Global Financial Crisis Increases the Presence of Emerging Markets—Medium-Term Economic Forecast (FY 2010－2019)

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Although stimulus measures have helped economies stage a recovery from the global financial crisis, risk factors still loom ahead. Meanwhile, the crisis has significantly boosted the presence of emerging markets. As a result, we predict the economic order now led by Western industrialized countries will change at an accelerating pace over the next decade. In addition, aging will trigger a decline in many economies by 2019.

1. Introduction

1. Stimulus Policies Help to Spur Global Recovery

The global turmoil of financial markets, which began with the Paribas shock in summer 2007 and escalated following the Lehman Brothers collapse in autumn 2008, quickly spread to economies beyond the U.S. and Europe. When U.S. imports plummeted, global trade contracted sharply, sending repercussions to economies not directly involved in the financial crisis.

In addition to stimulative monetary policies led by central banks in the U.S. and Europe, individual countries implemented stimulative fiscal policies that have helped turn around the world economy. Japan's economy entered a recovery around spring 2009 on the strength of export growth to China, where expansionary policies have brought about a recovery, In addition, domestic consumption was stimulated by the fixed-amount cash benefit disbursement, eco point program and eco car tax cut and rebate, leading to a recovery of industrial production.

But despite the world economy's ongoing recovery, risk factors loom ahead due to continued anxiety over the financial system. In the medium term, the lopsided global structure of balance of payments—one cause of the economic crisis—threatens to slow down the global economic recovery.

The global recession has also accelerated a long-term trend—the rising presence of China and other emerging markets. Meanwhile, population aging will continue to cause structural economic changes not only in Japan but elsewhere. By the end of our 10-year forecast period, we predict the world economy will have shrugged off the financial crisis and resume growth at the same rate as we predicted before its onset. However, the impact of the global recession will linger for a considerable time in terms of the level of world economic activity, which will fall far below our previous forecast.

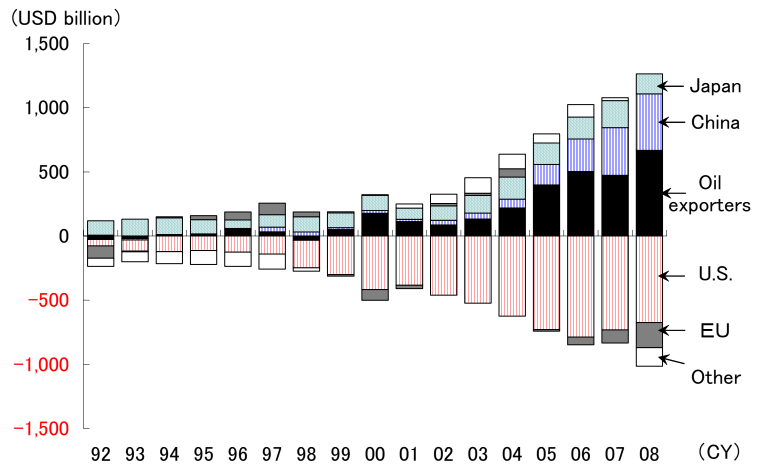
2. Contraction of Global Imbalances

As seen by the turmoil caused by subprime loan-related securities, the direct cause of the global economic crisis stems from risk management failures and highly leveraged speculative investment at financial institutions in Europe and the U.S. The Lehman Brothers collapse triggered the collapse of other major financial institutions, driving global financial markets into turmoil. However, due to monetary easing on an unprecedented scale by U.S. and European central banks and the rescue of financial institutions using enormous public funds, the financial system chaos is coming to an end.

But the ensuing global economic turmoil was not solely the result of credit contraction due to the financial turmoil. Another factor was the contraction of global imbalances, whose previous expansion had sustained the world's real economic growth. As Japan's post-bubble experience shows, the real economy will likely flounder long after the financial system has settled down. Thus we expect the aftereffects of the global financial crisis will severely curtail growth of the world economy for a long time to come.

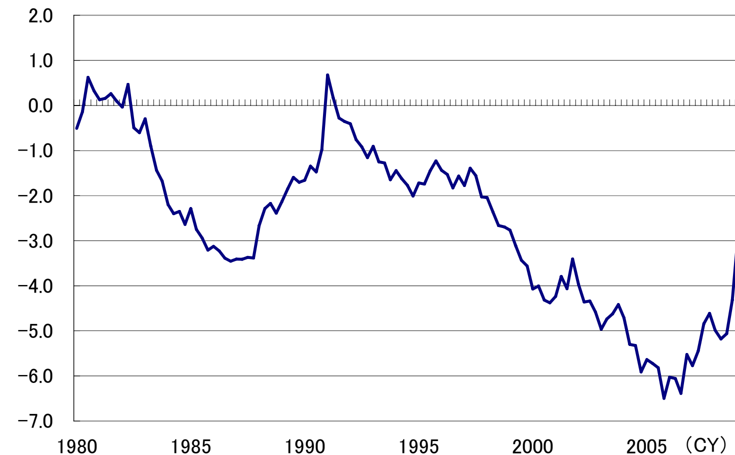
The world economy enjoyed an unprecedented growth period starting in the mid 1990s. The growth occurred amid worldwide disinflation and low interest rates, against the backdrop of a growing global imbalance in which the U.S. ran a huge current account deficit while China and Japan enjoyed growing surpluses.

Exhibit 1 Structure of the Global Current Account Balance



Source: IMF

Exhibit 2 U.S. Current Account Balance (percent of nominal GDP)



Source: U.S. Department of Commerce

The current account imbalance was driven in turn by a savings imbalance in which a large U.S. and large saving surplus in Asian economies. Asian economies were characterized by a financial surplus coupled with a large excess of supply over demand in the real economy. Meanwhile, the U.S. had a large saving shortfall coupled with a large excess demand over supply in the real economy. Thus Asia's strong growth was due to the U.S. continued to expand the current account deficit and grow the global imbalance. After recovering from the Asian currency crisis of 1997, Asian economies accumulated foreign reserves by expanding their trade surplus. While China maintained a high growth rate, the heavy dependence on growth of exports and investment led to a growing trade surplus and the world's largest foreign reserve exceeding 2 trillion dollars. Japan also managed to recover from the post-bubble recession due to export growth, thereby increasing foreign reserves above 1 trillion dollars. Thus a mutual dependence occurred in which the U.S. imported Asia's exports, with the ballooning U.S. current account deficit financed by large capital flows from Asian economies who expanded their foreign reserves by buying large amounts of U.S. dollars.

However, the unsustainable nature of this global imbalance meant that a correction was inevitable at some point. Thus even if the global recession had not been triggered by the bursting of the U.S. housing bubble, some other circumstance would eventually have arisen to cause a correction of the global imbalance. Since the global financial crisis triggered a recession that sharply reduced U.S. imports, the current account deficit plummeted from 6% of nominal GDP to 3%. However, the present level of the current account deficit is still at a historically high level.

