline after the increase gained from extra business days during the Jan-Mar period due to the leap year. Looking at personal consumption by sector we see gains for durable goods at +1.3% q/q and services at +0.2%. Durables did especially well, winning considerable growth. The negative effect of pre-consumption over demand experienced since 2009 due to Eco-car related tax breaks, the Ecopoint program effecting household electronics, and last-minute demand prior to the increase in the consumption tax, is gradually falling away. On the other hand, semi-durable goods (-1.4% q/q) and nondurable goods (-0.3%) were unmoved. This is probably due to the fact that while real employee compensation is maintaining a firm undertone and the employment and income environment contributed a plus, growth in real disposable income for households has been limited, with downward pressure on income produced by insurance rate hikes and the increase in tax rate for the highest tax bracket.

Housing investment grew for the first time in three quarters at +5.0%. New housing starts, a leading indicator for housing investment as a portion of GDP, are continuing to grow as a result of last-minute demand which developed on the assumption that the consumption tax would again be increased in April of 2017. This in turn gave a lift to housing investment, which is recorded on a progressive basis.

Capex declined for the second consecutive quarter at -0.4% q/q. Though corporate earnings remain at a high level, the source of growth is not volume, but rather the decline in the cost of input and growth in the calculated price of exports. It has not led to an increase in operating rates. Moreover, the slowdown in the overseas economy and the progressively strong yen create a major headwind for capex.

While the extent of contribution of private sector inventory growth was slight at -0.0%pt, the final contribution was down for the fourth consecutive quarter. Finished goods inventory and distribution inventory also made negative contributions, while work in progress inventory and material & supplies

inventories, which are provisional on the 1st preliminary GDP estimate, brought positive and negative contributions respectively.

Public investment grew for the second consecutive quarter at +2.3% q/q. This is thought to be due to the government having front-loaded the FY2015 supplementary budget. Government consumption also continued its growth trend at +0.2%.

Meanwhile, exports declined for the first time in two quarters at -1.5% q/q. As for exports of goods, trade with both the US and Asia is showing signs of a comeback, while exports to the EU, which had been maintaining a firm undertone up to now, declined. This was especially marked in exports of ships, which had grown considerably during the previous quarter, and are now showing a moment of weakness. In a reflection of stagnant domestic demand, imports declined somewhat for the third consecutive quarter at -0.1%. As a result, overseas demand (net exports) had a negative contribution of -0.3%pt to GDP.

Though modest, the GDP deflator grew for the seventh consecutive quarter at +0.2% q/q. The domestic demand deflator was down by -0.2%, while the import deflator continued to decline. (A decline in the import deflator has the effect of pushing up the GDP deflator.) In y/y terms the GDP deflator was up by +0.8%, its tenth consecutive quarter of growth, but the growth rate shrank in comparison to that of the previous period (+0.9%). Meanwhile, nominal GDP was up for the second consecutive quarter at +0.9% q/q annualized (+0.2% q/q).

Japan's economy will most likely continue to face risk of possible downturn

We expect Japan's economy to continue in a moderate expansion phase. However, domestic demand continues to lack strength, and with the absence of a clearly driving force in the economy, Japan may continue to face risk of a possible downturn in the future. As for overseas demand, the future of the world economy becomes increasingly uncertain with the UK decision to withdraw from the EU, and we therefore urge caution regarding possible downside risk.

Personal consumption is expected to continue in a moderate expansion phase. The supply of labor continues to be tight, and this should provide underlying support for personal consumption through growth in employee compensation. Meanwhile, the growth rate in the consumer price index has turned in the negative direction, and this promises to continue pushing up real wages. Consumer confidence promises to improve due to the postponement of the consumption tax increase which had been slated for April 2017, and this should help to improve personal consumption as well. On the other hand, growth in real disposable income for households has been limited, with downward pressure on income produced by insurance rate hikes and the increase in tax rate for the highest tax bracket. Meanwhile, the income environment is becoming more uncertain due to fears that corporate business performance may worsen due to the strong yen, and this may be a drag on personal consumption.

Meanwhile, housing investment is expected to gradually slow down. The Bank of Japan's decision to adopt a negative interest rate in January should provide underlying support for housing investment with interest on housing loans on the decline. However, housing starts, which had rapidly expanded with the expectation that there would be a rush to purchase homes before the additional increase in consumption tax originally planned for April 2017, are expected to gradually decrease in the future, and housing investment is also expected to begin declining after that point.

Capex is expected to mark time in the future. The supply of labor continues to be tight, and this should provide underlying support for replacement and renovation investment in the non-manufacturing industries which are not so easily influenced by overseas demand. On the other hand, the worsening of the external environment, including the stagnant world economy and the strong yen/weak dollar situation, is expected to continue being a drag on the business performance of export-driven companies

mainly in the area of manufacturing. If the assumption of favorable business performance, which provided support for capex up to this point, should collapse in the near future, the number of corporations putting off capex could increase in the future.

Public investment is expected to continue favorably. As the effects of past economic policies begin to wear thin, demand associated with the main FY 2016 budget and the supplementary budget should gradually come to the fore, and this is expected to provide underlying support for public investment in the future.

As for exports, gradual expansion is seen in the future. Looking at exports of goods by region, consumer goods are expected to continue to perform favorably in the US backed by improvements in the employment environment in that country. On the other hand, exports to the EU are expected to require a cautious approach for the time being. The UK made the decision to withdraw from the EU after a referendum held in June, and as a result, the future of the EU economy has become increasingly uncertain. This is because it is assumed that this event could have the effect of dampening growth in demand in the region. Meanwhile, as for exports to Asia, one positive factor is that China's economy appears to be close to bottoming out after having slowed down increasingly. However, just recently there have been signs of an additional slowdown, and caution is required as regards the possible acceleration of capital outflow due to US monetary restraint expected between now and the end of the year.

What will happen if there is a Recurrence of Financial Instability in the EU Due to Brexit?

In this report we examine three issues. First, we present the results of DIR's quantitative analysis of risks which could occur via the global financial and banking system as a result of the Brexit decision in the UK. The most immediate risk is a possible collapse in real estate prices in the UK. The effects of this occurring would most likely be limited as far as both UK banks and the UK economy are concerned, with limited effect on the world economy as well. Similarly, the problem of the disposal of nonperforming loans in Italy would be a situation with a fairly strong impact on the Italian economy, but without much serious impact on the world economy. However, if both of these events were to occur simultaneously, the compound effects could push the entire European financial system into a state of crisis, possibly bringing world GDP down by 2.7% and Japan's GDP by as much as 1.9%. The European financial system will likely be watched closely for some time to come.

Evaluating economic stimulus packages for Japan in light of secular stagnation theory

We expect that the advanced nations will actively pursue proactive means of avoiding secular stagnation in the world economy in the future, such as the practice of wise spending. The Japanese government made the decision in August to put together a large-scale supplementary budget. However, with its huge fiscal deficit, Japan is not in the position to engage in excessive spending on economic stimulus. It is therefore essential to push through structural reforms for the purpose of encouraging future growth and to continue promoting growth strategy while the economy is on the up side due to increased public spending. According to our estimates, potential GDP can be increased by around 24 trillion yen by encouraging growth in the labor participation rate through labor market reforms and by extending the work hours of part-time workers.

The Gini Coefficient and economic inequality in Japan: economic policy challenges

In Chapter 4 we take a new look at the problem of income inequality in Japan through an international comparison, and consider future policy issues related to this problem. Looked at from an international perspective, Japan's income gap expanded between the years 1985 and 2000. However, between the years 2000 and 2009 it does not appear to have expanded further. The problem that Japan needs to solve in the future is not income inequality, but decline in income. In order to shake off the problem of income decline, there are three problems which Japan must come to grips with. These are: 1. Resolve

the income gap between regular employees and non-regular employees, 2. Handle the problems of the low-income population – in the short-term a policy to provide income support may be quite valid, but from the mid to long-term view, raising the value of human capital is more desirable, and 3. Raise the minimum wage in order to increase the level of overall wages.

Risk factors facing Japan's economy: focus on trends in China'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 UK's withdrawal from the EU(Brexit), and deleveraging at EU financial institutions. 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 under 1,000 tril yen in excessive lending and over 550 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 after September this year. The Bank of Japan has been in a long-term battle with the problem of deflation, and one of its biggest challenges is to restructure its monetary policy in a way that it can become more sustainable.

Main Economic Indicators and Real GDP Components

	FY15	FY16 (Estimate)	FY17 (Estimate)	CY15	CY16 (Estimate)	CY17 (Estimate)
Main economic indicators						
Nominal GDP (y/y %)	2.2	1.6	1.3	2.5	1.4	1.6
Real GDP (chained [2005]; y/y %)	0.8	0.9	0.9	0.5	0.6	1.1
Domestic demand (contribution, % pt)	0.8	1.0	0.6	0.1	0.7	1.0
Foreign demand (contribution, % pt)	0.1	-0.1	0.2	0.4	-0.1	0.0
GDP deflator (y/y %)	1.4	0.7	0.5	2.0	0.8	0.5
Index of All-industry Activity (y/y %)*	0.9	0.6	1.1	0.4	0.2	1.1
Index of Industrial Production (y/y %)	-1.0	0.1	2.0	-1.2	-1.2	1.9
Index of Tertiary Industry Activity (y/y %)	1.3	0.7	0.9	0.9	0.6	0.9
Corporate Goods Price Index (y/y %)	-3.2	-2.2	0.6	-2.3	-3.1	0.5
Consumer Price Index (excl. fresh food; y/y %)	-0.0	-0.1	0.8	0.5	-0.2	0.7
Unemployment rate (%)	3.3	3.2	3.1	3.4	3.2	3.1
Government bond yield (10 year; %)	0.26	-0.11	-0.10	0.35	-0.09	-0.10
Money stock; M2 (end-period; y/y %)	3.6	3.9	4.1	3.7	3.7	4.1
Balance of payments						
Trade balance (Y tril)	0.5	4.2	5.1	-0.6	4.1	4.8
Current balance ($100 mil)	1,499	1,861	2,110	1,356	1,805	2,043
Current balance (Y tril)	18.0	19.4	21.7	16.4	19.2	20.7
(% of nominal GDP)	3.5	3.8	4.2	3.3	3.8	4.0
Real GDP components (Chained [2005]; y/y %; figures in parentheses: contribution, % pt)						
Private final consumption	-0.2 (-0.1)	0.6 (0.3)	0.6 (0.3)	-1.2 (-0.7)	0.4 (0.2)	0.6 (0.3)
Private housing investment	2.4 (0.1)	4.9 (0.1)	-3.0 (-0.1)	-2.5 (-0.1)	4.8 (0.1)	-2.3 (-0.1)
Private fixed investment	2.1 (0.3)	0.1 (0.0)	1.1 (0.2)	1.5 (0.2)	0.2 (0.0)	0.8 (0.1)
Government final consumption	1.6 (0.3)	1.9 (0.4)	1.7 (0.3)	1.2 (0.2)	2.1 (0.4)	1.5 (0.3)
Public fixed investment	-2.7 (-0.1)	7.9 (0.3)	-3.3 (-0.1)	-2.5 (-0.1)	1.2 (0.1)	7.2 (0.3)
Exports of goods and services	0.4 (0.1)	0.1 (0.0)	4.6 (0.8)	2.8 (0.5)	-0.9 (-0.2)	3.8 (0.6)
Imports of goods and services	-0.0 (0.0)	0.7 (-0.1)	4.0 (-0.6)	0.3 (-0.1)	-0.5 (0.1)	3.8 (-0.6)
Major assumptions:						
1. World economy						
Economic growth of major trading partners	2.9	2.9	3.1	3.1	2.8	3.1
Crude oil price (WTI futures; $/bbl)	45.0	44.8	44.5	48.8	42.1	44.5
2. US economy						
US real GDP (chained [2009]; y/y %)	2.2	1.6	2.2	2.6	1.5	2.2
US Consumer Price Index (y/y %)	0.4	1.4	2.0	0.1	1.2	1.9
3. Japanese economy						
Nominal public fixed investment (y/y %)	-2.6	7.4	-2.9	-1.6	0.3	7.8
Exchange rate (Y/$)	120.1	103.2	101.5	121.0	106.6	101.5
(Y/€)	132.5	114.9	113.0	133.7	118.7	113.0

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 190)		Previous outlook (Outlook 189 update)		Difference between previous and current outlooks	
	FY16	FY17	FY16	FY17	FY16	FY17
Main economic indicators						
Nominal GDP (y/y %)	1.6	1.3	1.4	1.1	0.2	0.2
Real GDP (chained [2005]; y/y %)	0.9	0.9	0.7	0.7	0.1	0.2
Domestic demand (contribution, % pt)	1.0	0.6	0.5	0.5	0.4	0.1
Foreign demand (contribution, % pt)	-0.1	0.2	0.2	0.2	-0.3	0.0
GDP deflator (y/y %)	0.7	0.5	0.6	0.5	0.1	-0.0
Index of All-industry Activity (y/y %)*	0.6	1.1	0.3	1.2	0.2	-0.1
Index of Industrial Production (y/y %)	0.1	2.0	0.0	2.0	0.1	0.1
Index of Tertiary Industry Activity (y/y %)	0.7	0.9	0.4	1.0	0.3	-0.1
Corporate Goods Price Index (y/y %)	-2.2	0.6	-1.1	1.1	-1.0	-0.5
Consumer Price Index (excl. fresh food; y/y %)	-0.1	0.8	0.1	0.9	-0.3	-0.1
Unemployment rate (%)	3.2	3.1	3.2	3.1	-0.0	0.0
Government bond yield (10 year; %)	-0.11	-0.10	-0.10	-0.10	-0.01	0.00
Money stock; M2 (end-period; y/y %)	3.9	4.1	4.0	4.1	-0.1	-0.0
Balance of payments						
Trade balance (Y tril)	4.2	5.1	3.8	4.8	0.4	0.3
Current balance ($100 mil)	1,861	2,110	1,937	2,150	-76	-40
Current balance (Y tril)	19.4	21.7	20.7	23.0	-1.3	-1.3
(% of nominal GDP)	3.8	4.2	4.1	4.5	-0.3	-0.3
Real GDP components (chained [2005]; y/y %)						
Private final consumption	0.6	0.6	0.2	0.4	0.4	0.1
Private housing investment	4.9	-3.0	-0.2	0.4	5.1	-3.5
Private fixed investment	0.1	1.1	0.9	1.1	-0.8	0.0
Government final consumption	1.9	1.7	1.6	1.5	0.3	0.1
Public fixed investment	7.9	-3.3	0.8	-5.8	7.1	2.5
Exports of goods and services	0.1	4.6	2.0	3.8	-1.9	0.9
Imports of goods and services	0.7	4.0	0.7	3.2	-0.0	0.7
Major assumptions:						
1. World economy						
Economic growth of major trading partners	2.9	3.1	2.8	3.1	0.0	-0.0
Crude oil price (WTI futures; $/bbl)	44.8	44.5	50.0	50.0	-5.2	-5.5
2. US economy						
US real GDP (chained [2009]; y/y %)	1.6	2.2	2.0	2.3	-0.3	-0.1
US Consumer Price Index (y/y %)	1.4	2.0	1.5	2.1	-0.1	-0.2
3. Japanese economy						
Nominal public fixed investment (y/y %)	7.4	-2.9	1.0	-5.4	6.3	2.5
Exchange rate (Y/$)	103.2	101.5	107.0	107.0	-3.8	-5.5
(Y/€)	114.9	113.0	122.0	122.0	-7.1	-9.0

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

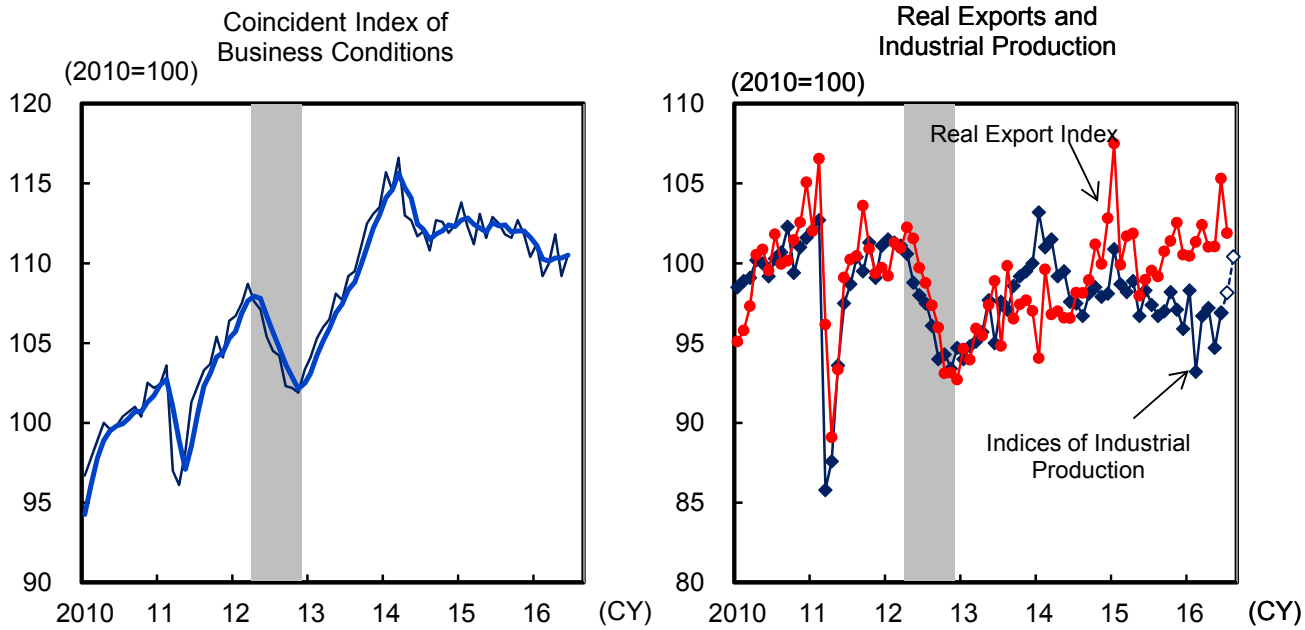
1.1 Signs of Overseas Economies Bottoming Out

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 in a gradual declining trend. However, real exports have recently shown signs of bottoming out, and there are signs of a comeback in future production plans.

There are three major factors behind exports bottoming out. These are (1) demand for consumer goods in the US is favorable due to improvements in the employment environment, (2) domestic demand in the EU is recovering due to the effects of bold monetary easing measures, and (3) China's economy, which had been slowing down, shows signs of bottoming out. The second factor mentioned above requires close monitoring in the future as explained in following chapter. A national referendum was held in the UK on June 23rd to determine whether or not the citizens of that country would prefer to withdraw from the EU. The results of the vote found that the majority of citizens choose to leave behind membership in the EU. The response to that decision has been a growing sense of uncertainty as regards the future of the European economy. It is believed that the decision could put a damper on possibilities of expansion of demand within the region. Meanwhile, as is explained later in this report, China's slowdown could continue for some time due to the Fed's having slowed the pace of interest rate hikes.

In the following, we consider the future of domestic demand in Japan in light of economic conditions overseas which effect Japan's economy. In conclusion, 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) domestic factors including the development and implementation of economic stimulus packages. However, caution is needed regarding downside risk in the global economy, especially that of China and Europe. There are both positive and negative factors, but once through the ups and downs, we expect Japan's economy to gradually recover.

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



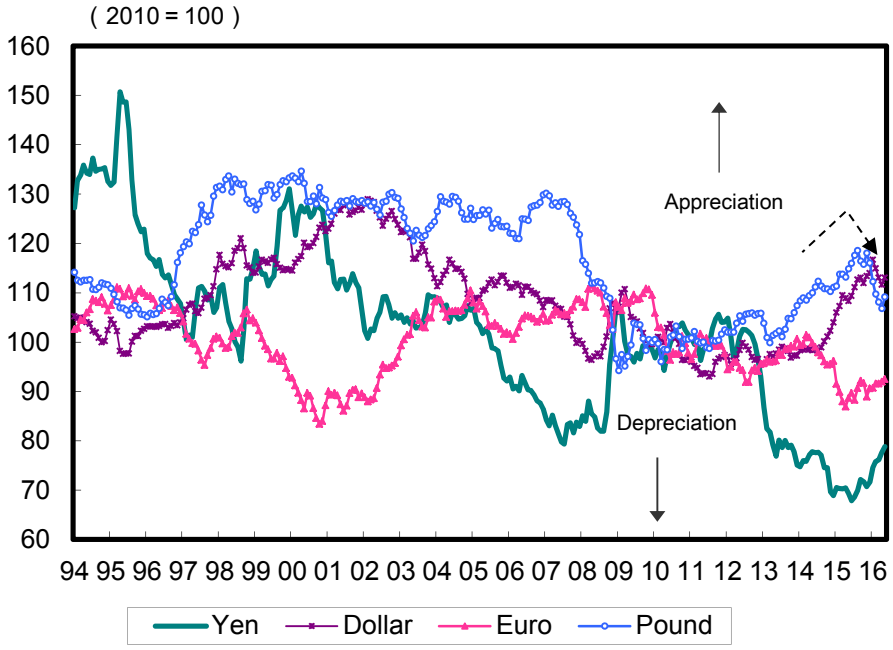
Source: Cabinet Office, Bank of Japan, Ministry of Economy, Trade and Industry; compiled by DIR.
Note: Shaded areas represent periods of recession. The thick line which represents the composite index is the 3-month moving average.
The most recent two months of industrial production is from METI's production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

Weak dollar to provide underlying support for world economy

One of the major changes in the overseas 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.

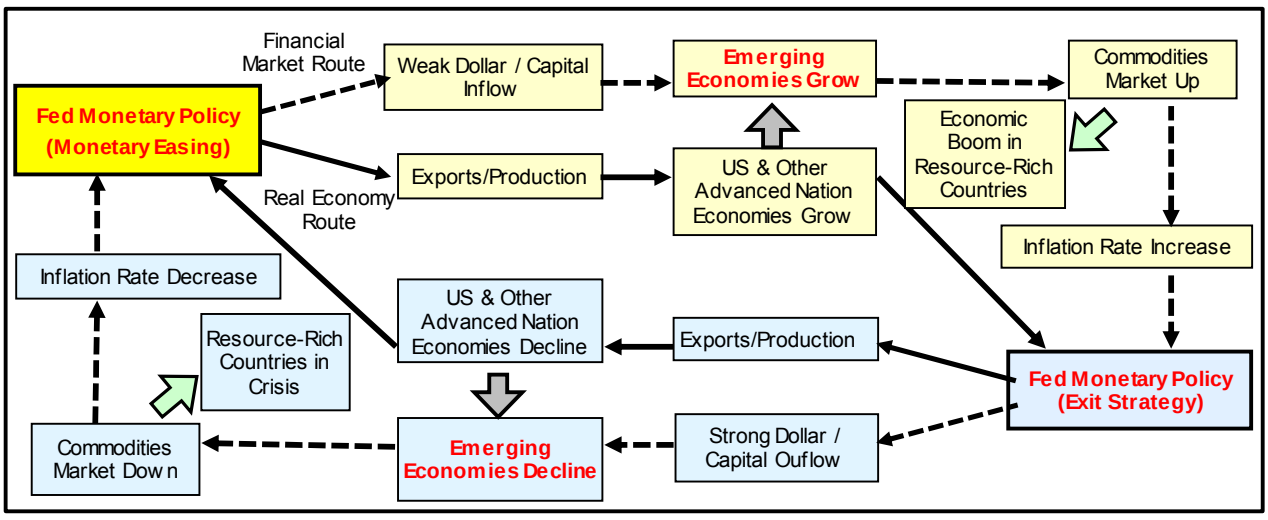
Chart 3 illustrates the worldwide economic cycle with a special focus on Fed decisions regarding interest rates. Based on this cycle, the progressive depreciation of the dollar is actually expected to provide underlying support for the world economy through recovery of the economies of emerging nations. 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**



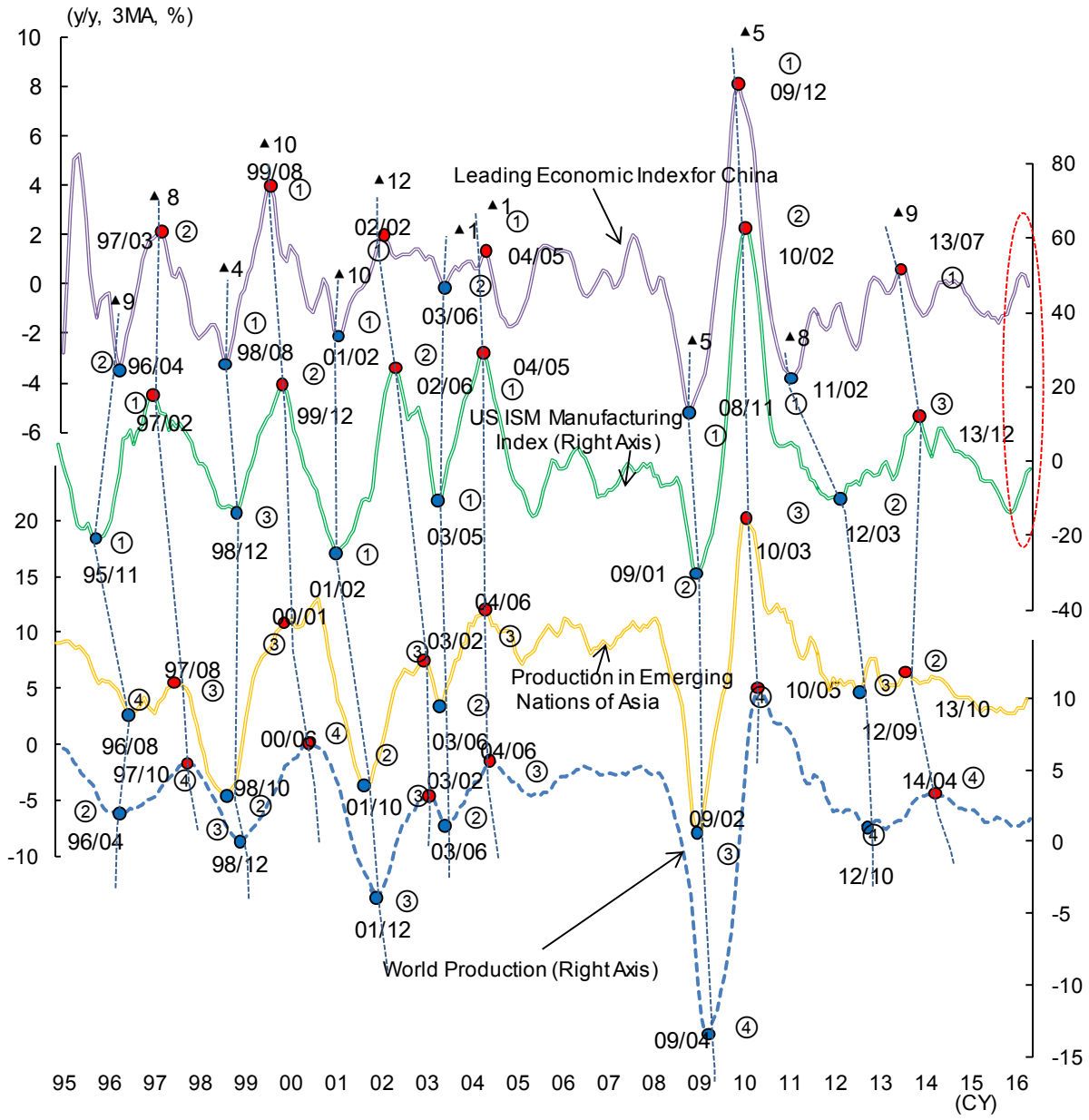
Source: Compiled by DIR.

