Subprime Mortgage Crisis Casts a Global Shadow— Medium-term Economic Forecast (FY 2007～2017)

By Koichi Haji
Economic Research Group
haji@nli-research.co.jp

The U.S. subprime mortgage crisis has roiled global financial markets and will continue to sway the world economy for several years to come. In the near future, even though the U.S. economy seems certain to decelerate, the world outlook is not necessarily grim under an optimistic scenario in which China and other emerging economies take up the slack. Over the next decade, as aging advances in industrialized economies, Japan's potential growth rate will edge down, while real economic growth will average 1.7% per year. However, fiscal restructuring will necessitate consumption tax rate hikes, making the growth path somewhat lumpy.

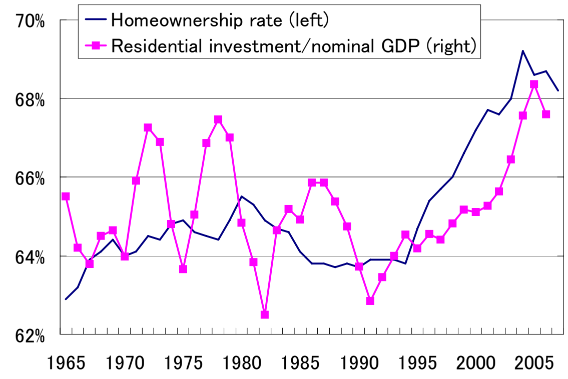
1. Global Market Turbulence

(1) U.S. Subprime Mortgage Crisis

Amid rising mortgage delinquency rates, the U.S. subprime mortgage crisis spread to Europe's financial markets in August, prompting the European Central Bank and Federal Reserve Bank to inject large amounts of liquidity. Risk reevaluations have caused mounting losses related to leveraged loans and other structured products. The total impact of subprime-related losses remains unclear. In addition, since the root cause of the problem—the U.S. housing market downturn—is unlikely to turn around soon and boost the real economy, the subprime crisis will continue to fester for a while.

In the 2001 recession following the IT bubble, large tax cuts and interest rate cuts were made to stimulate the economy. As the economy recovered, the recovery and rising oil prices raised inflationary concerns, prompting a series of interest rate hikes from June 2004. The federal funds target rate, which had declined to a low of 1%, reached 5.25% by 2006.As a result, the housing boom, which had thrived on low interest rates, turned downward.

Exhibit 1 Overheating of the U.S. Housing Market



Source: U.S. Department of Commerce

As a percentage of nominal GDP, residential investment rose consistently from the mid 1990s. During this period, the homeownership rate also surged. Growth of the subprime mortgage market enabled many low-income families to own their first home. The homeownership rate of persons aged 25 and under rose from a low of 14.8% in 1993 to 25.7% in 2005. Meanwhile, surging home prices masked the problem of whether borrowers could actually repay their loans. The mortgage default rate, which bottomed out in mid 2005 just as the housing market peaked and home prices began to slow, has been rising ever since—particularly for subprime mortgages, reaching 14.8% in Q2 2007.

The housing slump not only impacts residential investment, but threatens to deeply slash personal consumption and throttle the economy. In the past, rising home prices boosted home equity values, against which households borrowed heavily to finance a high level of consumption. As a result, the household saving rate dropped to 0.4% in 2006, hitting zero percent in Q3 2006. Meanwhile, in 2006 household debt surged to 138.1% as a ratio of disposable income.

As long as home prices keep rising, the ratio of household net worth to disposable income can rise even as debt increases. But when home prices decline, the ratio of net worth to disposable income falls, forcing households to adjust balance sheets by saving more and consuming less.

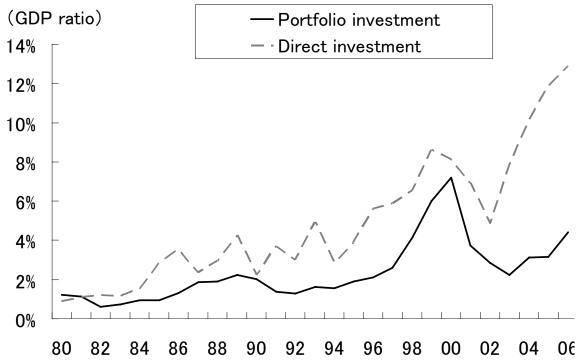
2. Global Excess of Liquidity

How a problem that originated in the U.S. housing market could send tremors to Europe's financial markets and pose downside risks for the world economy can be explained in part by the advance of globalization.

As a ratio to nominal GDP, international trade stood at roughly 30% through the 1980s, and then surged from the mid 1990s to approximately 50% in 2006. With respect to capital flows, foreign direct investment has grown but remains below the peak reached around 2000, mainly because FDI into the U.S. has not recovered from the IT bubble. On the other hand, portfolio investment now exceeds the peak reached around 2000, and among G7 economies, has grown from 0.9% of nominal GDP in 1980 to 12.9% in 2006. In recent years, capital flows largely consist of financial transactions involving securities investment.

Capital flows are responsible for sustaining the persistently large U.S. current account deficit. The international balance of payments structure is a lopsided one in which massive U.S. deficits are offset by surpluses in the rest of the world.

