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Japan's Economy: Monthly Review

The Effects of Unconventional Monetary Policies in Japan, the US, and Europe

Japan's economy is expected to pass through a temporary lull and move into a moderate growth phase

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Summary

- **Main economic scenario for Japan:** Japan's economy is expected to enter a temporary lull. The real GDP growth rate for the Apr-Jun 2015 period on a year-to-year basis may very well fall temporarily into negative numbers. However, we believe that the economy will be able to avoid falling completely into a recession and move toward a moderate recovery due to (1) Continuation of the virtuous circle brought on by Abenomics, and (2) A gradual comeback for exports mainly to the US.
- **Four risk factors facing Japan's economy:** Risks factors for the Japanese economy are: (1) The *Triple Weaknesses* – a weak bond market, weak yen, and weak stock market due to loss of fiscal discipline, (2) The danger of China's economic bubble collapsing, (3) tumult in the economies of emerging nations in response to the US exit strategy, and (4) a worldwide decline in stock values due to geopolitical risk.
- **The effects of unconventional monetary policies in Japan, the US, and Europe:** In this report we compare the effects of unconventional monetary policies implemented by central banks in Japan, the US, and Europe. We provide a general overview of unconventional monetary policies, while considering what the implications for the future might be. The data indicates that the Fed's LSAP series was especially effective in improving the real economy. LSAP in the US was followed by growth in stock prices, as well as a major asset effect due to the high shareholding ratio of households in comparison to other countries. This in turn led to major growth in personal consumption. Meanwhile, the BOJ's QQE I had a major effect on CPI. The BOJ's monetary policy has not had a great effect on the real economy, but the realization of a major depreciation in Japan's currency has provided strong upward pressure on CPI.

1. Japan's Economy to Pass Through Temporary Lull and Move into Moderate Growth Phase

Main economic scenario for Japan

Japan's economy is expected to enter a temporary lull. The real GDP growth rate for the Apr-Jun 2015 period on a year-to-year basis may very well fall temporarily into negative numbers. However, we believe that the economy will be able to avoid falling completely into a recession and move toward a moderate recovery due to (1) Continuation of the virtuous circle brought on by Abenomics, and (2) A gradual comeback for exports mainly to the US.

Four risk factors facing Japan's economy

Risks factors for the Japanese economy are: (1) The Triple Weaknesses – a weak bond market, weak yen, and weak stock market due to loss of fiscal discipline, (2) The danger of China's economic bubble collapsing, (3) tumult in the economies of emerging nations in response to the US exit strategy, and (4) a worldwide decline in stock values due to geopolitical risk.

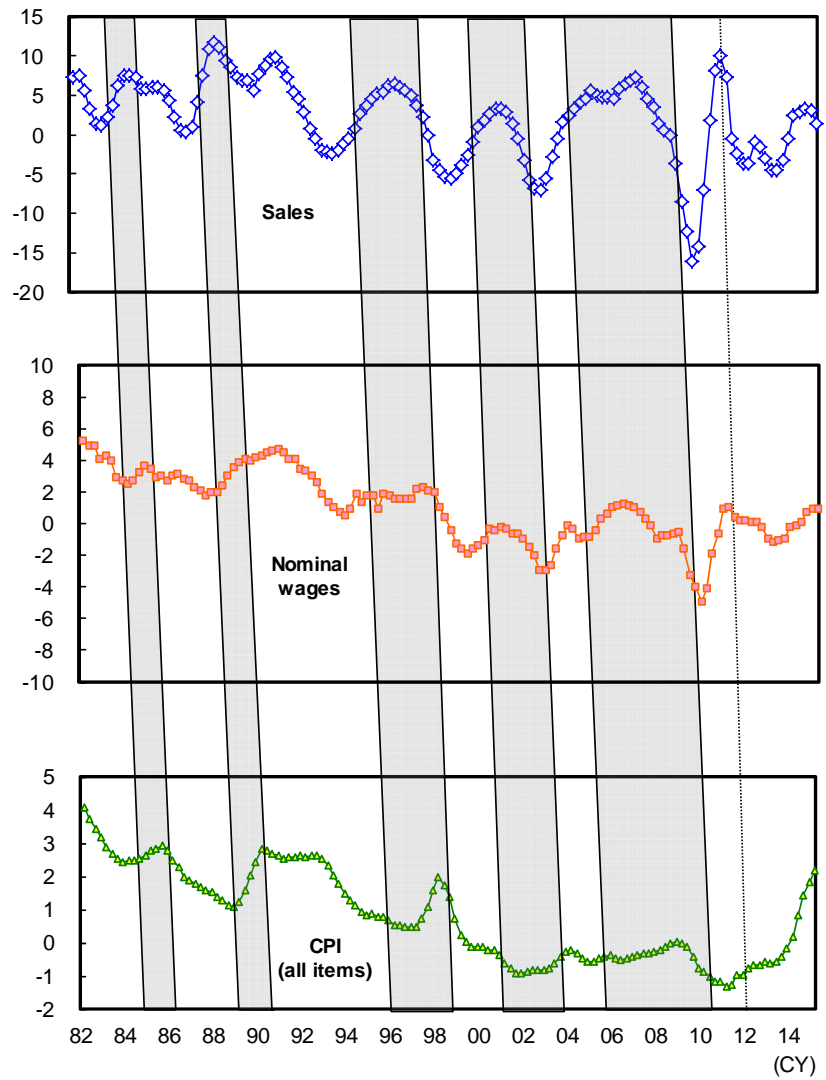
Virtuous circle brought on by Abenomics to continue

