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Japan's Economic Outlook No. 188

Can a Worldwide Recession Be Avoided? The Effects of (1) Negative Interest, (2) Consumption Tax Increase, and (3) The Bursting of China's Economic Bubble

Japan to see real GDP growth of +0.7% in FY15, +0.9% in FY16, and -0.1% in FY17, with nominal GDP growth of +2.0% in FY15, +1.5% in FY16, and +1.2% in FY17.

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Main Points

- **Downside risk grows for the Japanese economy due to external factors:** In light of the 1st preliminary Oct-Dec 2015 GDP release (Cabinet Office) we have revised our economic growth outlook. We now forecast real GDP growth of +0.7% in comparison with the previous year for FY15 (+1.0% in the previous forecast), +0.9% in comparison with the previous year for FY16 (+1.5% in the previous forecast), and -0.1% in comparison with the previous year for FY17. Japan's economy has remained in a lull, but we expect it to move toward a gradual recovery due to the following domestic factors: (1) Inventory adjustment is progressing, (2) The price of crude oil remains low, (3) Real wages are on the increase, and (4) The government's supplementary budget has taken shape. However, caution is needed regarding downside risk in the overseas economy, especially that of China.

- **How to make sense of the BOJ's introduction of a negative interest rate:** The EU and Switzerland lead Japan in the introduction of a negative interest rate, but it is still difficult to say whether doing so has had a positive effect on the real economy. To some extent there has been an impact on the financial markets, with stock price highs producing an asset effect and currency depreciation bringing growth in exports, which is considered to have had an indirect effect on pushing up the real economy. However, after the introduction of a negative interest rate in Japan, uncertainty began to grow in regard to the future of the world economy, and did so at just the wrong time. Stock prices have not gone up, nor has yen depreciation taken hold.

At this point it would be difficult to hope for an indirect effect on pushing up the real economy arising from the financial markets. On the other hand, DIR calculations suggest that falling interest rates will be beneficial to the private sector, including financial institutions, corporations, and households. Financial institutions are expected to see growth in their gains on sale of government bonds, while both corporations and households will experience the positive effects of lower lending rates and lower interest on housing loans.

- **Can a Worldwide Recession be Avoided?:** In taking a bird's-eye view of the current situation of the world economy in light of the long-term business cycle, the roots of the sense of stagnation in the worldwide economy can be found in fiscal and monetary restraint policies of the advanced nations despite the fact that at the time these policies were initiated, private sector demand was gradually recovering in those countries. The key to stopping the declines in the world economy and financial markets is international policy coordination between Japan, the advanced nations and China, which now brings the upcoming G7 summit in Japan into focus. With the economies of the emerging nations and resource-rich countries in a continuing slowdown, the world must leave behind its dependence on the emerging nations to drive economic growth, and instead, the advanced nations need to step up to the plate and take up the role of leading world economic growth. Meanwhile, though the advanced nations are left with limited room to move in the area of monetary policy, there is still some leeway for aggressive fiscal policy actions, while China should initiate practical means of avoiding further depreciation of the renminbi by adopting capital regulations.

- **Sorting out the issues in moving towards an increase in consumption tax in 2017:** In this section we take a look at what the issues are in moving towards another consumption tax hike in 2017. The sluggish recovery of consumption of durable goods after the increase in consumption tax in 2014 was influenced by the phenomenon of spiking demand in advance of the tax hike, which then fizzled out by the time the tax hike took place. This was thought to be due to past economic policies. Moreover, the weak outlook for income is thought to have had a major influence on consumption of services, especially in the area of non-essential personal services. Considering the situation, we calculated the effect of the 2017 consumption tax hike and compared the result with real GDP assuming no tax hike. This would put degree of influence at +0.3% in FY2016 and -0.6% in FY2017. Meanwhile, the effect of underlying support for personal consumption obtained by introducing a reduced tax rate is calculated to be approximately 1.1 tril yen in FY2017.

- **Risk factors facing Japan's economy – focus on China:** 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 worldwide decline in stock values due to geopolitical risk, and (4) The worsening of the Eurozone economy. Our outlook for China's economy is optimistic in the short-term and pessimistic in the mid to long-term. Looking at China's economic situation in a somewhat reductive way, the fact is that China's government holds treasury funds totaling between 600 to 800 tril yen with which it is standing up to over 1,000 tril yen in excessive lending and over 400 tril yen in excess capital stock. China is expected to be able to avoid the bottom falling out of its economy for a little while, but in the mid to long-term, there is risk of a massive capital stock adjustment.

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

Our assumptions

- Public works spending is expected to decline by -1.1% in FY15, -2.4% in FY16, and -4.5% in FY17. An additional consumption tax hike is planned for April 2017.

- Average exchange rate of Y119.5/$ in FY15, Y113.0/$ in FY16, and Y113.0/$ in FY17.

- US real GDP growth of +2.4% in CY15, +2.3% in CY16, and +2.4% in CY17.

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Summary

Downside risk grows for the Japanese economy due to external factors

In light of the 1st preliminary Oct-Dec 2015 GDP release (Cabinet Office) we have revised our economic growth outlook. We now forecast real GDP growth of +0.7% in comparison with the previous year for FY15 (+1.0% in the previous forecast), +0.9% in comparison with the previous year for FY16 (+1.5% in the previous forecast), and -0.1% in comparison with the previous year for FY17. Japan's economy has remained in a lull, but we expect it to move toward a gradual recovery due to the following domestic factors: (1) Inventory adjustment is progressing, (2) The price of crude oil remains low, (3) Real wages are on the increase, and (4) The government's supplementary budget has taken shape. However, caution is needed regarding downside risk in the overseas economy, especially that of China.

Real GDP growth rate for Oct-Dec 2015 declines by -1.4% q/q annualized (-0.4% q/q)

The real GDP growth rate for Oct-Dec 2015 (1st preliminary est) declined by -1.4% q/q annualized (-0.4% q/q). Meanwhile, market consensus was down a small amount by -1.3% q/q annualized (-0.3% q/q). Results were within the range of expectation. This is the second consecutive quarter for real GDP to record negative growth. While capex continues to make a comeback, personal consumption, housing investment, inventory investment, and exports suffered declines in a broad range of areas, bringing downward pressure on overall results. All in all, performance went according to the DIR outlook, supporting the conclusion that Japan's economy remains in a lull.

All major demand components suffer declines except for capex

Performance by demand component in the Oct-Dec 2015 results shows personal consumption down by -0.8% q/q, the first time it has declined in two quarters. Though real employee compensation maintained a strong undertone such that the employment and income environment contributed a plus, households continued to be more budget minded, while the unseasonably warm winter took a bite out of sales of cold weather products, including clothing, heating equipment, and energy, thus bringing down overall performance. Looking at performance of specific items in personal consumption, we see that there was influence from a variety of sources, including reactionary decline after the growth experienced during the Jul-Sep period and declines which occurred due to the unusually warm winter, including declines in all four categories of goods and services. Durables (-3.1%) and semi-durables (-3.7%) recorded especially noticeable declines. These areas suffered from negative factors including continued sluggishness of automobile sales and poor performance for sales of heating equipment due to the warm winter weather. Sales of semi-durables also suffered for the same reason, with a decline in sales of winter clothing. These factors all contributed to the overall decline in GDP. Meanwhile, non-durables suffered a decline for the first time in two quarters at -0.8%, due also to the unseasonable weather. Energy consumption, such as heating oil, also suffered a decline. Services suffered a decline for the first time in five quarters at -0.1%, though a small one. This area still retained underlying strength in the balance.

Housing investment declined for the first time in four quarters at -1.2%. Looking at the trend in new housing starts, a leading indicator for housing investment as a portion of GDP, it appears that performance has been weak since sometime around the middle of the year. Housing investment and housing starts are recorded on a progressive basis, hence there is a lag in their performance, but it appears that this area too has shifted into a declining trend. Behind this development is a reaction to the quick pace of recovery for housing investment earlier in 2015 and an increase in construction costs and sales prices, which led to the tendency of consumers to hold off on buying.

Capex rose by +1.4% q/q, its second consecutive quarter of growth, in a continuation of its comeback. This was made possible by historic highs in corporate earnings, which encouraged replacement investment. Meanwhile, according to surveys including the BOJ Tankan, corporations are showing a

forward-looking stance toward capex, especially in the non-manufacturing industries. Looking at the trend in total supply of capital goods and shipment of capital goods, coincident indicators for capex, we see that non-ferrous metals and general-purpose, production, & business oriented machinery suffered declines, which contributed negatively to overall results, but transport equipment is showing signs of bottoming out, and electrical machinery achieved growth, helping to bring overall performance up somewhat.

Private sector inventory was down for the second consecutive quarter at -0.1% pt contributing to this period's decline in real GDP. Raw materials inventories are provisional at the stage of 1st preliminary GDP estimates, and this component brought a major negative contribution this time around. Other items in the inventory category were marking time, including finished goods inventory, goods in process inventory, and distribution inventory.

Public investment declined for the second consecutive quarter at -2.7% q/q. Without the effects of economic policy as there was in the past, public investment, one of the leading economic indicators, was weak.

Meanwhile, exports were also down for the first time in two quarters at -0.9% q/q. The increase in foreigners visiting Japan has led to an increase in exports of services, bringing a positive contribution to GDP. Meanwhile, with the slowdown in the economies of the emerging nations, especially China, goods, according to foreign trade statistics, continue to be weak, bringing down overall performance. Imports also declined for the first time in two quarters at -1.4%. Since the decline in imports was larger than that of exports, the contribution of overseas demand (net exports) was up by +0.1% pt.

The GDP deflator grew for the fifth consecutive quarter at +0.1% q/q. Growth was less than the previous quarter (+0.3%), but shows an overall steady undertone. The domestic demand deflator was flat at +0.0%, while the import deflator was down by a larger degree than the previous period's GDP results, but overall results were still on the plus side. (A decline in the import deflator normally would have a positive effect on the GDP deflator.) In y/y terms the GDP deflator was up by +1.5%, its eighth consecutive quarter of growth, but the growth rate shrank in comparison to that of the previous period. Meanwhile, nominal GDP was down for the first time in two quarters at -1.2% q/q annualized (-0.3% q/q).

With no clearly driving force, Japan's economy faces risk of possible downturn

Due to the absence of a clearly driving force, our basic economic scenario sees Japan's economy facing risk of a possible downturn in the future. We urge caution regarding the rapid increase in risk factors in recent weeks which could have a negative effect on Japan's economy, especially the downturn in the Chinese economy, turmoil in the global financial markets in response the US exit strategy, and a strong yen / weak stock market situation brought on by risk-off behavior of investors. We also note that GDP statistics do not make adjustments for the leap year, hence the Jan-Mar 2016 period figures could be on the strong side due to the extra day in comparison to February of the previous year.

Personal consumption is expected to continue its underlying strength due to a recovery in personal consumption backed by improvements in the employment and income environment. As for the question of income, real wages according to the monthly labour survey continue to be weak since summer of 2015 due to a changeover in sampling, but it appears that the decline will stop in the near future. Real employee compensation (real wages x employment) in the macro sense is maintaining a strong undertone due to the growth trend in employment. Meanwhile, the positive employment environment and the raising of the minimum wage are expected to bring a gradual increase in part-timer pay. The effect of a slower growth rate in the consumer price index promises to continue pushing up real wages, and this should be a factor in providing underlying support for personal consumption. Meanwhile, factors to keep in mind are the pension revision rate which was raised in Fiscal 2015 for the first time in sixteen years, and which the government has decided to leave unchanged in Fiscal

2016, as well as the spring labor offensive in 2016, which may very possibly bring a smaller wage revision rate than in 2015 (final tally results +2.20%).

Looking at the trend in new housing starts, a leading indicator for housing investment, it appears that performance continues to be weak. Housing starts are weighted down by an increase in construction costs and sales prices, as well as the scandal regarding the falsification of condominium construction data which surfaced late in 2015. However, improvements in the employment and income environment, along with the historic lows in interest on housing loans, and then beyond the year 2016, the expected further increase in consumption tax in April 2017, are expected to work together in encouraging a gradual increase in the number of households considering purchase of a new home. Housing starts should soon return to a growth trend. Housing investment is expected to recover to a growth trend in the future, though there is expected to be a time lag between the expected increase in housing starts and the subsequent recovery in housing investment.

Public investment is gradually shedding the effects of economic policy which provided support in the past, and is expected to continue its gradual decline. Contracts and orders received, which provide the leading indicators for this area, are showing signs of weakening. The general tone in this area is expected to continue in that vein.

Meanwhile, exports are expected to make a gradual comeback while experiencing both strong and weak points with the US and European economies showing a firm undertone and exports of services recording favorable performance. However, overseas economies show a growing risk of a downturn, with the worldwide industrial sector in the doldrums due to the rapid decline in the price of resources and excess production capacity. Overseas shipments of electronic parts and devices for smartphones are expected to suffer a temporary decline. Considering this fact, the expected shift back into a growth trend for exports of goods will likely have to wait until sometime after spring. A firm undertone continues in US economic expansion centering on the household sector, bringing expectations for a recovery in Japanese exports centering on durables. As for the EU, the economy is expected to move gradually toward a comeback due to the effects of the collapse of crude oil prices and additional monetary easing on the part of the ECB. Exports to the EU are expected to gradually recover to a growth trend. As for the Asian economy, electronic parts and devices for smartphones as mentioned above, as well as iron & steel and materials are expected to be a drag on performance due to China's excess production capacity. Asian exports are expected to continue on the weak side. As for China, whose economic slowdown continues, monetary easing and promotion of automobile sales are helping to lift the real economy, and the effects are beginning to show up in personal consumption and the service sector. There is a good possibility that declines in consumption can be avoided in the area of consumer goods.

As for capex, the gradual recovery is seen continuing due to record-setting corporate earnings, which are encouraging replacement investment. According to surveys measuring capex investment plans such as the BOJ Tankan, there is a forward-looking stance in regard to capex spending, especially in the non-manufacturing industries. Replacement investment, labor saving, and energy saving appear to be promising. However, statistics seem to see current business sentiment in the manufacturing industries as being stronger than it actually is, and caution is urged regarding risk of a downtrend in the future. The slowdown in emerging nation economies centering on China, weakness in the corporate sectors of overseas economies leading to stagnation for exports, and the slow pace of recovery in personal consumption means that corporations delaying capex spending may increase in the future, especially amongst manufacturers.

How to make sense of the BOJ's introduction of a negative interest rate

The Bank of Japan introduced a negative interest rate in January. In examining the influence of this move we used the EU and Switzerland as references. The EU and Switzerland lead Japan in the introduction of a negative interest rate, but it is still difficult to say whether doing so has had a positive effect on the real economy. To some extent there has been an impact on the financial markets, with stock price highs producing an asset effect and currency depreciation bringing growth in exports, which is considered to have had an indirect effect on pushing up the real economy. However, after the introduction of a negative interest rate in Japan, uncertainty began to grow in regard to the future of the world economy, and did so at just the wrong time. Stock prices have not gone up, nor has yen depreciation taken hold. At this point it would be difficult to hope for an indirect effect on pushing up the real economy arising from the financial markets. On the other hand, DIR calculations suggest that falling interest rates will be beneficial to the private sector, including financial institutions, corporations, and households. Financial institutions are expected to see growth in their gains on sale of government bonds, while both corporations and households will experience the positive effects of lower lending rates and lower interest on housing loans.

Can a Worldwide Recession Be Avoided?

In taking a bird's-eye view of the current situation of the world economy in light of the long-term business cycle, the roots of the sense of stagnation in the worldwide economy can be found in fiscal and monetary restraint policies of the advanced nations despite the fact that at the time these policies were initiated, private sector demand was gradually recovering in those countries. The key to stopping the declines in the world economy and financial markets is international policy coordination between Japan, the advanced nations and China, which now brings the upcoming G7 summit in Japan into focus. With the economies of the emerging nations and resource-rich countries in a continuing slowdown, the world must leave behind its dependence on the emerging nations to drive economic growth, and instead, the advanced nations need to step up to the plate and take up the role of leading world economic growth. Meanwhile, though the advanced nations are left with limited room to move in the area of monetary policy, there is still some leeway for aggressive policy actions, while China should initiate practical means of avoiding further depreciation of the renminbi by adopting capital regulations.

In our investigation into this subject we examined world economic cycles with special focus on the Fed. With the slowdown in the emerging economies and the deteriorating international commodities market, not to mention the maturation of the US ISM Business Confidence Index and the business cycle, we believe that the interest rate hike schedule of around four times per year expected by the FOMC participants is too fast. Our opinion is that the Fed will consider taking the approach of taking a pause in rate hikes. In addition, we examined the debt cycle of US corporations. The question of whether or not the global economy descends into a situation of worldwide stock price lows and production declines depends on the finesse with which the Fed carries out its monetary policy.

Sorting out the issues in moving towards an increase in consumption tax in 2017

In this section we take a look at what the issues are in moving towards another consumption tax hike in 2017. The sluggish recovery of consumption of durable goods after the increase in consumption tax in 2014 was influenced by the phenomenon of spiking demand in advance of the tax hike, which then fizzled out by the time the tax hike took place. This was thought to be due to past economic policies. Moreover, the weak outlook for income is thought to have had a major influence on consumption of services, especially in the area of non-essential personal services. Considering the situation, we calculated the effect of the 2017 consumption tax hike and compared the result with real GDP assuming no tax hike. This would put degree of influence at +0.3% in FY2016 and -0.6% in FY2017. Meanwhile, the effect of underlying support for personal consumption obtained by introducing a reduced tax rate is calculated to be approximately 1.1 tril yen in FY2017.

Risk factors facing Japan's economy: Focus on China

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 worldwide decline in stock values due to geopolitical risk, and (4) The worsening of the Eurozone economy. Our outlook for China's economy is optimistic in the short-term and pessimistic in the mid to long-term. Looking at China's economic situation in a somewhat reductive way, the fact is that China's government holds treasury funds totaling between 600 to 800 tril yen with which it is standing up to over 1,000 tril yen in excessive lending and over 400 tril yen in excess capital stock. China is expected to be able to avoid the bottom falling out of its economy for a little while, but in the mid to long-term, there is risk of a massive capital stock adjustment.

BOJ's monetary policy

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

Main Economic Indicators and Real GDP Components

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	FY15 (Estimate)	FY16 (Estimate)	FY17 (Estimate)	CY15	CY16 (Estimate)	CY17 (Estimate)
Main economic indicators						
Nominal GDP (y/y %)	2.0	1.5	1.2	2.5	1.1	1.6
Real GDP (chained [2005]; y/y %)	0.7	0.9	-0.1	0.4	0.5	0.4
Domestic demand (contribution, % pt)	0.5	0.9	-0.5	-0.0	0.5	0.3
Foreign demand (contribution, % pt)	0.1	0.0	0.4	0.4	0.0	0.1
GDP deflator (y/y %)	1.4	0.6	1.3	2.0	0.6	1.1
Index of All-industry Activity (y/y %)*	0.8	1.7	1.4	0.5	0.8	2.2
Index of Industrial Production (y/y %)	-0.9	3.0	1.7	-0.9	0.6	4.1
Index of Tertiary Industry Activity (y/y %)	1.2	1.5	1.3	0.9	0.9	1.8
Corporate Goods Price Index (y/y %)	-3.0	-0.7	2.8	-2.3	-1.6	2.3
Consumer Price Index (excl. fresh food; y/y %)	0.0	0.4	2.2	0.5	0.2	1.9
Unemployment rate (%)	3.3	3.2	3.1	3.4	3.2	3.1
Government bond yield (10 year; %)	0.27	0.00	0.00	0.35	0.00	0.00
Money stock; M2 (end-period; y/y %)	3.7	4.0	4.1	3.7	3.9	4.1
Balance of payments						
Trade balance (Y tril)	-0.6	0.0	1.5	-0.6	0.3	1.0
Current balance ($100 mil)	1,427	1,650	1,907	1,375	1,654	1,827
Current balance (Y tril)	17.2	18.9	21.8	16.6	18.7	20.6
(% of nominal GDP)	3.4	3.7	4.3	3.3	3.7	4.0
Real GDP components (Chained [2005]; y/y %; figures in parentheses: contribution, % pt)						
Private final consumption	-0.4 (-0.3)	0.8 (0.5)	-0.9 (-0.5)	-1.2 (-0.8)	-0.1 (-0.0)	0.1 (0.1)
Private housing investment	2.3 (0.1)	2.6 (0.1)	-8.3 (-0.2)	-2.6 (-0.1)	1.6 (0.0)	-4.1 (-0.1)
Private fixed investment	2.2 (0.3)	4.4 (0.6)	1.2 (0.2)	1.3 (0.2)	3.5 (0.5)	2.6 (0.4)
Government final consumption	1.3 (0.2)	0.8 (0.2)	0.8 (0.2)	1.1 (0.2)	1.0 (0.2)	0.8 (0.2)
Public fixed investment	-1.6 (-0.1)	-3.7 (-0.2)	-6.4 (-0.2)	-2.2 (-0.1)	-3.5 (-0.2)	-5.1 (-0.2)
Exports of goods and services	0.2 (0.0)	2.7 (0.5)	3.5 (0.6)	2.7 (0.5)	1.0 (0.2)	3.8 (0.7)
Imports of goods and services	-0.3 (0.0)	2.9 (-0.4)	1.5 (-0.2)	0.2 (0.0)	0.7 (-0.1)	2.9 (-0.5)
Major assumptions:						
1. World economy						
Economic growth of major trading partners	2.9	3.2	3.3	3.0	3.1	3.3
Crude oil price (WTI futures; $/bbl)	44.1	30.0	30.0	48.8	30.0	30.0
2. US economy						
US real GDP (chained [2009]; y/y %)	2.2	2.4	2.3	2.4	2.3	2.4
US Consumer Price Index (y/y %)	0.4	1.4	2.1	0.1	1.2	2.0
3. Japanese economy						
Nominal public fixed investment (y/y %)	-1.1	-2.4	-4.5	-1.3	-2.5	-3.3
Exchange rate (Y/$)	119.5	113.0	113.0	121.0	113.0	113.0
(Y/€)	132.6	128.3	128.3	133.7	128.3	128.3

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 188)			Previous outlook (Outlook187 update)		Difference between previous and current outlooks	
	FY15	FY16	FY17	FY15	FY16	FY15	FY16
Main economic indicators							
Nominal GDP (y/y %)	2.0	1.5	1.2	2.4	2.0	-0.3	-0.5
Real GDP (chained [2005]; y/y %)	0.7	0.9	-0.1	1.0	1.5	-0.4	-0.6
Domestic demand (contribution, % pt)	0.5	0.9	-0.5	0.9	1.4	-0.4	-0.5
Foreign demand (contribution, % pt)	0.1	0.0	0.4	0.1	0.1	0.0	-0.1
GDP deflator (y/y %)	1.4	0.6	1.3	1.3	0.5	0.1	0.1
Index of All-industry Activity (y/y %)*	0.8	1.7	1.4	0.9	2.0	-0.1	-0.3
Index of Industrial Production (y/y %)	-0.9	3.0	1.7	-1.0	2.5	0.1	0.5
Index of Tertiary Industry Activity (y/y %)	1.2	1.5	1.3	1.3	1.9	-0.1	-0.4
Corporate Goods Price Index (y/y %)	-3.0	-0.7	2.8	-2.1	0.7	-0.9	-1.4
Consumer Price Index (excl. fresh food; y/y %)	0.0	0.4	2.2	0.2	1.0	-0.1	-0.6
Unemployment rate (%)	3.3	3.2	3.1	3.3	3.2	-0.0	0.0
Government bond yield (10 year; %)	0.27	0.00	0.00	0.35	0.35	-0.08	-0.35
Money stock; M2 (end-period; y/y %)	3.7	4.0	4.1	3.7	4.0	-0.0	-0.0
Balance of payments							
Trade balance (Y tril)	-0.6	0.0	1.5	-0.7	-1.0	0.0	1.1
Current balance ($100 mil)	1,427	1,650	1,907	1,433	1,452	-7	198
Current balance (Y tril)	17.2	18.9	21.8	17.8	18.4	-0.6	0.5
(% of nominal GDP)	3.4	3.7	4.3	3.6	3.6	-0.1	0.1
Real GDP components (chained [2005]; y/y %)							
Private final consumption	-0.4	0.8	-0.9	0.3	1.4	-0.7	-0.6
Private housing investment	2.3	2.6	-8.3	4.5	6.8	-2.2	-4.3
Private fixed investment	2.2	4.4	1.2	1.7	5.1	0.5	-0.7
Government final consumption	1.3	0.8	0.8	1.3	1.3	0.0	-0.5
Public fixed investment	-1.6	-3.7	-6.4	-1.1	-4.5	-0.5	0.8
Exports of goods and services	0.2	2.7	3.5	1.5	5.5	-1.2	-2.8
Imports of goods and services	-0.3	2.9	1.5	1.2	5.4	-1.4	-2.6
Major assumptions:							
1. World economy							
Economic growth of major trading partners	2.9	3.2	3.3	2.9	3.2	-0.0	-0.0
Crude oil price (WTI futures; $/bbl)	44.1	30.0	30.0	47.4	44.2	-3.3	-14.2
2. US economy							
US real GDP (chained [2009]; y/y %)	2.2	2.4	2.3	2.5	2.6	-0.2	-0.2
US Consumer Price Index (y/y %)	0.4	1.4	2.1	0.6	1.8	-0.2	-0.5
3. Japanese economy							
Nominal public fixed investment (y/y %)	-1.1	-2.4	-4.5	-0.5	-3.2	-0.6	0.8
Exchange rate (Y/$)	119.5	113.0	113.0	122.6	125.0	-3.1	-12.0
(Y/€)	132.6	128.3	128.3	133.1	130.0	-0.5	-1.7

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. Downside Risk Grows for the Japanese Economy Due to External Factors

1.1 Downside Risk Grows for the Overseas Economy

Japan's economy has remained in a lull, but we expect it to move toward a gradual recovery due to the following domestic factors: (1) Inventory adjustment is progressing, (2) The price of crude oil remains low, (3) Real wages are on the increase, and (4) The government's supplementary budget has taken shape. However, caution is needed regarding downside risk in the overseas economy, especially that of China.

In this chapter we look at Japan's overall recent economy and examine four positive factors which we believe will bring underlying support to the economy in the future.

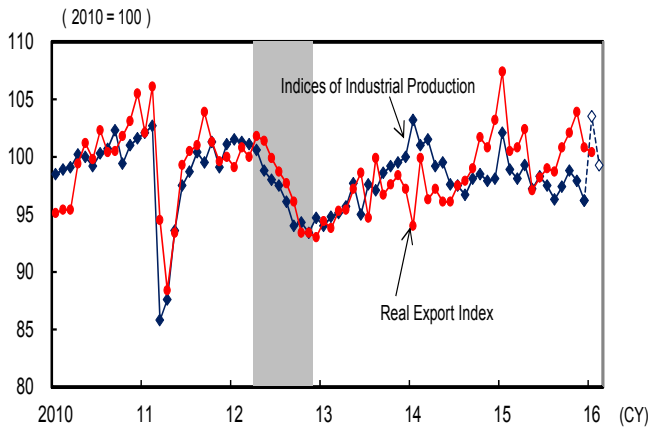
1.2 Four Factors Supporting the Domestic Economy

Positive Factor (1): Inventory adjustment is progressing

Chart 1 shows Japan's real exports along with industrial production and inventory cycle. Production has experienced many ups and downs recently, but it has now bottomed out and real exports are seen as heading toward a comeback. Major automobile manufacturers temporarily halted operations at their factories in February, and this is expected to bring a major decline in production, but if we ignore special factors such as this for the moment, production has actually been continuing a firm undertone.

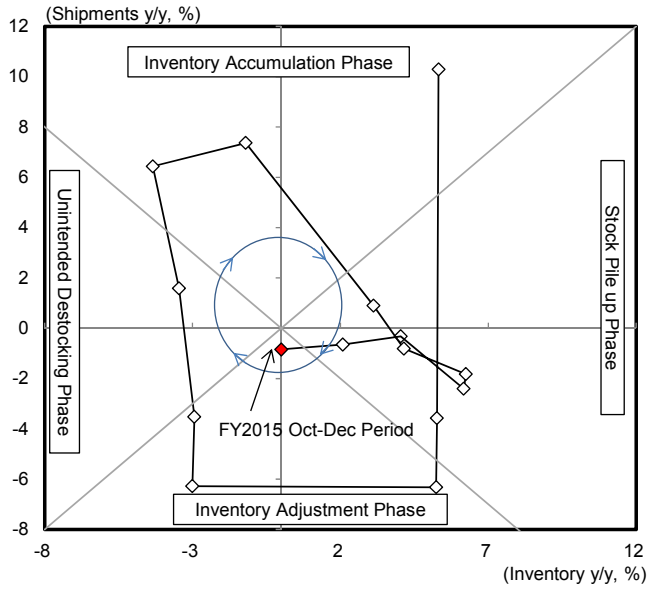
In addition, it is also worthy of note that inventory adjustment is steadily progressing. Chart 2 illustrates the inventory cycle. Looking at recent activity we can see that the inventory cycle is now in the process of shifting from the inventory adjustment phase to the unintended destocking phase (i.e. recovery). In order for shipments to recover completely, a further level of inventory adjustment is still required, but recent developments indicate that this is definitely a positive factor for Japan's economy.