Exhibit 2 International Capital Flow of Major Economies (ratio to GDP)

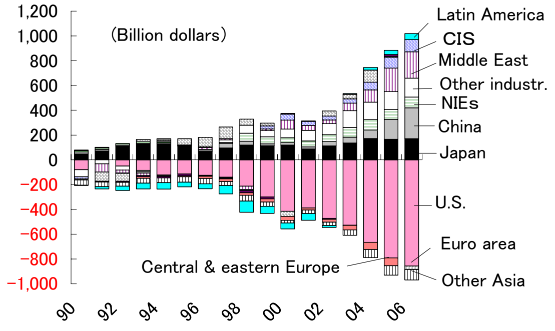


Source: U.S. Department of Commerce

The imbalance is far greater than in the mid 1980s, when major economies took concerted action to prop up the weak dollar with the Plaza Accord. As a ratio to nominal GDP, the U.S. current account deficit is approximately 6% today, compared to 3% in the 1980s. The world economy's strong growth in the face of this huge imbalance can be attributed to the massive capital flows from the rest of the world into the U.S.

Capital flows into the U.S. have been supported by the global excess of liquidity. Among G7 economies, Marshall's k (ratio of money supply to nominal GDP) has risen conspicuously since the late 1990s, suggesting that liquidity has become excessive relative to size of economy. From the late 1990s to early 2000s, Marshall's k rose in Japan as a result of monetary easing, and in

Exhibit 3 Current Account Balances in the World Economy



Source: IMF

recent years it has resurged in the euro area due to money supply growth.

To overcome the post-bubble deflation, Japan adopted an extreme monetary easing policy consisting of quantitative easing and zero interest rates. This fueled the yen carry trade, which takes advantage of very low-interest yen loans and invests in currencies yielding a higher interest rate. Individual investors also invested heavily in foreign-denominated mutual funds, adding to the capital outflow.

In China, the current account surplus has expanded year after year. Since the renminbi exchange rate is managed, China has been purchasing large amounts of foreign currency, causing the official reserves to surge to over USD 1 trillion. China, who accounts for the largest part of the U.S. trade deficit, helps finance the U.S. trade deficit by purchasing U.S. currency.

Since the U.S. is a major oil importer, soaring oil prices have also contributed to the mounting current account deficit. However, even this oil money flows back into the U.S. via the U.K. financial market.

The global excess of liquidity has not only fueled the U.S. housing bubble, but led to speculative price increases for oil and other commodities. As long as the subprime problem continues to roil global financial markets, the global excess of liquidity will be difficult to manage. However, if the situation is left alone, new bubbles are certain to arise and cause economic turbulence. At some point, central banks will need to take coordinated action to absorb the excess liquidity. When the excess liquidity finally starts to abate, capital flows that have been financing the chronic U.S. current account deficit will likely change course, and the global imbalance will likely start to shrink.

2. Forecast for Overseas Economies

1. U.S. Slowdown Impacts World Economy

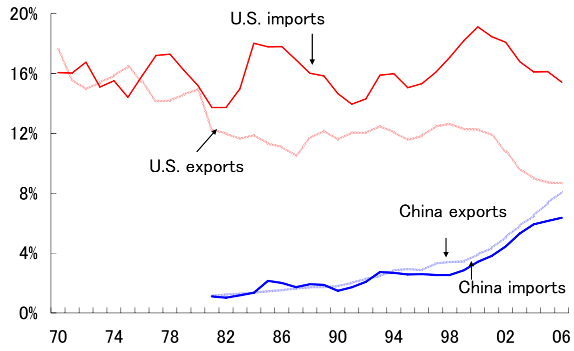
During the first half of the next decade, the world economy will be heavily affected by how the subprime crisis plays out. In our standard scenario, the subprime problem will slow down the U.S. economy, but recession will be averted due to bold monetary easing. While the housing market correction will take time, the economy will pick up again I the second half of 2008.

China and India are predicted to continue their recent dynamic performance. However, they will be unable to fend off the impact of the U.S. slowdown caused by the subprime problem. China’s trade surplus expanded from USD 25.47 billion in 2003 to USD 177.48 billion in 2006. This vigorous export growth is credited for fueling private fixed investment and driving the economy. While consumption growth has been robust, in the event that exports falter, domestic consumption has not yet developed enough to take up the slack, particularly in view of the large income disparities such as those between coastal and inland areas.

The U.S. slowdown will be a drag on the world economy, including Japan. China has almost caught up with the U.S. in the scale of exports, but still lags far behind in the scale of imports. Thus the U.S. slowdown is likely to dampen demand at the global level.

Looking further ahead, we predict the world economy will expand as the U.S. economy recovers and emerging economies such as China and India maintain their dynamic growth. Both trends will benefit Japan. Oil prices, which drew back after peaking in the summer of 2006, resurged in 2007. We predict that prices of commodities will continue to rise moderately as growing demand from China and India causes markets to tighten.

Exhibit 4 Weight of U.S. and China in World Trade



Source: IMF

2. U.S. Economy—Slowdown Continues to Second Half of 2008

Considering the long duration of the residential investment boom, the current correction will take time to play out. In our standard scenario, home prices will decline approximately 10% by the end of 2008. Due to the reverse wealth effect of falling home prices, consumption expenditure will continue to slow in the near term. The residential investment chill and consumption slowdown will limit nonresidential investment growth, causing the economy to decelerate in the near term. We predict that real economic growth will decrease from 2.9% in 2006 to 1.9% in 2007, and linger at 2.1% in 2008.