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 world 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 world production. The number of months by which China's leading economic index led world 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 Domestic Demand Moves toward Modest Recovery

Growth in wages in the macro sense provides underlying support for personal consumption

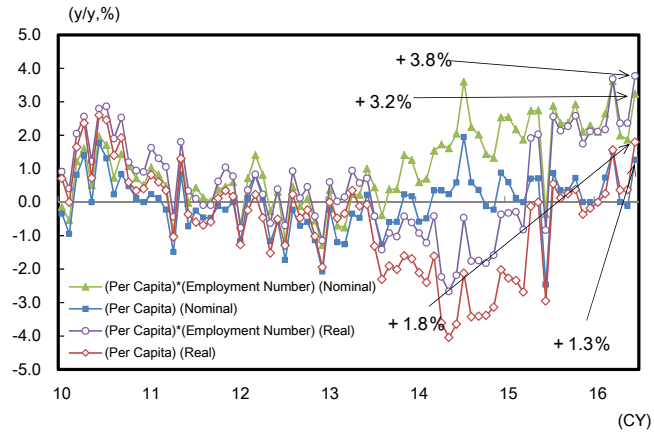
In this chapter we discuss the future of domestic demand. First, real wages have shifted into a growth trend, and are expected to provide underlying support for the Japanese economy in the form of encouraging moderate growth in personal consumption.

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 during FY2015, the effect of tax hikes pushing up prices fell away and the price of crude oil, which collapsed after 2014, further encouraged prices 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. This is serving to further growth in real wages per capita.

Looking at macro wages (per capita wages x employment), an even more important index for the Japanese economy, 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 second Abe cabinet was formed (Chart 6).

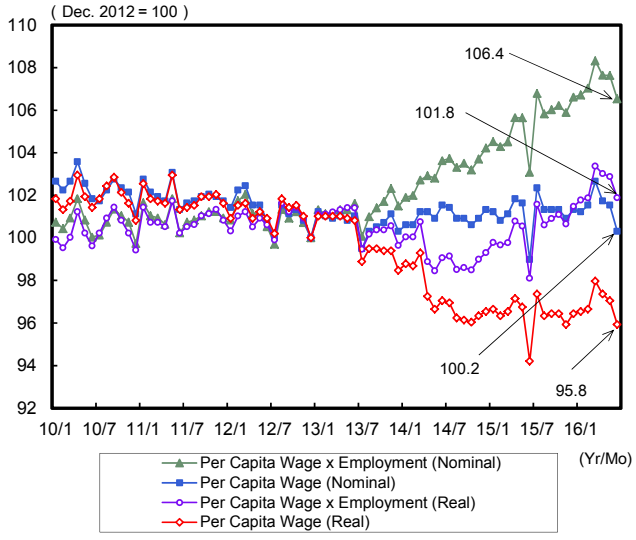
As for the future outlook for employment and the income environment, corporations continue to show brisk demand for labor; hence it is highly possible that employment will continue the current growth pattern. In addition, upward pressure on wages is also expected to continue due mainly to the fact that 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 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.

Lack of growth in disposable income becomes inhibiting factor for consumption

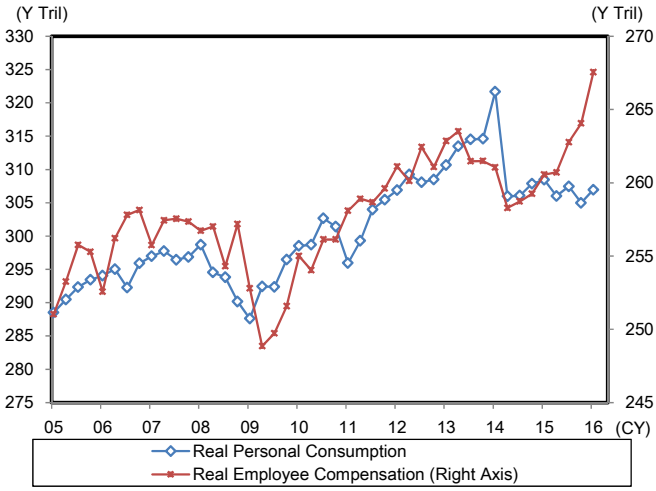
It is highly possible that growth in personal consumption may be limited to remaining on the moderate side in comparison to growth in wages. Since April 2014, divergence has been detected between trends in personal consumption and employee compensation. While employee compensation is growing, consumption has been continuing to mark time (Chart 7).

Behind this phenomenon lies the fact that despite growth in employee compensation, growth in disposable income has been stagnant. Looking at Chart 8 we can see that while employee compensation continues to register a high growth rate, growth in disposable income is limited.

Next we look at Chart 9, which indicates why it is that this discrepancy occurs. This chart shows us that growth in social security contributions (social insurance premiums) has become an inhibiting factor which suppresses growth in disposable income. In other words, even if salaries grow at face value, the extent of growth in the net amount (take-home pay) is limited by growth in social insurance deductions.

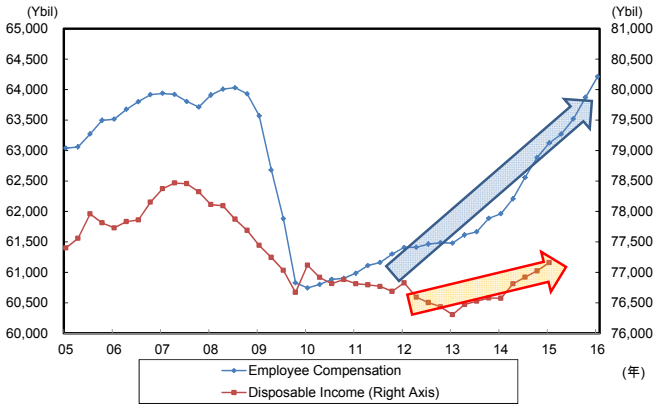
In recent years, two additional factors suppressing disposable income can be pointed out. These are (1) elimination of the special level of pension payments between FY2013 and FY2015, and (2) the raising of the maximum income tax rate in FY2015. The effects of these changes will no longer be felt so directly after FY2016, and this may bring some improvement in the growth rate in disposable income. However, since there is no change in the trend toward increasing social insurance premiums, growth in disposable income will likely remain small in comparison to growth in employee compensation.

Trends in Real Personal Consumption and Real Employee Compensation
Chart 7



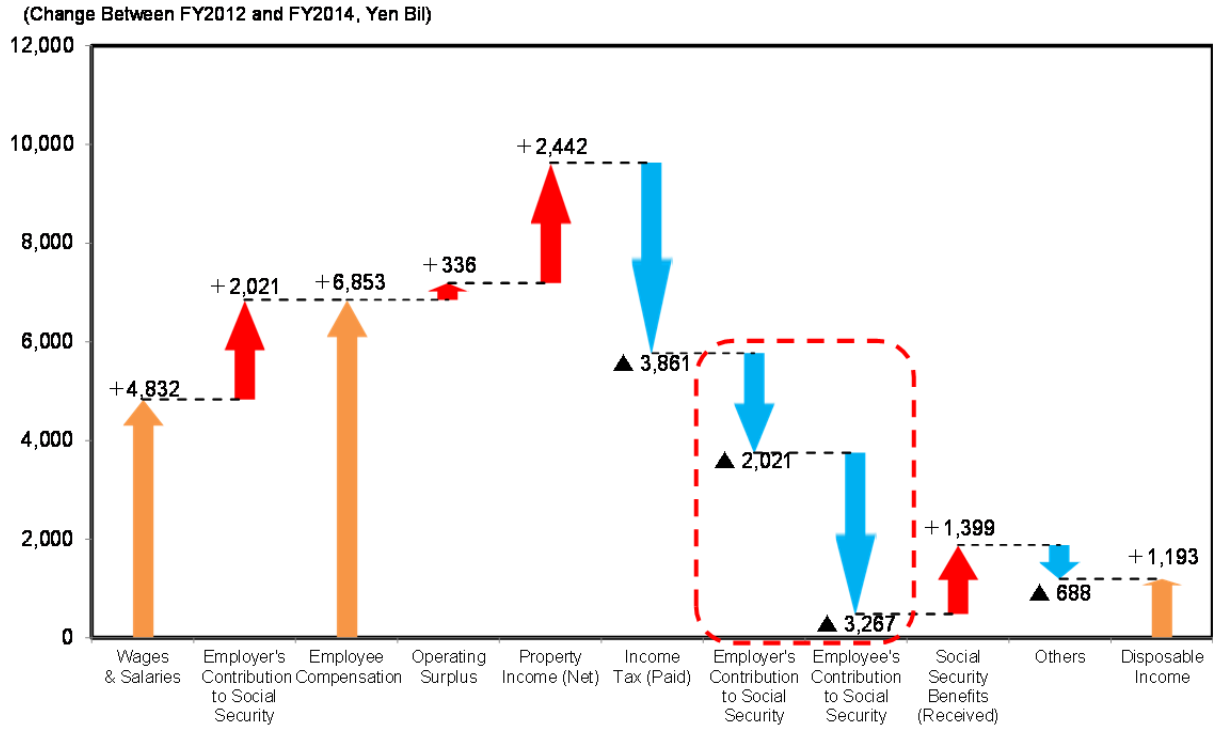
Source: Cabinet Office; compiled by DIR.

Trends in Real Employee Compensation and Disposable Income
Chart 8



Source: Cabinet Office; compiled by DIR.
Note: Four-quarter moving average value.

Factor Analysis of Rate of Change in Employee Compensation and Disposable Income **Chart 9**



Source: Cabinet Office; compiled by DIR.

Wage curve levels off: Income of working-age men fails to grow, even while employee compensation is in a growth phase

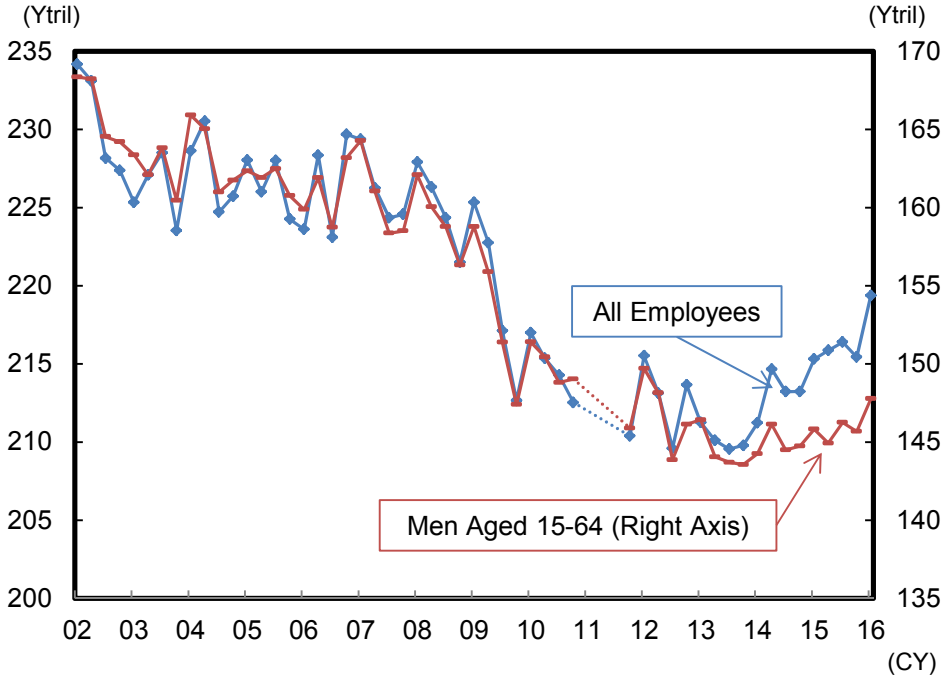
Another factor bringing downward pressure on consumption is the fact that the income of working-age men is not growing. Chart 10 indicates that growth in employee compensation for men aged 15-64 is sluggish in comparison to the overall figure.

Following a government order, many corporations have increased base pay, but even so, employee compensation for men has not risen. What could be the reason for this phenomenon? Chart 11 indicates that wages for younger people are growing steadily, but workers around age 40 are experiencing a decline in wages. Assuming that base pay has actually been increased, there should be a parallel shift toward the upper part of the wage curve, but in actual fact, it levels off at that point.

Chart 12 illustrates why the wage curve levels off. Over the past few years, the percentage of workers in their 40s who are promoted to the level of section chief has been in decline. What this means is that corporations may be delaying the promotion of people in their 40s, as well as reducing the number of people who they promote. Second-generation baby boomers make up a portion of this age group, and they account for a large percentage of total personnel expenses. Corporations are able to cut back on personnel expenses by delaying the promotion of employees making up the volume zone – the largest age group.

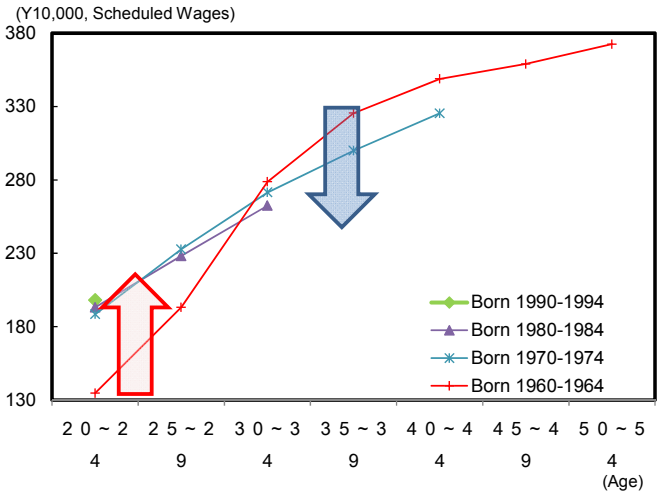
For most Japanese households it is the head of the household who provides the largest portion of income. The head of household also tends to have a more dependable income which allows the household to plan for the future. Hence if the income of the head of household declines, it is no longer possible to plan ahead. Since the key factor in determining the household's level of consumption is the head of household's future income, households have no choice but to lower their expectations. It is easy to see now how the decline in wages for working-age men becomes a major factor in inhibiting consumption.

Employee Compensation Estimated from Labor Force Survey (Annual Income x Number of Employees)
Chart 10



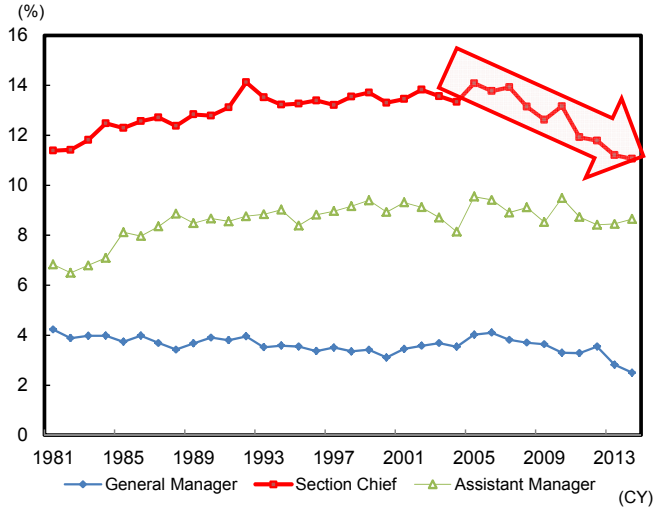
Source: Ministry of Internal Affairs and Communications; compiled by DIR.
Note: Deficit occurs from the Jan-Mar period of 2011 to the Jul-Sep period due to the Great East Japan Earthquake.

Wage Curve by Year of Birth and Age
Chart 11



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

Percentage of Management Accounted for by Workers in 40s
Chart 12



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

Low price of crude oil has pushed up Japan's real GDP in FY2016 by +0.85%.

As a result of previously discussed factors, nominal disposable income continues to mark time despite the fact that nominal wages are growing. Personal consumption is sluggish as a result, and this factor must be watched closely on into the future. However, though nominal disposable income is sluggish, the growth rate of prices has fallen due to the low price of crude oil, hence real disposable income is improving. This factor is a plus for Japan's real economy.

The low price of crude oil is expected to have additional positive effects on the real economy. Chart 13 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 providing underlying support for upgrading and replacement investment. 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 13**

		Real GDP %	Personal Consumption %	Housing Investment %	Capital Expenditure %	Exports %	Imports %	Nominal GDP %	GDP Deflator %	GDP Growth Rate %pt
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

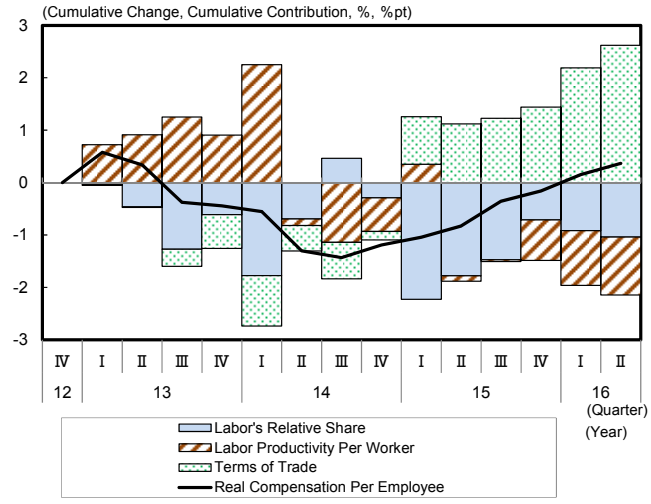
The low price of crude oil also brings an improvement in terms of trade, which in turn contributes to the increase in real compensation per employee. In order to confirm this claim we examine real compensation per employee by performing a factor analysis on the following three items: (1) labor's relative share (= employee compensation ÷ nominal GDP), (2) labor productivity (= real GDP ÷ employment), and (3) terms of trade (= GDP deflator ÷ private consumption deflator) (Chart 14). 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 second 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 15). 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

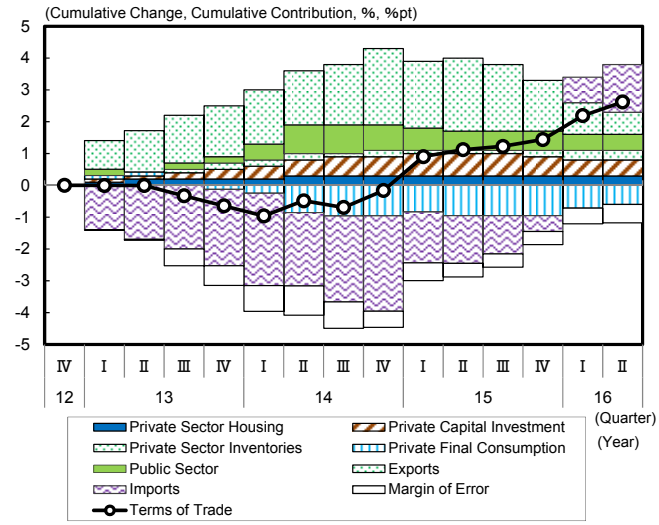
Chart 14



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 15



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.

The future of capex and issues regarding earnings structure

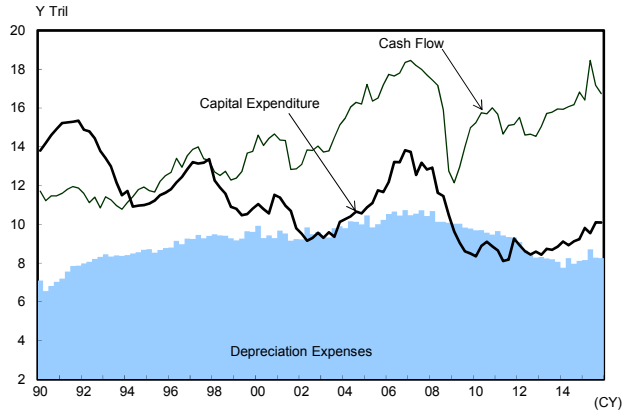
As for the future of capex, we expect movement toward a gradual comeback, with underlying support from replacement and renovation investment backed by a high level of corporate earnings.

First we look at Chart 16, which indicates changes 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 17). Especially noticeable in this chart are the categories of New Products & Product Upgrades and Maintenance & Repair during FY2016. This is interpreted to mean that investment is being encouraged in these categories by the existence of abundant cash flow, backed by a 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. In addition, investment in labor saving and energy saving due to the manpower shortage, as well as rationalization and upgrading are also expected.

Capital Expenditure and Cash Flow

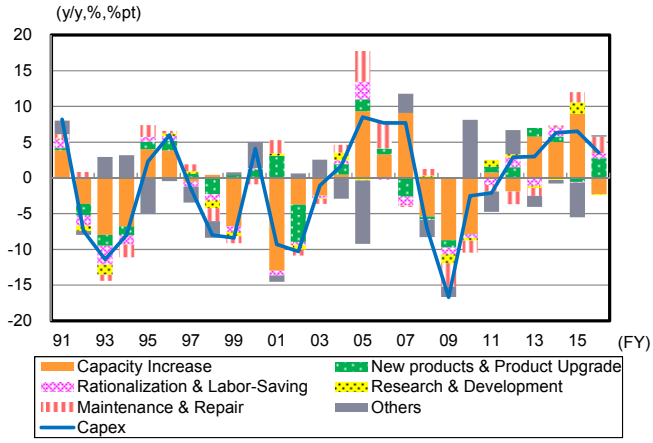
Chart 16



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 17



Source: Development Bank of Japan; compiled by DIR.

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

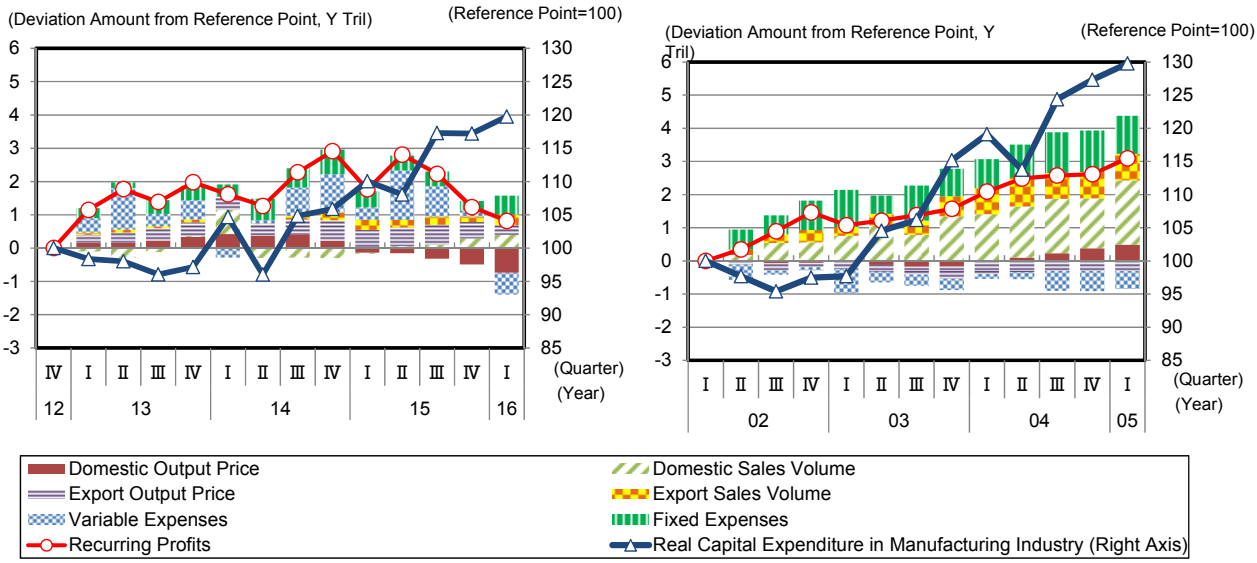
On the other hand, one problem which is often pointed out regarding recent trends in capex is that considering how favorable corporate earnings are, capital spending does not seem to grow as much as one would expect. In this section we examine the factors involved in the sluggish pace of growth in capital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

Chart 18 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 (Chart19). 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.