Japan's Real Exports and Industrial Production **Chart 1**



Source: Cabinet Office, Bank of Japan, and Ministry of Economy, Trade and Industry; compiled by DIR.
Notes: 1) The shaded areas represent periods of economic slowdown.
2) Data for the latest two months of industrial production make use of values from METI's production forecast survey.

The Inventory Cycle **Chart 2**



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

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

As of this point the price of crude oil has dropped further to a new low. This should have a positive effect on the real economy. Chart 3 shows a calculation of the effects of the low price of crude oil on Japan's economy using the DIR macroeconomic model. Results of this simulation suggest that the collapse of the price of crude oil and subsequent decline from its former level of $105/bbl as of June 2014 pushed up Japan's real GDP between fiscal years 2015 and 2017, with an increase of +0.69% in FY2015, +0.85% in FY2016, and an expected +0.90% in FY2017. The effect on the real GDP growth rate was +0.49%pt in FY2015, +0.16%pt in FY2016, and an expected +0.05%pt in FY2017.

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

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

Meanwhile, the cost of importing raw materials, which account for just under 40% of Japan's total imports, is expected to experience a major decline, leading to a significant reduction in the trade deficit, along with a major increase in the current account surplus. Japan has continued to rack up trade deficits ever since the Great East Japan Earthquake, which led to the rapid increase in the amount of crude oil imported to Japan. However, the collapse in the price of crude oil has changed the situation completely, with surpluses apparently here to stay – a situation which not long ago would have been unimaginable. The price of crude oil dropping further to a new low is highly beneficial to Japan's economy.

Effects of the Collapse in the Price of Crude Oil on Japan's Economy **Chart 3**

		Real GDP %	Personal Consumption %	Housing Investment %	Capital Expenditure %	Exports %	Imports %	Nominal GDP %	GDP Deflator %	GDP Growth Rate %
Difference from Scenario in Which Crude Oil Price Remains High	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 Previous Estimate's Assumptions	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 Scenario in Which Crude Oil Price Remains High	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 Previous Estimate's Assumptions	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.

Positive Factor (3): Real wages are on the increase, providing underlying support for personal consumption

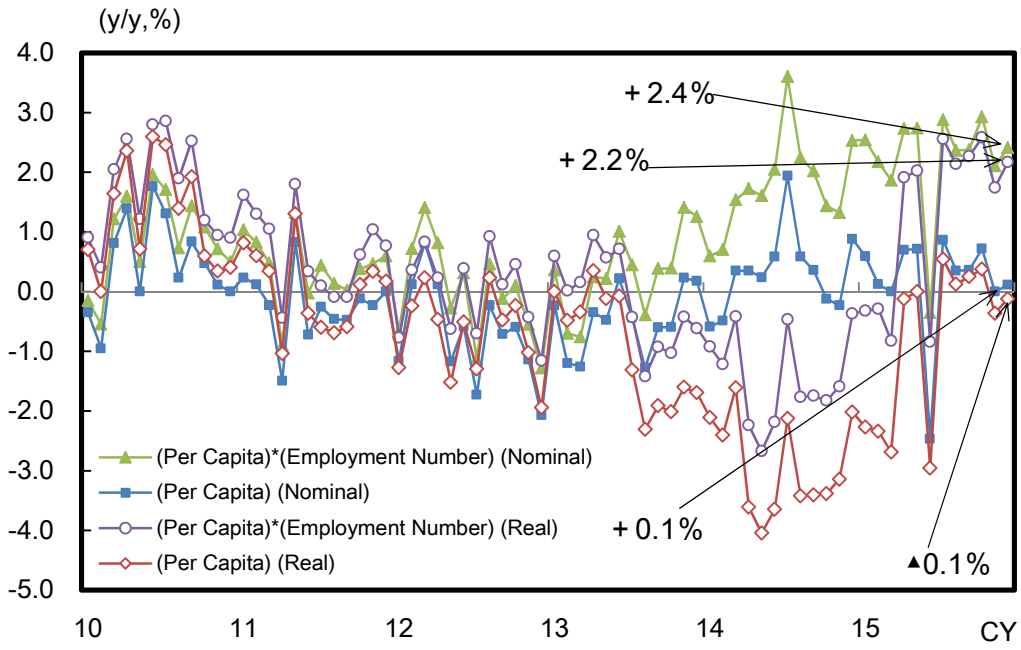
The growth trend in real wages is also expected to provide underlying support for the Japanese economy in the form of encouraging the vitalization of personal consumption.

Chart 4 indicates that real wages per person have recently exceeded levels of the same period of the previous year with regularity, and that the trend is becoming well-established. Wages continued to suffer major declines during FY2014 due to the increase in consumption tax, but once the effect of tax hikes pushing up prices fell away and the price of crude oil collapsed, prices began to fall. This also had the effect of pushing up real wages. Along with the positive factor of prices, supply and demand for labor is tight and the salary scale of workers has increased, working toward pushing nominal wages upwards. The positive income environment continues.

Looking at macro wages (wages per person x employment), year-to-year growth of +2% 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.

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

Wages per Person and Macro Wages **Chart 4**



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

Increasing contractual cash earnings to revitalize personal demand centering on durable goods

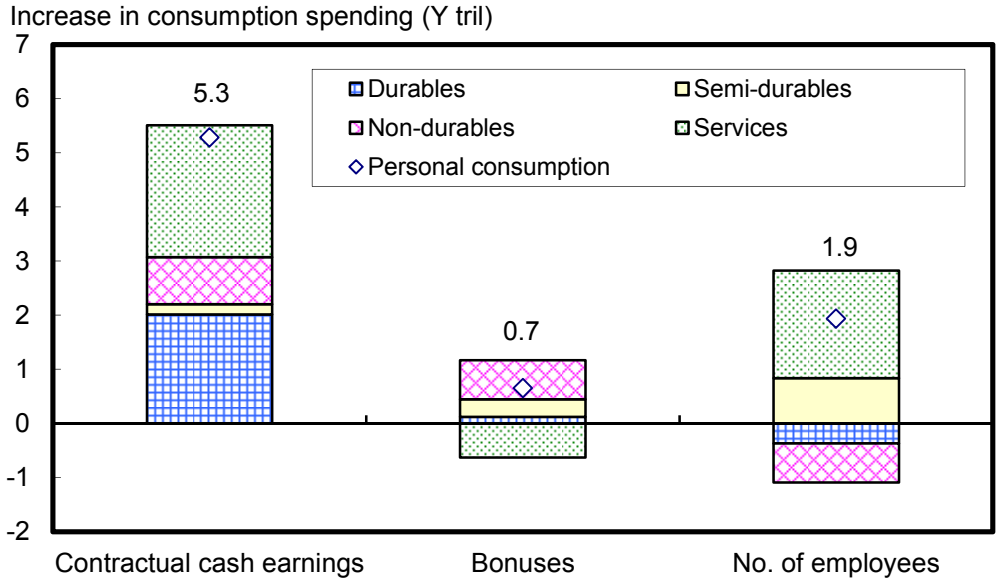
Wage hikes tend to have a certain priming effect on consumption. Increases in contractual cash earnings especially have the ability to revitalize personal consumption centering on durable goods.

Hence it is highly desirable for those corporations which have the financial leeway to increase pay scales ahead of schedule in order to avoid the fallacy of composition.

Chart 5 illustrates different ways of increasing income, and estimates how these can influence personal consumption. Here compensation of employees is divided into three categories – Contractual Cash Earnings (fixed wages + overtime pay), Special Cash Earnings (bonus etc.), and Number of Employees. We have estimated the extent to which personal consumption is influenced whenever a change occurs in one of these categories. The results show that Increases in contractual cash earnings have the greatest effect on increasing personal consumption. For instance, if overall compensation of employees were to grow by 2% as a result of an increase in contractual cash earnings, growth in personal consumption mainly in the areas of durable goods and services would be increased by 5.3 tril yen. The same effect produced by growth in the number of employees would increase personal consumption only by 1.9 tril yen, less than half the effect to be gotten through increasing regular salaries. Growth in personal consumption as a result of an increase in special cash earnings or bonuses is even smaller at only 0.7 tril yen.

The results of these estimates demonstrate that in order to revitalize personal consumption through growth in wages, while at the same time improving corporate earnings thereby obtaining a virtuous circle in the larger sense, increasing contractual cash earnings is more effective than one-time lump sum payments. In other words an increase in pay scale is more effective. Since the Abe administration was formed the momentum needed to do this has gradually developed, and our quantitative analysis indicates that raising pay scale at Japanese corporations would be a very positive step.

Influence on Personal Consumption if Employee Compensation is Raised by 2% **Chart 5**



Source: Cabinet Office, Ministry of Health, Labour, and Welfare, Ministry of Internal Affairs and Communications; Compiled by DIR.
Note: Amount of increase in personal consumption when employee compensation (total amount of cash earnings x number of employees) is increased by 2% by raising either Contractual Cash Earnings, Special Cash Earnings, or increasing Number of Employees. Estimate based on the period between 1994 1st quarter and 2013 2nd quarter.

Positive Factor (4): The government's supplementary budget will increase GDP by +0.28%

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

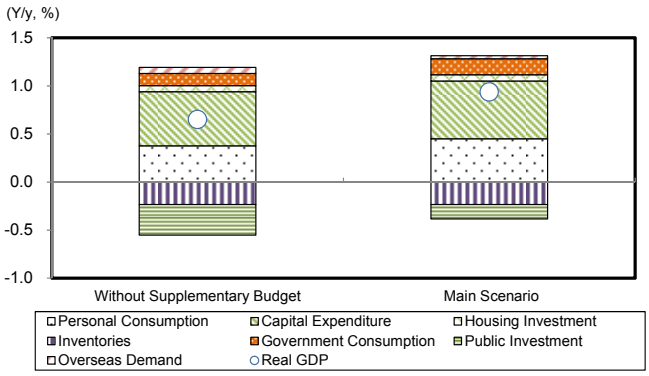
The FY2015 supplementary budget was devoted mostly to projects related to the Abe administration's new social policy "Promoting Dynamic Engagement of All Citizens." Payments of benefits to the elderly appears to have attracted the most attention in the mass media, and has been criticized as being merely an attempt to buy votes. But more realistically speaking, its major role has actually been to provide support for consumption expenditures on the part of the elderly whose financial positions became more tenuous after the increase in consumption tax. The effect of holding down pension payments has led to a notably worsening income environment for the elderly in comparison to worker households after the increase in the consumption tax. This development also led to a deterioration of consumer confidence amongst the elderly. This situation continues today, with weak consumption amongst elderly households contributing to the sluggishness of personal consumption overall. It seems that taking a practical approach to supporting personal consumption by paying benefits to the elderly in order to prevent the bottom from falling out of the economy is at least to a certain extent acceptable.

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

Economic Benefits of the FY2015 Supplementary Budget **Chart 6**

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

Source: Ministry of Finance; compiled by DIR.



Source: Cabinet Office; compiled by DIR.

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

2. How to Make Sense of the BOJ's Introduction of a Negative Interest Rate

2.1 Effects of Negative Interest Rates in Europe

The Bank of Japan made the decision to introduce qualitative and quantitative monetary easing with a negative interest rate on January 29. At the House of Councilors Budget Committee held just a few days previously to this decision, Bank of Japan Governor Kuroda denied having any intentions to introduce a negative interest rate. Hence there were few people who expected this would actually come to pass. Ultimately, it came as a complete surprise to the financial markets.

Considering the actions of central banks around the world, the BOJ is by no means the first to have introduced negative interest. Negative interest policies have already been adopted in the Eurozone, Sweden, Denmark, and Switzerland. Hence Japan can be said to have joined the club somewhat on the late side. The question now is how will the negative interest rate influence Japan's economy. In this chapter we examine the real economies and financial markets of the Eurozone, Sweden, Denmark, and Switzerland, who have adopted negative interest rates ahead of Japan and analyze its effects. Then we consider the possible influence that introducing a negative interest rate might have on Japan's economy.

2.1.1 Positive Effects of Negative Interest Rates on the Real Economy Cannot Be Verified

The general understanding is that a central bank can have a certain extent of influence on the real economy and financial markets by lowering the policy interest rate. Certain direct effects stemming from lower interest rates can be expected, such as growth in consumption of durable goods due to their interest sensitivity, and growth in capital expenditure due the lower cost of procuring capital. Meanwhile, investor behavior in the financial markets can be expected to become more aggressive in the area of investment in high-risk assets such as stocks, corporate bonds, and loans since holding onto government bonds will become less attractive.

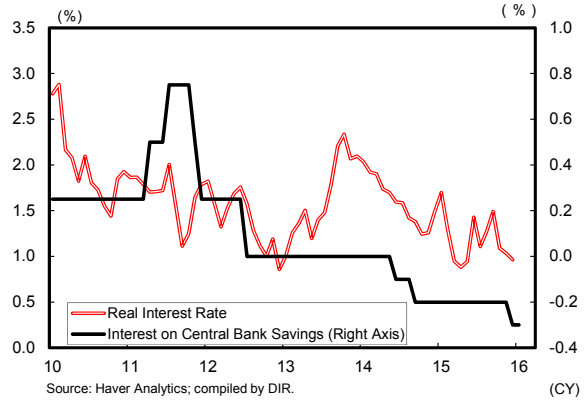
First we perform and analysis of the real economies of countries in Europe. Chart 7 presents trends in real interest rates, which are an expression of the sense of burden associated with interest payments in light of price trends, and policy interest in these countries. Using this data we calculated real interest by subtracting the inflation rate (CPI growth rate) from nominal interest (yield on 10-yr government bond). Since nominal interest declined in Europe after the introduction of negative interest rates, there should be downward pressure on real interest rates. However, the inflation rate has been low due to the continuing decline in energy prices since the summer of 2014, sometimes even falling into the negative range. Hence, though real interest rates are falling, they are still hovering around the positive range.

Related to these movements in real interest rates is the fact that bank loans in all of these countries lack energy (see Chart 8). Lending to households and non-financial corporations is on the rise in the Eurozone and Sweden. However, the rate of growth in these areas remains unchanged from the time when interest rates had been lowered, before negative interest rates were introduced. In the Eurozone especially, where quantitative easing measures were adopted after having already introduced a negative interest rate, it is extremely difficult to determine whether or not growth in lending is due purely to the fact of having introduced a negative interest rate. Moreover, when we look at the situation in Denmark and Switzerland, where a negative interest rate has been adopted and yet the real interest rate is in a growth trend, we find that the growth rate in lending is in a declining trend. Lending in Denmark to both households and non-financial corporations has sunk to the negative numbers on a year-to-year basis.

While a decline in interest rates can be one of the factors supporting growth in lending, it is also possible that an unresolved sense of burden associated with interest payments is a factor in hindering further growth in lending. As we can see by examining these situations, direct, positive effects on the real economy in Europe in the form of a decline in real interest rates and growth in lending have not manifested themselves.

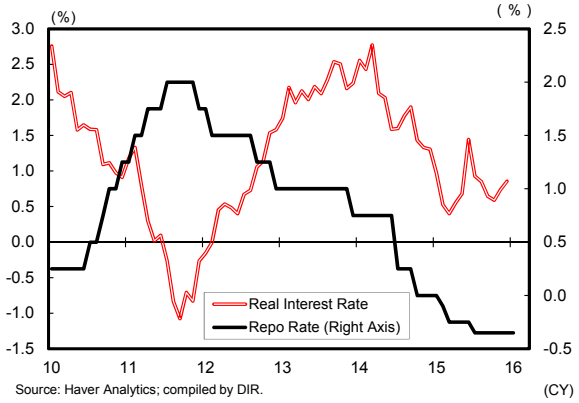
Trends in Policy Interest Rates and Real Interest Rates in Various Countries and Regions Chart 7

Eurozone



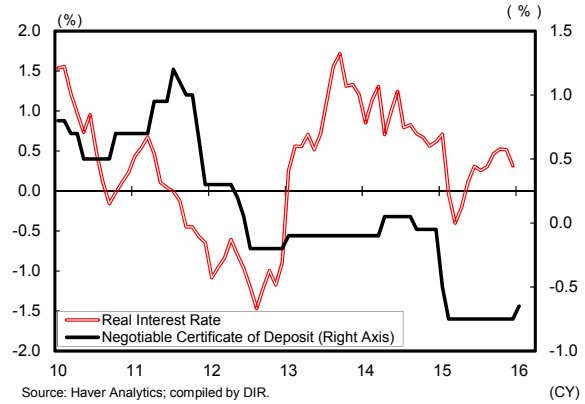
Source: Haver Analytics; compiled by DIR.

Sweden



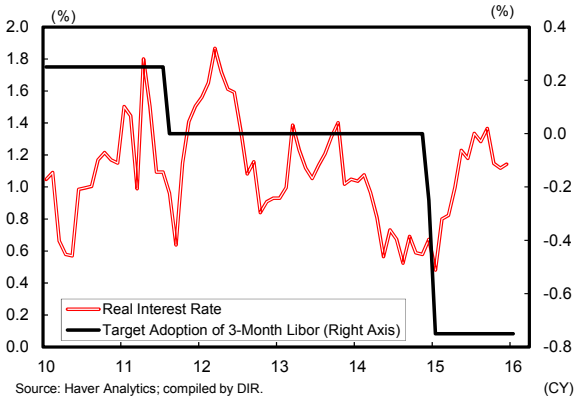
Source: Haver Analytics; compiled by DIR.

Denmark



Source: Haver Analytics; compiled by DIR.

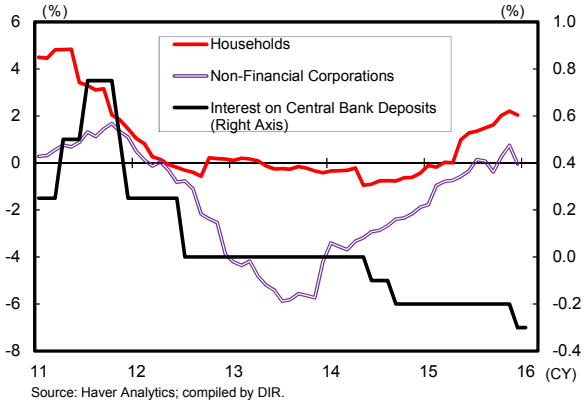
Switzerland



Source: Haver Analytics; compiled by DIR.

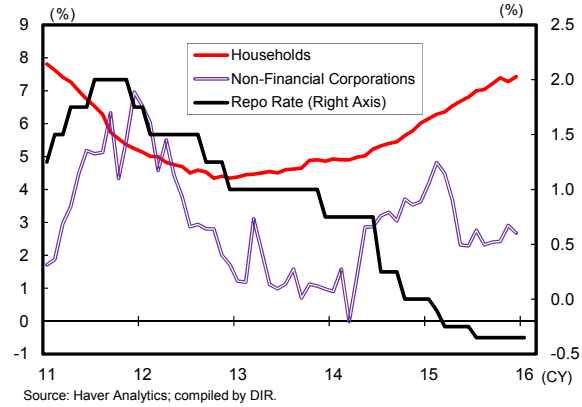
Trends in Policy Interest Rates and Loans in Various Countries and Regions (y/y) Chart 8

Eurozone



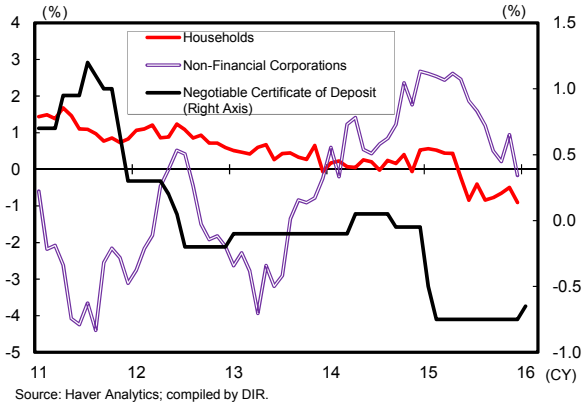
Source: Haver Analytics; compiled by DIR.

Sweden



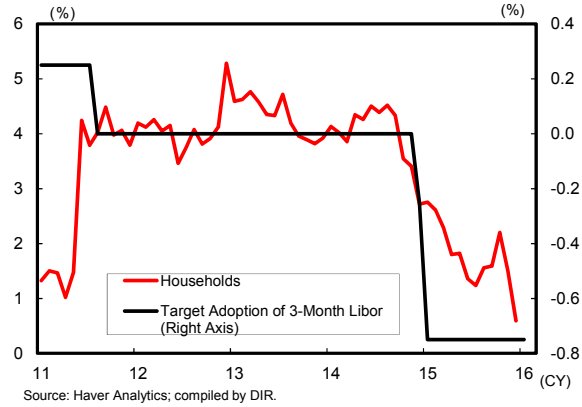
Source: Haver Analytics; compiled by DIR.

Denmark



Source: Haver Analytics; compiled by DIR.

Switzerland



Source: Haver Analytics; compiled by DIR.

2.1.2 Foreign Exchange and Stock Markets Stimulated by Negative Interest Rates

Next we consider the question of how the adoption of negative interest rates in Europe has influenced the financial markets. In Chart 9, the horizontal axis represents yield on the 10-year government bond in various European countries, and the vertical axis shows the real effective exchange rate. The real effective exchange rate acts as an index which measures the actual strength of currencies in consideration of price trends and weight carried by trade by destination. The higher the number appearing on the chart, the more the value of the currency grows, and the lower it gets, the more the value of the currency declines. The farther to the right one moves along the chart, the more interest declines, while the farther up one moves, the more the value of the currency grows.

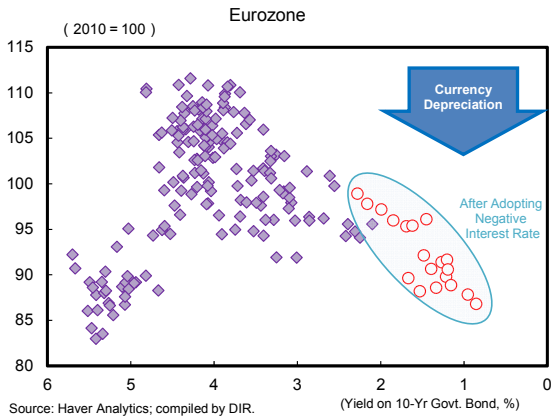
By introducing negative interest rates the central banks of European countries brought downward pressure on long-term interest rates. This causes the points on the chart to shift from the left to the right. At the same time, real effective exchange rates of the Euro and local currencies such as the Swedish Krona and the Danish Krone declined in value. This causes the points to shift from top to bottom. After adopting negative interest rates, the interest differential with other currencies widened, leading to depreciation of the currencies of the countries used as examples here. Since Euro-Peg requires a limit on the range the Danish Krone is allowed to fluctuate in relation to the Euro, that currency naturally moves in tandem with the Euro's real effective exchange rate.

In the case of the Swiss Franc, however, its real effective exchange rate rose. The Swiss Franc was also pegged to the Euro until January 2015, but when a negative interest rate was introduced in December of 2014, the Swiss Franc was valuated lower than its actual strength. For this reason the Swiss National Bank unpegged the Swiss Franc in January of 2015, causing its value to soar way above that of the Euro. This is thought to be the main cause of the rise in the Swiss Franc's real effective exchange rate despite the adoption of negative interest rates by the central bank.

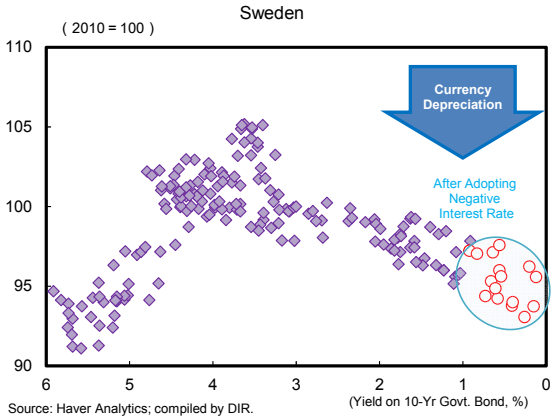
Lastly, we touch upon how the introduction of negative interest rates has influenced the stock market. In Chart 10, the horizontal axis represents yield on the 10-year government bond in various European countries, and the vertical axis shows the major stock indices in those countries. Looking at the chart we can clearly see that stock price indices rose at the same time yield on the 10-year government bond fell due to the introduction of negative interest. Since the stock market tends to easily react to news of world events, the adoption of a negative interest rate is of course a factor which triggers buying. Hence the same reaction naturally occurred regardless of the country or region.

Examining various factors in Europe shows us that the financial markets become more active as a result of the introduction of negative interest rates, while the same reaction can be observed in the case of exchange rates. In other words, a weak currency / strong stock market situation occurred.

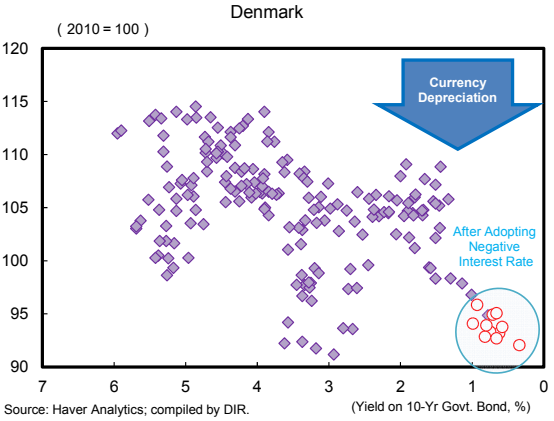
Yield on 10-Yr Govt Bond and Real Effective Exchange Rate in Various Countries and Regions Chart 9



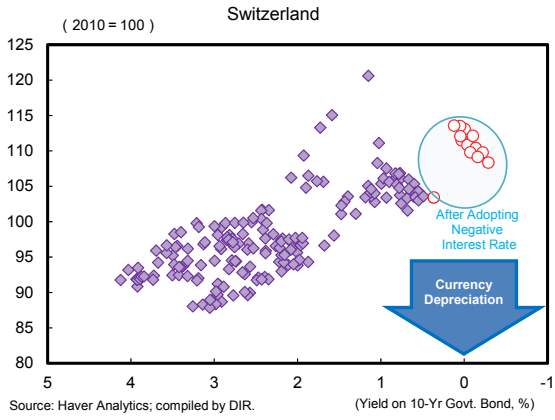
Source: Haver Analytics; compiled by DIR.



Source: Haver Analytics; compiled by DIR.

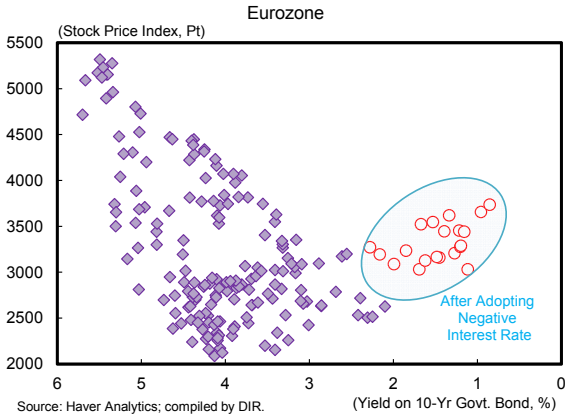


Source: Haver Analytics; compiled by DIR.

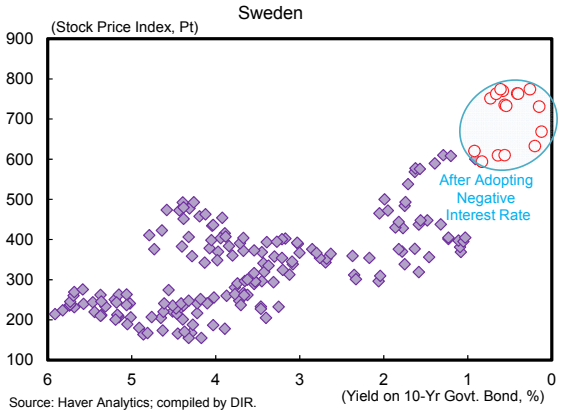


Source: Haver Analytics; compiled by DIR.

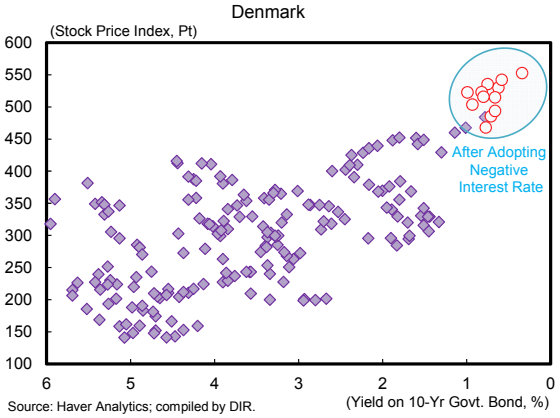
Yield on 10-Yr Govt Bond and Stock Price Index in Various Countries and Regions (y/y) Chart 10



Source: Haver Analytics; compiled by DIR.



Source: Haver Analytics; compiled by DIR.