Japan's economy is expected to be supported by the virtuous circle brought on by Abenomics.

Criticisms have been voiced by the opposition parties and the mass media claiming that employee compensation has failed to increase despite the progress of inflation, and that Abenomics will only cause the people more pain. However, as is shown in Chart 1, historical data reveals that there is a recurring economic cycle in Japan moving from sales growth to wage growth and then to price increases. In other words, wage hikes in Japan tend to occur six months to a year after growth in sales, and then another six months later the consumer price index tends to rise.

With this in mind we can see that the BOJ's monetary easing policy and the government's pro-business policy have been designed to encourage growth in sales. In this sense, the basic thinking behind Abenomics is right on target in understanding that the starting point for shaking off deflation is to induce sales growth.

In actual fact, the corporate sector has been favorable recently, and as the employment and income environment improves, the personal sector is gradually improving also. The wage increase rate after the 2014 annual spring labor offensive was +2.2%, the highest it has been for the past fifteen years. The wage increase rate is expected to exceed that of the previous year in 2015 as well. Hence, looking at the big picture, we can see that the first buds of the virtuous circle as envisioned by Abenomics (production → income → consumption) have already sprouted.



Source: Ministry of Finance, Ministry of Health, Labour and Welfare, Ministry of Internal Affairs and Communications; compiled by DIR.
 Notes: 1) Y/y comparison of four-quarter moving average.
 2) Shaded bars denote periods when sales were on uptrend. Bars tilted in order to show roughly 6-month lag from sales graph to nominal wages graph and from there to CPI graph, respectively.

Collapse of energy prices a factor in pushing up real wages

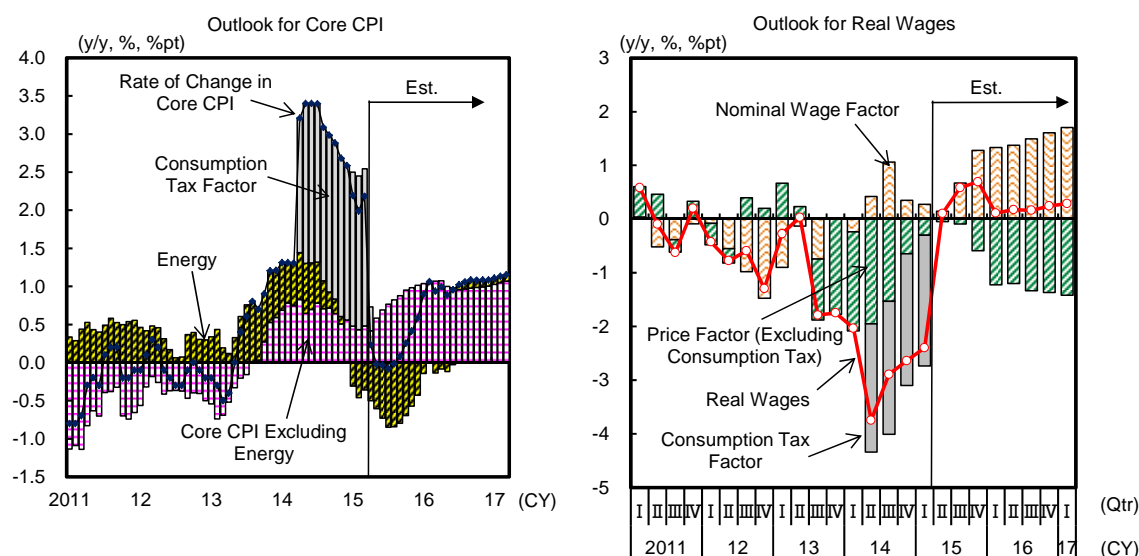
Here we examine the effects of the low price in crude oil on Japan's economy.