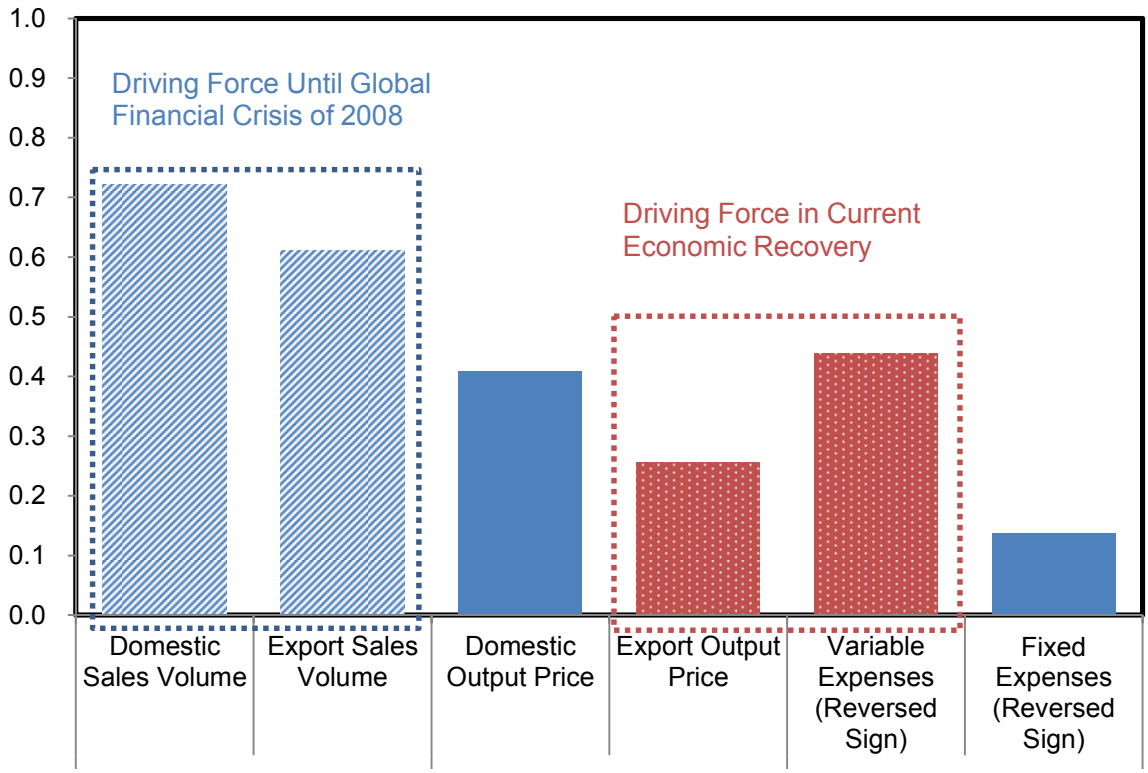
Based on these relationships we can conclude that growth in domestic sales volume and export sales volume is key to capital investment's becoming full-scale.

Factor Analysis of Corporate Earnings — Chart 18



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

Correlation Coefficient of Capital Investment and Corporate Earnings Components — Chart 19



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.

2. What will happen if there is a Recurrence of Financial Instability in the EU Due to Brexit?

2.1 Risk of Collapse in the Price of Real Estate in UK due to Decision to Withdraw from EU

A national referendum was held in the UK on June 23rd to determine whether or not the citizens of that country would prefer to withdraw from the EU. The results of the vote found that the majority of citizens choose to leave behind membership in the EU (or "Brexit" as it has come to be known). Negotiations between the UK and the EU regarding the UK's exit are still in the preparatory stage, and it is yet unknown what kinds of effects Brexit might have, not only on the UK economy, but on the world economy and Japan's economy as well. In this chapter we examine the risks that the Brexit decision might bring to the Japanese economy via the global financial system.

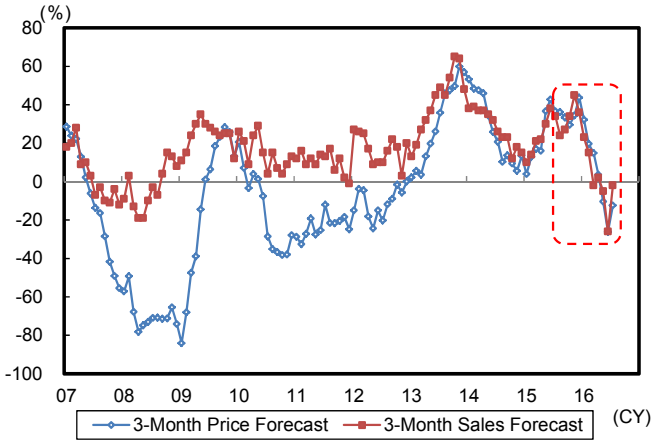
Just recently effects have already been felt in the form of movements in the UK real estate market. UK real estate prices have been on the rise since the beginning of 2013, with the pace of growth nearing an annual 10%. However, since the momentum for Brexit increased during the latter half of 2015, fears of a collapse in real estate prices have increased. Chart 20 shows the results of a survey of real estate agents in the UK regarding real estate prices and sales forecasts. The chart indicates that both prices and sales forecasts are registering negative numbers.

There are fears that the UK real estate market may have been negatively influenced by UK's decision to leave the EU. In other words, because of Brexit, many corporations which had used the UK as a base to do business with the entire EU in the past may now be in the process of moving to new locations in other countries within the EU. When corporate offices move out of the UK, employees have to move as well. As a result, demand for both office space and housing is in a decline, bringing on the risk of a collapse in real estate prices.

What would happen if UK real estate prices were to collapse? First, demand for construction would decline, and this would affect the UK's overall economy negatively, but whether or not there would be a short-term affect is yet unknown. In the following we examine how a ripple effect might occur in the real economy, looking at factors such as the effect on the financial condition of banks involved in real estate loans.

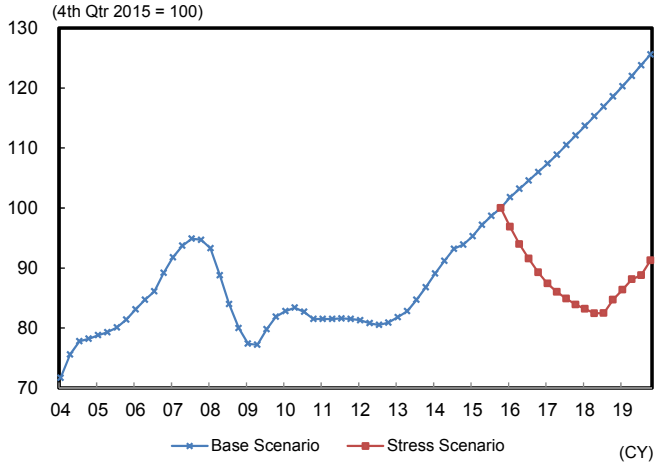
The Bank of England (BOE) performs a stress test on banks which hypothesizes a scenario in which real estate prices collapse. According to their 2015 test, both housing and commercial real estate prices would decline by nearly 40% in comparison to their base scenario. The BOE estimates that if this were to occur, bank losses would reach ten billion pounds.

Survey of UK Real Estate Agents **Chart 20**



Source: RICS; compiled by DIR.

UK Real Estate Prices and Stress Scenario **Chart 21**



Source: Halifax, Nationwide, Bank of England; compiled by DIR.
Note: The BOE 2016 stress test provides the base scenario. The stress scenario is based on figures used in the bank's 2015 stress test.

Effect of collapse in real estate prices on UK banks

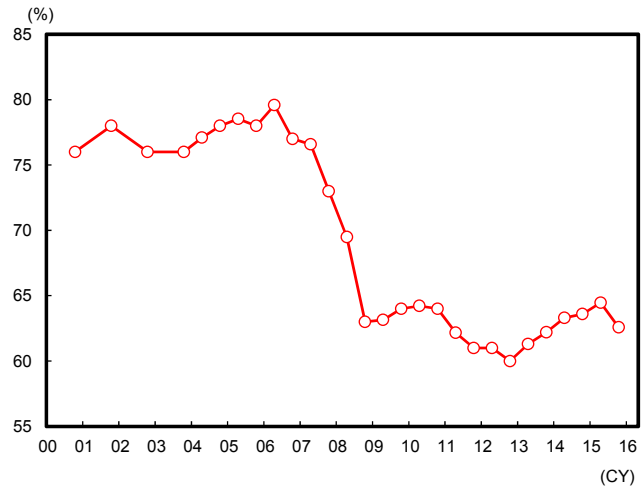
The figure mentioned in the previous section, 10 billion pounds, comes to approximately 1.3 trillion yen based on the August 2016 exchange rate. But despite the size of this amount, the effect of these losses on UK banks would actually be limited.

The UK is home to many large-scale banks doing business on a global level. Hence domestic real estate loans account for only 30% of total loans arranged by UK banks. Moreover, current standards for real estate loans are strict, requiring that the value of collateral be at a certain percentage. In other words, the whole structure of a real estate loan is constructed in a way that it can handle losses when they occur (Chart 22). Plus, with global financial regulations being strengthened, improvements in the capital ratios of banks are carried out on a regular basis (Chart 23).

With this as a backdrop, even assuming that losses totaling 10 billion pounds are recorded by UK banks, it is estimated that the common equity Tier 1 ratio of UK banks would deteriorate by only 0.5%pt. The common equity Tier 1 ratio of UK banks currently exceeds 12%, hence it would be difficult to imagine a scenario in which undercapitalization would occur at a UK bank. In other words, there is very little chance that bank management would experience direct negative effects as a result of the collapse of real estate prices in the UK.

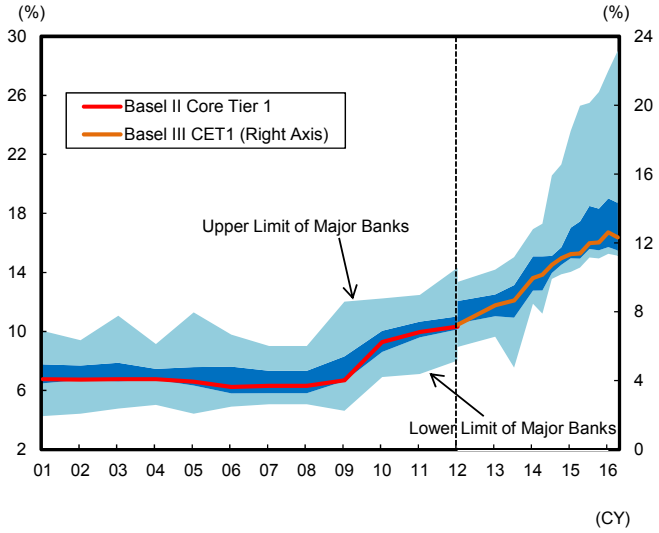
As explained here, the extent of influence of a collapse in real estate prices would be limited. Even if the capital ratios of UK banks were somehow to deteriorate, banks would most likely handle the problem by increasing their capital ratios and decreasing the percentage of risk assets they are willing to invest in. To get a better sense of the impact of this mechanism, in the following section we will examine the situation which Italian banks now find themselves in. Then at the end of this chapter we will provide a quantitative analysis of the compound impact which the UK and Italian situations could have together.

Balance of Commercial Real Estate Loans / Appraisal Value of Real Estate Collateral **Chart 22**



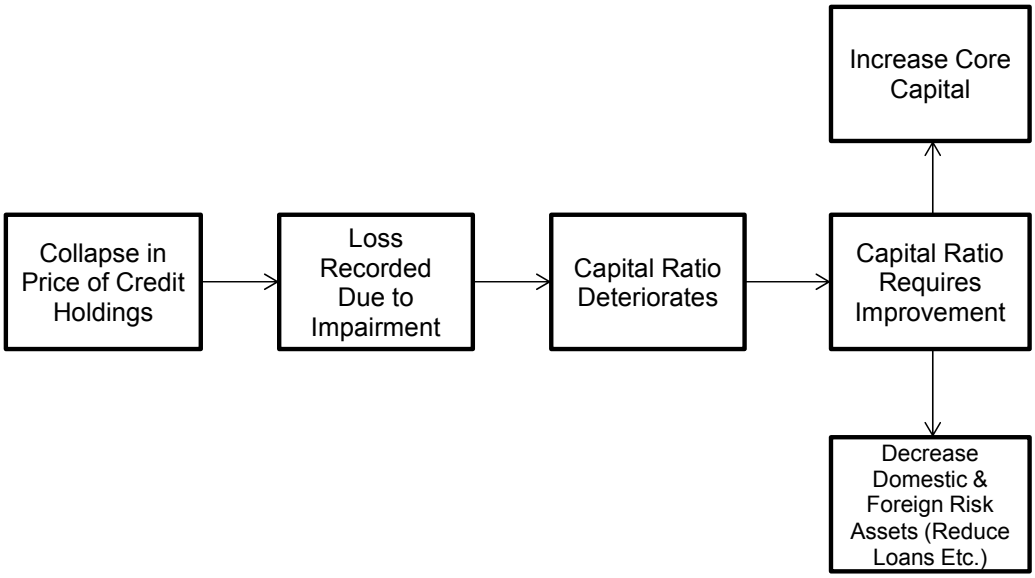
Source: Bank of England; compiled by DIR.

Capital Ratios of Major UK Banks **Chart 23**



Source: Bank of England; compiled by DIR.
Notes: 1) Weighted average of 8 major UK banks.
2) Basel II standards utilized through 2012, Basel III standards applied after year 2012.

Steps Leading from Collapse in Price of Bank Credit Holdings to Asset Reduction **Chart 24**



Source: IMF Spillover Report; compiled by DIR.

2.2 Problem of Disposal of Nonperforming Loans by Italian Banks

In this section we examine another problem in addition to Brexit which is causing much concern – that of nonperforming loans in Italy.

As can be seen in Chart 25, the ratio of nonperforming loans held by Italian banks is extremely high. The NPL ratio of Spanish banks was also very high in recent years, but has been on the decline since 2013.

Not only do Italian banks hold an enormous amount in nonperforming loans, their capital ratios are also on the low side in comparison to the EU average and to other countries in general (Chart 26). According to the results of the European Banking Authority (EBA) 2016 stress test, Italian banks are

estimated to have the worst financial condition of all major EU member nations. It has been pointed out that Banca Monte dei Paschi di Siena, Italy's third largest bank, may suffer from a capital shortfall if the risk scenario becomes a reality. The ECB has demanded that the bank carry out disposal of nonperforming loans as a means of resolving the problem.

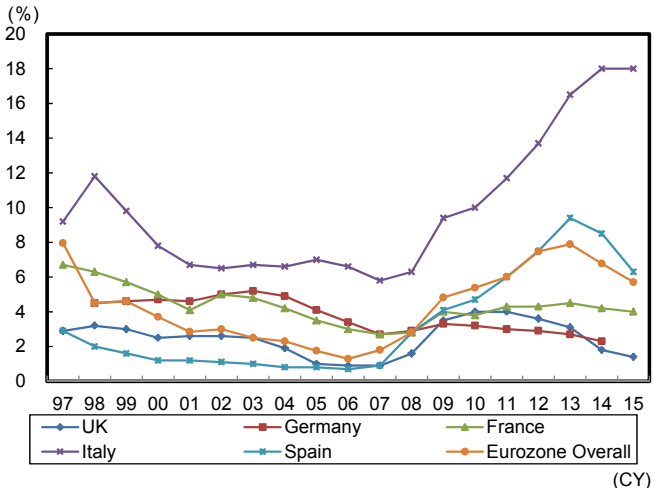
However, when disposing of nonperforming loans, the bank is often forced to sell loans at a price below the original amount (book value). Hence there is a concern that the Banca Monte dei Paschi and other Italian banks will suffer enormous losses once they get around to disposing of nonperforming loans.

Much like the Brexit question, the problem of nonperforming loans held by Italian banks and the extent to which the problem might spread is attracting much attention. In relation to this problem, the EU Bank Recovery and Resolution Directive (BRRD) was formally adopted in January 2016. According to this policy, when an injection of public funds is carried out, creditors are requested to share the burden of some of the losses. (This is referred to as a bail-in.) In other words, when public capital becomes necessary in order to handle the disposal of nonperforming loans, investors and depositors may also be required to take on some of the losses. It is for this reason that the question of the extent to which the problem might spread to banks in other EU member countries and to the real economy when nonperforming loans are disposed of is attracting so much concern.

The question of whether or not a bail-in will occur in this particular case is not dealt with in this report. However, we do examine questions associated with the disposal of nonperforming loans by Italian banks and the subsequent process of improving capital ratios such as the extent to which risk assets will be reduced and to what extent core capital will have to be accumulated.

Nonperforming Loan Ratios of Major European Banks

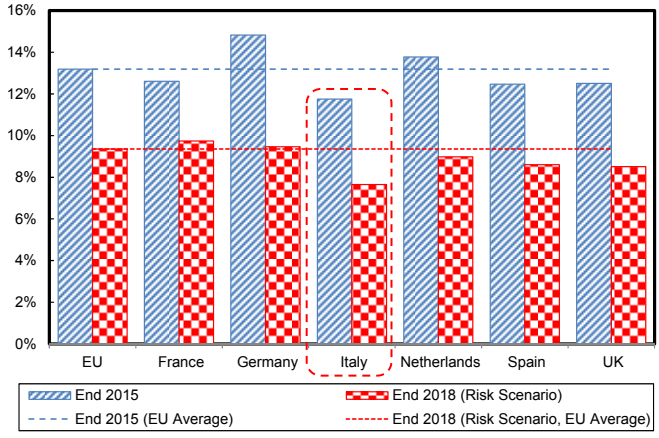
Chart 25



Source: World Bank; compiled by DIR.

Common Equity Tier 1 Ratios of Major European Banks

Chart 26



Source: EBA; compiled by DIR.

Improving capital ratio: deleveraging when financial environment is bad, capital increase during periods of stability

Before looking at some more estimates, let us first consider what European banks have done in the past when they wanted to improve their capital ratios – to what extent did they focus on the accumulation of core capital, and how much did they reduce risk assets?

The Tier 1 ratio is defined as the ratio of core capital to risk exposure. In order to increase this ratio, either one of the following is required: (1) accumulate Tier 1 capital (the numerator), or (2) reduce risk

exposure (the denominator). Here we define (1) Tier 1 capital as capital increase, and (2) reduction of risk exposure as deleveraging.

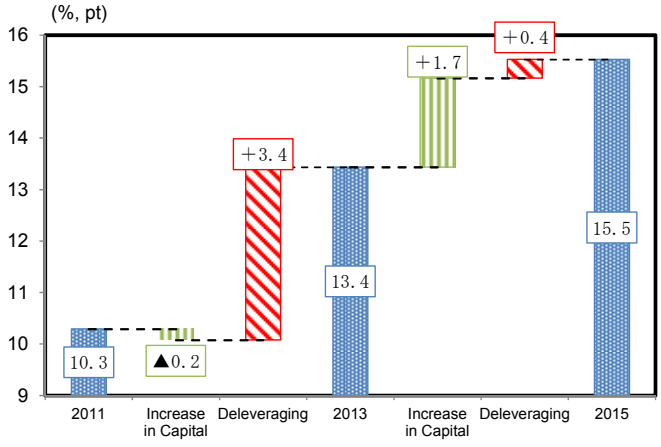
Chart 27 and Chart 28 show growth in the Tier 1 ratios of UK and Italian banks between 2011 and 2013, and from 2013 to 2015, as well as what said growth in Tier 1 ratio consisted of. Looking at two different timeframes allows us to see how periods of growth in the Tier 1 ratio can differ in what said growth consists of. These differences can occur based on the timing of growth.

The period between 2011 and 2013 is when the European financial crisis occurred. During this time, improvement in the Tier 1 ratio consisted entirely of deleveraging (an over 100% contribution). In contrast, capital increase shows a negative contribution. Core capital is damaged as a result of carrying out disposal of nonperforming loans and suffering of losses due to impairment. This causes the Tier 1 capital total to decline. Even under these conditions banks are expected to comply with the strengthening of financial regulations and to improve their capital ratio. Hence large-scale deleveraging occurred between 2011 and 2013, including a major reduction loan amounts.

In contrast, during the period between 2013 and 2015, fears were increasing regarding the financial situation in Greece, but the overall financial environment in Europe remained relatively stable. During this time the regulatory framework also changed with the shift from the Basel II to the Basel III accord. The demand for further improvements in capital ratios continued, but the financial environment made it fairly easy to engage in methods of capital increase, including that of the issuance of AT1 bonds. It is during this time that we see improvements in capital ratios due partly to deleveraging, which, as can be seen in the chart, increased from a contribution of 20% to one of 30%.

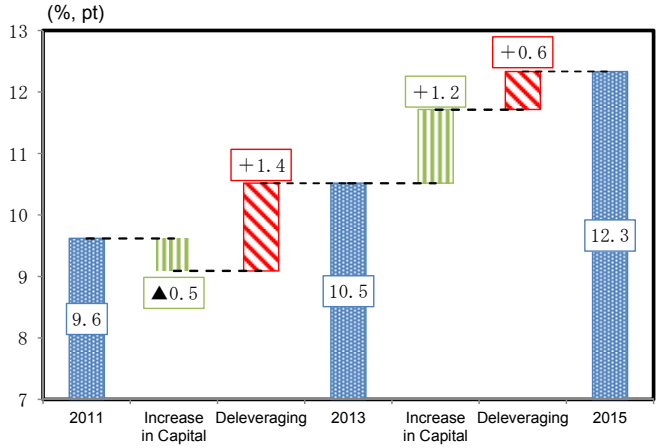
To summarize the above, the extent to which banks make use of increasing capital and deleveraging in the process of improving their capital ratios depends on the financial environment at the time the process is carried out. Or, to put it in extremely simple terms, deleveraging tends to be used when the financial environment is bad, and capital reinforcement is used when the financial environment is relatively stable.

Changes in Tier 1 Ratio of UK Banks and Breakdown of Contents
Chart 27



Source: ECB; compiled by DIR.

Changes in Tier 1 Ratio of Italian Banks and Breakdown of Contents
Chart 28



Source: ECB; compiled by DIR.

Simulation of collapse in UK real estate prices and disposal of nonperforming loans in Italy

In light of what has been discussed thus far, we now move on to the quantitative analysis of the effects which deleveraging has on the global real economy. First we take a look at the situation in the UK. If real estate prices were to collapse in the UK, banks could take on losses of up to 10 bil pounds, and

capital ratios could deteriorate by 0.5%pt. In order to improve their capital ratios, UK banks would have to decrease loan amounts by the figure shown in Chart 29.

If capital increase is difficult due to a deteriorating financial environment, it is possible that improving capital ratio might depend entirely on deleveraging. If this is the case, then UK banks would have to decrease loans by around 100 bil euros. This is by no means a small sum, and could possibly cause UK real GDP to decline by around 0.8%. The effects could also spread to other countries, causing declines in real GDP via declines in loans overseas.

However, since the UK economy does not account for a very large share of the world economy, cutting back on overseas loans should not affect the overall world economy much. As a result, our estimates found that affects would be limited, with real global GDP pushed down by about 0.1% and Japan's real GDP by 0.07%.

Results of estimates performed on the influence which disposal of nonperforming loans could have in Italy are shown in Chart 30. We estimate that if improvements in capital ratios of banks take the form of deleveraging in 100% of cases, Italy's real GDP could decline by just under 2%.

The financial damages would be huge for Italy, but since Italy accounts for such a small percentage of the overall world economy, and Italian banks do not carry out an especially large amount of loans overseas, the effect on the world economy is expected to be limited. Concretely speaking, the extent of decline expected in real GDP for the world overall is expected to be around 0.13%, while for Japan specifically the decline in real GDP is estimated at 0.09%.

Change in Amount of Loans and Influence on Real GDP if UK Real Estate Prices Collapse **Chart 29**

	Deleverage Ratio	Amount Changed in UK Bank Lending			Percentage Changed in UK GDP	Percentage Changed in World GDP	Percentage Changed in Japan's GDP
		Total	Domestic	Overseas			
		Bil.EUR	Bil.EUR	Bil.EUR	%	%	%
UK Real Estate Prices Plunge Due to Brexit (Outbreak of Deleveraging at UK Banks)	30%	-35	-19	-15	-0.25	-0.03	-0.02
	50%	-58	-32	-25	-0.41	-0.05	-0.04
	100%	-114	-64	-50	-0.81	-0.10	-0.07

Source: EBA, BOE, and BIS; compiled by DIR.
Notes: 1) Figure used for amount of loans includes amounts in foreign and domestic claims according to BIS consolidated banking statistics.
2) This simulation assumes that a collapse in UK real estate prices due to Brexit would carry the same level of influence as did the global economic crisis of 2008. Meanwhile, estimates for subsequent improvement in capital ratios assume that the method used is deleveraging.

Change in Amount of Loans and Influence on Real GDP if Italian Banks Dispose of Nonperforming Loans **Chart 30**

	Deleverage Ratio	Amount Changed in Italian Bank Lending			Percentage Changed in Italian GDP	Percentage Changed in World GDP	Percentage Changed in Japan's GDP
		Total	Domestic	Overseas			
		Bil.EUR	Bil.EUR	Bil.EUR	%	%	%
Disposal of Non-Performing Loans in Italy (Outbreak of Deleveraging at Italian Banks)	30%	-73	-56	-17	-0.64	-0.04	-0.03
	50%	-117	-90	-27	-1.02	-0.07	-0.05
	100%	-224	-172	-52	-1.95	-0.13	-0.09

Source: EBA and BIS; compiled by DIR.
Notes: 1) Figure used for amount of loans includes amounts in foreign and domestic claims according to BIS consolidated banking statistics.
2) Assumptions: Italian banks dispose of nonperforming loans and capital ratios are impaired. Estimates for subsequent attempt to improve CET 1 ratios to the same level as foreign banks assume that the method used is deleveraging.