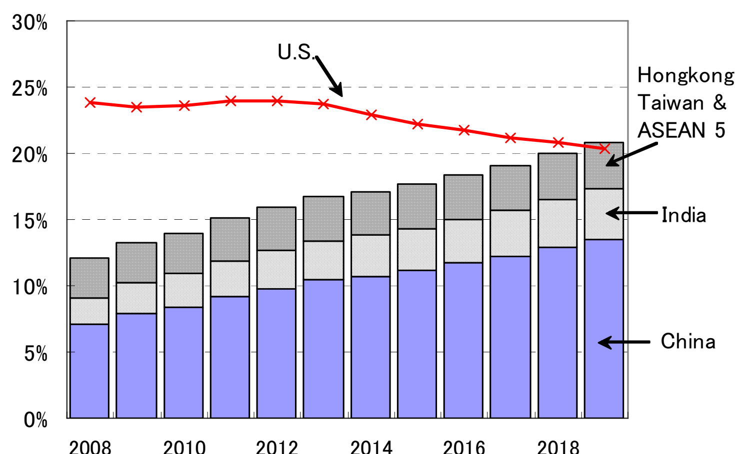
When the financial system turmoil ends in the U.S. and Europe, the world economy will be different from what it was before the crisis. The global imbalance between the large U.S. current account deficit on the one hand, and current account surplus among Asian economies including NIES on the other, is unsustainable in the long term. The world economy will never return to the situation of the early 2000s in which economies could enjoy strong economic growth and a current account surplus at the same time by exporting to the U.S.

2. Impact of the Global Recession

1. Accelerated Shift Toward Emerging Markets

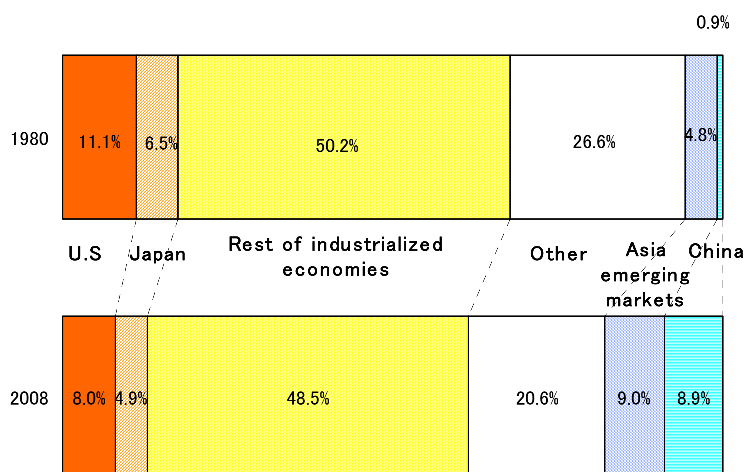
While economic growth turned negative in the U.S., Europe, and Japan, emerging economies have continued to grow fairly rapidly. In fact, the financial crisis has enhanced their presence. China appears set to surpass Japan as the world's second largest economy by 2010, while India will almost rival Japan in size by the end of the forecast period. At present, the combined GDP of China, Hong Kong, India, Taiwan, and ASEAN is approximately one-half that of the U.S. By 2019, they will surpass the U.S. and enjoy a much larger presence in the world economy than today.

Exhibit 3 Forecast for Composition of World Economy (nominal GDP)



The presence of emerging economies is also growing in world trade. In 1980, the U.S. commanded an overwhelming 10% share of world trade in export value, compared to 0.9% for China. However, by 2008, China's share had reached 8.9% and overtaken the U.S. share of 8.0%. At the same time, the share of Asia's emerging markets grew from 4.8% to 9.0%.

Exhibit 4 Change in Composition of World Exports



Note: Asian emerging economies consist of Hong Kong, Taiwan, Malaysia, Thailand, Indonesia, Philippines, Vietnam, and India.
Source: IMF

The growing presence of emerging markets is visible in several other ways. In the past, the world economy was largely managed by the industrialized economies belonging to the G7. However, since the response to the current global financial crisis required the cooperation of emerging markets, a broader G20 framework was newly implemented. Emerging markets are also seeking a greater role in international organizations such as the IMF, which have traditionally been controlled by industrialized countries. The first BRIC summit was held in Russia in June 2009, in which a joint statement was issued calling for "a stable, predictable and more diversified international monetary system." The IMF is considering increasing the membership quotas of emerging markets and low-income countries. A larger quota would increase that country's maximum financial commitment and voting power in the Fund.

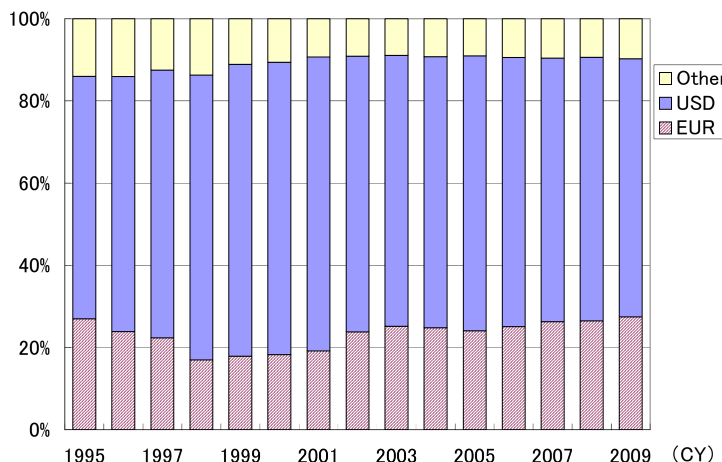
2. Challenge to Dollar Supremacy

While the U.S. will likely remain the world's largest economy in the next decade, its relative supremacy will decline significantly. The dollar's key currency status will also likely be challenged by the euro and emerging markets. In the global composition of foreign reserves, the dollar will maintain at least a 60% share. As of the end of June 2009, the euro's share rose to 27.5%, marking a 10-percentage point increase since its introduction in 1999. Due to concerns about the dollar's

decline in the long term, emerging markets are converting their foreign reserves from the dollar to the euro.

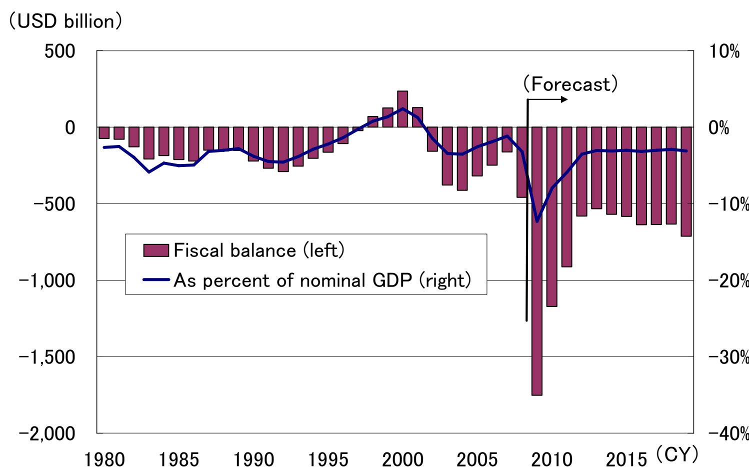
In addition to the size of the U.S. economy in the world economy, another major factor that will affect confidence in the dollar is the size of the U.S. fiscal deficit and current account deficit. According to preliminary estimates released in October by the CBO, the fiscal deficit will reach 1.4090 trillion dollars in fiscal 2009, or 9.95 of nominal GDP. Not only will it be the largest fiscal deficit on record in absolute size, but also as a ratio to nominal GDP since the Second World War, including the Vietnam war and the Reaganomics era of the early 1980s.