In forecasting the future of core CPI based on the collapse in the price of crude oil, downward pressure brought on by the energy price is expected to remain a major factor in suppressing growth in core CPI for the rest of 2015. Still, prices other than energy are expected to continue in a growth trend for a while longer. This is because (1) the economy is now seen to be moving toward recovery and as it advances along the road of expansion, the supply-demand gap from a macro perspective is expected to continue improving, and (2) the weak yen, which has continued to progress at the same time the price of crude has fallen, has the effect of pushing prices upwards, and its residual effect is expected to be around for some time. However, the extent to which the decline in energy prices brings downward pressure on core CPI is expected to be temporarily greater than the effect of upward pressure on core CPI that factors other than energy have. Furthermore, the upward pressure on prices brought on by the increase in the consumption tax in April of 2014 should have dissipated by April of this year (2015). Therefore we believe there is a growing possibility that core CPI will fall below last year's level on a y/y basis this spring.

As the growth rate in prices momentarily falls into negative numbers, real wages which were stagnant for quite some time stand an excellent chance of improving rapidly. During the Apr-Jun 2015 period when the effects of the previous year's increase in consumption tax become a thing of the past, the growth rate in real wages is expected to shift into the positive range in y/y terms. Meanwhile, the collapse in the price of crude oil will be a factor in the improvement of corporate earnings, a portion of which will be distributed to households as the improved corporate earnings become a factor in pushing up the nominal wage. Then, beginning around the middle of 2015, downward pressure on prices brought on by the steep decline in the price of energy is expected to gradually dissipate, and the extent of growth in prices is expected to increase again. However, the underlying growth trend in nominal wage is expected to continue, keeping real wages in the positive range. The memory of stagnant personal consumption after the tax hike last year remains fresh, when the rise in prices due to the increase in consumption tax brought downward pressure on real wages. But in the future, we expect that real wages will shift into a growth trend and become a driving force in revitalizing personal consumption.

Outlook for Core CPI and Real Wages

Chart 2



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

The collapse in the price of crude oil will boost real GDP by +0.52% in FY2015

Estimates obtained using the DIR macroeconomic model in order to get a better idea of the effects that cheap crude oil will have on the Japanese economy (see Chart 3). According to the results of the simulation, the price of crude oil declined from its price of \$105/bbl as of June 2014, thereby boosting real GDP levels between FY2014 and FY2016 by the following amounts: +0.19% in FY2014, +0.52% in FY2015, and +0.42% in FY2016. Meanwhile, effects on the growth rate in real GDP were +0.19%pt, +0.34%pt, and -0.10%pt respectively.

Looking at the effect of cheap oil by category of demand we see that personal consumption and housing investment are expected to achieve growth due to the increase in real wages, while growth in corporate earnings is expected to be a factor in pushing up capital expenditure. Meanwhile, a portion of the increase in corporate earnings is expected to be distributed to households in the form of improved wages, so growth in corporate income will contribute to increased household demand. At the same time, the decline in the crude oil price will push down prices, which in turn will trigger growth in the real interest rate. The latter will bring downward pressure on housing investment and capital expenditure, but this negative factor will be balanced by the positive factor of growth in income.