The U.S. population, which absorbs over one million immigrants every year, topped 300 million in 2006, and is predicted to keep expanding nearly 1% per year. However, aging of the population will become more pronounced when baby boomers start to retire in 2012. As a result, growth of the working-age population (age 16 to 64) will decrease from approximately 1% at present to 0.3% in the mid 2010s, causing the potential growth rate to decline (the CBO estimates that the average potential growth rate will decrease from 3.0% in 1991–2006 to 2.7% in 2007–2012, and 2.6% in 2013–2017). Aging will also compel major fiscal reforms including social security.

Looking ahead, the U.S. economy will thus grow more slowly than in the past due to falling home prices and other constraints on consumption in the near term, and slower growth of the working-age population the medium term.

3. Euro Area—Structural Reforms to Play Critical Role Down the Road

Following on a strong performance in 2006—the first in six years—the euro area economy maintained its momentum in 2007 led by the corporate sector. Although the outlook suddenly dimmed in August when the U.S. subprime mortgage crisis , the expansion is still alive. With improvement in employment expected to boost personal consumption, we predict economic growth will reach 2.6% in 2007, exceeding the 2.25% potential growth rate.

In the first half of the forecast period, the economy's performance is contingent on the course of the subprime problem. Our standard scenario assumes that financial institutions in the euro area will manage to cover subprime-related losses out of profits and capital. Due in part to a worsening corporate financing environment compared to the past two years, business fixed investment will not grow as rapidly as in 2006, but nonetheless continue growing in sectors with shrinking excess capacity such as capital goods. With improvements in employment and income providing firm support for personal consumption, we predict that a major economic slowdown can be averted, and the economy will steadily expand at the potential growth rate.

In the second half of the forecast period, since the working-age population will start to shrink, the key to growth will be the progress of structural reforms—in particular, ongoing employment reforms to boost the labor force participation rate and labor productivity growth rate, and institutional reforms to enhance efficiency and interdependence by removing barriers that impede the internal flows of people, money and goods.

While the euro is predicted to appreciate against the dollar, two factors will abate the economic impact of this trend. First, the euro's growing presence in Europe will make it more stable against other European currencies. Second, Asian currencies such as the yen and renminbi are also predicted to strengthen against the dollar.

4. Euro as International Currency

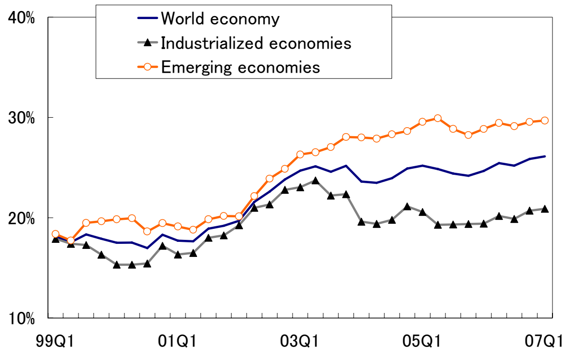
After the Bretton Woods system collapsed and major currencies switched to a floating exchange rate regime, the dollar remained the anchor currency and preferred currency for holding official reserves. Although the International Monetary Fund created the SDR (special drawing right) in 1969 as an international reserve asset, it has played a minimal role and today has little chance of becoming an international settlement currency.

What changed this situation was the introduction of the euro in 1999. At first, excessive expectations caused the euro to plunge against the dollar. But as confidence grew and the number of member states increased, the euro surged back, and the exchange rate has recently risen above USD 1.40.

With the dollar's future stability threatened by chronic U.S. current account deficits, the euro's weight in official reserves has grown particularly in emerging economies. As China and India play a larger role in the world economy, their respective currencies will likewise grow in presence. In the next decade, the dollar's status as sole anchor currency is likely to slide. While the U.S. economy will likely remain the world's largest, the dollar's demotion is likely to reduce its real effective exchange rate, and accelerate the decline of the U.S. economy's status in the world.

With U.S.-Europe interest rate spreads predicted to shrink through 2007 and economic growth rates to converge in 2008, the euro is prone to appreciate further against the dollar. In the early 2010s, we predict that the euro's economic base will expand due to financial integration of the euro area and its expansion in central and eastern Europe. In the long term, the euro's growing international role will boost its value against the dollar.

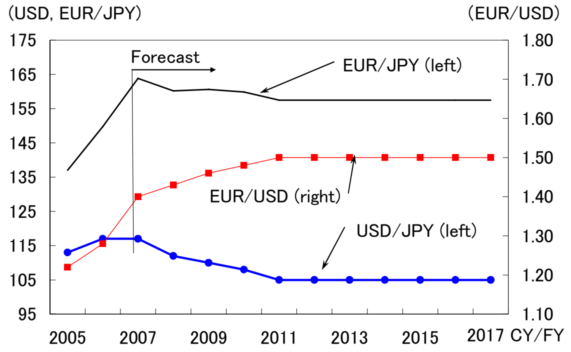
Exhibit 5 Weight of Euro in Official Reserves



Source: IMF, *Currency Composition of Official Foreign Exchange Reserves (COFER).*

As for the yen and dollar, we predict the yen will strengthen moderately as rising domestic interest rates reduce the yen carry trade. The 2008 presidential election will likely prompt a tougher stance by the U.S. on China's trade and exchange rate policy, which could spill over and affect the yen's discounted valuation. In the second half of the period, aging will leave an indelible impact on the economy—most notably by causing the current account surplus to shrink—and halt the yen's upside momentum.

Exhibit 6 Medium-term Forecast for Exchange Rates



Sources: BOJ, ECB

3. Forecast for Japan

1. Impact of Aging

Japan's population declined from 127.87 million in 2004 to 127.68 million in 2005. In 2006, the population edged up to 127.70 million due to a swell in marriages and childbirths by the post-baby boom generation. However, considering the pronounced downtrend in the fertility rate, the population is certain to decrease in the long term.