Exhibit 5 Composition of Global Foreign Reserves



Note: Prior to the euro's in Q3 1999, the euro share is calculated based on the national currencies of participating countries.
Source: IMF

Exhibit 6 U.S. Fiscal Deficit



Sources: United States CBO, Dept. of Treasury, and Dept. of Commerce.

Although the fiscal deficit is expected to shrink as the economy recovers, it will nonetheless still exceed 3% of nominal GDP in fiscal 2019. Moreover, the national health insurance and health care spending will also have a significant impact on the deficit in the medium term. Since the fiscal deficit is financed by foreign purchases of U.S. Treasurys, if anxiety abroad mounts from the growing fiscal deficit, Treasury interest rates will rise and further aggravate the deficit.

At present, there are no credible contenders to replace the dollar. Despite the euro's growing prominence, its status in international financial markets is vastly different from the dollar. And despite the rapid growth of China's trade, yuan transactions remain tightly controlled. However, as confidence in the dollar wavers, if emerging markets continue to expand their share of international trade and use their own currencies in trade settlement, the dollar's relative status will decline.

3. Impact on Commodity Prices

In the past, a select group of nations including the U.S., Europe and Japan consumed a large share of the world's resources. Looking ahead, as emerging markets with large populations such as BRICs continue to develop, total demand for food and energy resources will surely increase. This tendency is reflected in the WTI futures price of oil, which after almost reaching 150 dollars per barrel in July 2008, plummeted to around 30 dollars amid the global recession, but has recently recovered to around 70 dollars.

One factor behind the oil price resurgence has been the aggressive monetary easing policy countries have adopted to combat the recession and financial crisis. As the world economy recovers, countries are expected to tone down monetary policy to a more normal condition, which will help to restrain commodity price increases. However, with the large emerging markets expected to continue developing rapidly, we predict commodity market conditions will remain tight over the long term.

This means the recovery of the world economy will cause commodity prices to keep rising. Moreover, a weaker dollar will encourage oil producers to raise dollar-denominated oil prices so that they can maintain their real income levels, accelerating the rise of commodity prices.

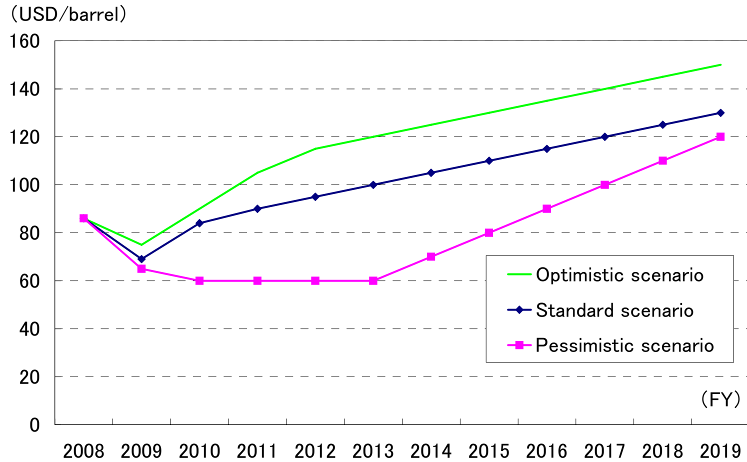
3. Structural Change of Economy Due to Aging

1. Aging and the Declining Potential Growth Rate

Prior to 2007, there were strong concerns that the baby boom generation, born just after the end of the Second World War and about to reach the mandatory retirement age of 60 at many employers, would trigger a serious labor shortage by their sudden departure. However, the Older Persons Employment Stability Act that took full effect in 2006 successfully delayed the departure of persons aged 60 to 64 from the labor force. Meanwhile, the slowing economy also helped o alleviate tightness in the labor market. As a result, the unemployment rate has risen to the mid 5% range.

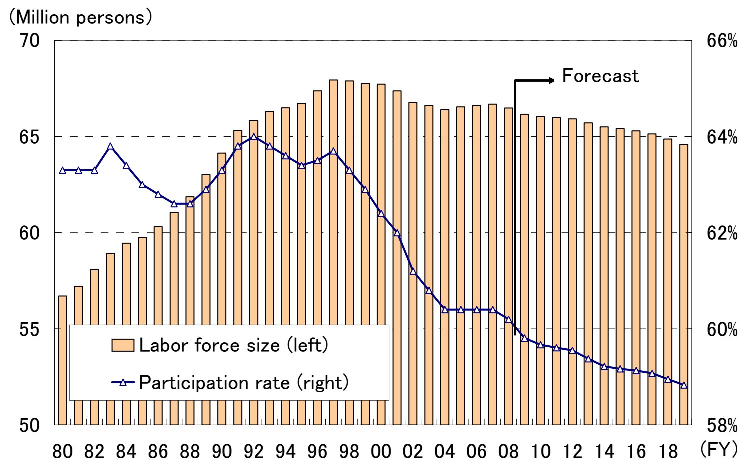
The productive-age population (age 15 to 64) peaked out and begun declining as early as 1995. Even so, the unemployment rate reached a high of 5.7% as recently as June 2009 amid the sluggish economy. Thus labor supply is not a constraint on economic growth at present, nor do we expect aging to seriously impact labor supply in the near term. However, when baby boomers reach age 65 in 2012, they will likely exit the labor market at an accelerating pace. By fiscal 2019, even with the rising participation rate of women and measures to secure employment to age 65, the labor force is predicted to decline to 64.58 million persons, down by over 3 million from 67.94 million

Exhibit 7 Forecast for Oil Prices



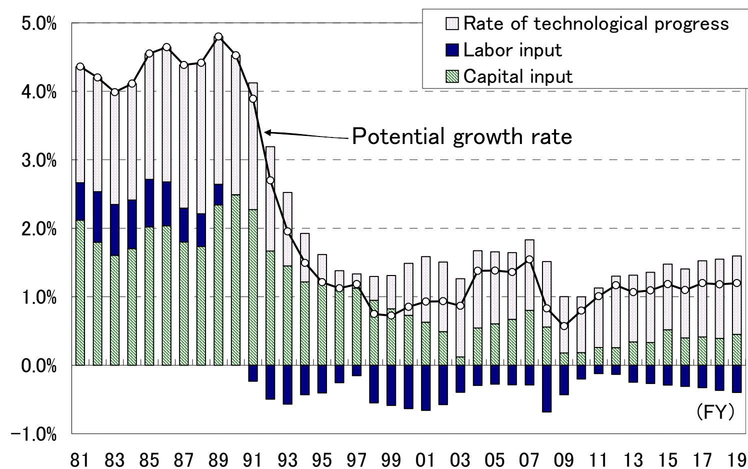
Note: Forecast was compiled by NLI Research Institute.

Exhibit 8 Labor Force Size and Participation Rate in Japan



Source: MIC Statistics Bureau, *Labour Force Survey.*

Exhibit 9 Factor Contributions to the Potential Growth Rate



Note: Estimates are based on historical values up through fiscal 2008, and on predicted values from fiscal 2009 forward.
Sources: Cabinet Office ESRI, *Annual Report on National Accounts*, and *Annual Report on Gross Capital Stock of Private Enterprises*; MIC, *Labour Force Survey*; others.

in fiscal 1997. A decline of this magnitude will gradually be felt throughout the economy.