Regarding prices, CGPI and CPI are expected to receive downward pressure from the decline in import prices, and the domestic demand deflator will experience a major decline. A decline in the import deflator, which is a deductible item, will mean growth for the GDP deflator. As a result, nominal GDP will get an even bigger boost than real GDP.

Meanwhile, since resource import value, which will grow to just under 40% of all imports, will suffer a major decline, the trade deficit will see a major reduction, while current account balance is expected to move significantly deeper into the black. As for the trade balance, the continued deficit can be attributed to the Great East Japan Earthquake of 2011. The assumption was that this deficit would likely stick around for some time to come, but the sudden collapse in the price of crude oil just may make the dream of a return to the black into a reality.

As can be seen by the above, the collapse in the price of crude oil promises to bring major benefits to Japan's economy. Japan's economy remained in a slump from the beginning of 2014 till around the middle of the year, and recently it has been seen to be moving toward a sustainable recovery. The low price of crude oil provides an additional tailwind which promises to bring all the more strength to that recovery.

Effect 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
		%	%	%	%	%	%	%	%	%
WTI = Difference from \$105 Scenario	FY2014	0.19	0.27	0.45	0.91	0.16	0.96	1.15	0.95	0.19
	FY2015	0.52	0.84	2.09	2.23	0.33	2.68	2.41	1.88	0.34
	FY2016	0.42	0.61	1.54	2.19	0.29	2.20	2.26	1.83	-0.10
WTI = Difference from \$70 Scenario	FY2014	0.05	0.07	0.09	0.25	0.05	0.25	0.31	0.26	0.05
	FY2015	0.19	0.35	0.85	0.58	0.11	0.98	0.56	0.37	0.14
	FY2016	0.11	0.20	0.37	0.35	0.06	0.57	0.28	0.17	-0.08
20% Increase in Price of Crude Oil	FY2014	-0.02	-0.01	0.01	-0.13	-0.03	-0.08	-0.16	-0.14	-0.02
	FY2015	-0.09	-0.07	-0.21	-0.65	-0.10	-0.43	-0.75	-0.66	-0.07
	FY2016	-0.10	-0.08	-0.43	-0.77	-0.10	-0.49	-0.85	-0.75	-0.01

		Current Account Balance / Nominal GDP	Import Price	Export Price	CGPI	Core CPI	Industrial Production	Tertiary Industry Activity Index	All Industry Activity Index
		%pt	%	%	%	%	%	%	%
WTI = Difference from \$105 Scenario	FY2014	1.08	-7.07	-0.81	-1.08	-0.32	0.38	0.20	0.22
	FY2015	2.16	-14.52	-1.66	-2.34	-0.97	1.04	0.55	0.61
	FY2016	2.12	-12.87	-1.43	-2.07	-0.86	0.88	0.48	0.52
WTI = Difference from \$70 Scenario	FY2014	0.30	-1.97	-0.26	-0.34	-0.08	0.10	0.05	0.06
	FY2015	0.51	-4.49	-0.54	-0.75	-0.43	0.36	0.18	0.21
	FY2016	0.32	-2.62	-0.31	-0.44	-0.35	0.21	0.10	0.11
20% Increase in Price of Crude Oil	FY2014	-0.15	0.93	0.13	0.17	0.01	-0.03	-0.02	-0.02
	FY2015	-0.65	4.38	0.51	0.71	0.03	-0.19	-0.12	-0.12
	FY2016	-0.73	4.58	0.51	0.73	0.03	-0.23	-0.14	-0.15

Source: Compiled by DIR.

Notes: 1) Simulation run using the DIR short-term macro model. Values show rate of deviation from normal solution.

2) WTI = Difference from \$105 Scenario assumes most recent WTI peak of June 2014 and beyond to be flat at \$105/bbl.

WTI = Difference from \$70 Scenario assumes the 2014 and 2015 Jan-Mar period and beyond to be flat at \$70/bbl.

2. The Effects of Unconventional Monetary Policies in Japan, the US, and Europe

2.1 Comparing a Cross-Section of Unconventional Monetary Policies

The differing effects of unconventional monetary policies of central banks in different countries

In this section we compare the effects of unconventional monetary policies implemented by central banks in Japan, the US, and Europe. We provide a general overview of unconventional monetary policies, while considering what the implications for the future might be. (Conclusions are shown in Chart 4.)