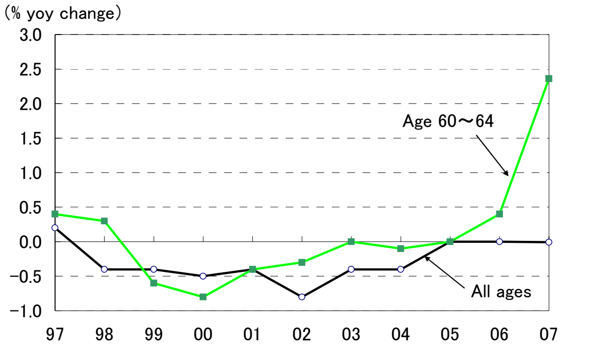
The working-age population (age 15–64) began decreasing as early as 1995. However, high unemployment rates in the post-bubble recession masked the impending problem of a labor shortage. Serious concerns arose in the ensuing recovery when it became clear that the labor market was tightening, and would tighten further when postwar baby-boomers started retiring in 2007.

Interestingly, the labor participation rate of the age 60–64 cohort has risen sharply from last year, boosting the labor supply and easing the labor shortage. On the other hand, the younger labor force has shrunk, as seen by tight market conditions in new graduate hiring. Moreover, today's elderly workers must eventually retire. By 2012, when baby boomers reach age 65 and start receiving pensions, the labor force decline will become pronounced.

By the end of the forecast period, we predict the population's aging will have a clearly visible effect on the economy. The labor force has steadily declined since the peak level of 67.94 million in fiscal 1997. Despite a temporary increase, we predict it will decrease by at least 3 million to 64.83 million in fiscal 2017. Thus as we have emphasized in previous forecasts, aging will indeed transform the economy in distinct ways.

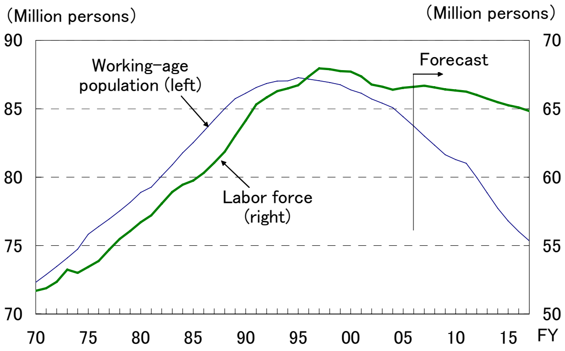
Japan's potential growth rate, which soared over 3% in the late 1980s, will inevitably decrease as aging leaves indelible marks on the economy, such as in the decline of the labor force. In the forecast period, consumption tax rate hikes will make growth lumpy, but business fixed investment growth will be stable, causing capital stock to keep expanding. As a result, the potential growth rate will exceed that of the late 1990s to early 2000s, when business investment soured. The contribution of labor input will remain negative. However, assuming that structural reforms continue apace and the rate of technological progress remains unchanged, the potential growth rate will trend in the upper 1% range. Nonetheless, it will dip slightly in the second half of the forecast period due to the accelerating decline of the labor force.

Exhibit 7 Labor Force Participation Rate (age 60–64)



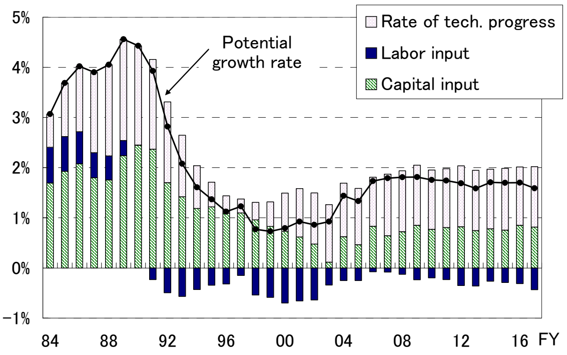
Note: Shows January–August average for 2007
Sources: MIC Statistics Bureau, *Labour Force Survey*; IPSS, *Population Projections for Japan (December 2006 Estimate);* others.

Exhibit 8 Working-Age Population and Labor Force



Note: Working-age population forecast is the median projection of the National Institute of Population and Social Security Research. Labor force forecast is by NLI Research Institute.
Sources: MIC Statistics Bureau, *Labour Force Survey*; IPSS, *Population Projections for Japan (December 2006 Estimate);* others.

Exhibit 9 Factor Contributions to the Potential Growth Rate



Note: Estimates are based on historical data to fiscal 2006, and on forecast from fiscal 2007
Sources: Cabinet Office, *Annual Report on National Accounts*, and *Annual Report on Gross Capital Stock of Private Enterprises*; MIC, *Labour Force Survey*; others.

2. Fiscal Restructuring and Consumption Tax Hikes

Although the government is already obligated to finance a larger share of the basic pension (one-half of the pension expense, up from one-third) starting in fiscal 2009, the consumption tax rate hikes necessary to achieve this are being resisted in the Upper House, where the ruling coalition has lost control. In the next fiscal reevaluation of the pension system, which is slated for fiscal 2009, one issue on the table will be shifting to a tax revenue-based funding source for the basic pension. We assume a compromise can be reached on the consumption tax rate hike, most likely an increase from 5% at present to 7% in fiscal 2010. Our standard scenario calls for another rate hike to 10% in fiscal 2013, which will be necessary to keep government debt in check.