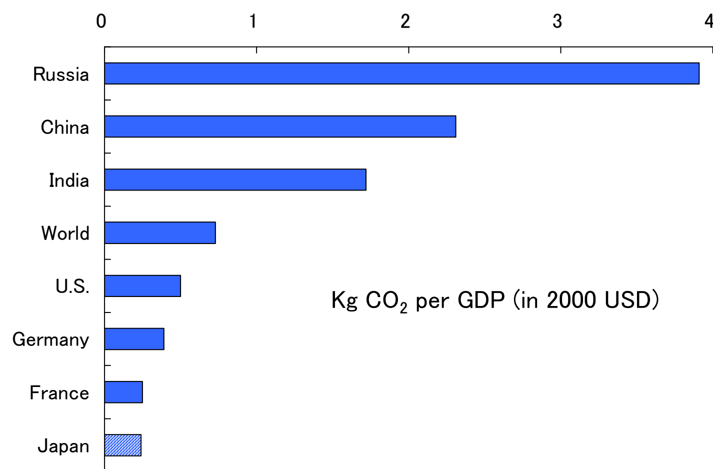
Japan's household saving rate, which used to be high among advanced economies, fell to 2.2% in fiscal 2007. The decline of the household saving rate has made it increasingly difficult to finance investment out of domestic funds. As a result, the growth rate of capital stock has decelerated, and likely to constrain the potential growth rate.

In the 1980s, Japan' potential growth rate was in the 4% range. Even though we assume that population aging and decline of capital stock growth do not reduce the rate of technological progress, the impact of the labor force decline is such that we predict the potential growth rate will drop to the mid 1% range in the second half of the forecast period.

2. Environmental Response

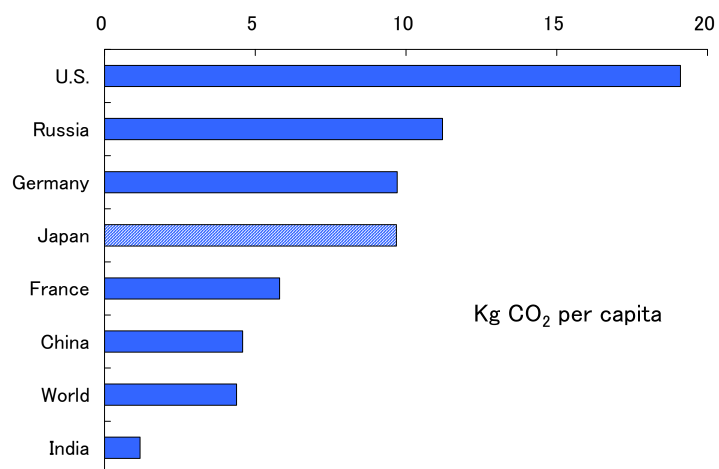
At the 2009 UN Summit on Climate Change in September, Japanese Prime Minister Yukio Hatoyama declared Japan's willingness to commit by 2025 to reduce greenhouse gas emissions by 25% from 1990 levels. Concerns have arisen that such an ambitious goal would stifle industrial activity and drag down economic growth. However, this economic loss could actually be trivial compared to the potentially colossal economic loss caused by damage from GHG emissions to the global environment. According to an estimate by the World Bank, the annual cost to developing countries for adopting to climate change is between 75 to 100 billion dollars.

Exhibit 10 Carbon Dioxide Emissions per GDP (2007)



Source: IEA, *CO_2 Emissions from Fuel Combustion (2009 Edition).*

Exhibit 11 Carbon Dioxide Emissions per Population (2007)



Source: IEA, *CO_2 Emissions from Fuel Combustion (2009 Edition).*

In terms of GHG emissions per GDP, Japan boasts a highly energy efficient economy due to state of the art technology. However, when measured by GHG emissions per population, Japan far exceeds the world average and even countries such as China. For emerging markets to further develop and prosper, industrialized countries must reduce their own emissions.

However, the economic impact of the GHG reduction commitment may not necessarily be all negative. In the past, for example, stricter automobile emission regulations helped spur technological advances that improved fuel efficiency, thereby giving the Japanese automobile industry a big boost. In the same way, tougher environmental regulations can encourage the development of new technologies that reduce the constraints on economic growth, while also creating new demand as in the case of hybrid cars.

The reduction of GHG emissions will require changes in consumer lifestyles and likely accelerate the shift in Japan's industrial structure. In our forecast, we assume that while GHG emissions reduction commitments will constrain economic growth to a point, the downside will not be extensive.

3. BOP and Exchange Rates

Japan's trade surplus has been reduced by rising commodity prices of crude oil and food. Previously, we predicted a trade deficit would eventually emerge as the population ages. However, in fiscal 2008, the trade balance in goods and services dipped prematurely into deficit at -887.8 billion yen.

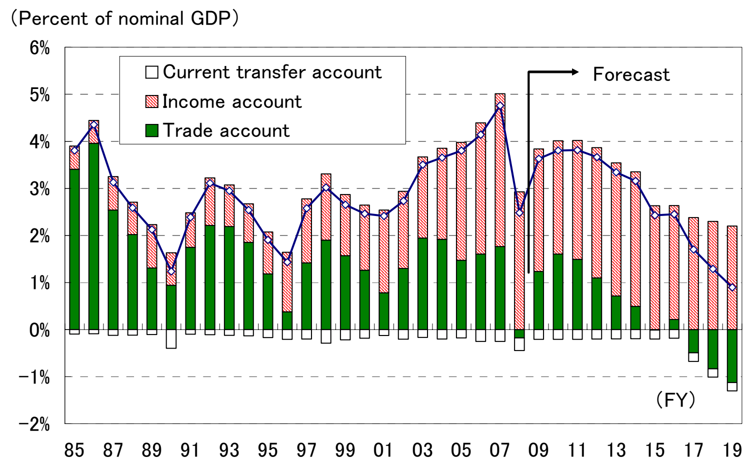
This trade deficit is attributed to a surge in the value of imports due to soaring commodity prices (crude oil prices approached 150 USD per barrel in the summer) combined with a plunge in value of exports amid the global recession. However, the trade surplus reappeared in fiscal 2009 as the global recession drove down import prices. Although we still predict the trade surplus will disappear as aging advances, a small trade surplus may resurface in fiscal 2016 if the consumption tax rate hike takes place as assumed, slowing the economy and slashing imports. We predict the full impact of aging will hit the trade deficit in fiscal 2017 or later.

For the second half of the forecast period, we predict the current account will still be in surplus, but will be sustained entirely by the income account surplus.

Judging from the trend in domestic investment-saving balance, the trade deficit will subsequently continue to grow, reducing the current account surplus from 4.8% of nominal GDP in fiscal 2007 to below 1% in fiscal 2019. This change in the BOP structure will bring the era of the strong yen to a close and usher in the weak yen era.