The first thing we notice is that the quantitative and qualitative monetary easing measures (QQE I & II) implemented by the Bank of Japan, as well as the Fed's LSAP II & III and quantitative easing measures implemented by the ECB all resulted in major growth in stock prices. It appears that global stock markets have all had a positive response to unconventional monetary policies.

Next we look at the effects on the real economy. In the US, where the stock shareholding ratio of households is high in comparison to other countries, there was a major asset effect followed by significant growth in personal consumption. In Japan as well, we can detect the asset effect due to growth in stock prices, though it pales in comparison to the US.

Finally, we consider the influence on CPI from the dual perspectives of improvement in the supply-demand gap and currency depreciation. Here it appears that the Bank of Japan's quantitative and qualitative monetary easing measures were the most effective. As for improvement in the supply-demand gap, Japan's efforts were not as effective as that of the Fed's LSAP series, but the major depreciation in the country's currency on the foreign exchange market has provided strong upward pressure on CPI.

International Comparison of the Effectiveness of Unconventional Monetary Policies

Chart 4

			Quantitative & Qualitative Monetary Easing Measures		LSAP		ECB Quantitative Easing
			I	II	II	III	
Change in Financial Markets	Long-Term Interest	(%pt)	0.02	-0.10	-0.81	0.58	-0.24
	Foreign Exchange	(%)("-" denotes currency depreciation)	-9.93	-3.99	1.14	9.49	-2.86
	Stock Prices	(%)	20.25	19.73	17.30	23.90	8.63
Real Economy	Personal Consumption	(%)	0.28	0.27	0.63	0.87	0.12
	Exports	(%)	0.87	0.35	-	-	0.24
	Imports	(%)	0.13	0.13	0.28	0.39	0.06
	Real GDP	(%)	0.29	0.20	0.38	0.53	0.15
CPI	Improvement in GDP Gap	(%pt)	0.03	0.02	0.10	0.13	0.03
	Currency Depreciation	(%pt)	0.15	0.06	-	-	0.02
	Total	(%pt)	0.18	0.08	0.10	0.13	0.05

Source: Bloomberg; compiled by DIR.

Note: Shaded areas denote areas in which the normally expected effects were not detected.

2.2 Method of Analysis

Calculating effects using a partial equilibrium model

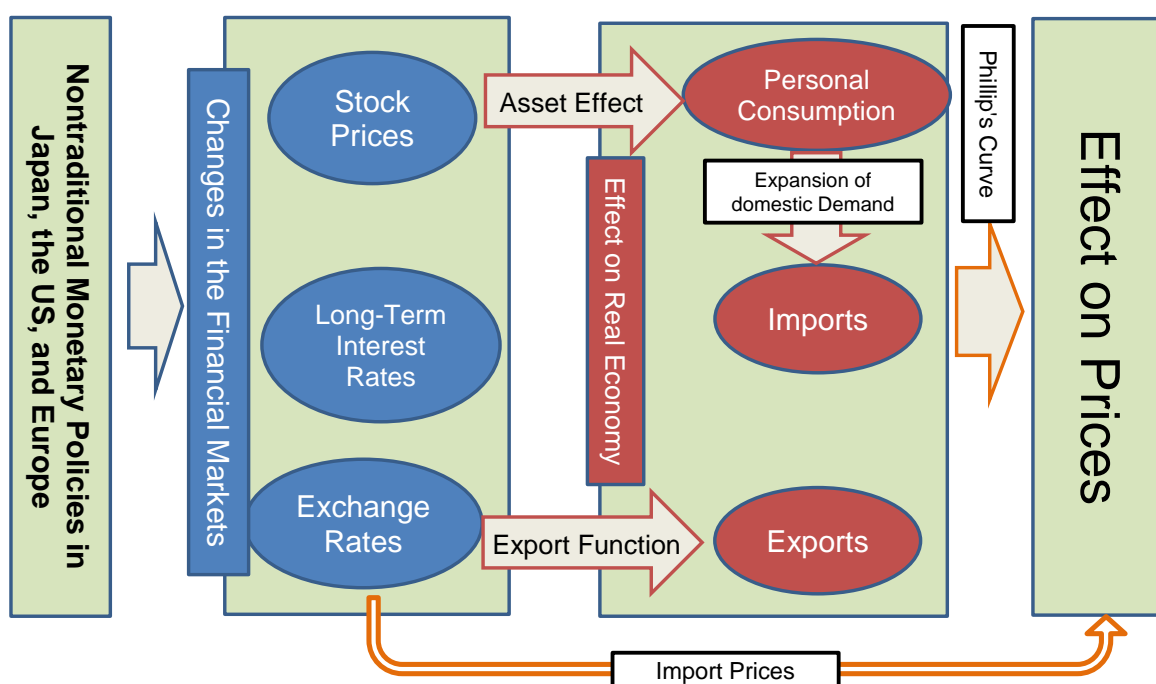
An overview of the partial equilibrium model used in this chapter is shown in Chart 5.