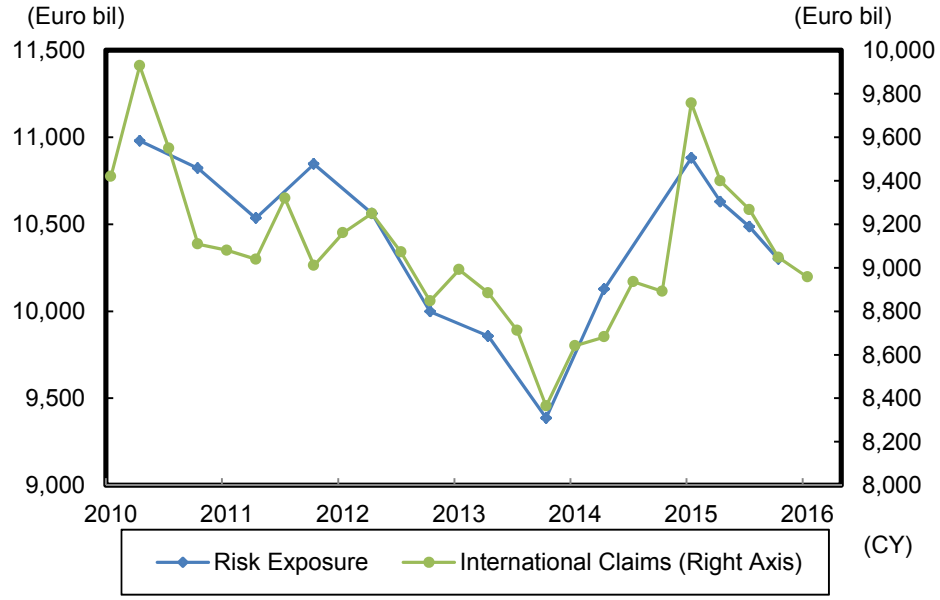
What will happen if negative influence spreads to other countries?

As we have seen up to this point, neither a collapse in real estate prices in the UK nor the influence of disposal of nonperforming loans in Italy would have much in the way of negative effects on the world economy even in a worst case scenario.

However, estimates shown in the above charts assume that influence resulting from the decline in loans is limited to only banks in the UK and banks in Italy. In actual fact, when a bank carries out deleveraging, possibilities are great that influence will spread to financial institutions in other countries. Chart 31 shows risk exposure of European banks and trends in the international claims held by European banks. It can be clearly seen that as banks cut back on their risk exposure, claims held in other countries also decrease.

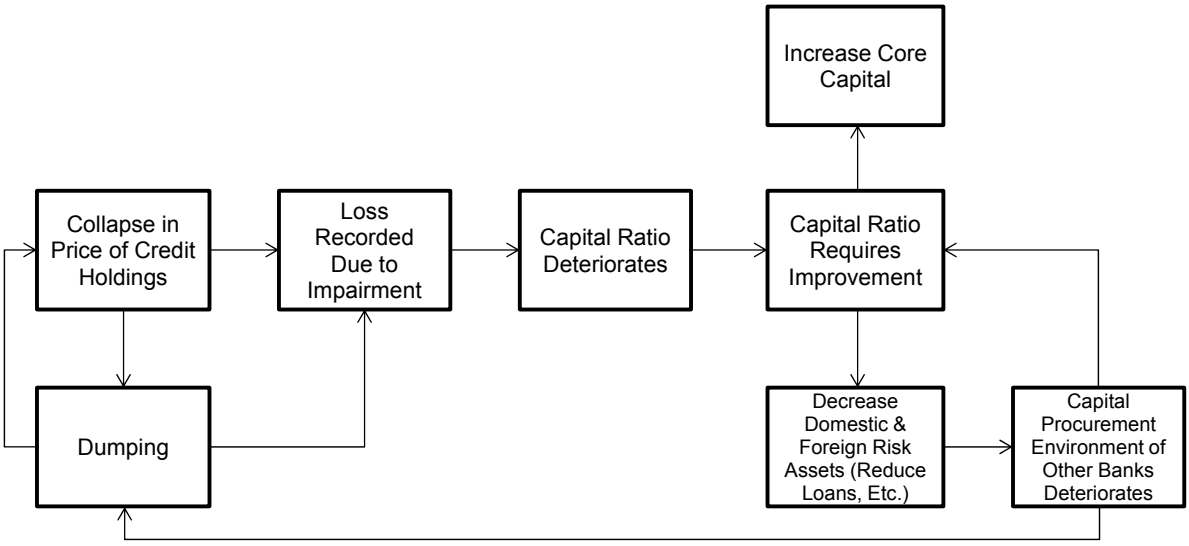
Chart 32 is a conceptual diagram which illustrates the route by which the effects of deteriorating bank balance sheets spread to other banks. When a bank carries out deleveraging, capital is withdrawn from banks in other countries, forcing those banks to carry out deleveraging as well. This process can lead to the dumping of financial assets and can cause further deterioration of bank balance sheets in other countries. As a result, there is danger of deleveraging accelerating until it spirals out of control.

Risk Exposure of European Banks and Trends in International Claims **Chart 31**



Source: ECB, BIS; compiled by DIR.

Route by which Influence of Deteriorating Bank Balance Sheets is Spread (Conceptual Diagram) **Chart 32**



Source: IMF Spillover Report; compiled by DIR.

2.3 If Crisis Spreads to Entire EU Financial System, World GDP would Decline by 2.7%, and Japan's GDP by 1.9%

As described in the previous section, when the deterioration of bank balance sheets spreads to multiple banks the problem becomes more serious. According to the 2016 EBA stress test, the following sequence of events can occur, thereby spreading the load around. (1) Unwinding of risk premium expansion on the global financial markets, (2) Deterioration of earnings in banking and insurance industry due to continuation of low growth, low interest environment, (3) Amplification of fears regarding debt held by public agencies and non-financial private sector companies, and (4) Spreading to rapidly expanding shadow banking sector. This is the worst case scenario for Europe, and the one which would lead to a financial crisis.

According to the results of the EBA stress test, if the above scenario were to actually come about, the common equity Tier 1 ratios of Europe's major banks would deteriorate by around 4%pt. However, with the exception of Italy's Banca Monte dei Paschi, this is not a level of impact which would lead to a capital shortfall on the part of European banks. In other words, even in a worst case scenario, the European financial system can maintain its basic soundness for the time being.

That said, if capital ratios actually were to deteriorate, banks would likely be expected to improve their capital ratios further so as to be prepared for the next crisis that comes along. Realistically speaking, there is usually a postponement applied for several years, but then there is a possibility that banks may be required to make efforts to return their deteriorated capital ratios to original levels.

It is assumed that at a time like this Europe's financial environment would be in extremely difficult circumstances. Therefore, banks would have only the deleveraging option open to them as a means of improving capital ratios. In this case, the amount of decrease in loan amounts would be huge as shown in Chart 33 – possibly exceeding 3 trillion euros. This amount could push down real world GDP by 2.7%, and Japan's real GDP by 1.9%.

When seen in isolation Europe's financial problems have little influence on Japan's economy. But when those problems are compounded, crisis can spread throughout Europe's financial system, and then the negative effects spread to the global economy, as well as Japan's economy. Europe's financial system will likely remain in a situation requiring a watchful eye for some time to come.

Change in Amount of Loans and Influence on Real GDP if European Financial Institutions Come Under Overly Much Stress **Chart 33**

		Deleverage Ratio	Amount Changed in Lending			Percentage Changed in World GDP	Percentage Changed in Japan's GDP
			Total	Domestic	Overseas		
			Bil.EUR	Bil.EUR	Bil.EUR	%	%
Case in which EU Financial Institutions Experience Overload (Adverse Scenario According to EBA Stress Test)	Scenario ① Capital Ratio Recovers to End-2015 Level	100%	-3,453	-2,310	-1,142	-2.7	-1.9
		50%	-1,882	-1,259	-623	-1.5	-1.0
		30%	-1,224	-818	-405	-1.0	-0.7
	Scenario ② Capital Ratio Improves Half as Much as in Scenario ①	100%	-2,034	-1,361	-674	-1.6	-1.1
		50%	-1,068	-714	-354	-0.8	-0.6
		30%	-671	-448	-222	-0.5	-0.4
	Scenario ③ Capital Ratio Improves a Quarter as Much as in Scenario ①	100%	-1,118	-747	-370	-0.9	-0.6
		50%	-573	-383	-190	-0.4	-0.3
		30%	-353	-236	-117	-0.3	-0.2

Source: EBA and BIS; compiled by DIR.
Notes: 1) Figure used for amount of loans includes amounts in foreign and domestic claims according to BIS consolidated banking statistics.
2) The EBA 2016 stress test assumes the following load: (1) Unwinding of risk premium expansion on the global financial markets, (2) Deterioration of earnings in banking and insurance industry due to continuation of low growth low interest environment, (3) Amplification of fears regarding debt held by public agencies and non-financial private sector companies, and (4) Spreading to rapidly expanding shadow banking sector.
3) In scenario (1), the EBA 2016 stress test adverse scenario assumes that capital ratios by end 2018 will be required to be returned to end 2015 levels. Scenario (2) assumes improvement of the CET 1 ratio half as much as scenario (1). Scenario (3) would require a quarter of that amount.

3. Evaluating Economic Stimulus Measures for Japan in Light of Secular Stagnation Theory

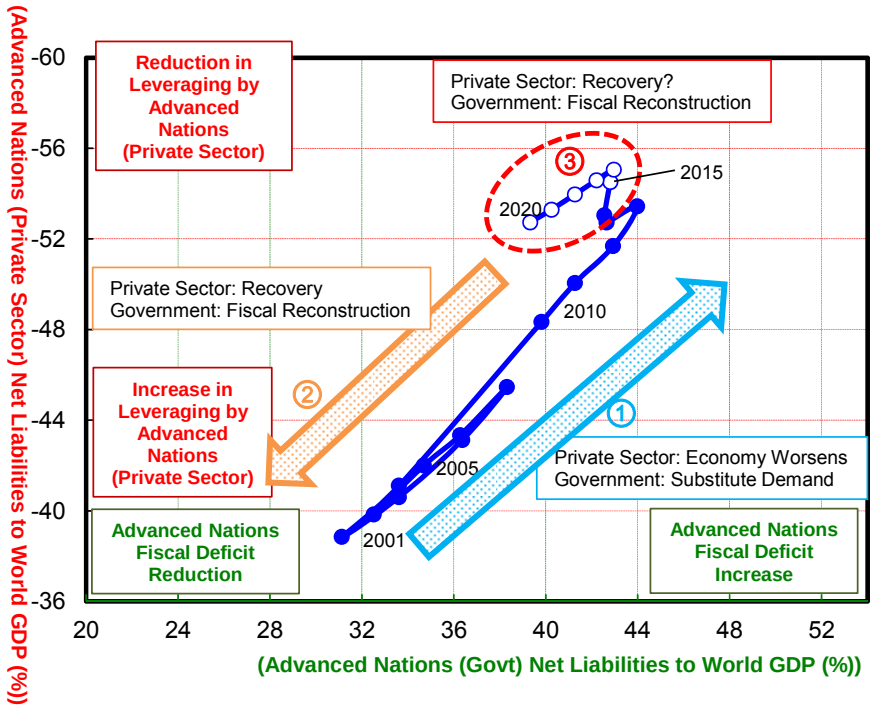
In recent years there have been growing concerns that the world economy is entering a new era of long-term stagnation (also referred to as secular stagnation). The demand-and-supply curve has undoubtedly shifted to the low side around the world, and most of the advanced nations have implemented zero lower bound constraints. It is an indisputable fact that many economies are suffering from excess savings. In this chapter, we examine Japan's economic stimulus package in light of secular stagnation theory and consider what kind of policies might work best.

3.1 Advanced Nations Proactive on Wise Spending as Means of Avoiding Bottom Falling Out of World Economy

Fiscal spending is one choice that can be taken as a means of shaking off secular stagnation. First we take a look at the current condition of the world economy from the viewpoint of governments of advanced nations and private sector debt leveraging (chart 34). This chart illustrates net liabilities of advanced nations (government) to world GDP (%) shown on the horizontal axis, and net liabilities of advanced nations (private sector) to world GDP (%) on the vertical axis. We can use this chart to look back at larger world economic cycles, where first we find that (1) when private sector economies of advanced nations deteriorate, governments generally provide a substitute for demand (arrow (1) in the chart). As a result, (2) private sector economies of advanced nations recover, and then governments which had been carrying out policies acting as a substitute for private sector demand begin implementing programs to encourage fiscal reconstruction (or rehabilitation) (arrow (2) in the chart). Then inflation is generated (or in some cases a bubble), and the economy moves toward a period of adjustment (or a shakeout), at which point the cycle returns to step (1).

Taking a bird's eye view of current conditions in light of the world economy's long-term cycle, one could say that the root of the current downturn lies in the implementation of fiscal restraint and tight money policies despite the slow pace of recovery in private sector demand in the advanced nations (dotted line (3) in the chart). In the past it would always be the emerging nations (especially China) which would step up to the plate and fill the gap in demand. However, China's economic growth rate has recently shifted into decline, and the emerging nations can no longer be expected to generate more demand. It is therefore hoped that the advanced nations which lead the world economy will work on various means of avoiding the world economy's lapsing into secular stagnation by proactively applying the Keynesian method of wise spending.

Current Condition of World Economy: Debt Leveraging of Advanced Nations (Govt & Private Sector)
Chart 34



Source: IMF; compiled by DIR.
Note: All indices expressed as a portion of GDP (%). White circles are IMF predicted values beyond 2015.

3.2 Effectiveness of Stimulus Package to Encourage Investment in Seeds of Future Growth

Stimulus has effect of pushing up FY2016 GDP by 0.2%

The Abe administration made a cabinet decision on August 2, which aims at pushing up Japan's stagnant economy. This is a decision to implement "Economic Measures for Realizing Investment for the Future." The package is an especially large-scale one involving public works projects totaling 28.1 trillion yen. However, the stimulus measure includes the FY2016 supplementary budget, with fiscal measures at government expense totaling around 4.5 trillion yen. So to what extent will this measure provide underlying support to Japan's FY2016 economy?

Items receiving the largest amounts in the budget measure to be implemented in the form of central and regional government budget expenditures are "Accelerating efforts to build a society in which all citizens are dynamically engaged," "21st-century infrastructure developments," and "Reconstruction from the 2016 Kumamoto earthquake and the Great East Japan Earthquake, safety and security, and disaster prevention." As for "Accelerating efforts to build a society in which all citizens are dynamically engaged," a large number of related fiscal measures are expected to be included in the FY2017 budget and beyond. Hence the larger portion in the FY2016 supplementary budget is expected to go toward "21st-century infrastructure developments," and "Reconstruction from the 2016 Kumamoto earthquake and the Great East Japan Earthquake, safety and security, and disaster prevention." In other words, measures will be mostly in the form of public works projects.

Possibilities are high that public works project related expenditures exceeding 3 trillion yen will be spent in the form of allowances paid out through the supplementary budget. However, even assuming the budget is passed by the Diet, it will likely take time for said projects to actually produce added value. A target has been set for reaching 80% in contracts associated with public works projects coming out of this budget within a timeframe of six months. Once a target such as this is set up for the

FY2016 supplementary budget, then it can be assumed that completion of 80% of the contracts within FY2016 will have become the official bellwether.

Public works projects obtain added value once a project has been contracted and construction has progressed. Of the public works projects carried out through budgetary measures, the ones actually progressing during FY2016 consist of 40% of those which have been contracted. Hence it is projected that around 30% of the full range of projects will be making some progress this fiscal year. So continuing along this line of thinking, we can assume that there is a little over 3 trillion yen in public works projects which have been slated for FY2016, of which around 1 trillion yen worth will actually be carried out, meaning that this is the figure which contributes to improving GDP. In other words, around 0.2% of the amount making up the supplementary budget can be expected to have some effect on pushing up real GDP (Chart 35). The large-scale, proactive fiscal expenditure which can be expected this time around should be helpful in raising the level of Japan's economy, as well as playing a part in helping the world economy to avoid lapsing into a period of secular stagnation.

Outlook for FY2016 Supplementary Budget and Boost to GDP **Chart 35**

	FY2016 Supplementary Budget	Extent of Boost to GDP
I. Accelerating efforts to build a society in which all citizens are dynamically engaged	0.5 Tril Yen	0.0%
II. 21st-century infrastructure developments	1.5 Tril Yen	0.1%
III. Response to risk such as uncertainty due to UK exit from EU, and Support for SMEs and microenterprises, as well as local communities	0.5 Tril Yen	0.0%
IV. Reconstruction from the 2016 Kumamoto earthquake and the Great East Japan Earthquake, safety and security, and disaster prevention	2 Tril Yen	0.1%
Total	4.5 Tril Yen	0.2%

Source: Cabinet Office; compiled by DIR.

Structural reform with an eye to future growth is the major focus

There is no room for doubts as to whether public spending will raise the level of the economy. However, the effect of giving the economy a lift will only be short-term. With its colossal fiscal deficit, Japan has little leeway for public spending, and it can be difficult to infuse large-scale economic stimulus package with real vigor. Hence it follows that during the time that public spending is giving a push to the economy, it will be essential to accelerate the original third arrow of Abenomics (the growth strategy), and to carry out structural reforms with an eye to future growth.

Looking at the current economic stimulus package in light of the above, we see that there are items included which are notably oriented toward structural reform aiming toward future growth, such as labor market reform (Charts 36 and 37). In the next section we will clarify the reasons why structural reform centering on labor market reform is so important to Japan's economy at this time.

Income-Raising Policy Included in New Stimulus Package **Chart 36**

Ⅰ. Accelerating efforts to build a society in which all citizens are dynamically engaged
(2) Enhancement of support for youth and promotion of the empowerment of women
① Consider scholarships in the form of benefit payments
② Resolve issue of persons still eligible for interest-free student loans, discard academic evaluation of low-income households
(3) Boosts in both gross income and consumption across entire society
① Promoting working-style reform
・Consider ways of acheiving equal pay for equal work
・ Support re-employment and continuing employment of the elderly
② Shortening the pensionable period
③ Effecting a simple benefits package
④ Reviewing the employment insurance system

Source: Cabinet Office; compiled by DIR.

Policies Supporting Women's Issues Included in New Stimulus Package **Chart 37**

Ⅰ. Accelerating efforts to build a society in which all citizens are dynamically engaged
(1) Improving the childcare and nursing care environments
① Providing childcare and nursing care arrangements
② Improving working conditions of childcare providers
③ Improving working conditions of nursing care providers
④ Improving measures for securing a broad range of human resources providing childcare and nursing care services
⑤ Reducing the burden on childcare and nursing care providers and improving productivity
⑦ Extending the length of childcare leave and other measures
⑨ Utilization of the Career Development Grant
(2) Enhancement of support for youth and promotion of the empowerment of women
③ Leadership training for women being groomed for top executive positions
④ The government will work on measures to enhance supports of marriage, realize regional cohesive societies, and promote the empowerment of women at an accelerated pace.
(3) Boosts in both gross income and consumption across entire society
① Promoting working-style reform
・ Produce guidelines for appropriate application of Labor Contract Act
・ Review methods of promoting women playing an active role in society, including promotion of telecommuting

Source: Cabinet Office; compiled by DIR.

3.3 Labor Market Reform as Means of Energizing Japan's Economy in Period of Secular Stagnation

In this section, we perform a quantitative analysis of the influence of the labor participation rate and changes in hours worked on potential labor input in light of the government's current economic stimulus package. Our conclusion is that Japan's potential labor input could gain a major increase by promoting a raise in the minimum wage and the entry of more women into the labor force. This could

also help energize Japan's economy, which has been adrift with a sense of being stuck in a state of long-term stagnation.

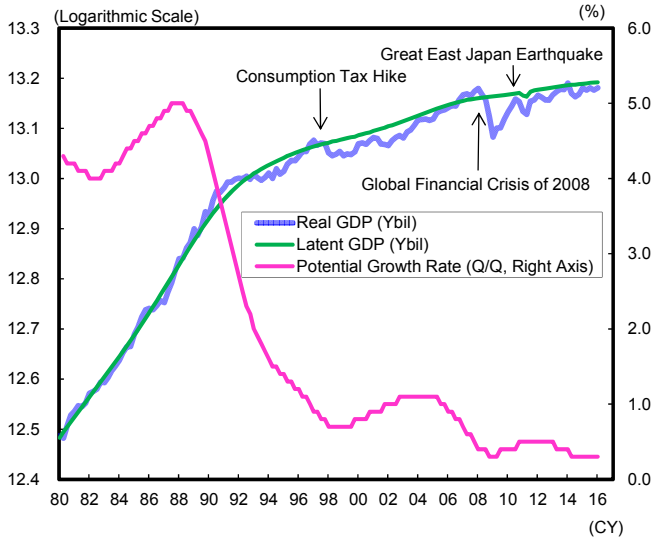
Japan's economy has been unable to break free from long-term stagnation ever since the collapse of the economic bubble

First we take a bird's eye view of Japan's economy since the 1980s (Chart 38). Japan's real GDP maintained pretty much the same level as potential GDP until the 1980s. However, since the first half of the 1990s there was a complete shift in which real GDP never managed to exceed the level of potential GDP. A variety of developments can be seen as being behind this change, including the decline in population and the low birthrate, as well as the accompanying stagnant consumption and fading of the willingness of corporations to engage in capex spending. The series of economic crises during this period weakened demand year after year until it could no longer keep up with expanding supply capability. Meanwhile, the potential growth rate also fell below the 1980s average of +4% or more, falling to around the 0% level, with no turnaround in sight.

Why is Japan's GDP growth rate on the decline? Chart 39 shows a factor analysis of Japan's GDP growth rate in terms of labor input, capital input, and TFP (total-factor productivity, which indicates long-term technological change or dynamism). During the 1980s, these three factors were well-balanced and making positive contributions. A high growth rate of around +4% y/y was being maintained. But after the beginning of the 1990s, the positive contributions of capital input and TFP began to shrink. Meanwhile, labor input fell into the negative numbers in terms of contribution to GDP growth rate.

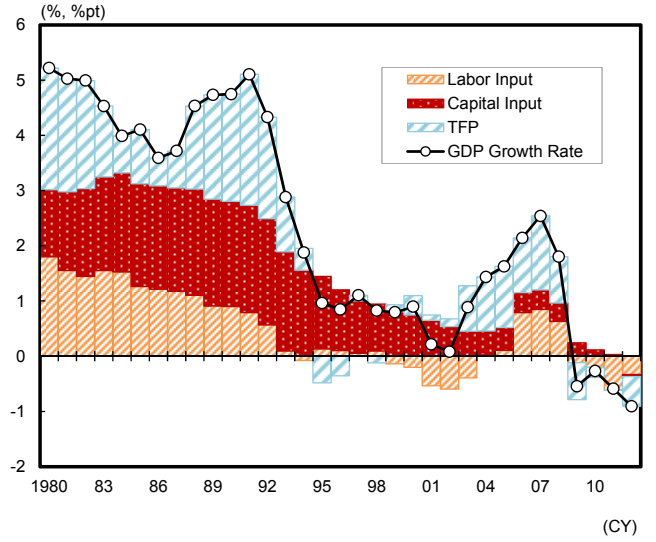
The shrinkage of capital input's positive contribution to Japan's GDP growth rate can be attributed to the year-by-year dwindling of the growth rate in capital stock. With the anticipated growth rate of Japan's economy stuck at around the level of 1%, corporations cannot be expected to aggressively accumulate capital stock. On the other hand, when it comes to the declining population and the low birthrate, aging society, as well as the shrinking contribution of labor input to GDP, we believe that there is some margin for a return to growth which could be brought about by the right choice in government policy.

Real GDP and Potential GDP **Chart 38**



Source: Cabinet Office; compiled by DIR.

Factor Analysis of GDP Growth Rate (Recent 5-Yr Average) **Chart 39**



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

Population factor pushes down labor input. Labor participation rate & hours worked (part-time) bring positive contribution

Next we take a look at factors affecting labor input in recent years (Chart 40). Labor input can be analyzed in terms of number of employees and hours worked. Concretely speaking, number of employees can be broken down further into four factors – the total population factor, the working age population ratio, labor participation rate, and the employment rate. Meanwhile, hours worked can be broken down into general workers and part-time workers.

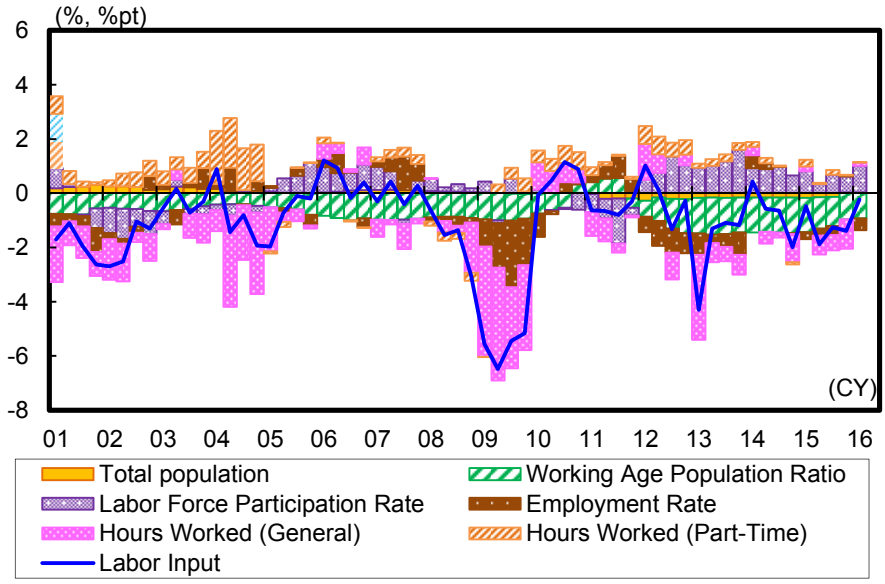
Looking at the factor of number of employees, we see that labor supply capacity begins to decline as the low birthrate - aging population situation progresses. Meanwhile, the working age population ratio consistently brings a negative contribution to labor input. After 2011, the total population factor also begins to make a somewhat negative contribution. On the other hand, the labor participation rate contributes positively to labor input. Since the forming of the second Abe cabinet in 2012, it can be said that women's social advancement and economic recovery are progressing.