In view of the Hatoyama government's commitment to maintain the current consumption tax rate for the next four years, we assume the expected 3-percentage point tax rate hike will occur in fiscal 2016. In addition, we assume no significant increases will occur in social security premiums other

Exhibit 12 Japan's Current Account Balance



Note: Estimates are based on historical values up through fiscal 2008, and on predicted values from fiscal 2009 forward.
Sources: BOJ, *Balance of Payments Statistics*; Cabinet Office, *Annual Report on National Accounts.*

Exhibit 13 Net Lending and Borrowing by Sector (as percent of nominal GDP)

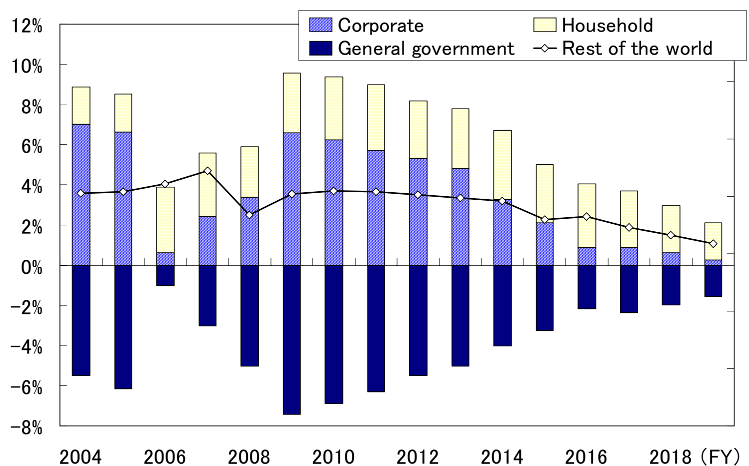
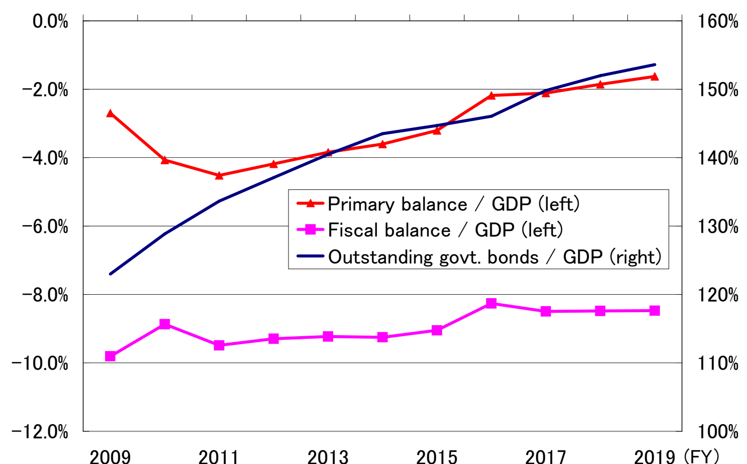


Exhibit 14 Forecast for the General Account Balance



than those already approved, such as the public pension premium rate hikes. Considering the current state of the economy, a consumption tax rate hike appears unlikely in the near term.

Exhibit 15 Impact of a 1-Percentage Point Consumption Tax Rate Hike (in first fiscal year)

(Percent)

Real GDP	Private consumption	Residential investment	Bus. fixed investment	Nominal GDP	CPI inflation
−0.51	−0.40	−0.67	−1.71	0.04	0.71

Note: Numbers indicate percent deviation from standard scenario.

Due to aging, social security expenditures will continue to outpace the nominal economic growth rate, making it difficult to contain fiscal spending growth. To restore fiscal balance, the immediate goal is to first achieve a primary fiscal balance. However, this is unlikely by the end of the forecast period in fiscal 2019, when the primary balance of the general account will still remain negative at almost -2% of GDP.

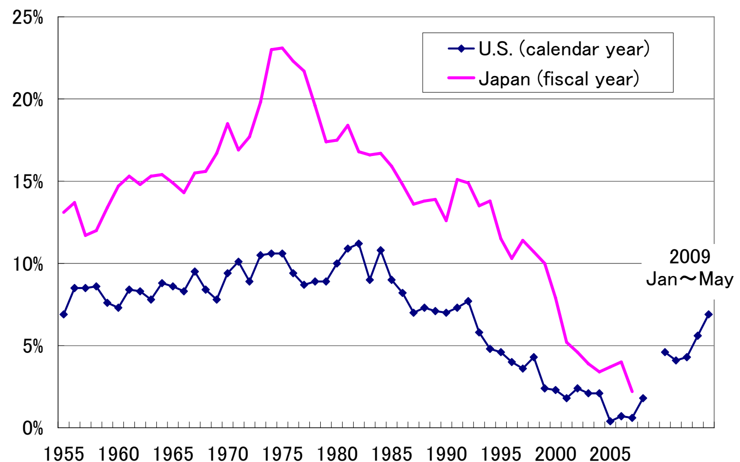
Moreover, repayment of the accumulated national debt would require additional bond issuance, while interest payments could increase conspicuously if interest rates start to rise as the economy recovers. As a result, the general account deficit will remain at over 8% of nominal GDP, causing outstanding bonds to grow as a percent of nominal GDP. To avert fiscal disaster, the growth of outstanding bonds as a percentage of nominal GDP must be stopped and turned around, which means that higher taxes will be inevitable. However, given the economy's weak condition, raising taxes will be difficult during the forecast period.

4. Medium-term Economic Forecast

1. Retirement of U.S. Baby Boomers

In the last housing market boom, as U.S. households borrowed against rising home equity values to finance consumption, the household saving rate declined precipitously. Even though debt grew relative to disposable income, household balance sheets maintained a healthy appearance because wealth was rising amid the booming housing and stock markets. When markets eventually receded, the ratio of assets to liabilities deteriorated severely. Households now need to clean up their balance sheets by saving more out of disposable income, reducing debt, and rebuilding wealth. This will prevent consumption from recovering anytime soon.

Exhibit 16 U.S. Household Saving Rate Overtakes Japan



Note: Japan data is for fiscal year. U.S. data is for calendar year, with monthly data from January 2009.
Sources: Japan Cabinet Office, U.S. Department of Commerce.

In fact, after the financial crisis struck and the economic damage became evident, the household saving rate began to improve significantly, and has recently recovered to above 5%. This factor, along with weak income growth amid declining employment, are constraining household consumption. In addition, the soft housing market will also continue to curb consumption. More time is needed for consumption to recover from these setbacks and drive a full-fledged economic recovery. As a result, although the economy will shrug off the severe recession and recover in the first half of the forecast period, growth will remain slow.

From 2010, when U.S. baby boomers start to reach the retirement age of 65, the labor force growth rate will drop significantly. The U.S. Department of Labor projects that even if annual immigration

increases from 1.32 million to 1.45 million persons, the labor force growth rate will decrease by half from 0.96% in 2009 to 0.49% in 2019. Due to the retirement of baby boomers, the potential growth rate of the U.S. economy, which stood in the mid 2% range in 2008, will edge down by approximately 0.2 to 0.3-percentage point by 2019.

In 2009, the real GDP of the U.S. is estimated to decline -2.6% due to the impact of the financial crisis. As a result of fiscal and monetary stimulation, economic growth is predicted to recover to 2.1% in 2010, followed by moderate growth that will peak out at 3.0% in 2013. Then as the potential growth rate declines due to aging, the economy will settle down to a mid 2% growth rate. While the moderate economic growth is expected to be accompanied by price stability, upward pressure from energy prices will keep inflation from declining significantly in the medium term.