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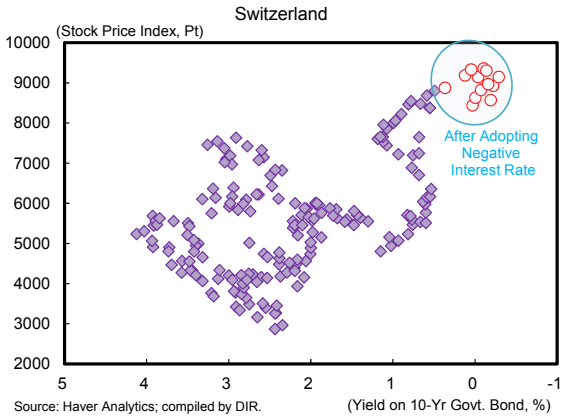


Source: Haver Analytics; compiled by DIR.

2.1.3 Insurance and Pensions Buy Bonds on Low Interest, While Non-Financial Corporations and Households Become Aggressive Buyers of Stocks

As was demonstrated in the previous section, the stock markets in the European countries became active as a result of adopting negative interest rates. Now we would like to know which types of investors became most active. In this section we take a closer look at the four largest stock markets in the Eurozone with especially high liquidity and located in countries where negative interest rates were adopted (see Chart 11) and perform an analysis of trends in capital flow by major investor in this market known for its great scale and high liquidity.

First we put forward our conclusion – that financial institutions and individuals in Europe decreased their investments in bonds, while insurance and pension funds continued to invest in bonds, becoming the main receptacle for this aspect of the financial market. On the other hand, non-financial corporations and households became more active in stock investments, and this appears to be the major factor in the growth in European stock prices.

In examining the flow of capital into stocks and bonds by major investor category, first we look at the trends in investment activity of financial institutions. Until the financial crisis of 2008, triggering the global financial crisis, financial institutions were aggressive in bond purchases, but after that point they began to cut back on bond investment. Regulatory requirements were strengthened after the crisis, but then the bond crisis hit in Europe. As a result, financial institutions in Europe, for the most part banks, could no longer carry out aggressive investments in bonds. Then interest rates declined after the middle of 2011, reducing the risk-taking capability of banks. Since then, banks have not been aggressive investors in bonds.

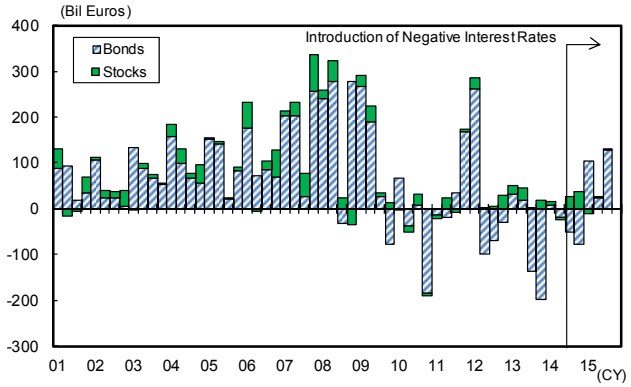
On the other hand, insurance and pension funds continue to purchase bonds. These major institutional investors tend to focus on long-term, safe investments, and it is difficult to detect any change in their investment behavior around the time that European interest rates declined. In the case of the household sector, there has been a flow of capital out of bonds and into stocks since the decline of yield on bonds, leaving insurance and pension funds as the main investors in bonds.

The chart indicates that non-financial corporations have also become more aggressive in stock investments since the introduction of negative interest rates. However, considering the fact that capital investment has not grown much in the Eurozone, it appears that this type of investor behavior on the part of non-financial corporations actually means that business is not very confident about economic recovery in the Eurozone. This is thought to indicate that corporations are holding back on capex which would contribute to future growth, and instead shifting their focus to stock investments for M&A and other purposes.

Meanwhile, households have changed their investment stance little since the introduction of negative interest rates. The shift in the weight of investments to stocks continues to grow. Bonds have become less attractive as yield declines along with interest income, and stock prices continue to rally in response to negative interest rates and monetary easing.

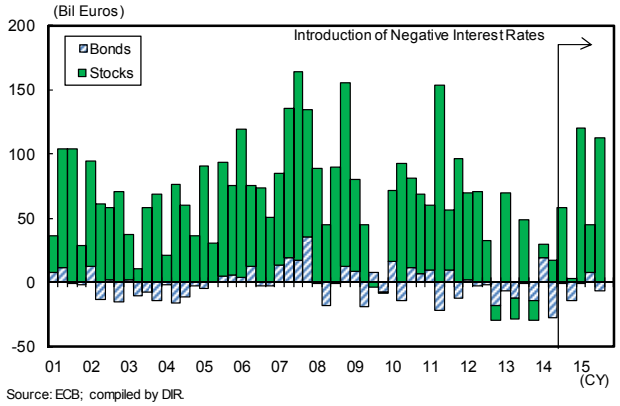
Major Eurozone Investors Capital Flow from Bonds to Stocks — Chart 11

Financial Institutions



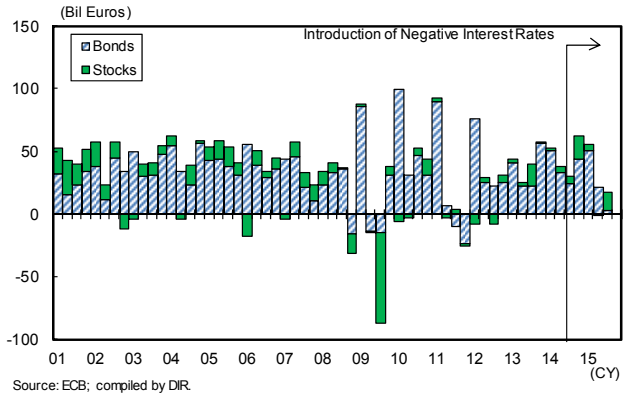
Source: ECB; compiled by DIR.

Non-Financial Corporations



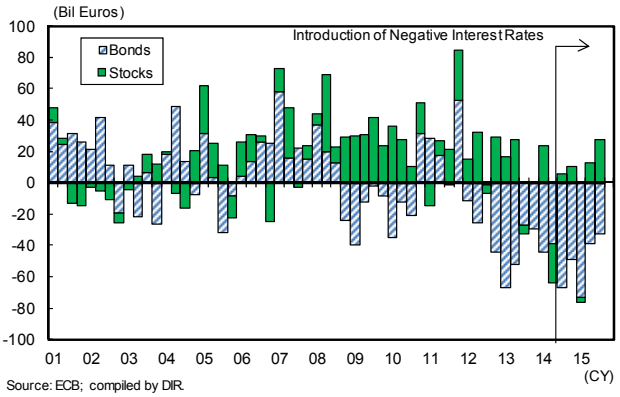
Source: ECB; compiled by DIR.

Insurance & Pension Funds



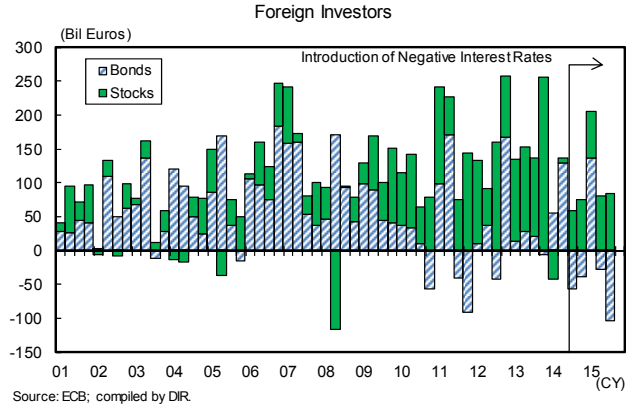
Source: ECB; compiled by DIR.

Households



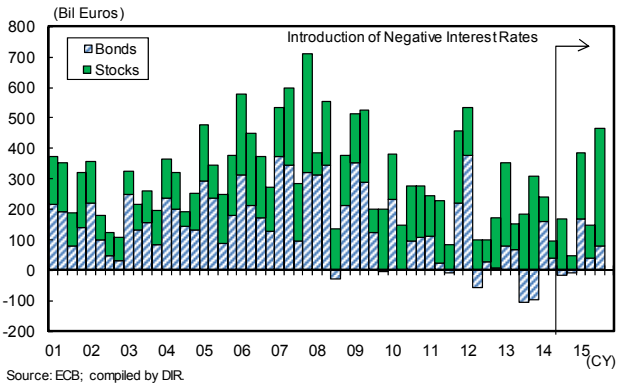
Source: ECB; compiled by DIR.

Foreign Investors



Source: ECB; compiled by DIR.

Total



Source: ECB; compiled by DIR.

2.1.4 Quantitative Analysis of Effects of Negative Interest Rates on Europe's Economy

In this section we perform a quantitative analysis of the effects of changes in the capital markets (fluctuations in long-term interest rates, exchange rates, and stock prices) as a result of having introduced negative interest rates on the real economies of countries in which central banks have introduced such measures. Chart 12 shows the effects of changes in the capital markets on the real economy and CPI over a nine-month period after having introduced negative interest rates.

Growth in consumption due to the asset effect, and growth in exports due to currency depreciation contributed to an increase in the Eurozone's GDP

As for the effect on real GDP, we take the total of (1) change in personal consumption due to fluctuations in stock prices, and (2) change in exports and imports due to change in nominal exchange rates, and estimate the extent to which real GDP was increased by these factors.

According to the results of our calculations, personal consumption had the largest effect on raising the GDP in the Eurozone. Since the introduction of negative interest rates in June 2014 coupled with the implementation of quantitative monetary easing in March of 2015, stock prices rose, resulting in the occurrence of the asset effect, which triggered growth in personal consumption. This sequence of events helped to raise the GDP. On the other hand, stock prices tumbled in Sweden despite the high ratio of individual assets in stocks. Hence, Sweden had a reverse asset effect when compared to the Eurozone, and personal consumption declined, forcing GDP figures downward.

Meanwhile, nominal exchange rates fell, helping exports to grow and consequently pushing up GDP figures especially in the Eurozone and Denmark. At the same time, imports decline in these countries due to the decline in nominal exchange rates, pushing GDP figures up even more. In the case of Switzerland, the unlimited intervention policy originally implemented to keep the weak Euro / strong Swiss Franc situation under control was discontinued in January of 2015. This was because contribution of exports to real GDP had gone way into the negative numbers as a result of the growing nominal effective exchange rate of the Swiss Franc.

In the Eurozone and Denmark, which benefited from stock price highs and currency depreciation, real GDP grew during the nine-months after the introduction of negative interest rates. But in Sweden and Switzerland, the reverse effect was seen in the capital markets, and this produced a negative contribution to real GDP.

Improvement of the GDP gap had the effect of pushing up CPI figures

Next we consider the influence of negative interest rates on CPI.

In order to examine the effect on CPI we first estimated the Phillips curve, and then we estimated the extent to which the CPI was raised due to the improvement of the supply-demand gap as a result of the GDP being raised as was calculated in the previous section. This is the effect on CPI produced by the improvement of the GDP gap.

Looking at the results of our estimates, it is immediately recognizable that the CPI was pushed significantly upwards in the Eurozone. Since the GDP grew much more in comparison to other countries, the extent to which the negative GDP gap was lessened became a factor contributing to CPI being raised significantly. On the other hand, Switzerland, which did not see much of an effect of raising the GDP, experienced a widening of the GDP gap instead, and this contributed negatively to CPI.

Effects of Negative Interest Rates on Changes in the Financial Markets, the Real Economy, and CPI Nine-Months After their Introduction **Chart 12**

			Eurozone	Sweden	Denmark	Switzerland
Changes in Financial Markets	Long-Term Interest Rates	(%pt)	▲1.06	+0.04	▲0.23	▲0.45
	Exchange Rates (Note 1)	(%)	▲10.05	+1.70	▲2.85	+8.11
	Stock Prices	(%)	+14.53	▲9.16	+23.89	▲5.23
Effects on Real Economy	Personal Consumption	(%)	+0.20	▲0.58	+0.04	▲0.02
	Exports (Note 2)	(%)	+1.76	–	+0.48	▲0.97
	Imports	(%)	▲1.69	+0.04	▲1.13	+0.05
	Real GDP	**(%)**	**+2.19**	**▲0.04**	**+1.42**	**▲0.24**
Effect of Improved GDP Gap on CPI		(%pt)	+0.59	▲0.01	+0.08	▲0.09

Source: Bloomberg, Haver Analytics, OECD; compiled by DIR.
Notes: 1) Nominal effective exchange rate used for exchange rates. Negative numbers (black triangle) represent currency depreciation.
2) Effects which would normally be found could not be detected in Swedish exports. Therefore, we calculated the effects assuming zero influence on GDP.

2.1.5 For the Time Being, Japan Has Little Hope of Seeing the Ripple Effect of the Financial Markets Experienced in Europe

In this section we summarize the implications of Europe's experience of the effects of negative interest rates.

The introduction of negative interest rates has not led to growth in lending, nor has an immediate impact on improving the real economy been observed. However, when we take a look at real effective exchange rates, we see that currency depreciation occurred in countries where a negative interest rate was adopted, as well as growth in stock prices. We found that there was a certain impact on the financial markets overall. This positive effect on the financial markets indirectly benefitted real economies by encouraging growth in personal consumption arising from growth in exports and the asset effect.

In Japan there has been a generally positive reaction to the BOJ's introduction of a negative interest rate, along with indications that it is not against further possible interest rate cuts in the future. The financial markets also reacted positively immediately after the announcement, with the yen falling against the dollar and TOPIX hitting a major high. No doubts there were hopes at the time the rate was first introduced that like Europe, there would be a continuation of the weak yen and high stock price situation, followed by an increase in exports and the asset effect, which would lead to growth in personal consumption producing great benefits for the real economy. However, after the introduction of a negative interest rate in Japan, uncertainty began to grow in regard to the future of the world economy, and did so at just the wrong time. There was a sell-off of risk assets and yen appreciation ensued. The stock market reacted with a lack of enthusiasm. At this point it would be difficult to hope for an indirect effect of pushing up the real GDP through activity on the financial markets as was seen in Europe.

2.2 Quantitative Analysis of Effects of Negative Interest Rate on Japan's Economy

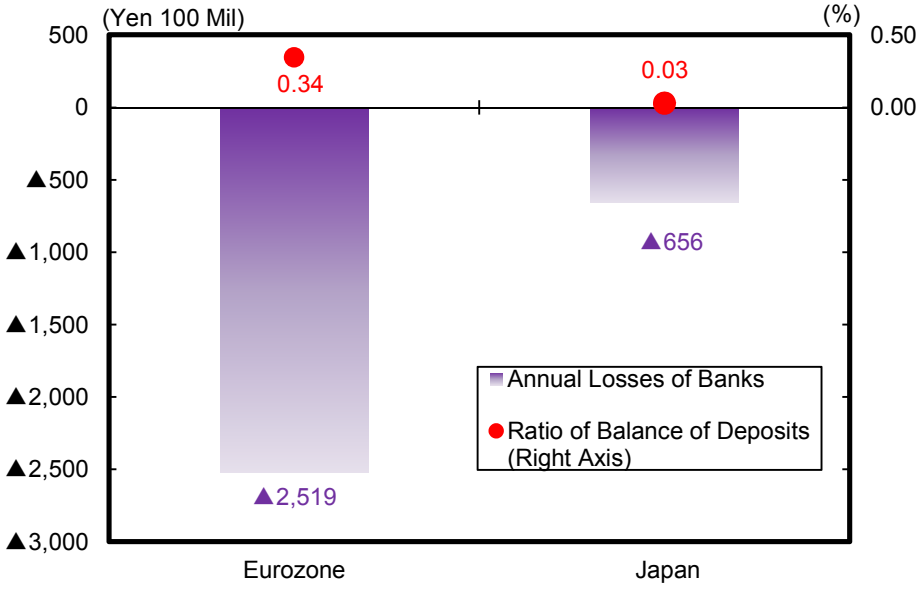
2.2.1 Japan's Banks Carry Fewer Losses than Banks in Europe

Though there is some fear associated with this prospect, one of the effects of the introduction of a negative interest rate on Japan's economy is the negative effect on business performance in the banking sector. In the past, the Bank of Japan's current account offered 0.1% interest, so private sector banks could deposit funds with the BOJ and increase their earnings risk-free. But now a negative interest rate will be applied to some of the BOJ accounts, meaning that there is risk to account holders of generating a loss. Chart 13 shows the results of estimates of annual losses which banks in the Eurozone and Japan could suffer due to the application of negative interest rates on current accounts.

In the Eurozone, interest on the central bank's current account is -0.3%. This is the single policy interest rate against excess reserve deposits, an amount obtained by subtracting legal reserves from the current accounts of private sector financial institutions. Annual losses held by European banks (calculation based on balances held as of January 2016) total 251.9 bil yen. This is the equivalent of 0.34% against current account balances.

Next we calculate the amount in losses held by banks in Japan. According to the Bank of Japan, the basic balance of accounts with interest of +0.1% as of January 2016 totaled 188 tril yen (average balance of reserve deposits during maintenance period, bank's portion). The balance according to macro addition with 0% interest applied comes to 23 tril yen. When interest of -0.1% is applied, the policy interest rate balance comes to approximately 21 tril yen. Basing our calculations on these figures, the amount in losses in comparison to before Japan's banks introduced a negative interest rate due to the recent policy change come to 65.6 bil yen on an annual basis. This is no more than 0.03% of current account balance – minimal impact in comparison to losses generated by Eurozone banks.

Estimated Annual Losses Suffered by Banks with Deposits in Central Bank Current Accounts Applying a Negative Interest Rate **Chart 13**



Source: Haver Analytics, ECB, Bank of Japan; compiled by DIR.

2.2.2 Effects of Negative Interest Rate on Private Sector are Generally Positive

Chart 14 shows the results of our calculations of the effects of the negative interest rate on Japan's private sector. We use three major private sector categories here – Financial Institutions, Corporations, and Households. Our conclusion is that the introduction of a negative interest rate benefits all three private sector categories.

Our calculations make use of three hypothetical cases. Case (1) assumes the continuation of recent yield on the 10-year government bond (0.08% as of 2/12). Case (2) assumes a decline in the long-term interest rate, with yield on the 10-year government bond at 0%. Case (3) assumes a decline in yield on the 10-year government bond to -0.1%. In our calculations of the effects of negative interest in terms of amount we measured the value of elasticity against yield on the 10-year government bond in each of these cases. For current accounts of corporations we used the large deposit interest rate, and for households we used interest on regular bank accounts. For interest on loans, we used the standard lending rate for loans to corporations and for housing loans we used the standard interest rate applied by the Japan Housing Finance Agency. Meanwhile, for financial institution gains on sale of government bonds to BOJ, we assumed that 90% of the BOJ 80 tril yen annual increase in monetary base or the equivalent of 72 tril yen in 10-year government bonds will be sold by financial institutions. We then calculated the price of government bonds using the yields for each of the above cases. It should be noted that since housing loans held by households include loans with public financial institutions, the total amount of decline in interest on loans from financial institutions and interest on housing loans does not match the total amount of decline in interest on the lending rate and housing loans to corporations and households.

As has been pointed out, financial institutions will suffer a decline in interest income from BOJ current accounts totaling 65.6 bil yen due to the change in monetary policy. This becomes a negative factor. In addition, business performance will likely be affected by the decline in interest on loans to corporations and housing loans to individuals. On the other hand, the decline in interest on deposits means that financial institutions will benefit from the resulting decline in the cost to procure capital, and with the expected increase of prices on government bonds, profit on sale of government bonds sold to BOJ is also expected to grow. As a result, the beneficial effects for financial institutions in general is expected to be anywhere from 650 bil yen to a little over 1.5 tril yen.

In the case of corporations, interest on loans from financial institutions will decline, so the decrease in interest expenses will be a factor in earnings growth. The decline in interest on bank accounts is a negative factor for financial institutions, but in the case of corporations, the amount in loans is significantly larger than amounts in bank accounts. Meanwhile, there is still plenty of room for further interest rate cuts. The result we obtained from our calculations suggests that the beneficial effect of negative interest could be anywhere between 110 bil yen and 260 bil yen.

Finally, we take a look at the influence expected to be felt by households. As in the case of corporations, households will experience a decline in interest income due to falling interest rates on bank accounts, so this becomes a negative factor. But since interest on regular accounts was already at 0%, interest income of households will not change all that much. Meanwhile, interest will decline on housing loans, especially those with a variable rate, and this will be a major benefit for households. As a result, interest burden carried by households will decrease bringing them expected benefits totaling from a little over 200 bil yen to a little under 490 bil yen.

Effects of Negative Interest on Financial Institutions, Corporations, and Households — Chart 14

	Financial Institutions	Corporations	Households
Estimated Annual Losses of Financial Institutions from Deposits in Central Bank with Negative Interest Rate (Y100 Mil)			
	▲656	-	-
Bank Gains on Sale of Government Bonds to BOJ (Y100 Mil)			
Case ①	10,039	-	-
Case ②	15,714	-	-
Case ③	22,807	-	-
Decline in Interest on Savings (Y100 Mil)			
Case ①	1,136	▲741	▲395
Case ②	1,765	▲1,193	▲572
Case ③	2,355	▲1,641	▲715
Decline in Lending Rate and Interest on Housing Loans (Y100 Mil)			
Case ①	▲3,997	1,856	2,425
Case ②	▲6,264	2,916	3,791
Case ③	▲9,166	4,241	5,577
Overall Effect (Y100 Mil)			
Case ①	6,523	1,114	2,030
Case ②	10,559	1,723	3,219
Case ③	15,340	2,601	4,862

Assumptions:

Bank Gains on Sale of Government Bonds to BOJ calculated with reference to price of 10-year govt. bond (as of 1/28) and changes in price since then.

Case ①: Uses most recent yield on 10-year govt. bond (+0.08% as of 2/12)
Interest on Savings Corporations -0.05%, Households -0.01%
Lending Rate -0.07%
Interest on Housing Loans: Variable Interest -0.23%, Variable and Fixed Combination -0.10%

Case ②: Assuming yield on 10-year govt. bond declines to 0%
Interest on Savings Corporations -0.08%, Households -0.016%
Lending Rate -0.11%
Interest on Housing Loans: Variable Interest -0.36%, Variable and Fixed Combination -0.16%

Case ③: Assuming yield on 10-year govt. bond declines to -0.1%
Interest on Savings Corporations -0.11%, Households -0.02% (Zero Interest) Lending Rate -0.16%
Lending Rate -0.16%
Interest on Housing Loans: Variable Interest -0.53%, Variable and Fixed Combination -0.23%

Source: Bank of Japan; compiled by DIR.

3. Can a Worldwide Recession be Avoided?

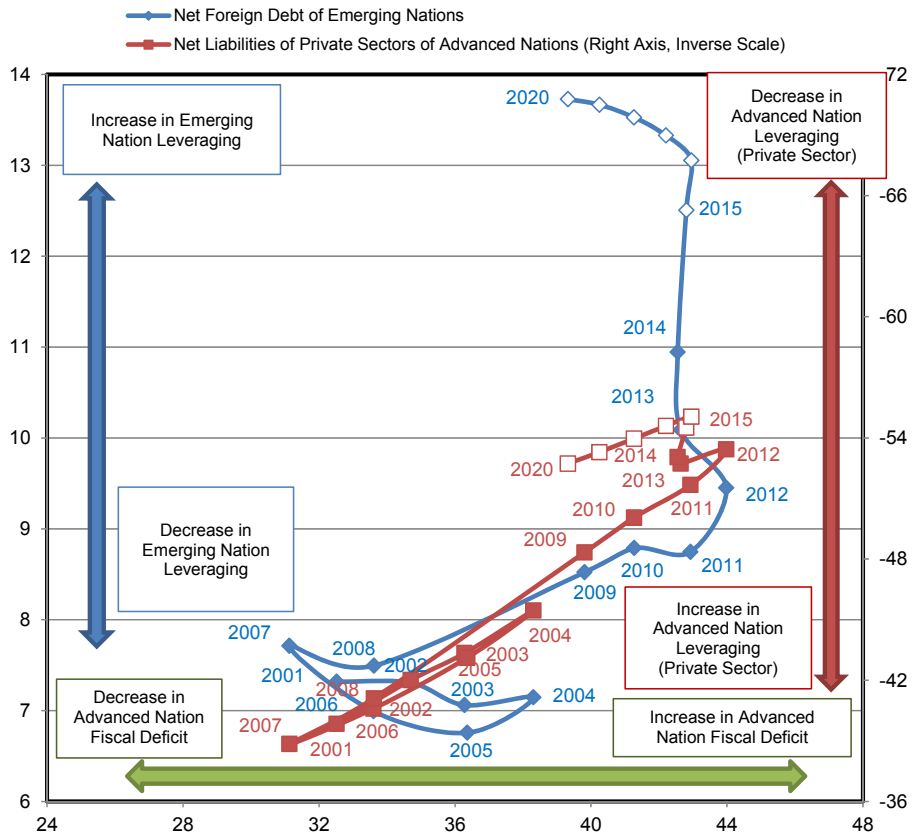
3.1 G7 Summit Japan: The Importance of International Cooperation for Economic Growth

Was fiscal and monetary restraint in the advanced nations premature?

As is indicated in the turmoil in the global financial markets, there is a growing sense that the worldwide economy is moving toward stagnation. Until recently, the trend in the world economy seemed to be a structure in which a favorable US economy would generate demand and then Europe would follow, reaping the benefits of a weak Euro. However, fears of a US economic slowdown began to grow toward the end of last year, and it seemed that the world economy would no longer depend on US strength to pull them along. This is the root of the growing sense of world stagnation.

What will it take for the world economy to recover and return to growth? In this chapter we examine this question in hopes of gaining some answers. Chart 15 is our attempt to get a handle on the structural nature of the current situation. We breakdown the world economy into three major categories – Governments of Advanced Nations, Private Sectors of Advanced Nations, and Emerging Nations. The right axis of the chart represents Net Liabilities of Advanced Nations (Private Sector) / World GDP (%) Inverse Scale, while the horizontal axis represents Net Liabilities of Advanced Nations (Government) / World GDP (%), with the left axis representing Net Liabilities of Emerging Nations / World GDP (%).

Current State of World Economy: Advanced Nations (Govt./Pvt. Sector) and Leveraging of Emerging Nation Debt **Chart 15**



Source: IMF; compiled by DIR.
Notes: 1) All indices are a proportion of world GDP (%). Figures after the year 2015 are IMF estimates (see white squares).
2) The right axis represents Net Liabilities of Advanced Nations (Private Sector) / World GDP (%) Inverse Scale, while the horizontal axis represents Net Liabilities of Advanced Nations (Government) / World GDP (%), with the left axis representing Net Liabilities of Emerging Nations / World GDP (%).

Using the chart we take a look back at major cycles in the world economy. First we follow the steps through one large economic cycle: (1) The economy worsens in the private sectors of advanced nations (the focus shifts to the top of the right axis), then (2) Governments of advanced nations shoulder the burden (producing a shift to the right side of the horizontal axis), and capital inflow is encouraged by monetary easing measures. This stimulates demand in the emerging nations (a shift to the top of the left axis). As a result, (3) Private sectors of advanced nations recover to a sufficient degree (shift to the lower end of the right axis), and inflation is gradually generated (in some extreme cases an economic bubble occurs). Then the advanced nations move into an adjustment phase and we're back at step (1), the top of the right axis.

The world economy has made its way through long-term cycles like this one any number of times until reaching the present situation. Here it becomes clear that the current sense of stagnation in the world economy has its origin in fiscal and monetary restraint policies of the advanced nations despite the fact that at the time these policies were initiated, private sector demand was gradually recovering in those countries. Then the emerging nations came in to fill the gap in demand. However, as will be explained in more detail in a later section, it is difficult to expect that the emerging nations can produce any more demand than they already have in the midst of capital outflows triggered by the US raising its interest rate. As is shown in Chart 15 (see the white squares after the year 2015), the IMF has announced publicly that emerging nation leveraging will support world demand in the future. However, we believe that this is an overly optimistic outlook.

Issues requiring attention at the G7 summit in Ise-Shima, Japan

The key to stopping the declines in the world economy and financial markets is international policy coordination between the advanced nations, China, and so on, which now brings the upcoming G7 summit in Japan into focus. With the economies of the emerging nations and resource-rich countries in a continuing slowdown, the world must leave behind its dependence on the emerging nations to drive economic growth, and instead, the advanced nations need to step up to the plate and take up the role of leading world economic growth. Meanwhile, though the advanced nations are left with limited room to move in the area of monetary policy, there is still some leeway for aggressive policy actions, while China should initiate practical means of avoiding further depreciation of the renminbi by adopting capital regulations.