With persistently large fiscal deficits ever since the bubble's collapse in the 1990s, the government debt, which stood at 149.3% of nominal GDP at the end of fiscal 2006, must be reduced. If the nominal economic growth rate is equivalent to the nominal interest rate, the debt ratio to nominal GDP would not change as long as a primary balance is achieved. In this sense, the first step of fiscal restructuring must be to alleviate the -¥8.9 trillion (-1.7% of nominal GDP) primary deficit recorded in fiscal 2006 (both figures are Cabinet Office estimates). The government thus aims to eliminate primary deficits at both the national and local level by the early 2010s.

However, if our assumption holds that the nominal interest rate will on average exceed the nominal economic growth rate, then the debt ratio cannot be reduced simply by achieving a primary balance—doing so would require a significant primary surplus.

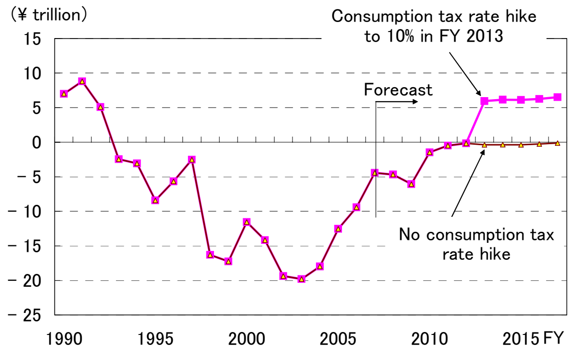
Although outstanding ordinary government bonds in the general account mushroomed from ¥171.6 trillion in fiscal 1991 to ¥536.9 trillion in fiscal 2006, interest payments in the general account actually fell from ¥11 trillion to ¥8.6 trillion due to lower interest rates. However, we predict that growth of outstanding debt, combined with higher log-term interest rates, will increase interest payments to ¥25.5 trillion in fiscal 2017. Although the fiscal 2010 consumption tax rate hike to 7% will bring the primary balance near zero, higher interest payments will still increase the debt ratio. For this reason, we assume there will be another tax rate hike to 10% in fiscal 2013, finally bringing down the debt ratio.

3. End of Deflation

Due to the long expansion now underway, the hangover from the bubble era—excesses of debt, capacity and employment—have largely been resolved. As a result, deflationary conditions have also improved significantly. The general consumer price index, which consistently declined year-on-year since fiscal 1999 (or from fiscal 1998 to 2004 excluding fresh food), finally turned upward in fiscal 2006. Reflecting the temporary pullback of oil prices from the summer 2006 peak, the monthly CPI has edged down year-on-year since the start of 2007.

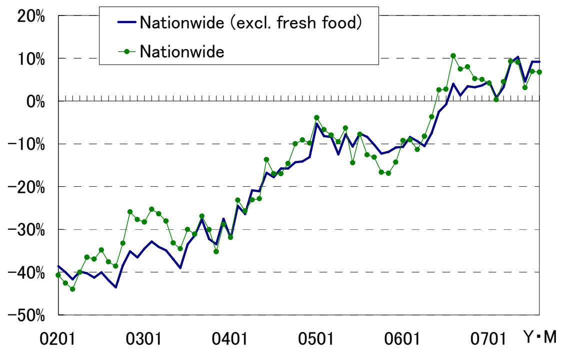
However, since fewer items comprising the CPI have been declining in price, the number of items with rising prices has recently outnumbered

Exhibit 10 Primary Balance of the General Account



Note: Shows historical data to fiscal 2006, and initial budget estimates from fiscal 2007 onward
Source: Forecast compiled by NLI Research Institute using MOF data.

Exhibit 11 Ratio of Rising to Falling Prices



Source: MIC Statistics Bureau, *Consumer Price Index*.

those with falling prices. The growing undercurrent of price increases is not going unnoticed by consumers. We predict that as rising prices cause a shift in consumer awareness, companies will more readily pass on higher raw materials costs downstream, leading to a gradual increase in upward price momentum.

One cause of the CPI downturn in 2007 was oil prices. As oil prices receded from the summer 2006 peak, petroleum products temporarily eased the upward pressure on the CPI, and even pulled it downward. However, oil prices started rising again in February 2007 and hit new highs. This boosted gasoline prices and turned petroleum products into an inflationary factor once again.

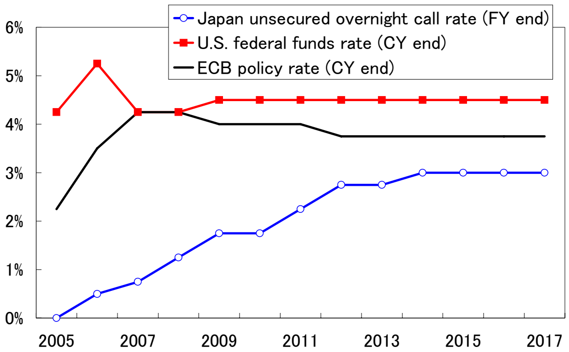
As oil demand continues to grow in China and India, oil prices will trend moderately upward. Meanwhile, the shrinking labor force will cause the labor market to tighten, pushing wages gradually upward and boosting prices of services. We predict that consumer price inflation will surge in fiscal 2010 and 2013 due to the consumption tax rate hikes, and subsequently stabilize but tend to accelerate, reaching 1.8% in fiscal 2017.