2. Euro Area to Struggle with Exit Strategy and Structural Reform

In 2009, we predict the euro area economy will contract a hefty -4.1%. Although fiscal policy gained enough traction to alleviate the severe demand slump, a large demand gap remains that will continue to require adjustment in investment and employment in 2010 and beyond. If the fiscal crisis and severe recession cause prolonged difficulties in financing availability and cost and further structural unemployment, the economic growth trajectory will decline in the medium term. Europe's financial system is in distress, while economies are susceptible to long-term structural unemployment. Restoring the original growth trajectory will require efforts to restore financial system health and reform the labor market.

Labor market reform is essential not for overcoming the prolonged effects of the crisis and entrenchment of regional economic disparities, but also to address the aging of the population. Some peripheral countries retain a dual labor market structure consisting of regular employees with protected jobs, and non-regular employees highly susceptible to unemployment. In addition, their wage systems tend to be rigid and indexed to inflation, and social security benefits tend to be excessive. These factors tend to impede efforts to create jobs and alleviate job mismatching. Learning from the vicious cycle of the 1970s and 1980s, in which poor policy choices led to falling employment, lower economic growth, and deteriorating fiscal conditions, policymakers should seek to redistribute employment smoothly and avert the onset of structural unemployment.

We predict economic growth will average 1.5% over the next decade, slightly above the growth rate of the previous decade from 2000 to 2009. We assume limited progress will occur in structural reform of the financial and labor markets, while in 2010 the exit strategy will shift the orientation of policy from a crisis mode to a normal mode, meaning that fiscally ailing countries will adopt contractionary policies while the ECB will partially revise its liquidity provision. From 2011 onward, interest rates will be gradually raised and major countries will implement full-fledged measures to improve fiscal health.

3. China to Enter Stable Growth Phase

The global recession has interrupted the growth of emerging markets in various ways. Trade balances of Asian emerging markets deteriorated as manufactured exports to the U.S. and Europe plummeted, while commodity exporters such as Russia have suffered from falling oil prices. In Central and Eastern European emerging markets, a sudden reversal of fund flows has stymied development. Meanwhile, China's successful crisis management response to the global recession has cast the country into a prominent status.

Immediately after the Lehman shock, China helped ease the global demand slump by announcing a 4 trillion yen stimulus package for construction of road and railway infrastructure, along with measures to stimulate consumption spending on automobiles and home appliances. The global recession dealt a severe blow to China's export-led economy by reducing exports over -20%. However, the domestic demand stimulus measures helped offset the export decline and avert further damage to the economy.

China expects to receive a "population bonus" when the children of the large generation born before implementation of the one-child policy gradually reach working age. This could boost economic growth to the 8% to 9% range in the first half of the 2010s. However, by the second half of the 2010s, the full impact of the one-child policy will start to reduce the working-age population, and gradually

diminish one of China's longstanding advantages—cheap and abundant labor force, which has driven vigorous economic growth ever since the reform and open door policy took effect.

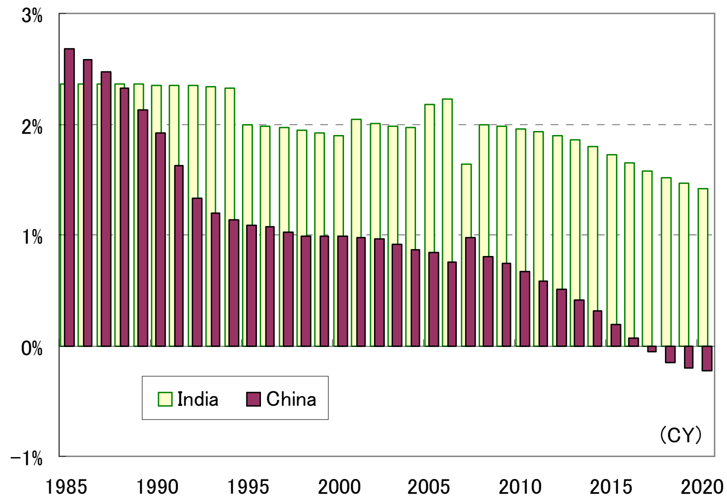
In addition, as China's economic influence grows in the world economy, international pressure will mount on China to adjust the undervalued yuan and move it closer to its fundamental value. Such a revaluation of the yuan would reduce the economic growth rate.

Meanwhile, although the government is rebuilding the social insurance system to promote sustained growth of domestic consumption, consumption growth will likely be moderate. In light of the above, we predict economic growth will slow to around 7% to 8% in the late 2010s.

In 2009 and 2010, we expect emerging markets will gradually regain stability, and Asian countries led by China, India, Vietnam, and Indonesia will sustain high economic growth rates compared to the major industrialized countries. In the first half of the 2010s, China, the largest emerging market, will drive growth and provide support to other Asian emerging markets. In the second half of the decade, China will gradually lose momentum, while India will catch up in size and presence.

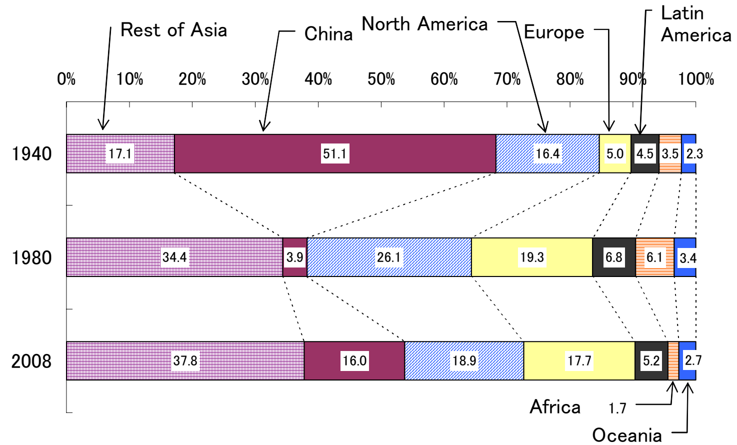
Before World War II, the bulk of Japan's exports went to China and other Asian destinations. But after the war, exports to China contracted sharply due partly to China's stagnant economic development under socialism, while exports to North America and Europe surged. With China's rapid economic growth in recent years, the country is once again a major export destination, and as this trend continues over the forecast period, China will become a far

Exhibit 17 Growth Rate of Economically Active Population



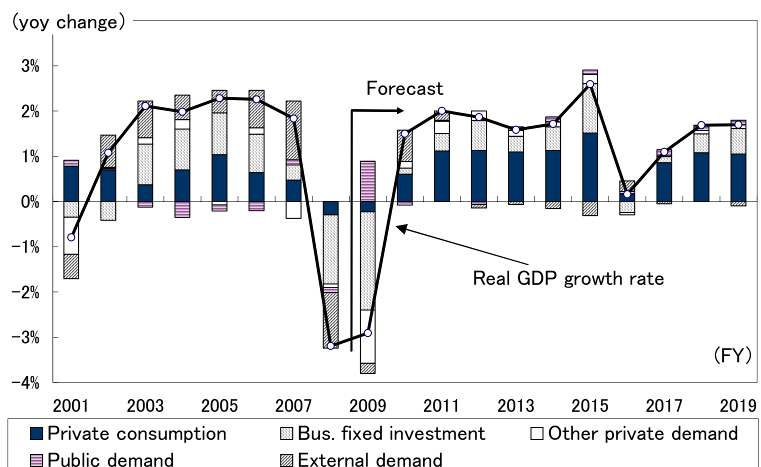
Source: ILO, LABORSTA Labour Statistics Database

Exhibit 18 Composition of Japan's Exports by Destination (1940—2008)



Sources: Japan Tariff Association, *Japan Exports & Imports*; Nippon Kokuseisha, *Suji de miru nihon no hyakunen.*

Exhibit 19 Real GDP Growth of Japan (FY 2001—2019)



Source: Cabinet Office ESRI, *Annual Report on National Accounts.*

larger export destination than the U.S., in part due to its geographic proximity.