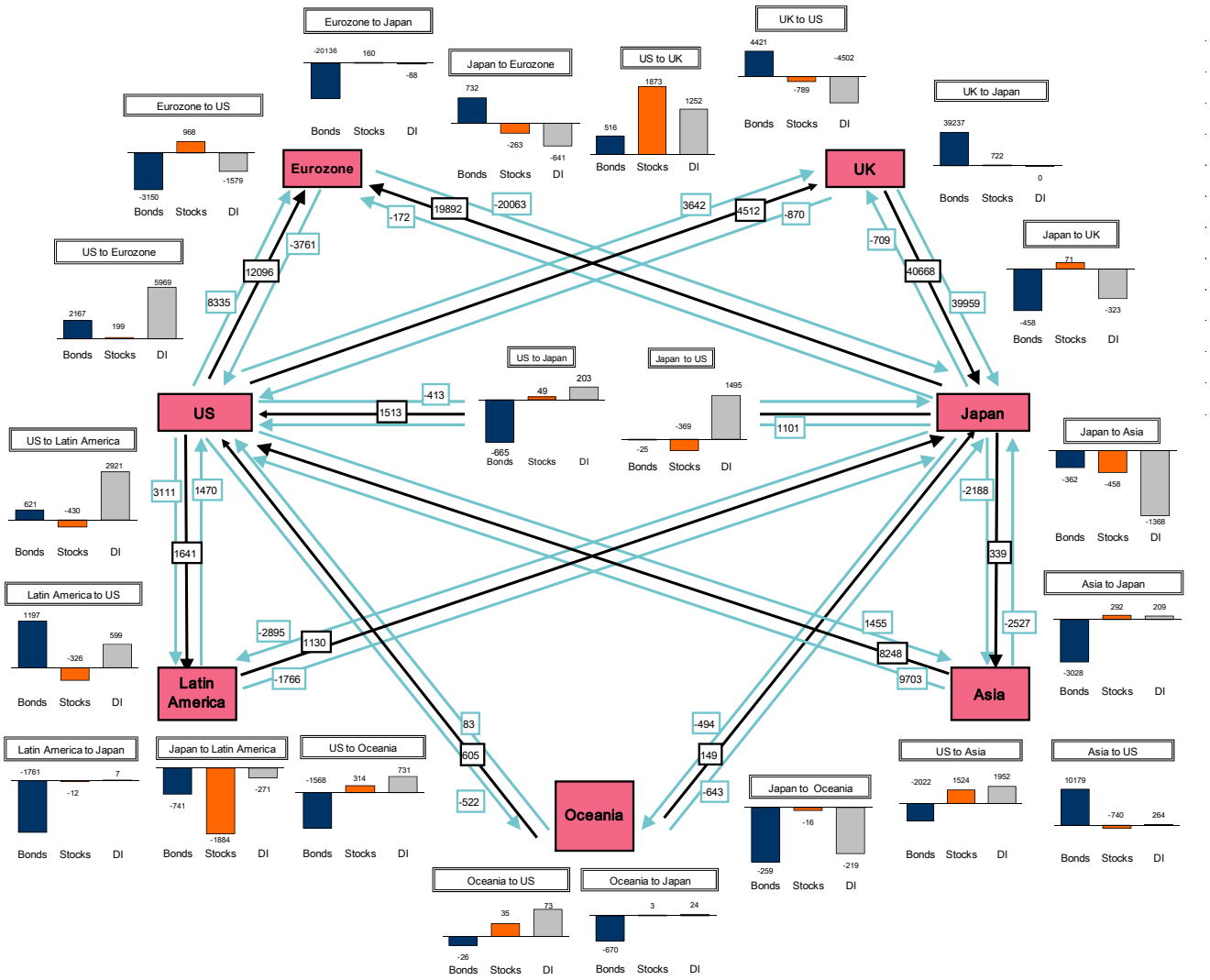
The cornerstone of international policy coordination is the implementation of proactive fiscal policies as well as curbing overly quick monetary restraint. The increase of US long-term interest due to the raising of policy interest has not only caused the US economy to slow down, it also has the effect of causing interest rates in other countries to grow due to international interest arbitrage terms. Chart 16 illustrates the flow of worldwide investment capital. The US procures capital from outside the country in the form of selling bonds, and then supplies capital to the rest of the world in the form of equity. In other words, international credit creation takes place with the US as its axis. When US interest rates rise within the context of this international credit creation structure, the desired rate of return on investment capital which the US invests in the rest of the world increases, and interest rates go up all over the world. As a result, fear begins to rise that this will begin to push down the world economy.

The strong dollar which accompanies the increase in interest rates primarily affects the distribution of income through changes in export competitiveness. In other words, it is simply a spillover effect of demand shifting from the US to overseas. For countries which tend to procure capital in dollars, mainly the emerging nations, this is a negative factor. Emerging nations which have pegged their own currency to the dollar may be forced to raise their interest rates as a means of protecting their currency. In the worst case scenario, some countries could be forced to use up all of their foreign currency reserves triggering a currency crisis. Looking back into history shows us that this has occurred before.

World economic model

Based on the above considerations, we built a world economic model for this outlook (See Chart 17) The area marked (1) in the chart indicates what might occur if the US raises its interest rate too quickly. This could actually cause a slowdown in the world economy. On the other hand, the section of the chart marked (2) indicates that if the Fed raises rates at a pace which is neutral to the economy, negative effects on Japan's economy would be limited.

Global Money Flow (2014) **Chart 16**



Source: US Dept. of Treasury, US Dept. of Commerce, Ministry of Finance; compiled by DIR.
Note: Unit: 100 mil dlrs, annualized rate. Data for Eurozone to Japan includes EU (25 countries) and UK. Asia does not include Japan. Latin America includes the Caribbean. Data for US-Oceania includes only Australia.

Simulation Results Using World Economic Model **Chart 17**

		US Interest Rate Hikes + EU Quantitative Easing			US Interest Rate Hikes at Neutral Pace + EU Quantitative Easing
			US Interest Rate Hikes	EU Quantitative Easing	
US	2015	0.01%	0.00%	0.02%	0.00%
	2016	-0.09%	-0.14%	0.09%	0.00%
	2017	-0.27%	-0.34%	0.13%	0.00%
EU	2015	0.02%	0.00%	0.04%	0.01%
	2016	-0.06%	-0.15%	0.14%	0.02%
	2017	-0.25%	-0.39%	0.20%	-0.01%
Emerging Nations	2015	0.01%	0.00%	0.02%	0.00%
	2016	-0.08%	-0.12%	0.09%	-0.01%
	2017	-0.24%	-0.31%	0.12%	-0.05%
World	2015	0.01%	0.00%	0.03%	0.00%
	2016	① -0.08%	-0.13%	0.10%	② 0.00%
	2017	-0.25%	-0.34%	0.14%	-0.02%

Source: Compiled by DIR using the DIR world economic model.
Notes: 1) Cumulative rate of deviation from baseline.
2) Figures for the world are a total of the values of the US, EU, and the emerging nations (covers about 82% of world GDP).
3) The US interest rate hike case starts in the Oct-Dec period of 2015, and assumes increases in the 10-yr bond yield of 25bp at a time for 8 consecutive quarters.
4) The EU quantitative easing case starts in the Jan-Mar period of 2015 and assumes an expansion of the ECB balance sheet of 180 bil Euros at a time for 8 consecutive quarters.

3.2 Verifying the World Economic Model with Focus on the Fed

World economy shaky in response to the Fed's exit strategy

The Fed embarked on the raising of interest rates in December 2015, ahead of other major advanced nations. Behind the move was the favorable domestic economy, especially in the area of personal consumption, as well as an improved employment environment. The recent interest rate hike is a step in the direction of normalizing monetary policy for the Fed and is considered to be a sign of major progress. On the other hand, steps taken up to this point in the Fed's exit strategy have triggered fluctuations in the economies of the emerging nations, setting off turmoil in the global financial markets in turn. At this point in time, clouds are rapidly gathering on the horizon of the world economy. We recommend that people be wary of the storm up ahead.

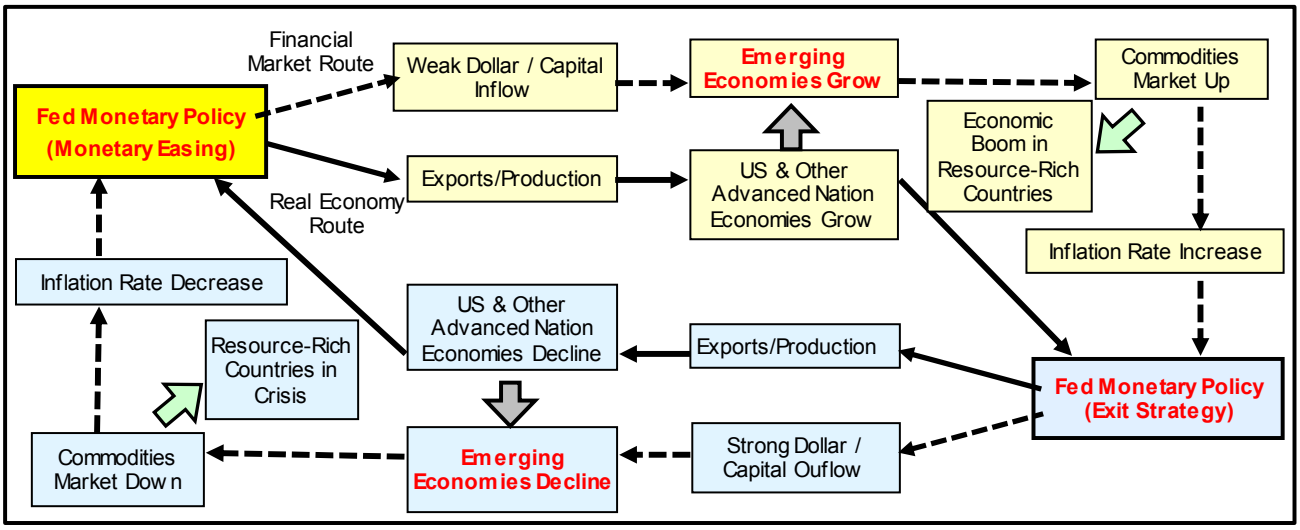
Looking back through history, we see that changes in the Fed's monetary policy have had a considerable influence on the global financial markets. A simplified illustration of this relationship is shown in Chart 18 which indicates how this has played out in the past in the form of an economic cycle. The most important aspects of this cycle are (1) The Financial Market Route, and (2) The Real Economy Route.

First we confirm the phase moving from the Fed's monetary easing up to its ultimate exit strategy from said policy. Moving along (1) The Financial Market Route, dollar depreciation progresses and the emerging nations experience capital inflow. This leads to the heating up of the emerging economies. Economic growth accelerates in the emerging nations leading to a stringent supply-demand situation. This intern triggers a rally in the international commodities market, which causes an increase in the inflation rate in countries around the world. Next, on (2) The Real Economy Route, dollar depreciation leads to an increase in exports and production expands, stimulating the US economy. This contributes positively to the economies of other advanced nations. This is later reflected in the real economy in the form of an improvement in the employment market. Then doubts arise in regard to rising inflation and the Fed embarks on an exit strategy from the initial monetary easing policy. The next phase, which

moves from the exit strategy to the next occurrence of monetary easing, is triggered by a mechanism which is the complete reverse of the one described above.

Of course, the relationship between the Fed's monetary policy and the world economy is much more complex than described here. What we have done is to take a picture of one particular aspect of the larger structure and pull that out so we can view it separately. In the chart below we have mapped out this worldwide economic cycle and based on this, attempt to identify exactly where the current world economy is located and in what kind of situation. Then we would like to consider what the future of the Fed's monetary policy might be.

World Economic Cycle with Focus on the Fed **Chart 18**



Source: Produced by DIR.

Strong dollar and capital outflow from emerging nations

In this section we confirm the current trend in capital outflow from emerging nations using the nominal effective dollar rate according to the OITP, which indicates the comprehensive dollar exchange rate in relation to emerging nation currencies.

Chart 19 shows the EMBI Global Spread, which indicates credit risk in the emerging nations, and the nominal effective dollar (OITP). The EMBI Global Spread indicates the difference between yield on government bonds in emerging nations and yield on US government bonds. When emerging nation credit risk rises or falls, and when yield on government bonds in emerging nations increases or decreases, the EMBI Global Spread widens or narrows.

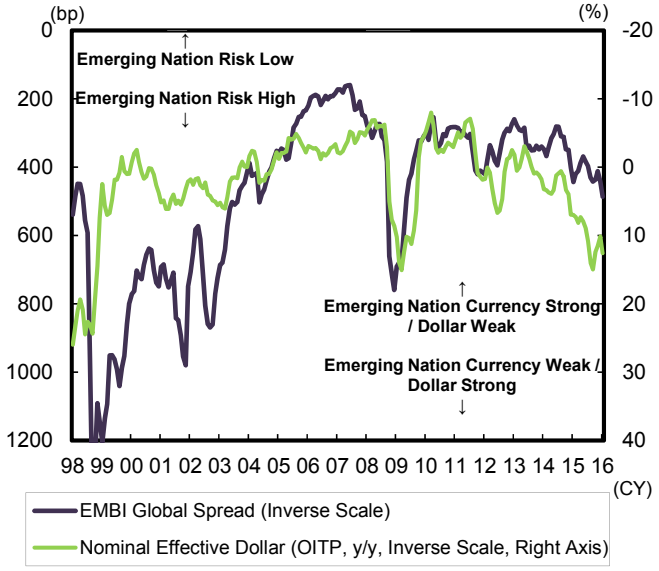
The EMBI Global Spread and the OITP index are in a mutual relationship in which they influence each other. The linkage between these two indices can be confirmed. The reason for this linkage is that when the Fed raises the interest rate, dollar assets become more attractive as an investment due to the improved rate of return. Global money flow then moves from the emerging nation currencies into dollars ultimately strengthening the dollar, while at the same time causing a rise in credit risk in the emerging nations now faced with capital outflow. When the cycle reaches this point the EMBI Global Spread widens. During times such as the global economic crisis of 2008, credit risk rises in the emerging nations even faster than it does in the advanced nations. This is reflected in the EMBI Global Spread widening, while capital outflow from emerging nations increases and there is an increasingly strong dollar.

Taking a look now at the nominal effective dollar (OITP) in recent years, we see that since around May of 2013, we entered a strong dollar phase (see Chart 20). Behind this was turmoil in the global

financial markets set off by the announcement of QE3 reduction by then FRB Chairman Bernanke in May of 2013 (also referred to as the "taper tantrum"). In October 2014 the Fed's exit strategy progressed further when the FOMC made the decision to reduce QE3 some more. During this same time the EMBI Global Spread widened and debt risk in emerging nations increased.

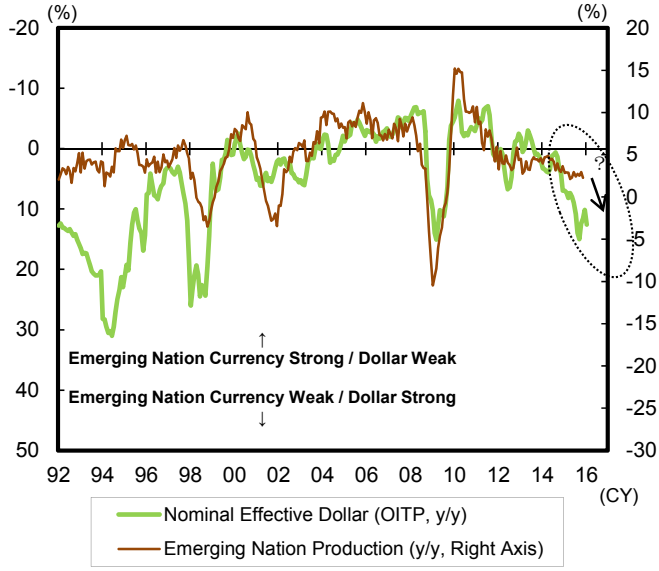
Important to note is that capital outflows from emerging nations depressed the real economies of those countries due to the holding down of investment and declines in production. When we show the nominal effective dollar (OITP) side-by-side with changes in production in the emerging nations, we can confirm the linkage between them. Just recently production in the emerging nations has been slowing down, and capital outflow from those countries is one of the factors that can be easily pointed to. If capital outflows from emerging nations are not stopped, this could quite possibly push the real economies in those countries further downward.

EMBI Global Spread and Nominal Effective Dollar (OITP) Chart 19



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

Nominal Effective Dollar (OITP) and Production in Emerging Nations Chart 20



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

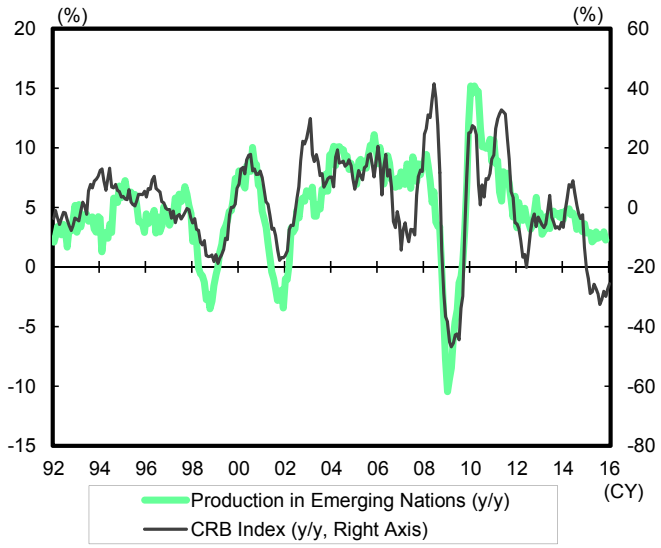
Slowdown in emerging economies encourages decline in natural resources and energy

The pace of growth in energy consumption and investment in infrastructure is higher in emerging nations than in the advanced nations. If the economies of the emerging nations worsen, worldwide demand for energy and materials for use in producing infrastructure will decline. As a result, the balance of global supply and demand for commodities will also deteriorate and cause a collapse of the international commodities market. Since the latter half of 2015, fears of a decline in demand due to the economic slowdown in the emerging nations, especially China, has become a major factor influencing the commodities market, and is encouraging a decline in natural resources and energy. The sense of uncertainty as regards the Chinese economy has increased rapidly since August of 2015 when authorities in that country devalued the renminbi, causing major waves in the international commodities market.

One can easily see the tendency towards long-term linkage between production in the emerging nations and the CRB index, the representative index of the international commodities market (see Chart 21). Currently, with production growth in the emerging nations slowing down, the CRB index has also experienced a major decline. It appears that the demand factor is working in the negative direction. Deviation between production in the emerging nations and the CRB index is due mainly to the collapse in the price of crude oil, which carries great weight in comparison to other commodities making up the composition of the CRB index. The price of crude oil is also heavily influenced by the

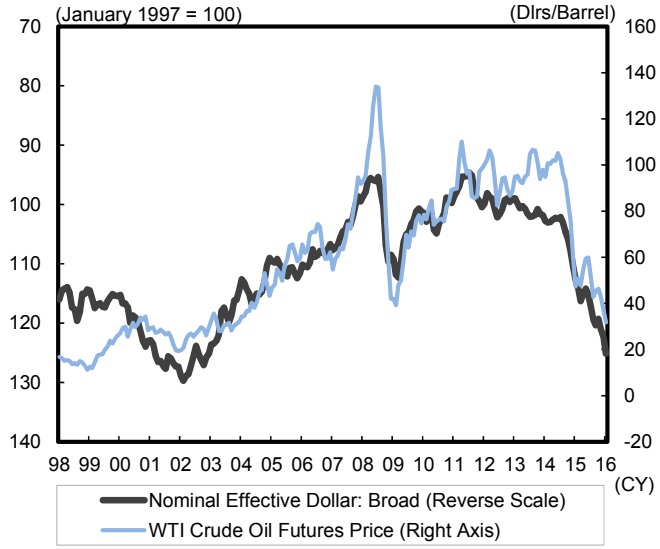
outflow of investment capital from the commodities market into dollar currency in association with the Fed's exit strategy, which has led to a stronger dollar, as well as the contraction of world liquidity (world dollars). (See Chart 22 and Chart 23)

Production in Emerging Nations and Price of Natural Resources **Chart 21**



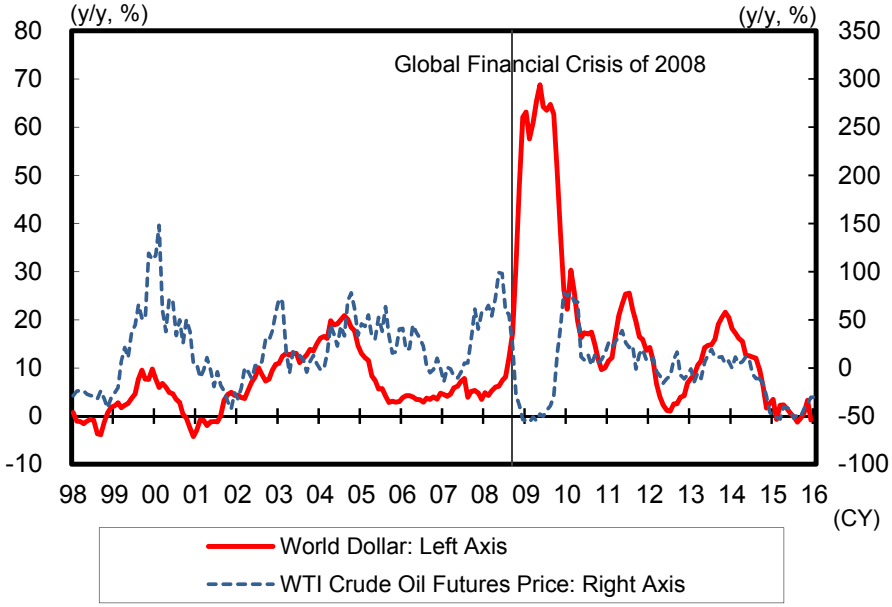
Source: Netherlands Bureau for Economic Policy Analysis, Haver Analytics; compiled by DIR.

Nominal Effective Dollar and WTI Crude Oil Futures Price **Chart 22**



Source: FRB, NYMEX, Haver Analytics; compiled by DIR.

Liquidity (World Dollars) and Price of Crude Oil **Chart 23**



Source: FRB, NYMEX, Haver Analytics; compiled by DIR.
Note: World dollars are US base money and US Treasury Securities held by overseas public institutions.

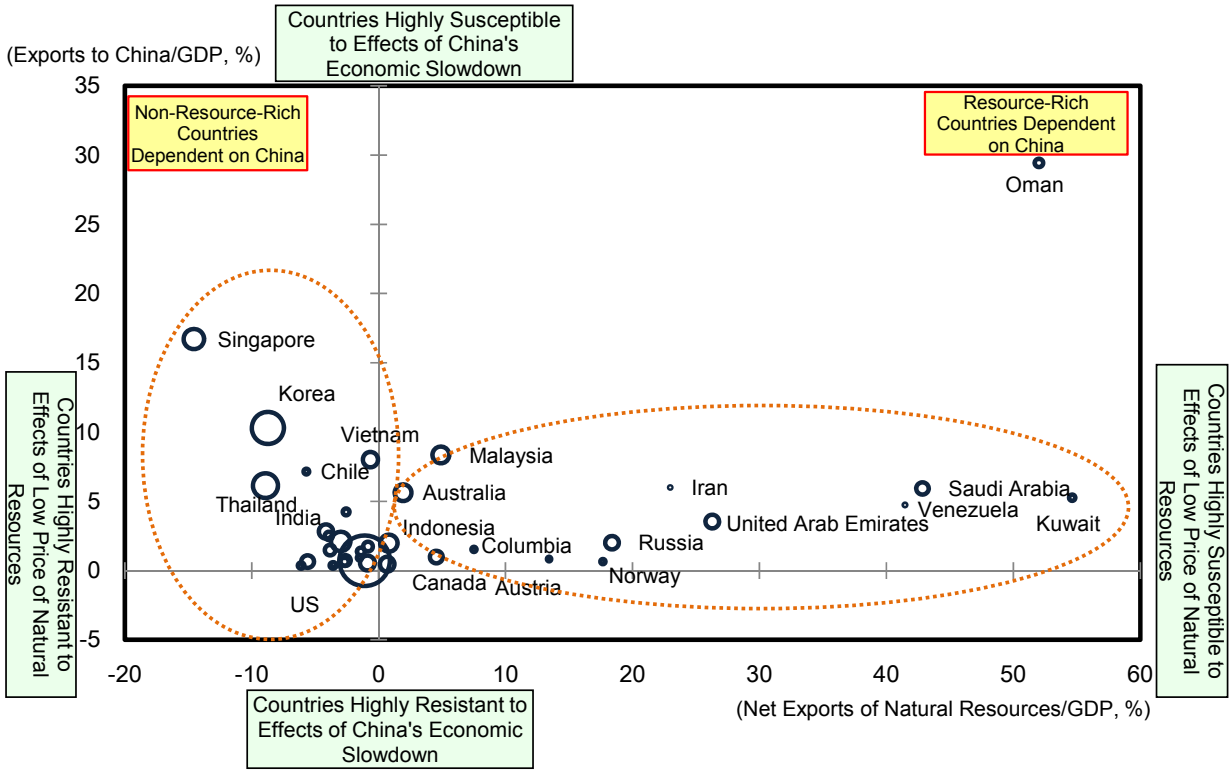
Countries most influenced by China's economic slowdown and collapse in price of natural resources

Until now our focus has been on the US and its centrality to the world economic cycle, and the slowdown in the economies of emerging nations, first and foremost amongst them China, as well as the sudden collapse of the international commodities market. Now we take a look at which countries expect to be most influenced by these two factors. In this section we look at Japan's major trading partners to see where they stand.

Chart 24 places major countries of the world into two categories: (1) China's Economy and (2) Price of Natural Resources. The horizontal axis represents the ratio of nominal GDP to net exports of mineral fuels such as crude oil. This acts as an index for measuring the degree of influence fluctuations in the price of natural resources and energy have on a country's domestic economy. Meanwhile, the vertical axis represents the ratio of nominal GDP to exports to China for each of the countries taken as samples in the chart. This indicates the degree of influence on the domestic economies of each of the sample countries that fluctuations in China's economy has through the decline of exports. The further to the right of the chart a country is positioned the more its dependence on net exports of natural resources. The domestic economies of these countries are easily pushed downwards by a falling international commodities market. Meanwhile, the higher on the chart a country is positioned the more its dependence on exports to China. These countries are highly susceptible to negative influence arising from China's economic slowdown. The sizes of the circles shown in the chart are in direct proportion to the amount that Japan exports to those countries.

Countries most influenced by the deterioration of the international commodities market are of course the resource-rich countries led by the Middle Eastern countries. These countries are all represented by smaller circles in the chart. In other words, they are not major trading partners of Japan where Japan sends the most exports. On the other hand, there are many countries in Asia greatly influenced by China's economic slowdown, and amongst them are included some countries which are also important as destinations for Japan's exports. Here again, you see by the size of the circles how major of a trade partner to Japan these countries are. One of the things Japan has to watch out for considering the current state of the world economy is the possibility of its real economy being affected via its exports to certain areas. In other words, Japan should limit its exposure to these situations. There is of course more danger associated with China's economic slowdown than there is with the collapse of the price of crude oil. Additionally, we would like to shift our attention to the US economy where approximately 70% of GDP is accounted for by personal consumption. The US is in a more or less neutral position to both problems associated with the price of natural resources and China's economic problems. It is not an overstatement to say that the question of where the world economy is headed in the future depends on how the US economy fares.

Countries of the World Most Susceptible to China's Economic Slowdown and the Collapse in the Price of Natural Resources **Chart 24**



Source: IMF, The United Nations, and the Ministry of Finance; compiled by DIR.
Notes: 1) Net exports of natural resources from Saudi Arabia and Venezuela make use of figures from 2013, while figures for Iran are from 2011. All others use figures from the year 2014.
2) The sizes of circles in the chart are directly proportional to the amount of exports Japan ships to those countries.

Conditions under which the Fed should consider a pause in rate hikes

In this section we probe more deeply into the current phase in the world economic cycle by way of examining the trend in the US economy. First, we take a look at the US ISM Business Confidence Index and changes in the FF rate as shown in Chart 25. The ISM Business Confidence Index provides a highly accurate means of looking into the future of the US economy. It is also an important index in predicting what future US monetary policy might be. The US went through three phases during the latter part of the 1990s in which it cut interest rates. We can see by the chart that the Fed made the decision to cut interest rates during these times when both the manufacturing and the non-manufacturing industries had worsened significantly. Taking a look at the current situation we see that now also both the manufacturing and the non-manufacturing industries are in a declining trend. We are actually in a phase similar to those in the past when interest rates have been cut.

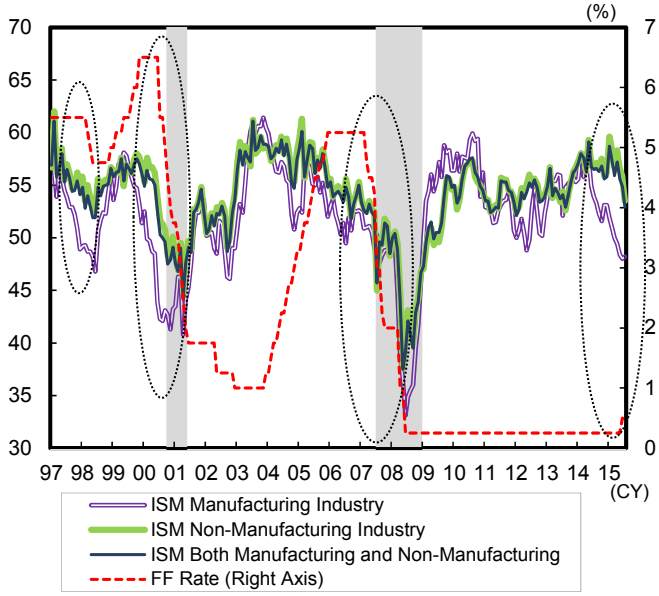
In examining the US business cycle we see that it is now in a maturation process. Let us consider the future of the FF rate in light of this fact. When US economic growth approaches maturation and heads toward the end point of its business cycle, growth in household expenditure (including personal consumption and housing investment) slows down. Then corporate sector expenditure (such as capex) rapidly deteriorates, leading the economy into a recession phase. These cycles are repeated over and over again. (See Chart 26) There is a relationship between the business cycle and the FF rate. Interest rate hikes occur when corporate sector expenditure minus household sector expenditure is in a growth phase, then interest rate cuts are implemented when corporate sector expenditure minus household sector is in a decline.