4. Financial Markets

Since the BOJ is hard-pressed to raise interest rates until the subprime loan problem stabilizes, the next rate hike is not likely until 2008. In the first half of the forecast period, despite the end of deflation and start of CPI inflation, we predict that short-term rates will be raised more slowly than the pace recommended by the Taylor rule. In addition, the BOJ will need to postpone rate hikes in fiscal 2010 and 2013 when the consumption tax is raised. In the second half of the forecast period, we predict the policy rate will rise in line with the consumer price inflation rate, and reach approximately 3%.

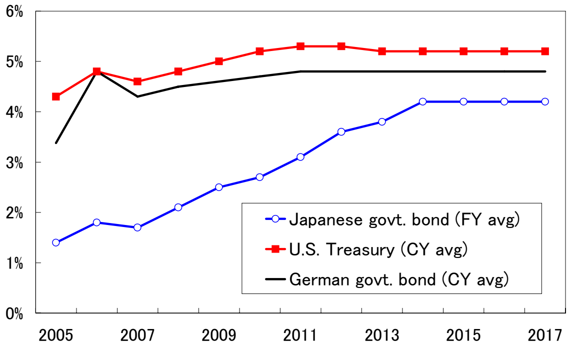
Long-term rates will rise gradually to reflect the end of deflation and moderate rise of short-term rates. As the policy rate spread narrows significantly between Japan and the U.S. and Europe, so too will the long-term interest rate spread, which has recently expanded significantly. If Japan were a closed economy with no international financial transactions or trade, the aging population and shrinking labor force would cause nominal interest rates to decline at the same pace as nominal GDP growth. Globalization, however, has strengthened linkages between domestic and international financial markets. Thus we predict that domestic interest rates will become increasingly responsive to influences from abroad.

Exhibit 12 Forecast for Policy Interest Rates



Sources: BOJ, FRB, ECB

Exhibit 13 Forecast for Long-term Interest Rates



As aging drives down the household saving rate, the current account surplus will plunge to 1.7% of nominal GDP, down from 4.1% at present. The declining current account surplus implies that fewer funds will be flowing out of the country, which will contribute to the shrinking interest rate spread.

In the U.S., while prices are expected to stabilize as the economy slows, high energy prices will prevent a major price decline in the medium term. CPI inflation will exceed 2%. We predict the federal funds rate will be cut to 4.25% to help stabilize financial markets and prop up the economy. But once these aims are achieved, inflationary concerns will lead to an upward bias. Despite unresolved long-term issues such as social security and health care, upward pressure on long-term rates will be limited assuming that the fiscal deficit continues to decrease.

In the euro area, we predict inflation will average 2.0% over the next decade due to the following factors—stable inflationary expectations as monetary policy emphasizes price stability; improved fiscal management discipline under the Growth and Stability Pact; increasingly intense internal and external price competition; easing of wage pressure on prices due to employment reform; and the inflation-curbing effect of the strong euro.

At present, the neutral level of the policy interest rate is estimated at 4.0%−4.25%. In the second half of the forecast period, we predict that as the potential growth rate declines, the neutral rate will fall to around 3.75%. With regard to long-term rates, correction of the excessively low risk premium, which contracted sharply in 2005 and 2006, will tend to push up rates. However, the risk premium will still be lower than in the early 2000s due to coordination of euro area fiscal policies, growing confidence in the euro, stable expected inflation rate, and strong demand for long-term euro-denominated assets.

5. Japan's Economy to Shift to Domestic Demand

The government's stance on spending cuts will be maintained at national and local levels. However, government consumption expenditure will average 1.2% real growth in the forecast period as aging drives up health care and long-term care spending. Since trimming the fiscal deficit will require further cutbacks in public works spending, we assume that public investment will continue to decrease 3.0% annually in real terms. Residential investment will continue to grow as housing facilities are improved and dwelling sizes are expanded, but real growth will average only 0.9% over the decade as the dwindling population slows the growth of households. Real business fixed investment will grow steadily at an average rate of 3.0% to offset the labor force decline.

Aging of the population will drive down the household saving rate, while excess saving in the corporate sector will recede as excess debt problems are resolved. Reflecting these changes in the domestic saving-investment balance, the current account surplus will contract considerably from 4.1% of nominal GDP in fiscal 2006 to 1.7% in fiscal 2017. Moreover, we predict it will increasingly consist of an income account surplus (interest and dividend income from assets held abroad) as the trade balance on goods and services turns to deficit by the end of the forecast period. With growth of imports outpacing exports, the contribution of external demand to economic growth will average -0.1% from fiscal 2008 to 2017.

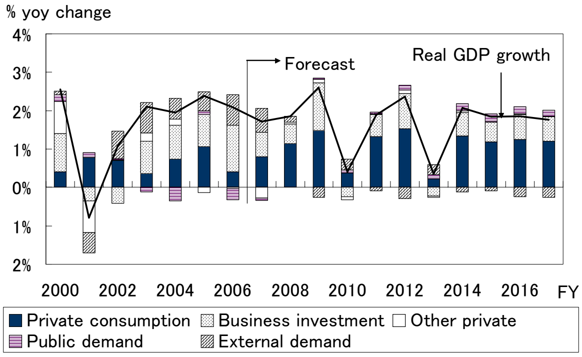
Meanwhile, the economy will increasingly be driven by domestic demand, with real private final consumption expenditure growth (2.0% on average) outpacing the economy (1.7% on average). Consumption growth will be supported by household income growth—wages will grow faster as the labor force shrinks, while income from financial assets will grow as interest rates and dividends rise. Population aging will also boost consumption by driving down the household saving rate and increasing the propensity to consume. These changes will transform the economy from one led by external demand to one led by domestic private consumption.