First, we examined changes in the financial markets (stock prices, long-term interest rates, and foreign exchange rates) during the period unconventional monetary policies were used.

Second, we estimated the effects of changes in the financial markets on the real economy. This involved estimating the consumption function for each of the countries covered in our analysis and then calculating the extent to which the change in stock prices pushed up personal consumption. At the same time, we estimated the export function to obtain the amount of increase in exports, since expansion in personal consumption triggers an increase in imports through growth in domestic demand. In addition, we estimated the export function and calculated the extent to which foreign exchange rates pushed up exports. Finally, we obtained the effect which unconventional monetary policies had in each of the countries on growth in real GDP through changes in the financial markets by totaling the amount of change in each of the items examined.

The third step was to estimate the effect on CPI through improvements in the real economy and currency deflation. This involved calculating the extent of GDP gap reduction due to changes in GDP as calculated in the previous step, then using a Phillip's curve expressing the situations of each country or region examined, calculating the extent to which the improved GDP gap had the effect of pushing up CPI. In addition, in order to estimate the effect of a weak currency on pushing up CPI through an increase in import prices as was observed in Japan, we estimated the divergence of the CPI growth rate which was estimated using the actual CPI growth rate and the Phillip's curve, using the mathematical function explained in the foreign exchange rate and AR(1), to calculate the effect which the exchange rate had in pushing up CPI.

Overview of Mathematical Method Chart 5



Source: Compiled by DIR.

2.3 Reaction of Financial Markets

Reaction of the financial markets to unconventional monetary policies

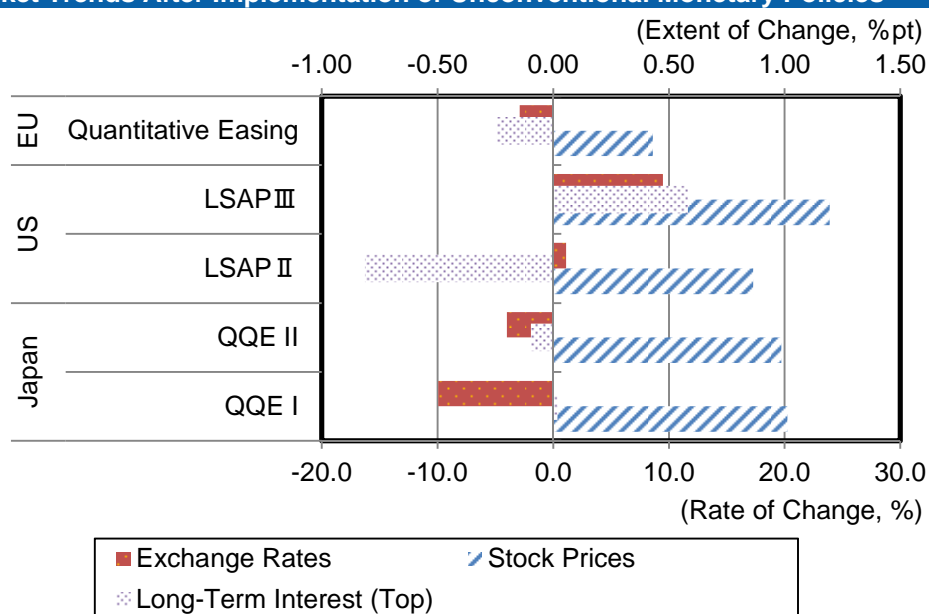
First we consider the reaction of the financial markets to unconventional monetary policies adopted in each of the locations covered in this chapter. The one thing which all of the various policies had in common was the effect on the stock market. In all of these locations stock prices rose after policies were implemented. Stock markets easily react to news and events, and for investors, the implementation of unconventional monetary policies has been a major bullish factor.