Just recently the US household sector appeared to be about to peak out. Then corporate sector expenditure deteriorated significantly in response to the strong dollar and the collapse in the price of

crude oil. After the Jul-Sep period of 2015, corporate sector expenditure minus household sector expenditure was in the negative numbers. Considering the fact that risk of the corporate sector moving further downward in the near future is increasing, as well as the relationship between maturation of the business cycle and the FF rate, it is possible that we are actually nearing a phase in which the FF rate will be cut.

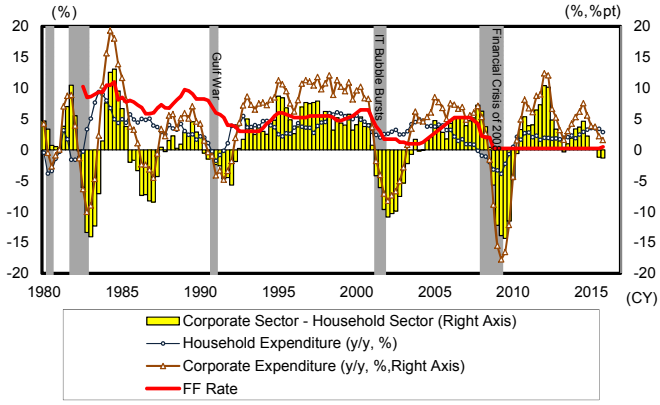
From the viewpoint of the ISM Business Confidence Index and maturation of the business cycle, we believe that the interest rate hike schedule of around four times per year expected by the FOMC participants is too fast. Our opinion is that the Fed will consider taking the approach of taking a pause in rate hikes. If the US economy slows down any more than it has at this point, it may be necessary to cut the interest rate.

US Corporate Sentiment and the FF Rate **Chart 25**



Source: US ISM Index, Haver Analytics; compiled by DIR.
Note: The shaded areas represent periods of US recession.

Changes in US Household Sector and Corporate Sector Expenditure **Chart 26**



Source: Haver Analytics; compiled by DIR.
Notes: 1) Corporate sector expenditure is real capital expenditure; household sector expenditure consists of real personal consumption and real housing investment.
2) The shaded areas represent periods of US recession.

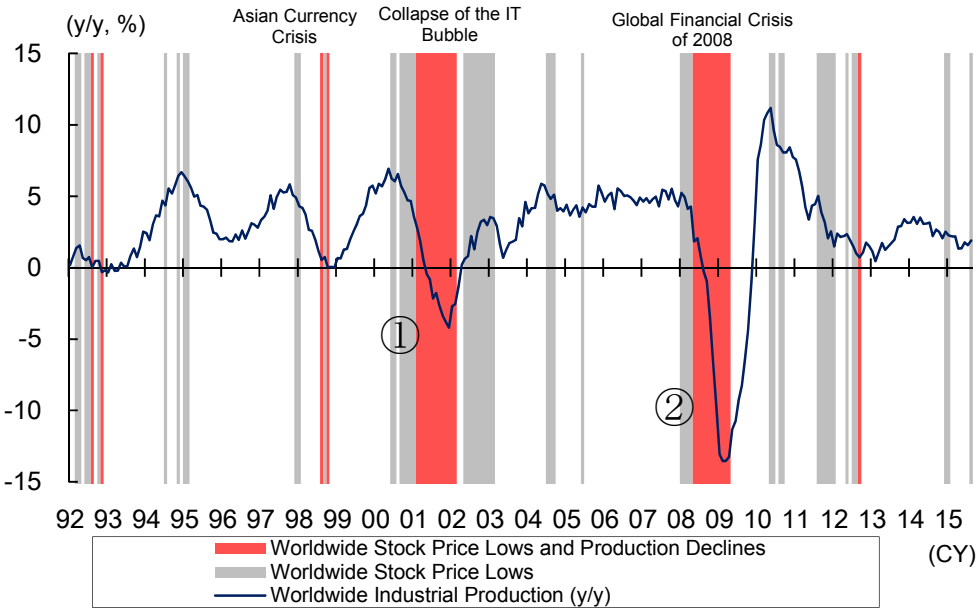
3.3 Global Economy on the Verge of its Third Serious Period of Stock Price Lows and Production Declines

Characteristics of past periods of stock price lows and production declines

Using a comparison to previous 6-month periods we categorize past world stock price and production phases as follows: since 1990s there have been two phases of serious world stock price lows and world production declines (see Chart 27). These are the collapse of the IT bubble and the economic downturn precipitated by the Lehman Brothers bankruptcy in 2008 (otherwise known as the global financial crisis of 2008). There was also the Asian currency crisis during the latter 1990s during which there were worldwide stock price lows and production declines, but it did not become as serious as these others.

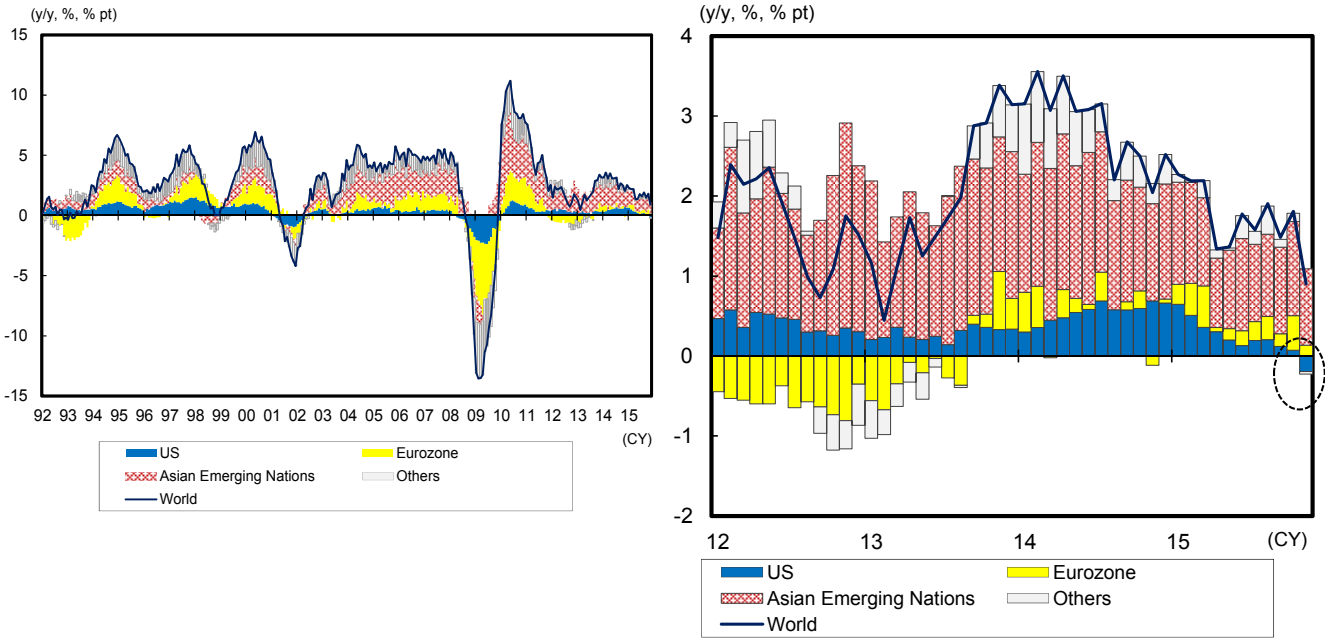
Looking at recent trends, the global economy is now in a full-fledged slowdown due to weak performance of the corporate sector worldwide. Looking at a breakdown of factors at play by region of the world, the shift of the US economy to negative numbers in November of 2015 is something a development which requires caution (see Chart 28). The world economy is now on the verge of entering its third period since the late 1990s of serious stock price lows and production declines.

Past Phases of Worldwide Stock Price Lows & Production Declines, and Current Trend in Worldwide Production — Chart 27



Source: Netherlands Bureau for Economic Policy Analysis, Haver Analytics; compiled by DIR.
Note: World stock price lows and production decline phases are expressed in terms of a comparison with past 6-month periods.

Factor Analysis of World Production by Region — Chart 28



Source: Netherlands Bureau for Economic Policy Analysis; compiled by DIR.

US corporations now on the brink of third stage of the debt cycle

In discussing US corporate debt it is useful to look at it in combination with the debt-to-equity ratio. When we line these two factors up we can observe the following sequence: (1) Increase in balance of debt as a proportion of GDP, (2) Increase in debt-to-equity ratio, and (3) Serious worldwide stock price lows and production declines (see Chart 29).

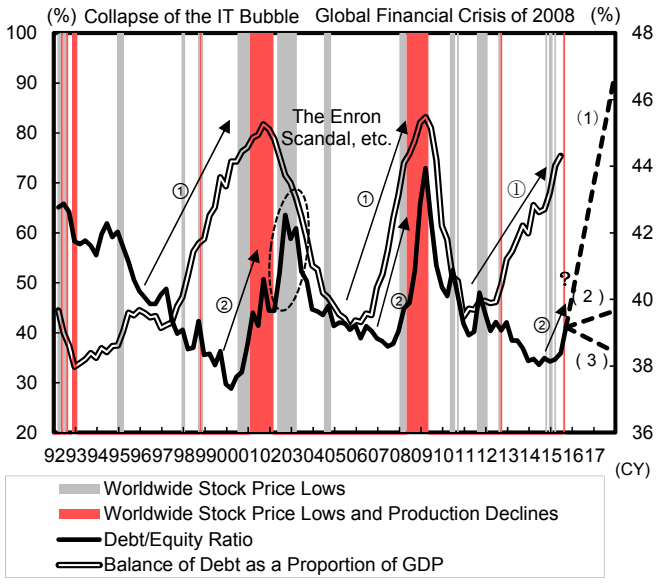
When we look at recent developments we can see that the US economy is now hovering at stage (1) in this sequence, and has not quite reached stage (2). Behind this lies the Fed's bold monetary easing, which has led to recent stock price highs in the US, and in turn has elevated the denominator of the debt/equity ratio (i.e. equity).

Now let's try doing a simulation of future prospects for the debt/equity ratio based on the historical relationship between the NY Dow Jones index and US GDP using a case where the Dow increases at the end of 2017 according to the following pattern: (1) 9,000 dlrs (down), (2) 18,000 dlrs (levels off), and (3) 22,000 dlrs (up). The only case in which the debt/equity rapidly increases is in (1). This is the same as what happened at the beginning of the global financial crisis of 2008. According to basic scenario the economy should not lapse into a period of serious stock price lows and production declines for some time. However, once the Fed begins raising interest rates in December of 2015, there is the danger that this could cause turmoil in the global financial markets, as well as an unavoidable major adjustment in US stock prices, causing the debt/equity ratio to rise. Hence caution is required.

Also worthy of note is that when we plot the relationship between balance of debt as a proportion of GDP and the debt-to-equity ratio on a scatter diagram, a large circle running clockwise appears on the graph which seems to map out the debt cycle (see Chart 30). From this we can see that the closer we get to the top left of the graph, the greater the possibility becomes that the economy could lapse into a period of serious worldwide stock price lows and production declines. We can also see from this diagram that we are now standing right on the brink of the third stage of the debt cycle.

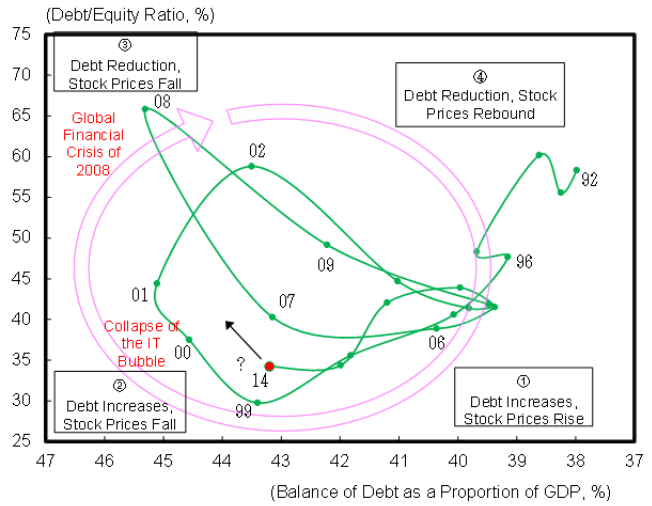
The mechanism that emerges from this sequence of events has a cyclical structure and proceeds in the following stages: (1) During periods of economic expansion corporations step up their investment activities (debt increase) and stock prices rise, (2) Stock price adjustment ensues since stocks have gone too high, and corporate balance sheets worsen (more debt increase), (3) Adjustment of corporate balance sheets ensues as the economy slows down (debt reduction) and stock prices fall, (4) Debt reduction reaches its final stage and stock prices rebound.

Debt Situation of US Private Sector Non-Financial Corporations
Chart 29



Source: FRB, BEA, Netherlands Bureau for Economic Policy Analysis, Haver Analytics, various references; compiled by DIR.
Notes: 1) World stock price lows and production decline phases are expressed in terms of a comparison with past 6-month periods.
2) Future prospects for the debt/equity ratio based on case where the Dow increases at the end of 2017: (1) 9,000 dlrs (down), (2) 18,000 dlrs, and (3) 22,000 dlrs (up). Debt estimated using average growth rate of most recent year.

Debt Cycle of US Private Sector Non-Financial Corporations
Chart 30



Source: FRB, Haver Analytics; compiled by DIR.
Notes: 1) Balance of debt from end December of each year.
2) The debt cycle occurs in the following stages: (1) During periods of economic expansion corporations step up their investment activities (debt increase) and stock prices rise, (2) Stock price adjustment ensues since stocks have gone too high, and corporate balance sheets worsen (more debt increase), (3) Adjustment of corporate balance sheets ensues as the economy slows down (debt reduction) and stock prices fall, (4) Debt reduction reaches its final stage and stock prices rebound.

Credit market becoming increasingly nervous in response to the Fed's exit strategy

In discussing the balance of US corporate debt as a proportion of GDP, it is important to consider trends in US high-yield bond spreads. Historically there is linkage between the two, and recently, high-yield bond spreads have been at a lower level compared to the balance of debt as a proportion of GDP (see Chart 31).

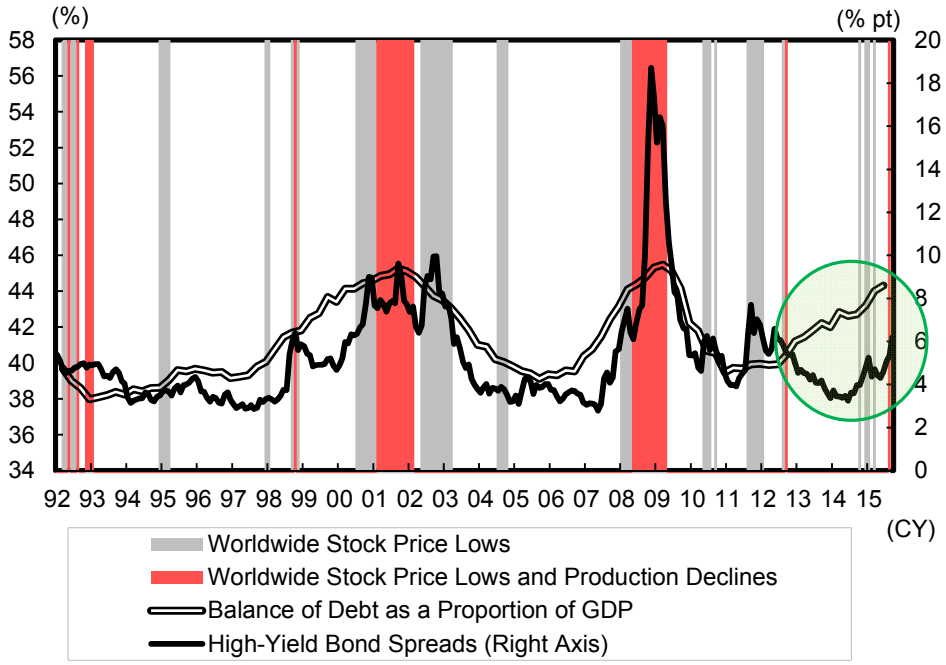
Behind this development is the bold monetary easing carried out by the Fed, along with the appearance of a liquidity market in which high-yield bonds have had their yields excessively suppressed. Put in another way, there is now a situation in the US credit market which could be referred to as a kind of "mini-bubble." However, when the Fed starts raising the interest rate in the near future, there may be demand for giving high-yield bonds a yield more in keeping with the corporate debt situation, and if that happens, high-yield bond spreads may also grow considerably.

Ultimately, everything depends on the Fed's finesse in managing its monetary policy

When considering the three major indices for US corporations which we have examined up to this point ((1) Balance of debt as a proportion of GDP, (2) Debt/equity ratio, and (3) High-yield bond spreads), the conclusion is that the question of whether the economy will lapse into a period of serious worldwide stock price lows and production declines depends largely on the Fed's competence in managing its monetary policy. Our basic economic scenario sees the Fed raising interest rates at a pace which is appropriate for the current economic situation, and that therefore, the financial markets and real economy will not be overly shaken up. However, we do feel that the current situation calls for a pause in interest rate hikes. In fact, an interest rate cut could be called for if the US economy slows

down any more than it already has. If the Fed makes the wrong move, there is the risk that it could trigger the third most serious period of stock price lows and production declines for the global economy. We therefore believe that the trend in the Fed's monetary policy should be carefully followed.

Balance of Corporate Debt as a Proportion of GDP and High-Yield Bond Spreads **Chart 31**



Source: FRB, Bank of America Merrill Lynch, Haver Analytics, various data sources; compiled by DIR.
Notes: 1) World stock price lows and production decline phases are expressed in terms of a comparison with past 6-month periods.
2) Balance of debt from non-financial corporations.
3) Information on high-yield bonds from Bank of America Merrill Lynch publication "High Yield Corporate Master II."
4) High-yield bond spread = Yield on US high yield bond – US treasury 10-year bond yield.

4. Sorting Out the Issues in Moving Towards an Increase in Consumption Tax in 2017

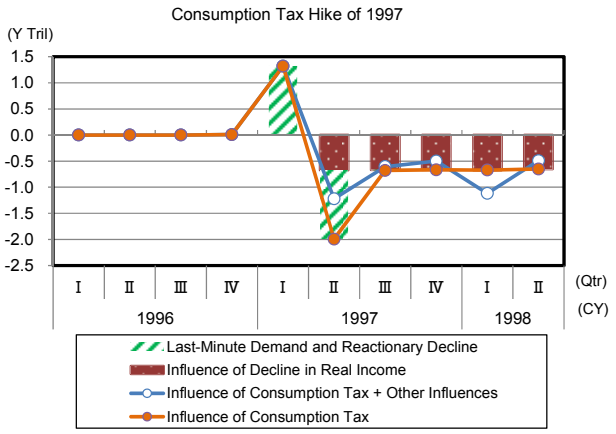
4.1 Comparison of 1997 and 2014 Consumption Tax Hikes

Trends in personal consumption fall considerably below results of simulation

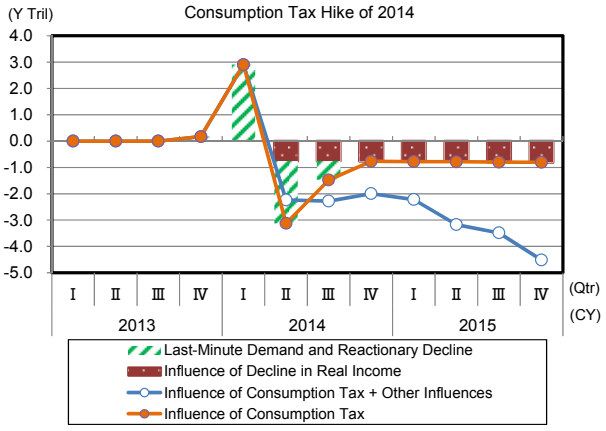
In this chapter we present arguments for the planned increase in consumption tax in April of 2017. To assist us in considering this question we take a look at differences in personal consumption during previous periods when the consumption tax was increased. We analyze trends in personal consumption in 1997 and 2014 in the categories of goods and services and consider the factors leading to differences experienced during those two periods. Then we take a look at what could happen during an additional consumption tax hike in April 2017.

Chart 32 presents the results of a simulation performed using the DIR macro model. The model was able to replicate the decline in personal consumption which occurred after the increase in consumption tax in 1997, but economic performance after the tax hike of 2014 diverged considerably from the simulation results. The bottom chart explores the factors leading to this deviation by category (i.e. goods and services). Two major characteristics present were (1) Recovery in durable goods was weak, and (2) Services and non-durable goods fell into a downtrend.

Simulation of Past Consumption Tax Hikes[1] **Chart 32**

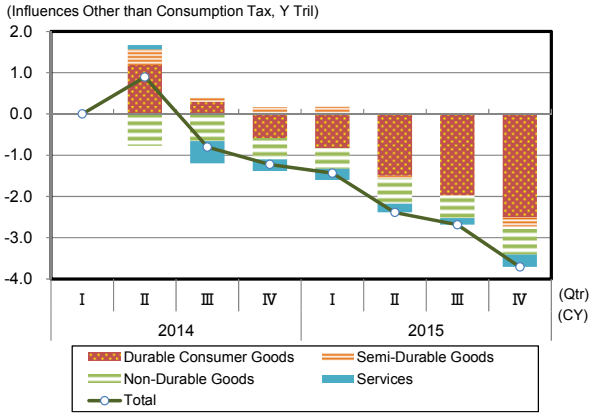


Source: Cabinet Office; compiled by DIR.
Note: Calculations according to the DIR short-term macro model.



Source: Cabinet Office; compiled by DIR.
Note: Calculations according to the DIR short-term macro model.

2014 Consumption Tax Hike: Influences Affecting Goods & Services Other than Consumption Tax



Source: Cabinet Office; compiled by DIR.
Note: Calculations according to the DIR short-term macro model.

[1] Parameters: 1997 consumption tax hike uses samples through Dec. 1996, 2014 consumption tax hike uses samples through Dec. 2013.

Weakness of regular scheduled wages suppressed consumer confidence

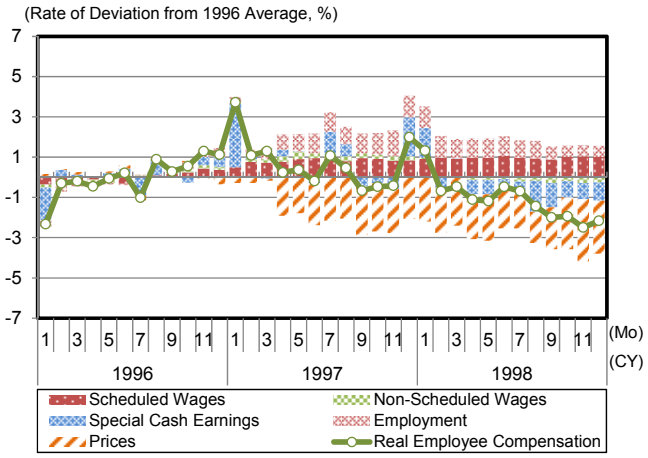
Next we look at the implications of trends in real compensation of employees and consumer confidence – two important indices in understanding trends in personal consumption.

A factor analysis of trends in real compensation of employees, employment, and prices tells us that at the time of the first increase in consumption tax in 1997 (Chart 33, top left), growth in employment was sluggish, but at the same time scheduled wages continued to exhibit a steady undertone. In contrast, at the time of the 2014 consumption tax hike, growth in employment provided underlying support for real compensation of employees, but scheduled wages did not contribute anything on the positive side.

Differences in the employment and income environments during these two past instances of compensation tax increase had an influence on consumer confidence. When the consumption tax was increased in 1997 (Chart 33 lower left), the employment environment had also worsened, becoming a major factor in significantly pushing down consumer confidence. Negative contribution from other categories related to income, such as overall livelihood and income growth were not significant. On the other hand, when the consumption tax was increased in 2014 (Chart 33 lower right), supply and demand for labor was tight, though this did not have much negative pressure on the employment environment factor. However, the following two factors brought major downward pressure. These were (1) Income growth, which was negatively affected by sluggish wages, and (2) Willingness to buy durable goods, which was affected by pre-consumption over demand expected for durable goods. This indicates the possibility that weak consumption after the tax hike in 2014 may have been influenced by the fact that consumer confidence was affected by the income environment in 2014, which had deteriorated more than it did in 1997.

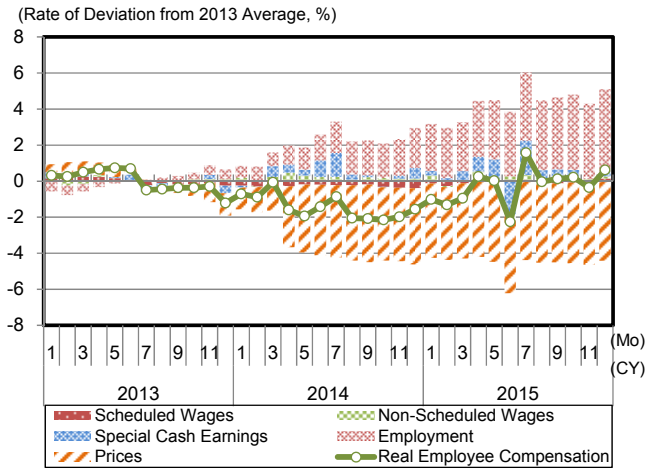
Simulation of Past Consumption Tax Hikes — Chart 33

Real Employee Compensation at Time of 1997 Tax Hike



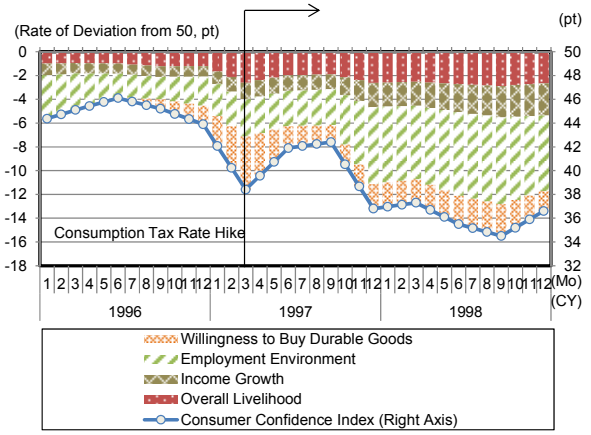
Source: Ministry of Health, Labour and Welfare, Ministry of Internal Affairs and Communications; compiled by DIR.

Real Employee Compensation at Time of 2014 Tax Hike



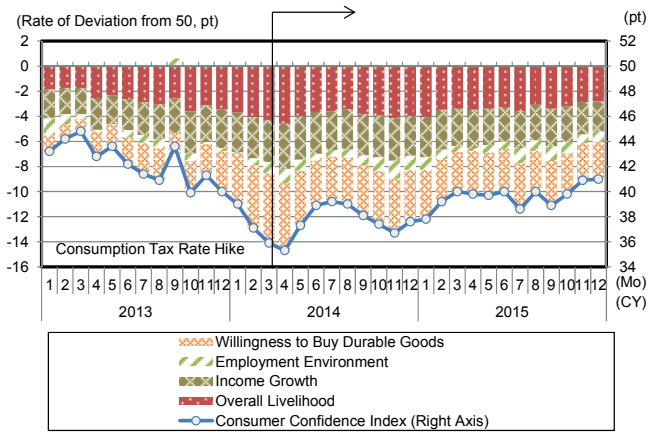
Source: Ministry of Health, Labour and Welfare, Ministry of Internal Affairs and Communications; compiled by DIR.

Consumer Confidence at Time of 1997 Tax Hike



Source: Cabinet Office; compiled by DIR.
Note: Adjustments made to compensate for changes in survey method.

Consumer Confidence at Time of 2014 Tax Hike



Source: Cabinet Office; compiled by DIR.
Note: Adjustments made to compensate for changes in survey method.

4.2 Characteristics of Personal Consumption by Goods and Services, and its Implications

Services: Deterioration of consumer confidence arising from income acts as a negative factor

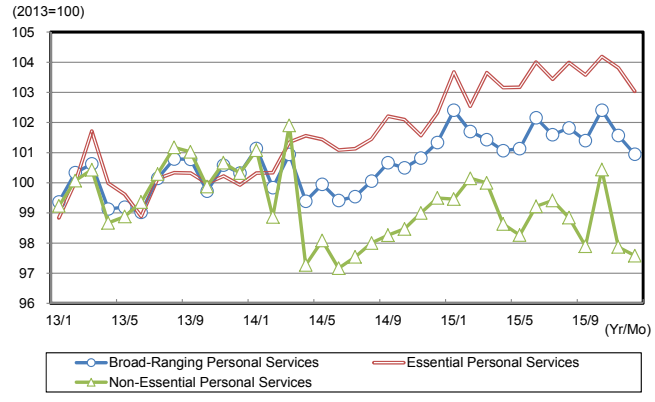
In this section we take a closer look at the period when consumption tax was increased in 2014 by each separate category (goods and services) in light of the facts on past instances of consumption tax increases covered in the last section.