4. Forecast for Japan

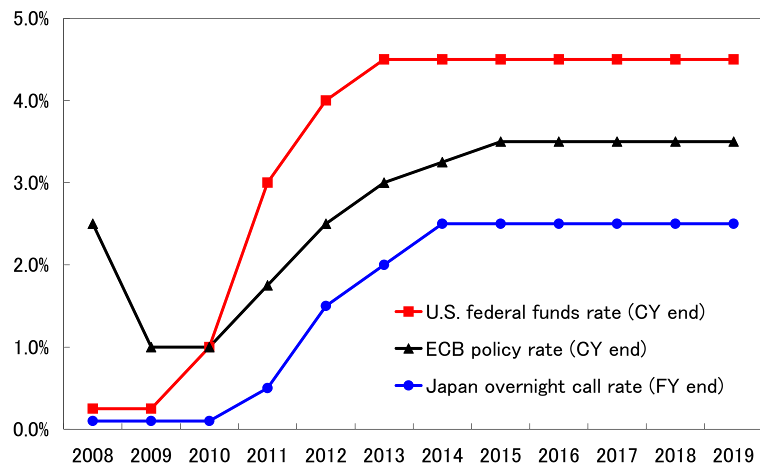
In the decade from fiscal 2010 to 2019, we predict Japan will average 1.6% annual real growth, slightly above the potential growth rate. The growth pace will be impeded by the two consecutive years of approximately -3% contraction in fiscal 2008 and 2009, which created a wide gap between supply and demand that will be difficult to reduce.

Impediments to growth include the upcoming 3-percentage point consumption tax rate hike assumed to occur in fiscal 2016, which will slow the economy to 0.2% growth that year. In addition, the recovery pace of the U.S. and Europe will be modest because like Japan, they are also rebounding from a deep recession. We predict consumer price inflation will average 0.9% per year, compared to a -0.2% annual rate in the previous decade, due to growing commodity and food demand from emerging markets, which puts upward pressure on import prices in the medium term, and also due to the consumption tax rate hike.

5. Forecast for Financial Markets

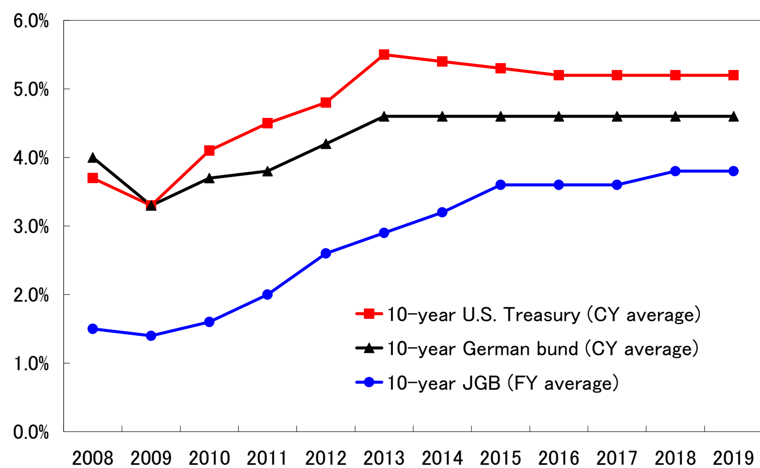
With the global economy still in turmoil, we predict average interest rates will be low worldwide in the first half of the forecast period. In Japan, the policy rate (unsecured overnight call rate) will not be raised until fiscal 2011, while the long-term interest rate (10-year JGB) will trend upward but at a moderate pace. In the U.S., the federal funds rate will remain low in the near term, but will later be raised briskly to the mid 4% range as inflationary concerns mount due to the economic recovery and growing twin (fiscal and current account) deficits.

Exhibit 20 Forecast for Policy Interest Rates



Although long-term rates are now low in the U.S., we predict the 10-year U.S. Treasury interest rate will trend upward due to the failure to reduce the fiscal deficit, as well as to the negative impact this will have on foreign demand for U.S. debt.

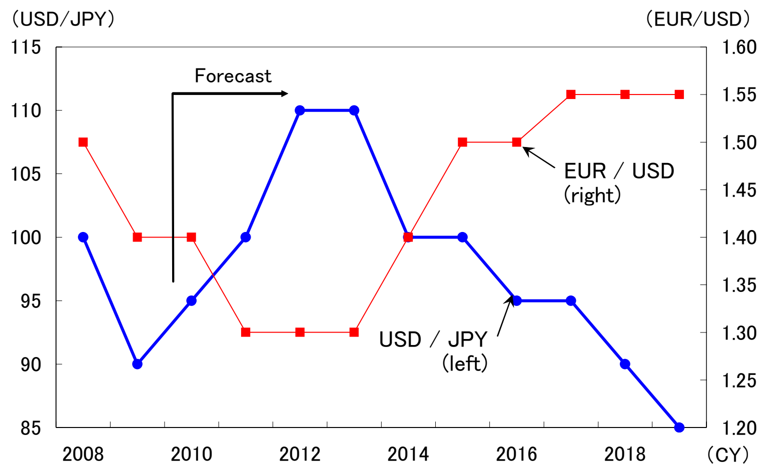
Exhibit 21 Forecast for Long-term Interest Rates



Since the U.S. policy interest rate was drastically cut in response to the deepening financial crisis, the previously large policy rate gap that had existed with Japan has almost vanished, which is working to strengthen the yen and weaken the dollar in the short term. Looking ahead, however, as the U.S. economy recovers, we expect the policy rate to rise faster in the U.S. than in Japan. As a result, the policy interest rate gap will widen once again, causing the dollar to strengthen and yen to weaken.

In the second half of the forecast period, we predict that as Japan's economy recovers and the policy rate is gradually raised, the policy rate gap with the U.S. and Europe will tend to contract, gradually strengthening the yen against both the dollar and euro.

Exhibit 22 Forecast for Exchange Rates (CY average)



We predict that emerging market currencies such as the Chinese yuan and Korean won will appreciate against the yen. The yen's effective exchange rate, which in the past was dominated by its relationship to the dollar, will be increasingly influenced by emerging market currencies as the weight of trade expands with these countries, and the yen's effective rate will decline as a result. As the dollar's anchor currency status steadily wanes, the dollar will weaken against the yen and other currencies, and the yen's exchange rate level will no longer be defined by the dollar as in the past.

5. Alternate Scenarios

1. Pessimistic Scenario

While stimulus policies taken by individual countries have enabled the world economy to bottom out, the risk remains that the U.S. economy could experience a double-dip recession in 2010 when the stimulus effect fades out on measures that have worked thus far such as the Car Allowance Rebate System. If the economy dips, the recent upturn seen in the housing and stock markets would reverses course, hammering households with a reverse wealth effect. In addition, the deteriorating job situation would decrease incomes and suppress consumption. Local bank failures would increase amid a deteriorating commercial real estate market rising delinquencies in consumer credit and credit card debt. As a result, monetary easing would need to be continued, delaying the start of policy rate hikes to 2013. Declining tax revenue and the need to implement new stimulus measures would further aggravate the fiscal deficit. Meanwhile, mounting deflationary conditions would keep long-term interest rates low.