In Japan and the EU, depreciation of currency exchange rates was observed. While there is of course the argument that, logically speaking, there is no advantage in bringing on the depreciation of one's currency and expanding the monetary base with the interest rate at zero, most participants in the foreign exchange market generally act on the assumption that currency depreciation can occur with a monetary approach even when interest rates are at zero. Perhaps this is why unconventional monetary policies have been able to induce self-fulfilling currency depreciation. Moreover, in recent years in Japan, stock prices and the foreign exchange market have been closely linked. Hence quantitative and qualitative monetary easing has brought about a spiral effect causing currency depreciation and stock price highs. Policy has been very successful in causing fluctuations in exchange rates and stock prices.

In contrast, the use of large-scale asset purchases (LSAP) in the US induced a stronger dollar. Intuitively, one would think that an LSAP series would have the opposite effect, but it is possible that upward pressure on the dollar due to the recent EU debt crisis and other factors exceeded whatever downward pressures there might have been as a result of LSAP.

Looking at long-term interest rates, we can see that Japan's quantitative and qualitative monetary easing measures were quite effective. Monetary easing in Japan triggered an enormous amount in purchases of long-term government bonds. Included in the purchases were long-term bonds recently issued by the Ministry of Finance, and this situation brought a major reduction in the risk premium of the new bond issue. Quantitative easing implemented by the ECB is also thought to have been effective in reducing long-term interest rates in the EU. Not only the ECB but other central banks in Europe also implemented negative interest rates, bringing more downward pressure on long-term interest in the EU. On the other hand, the Fed's LSAP III brought on a major increase in long-term interest, but this was because of the market reaction to the announcement of tapering while still in the midst of the period in which said monetary policy was in effect. The Fed's experience here should be instructive to the BOJ and the ECB, reminding them to be aware that when exiting from quantitative easing measures, market reaction could bring on sharp increases in long-term interest.

Financial Market Trends After Implementation of Unconventional Monetary Policies Chart 6



Source: Bloomberg; Compiled by DIR.

Note: Total extent of change experienced from the time policy went into effect until its end. In the case of current policies, extent of change is from the time of implementation till just recently.

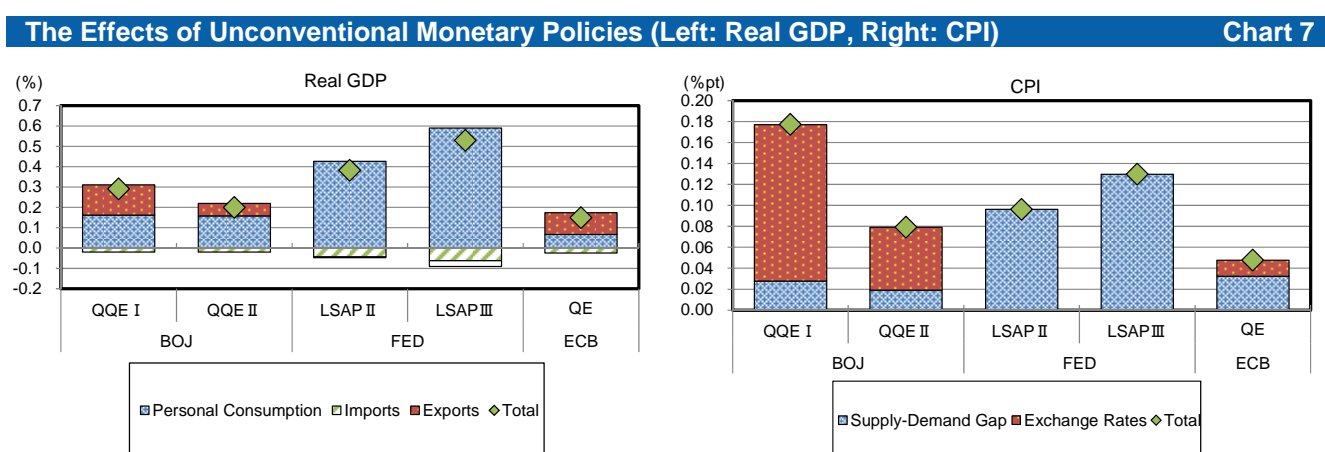
2.4 Fed’s Policy Most Effective in GDP; BOJ Did Best with CPI