First of all, we now know that it is possible that the deterioration of consumer confidence influences the slowing down of recovery in consumption of services. Chart 34 shows changes in broad-ranging personal services divided into the categories of essential personal services and non-essential personal services. Essential personal services include medical care and other services which one cannot do without, while non-essential services include travel and entertainment, in other words activities which are both non-essential and non-urgent. Changes in these categories tell us that the level of expenditure on non-essential services declined greatly after the increase in consumption tax. In contrast, essential services are in an overall growth trend, especially in the area of medical services, due to Japan's aging society. This area remained unchanged even after the increase in consumption tax.

As is mentioned in the title of this section, behind this decline in non-essential services lies the deterioration of consumer confidence arising from income related issues. Chart 35 illustrates changes in non-essential services and consumer confidence (overall livelihood and income growth). Looking at the chart we can immediately see how closely linked these items are. The data strongly suggests that there is a direct connection between the weakening of consumer confidence after an increase in consumption tax and the decline in expenditure on non-essential services.

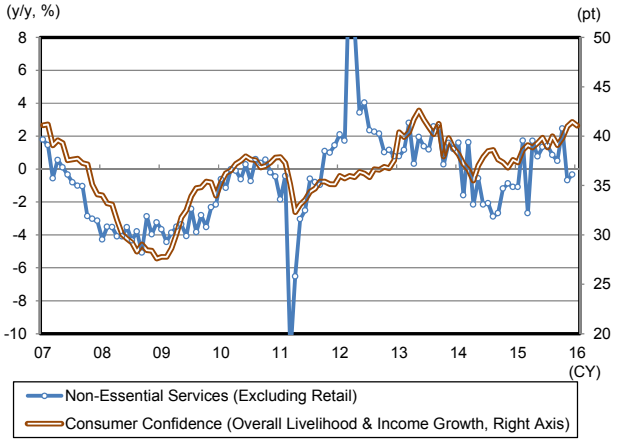
In conclusion, the question of whether or not households are able to feel confident regarding future income growth will be a major factor determining the tempo of the comeback in the consumption of services (especially non-essential services) after the next increase in consumption tax expected in 2017. However, the pace of wage increases which was looking positive recently is now lagging somewhat due to the slowdown in growth rate for corporate earnings. It is therefore essential that the income environment be improved in the future in order to ensure that consumption of services can be maintained even after the next increase in consumption tax in 2017.

Breakdown of Broad-Ranging Personal Services **Chart 34**



Source: Ministry of Economy, Trade and Industry; compiled by DIR.
Note: Excluding retail industry.

Consumer Confidence and Non-Essential Services **Chart 35**



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

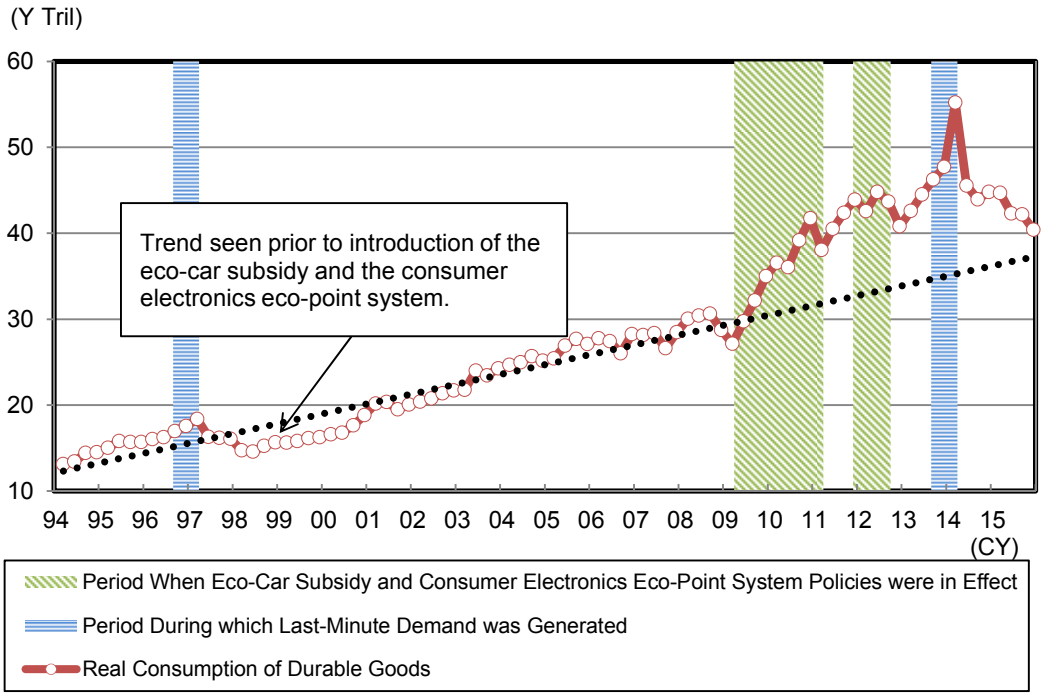
Durables: Pre-consumption over demand arises in reaction to past economic policy

In this section we look at the situation for consumption of durables. Looking again at Chart 32 we see that consumption of durables continued to exceed their theoretical value until the Jul-Sep period of 2014. This period is when the phenomenon of reactionary decline appears, following the last-minute demand which occurs just prior to a consumption tax hike. The influence of the reactionary decline appears to have been less than expected in the case of durable goods. However, after the reactionary decline ran its course, the recovery was unexpectedly slow.

The cause of the recovery in durables being so weak may be pre-consumption over demand expected due to the reaction of consumers to the repetition of the same kind of economic policy measures many times over. Chart 36 shows changes over time in real consumption of durables. During the rapid economic slowdown during the financial crisis of 2008, the government introduced countermeasures such as the eco-car subsidy and the consumer electronics eco-point system. After these policies were introduced, consumption of durables significantly exceeded past trends. On the other hand, when one considers the fact that real employee compensation was sluggish at this time, consumption of durables just before the tax hike was probably overly strong in comparison to the income situation. The weak recovery in consumption of durables after the tax hike can be explained by this phenomenon of pre-consumption.

As we prepare for another tax hike in 2017, the above considerations have the following implications. Replacement demand for durable goods with a short replacement cycle (i.e. the same goods purchased during previous economic policies such as during the global financial crisis) can easily be generated prior to the next increase in consumption tax in 2017. However, since consumption of durables is already on the high side in comparison to past trends due to pre-consumption over demand, we will also have to expect a similar pattern as was experienced during the last tax hike – in other words, it is quite possible that the adjustment period after the tax hike will be a long one.

Trends in Real Consumption of Durables **Chart 36**



Source: Cabinet Office; compiled by DIR.

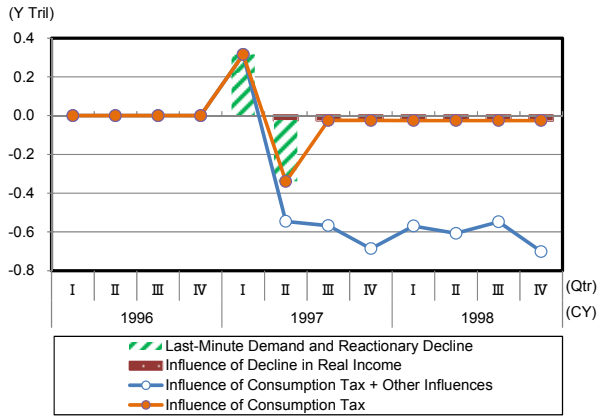
Non-Durables: Reduced tax rate may help to avoid sudden changes in consumer behavior of households

Lastly we look at the characteristics of non-durable goods. Since non-durable goods have little elasticity of intertemporal substitution, the effects of last-minute demand and reactionary decline are much more limited in comparison to other goods. In addition, its income elasticity value is also low, so the influence of declines in real income on consumption of non-durables is also considered to be limited.

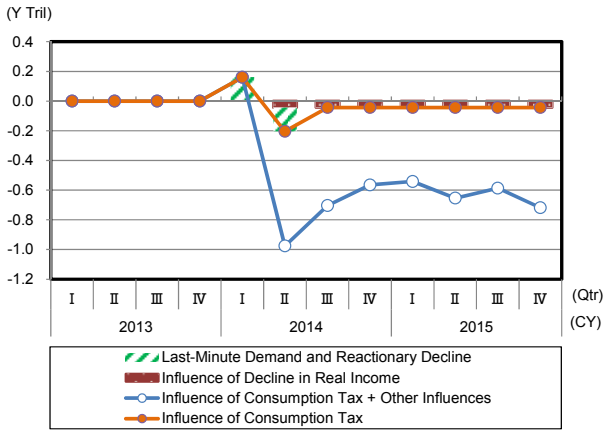
However, non-durables actually experienced major declines never seen before during both the 1997 and 2014 tax hikes, one that cannot be explained by past estimation formulas. In other words, due to the decline in real purchasing power after the consumption tax hikes, households were holding onto their wallets much more tightly than had been imagined in the past.

However, it is expected that this tendency can be avoided during the next consumption tax hike in 2017. This is because the government has decided to introduce a reduced tax rate this time around. The current tax rate will be maintained on many non-durable goods, nearly all of which is accounted for by foodstuffs. Foods are the consumer goods which households purchased with the highest frequency. Hence it is believed that a reduced tax rate will resolve the sense of burden associated with the tax hike. For this reason it is not thought that the major last-minute demand for non-durables followed by a reactionary decline experienced during past instances of consumption tax hikes will occur again, at least not as major as in 2014.

Trends in Non-Durables During Tax Hike Phases **Chart 37**



Source: Cabinet Office; compiled by DIR.
Note: Calculations according to the DIR short-term macro model.



Source: Cabinet Office; compiled by DIR.
Note: Calculations according to the DIR short-term macro model.

4.3 Calculating the Influence of the Planned 2017 Increase in Consumption Tax

Reduced tax rate to provide approximately 1.1 tril yen in underlying support for personal consumption in FY2017

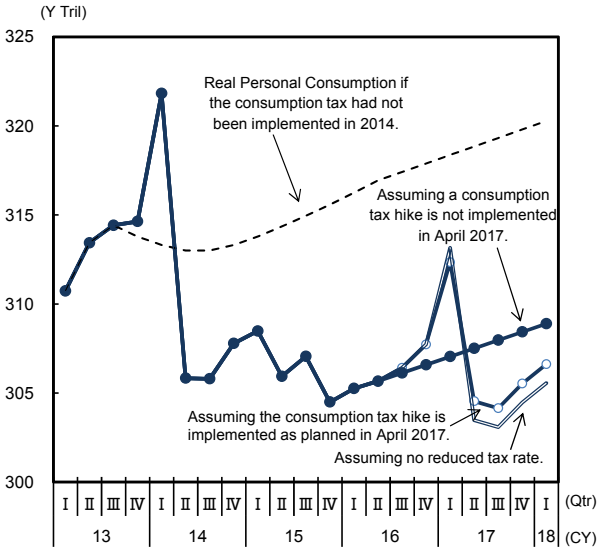
Lastly, we turn our attention to the conclusion of this chapter, in which we present our calculations of the influence the planned 2017 increase in consumption tax in light of the questions discussed up to this point.

In this chapter we compare the situation in which an additional increase in consumption tax is implemented in April 2017 with the situation as it would look if the tax hike is not implemented. According to our thinking, we expect personal consumption to be up by +0.3% to GDP in FY2016 in comparison to -0.6% to GDP in FY2017 assuming the tax hike is implemented. An increase in the consumption tax will trigger last-minute demand followed by a reactionary decline, as well as bringing

major fluctuations in personal consumption and housing investment. We also expect there to be influence on trends in inventory investment and imports.

At the same time, according to our calculations we expect the reduced tax rate to provide approximately 1.1 tril yen in underlying support for personal consumption in FY2017. The reduced tax rate focuses on foodstuffs, which have a high frequency of purchase by households, and promises to relieve some of the burden associated with the consumption tax felt by households. The effect of the reduced tax rate in providing underlying support for the economy is expected to work mainly by virtue of providing some relief for the decline in real income.

Outlook for Personal Consumption During 2017 Consumption Tax Hike Phase **Chart 38**



Source: Cabinet Office, DIR short-term macro model.

Assuming there is a Reduced Tax Rate				
Amount (Y Tril)				
		FY2015	FY2016	FY2017
Real GDP		-	1.3	-3.1
	Private Sector Final Consumption Expenditure	-	1.7	-3.0
Rate of Deviation from No Tax Hike Case (%)				
		FY2015	FY2016	FY2017
Real GDP		-	0.3	-0.6
	Private Sector Final Consumption Expenditure	-	0.6	-1.0
Assuming no Reduced Tax Rate				
Amount (Y Tril)				
		FY2015	FY2016	FY2017
	Private Sector Final Consumption Expenditure	-	1.9	-4.1
Rate of Deviation from No Tax Hike Case (%)				
		FY2015	FY2016	FY2017
	Private Sector Final Consumption Expenditure	-	0.6	-1.3
Effect of Reduced Tax Rate in Supporting Personal Consumption				
Amount (Y Tril)				
		FY2015	FY2016	FY2017
	Private Sector Final Consumption Expenditure	-	-0.2	1.1
Rate of Deviation (%)				
		FY2015	FY2016	FY2017
	Private Sector Final Consumption Expenditure	-	-0.1	0.3

Source: Produced 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 worldwide decline in stock values due to geopolitical risk, and (4) Trends in the Eurozone economy.

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

5.1 Overview of Problems that China's Economy Faces

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

Since the summer of 2015 fears have grown rapidly regarding the imminent collapse of China's economic bubble. China's sudden step towards devaluation of the renminbi triggered a seismic event in the global financial markets. How are we to understand the risks now facing the Chinese economy? (More detail on this subject can be found in *Japan's Economic Outlook No. 186 Update (Summary)*, September 8, 2015, by Mitsumaru Kumagai.)

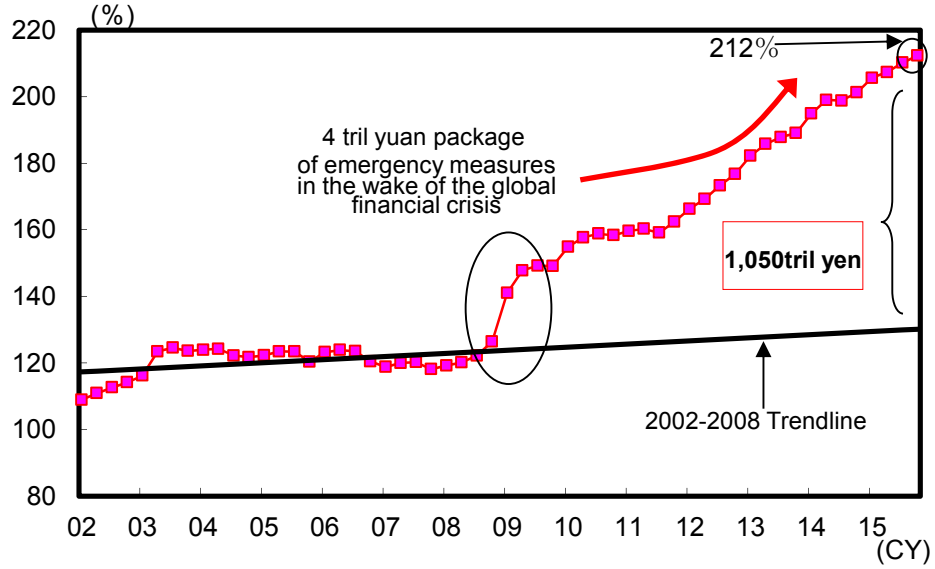
In a word, our view of China's economy is optimistic in the short-term but pessimistic in the mid to long-term. Since China is a Socialist country, it can give its economy a shot in the arm mostly in the form of public investment, thereby delaying the inevitable for another year or two. But in another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

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

In this section we discuss China's two huge excesses. The first financial excess is excessive lending. Excessive lending in China is estimated at a total of 1,000 tril yen (see Chart 39). If a certain percentage of this amount becomes irrecoverable, it would mean hundreds of trillions of yen in non-performing loans. When Japan's economic bubble burst it carried non-performing loans totaling 100 tril yen. Considering this fact, it is not an overstatement to call this the biggest economic bubble in history.

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

China's Total Social Financing (% of GDP) Chart 39



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

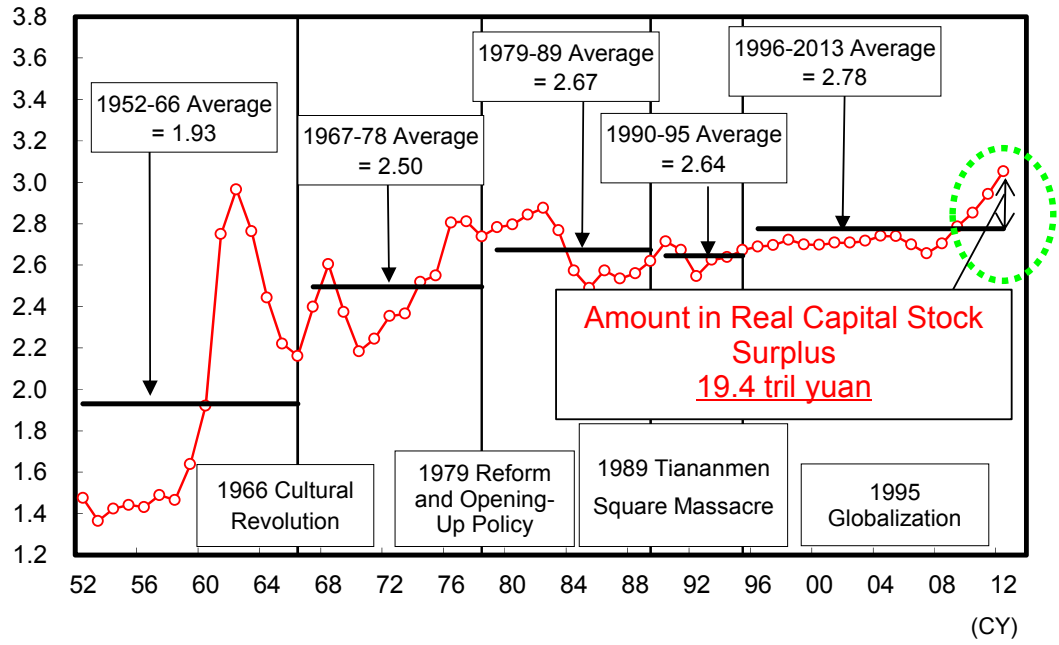
China's excesses: (2) Excess capital stock totaling over 400 tril yen

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

Chart 40 shows long-term change in China's capital coefficient (= real capital stock / real GDP). This chart indicates that China's policies for handling the aftermath of the financial crisis of 2008 led to the carrying out of large-scale capital investment, and we see that in recent years, the capital coefficient has been on the rise. Recently, the coefficient has moved further upwards on the chart, diverging markedly from the trend of the past twenty years. It appears that the sense of overcapacity is increasing.

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

Changes in China's Capital Coefficient **Chart 40**



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 37). Moreover, in comparison to Japan, whose fiscal condition is the worst amongst the major industrialized nations at 246%, China weighs in at only one sixth that amount.

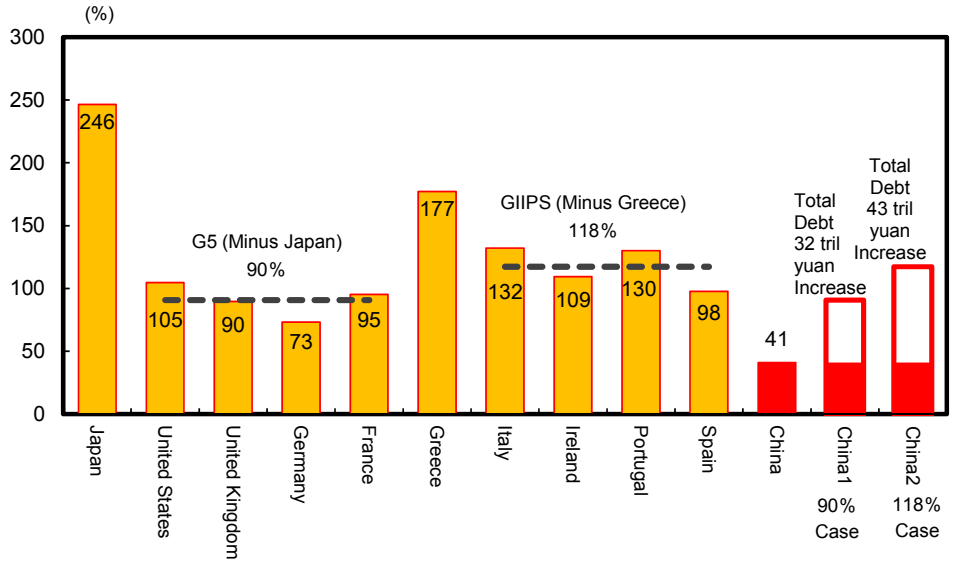
Presuming that China's general government debt-to-GDP ratio has room to grow to 90%, or around the same amount as the G5 nations (except for Japan) we can estimate the margin China has for public spending at around 32 trillion yuan. This means that in an international comparison, China has a large margin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

Problems facing China's economy: the big picture

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

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

General Government Debt-to-GDP Ratio (2014) Chart 41



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 42).

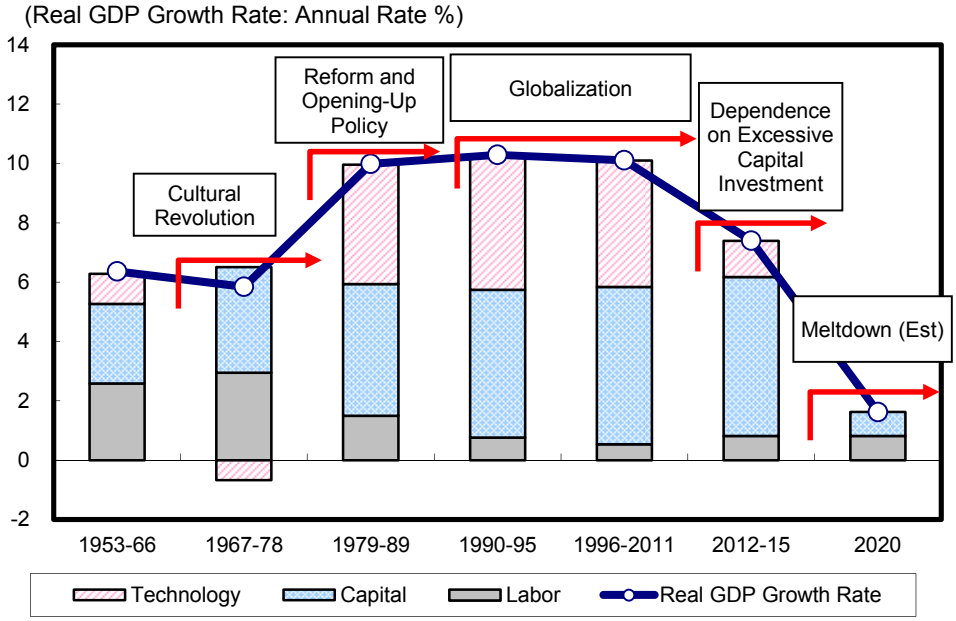
In terms of the effect on Japan's economy, there is still of course the general argument that it is the US which drives the world economy, not China, and hence even if China's economy slows down somewhat, the effect on Japan would be only slight.

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.

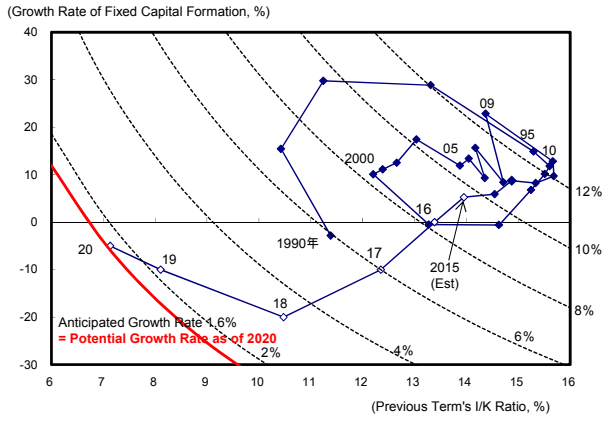
Simulation: China's Economy (Meltdown Scenario) **Chart 42**

Factor Analysis of Potential Growth Rate



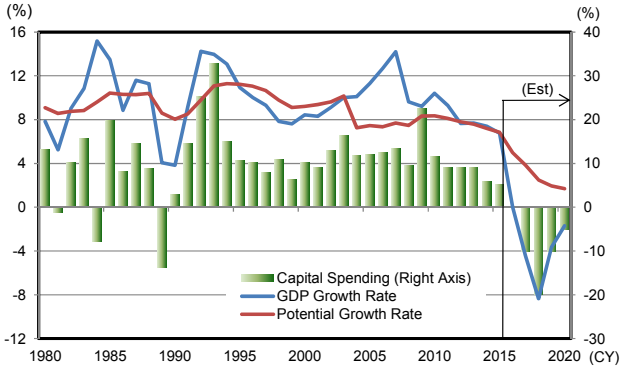
Source: CEIC, World Bank; compiled by DIR.
Note: Major events: 1966 – The Cultural Revolution, 1978 - Reform and Opening-Up Policy, 1989 – Tiananmen Square Massacre

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

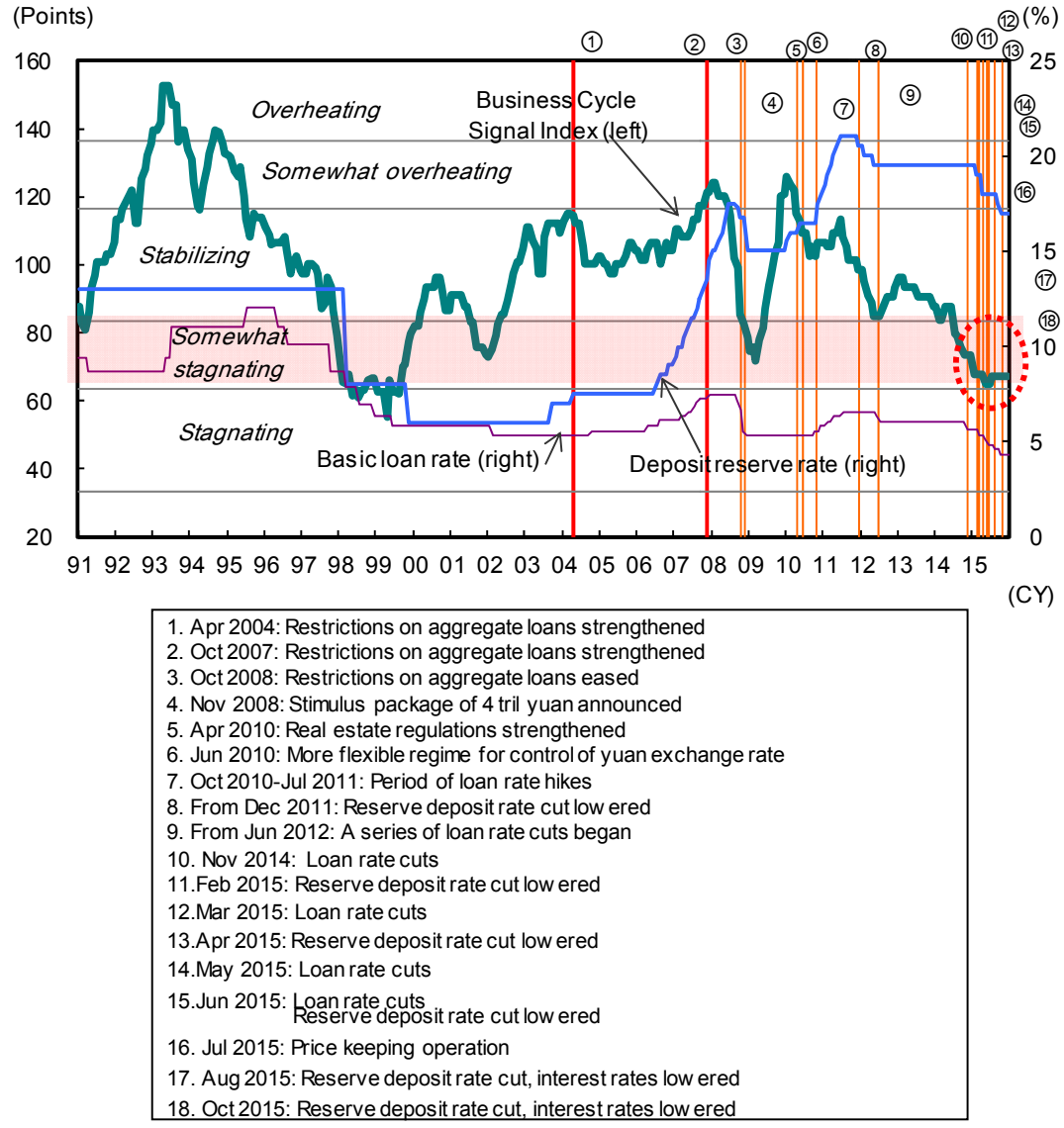
Despite what we have stated in the previous section, looking at a time span of 1-2 years, China's economy is expected to be propped up by policy measures.