Next we look at the factor of hours worked. Here we find that hours worked by general workers also makes a negative contribution to labor input due to economic downturn and subsequent reduction in general workers. On the other hand, the ratio of part-time workers is on the rise. Hence, even though per capital working hours are on the decline, the factor of hours worked by part-time workers actually brings a bit of a plus to labor input.

In order to increase the total population and the working age population, strengthening of countermeasures against the falling birthrate and acceptance of immigrants are both required. However, countermeasures against the falling birthrate are expected to require several decades before taking effect. Meanwhile, public opinion is polarized when it comes to the question of acceptance of immigrants, so this too is not a choice that is immediately available. On the other hand, increasing the labor participation rate and extending working hours could be put into effect fairly easily simply by making a policy change.

The next step in our analysis is to consider variability of the labor participation rate and hours worked. Here also we will perform a quantitative analysis of this factor's influence on labor input.

Factor Analysis of Labor Input (y/y) **Chart 40**



Source: Haver Analytics; compiled by DIR.
Note: Employment rate = number of employees ÷ labor force population. Number of employees aged 15-64, labor force population.

Will raising the minimum wage cause the labor participation rate to rise?

Next we take a closer look at the labor participation rate. Included in the recently announced economic stimulus package is "Improving the childcare and nursing care environments". The purpose of this is to increase the labor participation rate. An additional element in the stimulus package, "Consider ways of achieving equal pay for equal work", is also for the purpose of increasing the labor participation rate. There is a positive correlation between hourly wage and the labor participation rate. When the hourly wage increases, the number of people thinking that income is more useful to them than spare time also increases.

In order to rectify the inequality of treatment of regular employees and non-regular employees, the government announced its intention to raise the minimum wage from 798 yen per hour to 1,000 yen per hour as of 2015. If the minimum wage is raised to 1,000 yen per hour, the wage for part-timers would likely be raised by 12% above the current level to around 1,260 yen. Finally, if the part-time hourly wage is raised to 1,260 yen, the overall labor participation rate which includes both regular and part-time workers is estimated to grow from the current 76% to around 79%.

Barriers to part-timers taking on more work hours (suppression of hours worked)

There is one factor for which the new stimulus package does not provide assistance, and it is an issue which really must be dealt with in the mid to long-term. These are tax and labor laws which act as barriers to part-timers working more hours. First there is the 1,030,000 yen rule according to which the head of household (usually the husband) can still count his wife as a dependent and get a tax write-off as long as her annual income does not exceed 1,030,000 yen. The second barrier is the 1,300,000 yen limit according to which a dependent is not required to cover their own social insurance premiums if their annual income does not exceed 1,300,000 yen. (Social insurance is separate from the national health insurance program.) As is explained further below, it is for the most part married women who are affected by these rulings. These rulings related to tax write-offs and insurance payments act as barriers which suppress the factor of hours worked in the sense that they do not encourage married women to work more hours.

Chart 41 shows changes in annual income, hours worked, and hourly wages of part-time workers. Hourly wages of part-time workers have risen consistently since 1994, with the hourly wage having hit 1,106 yen as of May 2016 – an increase of 16.5% in comparison to the beginning of 1994. On the other hand, the growth rate in annual income of part-time workers is only +4.5%, with total annual income of just 1,170,000 yen as of May 2016. Meanwhile, we can see from the chart that work hours of part-time workers have declined by 10.3% in comparison to 1994 when the figure stood at 99 hours as compared to the current 88 hours. This is proof that most part-time workers tend to adjust their hours worked, cutting back on hours appropriately so as to avoid stepping over the tax and insurance boundaries of 1,030,000 yen and 1,300,000 yen.

Nowadays, with the annual incomes of many heads of household on the decline, it stands to reason that there should be many households considering means of obtaining more income by having the wife go to work as well. Therefore, it follows that abolishing the tax and insurance rulings which prevent women from working more, or at least raising the maximum amounts in annual income allowable before stepping over the tax and insurance boundaries of 1,030,000 yen and 1,300,000 yen, would provide incentive for part-time workers and dependent spouses to extend hours worked beyond the current level.

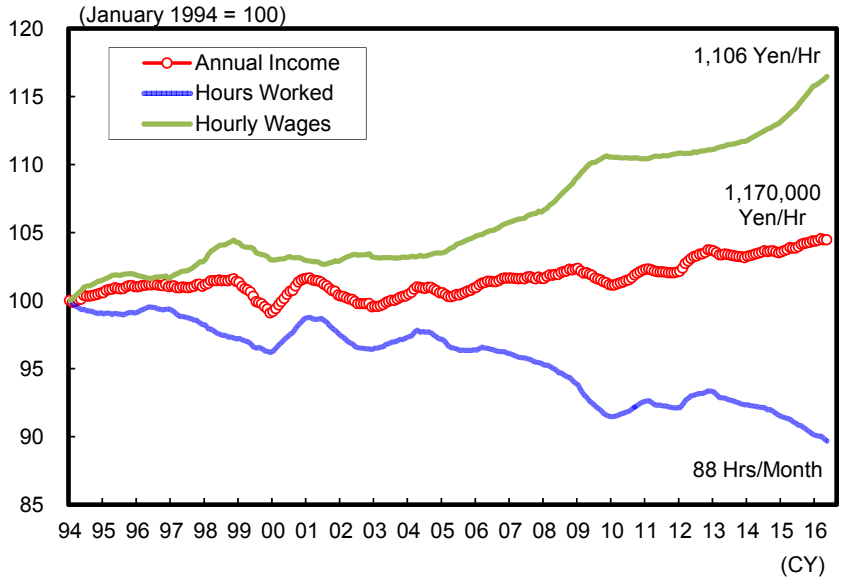
Increasing the labor participation rate and hours worked could encourage potential GDP to grow by up to 24 trillion yen

In this section we present out estimates regarding the extent to which potential labor input may be influenced by variation in the overall labor participation rate and hours worked by part-time workers (Chart 42).

According to the results of our estimates, if the overall labor participation rate can be increased from 76% to 79% as was mentioned in the previous section, potential labor input would grow by 3.9%pt. If hours worked by part-time workers were to increase by 89 to 100 hours, potential labor input would grow by 2.4%pt. Finally, if both of these figures can be achieved, potential labor input would grow by 6.4%pt and potential GDP could be pushed up by as much as 24 trillion yen.

Our assumptions here are purely hypothetical, and therefore results have to be taken with a certain grain of salt. However, being that Japan's population is declining, all we can do for the moment is to find some means of increasing labor input. Hence realizing a policy which encourages growth in the labor participation rate and an increase in hours worked by part-time workers could help energize Japan's economy, which has been adrift with a sense of being stuck in a state of long-term stagnation.

Changes in Annual Income, Hours Worked, and Hourly Wages of Part-Time Workers (12-Month Moving Average) **Chart 41**



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

Estimated Rate by Factor which Potential Labor Input can be Pushed Up **Chart 42**

Unit: %pt

Labor Participation Rate \ Hours Worked by Part-Time Workers	80 Hrs	85 Hrs	89 Hrs	95 Hrs	100 Hrs
70%	▲9.6	▲8.6	▲7.9	▲6.7	▲5.7
73%	▲5.7	▲4.7	▲4.0	▲2.7	▲1.7
76%	▲1.8	▲0.8	0.0	1.3	2.4
79%	2.0	3.1	3.9	5.3	6.4
82%	5.9	7.0	7.9	9.3	10.4

Source: Ministry of Health, Labour, and Welfare, Ministry of Internal Affairs and Communications; compiled by DIR.
Notes: 1) Figures in cells with doubled lines show the labor participation rate and average hours worked by part-time workers over the past four quarters.
2) Average rate that figures could be pushed up over the next four quarters.

4. The Gini Coefficient and Economic Inequality in Japan: Economic Policy Challenges

4.1 Characteristics of Japan's Income Inequality in an International Comparison

Extent of Japan's income inequality did not change between 2000 and 2009

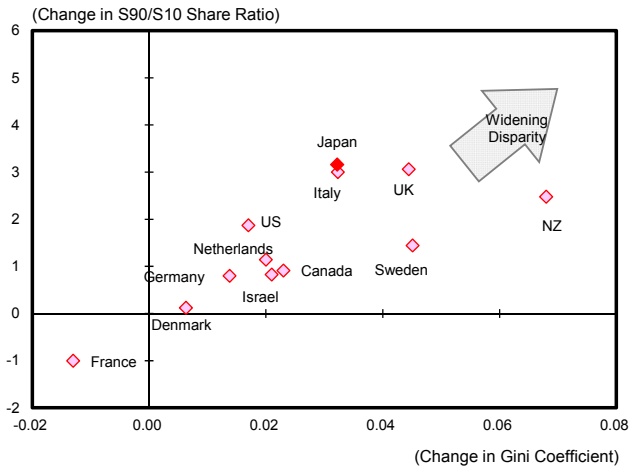
The problem of income inequality is a fundamental factor in the various arguments circulating in the political and economic communities of countries around the world. The question of income redistribution is one that comes up in many different situations, including the Brexit issue in the UK, the US presidential election, secular stagnation theory, and again in Stage 2 of Abenomics. In this chapter we attempt to come to a new understanding of the problem of income inequality in Japan by approaching the issue via an international comparison. Then we consider what the future challenges might be for government policy.

First we take a look at two representative indices which examine income inequality: (1) the Gini coefficient (after taxes and transfers), and (2) the S90/S10 income share ratio (share of income received by the top 10% divided by the share of income received by the bottom 10%), and then, through an international comparison, identify the characteristics of income inequality in Japan. In the case of both of these indices, the higher figure means a larger income disparity, while a lower figure means less disparity.

Looking at changes in income inequality in the OECD member nations between 1985 and 2000, we see that income disparity increased in almost all countries. Especially notable was growth in income disparity in New Zealand, the UK, Sweden, Japan, and Italy (Chart 43). In other words, the pace of growth in income inequality in Japan between 1985 and 2000 was rapid in an international comparison. It is thought that the reason for this may be that Japan's middle class shrank considerably during the economic downturn which followed the collapse of the economic bubble.

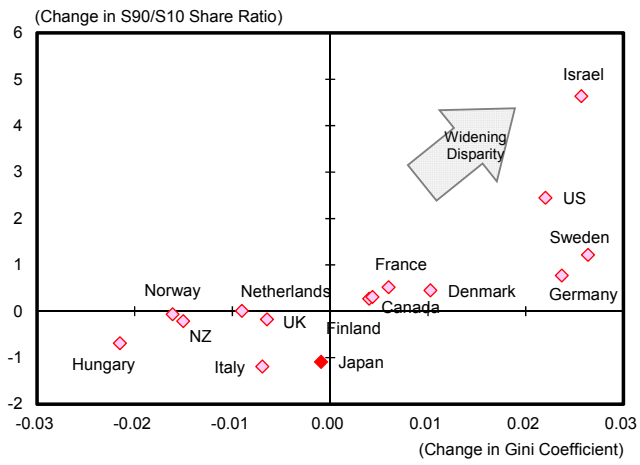
But then, between 2000 and 2009, we see that conditions differ considerably from country to country (Chart 44). Countries where income disparity grew the most were the US, Israel, Sweden, and Germany. In the case of Germany, our thinking is that labor market reform brought an increase in income inequality. On the other hand, in Japan's case, both the Gini coefficient and the S90/S10 income share ratio show a small decline – in other words, growth in income disparity was not observed during this period. These findings are consistent with those of the Ministry of Health, Labour and Welfare in their survey on income redistribution (based on income after redistribution). We can conclude, therefore, that during this period income inequality did not expand in Japan.

Changes in Gini Coefficient and S90/S10 Income Share Ratio (1985-2000)
Chart 43



Source: OECD; compiled by DIR
Notes: 1) The Gini coefficient is based on redistributed income (after taxes and transfers).
2) The S90/S10 income share ratio is the share of income received by the top 10% income level divided by the share of income received by the bottom 10% income level.

Changes in Gini Coefficient and S90/S10 Income Share Ratio (2000-2009)
Chart 44



Source: OECD; compiled by DIR
Notes: 1) The Gini coefficient is based on redistributed income (after taxes and transfers).
2) The S90/S10 income share ratio is the share of income received by the top 10% income level divided by the share of income received by the bottom 10% income level.

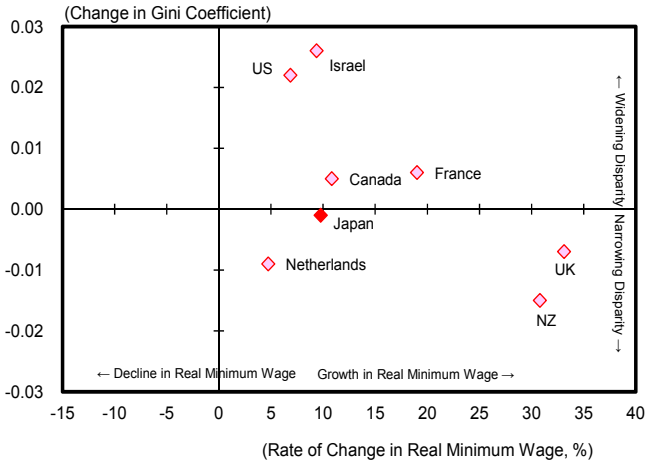
Japan needs to resolve the problem of income decline, not income disparity

In discussing people's lives and economic activity in Japan, it is important to look not only at data associated with income disparity, but trends in level of income as well. Even if income disparity is not growing, if real income levels are on the decline, then it becomes necessary to deal with the problem of raising the minimum level of national income. In this section we examine the relationship between income disparity and income level, making use of available data from major nations.

Looking at changes in real minimum wage and the Gini coefficient between 2000 and 2009 reveals that real minimum wage was on the rise during this period in each of the countries from which data was obtained, and that the real purchasing power of the lowest income level also rose during this time (Chart 45). In both the UK and New Zealand, the real minimum wage rose considerably, while the Gini coefficient declined. This indicates that raising the minimum wage may have contributed to the narrowing of economic disparity in these countries. This means that, with the move toward raising the minimum wage in Japan in recent years, Japan's income disparity can also be expected to narrow gradually.

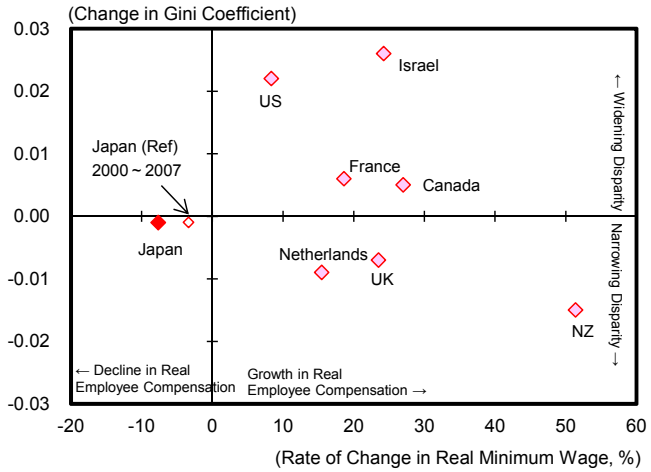
One the other hand, when we look at real employee compensation in the macro sense and real wages (on a man-hour basis), we see that both figures are on the decline in Japan (Charts 46 & 47). It is possible that there was some negative influence from the global financial crisis of 2008 during the year 2009, but when the calculation was redone using data only for the years 2000-2007, the same results were obtained. These considerations tell us that the problem Japan needs to solve in the future is not income disparity, but decline in income.

Real Minimum Wage and Gini Coefficient (2000-2009) **Chart 45**



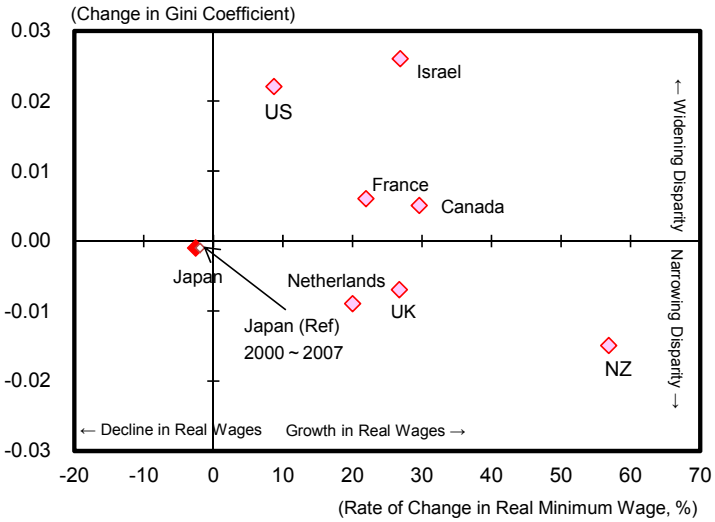
Source: OECD; compiled by DIR
Note: Real minimum wage obtained by taking the minimum wage of each country (converted into annual income), and using CPI to find the real term.

Real Employee Compensation and Gini Coefficient (2000-2009) **Chart 46**



Source: OECD; compiled by DIR
Notes: 1) CPI used to find expression in real terms for real employee compensation.
2) Macro wages used for France rather than employee compensation.

Real Wages and Gini Coefficient (2000-2009) **Chart 47**



Source: OECD; compiled by DIR.
Notes: 1) Real wages expressed on a man-hour basis. CPI used to find expression in real terms.
2) Employee compensation used for New Zealand rather than wages.

4.2 Three Challenges Japan Faces in Order to Break Out of Income Decline

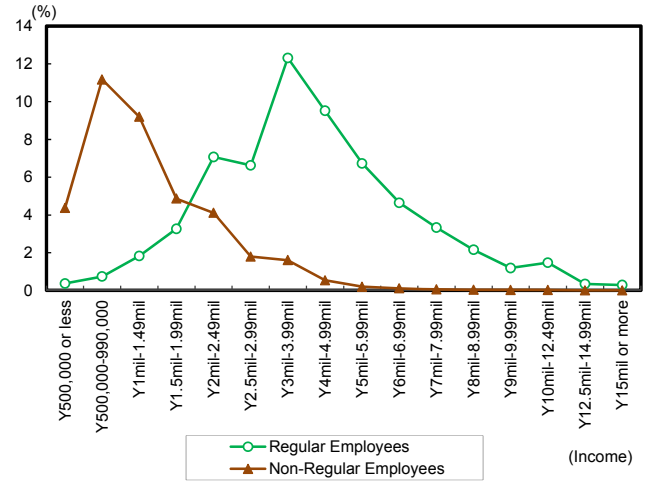
(1) Resolve discrepancy in pay between regular employees and non-regular employees

There is a major discrepancy in pay between regular employees and non-regular employees in Japan. When income distribution in these two groups is placed side by side as in Chart 48, we notice that there are two peaks. Then, when we break these groups down into men and women, we see that the peak for non-regular employees is actually formed by women non-regular employees (Chart 49). What this tells us is that in order to mitigate or eliminate the two peaks in the chart, increasing the income of non-regular employees is essential, focusing especially on women. In practical terms, the following steps are suggested as possible means of moving in that direction: (1) Implement a Japanese version of

"equal pay for equal work", (2) Support career training for non-regular employees, and (3) Eliminate work restrictions and limitations affecting women.

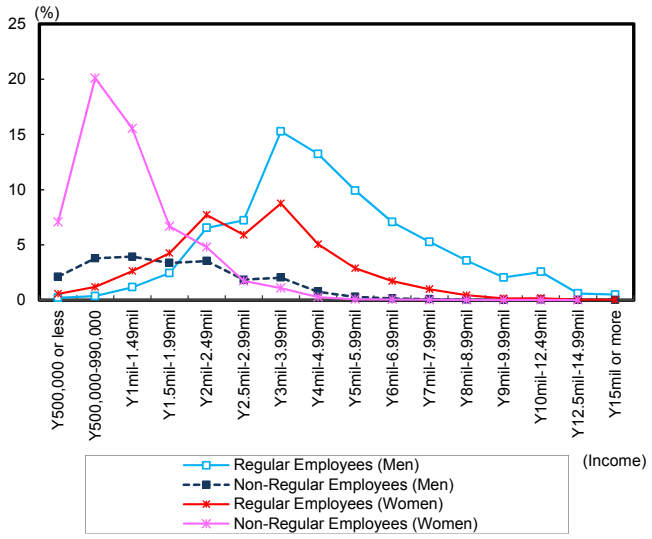
First, we have to gain a sufficient understanding of Japan's unique employment practices, and then realize a Japanese version of "equal pay for equal work". In doing, so it will also be necessary to alleviate the disparity in treatment of regular and non-regular employees. At the same time, it is also essential to encourage the acquisition of knowledge and skills on the part of non-regular employees by providing support for job training. The wages of non-regular employees do not grow much in comparison to their years of service, and one of the major causes of this problem is that non-regular employees (especially those working for small and medium enterprises) do not have the opportunity to participate in human resources development programs in the form of job training (Charts 50 & 51). Meanwhile, women non-regular employees face various work restrictions and limitations, including those associated with child-rearing, and these act as barriers to income growth. The key to resolving these issues is to provide more satisfactory child-rearing support.

Income Distribution of Regular and Non-Regular Employees (2012, Men & Women Total)
Chart 48



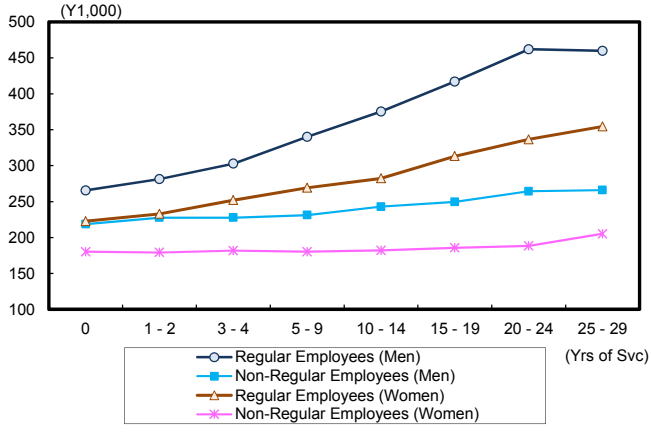
Source: Ministry of Internal Affairs and Communications; compiled by DIR.
Note: Denominator of the constituent ratio based on formula regular employees + non-regular employees.

Income Distribution of Regular and Non-Regular Employees (2012, Gender Breakdown)
Chart 49



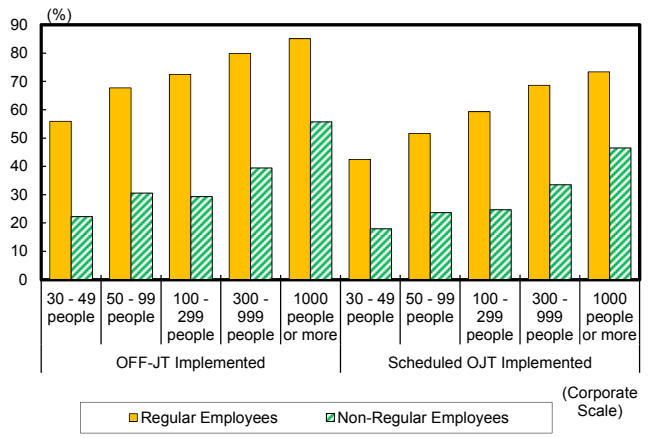
Source: Ministry of Internal Affairs and Communications; compiled by DIR.
Note: Denominator of the constituent ratio based on formula regular employees + non-regular employees.

Wage Curve by Years of Service (2015)
Chart 50



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

Implementation Status of Training (FY2015 Survey)
Chart 51



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

(2) Policy for dealing with low-income bracket should focus on improving value of human capital in mid to long-term, rather than on short-term income support

Since the bursting of Japan's economic bubble, its sizeable middle-class, which provided the legwork for the country's high-growth period, gradually shrank as the new low-income class grew larger. This is the problem of economic inequality which has now become a major subject of argument in Japan. In recent years, there has been much research, most of it outside Japan, whose results claim that expanding economic inequality inhibits mid to long-term economic growth. Moreover, this same expanding economic inequality is also indicated as one of the causes of long-term economic stagnation according to secular stagnation theory. Concretely speaking, the way this comes about is explained as follows: (1) Expanding economic inequality creates a large class of low-income people, whose educational opportunities are limited due to their economic condition. This damages a society's ability to accumulate human capital, then (2) Growth of the low-income class with its major liquidity constraints inhibits total demand.

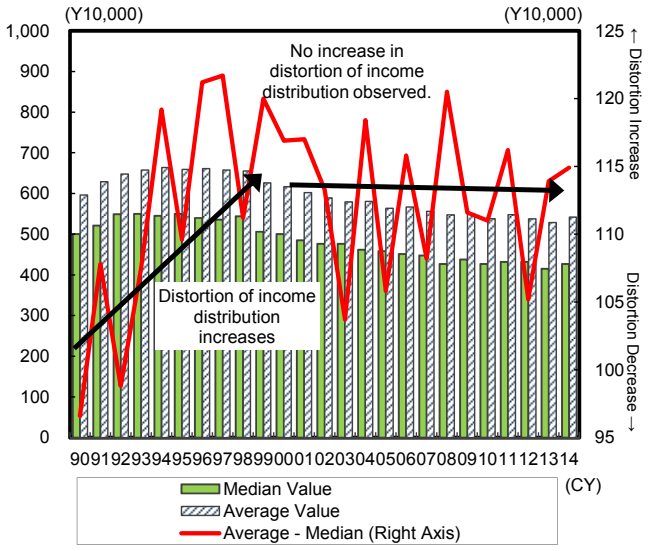
In this section, we consider the above arguments in light of changes in Japan's income distribution. First we look at income distribution and whether it is skewed by the difference between average value and median value. According to Chart 52, the difference between these values was expanding between the years 1990 and 2000. A skewed or distorted median is a simple way of indicating income inequality. During this time, just after Japan's economic bubble burst, there was a major downturn in the economy, and it is here that we can observe expansion in income inequality. However, after the year 2000, though we do see fluctuations in the difference between the average value and the median, the general trend is no longer toward growth in income inequality. In other words, we do not detect any expansion in distortion of income distribution.