Effect of pushing up CPI through yen depreciation stands out in quantitative and qualitative easing

In this last section we perform a quantitative analysis of the effects that changes in the financial markets had on the real economies and CPI of each country or region.

Chart 7 (left side) shows a calculation of the effect of unconventional monetary policies on real GDP. This was done by comparing the totals of the three major effects of monetary policy: (1) Growth in personal consumption due to the increase in stock prices, (2) Growth in imports associated with growth in personal consumption, and (3) Growth in exports in association with depreciation of currency value on the foreign exchange market. The results show that the Fed’s LSAP series was the most effective in improving the real economy. After the LSAP program was implemented in the US, there was a continual rise in stock prices, and the household sector experienced a major asset effect due to the high rate of stock share holdings in comparison to other countries. This led to significant growth in personal consumption. This same effect occurred in Japan and the EU due to growth in stock prices, but it was much smaller than in the US. However, the reactions on the foreign exchange markets in Japan and Europe in response to unconventional monetary policies were much more sensitive, and growth in exports as a result of currency devaluation led to growth in exports and ultimately GDP.

Next we take a look at the effect of unconventional monetary policies on CPI shown on the right side of Chart 7. We used the following steps to calculate this effect: (1) We estimated the Phillip’s curve, then estimated the extent to which CPI was increased through improvement in the supply-demand gap due to the positive effect of GDP as calculated above, then (2) Using the residual error of the estimated values of the CPI actual value and the Phillip’s curve obtained in the previous step, we estimated the effect that foreign exchange rates had on pushing up CPI by performing a regression using the foreign exchange rate and AR(1) term. Looking at the results, we see that CPI was given a considerable lift by the BOJ’s QQE. As was indicated earlier, the BOJ’s monetary policy did not have a large effect on the real economy in general, but it realized a major depreciation in the yen and brought considerable upward pressure on CPI. On the other hand, the EU’s quantitative easing measures increased CPI a bit, but were deficient in the power to sweep away fears of deflation in Europe. For this reason, there is a very good possibility that the ECB will implement additional monetary easing measures in the future.



Source: Compiled by DIR.

Note: No effect on foreign exchange was detected in LSAP II or LSAP III, so this value does not include foreign exchange. Areas with white spots denote effects taking into consideration the effect of foreign exchange.

Source: Compiled by DIR.

Note: No effect on foreign exchange was detected in LSAP II or LSAP III, so this value does not include foreign exchange.

Economic Indicators and Interest Rates

Chart 8

Indicator	2014	2015				2016	FY13	FY14	FY15	FY16
	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar				
	Actual	DIR estimates				Actual	DIR estimates			
Real GDP										
Q/q %, annualized	1.2	3.9	1.6	2.4	1.8	1.7				
Y/y %	-1.0	-0.9	1.2	2.3	2.5	1.8	2.1	-0.9	2.0	1.9
Current account balance										
SAAR (Y tril)	10.7	14.9	16.4	16.8	17.2	17.6	1.5	7.7	17.0	17.9
Unemployment rate (%)	3.5	3.5	3.4	3.3	3.3	3.2	3.9	3.6	3.3	3.1
CPI (excl. fresh foods; 2010 prices; y/y %)	2.7	2.1	0.1	0.0	0.4	1.0	0.8	2.8	0.4	1.1
Unsecured overnight call rate										
(period end; %)	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
10-year JGB yield										
(period average; %)	0.40	0.34	0.40	0.50	0.55	0.60	0.55	0.37	0.51	0.70

Source: compiled by DIR.

Note: Estimates taken from DIR's *Japan's Economic Outlook No.185 Update*.