Looking at China's business cycle signal index (see Chart 43) 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 43**



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

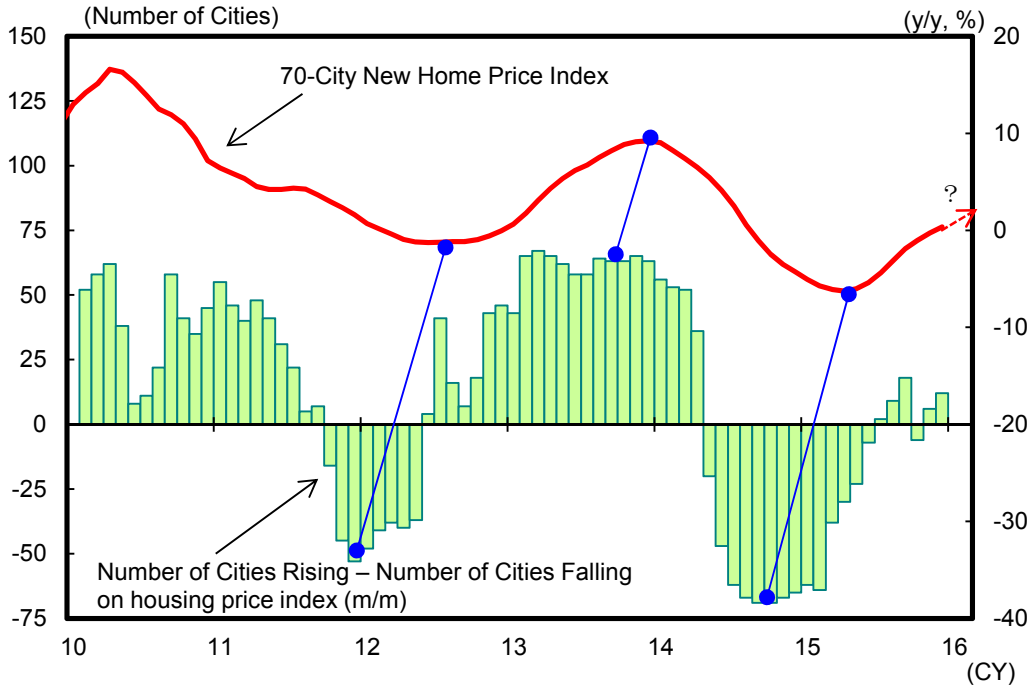
Real estate prices in China linked to personal consumption seen bottoming out

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 44). 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 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. For this reason, signs of the decline coming to an end have been seen since the beginning of 2015 in the 70-City New Home Price Index, and possibilities are now good that the index may begin to gradually move upward in the future.

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 44**



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

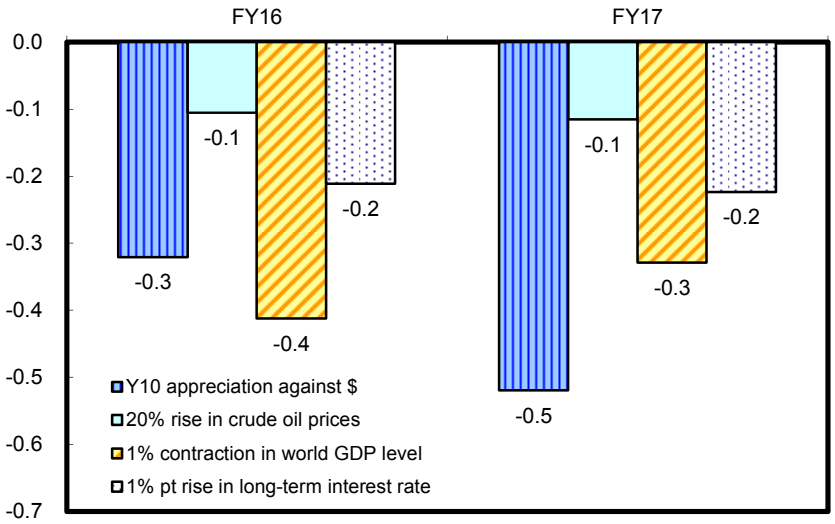
Here, we estimate likely economic effects from changes in our assumptions. The assumptions and effects of alternative scenarios are shown in the two charts below. The charts below show the effects on real GDP based on the assumptions used in our standard scenario, as well as cases in which one of the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

Standard and Alternate Scenario Assumptions

	Standard scenario		Alternate scenario (in each quarter in both years)
Case 1: Forex rate	Y113.0/$ in FY16 and Y113.0/$ in FY17		Y10 appreciation against $
Case 2: Crude oil prices (WTI futures)	$30.0/bbl in FY16 and $30.0/bbl in FY17		20% rise
Case 3: World GDP	+3.1% y/y in CY16 and +3.3% y/y in CY17		1% contraction in world GDP level
Case 4: Long-term interest rate	0.00% in FY16 and 0.00% in FY17		1% pt rise

Source: Compiled by DIR.

Effects on Real GDP (% change from standard scenario) **Chart 45**



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 0.3% 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 0.4% in FY16 and 0.3% 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 46

	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 %)	1.5	1.2	0.8	(-0.7)	1.1	(-0.8)	0.9	(-0.6)	1.1	(-0.7)
Real GDP (Chained [2005]; y/y %)	**0.9**	**-0.1**	**0.6**	**(-0.3)**	**-0.3**	**(-0.5)**	**0.8**	**(-0.1)**	**-0.1**	**(-0.1)**
GDP deflator (Y/y %)	0.6	1.3	0.2	(-0.4)	1.4	(-0.3)	0.1	(-0.5)	1.2	(-0.5)
All-industry Activity Index (Y/y %)	1.7	1.4	1.1	(-0.6)	1.3	(-0.6)	1.6	(-0.1)	1.4	(-0.1)
Industrial Production Index (Y/y %)	3.0	1.7	1.1	(-1.9)	1.5	(-2.0)	2.8	(-0.2)	1.7	(-0.2)
Tertiary Industry Activity Index (Y/y %)	1.5	1.3	1.1	(-0.4)	1.3	(-0.4)	1.4	(-0.1)	1.3	(-0.1)
Corporate Goods Price Index (Y/y %)	-0.7	2.8	-2.0	(-1.3)	2.7	(-1.4)	-0.0	(0.7)	2.8	(0.7)
Consumer Price Index (Y/y %)	0.4	2.2	0.2	(-0.2)	2.2	(-0.3)	0.6	(0.2)	2.2	(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)	0.0	1.5	0.3	(0.3)	1.0	(-0.5)	-2.3	(-2.3)	-1.0	(-2.5)
Current balance (US$100 mil)	1,650	1,907	1,711	(61)	1,802	(-105)	1,469	(-181)	1,709	(-198)
Current balance (Y tril)	18.9	21.8	18.1	(-0.7)	19.1	(-2.7)	16.7	(-2.2)	19.6	(-2.2)
Real GDP components (Chained [2005]; y/y %)										
Private consumption	0.8	-0.9	0.7	(-0.1)	-0.9	(-0.1)	0.6	(-0.1)	-0.9	(-0.1)
Private housing investment	2.6	-8.3	2.3	(-0.3)	-8.5	(-0.5)	2.3	(-0.3)	-8.4	(-0.4)
Private non-housing investment	4.4	1.2	3.1	(-1.2)	0.9	(-1.4)	3.9	(-0.5)	1.0	(-0.6)
Government final consumption	0.8	0.8	0.9	(0.1)	1.0	(0.2)	0.8	(-0.0)	0.8	(-0.0)
Public fixed investment	-3.7	-6.4	-3.1	(0.6)	-6.4	(0.7)	-3.9	(-0.2)	-6.4	(-0.2)
Exports of goods and services	2.7	3.5	2.1	(-0.6)	3.1	(-1.0)	2.6	(-0.1)	3.5	(-0.1)
Imports of goods and services	2.9	1.5	2.6	(-0.3)	2.3	(0.5)	2.3	(-0.5)	1.4	(-0.6)

	Case 3 1% contraction of World GDP				Case 4 1% pt rise in 10-yr JGB yield				(Reference) Y5 depreciation and 20% rise in crude oil prices			
	FY16		FY17		FY16		FY17		FY16		FY17	
Nominal GDP (Y/y %)	1.1	(-0.4)	1.2	(-0.4)	1.3	(-0.2)	1.2	(-0.2)	1.3	(-0.2)	1.2	(-0.3)
Real GDP (Chained [2005]; y/y %)	**0.5**	**(-0.4)**	**0.0**	**(-0.3)**	**0.7**	**(-0.2)**	**-0.1**	**(-0.2)**	**1.0**	**(0.1)**	**0.0**	**(0.1)**
GDP deflator (Y/y %)	0.5	(-0.0)	1.2	(-0.0)	0.6	(0.0)	1.3	(-0.0)	0.3	(-0.3)	1.2	(-0.4)
All-industry Activity Index (Y/y %)	1.5	(-0.3)	1.4	(-0.2)	1.6	(-0.1)	1.4	(-0.1)	1.9	(0.2)	1.4	(0.2)
Industrial Production Index (Y/y %)	1.9	(-1.1)	1.9	(-0.9)	2.6	(-0.4)	1.7	(-0.4)	3.8	(0.7)	1.7	(0.8)
Tertiary Industry Activity Index (Y/y %)	1.4	(-0.1)	1.3	(-0.1)	1.5	(-0.1)	1.3	(-0.1)	1.6	(0.1)	1.3	(0.1)
Corporate Goods Price Index (Y/y %)	-0.8	(-0.0)	2.7	(-0.1)	-0.7	(0.0)	2.8	(-0.0)	0.6	(1.4)	2.8	(1.4)
Consumer Price Index (Y/y %)	0.4	(-0.0)	2.1	(-0.1)	0.4	(-0.0)	2.2	(-0.0)	0.7	(0.3)	2.2	(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)	-0.7	(-0.7)	1.1	(-0.4)	0.5	(0.5)	2.0	(0.5)	-2.4	(-2.5)	-0.7	(-2.2)
Current balance (US$100 mil)	1,557	(-93)	1,807	(-100)	1,530	(-121)	1,441	(-466)	1,439	(-211)	1,762	(-145)
Current balance (Y tril)	17.8	(-1.1)	20.7	(-1.1)	17.5	(-1.4)	16.5	(-5.3)	17.1	(-1.8)	20.9	(-0.9)
Real GDP components (Chained [2005]; y/y %)												
Private consumption	0.7	(-0.1)	-0.9	(-0.0)	0.7	(-0.0)	-0.9	(-0.0)	0.7	(-0.1)	-0.9	(-0.1)
Private housing investment	2.4	(-0.2)	-8.4	(-0.4)	1.8	(-0.8)	-8.1	(-0.6)	2.4	(-0.1)	-8.3	(-0.2)
Private non-housing investment	4.0	(-0.3)	1.0	(-0.5)	2.9	(-1.4)	1.0	(-1.6)	4.5	(0.1)	1.1	(0.1)
Government final consumption	0.9	(0.0)	0.8	(0.0)	0.9	(0.0)	0.8	(0.0)	0.8	(-0.1)	0.8	(-0.1)
Public fixed investment	-3.7	(0.0)	-6.4	(0.1)	-3.7	(-0.0)	-6.4	(0.0)	-4.2	(-0.5)	-6.4	(-0.5)
Exports of goods and services	0.7	(-2.0)	4.0	(-1.6)	2.7	(-0.0)	3.5	(-0.0)	2.9	(0.2)	3.7	(0.4)
Imports of goods and services	2.5	(-0.3)	1.6	(-0.2)	2.4	(-0.5)	1.4	(-0.5)	2.5	(-0.4)	1.0	(-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 (E)	2014	2015 (E)	2014	2015
Nominal GDP (SAAR; Y tril)	487.4	484.0	488.6	497.9	497.8	500.9	499.4	501.1	489.6	499.6	486.9	498.9
Q/q %	-0.0	-0.7	1.0	1.9	-0.0	0.6	-0.3	0.3				
Q/q %, SAAR	-0.1	-2.8	3.9	7.9	-0.1	2.5	-1.2	1.4				
Y/y %	1.9	0.5	1.3	2.2	2.1	3.5	2.0	0.6	1.5	2.0	1.6	2.5
Real GDP (chained [2005]; SAAR; Y tril)	524.1	520.7	523.9	529.3	527.5	529.3	527.4	528.6	524.7	528.1	526.1	528.3
Q/q %	-2.0	-0.6	0.6	1.0	-0.3	0.3	-0.4	0.2				
Q/q %, SAAR	-7.9	-2.6	2.5	4.2	-1.4	1.3	-1.4	0.9				
Y/y %	-0.3	-1.5	-1.0	-1.0	0.7	1.7	0.5	-0.1	-1.0	0.7	-0.0	0.4
Contribution to GDP growth (% pt)												
Domestic demand	-2.9	-0.8	0.3	1.0	-0.0	0.1	-0.5	0.2	-1.6	0.5	-0.0	-0.0
Foreign demand	0.9	0.1	0.3	0.0	-0.3	0.2	0.1	-0.0	0.6	0.1	0.0	0.4
GDP deflator (y/y %)	2.2	2.0	2.3	3.3	1.5	1.8	1.5	0.7	2.5	1.4	1.7	2.0
Index of All-Industry Activity (2010=100)	101.1	101.1	101.7	102.8	102.5	102.5	102.4	102.6	101.7	102.5	102.0	102.5
Q/q %; y/y %	-2.8	0.0	0.6	1.0	-0.3	-0.0	-0.1	0.2	-1.1	0.8	0.1	0.5
Index of Industrial Production (2010=100)	98.8	97.4	98.2	99.7	98.3	97.1	97.6	97.7	98.5	97.6	99.0	98.1
Q/q %; y/y %	-3.1	-1.3	0.8	1.6	-1.4	-1.2	0.6	0.0	-0.5	-0.9	2.1	-0.9
Index of Tertiary Industry Activity (2005=100)	101.2	101.7	102.2	103.3	103.1	103.3	103.3	103.5	102.1	103.3	102.3	103.2
Q/q %; y/y %	-2.8	0.5	0.6	1.1	-0.2	0.2	0.0	0.2	-1.1	1.2	-0.4	0.9
Corporate Goods Price Index components (2010=100)												
Domestic Company Goods Price Index	106.0	106.5	105.1	103.4	103.7	102.7	101.3	100.8	105.3	102.1	105.1	102.8
Y/y %	4.4	4.0	2.5	0.5	-2.2	-3.6	-3.6	-2.4	2.8	-3.0	3.2	-2.3
CPI (excl. fresh food; 2010=100)	103.3	103.5	103.4	102.7	103.4	103.4	103.4	102.8	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	3.3	3.4	3.2	3.2	3.6	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	0.00	0.46	0.27	0.53	0.35
Money stock; M2 (y/y %)	3.2	3.0	3.5	3.5	3.9	4.0	3.4	3.6	3.3	3.7	3.4	3.7
Trade balance (SAAR; Y tril)	-8.4	-10.6	-7.4	0.3	-0.9	-2.8	0.5	0.5	-6.6	-0.6	-10.4	-0.6
Current balance (SAAR; $100 mil)	313	193	931	1,299	1,390	1,195	1,499	1,623	722	1,427	250	1,375
Current balance (SAAR; Y tril)	3.2	2.0	10.7	15.5	16.9	14.6	18.2	18.3	7.9	17.2	2.6	16.6
(% of nominal GDP)	0.7	0.4	2.2	3.1	3.4	2.9	3.6	3.7	1.6	3.4	0.5	3.3
Exchange rate (Y/$)	102.1	103.9	114.5	119.1	121.4	122.2	121.5	113.0	109.9	119.5	105.8	121.0
(Y/Euro)	139.5	137.8	143.8	132.6	135.0	135.6	131.5	128.3	138.4	132.6	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.
E: DIR estimate.

1.2 Selected Economic Indicators

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
Nominal GDP (SAAR; Y tril)	503.0	505.2	507.9	512.3	512.2	511.6	513.4	515.9	507.1	513.2	504.3	512.3
Q/q %	0.4	0.4	0.5	0.9	-0.0	-0.1	0.3	0.5				
Q/q %, SAAR	1.5	1.8	2.2	3.5	-0.1	-0.4	1.4	2.0				
Y/y %	1.0	0.9	1.8	2.2	1.8	1.3	1.0	0.7	1.5	1.2	1.1	1.6
Real GDP (chained [2005]; SAAR; Y tril)	529.9	531.5	533.5	537.1	531.7	531.4	532.8	534.8	533.1	532.7	531.0	533.3
Q/q %	0.2	0.3	0.4	0.7	-1.0	-0.1	0.3	0.4				
Q/q %, SAAR	1.0	1.2	1.5	2.7	-4.0	-0.2	1.0	1.5				
Y/y %	0.4	0.4	1.3	1.6	0.3	-0.0	-0.2	-0.4	0.9	-0.1	0.5	0.4
Contribution to GDP growth (% pt)												
Domestic demand	0.2	0.3	0.4	0.8	-1.5	-0.1	0.3	0.4	0.9	-0.5	0.5	0.3
Foreign demand	0.0	-0.0	-0.0	-0.2	0.5	0.0	-0.0	-0.0	0.0	0.4	0.0	0.1
GDP deflator (y/y %)	0.6	0.4	0.6	0.6	1.5	1.3	1.2	1.1	0.6	1.3	0.6	1.1
Index of All-Industry Activity (2010=100)	102.9	103.5	104.4	106.2	105.2	105.2	105.8	106.6	104.2	105.7	103.3	105.6
Q/q %; y/y %	0.3	0.6	0.9	1.8	-0.9	-0.1	0.5	0.8	1.7	1.4	0.8	2.2
Index of Industrial Production (2010=100)	97.7	98.9	100.9	104.9	102.9	101.4	102.0	102.9	100.6	102.3	98.8	102.8
Q/q %; y/y %	0.0	1.2	2.0	4.0	-1.9	-1.5	0.7	0.9	3.0	1.7	0.6	4.1
Index of Tertiary Industry Activity (2005=100)	103.9	104.4	105.0	106.3	105.6	105.9	106.4	107.2	104.9	106.2	104.2	106.0
Q/q %; y/y %	0.3	0.4	0.6	1.2	-0.7	0.3	0.5	0.8	1.5	1.3	0.9	1.8
Corporate Goods Price Index components (2010=100)												
Domestic Company Goods Price Index	101.0	101.3	101.5	101.7	103.9	104.1	104.3	104.6	101.4	104.2	101.2	103.5
Y/y %	-2.6	-1.4	0.2	0.9	2.9	2.8	2.7	2.8	-0.7	2.8	-1.6	2.3
CPI (excl. fresh food; 2010=100)	103.3	103.7	104.0	103.8	105.5	105.9	106.3	106.1	103.7	106.0	103.4	105.4
Y/y %	-0.1	0.2	0.5	0.9	2.1	2.2	2.2	2.3	0.4	2.2	0.2	1.9
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; %)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Money stock; M2 (y/y %)	3.8	3.9	4.2	4.1	4.1	4.1	4.1	4.1	4.0	4.1	3.9	4.1
Trade balance (SAAR; Y tril)	0.4	0.1	0.3	-0.6	1.5	1.6	1.6	1.4	0.0	1.5	0.3	1.0
Current balance (SAAR; $100 mil)	1655	1657	1681	1608	1869	1903	1927	1929	1650	1907	1654	1827
Current balance (SAAR; Y tril)	18.7	18.7	19.0	18.2	21.1	21.5	21.8	21.8	18.9	21.8	18.7	20.6
(% of nominal GDP)	3.7	3.7	3.7	3.5	4.1	4.2	4.2	4.2	3.7	4.3	3.7	4.0
Exchange rate (Y/$)	113.0	113.0	113.0	113.0	113.0	113.0	113.0	113.0	113.0	113.0	113.0	113.0
(Y/Euro)	128.3	128.3	128.3	128.3	128.3	128.3	128.3	128.3	128.3	128.3	128.3	128.3

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 (E)	2014	2015 (E)	2014	2015
Gross domestic expenditure	524.1	520.7	523.9	529.3	527.5	529.3	527.4	528.6	524.7	528.1	526.1	528.3
Q/q %, SAAR	-7.9	-2.6	2.5	4.2	-1.4	1.3	-1.4	0.9				
Y/y %	-0.3	-1.5	-1.0	-1.0	0.7	1.7	0.5	-0.1	-1.0	0.7	-0.0	0.4
Domestic demand	515.7	512.2	513.7	518.8	518.3	519.1	516.6	517.9	515.3	518.0	518.4	518.2
Q/q %, SAAR	-11.2	-2.7	1.2	4.0	-0.3	0.6	-1.8	1.0				
Y/y %	-0.3	-1.7	-1.9	-2.3	0.5	1.3	0.4	-0.1	-1.6	0.5	-0.0	-0.0
Private demand	392.2	388.0	389.2	394.6	393.1	394.0	391.7	393.1	391.2	393.0	394.2	393.3
Q/q %, SAAR	-13.7	-4.3	1.3	5.7	-1.6	1.0	-2.4	1.5				
Y/y %	-0.3	-2.1	-2.5	-3.0	0.3	1.5	0.4	-0.4	-2.0	0.5	-0.1	-0.2
Final consumption	305.8	305.8	307.8	308.5	305.9	307.1	304.5	305.3	307.1	305.7	310.4	306.5
Q/q %, SAAR	-18.4	-0.0	2.6	0.9	-3.3	1.5	-3.3	1.0				
Y/y %	-2.5	-2.7	-2.1	-4.2	0.1	0.4	-1.1	-1.0	-2.9	-0.4	-0.9	-1.2
Residential investment	13.9	12.9	12.8	13.1	13.4	13.6	13.4	13.3	13.1	13.4	13.7	13.4
Q/q %, SAAR	-36.1	-25.6	-1.6	8.8	9.7	6.6	-4.8	-3.0				
Y/y %	-2.1	-12.5	-15.6	-15.5	-3.3	5.8	4.7	1.9	-11.7	2.3	-5.3	-2.6
Non-residential investment	70.3	70.1	70.0	72.0	71.2	71.7	72.7	73.5	70.7	72.3	71.0	71.9
Q/q %, SAAR	-15.2	-1.3	-0.2	11.9	-4.6	2.9	5.7	4.3				
Y/y %	1.5	0.6	-0.2	-1.3	1.1	2.2	3.7	1.8	0.1	2.2	3.1	1.3
Change in inventories	2.2	-0.7	-1.4	1.0	2.5	1.6	1.0	1.0	0.2	1.5	-0.9	1.5
Public demand	123.5	124.2	124.5	124.1	125.3	125.0	125.0	124.8	124.1	125.0	124.3	124.8
Q/q %, SAAR	-2.4	2.2	1.1	-1.3	3.7	-0.7	-0.1	-0.5				
Y/y %	-0.2	-0.4	-0.3	-0.4	1.3	0.7	0.3	0.6	-0.3	0.7	0.2	0.5
Government final consumption	101.8	102.1	102.4	102.7	103.1	103.3	103.9	103.9	102.3	103.6	102.2	103.3
Q/q %, SAAR	-0.7	1.1	1.3	0.8	1.9	0.8	2.1	0.2				
Y/y %	-0.3	-0.2	0.3	0.6	1.3	1.2	1.4	1.3	0.1	1.3	0.1	1.1
Fixed investment	21.6	21.9	22.1	21.4	22.1	21.7	21.1	20.9	21.8	21.4	22.0	21.6
Q/q %, SAAR	-10.0	5.3	2.7	-11.1	13.8	-7.6	-10.3	-3.8				
Y/y %	-0.1	-2.6	-2.6	-4.2	2.0	-0.6	-4.1	-2.0	-2.6	-1.6	0.4	-2.2
Change in inventories	0.0	0.1	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	9.6	10.4	12.5	12.9	10.6	12.0	12.3	12.3	11.3	11.8	9.6	11.9
Exports of goods and services	88.8	90.1	92.9	94.9	90.5	92.9	92.1	92.3	91.7	91.9	90.1	92.6
Q/q %, SAAR	0.3	6.0	13.3	8.6	-17.2	10.9	-3.4	1.0				
Y/y %	5.5	7.5	11.2	7.1	1.8	3.0	-0.8	-2.8	7.8	0.2	8.3	2.7
Imports of goods and services	79.1	79.6	80.5	82.0	79.9	80.9	79.7	80.0	80.3	80.1	80.5	80.6
Q/q %, SAAR	-16.0	2.5	4.3	7.7	-9.8	5.2	-5.6	1.4				
Y/y %	5.9	5.0	3.5	-0.7	0.7	1.5	-0.7	-2.5	3.3	-0.3	7.2	0.2

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

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

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
Gross domestic expenditure	529.9	531.5	533.5	537.1	531.7	531.4	532.8	534.8	533.1	532.7	531.0	533.3
Q/q %, SAAR	1.0	1.2	1.5	2.7	-4.0	-0.2	1.0	1.5				
Y/y %	0.4	0.4	1.3	1.6	0.3	-0.0	-0.2	-0.4	0.9	-0.1	0.5	0.4
Domestic demand	519.1	520.9	522.9	527.4	519.1	518.8	520.2	522.4	522.7	520.2	520.3	521.5
Q/q %, SAAR	0.9	1.4	1.6	3.5	-6.1	-0.3	1.1	1.7				
Y/y %	0.2	0.4	1.2	1.9	0.0	-0.4	-0.6	-1.0	0.9	-0.5	0.4	0.2
Private demand	394.1	395.8	397.8	402.3	394.4	394.2	395.6	397.8	397.6	395.5	395.2	396.6
Q/q %, SAAR	1.1	1.7	2.0	4.6	-7.6	-0.2	1.5	2.2				
Y/y %	0.2	0.5	1.6	2.5	0.0	-0.4	-0.6	-1.1	1.2	-0.5	0.5	0.4
Final consumption	305.7	306.4	307.7	312.4	304.5	304.2	305.5	306.6	308.1	305.3	306.3	306.7
Q/q %, SAAR	0.5	1.0	1.7	6.1	-9.6	-0.5	1.8	1.4				
Y/y %	-0.1	-0.2	1.1	2.3	-0.4	-0.8	-0.7	-1.8	0.8	-0.9	-0.1	0.1
Residential investment	13.4	13.7	13.9	14.1	13.1	12.6	12.4	12.5	13.8	12.6	13.6	13.0
Q/q %, SAAR	3.1	7.8	6.6	5.1	-25.7	-12.9	-5.9	1.0				
Y/y %	0.3	0.6	3.6	5.6	-2.7	-7.7	-10.6	-11.4	2.6	-8.3	1.6	-4.1
Non-residential investment	74.0	74.7	75.6	77.1	76.1	75.9	76.2	77.2	75.4	76.3	74.4	76.3
Q/q %, SAAR	3.0	3.8	5.1	7.7	-5.1	-0.9	1.4	5.5				
Y/y %	4.1	4.3	4.1	5.0	2.7	1.5	0.6	0.1	4.4	1.2	3.5	2.6
Change in inventories	1.0	1.0	0.5	-1.2	0.7	1.5	1.5	1.5	0.3	1.3	0.8	0.6
Public demand	125.0	125.1	125.1	125.1	124.8	124.6	124.5	124.7	125.1	124.7	125.1	124.8
Q/q %, SAAR	0.4	0.3	0.3	-0.1	-1.2	-0.5	-0.2	0.4				
Y/y %	0.1	0.0	0.0	0.1	0.0	-0.3	-0.7	-0.5	0.1	-0.4	0.2	-0.2
Government final consumption	104.2	104.3	104.5	104.7	104.9	105.2	105.4	105.7	104.5	105.3	104.3	105.1
Q/q %, SAAR	1.0	0.6	0.7	0.7	0.8	1.0	0.9	1.0				
Y/y %	1.0	1.0	0.6	0.7	0.7	0.8	0.9	0.9	0.8	0.8	1.0	0.8
Fixed investment	20.8	20.7	20.6	20.4	19.8	19.4	19.1	19.0	20.6	19.3	20.8	19.7
Q/q %, SAAR	-2.6	-1.2	-1.9	-3.8	-10.8	-8.0	-6.4	-2.9				
Y/y %	-6.0	-4.7	-2.5	-2.6	-4.6	-6.1	-7.2	-7.0	-3.7	-6.4	-3.5	-5.1
Change in inventories	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.0
Net exports of goods and services	12.4	12.2	12.1	11.3	14.1	14.2	14.2	13.9	12.0	14.1	12.2	13.4
Exports of goods and services	92.9	93.8	94.8	96.0	96.7	97.4	98.1	98.6	94.4	97.7	93.5	97.0
Q/q %, SAAR	2.7	3.8	4.5	4.9	3.1	3.0	2.7	2.2				
Y/y %	2.8	1.0	3.0	4.0	4.0	3.9	3.5	2.8	2.7	3.5	1.0	3.8
Imports of goods and services	80.6	81.6	82.7	84.7	82.6	83.2	83.9	84.7	82.4	83.6	81.2	83.6
Q/q %, SAAR	2.7	5.3	5.5	10.1	-9.6	3.1	3.4	3.8				
Y/y %	0.9	0.9	3.6	5.9	2.5	2.0	1.5	-0.0	2.9	1.5	0.7	2.9