Next we look at the shape of income distribution. Between the years 1990 and 2000, there was a decrease in the number of households with annual incomes between 4 to 7.5 million yen. Meanwhile, we see a small increase in households with incomes below 3 million yen and above 11 million yen (Chart 53). This is the period when the middle class (people with incomes of around 5 million yen per year) began to shrink. Then between the years 2000 and 2014, households with incomes between 500,000 and 3.5 million yen per year grew, while those making more than 4 million yen per year declined somewhat – in other words the low-income bracket is where the growth was. This is also the period in which the number of non-regular employees increased, along with the number of elderly households.

Finally, in light of these changes in income distribution, it is probably safe to say that income redistribution policies such as measures providing payment of cash benefits to persons of low income, are at least somewhat valid in that they can do something for the income inequality problem by bringing up the minimum income level for the short-term. However, cash benefits cannot be paid out indefinitely, and doing so does nothing to resolve the root problem. In the future, the important thing will be to improve the structure of the income distribution overall by implementing solid growth strategies such as reform in the area of labor productivity. In the mid to long-term view, education and support for job training must be strengthened as a means of improving the human capital of people in the low-income bracket.

Distortion of Income Distribution (Households)

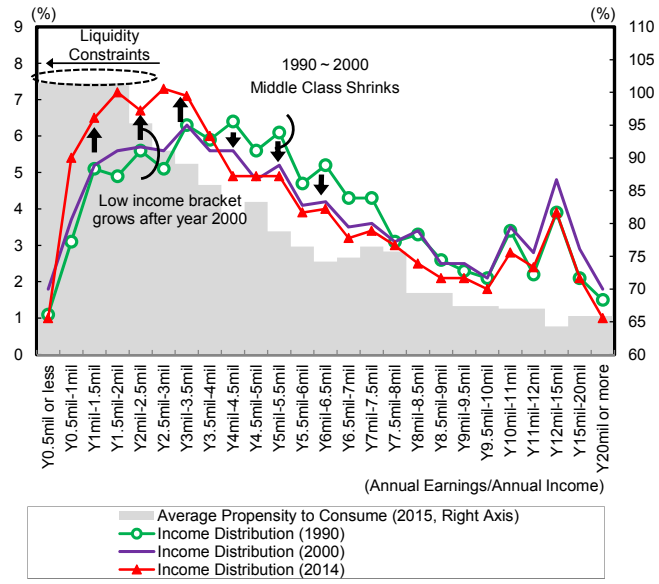
Chart 52



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

Changes in Income Distribution and Average Propensity to Consume (Households)

Chart 53



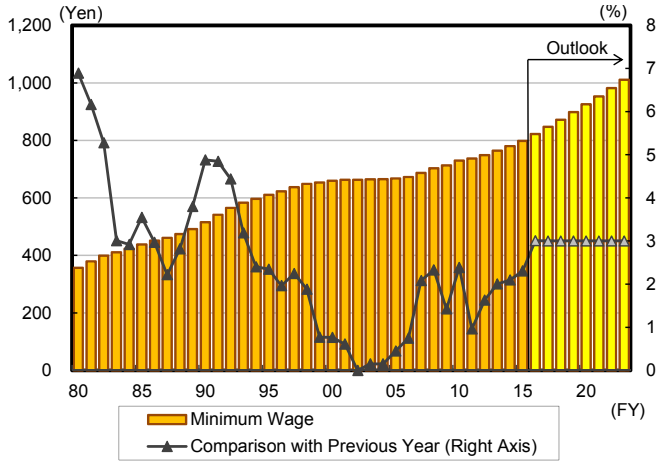
Source: Ministry of Health, Labour and Welfare, Ministry of Internal Affairs and Communications; compiled by DIR.
Note: Income distribution is based on “earnings”, while average propensity to consume is based on “income”.

(3) Raising minimum wage expected to produce effect of raising the floor on incomes and the economy

As part of its policy regarding low income and inequality, the Abe administration has indicated plans to raise the minimum wage by 3% annually, with a final target of 1,000 yen per hour in the future (Chart 54). Looking at changes in the extent of influence the minimum wage has on the economy, we see that its influence has grown considerably under Abenomics, and that the number of workers directly influenced by increases in minimum wage is also growing (Chart55). However, when we rank cities and prefectures from 1 to 4 according to relative economic strength and then take another look at the influence of minimum wage, we see that it differs according to rank. It appears that recent increases in minimum wage have been carried out with consideration to regional economic conditions.

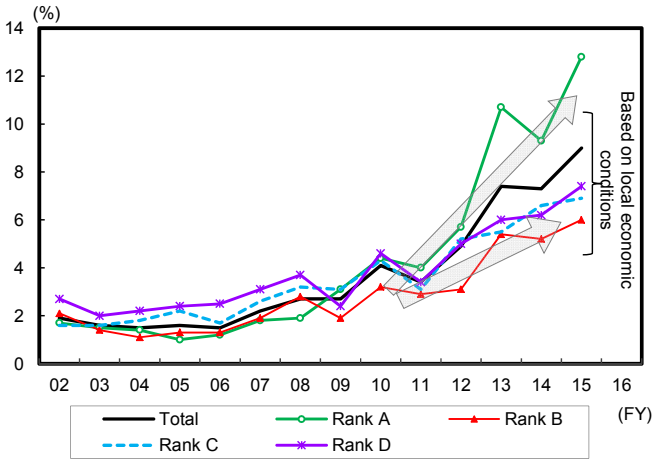
It is also assumed that growth in minimum wage has the effect of raising the economic floor, and hence indirectly contributes to increases in hourly wages for workers overall. When we look at changes in minimum wage by type of employment, we see that until the end of 1990, there was a positive relationship between the minimum wage and hourly wages in general for both general workers and part-time workers (women) (Chart 56). After the year 2000 as well, a clear relationship can be seen between the minimum wage and hourly wages for part-time workers (women). Hence growth of 3% in the minimum wage can be expected to have the effect of bringing up the level of hourly wages a certain amount for part-time workers (women).

Changes in Minimum Wage
Chart 54



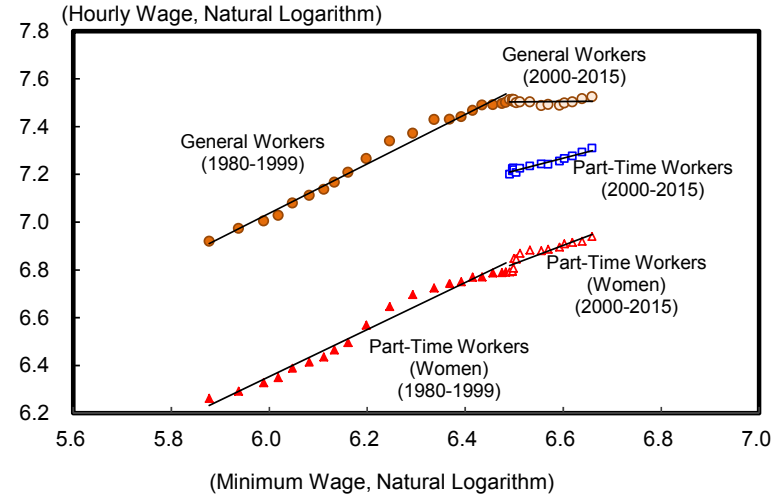
Source: Ministry of Health, Labour and Welfare; compiled by DIR.
Note: Amount for FY2016 uses Commission's guidelines. It is assumed that 3% growth continues after FY 2016.

Rate of Influence of Minimum Wage (by Rank)
Chart 55



Source: Ministry of Health, Labour and Welfare; compiled by DIR.
Notes: 1) Rate of influence is the percentage of workers falling below the minimum wage after revision of the amount of minimum wage.
2) Guidelines for raising minimum wage are decided on based on the 4 economic rankings of cities and prefectures. There are 5 cities and prefectures in rank A, 11 prefectures in rank B, 14 prefectures in rank C, and 17 in rank D.

Relationship of Minimum Wage to Hourly Wage (Scheduled Wage)
Chart 56



Source: Ministry of Health, Labour and Welfare; compiled by DIR.
Notes: 1) Change in hourly wage uses amount one year after change in minimum wage since there is a delay in the effect of the change becoming manifest.
2) Hourly wages of general workers obtained by dividing scheduled wages by scheduled hours.

How to measure the negative impact of raising the minimum wage

While raising the minimum wage has a positive aspect in that it can help revitalizing personal consumption by virtue of encouraging growth in worker incomes, for corporations, it means an increase in personnel expenses. This could be an especially serious problem for regional and small to medium-sized enterprises. There is even the risk that small to medium-sized enterprises might carry out restructuring or use other means to rapidly cut back on personnel as a means of keeping personnel expenses down. In a survey carried out in 2010 by the Ministry of Health, Labour and Welfare, companies were asked to list problems which might occur if the minimum wage were raised to 800 yen. Results showed that the smaller the corporation, the more likely the response was that instability

or uncertainty regarding the future of the business would arise (Chart 57). This is a factor which we must remain aware of.

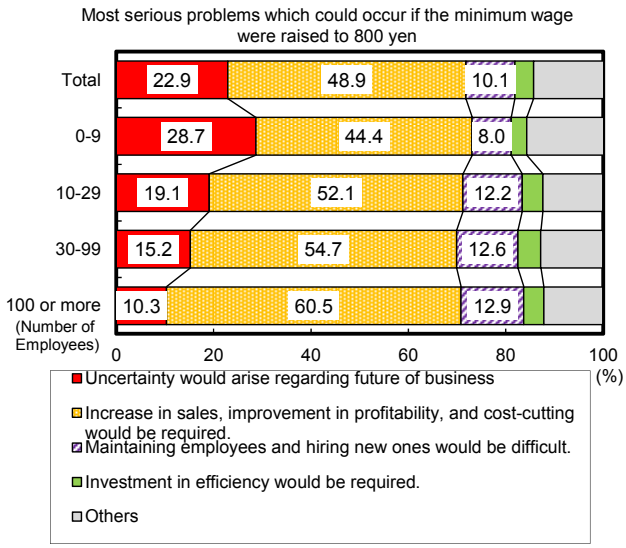
In recent years, with the minimum wage growing, the employment environment has improved as well, and in macro terms, personnel adjustments (such as restructuring, etc.) have not emerged as a result. However, as further increases in the minimum wage continue on into the future, there is always the possibility that negative impact on the employment market could occur. Caution is therefore required, as well as continued monitoring of the effects of raising the minimum wage on small to medium sized enterprises.

In international terms Japan's minimum wage is not at all high when compared to the level of general workers in various countries (Chart58). Although these results have to be taken with a certain grain of salt, seen from the viewpoint of an international comparison, raising the minimum wage after taking possible negative impacts on the employment environment into account is considered to be appropriate as a countermeasure against income inequality and as a means of raising the minimal economic level. Movement toward raising the minimum wage as a means of correcting economic inequality is gaining strength around the world, and Japan is by no means unique in its policy approach.

The most desirable actions for the government to take in the current state of affairs is to respond to the situation with a policy which will raise productivity and earning power in regions and small to medium enterprises which are likely to be most impacted by increases in the minimum wage. Considered in the long-term, the major prerequisite to raising the minimum wage is for corporate earnings to improve. At this time the government's growth strategy calls for support for improvement in productivity, especially amongst small and middle sized firms making use of advances in IT. We welcome and look forward to further progress in this area in the future.

Corporate Concerns Regarding Effects of Raising Minimum Wage

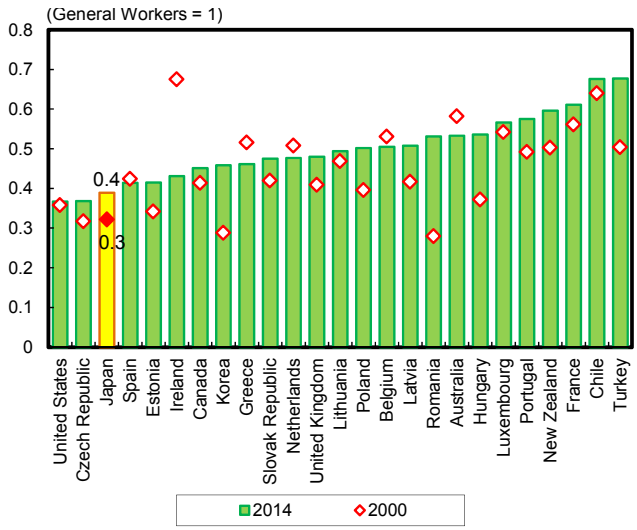
Chart 57



Source: Ministry of Health, Labour and Welfare (2010) Survey on the smooth implementation of the increase in minimum wage in small and medium-sized enterprises; compiled by DIR.

Ratio of Minimum Wage to Average Wage (Median Value) of General Workers

Chart 58



Source: OECD; compiled by DIR.

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 deleveraging at EU financial institutions.

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 just under 1,000 tril yen in excessive lending and over 550 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.)

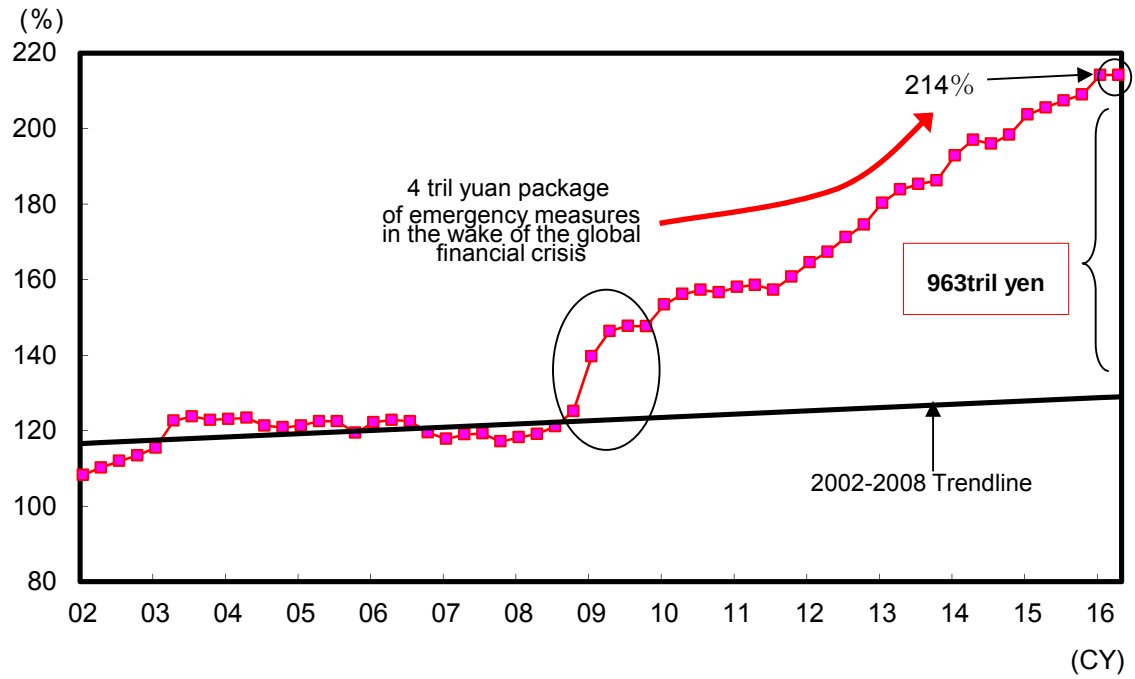
In a word, our view of China's economy is optimistic in the short-term but pessimistic in the mid to long-term. Since China is a Socialist country, it can give its economy a shot in the arm mostly in the form of public investment, thereby delaying the inevitable for another year or two. But in another 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 just under 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 just under 1,000 tril yen (see Chart 59). 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 July 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 59



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

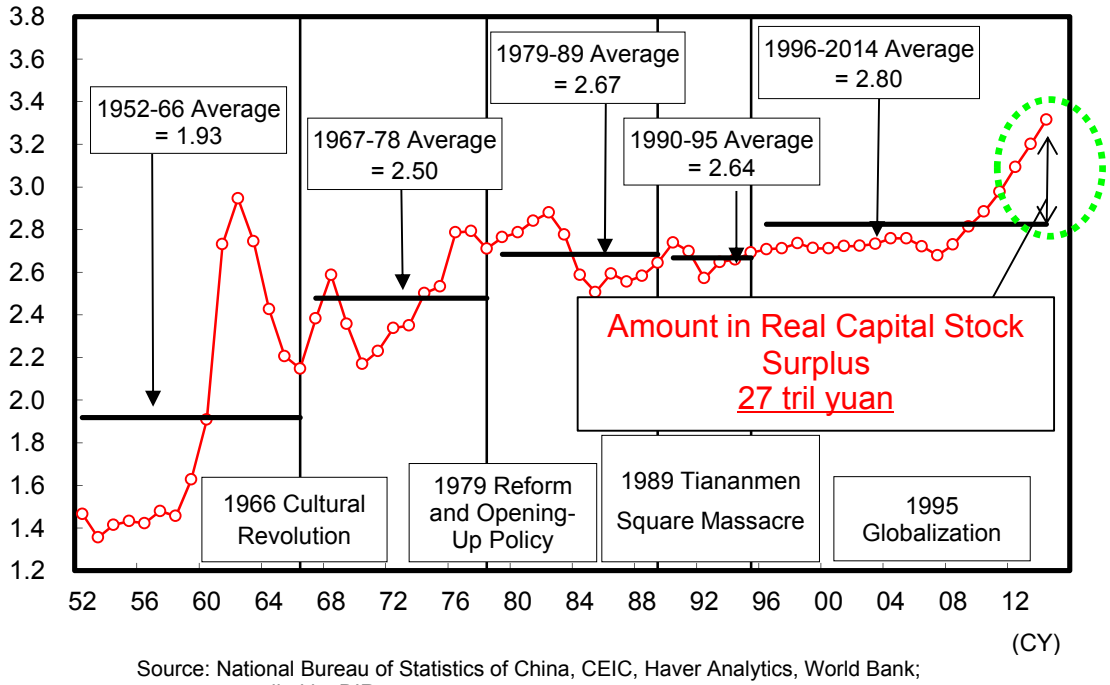
China's excesses: (2) Excess capital stock totaling over 550 tril yen

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 550 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 60 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 2014, China held a surplus of over 27 tril yuan (about 15% of real capital stock and 550 tril yen in nominal terms).

Changes in China's Capital Coefficient **Chart 60**



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 61). 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.

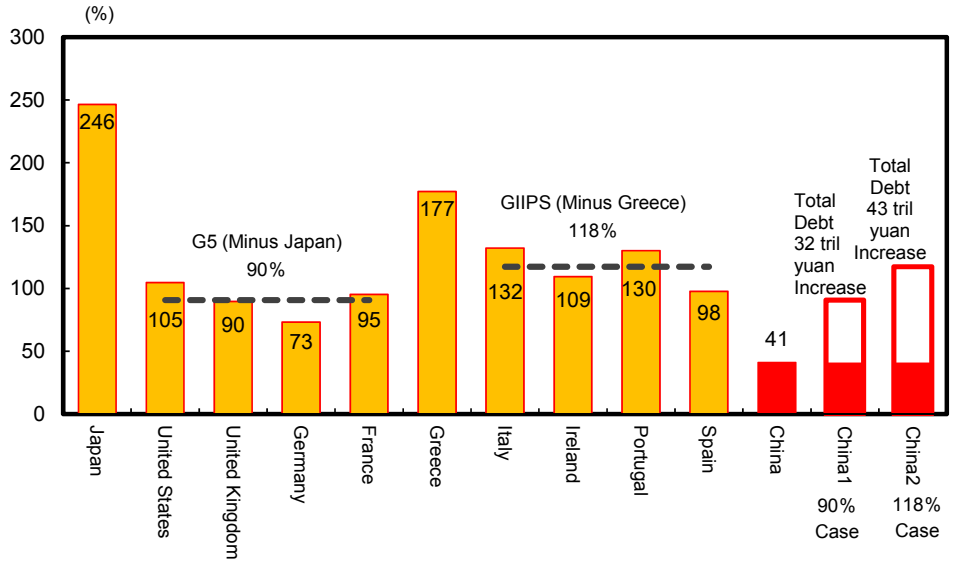
Presuming that China's general government debt-to-GDP ratio has room to grow to 90%, or around the same amount as the G5 nations (except for Japan) we can estimate the margin China has for public spending at around 32 trillion yuan. This means that in an international comparison, China has a large margin 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 just under 1,000 tril yen in excessive lending and over 550 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 61



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 62).

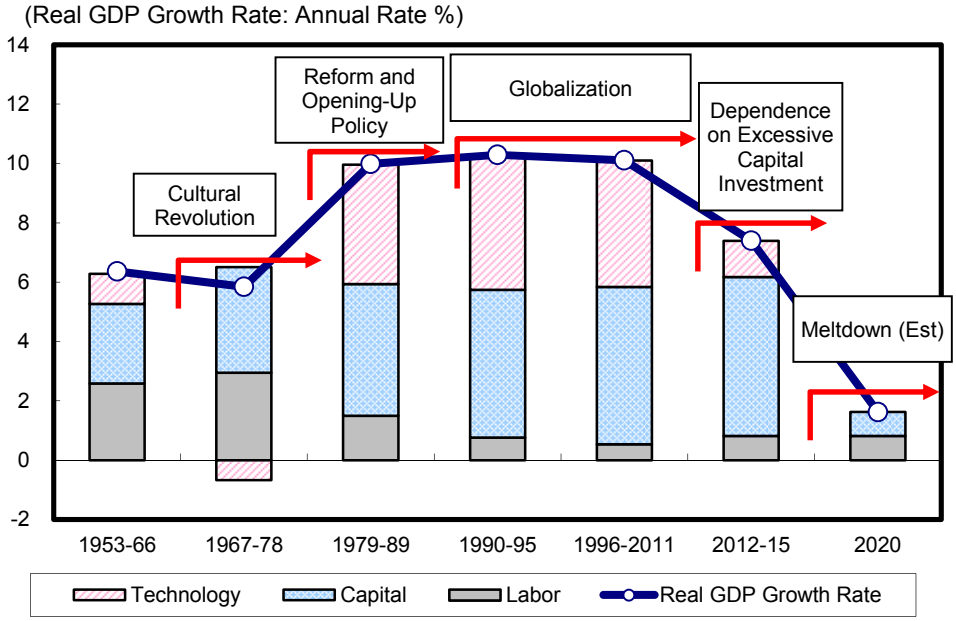
In terms of the effect on Japan's economy, there is still of course the general argument that it is the US which drives the world economy, not China, and hence even if China's economy slows down somewhat, the effect on Japan would be only slight.

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.

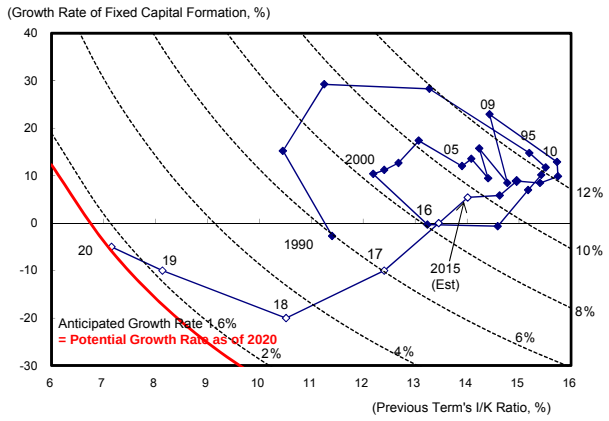
Simulation: China's Economy (Meltdown Scenario) **Chart 62**

Factor Analysis of Potential Growth Rate



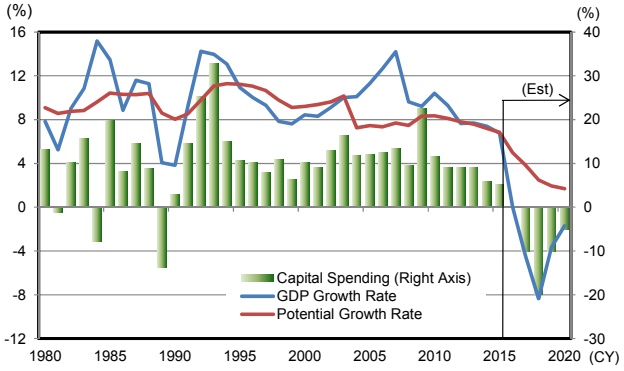
Source: CEIC, World Bank; compiled by DIR.
Note: Major events: 1966 – The Cultural Revolution, 1978 - Reform and Opening-Up Policy, 1989 – Tiananmen Square Massacre

Capital Stock Circulation



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

Economic Growth Rate



Source: CEIC, 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

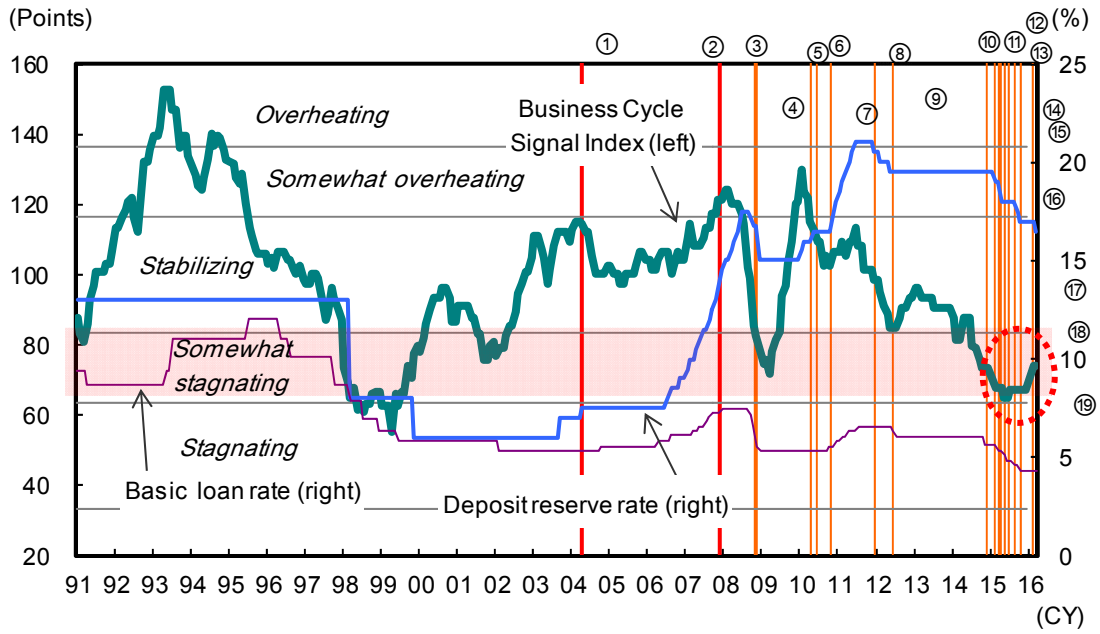
Despite what we have stated in the previous section, looking at a time span of 1-2 years, China's economy is expected to be propped up by policy measures.