4. Alternative Scenarios

1. Optimistic Scenario

Despite the predicted U.S. slowdown in the first half of the forecast period, the world economy would keep growing led by growth in China and India. Since China seeks to alleviate local economic disparities by developing infrastructure, public investment underlies the strong growth of fixed capital investment. If the income disparity successfully reduced, the contribution of consumption to economic growth would gradually increase.

Exhibit 14 Forecast for Real GDP Growth



Source: Economic an d Social Research Institute, Cabinet Office, *Annual Report on National Accounts*.

In the euro area, the weight of trade has shifted in recent years to trade partners with high-growth economies such as oil producers and central and eastern European economies. Emerging economies would thus drive export growth and likely prevent a noticeable slowdown. Buoyant overseas economies would also boost external demand for the U.S., spurring the U.S. economy to grow slightly faster than in the standard scenario and improving the current account deficit significantly, resulting in lower and more stable inflation and interest rates.

Japan's economy would be supported by export growth to China, India and the rest of Asia, resulting in higher economic growth than in the standard scenario. Japan would also benefit from the sharply improving U.S. current account deficit, as the dollar would strengthen against the yen and euro. Despite the economy's sound condition, we believe political realities will impede a consumption tax rate in fiscal 2009. Tax rate hikes will thus be made in fiscal 2010 and 2013 as in the standard scenario. Compared to the standard scenario, the BOJ will raise short-term interest rates at the same pace, while long-term rates will be lower due to the effect of lower interest rates abroad.

2. Pessimistic Scenario

The paramount risk is that the U.S. subprime mortgage crisis escalates, pummeling the housing market, depressing home prices, dragging the U.S. economy into a recession. Home prices would fall by -10% more than in the standard scenario, and the decline would reach -20% by the end of 2008. In 2008, the U.S. economy would contract for three consecutive quarters, growing 0.5% for the year, faring worse than in the 2001 recession (0.8% growth rate). Growth would slow in both exports and imports—particularly imports— causing the current account deficit to narrow, while the fiscal deficit would widen as tax revenues decrease. As for the federal funds rate, rate cuts would continue into the first half of 2008, followed by rate hikes to dispel inflationary concerns as the economy recovers. Long-term interest rates would decline temporarily, but then rise faster than in the standard scenario due to inflationary concerns and the growing fiscal deficit.

In Europe, the U.S. recession and an otherwise deteriorating external environment would impact trade and corporate profits, while the escalating subprime crisis would spill over into LBO loan and housing loan markets, causing losses at financial institutions to expand, and leading to a severe credit crunch.

In Japan, the sharp decline of external demand would trigger a recession. Exports would also be hit by the yen's appreciation. Real economic growth in fiscal 2008 would fall to -0.5%, causing the BOJ to postpone rate hikes. But even in the pessimistic scenario, the U.S. economy would recover to 2.4% growth in 2010, while Japan would also recover, allowing the BOJ to raise short-term rates to 1% at the end of 2010. Consumption tax rate hikes would be delayed by one year compared to the standard scenario, and occur in fiscal 2011 and 2014.

Forecast for the U.S.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Annual avg.	
	actual	forecast→											98～07	08～17
Real GDP (% yoy change)	2.9	1.9	2.1	2.7	2.9	3.0	2.8	2.7	2.6	2.6	2.6	2.6	2.9	2.7
Domestic demand (contrib)	2.9	1.5	1.7	2.5	3.0	3.3	2.9	2.7	2.5	2.5	2.5	2.4	3.4	2.6
Personal consumption (contrib)	3.1	2.8	1.9	2.5	2.8	3.1	2.9	2.6	2.6	2.5	2.4	2.4	3.6	2.6
Nonresid. investment (contrib)	2.7	−1.8	0.7	3.6	3.9	4.4	4.1	3.7	3.4	3.3	3.0	2.8	3.5	3.3
Net exports (contrib)	−0.1	0.4	0.4	0.2	−0.1	−0.3	−0.1	0.0	0.1	0.1	0.1	0.2	−0.5	0.1
CPI inflation rate	3.2	2.8	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.6	2.3
Current account (% nominal GDP)	−6.5	−5.5	−5.1	−4.7	−4.5	−4.4	−4.3	−4.0	−3.7	−3.4	−3.1	−2.8	−4.6	−4.0
Federal funds target rate (end)	5.25	4.25	4.25	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	3.79	4.48
10-year Treasury yield (avg)	4.8	4.6	4.8	5.0	5.2	5.3	5.3	5.2	5.2	5.2	5.2	5.2	4.9	5.2

Note: Domestic demand and net exports are expressed as contribution to real GDP growth.