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 (E)	2014	2015 (E)	2014	2015
Gross domestic expenditure	487.4	484.0	488.6	497.9	497.8	500.9	499.4	501.1	489.6	499.6	486.9	498.9
Q/q %, SAAR	-0.1	-2.8	3.9	7.9	-0.1	2.5	-1.2	1.4				
Y/y %	1.9	0.5	1.3	2.2	2.1	3.5	2.0	0.6	1.5	2.0	1.6	2.5
Domestic demand	501.3	498.0	500.4	503.7	503.7	505.0	502.7	504.5	501.0	503.9	502.1	503.7
Q/q %, SAAR	-5.3	-2.6	1.9	2.7	-0.0	1.0	-1.8	1.5				
Y/y %	2.4	0.6	0.1	-0.9	0.5	1.4	0.3	0.2	0.5	0.6	1.9	0.3
Private demand	377.5	373.2	375.1	378.8	378.2	379.6	377.2	379.0	376.2	378.5	377.8	378.4
Q/q %, SAAR	-7.6	-4.4	2.0	4.0	-0.7	1.5	-2.5	2.0				
Y/y %	2.4	0.2	-0.6	-1.6	0.3	1.7	0.4	0.1	0.1	0.6	1.8	0.2
Final consumption	292.2	292.5	294.4	293.7	291.7	293.1	290.8	291.8	293.2	291.9	295.4	292.3
Q/q %, SAAR	-12.7	0.5	2.7	-1.0	-2.6	1.9	-3.1	1.4				
Y/y %	0.2	-0.3	-0.2	-2.9	-0.0	0.1	-1.3	-0.6	-0.8	-0.5	1.1	-1.0
Residential investment	15.2	14.1	14.1	14.4	14.7	14.9	14.8	14.7	14.4	14.8	15.0	14.7
Q/q %, SAAR	-28.7	-26.3	-1.0	9.9	8.2	6.8	-3.3	-2.0				
Y/y %	2.7	-9.0	-13.1	-13.0	-3.4	5.9	5.1	2.2	-8.5	2.5	-2.0	-1.7
Non-residential investment	67.6	67.6	67.9	70.0	69.3	69.9	70.8	71.6	68.4	70.4	68.4	70.0
Q/q %, SAAR	-13.2	-0.0	2.0	12.5	-3.7	3.7	4.7	5.1				
Y/y %	3.0	2.0	1.4	0.2	2.3	3.3	4.0	2.2	1.6	2.9	4.5	2.4
Change in inventories	2.5	-1.0	-1.4	0.8	2.4	1.6	0.8	0.8	0.2	1.4	-1.0	1.4
Public demand	123.8	124.8	125.3	124.9	125.5	125.4	125.5	125.5	124.7	125.4	124.3	125.3
Q/q %, SAAR	2.3	3.3	1.6	-1.2	2.0	-0.5	0.4	0.0				
Y/y %	2.1	2.1	2.1	1.3	1.3	0.5	0.1	0.4	1.9	0.6	2.2	0.8
Government final consumption	100.4	100.8	101.2	101.5	101.4	101.8	102.4	102.5	101.0	102.0	100.4	101.8
Q/q %, SAAR	4.0	1.6	1.7	1.0	-0.1	1.2	2.4	0.6				
Y/y %	1.9	1.9	2.7	2.1	1.1	0.9	1.1	1.0	2.2	1.0	1.7	1.3
Fixed investment	23.4	23.8	24.0	23.3	24.1	23.6	23.1	22.9	23.7	23.4	23.8	23.5
Q/q %, SAAR	-4.6	8.1	3.6	-11.1	12.8	-7.0	-8.7	-2.6				
Y/y %	3.8	1.2	0.1	-1.9	2.8	-0.5	-3.9	-1.4	0.4	-1.1	3.4	-1.3
Change in inventories	0.1	0.2	0.0	0.1	0.0	-0.0	0.0	0.0	0.1	0.0	0.1	0.0
Net exports of goods and services	-13.8	-14.1	-11.8	-5.8	-5.9	-4.1	-3.3	-3.4	-11.3	-4.2	-15.1	-4.8
Exports of goods and services	83.5	86.3	92.0	91.3	87.9	90.4	87.4	87.7	88.4	88.4	86.4	89.3
Q/q %, SAAR	-0.3	14.0	29.4	-3.1	-14.1	11.7	-12.5	1.5				
Y/y %	6.6	9.6	16.3	9.3	4.9	4.7	-4.8	-3.9	10.5	0.0	11.4	3.3
Imports of goods and services	97.4	100.4	103.8	97.1	93.8	94.5	90.7	91.1	99.7	92.6	101.5	94.1
Q/q %, SAAR	-23.8	12.9	14.5	-23.5	-12.8	2.6	-15.1	1.9				
Y/y %	8.6	8.7	6.9	-7.1	-3.8	-5.8	-12.4	-6.1	3.9	-7.1	11.4	-7.4

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

3.2 Nominal Gross Domestic Expenditure (Y tril)

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
Gross domestic expenditure	503.0	505.2	507.9	512.3	512.2	511.6	513.4	515.9	507.1	513.2	504.3	512.3
Q/q %, SAAR	1.5	1.8	2.2	3.5	-0.1	-0.4	1.4	2.0				
Y/y %	1.0	0.9	1.8	2.2	1.8	1.3	1.0	0.7	1.5	1.2	1.1	1.6
Domestic demand	506.3	508.8	511.7	517.1	513.6	513.0	514.8	517.6	511.1	514.7	507.8	514.6
Q/q %, SAAR	1.5	2.0	2.3	4.3	-2.6	-0.5	1.4	2.2				
Y/y %	0.5	0.8	1.8	2.6	1.5	0.8	0.5	0.1	1.4	0.7	0.8	1.3
Private demand	380.6	382.8	385.4	390.6	386.5	385.9	387.7	390.2	384.9	387.6	381.9	387.7
Q/q %, SAAR	1.6	2.3	2.7	5.6	-4.1	-0.6	1.8	2.6				
Y/y %	0.5	0.8	2.2	3.3	1.5	0.8	0.5	-0.1	1.7	0.7	0.9	1.5
Final consumption	292.5	293.5	295.1	299.8	295.8	295.1	296.6	297.8	295.2	296.4	293.3	296.9
Q/q %, SAAR	0.9	1.4	2.1	6.6	-5.2	-0.9	2.0	1.6				
Y/y %	0.2	0.2	1.5	2.7	1.2	0.5	0.5	-0.6	1.1	0.4	0.3	1.2
Residential investment	14.9	15.2	15.5	15.7	14.9	14.4	14.2	14.2	15.3	14.4	15.1	14.8
Q/q %, SAAR	4.2	9.0	7.8	6.2	-19.2	-13.3	-6.0	1.9				
Y/y %	1.3	1.8	4.8	6.8	0.2	-5.4	-8.6	-9.5	3.7	-6.0	2.6	-2.0
Non-residential investment	72.4	73.2	74.4	76.1	75.2	75.2	75.6	76.9	74.1	75.8	72.8	75.5
Q/q %, SAAR	4.0	4.9	6.5	9.3	-4.2	-0.2	2.4	6.9				
Y/y %	4.5	4.8	5.2	6.3	4.0	2.7	1.7	1.1	5.2	2.3	4.1	3.7
Change in inventories	0.8	0.8	0.4	-1.0	0.6	1.2	1.2	1.2	0.2	1.0	0.7	0.5
Public demand	125.8	126.0	126.3	126.4	127.1	127.1	127.1	127.4	126.1	127.1	125.9	127.0
Q/q %, SAAR	0.9	0.9	0.8	0.4	2.1	-0.0	0.2	0.9				
Y/y %	0.5	0.5	0.6	0.7	1.2	0.8	0.6	0.6	0.6	0.8	0.5	0.8
Government final consumption	102.9	103.1	103.4	103.7	104.8	105.1	105.5	105.9	103.3	105.3	103.0	104.8
Q/q %, SAAR	1.4	1.0	1.1	1.1	4.2	1.4	1.3	1.4				
Y/y %	1.4	1.4	1.0	1.2	1.8	1.9	2.0	2.1	1.2	2.0	1.2	1.7
Fixed investment	22.9	22.9	22.8	22.7	22.3	21.9	21.6	21.5	22.8	21.8	22.9	22.2
Q/q %, SAAR	-1.4	0.2	-0.5	-2.4	-7.2	-6.6	-5.0	-1.5				
Y/y %	-4.9	-3.4	-1.1	-1.2	-2.6	-4.1	-5.3	-5.0	-2.4	-4.5	-2.5	-3.3
Change in inventories	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net exports of goods and services	-3.3	-3.6	-3.7	-4.8	-1.4	-1.4	-1.4	-1.7	-3.9	-1.5	-3.5	-2.3
Exports of goods and services	88.6	89.7	91.0	92.5	93.6	94.6	95.6	96.5	90.5	95.1	89.3	94.1
Q/q %, SAAR	3.8	5.2	5.9	6.7	5.0	4.4	4.2	3.7				
Y/y %	0.9	-0.8	4.0	5.4	5.6	5.5	5.1	4.3	2.4	5.1	-0.0	5.4
Imports of goods and services	91.9	93.3	94.7	97.2	95.0	96.0	97.0	98.2	94.3	96.6	92.8	96.4
Q/q %, SAAR	3.5	6.0	6.3	11.1	-8.7	4.0	4.4	4.9				
Y/y %	-2.0	-1.3	4.3	6.7	3.4	3.0	2.5	1.0	1.9	2.4	-1.3	3.9

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 (E)	2014	2015 (E)	2014	2015
Gross domestic expenditure	93.0	92.9	93.3	94.1	94.4	94.6	94.7	94.8	93.3	94.6	92.6	94.4
Q/q %, SAAR	2.1	-0.1	0.3	0.9	0.3	0.3	0.1	0.1				
Y/y %	2.2	2.0	2.3	3.3	1.5	1.8	1.5	0.7	2.5	1.4	1.7	2.0
Private final consumption	95.5	95.6	95.7	95.2	95.4	95.5	95.5	95.6	95.5	95.5	95.2	95.4
Q/q %, SAAR	1.7	0.1	0.0	-0.5	0.2	0.1	0.1	0.1				
Y/y %	2.7	2.5	2.0	1.3	-0.1	-0.2	-0.2	0.4	2.1	-0.0	2.0	0.2
Private residential investment	109.9	109.7	109.8	110.1	109.7	109.8	110.2	110.5	109.9	110.1	109.0	110.0
Q/q %, SAAR	2.8	-0.2	0.1	0.3	-0.3	0.0	0.4	0.3				
Y/y %	4.9	3.9	2.9	2.9	-0.1	0.1	0.3	0.4	3.6	0.2	3.5	0.9
Private non-residential investment	96.2	96.5	97.0	97.1	97.4	97.5	97.3	97.5	96.7	97.4	96.3	97.3
Q/q %, SAAR	0.6	0.3	0.5	0.1	0.2	0.2	-0.2	0.2				
Y/y %	1.4	1.4	1.6	1.6	1.2	1.1	0.3	0.4	1.5	0.7	1.3	1.1
Government final consumption	98.5	98.7	98.8	98.8	98.4	98.5	98.5	98.6	98.7	98.4	98.3	98.5
Q/q %, SAAR	1.2	0.1	0.1	0.0	-0.5	0.1	0.1	0.1				
Y/y %	2.1	2.1	2.4	1.5	-0.2	-0.2	-0.3	-0.2	2.0	-0.2	1.6	0.2
Public fixed investment	108.0	108.7	108.9	109.0	108.7	108.9	109.4	109.7	108.7	109.2	107.9	109.0
Q/q %, SAAR	1.5	0.7	0.2	0.0	-0.2	0.2	0.4	0.3				
Y/y %	3.9	3.9	2.7	2.4	0.8	0.2	0.2	0.6	3.1	0.4	3.0	1.0
Exports of goods and services	94.1	95.8	99.1	96.3	97.1	97.3	95.0	95.1	96.4	96.2	95.9	96.5
Q/q %, SAAR	-0.2	1.8	3.4	-2.8	0.9	0.2	-2.4	0.1				
Y/y %	1.0	1.9	4.6	2.1	3.1	1.6	-4.0	-1.2	2.4	-0.2	2.8	0.6
Imports of goods and services	123.1	126.0	129.0	118.5	117.5	116.8	113.7	113.9	124.1	115.6	126.2	116.7
Q/q %, SAAR	-2.4	2.4	2.4	-8.2	-0.8	-0.6	-2.6	0.1				
Y/y %	2.6	3.5	3.3	-6.4	-4.5	-7.2	-11.8	-3.7	0.6	-6.9	3.9	-7.5

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.

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

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
Gross domestic expenditure	94.9	95.1	95.2	95.4	96.3	96.3	96.4	96.5	95.1	96.3	95.0	96.1
Q/q %, SAAR	0.1	0.1	0.2	0.2	1.0	-0.1	0.1	0.1				
Y/y %	0.6	0.4	0.6	0.6	1.5	1.3	1.2	1.1	0.6	1.3	0.6	1.1
Private final consumption	95.7	95.8	95.9	96.0	97.1	97.0	97.1	97.1	95.8	97.1	95.7	96.8
Q/q %, SAAR	0.1	0.1	0.1	0.1	1.2	-0.1	0.1	0.0				
Y/y %	0.3	0.4	0.4	0.4	1.5	1.3	1.3	1.2	0.4	1.3	0.4	1.1
Private residential investment	110.8	111.1	111.4	111.7	114.1	114.0	113.9	114.2	111.3	114.0	111.0	113.4
Q/q %, SAAR	0.3	0.3	0.3	0.3	2.1	-0.1	-0.0	0.2				
Y/y %	1.0	1.2	1.1	1.1	3.0	2.6	2.2	2.2	1.1	2.5	0.9	2.2
Private non-residential investment	97.7	98.0	98.3	98.7	98.9	99.1	99.3	99.7	98.2	99.3	97.9	99.0
Q/q %, SAAR	0.2	0.3	0.3	0.4	0.2	0.2	0.2	0.3				
Y/y %	0.4	0.5	1.0	1.2	1.2	1.1	1.0	1.0	0.8	1.1	0.6	1.1
Government final consumption	98.7	98.8	98.9	99.0	99.9	100.0	100.1	100.2	98.8	100.0	98.8	99.7
Q/q %, SAAR	0.1	0.1	0.1	0.1	0.8	0.1	0.1	0.1				
Y/y %	0.4	0.4	0.4	0.4	1.1	1.1	1.1	1.1	0.4	1.1	0.2	1.0
Public fixed investment	110.0	110.4	110.8	111.2	112.3	112.7	113.1	113.5	110.7	113.0	110.2	112.3
Q/q %, SAAR	0.3	0.3	0.4	0.4	1.0	0.4	0.4	0.4				
Y/y %	1.2	1.4	1.4	1.4	2.1	2.1	2.1	2.1	1.4	2.1	1.1	1.9
Exports of goods and services	95.3	95.6	96.0	96.4	96.8	97.1	97.5	97.8	95.9	97.3	95.5	97.0
Q/q %, SAAR	0.3	0.3	0.4	0.4	0.5	0.3	0.3	0.4				
Y/y %	-1.8	-1.8	1.0	1.3	1.5	1.6	1.6	1.5	-0.3	1.5	-1.0	1.5
Imports of goods and services	114.1	114.3	114.5	114.8	115.1	115.3	115.6	115.9	114.5	115.6	114.3	115.3
Q/q %, SAAR	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3				
Y/y %	-2.9	-2.2	0.7	0.7	0.9	1.0	1.0	1.1	-0.9	1.0	-2.1	0.9

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 (E)	2014	2015 (E)	2014	2015
1) Q/q %												
GDP growth rate	-2.0	-0.6	0.6	1.0	-0.3	0.3	-0.4	0.2	-1.0	0.7	-0.0	0.4
Domestic demand	-2.9	-0.8	0.3	1.0	-0.0	0.1	-0.5	0.2	-1.6	0.5	-0.0	-0.0
Private demand	-2.7	-0.9	0.2	1.1	-0.3	0.2	-0.5	0.3	-1.5	0.3	-0.1	-0.1
Private consumption	-3.1	-0.0	0.4	0.1	-0.5	0.2	-0.5	0.1	-1.8	-0.3	-0.5	-0.8
Residential investment	-0.4	-0.2	-0.0	0.1	0.1	0.0	-0.0	-0.0	-0.4	0.1	-0.2	-0.1
Private fixed investment	-0.6	-0.0	-0.0	0.4	-0.2	0.1	0.2	0.1	0.0	0.3	0.4	0.2
Change in private inventories	1.3	-0.7	-0.2	0.5	0.3	-0.2	-0.1	0.0	0.6	0.2	0.2	0.5
Public demand	-0.2	0.2	0.1	-0.1	0.2	-0.1	-0.0	-0.0	-0.1	0.2	0.1	0.1
Government final consumption	-0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.2	0.0	0.2
Public fixed investment	-0.1	0.1	0.0	-0.1	0.2	-0.1	-0.1	-0.0	-0.1	-0.1	0.0	-0.1
Change in public inventories	-0.0	0.0	-0.0	0.0	-0.0	0.0	0.0	0.0	0.0	-0.0	0.0	-0.0
Net exports of goods and services	0.9	0.1	0.3	0.0	-0.3	0.2	0.1	-0.0	0.6	0.1	0.0	0.4
Exports of goods and services	0.0	0.3	0.6	0.4	-0.9	0.5	-0.2	0.0	1.3	0.0	1.3	0.5
Imports of goods and services	0.9	-0.1	-0.2	-0.4	0.5	-0.3	0.3	-0.1	-0.7	0.0	-1.4	0.0
2) Y/y %												
GDP growth rate	-0.3	-1.5	-1.0	-1.0	0.7	1.7	0.5	-0.1	-1.0	0.7	-0.0	0.4
Domestic demand	-0.2	-1.7	-2.0	-2.4	0.5	1.4	0.5	-0.1	-1.6	0.5	-0.0	-0.0
Private demand	-0.1	-1.7	-1.9	-2.3	0.2	1.2	0.4	-0.3	-1.5	0.3	-0.1	-0.1
Private consumption	-1.5	-1.7	-1.3	-2.5	0.1	0.2	-0.7	-0.6	-1.8	-0.3	-0.5	-0.8
Residential investment	-0.1	-0.4	-0.5	-0.5	-0.1	0.2	0.1	0.0	-0.4	0.1	-0.2	-0.1
Private fixed investment	0.2	0.1	-0.0	-0.2	0.1	0.3	0.5	0.3	0.0	0.3	0.4	0.2
Change in private inventories	1.3	0.4	-0.1	1.0	0.1	0.6	0.5	-0.0	0.6	0.2	0.2	0.5
Public demand	-0.1	-0.1	-0.1	-0.1	0.3	0.2	0.1	0.1	-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	0.2	0.0	0.2	0.0	0.2
Public fixed investment	-0.0	-0.1	-0.1	-0.2	0.1	-0.0	-0.2	-0.1	-0.1	-0.1	0.0	-0.1
Change in public inventories	0.0	0.1	-0.0	0.0	-0.0	-0.0	-0.0	-0.0	0.0	-0.0	0.0	-0.0
Net exports of goods and services	-0.2	0.3	1.1	1.3	0.2	0.2	-0.0	-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	-0.5	1.3	0.0	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	0.0

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.

5.2 Contribution to Real GDP Growth by Component

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
1) Q/q %												
GDP growth rate	0.2	0.3	0.4	0.7	-1.0	-0.1	0.3	0.4	0.9	-0.1	0.5	0.4
Domestic demand	0.2	0.3	0.4	0.8	-1.5	-0.1	0.3	0.4	0.9	-0.5	0.5	0.3
Private demand	0.2	0.3	0.4	0.8	-1.5	-0.0	0.3	0.4	0.9	-0.4	0.4	0.4
Private consumption	0.1	0.1	0.2	0.9	-1.5	-0.1	0.3	0.2	0.5	-0.5	-0.0	0.1
Residential investment	0.0	0.0	0.0	0.0	-0.2	-0.1	-0.0	0.0	0.1	-0.2	0.0	-0.1
Private fixed investment	0.1	0.1	0.2	0.3	-0.2	-0.0	0.0	0.2	0.6	0.2	0.5	0.4
Change in private inventories	0.0	0.0	-0.1	-0.3	0.4	0.2	0.0	0.0	-0.2	0.2	-0.1	-0.0
Public demand	0.0	0.0	0.0	-0.0	-0.1	-0.0	-0.0	0.0	0.0	-0.1	0.0	-0.1
Government final consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2
Public fixed investment	-0.0	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.0	-0.2	-0.2	-0.2	-0.2
Change in public inventories	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	0.0	0.0
Net exports of goods and services	0.0	-0.0	-0.0	-0.2	0.5	0.0	-0.0	-0.0	0.0	0.4	0.0	0.1
Exports of goods and services	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.5	0.6	0.2	0.7
Imports of goods and services	-0.1	-0.2	-0.2	-0.4	0.4	-0.1	-0.1	-0.1	-0.4	-0.2	-0.1	-0.5
2) Y/y %												
GDP growth rate	0.4	0.4	1.3	1.6	0.3	-0.0	-0.2	-0.4	0.9	-0.1	0.5	0.4
Domestic demand	0.2	0.4	1.2	1.9	0.0	-0.4	-0.6	-1.0	0.9	-0.5	0.5	0.3
Private demand	0.1	0.4	1.2	1.8	0.0	-0.3	-0.4	-0.8	0.9	-0.4	0.4	0.4
Private consumption	-0.1	-0.1	0.6	1.3	-0.2	-0.4	-0.4	-1.1	0.5	-0.5	-0.0	0.1
Residential investment	0.0	0.0	0.1	0.1	-0.1	-0.2	-0.3	-0.3	0.1	-0.2	0.0	-0.1
Private fixed investment	0.5	0.6	0.5	0.8	0.4	0.2	0.1	0.0	0.6	0.2	0.5	0.4
Change in private inventories	-0.3	-0.1	-0.1	-0.4	-0.1	0.1	0.2	0.5	-0.2	0.2	-0.1	-0.0
Public demand	0.0	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.1	0.0	-0.1	0.0	-0.1
Government final consumption	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Public fixed investment	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2
Change in public inventories	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.0	0.0	-0.0	0.0	0.0
Net exports of goods and services	0.3	0.0	-0.0	-0.2	0.3	0.4	0.4	0.5	0.0	0.4	0.0	0.1
Exports of goods and services	0.5	0.2	0.5	0.7	0.7	0.7	0.6	0.5	0.5	0.6	0.2	0.7
Imports of goods and services	-0.1	-0.1	-0.5	-0.9	-0.4	-0.3	-0.2	0.0	-0.4	-0.2	-0.1	-0.5

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 (E)	2014	2015 (E)	2014	2015
1) World economy												
Economic growth of major trading partners												
Y/y %	3.3	3.4	3.2	3.4	3.0	2.8	2.7	2.9	3.4	2.9	3.3	3.0
Crude oil price (WTI futures; $/bbl)	103.0	97.2	73.2	48.6	57.8	46.5	42.2	30.0	80.5	44.1	92.9	48.8
Y/y %	9.4	-8.1	-25.0	-50.7	-43.9	-52.2	-42.4	-38.2	-18.7	-45.2	-5.2	-47.5
2) US economy												
Real GDP (chained [2009]; $ bil; SAAR)	15,902	16,069	16,151	16,177	16,334	16,414	16,442	16,552	16,075	16,435	15,962	16,342
Q/q %, SAAR	4.6	4.3	2.1	0.6	3.9	2.0	0.7	2.7				
Y/y %	2.6	2.9	2.5	2.9	2.7	2.1	1.8	2.3	2.7	2.2	2.4	2.4
Consumer Price Index												
(1982-84 avg=100)	236.8	237.3	237.1	235.4	236.8	237.6	238.1	238.2	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	0.1				
Y/y %	2.1	1.8	1.2	-0.1	-0.0	0.1	0.5	1.2	1.3	0.4	1.6	0.1
Producer Price Index												
(Final demand; 2009.Nov=100)	110.9	111.3	111.1	109.8	110.0	110.2	109.7	109.8	110.8	109.9	110.9	109.9
Q/q %, SAAR	2.2	1.2	-0.7	-4.6	1.0	0.6	-1.8	0.3				
Y/y %	1.9	1.8	1.2	-0.5	-0.8	-0.9	-1.2	0.0	1.1	-0.7	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	2.10	2.34	2.17	2.54	2.14
3) Japanese economy												
Nominal government final consumption												
Y tril; SAAR	100.4	100.8	101.2	101.5	101.4	101.8	102.4	102.5	101.0	102.0	100.4	101.8
Q/q %, SAAR	4.0	1.6	1.7	1.0	-0.1	1.2	2.4	0.6				
Y/y %	1.9	1.9	2.7	2.1	1.1	0.9	1.1	1.0	2.2	1.0	1.7	1.3
Nominal public fixed investment												
Y tril; SAAR	23.4	23.8	24.0	23.3	24.1	23.6	23.1	22.9	23.7	23.4	23.8	23.5
Q/q %, SAAR	-4.6	8.1	3.6	-11.1	12.8	-7.0	-8.7	-2.6				
Y/y %	3.8	1.2	0.1	-1.9	2.8	-0.5	-3.9	-1.4	0.4	-1.1	3.4	-1.3
Exchange rate (Y/$)	102.1	103.9	114.5	119.1	121.4	122.2	121.5	113.0	109.9	119.5	105.8	121.0
(Y/€)	139.5	137.8	143.8	132.6	135.0	135.6	131.5	128.3	138.4	132.6	140.3	133.7

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

6.2 Major Assumptions

	2016			2017				2018	FY		CY	
	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2016 (E)	2017 (E)	2016 (E)	2017 (E)
1) World economy												
Economic growth of major trading partners												
Y/y %	3.1	3.1	3.3	3.3	3.3	3.3	3.3	3.3	3.2	3.3	3.1	3.3
Crude oil price (WTI futures; $/bbl)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Y/y %	-48.1	-35.5	-28.8	0.0	0.0	0.0	0.0	0.0	-32.0	0.0	-38.5	0.0
2) US economy												
Real GDP (chained [2009]; $ bil; SAAR)	16,665	16,782	16,894	16,990	17,077	17,171	17,272	17,370	16,833	17,222	16,723	17,128
Q/q %, SAAR	2.8	2.8	2.7	2.3	2.0	2.2	2.4	2.3				
Y/y %	2.0	2.2	2.7	2.7	2.5	2.3	2.2	2.2	2.4	2.3	2.3	2.4
Consumer Price Index												
(1982-84 avg=100)	239.2	240.4	241.5	242.6	243.9	245.4	246.8	248.2	241.0	246.1	239.8	244.7
Q/q %, SAAR	1.7	2.1	1.8	1.8	2.1	2.5	2.3	2.4				
Y/y %	1.0	1.2	1.4	1.9	2.0	2.1	2.2	2.3	1.4	2.1	1.2	2.0
Producer Price Index												
(Final demand; 2009.Nov=100)	110.2	110.7	111.2	111.6	112.2	112.8	113.3	113.9	110.9	113.1	110.5	112.5
Q/q %, SAAR	1.6	1.9	1.7	1.7	1.9	2.2	2.0	2.1				
Y/y %	0.2	0.5	1.3	1.7	1.8	1.9	2.0	2.1	0.9	1.9	0.5	1.8
FF rate (%)	0.75	0.75	1.00	1.25	1.50	1.75	2.00	2.25	1.25	2.25	1.00	2.00
(Target rate for the forecast period, end-period)												
Government bond yield (10 year; %)	2.41	2.44	2.52	2.68	2.86	3.04	3.22	3.42	2.51	3.13	2.37	2.95
3) Japanese economy												
Nominal government final consumption												
Y tril; SAAR	102.9	103.1	103.4	103.7	104.8	105.1	105.5	105.9	103.3	105.3	103.0	104.8
Q/q %, SAAR	1.4	1.0	1.1	1.1	4.2	1.4	1.3	1.4				
Y/y %	1.4	1.4	1.0	1.2	1.8	1.9	2.0	2.1	1.2	2.0	1.2	1.7
Nominal public fixed investment												
Y tril; SAAR	22.9	22.9	22.8	22.7	22.3	21.9	21.6	21.5	22.8	21.8	22.9	22.2
Q/q %, SAAR	-1.4	0.2	-0.5	-2.4	-7.2	-6.6	-5.0	-1.5				
Y/y %	-4.9	-3.4	-1.1	-1.2	-2.6	-4.1	-5.3	-5.0	-2.4	-4.5	-2.5	-3.3
Exchange rate (Y/$)	113.0	113.0	113.0	113.0	113.0	113.0	113.0	113.0	113.0	113.0	113.0	113.0
(Y/€)	128.3	128.3	128.3	128.3	128.3	128.3	128.3	128.3	128.3	128.3	128.3	128.3

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