Looking at China's business cycle signal index (see Chart 63), 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 63**



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,

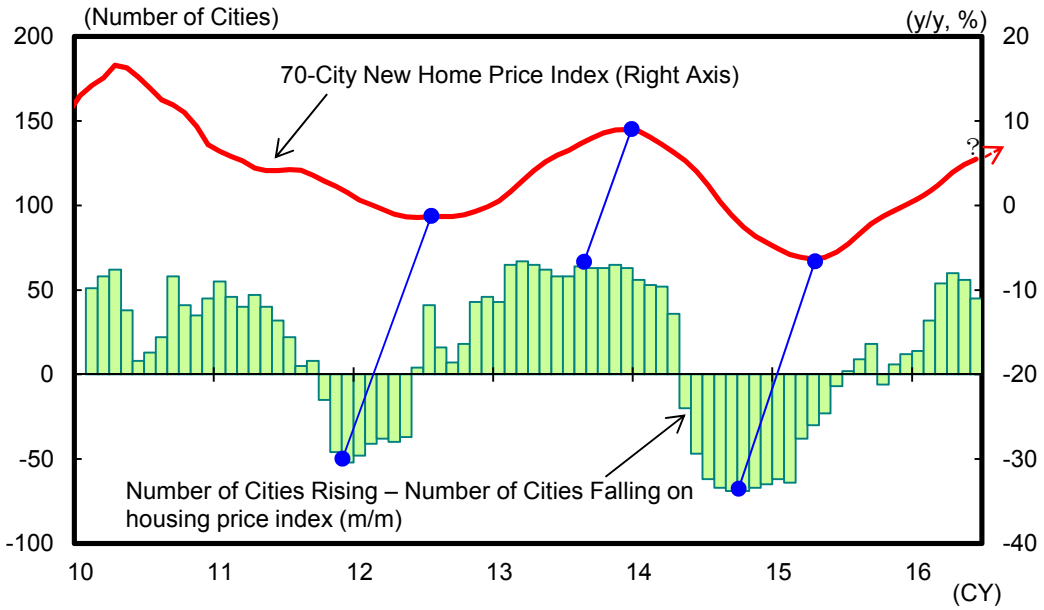
Source: National Bureau of Statistics of China, People's Bank of China, CEIC; compiled by DIR.

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 64). 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 64**



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

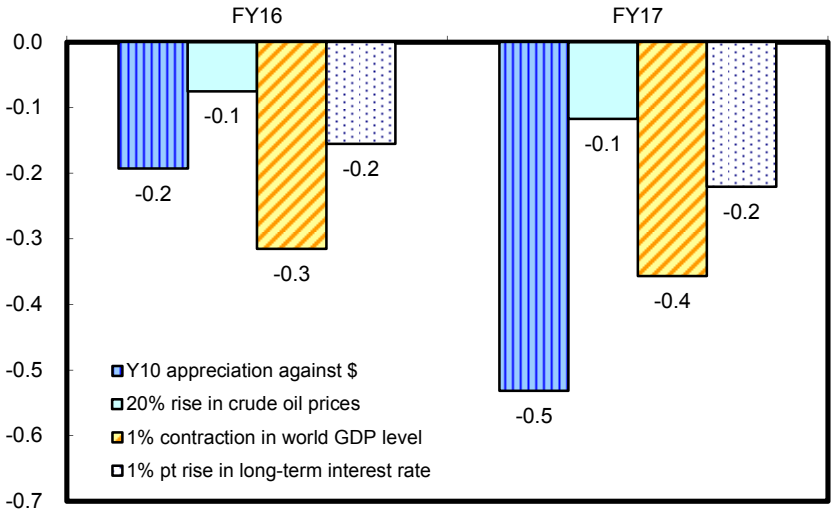
Here, we estimate likely economic effects from changes in our assumptions. The assumptions and effects of alternative scenarios are shown in the two charts below. The charts below show the effects on real GDP based on the assumptions used in our standard scenario, as well as cases in which one of the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

Standard and Alternate Scenario Assumptions

	Standard scenario		Alternate scenario (in each quarter in both years)
Case 1: Forex rate	Y103.2/$ in FY16 and Y101.5/$ in FY17	→	Y10 appreciation against $
Case 2: Crude oil prices (WTI futures)	$44.8/bbl in FY16 and $44.5/bbl in FY17	→	20% rise
Case 3: World GDP	+2.8% y/y in CY16 and +3.1% y/y in CY17	→	1% contraction in world GDP level
Case 4: Long-term interest rate	-0.11% in FY16 and -0.10% in FY17	→	1% pt rise

Source: Compiled by DIR.

Effects on Real GDP (% change from standard scenario) **Chart 65**



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 66

	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 %)	1.6	1.3	1.1	(-0.5)	1.0	(-0.8)	1.2	(-0.4)	1.1	(-0.6)
Real GDP (Chained [2005]; y/y %)	**0.9**	**0.9**	**0.7**	**(-0.2)**	**0.5**	**(-0.5)**	**0.8**	**(-0.1)**	**0.8**	**(-0.1)**
GDP deflator (Y/y %)	0.7	0.5	0.4	(-0.3)	0.4	(-0.3)	0.4	(-0.4)	0.3	(-0.5)
All-industry Activity Index (Y/y %)	0.6	1.1	0.2	(-0.4)	0.9	(-0.6)	0.5	(-0.1)	1.1	(-0.1)
Industrial Production Index (Y/y %)	0.1	2.0	-1.2	(-1.4)	1.4	(-2.0)	-0.0	(-0.1)	2.0	(-0.2)
Tertiary Industry Activity Index (Y/y %)	0.7	0.9	0.4	(-0.3)	0.8	(-0.4)	0.6	(-0.1)	0.9	(-0.1)
Corporate Goods Price Index (Y/y %)	-2.2	0.6	-3.1	(-1.0)	0.2	(-1.3)	-1.7	(0.5)	0.8	(0.7)
Consumer Price Index (Y/y %)	-0.1	0.8	-0.3	(-0.2)	0.7	(-0.3)	-0.0	(0.1)	0.9	(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)	4.2	5.1	4.3	(0.1)	4.6	(-0.5)	2.5	(-1.7)	3.1	(-2.0)
Current balance (US$100 mil)	1,861	2,110	1,974	(113)	2,054	(-56)	1,731	(-130)	1,940	(-170)
Current balance (Y tril)	19.4	21.7	19.2	(-0.2)	19.3	(-2.4)	17.9	(-1.6)	20.0	(-1.7)
Real GDP components (Chained [2005]; y/y %)										
Private consumption	0.6	0.6	0.5	(-0.0)	0.5	(-0.1)	0.5	(-0.1)	0.5	(-0.2)
Private housing investment	4.9	-3.0	4.7	(-0.2)	-3.4	(-0.5)	4.7	(-0.2)	-3.3	(-0.4)
Private non-housing investment	0.1	1.1	-0.7	(-0.8)	0.4	(-1.5)	-0.3	(-0.4)	0.9	(-0.6)
Government final consumption	1.9	1.7	2.0	(0.1)	1.8	(0.2)	1.9	(-0.0)	1.7	(-0.0)
Public fixed investment	7.9	-3.3	8.4	(0.5)	-3.1	(0.7)	7.8	(-0.1)	-3.3	(-0.2)
Exports of goods and services	0.1	4.6	-0.3	(-0.4)	4.0	(-1.0)	0.0	(-0.1)	4.6	(-0.1)
Imports of goods and services	0.7	4.0	0.5	(-0.3)	4.6	(0.4)	0.3	(-0.4)	3.8	(-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 %)	1.3	(-0.3)	1.2	(-0.4)	1.4	(-0.2)	1.2	(-0.2)	1.4	(-0.2)	1.3	(-0.2)
Real GDP (Chained [2005]; y/y %)	**0.6**	**(-0.3)**	**0.8**	**(-0.4)**	**0.7**	**(-0.2)**	**0.8**	**(-0.2)**	**0.9**	**(0.0)**	**1.0**	**(0.1)**
GDP deflator (Y/y %)	0.7	(-0.0)	0.4	(-0.0)	0.7	(0.0)	0.4	(-0.0)	0.5	(-0.2)	0.3	(-0.4)
All-industry Activity Index (Y/y %)	0.4	(-0.2)	1.1	(-0.2)	0.5	(-0.1)	1.1	(-0.1)	0.7	(0.1)	1.2	(0.2)
Industrial Production Index (Y/y %)	-0.8	(-0.9)	2.0	(-0.9)	-0.1	(-0.3)	1.9	(-0.4)	0.7	(0.5)	2.3	(0.8)
Tertiary Industry Activity Index (Y/y %)	0.6	(-0.1)	0.9	(-0.1)	0.7	(-0.1)	0.9	(-0.1)	0.8	(0.1)	0.9	(0.1)
Corporate Goods Price Index (Y/y %)	-2.2	(-0.0)	0.5	(-0.1)	-2.2	(0.0)	0.6	(-0.0)	-1.2	(1.0)	1.0	(1.4)
Consumer Price Index (Y/y %)	-0.1	(-0.0)	0.8	(-0.0)	-0.1	(0.0)	0.8	(-0.0)	0.1	(0.2)	0.9	(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)	3.6	(-0.6)	4.7	(-0.4)	4.5	(0.3)	5.6	(0.5)	2.5	(-1.7)	3.4	(-1.7)
Current balance (US$100 mil)	1,787	(-73)	2,017	(-93)	1,819	(-42)	1,694	(-416)	1,674	(-186)	1,968	(-142)
Current balance (Y tril)	18.6	(-0.9)	20.8	(-1.0)	19.0	(-0.5)	17.5	(-4.3)	18.0	(-1.5)	21.2	(-0.6)
Real GDP components (Chained [2005]; y/y %)												
Private consumption	0.5	(-0.1)	0.6	(-0.0)	0.5	(-0.0)	0.6	(-0.0)	0.5	(-0.1)	0.6	(-0.1)
Private housing investment	4.8	(-0.1)	-3.3	(-0.4)	4.3	(-0.5)	-3.2	(-0.7)	4.8	(-0.1)	-3.1	(-0.2)
Private non-housing investment	-0.1	(-0.2)	0.9	(-0.5)	-0.9	(-1.0)	0.6	(-1.6)	0.1	(0.0)	1.2	(0.1)
Government final consumption	1.9	(0.0)	1.7	(0.0)	1.9	(0.0)	1.7	(0.0)	1.9	(-0.0)	1.6	(-0.1)
Public fixed investment	7.9	(0.0)	-3.3	(0.1)	7.9	(-0.0)	-3.3	(0.0)	7.5	(-0.4)	-3.4	(-0.5)
Exports of goods and services	-1.5	(-1.6)	4.7	(-1.6)	0.1	(-0.0)	4.6	(-0.0)	0.2	(0.1)	4.9	(0.4)
Imports of goods and services	0.4	(-0.3)	4.0	(-0.3)	0.4	(-0.3)	3.7	(-0.6)	0.5	(-0.2)	3.4	(-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)	487.5	483.8	488.3	498.1	498.1	501.0	499.7	503.6	489.6	500.5	486.9	499.2
Q/q %	0.0	-0.8	0.9	2.0	0.0	0.6	-0.3	0.8				
Q/q %, SAAR	0.1	-3.1	3.8	8.3	0.0	2.3	-1.1	3.1				
Y/y %	1.9	0.5	1.3	2.2	2.2	3.6	2.2	1.1	1.5	2.2	1.6	2.5
Real GDP (chained [2005]; SAAR; Y tril)	524.0	520.8	523.6	529.9	527.7	530.2	527.9	530.6	524.8	529.2	526.1	528.9
Q/q %	-2.1	-0.6	0.5	1.2	-0.4	0.5	-0.4	0.5				
Q/q %, SAAR	-8.0	-2.4	2.2	4.9	-1.7	2.0	-1.7	2.0				
Y/y %	-0.3	-1.5	-1.0	-1.0	0.7	1.8	0.7	0.2	-0.9	0.8	-0.0	0.5
Contribution to GDP growth (% pt)												
Domestic demand	-2.8	-0.7	0.2	1.1	-0.0	0.3	-0.5	0.4	-1.6	0.8	0.0	0.1
Foreign demand	0.8	0.1	0.3	0.1	-0.4	0.2	0.1	0.1	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	102.3	101.7	102.6	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	0.9	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	97.4	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	-1.0	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	103.6	102.1	103.5	102.3	103.2
Q/q %; y/y %	-2.8	0.5	0.6	0.8	0.2	0.1	-0.1	0.3	-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	3.6	-6.6	0.5	-10.5	-0.6
Current balance (SAAR; $100 mil)	430	437	1,025	1,193	1,316	1,304	1,581	1,724	794	1,499	367	1,356
Current balance (SAAR; Y tril)	4.4	4.5	11.7	14.2	16.0	15.9	19.2	19.9	8.7	18.0	3.9	16.4
(% of nominal GDP)	0.9	0.9	2.4	2.9	3.2	3.2	3.8	4.0	1.8	3.5	0.8	3.3
Exchange rate (Y/$)	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	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)	504.7	506.7	509.8	512.9	514.6	514.9	515.2	516.4	508.6	515.3	506.2	514.4
Q/q %	0.2	0.4	0.6	0.6	0.3	0.1	0.0	0.2				
Q/q %, SAAR	0.9	1.5	2.5	2.4	1.3	0.3	0.2	1.0				
Y/y %	1.3	1.1	2.1	1.9	2.0	1.6	1.0	0.7	1.6	1.3	1.4	1.6
Real GDP (chained [2005]; SAAR; Y tril)	530.8	532.3	534.7	536.9	537.9	538.1	538.2	539.0	533.8	538.4	532.2	537.8
Q/q %	0.0	0.3	0.4	0.4	0.2	0.0	0.0	0.2				
Q/q %, SAAR	0.2	1.1	1.8	1.7	0.8	0.1	0.0	0.6				
Y/y %	0.6	0.4	1.4	1.2	1.4	1.1	0.6	0.4	0.9	0.9	0.6	1.1
Contribution to GDP growth (% pt)												
Domestic demand	0.3	0.2	0.4	0.4	0.2	-0.1	-0.1	0.1	1.0	0.6	0.7	1.0
Foreign demand	-0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.1	-0.1	0.2	-0.1	0.0
GDP deflator (y/y %)	0.8	0.7	0.7	0.7	0.6	0.5	0.4	0.3	0.7	0.5	0.8	0.5
Index of All-Industry Activity (2010=100)	102.5	102.9	103.2	103.4	103.7	104.0	104.3	104.7	103.2	104.3	102.7	103.8
Q/q %; y/y %	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.6	1.1	0.2	1.1
Index of Industrial Production (2010=100)	96.3	97.0	97.5	97.9	98.3	98.8	99.4	100.2	97.6	99.6	96.7	98.6
Q/q %; y/y %	0.2	0.8	0.5	0.4	0.4	0.5	0.6	0.8	0.1	2.0	-1.2	1.9
Index of Tertiary Industry Activity (2005=100)	103.8	104.0	104.2	104.5	104.7	104.9	105.2	105.5	104.2	105.2	103.9	104.8
Q/q %; y/y %	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.7	0.9	0.6	0.9
Corporate Goods Price Index components (2010=100)												
Domestic Company Goods Price Index	99.2	99.5	99.8	99.9	100.0	100.1	100.3	100.4	99.6	100.2	99.6	100.1
Y/y %	-4.3	-3.0	-1.4	0.1	0.8	0.6	0.5	0.5	-2.2	0.6	-3.1	0.5
CPI (excl. fresh food; 2010=100)	103.0	103.0	103.3	102.9	103.6	103.9	104.2	103.9	103.1	103.9	103.0	103.7
Y/y %	-0.4	-0.4	-0.1	0.3	0.6	0.9	0.9	0.9	-0.1	0.8	-0.2	0.7
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; %)	-0.15	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.11	-0.10	-0.09	-0.10
Money stock; M2 (y/y %)	3.4	3.9	4.2	4.1	4.1	4.1	4.1	4.1	3.9	4.1	3.7	4.1
Trade balance (SAAR; Y tril)	4.8	3.7	4.1	4.3	4.6	4.8	5.3	5.6	4.2	5.1	4.1	4.8
Current balance (SAAR; $100 mil)	1,734	1,858	1,904	1,946	2,001	2,072	2,153	2,212	1,861	2,110	1,805	2,043
Current balance (SAAR; Y tril)	18.8	18.9	19.3	19.8	20.3	21.0	21.9	22.5	19.4	21.7	19.2	20.7
(% of nominal GDP)	3.7	3.7	3.8	3.9	3.9	4.1	4.2	4.3	3.8	4.2	3.8	4.0
Exchange rate (Y/$)	108.1	101.5	101.5	101.5	101.5	101.5	101.5	101.5	103.2	101.5	106.6	101.5
(Y/Euro)	120.7	113.0	113.0	113.0	113.0	113.0	113.0	113.0	114.9	113.0	118.7	113.0

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	524.0	520.8	523.6	529.9	527.7	530.2	527.9	530.6	524.8	529.2	526.1	528.9
Q/q %, SAAR	-8.0	-2.4	2.2	4.9	-1.7	2.0	-1.7	2.0				
Y/y %	-0.3	-1.5	-1.0	-1.0	0.7	1.8	0.7	0.2	-0.9	0.8	-0.0	0.5
Domestic demand	515.9	512.5	513.6	518.9	518.6	520.1	517.7	519.8	515.4	519.1	518.5	518.9
Q/q %, SAAR	-11.0	-2.7	0.9	4.2	-0.2	1.2	-1.8	1.6				
Y/y %	-0.3	-1.7	-1.9	-2.3	0.5	1.5	0.7	0.1	-1.6	0.7	-0.0	0.1
Private demand	392.5	388.4	389.1	394.5	393.6	395.3	392.8	393.8	391.3	393.9	394.3	394.0
Q/q %, SAAR	-13.1	-4.2	0.7	5.7	-0.9	1.7	-2.5	1.1				
Y/y %	-0.3	-2.1	-2.4	-3.0	0.3	1.7	0.8	-0.1	-2.0	0.7	-0.1	-0.1
Final consumption	306.0	306.1	308.0	308.1	306.1	307.5	305.0	307.1	307.2	306.5	310.5	306.7
Q/q %, SAAR	-17.9	0.1	2.4	0.2	-2.6	1.8	-3.2	2.8				
Y/y %	-2.5	-2.7	-2.1	-4.1	0.1	0.4	-1.0	-0.3	-2.9	-0.2	-0.9	-1.2
Residential investment	13.8	12.8	12.8	13.2	13.4	13.5	13.5	13.5	13.1	13.5	13.7	13.4
Q/q %, SAAR	-37.1	-26.8	0.5	11.0	7.0	4.3	-1.8	-0.5				
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	70.4	70.0	70.0	72.1	71.5	72.0	72.8	72.3	70.7	72.2	71.0	72.1
Q/q %, SAAR	-15.1	-1.8	-0.4	12.7	-3.5	3.0	4.8	-2.7				
Y/y %	1.5	0.6	-0.1	-1.3	1.3	2.6	4.0	0.6	0.1	2.1	3.1	1.5
Change in inventories	2.3	-0.6	-1.7	1.1	2.6	2.2	1.4	0.9	0.3	1.8	-0.9	1.9
Public demand	123.4	124.1	124.5	124.4	125.0	124.9	124.9	125.9	124.2	125.1	124.3	124.8
Q/q %, SAAR	-3.5	2.3	1.5	-0.2	1.8	-0.5	0.3	3.2				
Y/y %	-0.2	-0.4	-0.3	-0.3	1.3	0.7	0.2	0.9	-0.3	0.8	0.2	0.5
Government final consumption	101.8	102.1	102.4	102.7	103.1	103.3	104.1	105.0	102.3	103.9	102.2	103.3
Q/q %, SAAR	-1.1	1.2	1.3	1.1	1.3	1.0	3.1	3.6				
Y/y %	-0.3	-0.2	0.3	0.6	1.3	1.2	1.6	2.2	0.1	1.6	0.1	1.2
Fixed investment	21.5	21.8	22.0	21.7	22.0	21.5	20.8	20.9	21.8	21.2	22.1	21.5
Q/q %, SAAR	-14.4	5.0	4.4	-6.0	4.9	-7.5	-12.5	0.4				
Y/y %	-0.1	-2.6	-2.5	-4.1	2.1	-0.7	-5.2	-4.7	-2.6	-2.7	0.4	-2.5
Change in inventories	0.0	0.2	0.0	0.0	-0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Net exports of goods and services	9.5	10.3	12.4	13.1	10.5	11.9	11.9	12.4	11.3	11.7	9.6	11.9
Exports of goods and services	88.8	90.1	93.1	94.7	90.7	93.0	92.1	92.2	91.7	92.1	90.1	92.6
Q/q %, SAAR	1.7	6.1	13.9	6.9	-15.8	10.6	-3.7	0.4				
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	79.3	79.8	80.7	81.6	80.2	81.1	80.3	79.8	80.4	80.4	80.5	80.8
Q/q %, SAAR	-13.8	2.4	4.8	4.3	-6.8	4.9	-4.2	-2.1				
Y/y %	5.9	5.1	3.6	-0.6	0.8	1.5	-0.5	-2.0	3.4	-0.0	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	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	530.8	532.3	534.7	536.9	537.9	538.1	538.2	539.0	533.8	538.4	532.2	537.8
Q/q %, SAAR	0.2	1.1	1.8	1.7	0.8	0.1	0.0	0.6				
Y/y %	0.6	0.4	1.4	1.2	1.4	1.1	0.6	0.4	0.9	0.9	0.6	1.1
Domestic demand	521.2	522.5	524.8	526.9	527.8	527.5	527.1	527.6	524.2	527.3	522.2	527.3
Q/q %, SAAR	1.1	1.0	1.8	1.6	0.7	-0.2	-0.4	0.4				
Y/y %	0.5	0.5	1.5	1.5	1.1	0.9	0.3	0.0	1.0	0.6	0.6	1.0
Private demand	394.5	395.3	395.5	395.9	396.3	397.0	397.8	398.5	395.4	397.5	394.9	396.8
Q/q %, SAAR	0.7	0.8	0.2	0.4	0.4	0.7	0.8	0.7				
Y/y %	0.2	0.0	0.7	0.5	0.5	0.4	0.6	0.7	0.4	0.5	0.2	0.5
Final consumption	307.6	308.0	308.3	308.9	309.3	309.7	310.2	310.6	308.2	310.0	307.8	309.6
Q/q %, SAAR	0.6	0.4	0.5	0.7	0.5	0.5	0.7	0.5				
Y/y %	0.4	0.2	1.1	0.5	0.6	0.5	0.6	0.6	0.6	0.6	0.4	0.6
Residential investment	14.1	14.4	14.1	13.8	13.6	13.7	13.7	13.7	14.1	13.7	14.0	13.7
Q/q %, SAAR	21.3	9.5	-9.6	-7.8	-4.7	1.2	1.0	0.6				
Y/y %	5.6	6.6	4.7	2.7	-3.5	-5.3	-2.7	-0.5	4.9	-3.0	4.8	-2.3
Non-residential investment	72.1	72.2	72.3	72.5	72.7	72.9	73.2	73.4	72.3	73.1	72.2	72.8
Q/q %, SAAR	-1.5	0.6	0.8	0.9	1.1	1.2	1.4	1.5				
Y/y %	0.6	0.3	-0.7	0.1	1.0	1.0	1.2	1.4	0.1	1.1	0.2	0.8
Change in inventories	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.8
Public demand	126.7	127.2	129.4	131.0	131.5	130.5	129.2	129.0	128.8	129.8	127.4	130.5
Q/q %, SAAR	2.3	1.8	6.9	5.3	1.3	-2.9	-3.9	-0.6				
Y/y %	1.5	1.9	3.7	4.4	3.3	2.6	-0.3	-1.9	2.9	0.8	2.0	2.5
Government final consumption	105.3	105.7	106.1	106.4	106.8	107.3	107.9	108.5	105.9	107.7	105.6	107.1
Q/q %, SAAR	0.9	1.5	1.4	1.2	1.6	1.8	2.3	2.2				
Y/y %	2.2	2.3	1.9	1.3	1.4	1.5	1.7	2.0	1.9	1.7	2.1	1.5
Fixed investment	21.3	21.5	23.3	24.6	24.7	23.2	21.3	20.5	22.9	22.1	21.8	23.3
Q/q %, SAAR	9.5	2.9	37.6	25.7	0.2	-21.5	-29.1	-13.8				
Y/y %	-2.8	-0.5	11.6	18.7	15.5	8.2	-8.4	-16.9	7.9	-3.3	1.2	7.2
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	11.1	11.2	11.3	11.4	11.6	12.0	12.6	12.9	11.2	12.2	11.5	11.9
Exports of goods and services	90.9	91.7	92.6	93.6	94.7	95.8	97.0	98.2	92.1	96.4	91.8	95.3
Q/q %, SAAR	-5.9	3.6	4.1	4.6	4.5	4.9	5.2	4.9				
Y/y %	-0.1	-1.4	0.4	1.5	4.4	4.5	4.8	4.9	0.1	4.6	-0.9	3.8
Imports of goods and services	79.8	80.5	81.3	82.2	83.1	83.8	84.5	85.3	80.9	84.2	80.3	83.4
Q/q %, SAAR	-0.3	3.5	4.2	4.7	4.2	3.3	3.4	4.1				
Y/y %	-0.6	-0.7	1.2	3.0	4.2	4.1	3.9	3.8	0.7	4.0	-0.5	3.8