Forecast for the Euro Area

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Annual avg.	
	actual	forecast→											98〜07	08〜17
Real GDP (yoy change)	2.8	2.6	2.3	2.2	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.8	2.2	1.9
Domestic demand (contrib)	2.5	2.2	2.2	2.1	2.0	1.9	1.9	1.8	1.8	1.7	1.7	1.7	2.6	1.9
Private consumption (yoy chg)	1.9	1.5	2.2	2.1	1.9	1.9	1.9	1.7	1.8	1.7	1.7	1.7	2.0	1.9
Fixed capital formation (yoy chg)	5.0	4.2	2.4	2.5	2.3	2.2	2.2	2.1	2.1	2.0	2.0	2.0	3.1	2.2
Net exports (contrib)	0.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Consumer price index (yoy chg)	2.2	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Current account (% nominal GDP)	-0.2	0.1	0.0	-0.2	-0.4	-0.5	-0.6	-0.7	-0.6	-0.6	-0.6	0.0	-0.1	-0.4
EUR/USD	1.26	1.40	1.43	1.46	1.48	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.12	1.49
EUR/JPY	146	164	160	161	160	158	158	158	158	158	158	158	129	159
ECB policy rate (end)	3.5	4.3	4.3	4.0	4.0	4.0	3.8	3.8	3.8	3.8	3.8	3.8	3.2	3.9
10-year German govt. bond yield (avg)	4.8	4.3	4.5	4.6	4.7	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.7

Notes: Eruo area consists of 13 member states. The 1998-2007 annual average column shows 1999-2007 averages for the ECB policy rate and EUR/USD exchange rate.

Forecast for Japan

(% yoy change, unless otherwise noted)

Fiscal year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Annual avg.	
	actual	forecast→											98〜07	08〜17
Nominal GDP (expenditures)	1.4	1.4	2.0	3.0	2.0	2.3	3.2	2.7	2.7	2.4	2.6	2.9	0.1	2.6
(¥ trillion)	(510.4)	(517.4)	(527.5)	(543.1)	(554.0)	(566.8)	(584.8)	(600.5)	(616.7)	(631.5)	(647.9)	(666.8)		
Real GDP (expenditures)	2.1	1.7	1.9	2.6	0.4	1.9	2.4	0.3	2.1	1.8	1.9	1.8	1.2	1.7
Domestic demand	1.3	1.1	1.8	3.0	0.1	2.1	2.8	0.1	2.3	2.0	2.2	2.1	0.9	1.8
Private demand	2.2	1.5	2.3	3.8	0.1	2.5	3.3	-0.0	2.6	2.2	2.5	2.4	1.0	2.2
Consumption	0.7	1.5	2.1	2.7	0.7	2.4	2.7	0.4	2.4	2.1	2.2	2.1	1.1	2.0
Residential investment	0.4	-4.5	1.6	4.0	-2.4	0.8	3.0	-1.2	1.2	0.5	0.9	0.6	-2.2	0.9
Nonresidential investment	8.0	3.9	3.1	7.5	-1.4	3.4	5.3	-1.2	3.4	2.9	3.5	3.5	2.2	3.0
Public demand	-1.4	-0.2	0.0	0.1	0.4	0.2	0.6	0.6	1.0	1.1	0.9	0.9	0.3	0.6
Government consumption	0.9	0.8	0.9	0.8	1.2	0.8	1.2	1.3	1.6	1.6	1.5	1.4	2.3	1.2
Public investment	-9.6	-5.0	-4.0	-3.0	-3.6	-2.8	-3.0	-3.9	-2.4	-2.5	-2.8	-3.1	-5.6	-3.1
Net exports <contrib. to growth>	<0.8>	<0.6>	<0.1>	<-0.3>	<0.3>	<-0.1>	<-0.3>	<0.3>	<-0.1>	<-0.1>	<-0.2>	<-0.3>	<0.4>	<-0.1>
Exports of goods & services	8.2	6.0	4.5	2.4	3.0	2.7	2.8	2.9	2.5	2.6	2.6	2.5	5.8	2.9
Imports of goods & services	3.3	2.5	5.0	5.5	1.6	4.5	6.2	1.7	4.2	4.0	5.1	5.0	3.3	4.3
Industrial production	4.8	2.6	2.9	4.0	-1.4	2.2	3.7	-0.8	2.5	2.5	2.4	2.3	0.9	2.0
Domes. corporate goods price index	2.8	1.9	-0.2	0.2	2.5	-0.1	0.6	3.4	0.5	0.2	0.4	0.7	0.0	0.8
Consumer price index	0.2	0.1	0.3	0.8	2.3	1.0	1.3	3.4	1.2	1.4	1.6	1.8	-0.3	1.5
CPI (nonperishables)	0.1	0.1	0.3	0.8	2.2	1.0	1.3	3.3	1.2	1.3	1.6	1.8	-0.3	1.5
Unemployment rate (%)	4.1	3.8	3.5	3.3	3.5	3.5	3.4	3.6	3.5	3.4	3.3	3.3	4.6	3.4
Current account (¥ trillion)	21.2	25.5	23.3	21.1	23.0	21.3	17.8	19.0	18.2	16.9	13.8	11.6	16.7	18.6
(% of nominal GDP)	(4.1)	(4.9)	(4.4)	(3.9)	(4.2)	(3.8)	(3.0)	(3.2)	(2.9)	(2.7)	(2.1)	(1.7)	(3.3)	(3.2)
USD/JPY (avg ¥)	117	117	112	110	108	105	105	105	105	105	105	105	116	107
BOJ overnight call rate (avg %)	0.50	0.75	1.25	1.75	1.75	2.25	2.75	2.75	3.00	3.00	3.00	3.00	—	—
10-year JGB yield (avg %)	1.8	1.7	2.1	2.5	2.7	3.1	3.6	3.8	4.2	4.2	4.2	4.2	1.5	3.5
WTI oil price (avg $/barrel)	64	75	79	79	81	81	81	83	83	83	85	85	38	82

Sources: ESRI, *Annual Report on National Accounts*; MIC Statistics Bureau, *Consumer Price Index*, and *Labour Force Survey*; BOJ, *Financial and Economic Statistics Monthly*; others.