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	487.5	483.8	488.3	498.1	498.1	501.0	499.7	503.6	489.6	500.5	486.9	499.2
Q/q %, SAAR	0.1	-3.1	3.8	8.3	0.0	2.3	-1.1	3.1				
Y/y %	1.9	0.5	1.3	2.2	2.2	3.6	2.2	1.1	1.5	2.2	1.6	2.5
Domestic demand	501.6	498.1	499.7	503.9	504.2	505.4	502.9	502.7	501.0	503.7	502.1	504.1
Q/q %, SAAR	-5.1	-2.7	1.3	3.4	0.3	1.0	-2.0	-0.2				
Y/y %	2.4	0.6	0.1	-0.9	0.5	1.5	0.5	-0.3	0.5	0.5	1.9	0.4
Private demand	377.8	373.4	374.5	378.8	378.7	380.2	377.6	376.9	376.2	378.4	377.8	378.8
Q/q %, SAAR	-7.3	-4.6	1.2	4.6	-0.1	1.6	-2.6	-0.8				
Y/y %	2.4	0.2	-0.6	-1.6	0.3	1.8	0.7	-0.5	0.1	0.6	1.8	0.3
Final consumption	292.4	292.6	294.2	293.4	292.0	293.3	290.9	291.4	293.2	291.9	295.4	292.4
Q/q %, SAAR	-12.3	0.3	2.2	-1.1	-2.0	1.9	-3.3	0.7				
Y/y %	0.2	-0.3	-0.2	-2.9	-0.1	0.2	-1.2	-0.6	-0.8	-0.4	1.1	-1.0
Residential investment	15.2	14.1	14.1	14.5	14.7	14.9	14.8	14.7	14.4	14.8	15.0	14.7
Q/q %, SAAR	-29.4	-27.3	0.4	11.5	6.5	4.7	-1.3	-4.0				
Y/y %	2.7	-9.0	-13.1	-13.0	-3.4	5.9	5.0	1.3	-8.5	2.2	-2.0	-1.7
Non-residential investment	67.7	67.6	67.8	70.0	69.6	70.1	70.8	69.9	68.4	70.1	68.4	70.1
Q/q %, SAAR	-13.1	-0.7	1.1	13.8	-2.4	3.0	3.9	-5.0				
Y/y %	2.9	2.0	1.5	0.1	2.5	3.6	4.4	0.1	1.5	2.5	4.5	2.5
Change in inventories	2.5	-0.9	-1.6	0.9	2.4	1.9	1.2	1.0	0.2	1.6	-1.0	1.6
Public demand	123.8	124.7	125.2	125.1	125.5	125.3	125.3	125.7	124.7	125.3	124.3	125.3
Q/q %, SAAR	1.8	3.1	1.4	-0.3	1.4	-0.8	-0.0	1.5				
Y/y %	2.1	2.1	2.1	1.3	1.3	0.4	0.0	0.2	1.9	0.5	2.2	0.7
Government final consumption	100.4	100.8	101.2	101.4	101.5	101.8	102.6	103.2	101.0	102.3	100.5	101.8
Q/q %, SAAR	4.2	1.8	1.5	0.7	0.3	1.3	3.0	2.4				
Y/y %	1.9	1.9	2.7	2.1	1.0	0.9	1.4	1.9	2.2	1.3	1.8	1.4
Fixed investment	23.3	23.7	23.9	23.6	24.0	23.5	22.7	22.5	23.7	23.0	23.8	23.4
Q/q %, SAAR	-7.6	6.6	3.7	-5.6	7.5	-8.8	-13.1	-2.9				
Y/y %	3.8	1.2	0.1	-1.9	2.8	-0.5	-5.0	-5.5	0.4	-2.6	3.4	-1.6
Change in inventories	0.1	0.2	0.0	0.1	0.0	-0.0	0.0	0.1	0.1	0.0	0.1	0.0
Net exports of goods and services	-14.0	-14.4	-11.4	-5.8	-6.0	-4.4	-3.2	0.9	-11.4	-3.2	-15.2	-4.9
Exports of goods and services	84.0	86.2	91.5	91.6	88.6	90.3	86.8	83.8	88.4	87.4	86.4	89.3
Q/q %, SAAR	1.7	11.2	26.9	0.2	-12.2	7.6	-14.7	-13.1				
Y/y %	6.6	9.6	16.3	9.5	5.1	4.8	-4.9	-8.6	10.5	-1.1	11.4	3.4
Imports of goods and services	98.0	100.6	103.0	97.3	94.7	94.7	90.0	82.8	99.8	90.5	101.6	94.2
Q/q %, SAAR	-22.2	11.0	9.7	-20.2	-10.4	-0.0	-18.5	-28.1				
Y/y %	8.7	8.8	7.0	-7.0	-3.8	-5.8	-12.2	-15.1	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	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	504.7	506.7	509.8	512.9	514.6	514.9	515.2	516.4	508.6	515.3	506.2	514.4
Q/q %, SAAR	0.9	1.5	2.5	2.4	1.3	0.3	0.2	1.0				
Y/y %	1.3	1.1	2.1	1.9	2.0	1.6	1.0	0.7	1.6	1.3	1.4	1.6
Domestic demand	503.1	505.0	508.1	511.0	512.5	512.4	512.2	513.1	507.1	512.3	504.8	511.9
Q/q %, SAAR	0.3	1.6	2.5	2.3	1.1	-0.0	-0.2	0.7				
Y/y %	-0.2	-0.1	1.1	1.8	1.7	1.4	0.7	0.3	0.7	1.0	0.2	1.4
Private demand	377.0	378.2	378.9	379.8	380.7	381.6	382.8	383.9	378.6	382.3	377.8	381.2
Q/q %, SAAR	0.0	1.4	0.7	1.0	0.9	1.0	1.2	1.1				
Y/y %	-0.5	-0.5	0.4	0.8	1.0	0.9	1.0	1.1	0.1	1.0	-0.3	0.9
Final consumption	291.2	291.8	292.5	293.3	294.0	294.5	295.1	295.7	292.2	294.8	291.8	294.2
Q/q %, SAAR	-0.3	0.8	0.9	1.1	0.9	0.7	0.9	0.7				
Y/y %	-0.3	-0.5	0.6	0.6	1.0	0.9	0.9	0.8	0.1	0.9	-0.2	0.8
Residential investment	15.3	15.7	15.4	15.1	15.0	15.0	15.0	15.1	15.4	15.0	15.3	15.0
Q/q %, SAAR	19.3	10.6	-8.7	-6.8	-3.8	1.3	0.8	1.4				
Y/y %	4.4	5.6	3.8	3.0	-2.5	-4.5	-2.2	-0.1	4.2	-2.4	3.8	-1.6
Non-residential investment	69.4	69.7	70.0	70.5	70.8	71.2	71.6	72.1	69.9	71.5	69.8	71.0
Q/q %, SAAR	-2.6	1.6	2.1	2.4	2.0	2.0	2.4	2.9				
Y/y %	-0.5	-0.5	-1.0	0.7	2.1	2.1	2.2	2.4	-0.3	2.2	-0.5	1.7
Change in inventories	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Public demand	126.1	126.8	129.3	131.2	131.8	130.8	129.4	129.3	128.5	130.0	127.0	130.7
Q/q %, SAAR	1.2	2.3	8.0	6.2	1.7	-3.0	-4.1	-0.5				
Y/y %	0.7	1.2	3.3	4.9	3.8	3.2	-0.0	-2.1	2.6	1.1	1.4	2.9
Government final consumption	103.1	103.6	104.0	104.4	105.0	105.5	106.2	106.9	103.8	105.9	103.5	105.3
Q/q %, SAAR	-0.4	1.9	1.8	1.6	2.0	2.2	2.7	2.6				
Y/y %	1.5	1.8	1.4	1.2	1.9	1.9	2.1	2.4	1.5	2.1	1.6	1.8
Fixed investment	23.0	23.2	25.2	26.7	26.8	25.2	23.1	22.3	24.7	24.0	23.5	25.3
Q/q %, SAAR	8.6	3.7	39.3	26.7	0.6	-21.5	-29.1	-13.7				
Y/y %	-4.3	-1.5	10.9	19.3	16.5	8.8	-8.1	-16.8	7.4	-2.9	0.3	7.8
Change in inventories	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Net exports of goods and services	1.7	1.6	1.7	1.8	2.1	2.5	3.0	3.3	1.7	2.7	1.5	2.3
Exports of goods and services	80.8	81.7	82.7	84.0	85.3	86.6	88.0	89.4	82.2	87.3	82.1	85.9
Q/q %, SAAR	-13.4	4.3	5.1	6.3	6.4	6.2	6.7	6.4				
Y/y %	-9.3	-9.6	-4.9	0.3	5.8	6.0	6.5	6.4	-5.9	6.2	-8.1	4.6
Imports of goods and services	79.1	80.0	81.0	82.1	83.2	84.0	85.0	86.0	80.5	84.5	80.7	83.6
Q/q %, SAAR	-16.9	4.8	4.9	5.7	5.2	4.3	4.4	5.2				
Y/y %	-16.7	-15.5	-10.2	-0.7	5.3	5.0	5.0	4.7	-11.1	5.0	-14.4	3.6

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.
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	93.0	92.9	93.3	94.0	94.4	94.5	94.7	94.9	93.3	94.6	92.5	94.4
Q/q %, SAAR	2.1	-0.2	0.4	0.8	0.4	0.1	0.2	0.3				
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	95.5	95.2	95.4	95.4	95.4	94.9	95.5	95.2	95.1	95.3
Q/q %, SAAR	1.7	0.0	-0.0	-0.3	0.2	0.0	-0.0	-0.5				
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	109.8	109.8	109.9	109.8	109.9	110.0	109.0	109.9	109.7	109.0	109.9
Q/q %, SAAR	2.9	-0.2	-0.0	0.1	-0.1	0.1	0.1	-0.9				
Y/y %	4.9	3.9	2.9	2.9	-0.2	0.1	0.2	-0.8	3.6	-0.2	3.5	0.8
Private non-residential investment	96.2	96.5	96.9	97.1	97.4	97.4	97.2	96.6	96.7	97.1	96.3	97.3
Q/q %, SAAR	0.6	0.3	0.4	0.2	0.3	0.0	-0.2	-0.6				
Y/y %	1.4	1.4	1.6	1.5	1.2	0.9	0.3	-0.5	1.5	0.4	1.3	1.0
Government final consumption	98.6	98.8	98.8	98.7	98.5	98.5	98.5	98.2	98.7	98.4	98.3	98.5
Q/q %, SAAR	1.3	0.2	0.0	-0.1	-0.3	0.1	-0.0	-0.3				
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	108.4	108.8	108.6	108.7	109.4	109.0	108.8	107.9	108.7	108.7	107.9	108.9
Q/q %, SAAR	1.9	0.4	-0.2	0.1	0.6	-0.4	-0.2	-0.8				
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	94.6	95.7	98.3	96.7	97.7	97.1	94.1	90.8	96.4	94.9	95.9	96.4
Q/q %, SAAR	-0.0	1.2	2.7	-1.6	1.1	-0.7	-3.0	-3.5				
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	123.5	126.1	127.5	119.3	118.1	116.7	112.1	103.8	124.1	112.7	126.2	116.6
Q/q %, SAAR	-2.5	2.0	1.2	-6.5	-1.0	-1.2	-3.9	-7.4				
Y/y %	2.6	3.5	3.3	-6.4	-4.6	-7.2	-11.8	-13.3	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	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	95.1	95.2	95.4	95.5	95.7	95.7	95.7	95.8	95.3	95.7	95.1	95.6
Q/q %, SAAR	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0.1				
Y/y %	0.8	0.7	0.7	0.7	0.6	0.5	0.4	0.3	0.7	0.5	0.8	0.5
Private final consumption	94.7	94.8	94.9	95.0	95.0	95.1	95.1	95.2	94.8	95.1	94.8	95.1
Q/q %, SAAR	-0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0				
Y/y %	-0.7	-0.7	-0.5	0.1	0.4	0.4	0.3	0.2	-0.5	0.3	-0.6	0.3
Private residential investment	108.6	108.8	109.1	109.4	109.7	109.7	109.7	109.9	109.0	109.7	108.9	109.6
Q/q %, SAAR	-0.4	0.3	0.3	0.3	0.2	0.0	-0.0	0.2				
Y/y %	-1.1	-0.9	-0.8	0.3	1.1	0.8	0.5	0.4	-0.6	0.7	-0.9	0.7
Private non-residential investment	96.3	96.6	96.9	97.2	97.4	97.6	97.8	98.2	96.8	97.8	96.6	97.5
Q/q %, SAAR	-0.3	0.2	0.3	0.4	0.2	0.2	0.2	0.3				
Y/y %	-1.1	-0.9	-0.3	0.6	1.1	1.1	1.0	1.0	-0.4	1.1	-0.7	1.0
Government final consumption	97.9	98.0	98.1	98.2	98.3	98.4	98.5	98.6	98.0	98.4	98.0	98.3
Q/q %, SAAR	-0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Y/y %	-0.7	-0.5	-0.4	-0.1	0.4	0.4	0.4	0.4	-0.4	0.4	-0.5	0.3
Public fixed investment	107.7	107.9	108.2	108.4	108.5	108.6	108.6	108.6	108.1	108.6	108.0	108.5
Q/q %, SAAR	-0.2	0.2	0.3	0.2	0.1	0.0	0.0	0.0				
Y/y %	-1.5	-1.0	-0.6	0.5	0.8	0.6	0.3	0.1	-0.5	0.4	-0.9	0.5
Exports of goods and services	88.9	89.1	89.3	89.7	90.1	90.4	90.7	91.0	89.2	90.5	89.5	90.2
Q/q %, SAAR	-2.1	0.2	0.3	0.4	0.4	0.3	0.4	0.4				
Y/y %	-9.1	-8.3	-5.3	-1.2	1.4	1.5	1.6	1.4	-6.0	1.5	-7.2	0.8
Imports of goods and services	99.2	99.5	99.6	99.8	100.1	100.3	100.6	100.8	99.5	100.4	100.4	100.2
Q/q %, SAAR	-4.5	0.3	0.2	0.2	0.2	0.2	0.2	0.3				
Y/y %	-16.1	-14.9	-11.3	-3.6	1.0	0.9	1.1	0.9	-11.7	1.0	-13.9	-0.2

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	-0.6	0.5	1.2	-0.4	0.5	-0.4	0.5	-0.9	0.8	-0.0	0.5
Domestic demand	-2.8	-0.7	0.2	1.1	-0.0	0.3	-0.5	0.4	-1.6	0.8	0.0	0.1
Private demand	-2.6	-0.9	0.1	1.1	-0.1	0.3	-0.5	0.2	-1.5	0.6	-0.1	0.0
Private consumption	-3.0	0.0	0.4	0.0	-0.4	0.3	-0.5	0.4	-1.7	-0.1	-0.5	-0.7
Residential investment	-0.4	-0.2	0.0	0.1	0.0	0.0	-0.0	-0.0	-0.4	0.1	-0.2	-0.1
Private fixed investment	-0.6	-0.1	-0.0	0.4	-0.1	0.1	0.2	-0.1	0.0	0.3	0.4	0.2
Change in private inventories	1.3	-0.6	-0.2	0.6	0.3	-0.1	-0.2	-0.1	0.6	0.3	0.2	0.6
Public demand	-0.2	0.2	0.1	-0.0	0.1	-0.0	0.0	0.2	-0.1	0.2	0.1	0.1
Government final consumption	-0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.3	0.0	0.2
Public fixed investment	-0.2	0.1	0.1	-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	0.8	0.1	0.3	0.1	-0.4	0.2	0.1	0.1	0.6	0.1	-0.0	0.4
Exports of goods and services	0.1	0.3	0.6	0.3	-0.8	0.5	-0.2	0.0	1.3	0.1	1.3	0.5
Imports of goods and services	0.7	-0.1	-0.2	-0.2	0.4	-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	0.2	-0.9	0.8	-0.0	0.5
Domestic demand	-0.2	-1.7	-2.0	-2.3	0.5	1.6	0.7	0.2	-1.6	0.8	0.0	0.1
Private demand	-0.1	-1.6	-1.9	-2.2	0.2	1.4	0.7	0.0	-1.5	0.6	-0.1	0.0
Private consumption	-1.5	-1.7	-1.3	-2.5	0.0	0.2	-0.6	-0.1	-1.7	-0.1	-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	0.3	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	0.0	0.2	-0.1	0.2	0.1	0.1
Government final consumption	-0.1	-0.0	0.1	0.1	0.3	0.2	0.3	0.5	0.0	0.3	0.0	0.2
Public fixed investment	-0.0	-0.1	-0.1	-0.2	0.1	-0.0	-0.3	-0.2	-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	-0.1	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	-0.4	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	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	0.4	0.2	0.0	0.0	0.2	0.9	0.9	0.6	1.1
Domestic demand	0.3	0.2	0.4	0.4	0.2	-0.1	-0.1	0.1	1.0	0.6	0.7	1.0
Private demand	0.2	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.3	0.4	0.2	0.4
Private consumption	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.3
Residential investment	0.1	0.1	-0.1	-0.1	-0.0	0.0	0.0	0.0	0.1	-0.1	0.1	-0.1
Private fixed investment	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.1
Change in private inventories	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	-0.0	-0.2	-0.0
Public demand	0.1	0.1	0.4	0.3	0.1	-0.2	-0.2	-0.0	0.7	0.2	0.5	0.6
Government final consumption	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.3	0.4	0.3
Public fixed investment	0.1	0.0	0.3	0.3	0.0	-0.3	-0.4	-0.1	0.3	-0.1	0.1	0.3
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	-0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.1	-0.1	0.2	-0.1	0.0
Exports of goods and services	-0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.8	-0.2	0.6
Imports of goods and services	0.0	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.1	-0.6	0.1	-0.6
2) Y/y %												
GDP growth rate	0.6	0.4	1.4	1.2	1.4	1.1	0.6	0.4	0.9	0.9	0.6	1.1
Domestic demand	0.5	0.5	1.4	1.5	1.1	0.9	0.3	0.0	1.0	0.6	0.7	1.0
Private demand	0.1	0.0	0.6	0.4	0.3	0.3	0.4	0.5	0.3	0.4	0.2	0.4
Private consumption	0.2	0.1	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3
Residential investment	0.2	0.2	0.1	0.1	-0.1	-0.1	-0.1	-0.0	0.1	-0.1	0.1	-0.1
Private fixed investment	0.1	0.0	-0.1	0.0	0.1	0.1	0.1	0.2	0.0	0.2	0.0	0.1
Change in private inventories	-0.4	-0.3	-0.1	-0.0	-0.0	0.0	-0.0	-0.0	-0.2	-0.0	-0.2	-0.0
Public demand	0.4	0.4	0.9	1.1	0.8	0.6	-0.1	-0.5	0.7	0.2	0.5	0.6
Government final consumption	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.3
Public fixed investment	-0.1	-0.0	0.5	0.8	0.5	0.3	-0.4	-0.9	0.3	-0.1	0.1	0.3
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	0.1	-0.1	-0.1	-0.2	0.1	0.2	0.2	0.3	-0.1	0.2	-0.1	0.0
Exports of goods and services	-0.0	-0.2	0.1	0.3	0.8	0.8	0.8	0.8	0.0	0.8	-0.2	0.6
Imports of goods and services	0.1	0.1	-0.2	-0.4	-0.6	-0.6	-0.6	-0.6	-0.1	-0.6	0.1	-0.6

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	3.6	3.2	2.9	2.8	2.7	3.5	2.9	3.4	3.1
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)	15,901	16,095	16,187	16,269	16,374	16,455	16,491	16,525	16,113	16,461	15,982	16,397
Q/q %, SAAR	4.0	5.0	2.3	2.0	2.6	2.0	0.9	0.8				
Y/y %	2.4	2.9	2.5	3.3	3.0	2.2	1.9	1.6	2.8	2.2	2.4	2.6
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	109.6	109.7	110.8	109.9	110.9	109.9
Q/q %, SAAR	2.2	1.2	-0.7	-4.6	1.0	0.6	-2.0	0.4				
Y/y %	1.9	1.8	1.2	-0.5	-0.8	-0.9	-1.3	0.0	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	101.4	101.5	101.8	102.6	103.2	101.0	102.3	100.5	101.8
Q/q %, SAAR	4.2	1.8	1.5	0.7	0.3	1.3	3.0	2.4				
Y/y %	1.9	1.9	2.7	2.1	1.0	0.9	1.4	1.9	2.2	1.3	1.8	1.4
Nominal public fixed investment												
Y tril; SAAR	23.3	23.7	23.9	23.6	24.0	23.5	22.7	22.5	23.7	23.0	23.8	23.4
Q/q %, SAAR	-7.6	6.6	3.7	-5.6	7.5	-8.8	-13.1	-2.9				
Y/y %	3.8	1.2	0.1	-1.9	2.8	-0.5	-5.0	-5.5	0.4	-2.6	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.
Note: Due to rounding, figures may differ from those released by the government.

6.2 Major Assumptions

	2016			2017				2018	FY		CY	
	4-6	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	3.1	3.1	3.0	3.1	3.1	2.9	3.1	2.8	3.1
Crude oil price (WTI futures; $/bbl)	45.6	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.8	44.5	42.1	44.5
Y/y %	-21.1	-4.3	5.6	32.3	-2.5	0.0	0.0	0.0	-0.5	-0.6	-13.7	5.8
2) US economy												
Real GDP (chained [2009]; $ bil; SAAR)	16,575	16,693	16,783	16,879	16,972	17,062	17,153	17,240	16,733	17,107	16,644	17,016
Q/q %, SAAR	1.2	2.9	2.2	2.3	2.2	2.1	2.1	2.0				
Y/y %	1.2	1.4	1.8	2.1	2.4	2.2	2.2	2.1	1.6	2.2	1.5	2.2
Consumer Price Index												
(1982-84 avg=100)	239.4	240.5	241.7	242.7	243.9	245.0	246.4	247.8	241.1	245.8	239.9	244.5
Q/q %, SAAR	2.5	1.8	1.9	1.7	2.1	1.8	2.3	2.3				
Y/y %	1.1	1.2	1.5	2.0	1.9	1.9	2.0	2.1	1.4	2.0	1.2	1.9
Producer Price Index												
(Final demand; 2009.Nov=100)	110.2	110.9	111.4	111.8	112.4	112.8	113.4	114.0	111.1	113.2	110.6	112.6
Q/q %, SAAR	1.6	2.8	1.8	1.5	1.9	1.6	2.1	2.0				
Y/y %	0.1	0.7	1.6	1.9	2.0	1.7	1.8	1.9	1.1	1.8	0.6	1.9
FF rate (%)	0.50	0.50	0.75	0.75	1.00	1.00	1.25	1.25	0.75	1.25	0.75	1.25
(Target rate for the forecast period, end-period)												
Government bond yield (10 year; %)	1.75	1.58	1.71	1.88	1.94	2.08	2.11	2.24	1.73	2.09	1.74	2.00
3) Japanese economy												
Nominal government final consumption												
Y tril; SAAR	103.1	103.6	104.0	104.4	105.0	105.5	106.2	106.9	103.8	105.9	103.5	105.3
Q/q %, SAAR	-0.4	1.9	1.8	1.6	2.0	2.2	2.7	2.6				
Y/y %	1.5	1.8	1.4	1.2	1.9	1.9	2.1	2.4	1.5	2.1	1.6	1.8
Nominal public fixed investment												
Y tril; SAAR	23.0	23.2	25.2	26.7	26.8	25.2	23.1	22.3	24.7	24.0	23.5	25.3
Q/q %, SAAR	8.6	3.7	39.3	26.7	0.6	-21.5	-29.1	-13.7				
Y/y %	-4.3	-1.5	10.9	19.3	16.5	8.8	-8.1	-16.8	7.4	-2.9	0.3	7.8
Exchange rate (Y/$)	108.1	101.5	101.5	101.5	101.5	101.5	101.5	101.5	103.2	101.5	106.6	101.5
(Y/€)	120.7	113.0	113.0	113.0	113.0	113.0	113.0	113.0	114.9	113.0	118.7	113.0

Source: Compiled by DIR.
Notes: Due to rounding, figures may differ from those released by the government.
E: DIR estimate.