In Europe, as the euro strengthens against the weakening dollar, smaller euro member states would come under increasing pressure international competitiveness, reducing the average economic growth rate of the euro area down to 1%.

In Japan, exports would be curtailed by the global recession combined with the yen's unrelenting surge against the dollar, resulting in another year of negative economic growth in fiscal 2010. Over the forecast period, the economy would average only 1.1% real growth per year, while inflation would be muted. Although the easy monetary policy would come to an end, the call rate target would remain at around 2% to the end of fiscal 2019, and the long-term interest rate would remain at around 2.4%.

2. Optimistic Scenario

The optimistic scenario rests on the premise that emerging markets can successfully shift from export-led growth to growth led by domestic demand. This would move the global balance of payments in a favorable direction as domestic demand in high-growth countries such as China and India helps stimulate U.S. exports. China would resume double-digit growth from 2010 onward, and India would return to its original growth trajectory before the financial crisis.

The U.S. would enjoy a virtuous cycle as a full-fledged recovery invigorates the housing and stock markets, alleviating the debilitating reverse wealth effect, increasing consumption, and leading to

higher employment. Rising tax revenue would improve the fiscal balance significantly, while long-term interest rates would rise not due to negative factors, but to reflect the higher inflation rate. The credit crisis would end and lending would increase, accelerating the shift away from the easy monetary policy with more aggressive interest rate hikes.

In Europe as well, growing demand from emerging markets would stimulate export growth, accelerating the recovery output and employment. The average economic growth rate over the decade would rise to 2.0%, exceeding the growth pace from 2000 to 2009, which was marked by financial crisis.

Compared to the standard scenario, the U.S. dollar exchange rate would firm up as emerging markets demand more imports from the U.S., thereby alleviating the balance of payments disparity. In Japan, the economic recovery would trace an almost V-shaped path driven by exports. The inflation rate would tend to rise due to the economy's strength and rapidly rising commodity prices. Mounting inflationary concerns would trigger an earlier start of interest rate hikes, and the call rate target would reach 3.0% by the end of fiscal 2019, surpassing the level in the standard scenario. The bustling economy would also generate higher tax revenue and reduce the fiscal deficit. However, inflation and a strong economy would also push up the long-term interest rate to approximately 4%.

Medium-term Forecast (Standard Scenario)

Japan

(Percent yoy change unless otherwise indicated)

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	10-year average	
	actual	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	2000-2009	2010-2019
Nominal GDP	− 3.5	− 3.3	− 0.1	1.2	2.0	1.8	2.0	3.1	2.4	0.8	1.8	2.1	− 0.4	1.7
(JPY trillion)	(497.7 tr)	(481.3 tr)	(481.0 tr)	(486.7 tr)	(496.3 tr)	(505.3 tr)	(515.6 tr)	(531.8 tr)	(544.5 tr)	(548.6 tr)	(558.4 tr)	(570.3 tr)		
Real GDP	− 3.2	− 2.9	1.5	2.0	1.9	1.6	1.7	2.6	0.2	1.1	1.7	1.7	0.7	1.6
Domestic demand	− 2.1	− 2.8	0.8	1.9	2.0	1.7	2.0	3.0	− 0.1	1.2	1.7	1.9	0.4	1.6
Private demand	− 2.5	− 4.8	1.2	2.4	2.7	2.1	2.4	3.8	− 0.2	1.3	2.1	2.2	0.5	2.0
Final consumption exp.	− 0.5	− 0.4	1.0	1.9	2.0	1.9	1.9	2.6	0.3	1.5	1.9	1.8	0.8	1.7
Residential investment	− 3.1	− 15.3	1.3	2.8	4.9	1.5	4.2	7.8	− 1.7	0.6	2.8	2.9	− 4.4	2.7
Business fixed invest.	− 9.6	− 14.6	1.0	3.0	5.0	2.6	3.8	7.8	− 1.7	1.0	2.9	3.9	0.2	2.9
Public demand	− 0.5	4.1	− 0.3	0.1	− 0.3	0.4	0.5	0.5	0.3	0.6	0.5	0.5	0.2	0.3
Final consumption exp.	0.3	1.5	1.5	0.5	0.3	1.0	1.1	1.1	0.8	1.1	1.0	1.0	1.9	0.9
Public investment	− 4.4	17.7	− 8.6	− 2.0	− 3.2	− 3.0	− 2.7	− 3.1	− 3.0	− 2.0	− 2.6	− 2.8	− 5.0	− 3.3
Net exports 〈contrib.〉	〈−1.2〉	〈−0.2〉	〈0.7〉	〈0.2〉	〈−0.1〉	〈−0.1〉	〈−0.2〉	〈−0.3〉	〈0.2〉	〈−0.0〉	〈0.0〉	〈−0.1〉	〈0.3〉	〈0.0〉
Exports goods & services	− 10.2	− 12.9	7.9	3.6	3.4	2.9	2.1	2.2	2.0	2.4	2.3	2.4	3.3	3.1
Imports goods & services	− 3.7	− 15.5	3.7	3.1	5.8	4.9	4.5	5.9	0.6	3.7	2.9	4.0	1.2	3.9
Industrial production	− 12.7	− 10.2	7.7	9.2	5.3	2.0	3.1	5.4	− 1.6	1.6	2.0	2.0	− 1.1	3.6
Domes. corporate goods price index	3.2	− 4.9	0.3	0.6	1.2	1.5	0.9	1.3	4.1	− 0.2	0.5	0.8	0.0	1.1
Consumer price index	1.1	− 1.4	− 0.6	0.0	0.7	0.9	0.9	1.0	3.4	0.9	1.0	1.1	− 0.2	0.9
CPI excluding fresh foods	1.2	− 1.5	− 0.6	0.0	0.7	0.9	1.0	1.0	3.4	0.9	1.0	1.1	− 0.2	0.9
Unemployment rate (percent)	4.1	5.7	5.7	5.3	4.8	4.5	4.2	3.9	4.1	4.0	3.9	3.9	4.7	4.4
Current account bal. (JPY tril.)	12.3 tr	17.5 tr	18.3 tr	18.6 tr	18.2 tr	16.9 tr	16.3 tr	12.9 tr	13.3 tr	9.3 tr	7.2 tr	5.1 tr	16.8 tr	13.6 tr
(% nominal GDP)	(2.5)	(3.6)	(3.8)	(3.8)	(3.7)	(3.3)	(3.2)	(2.4)	(2.5)	(1.7)	(1.3)	(0.9)	(3.4)	(2.7)
USD/JPY (average)	100	90	95	100	110	110	100	100	95	95	90	85	111	98
Call rate (ending)	0.10	0.10	0.10	0.50	1.50	2.00	2.50	2.50	2.50	2.50	2.50	2.50	—	—
10-year JGB yield (average)	1.5	1.4	1.6	2.0	2.6	2.9	3.2	3.6	3.6	3.6	3.8	3.8	1.4	3.1
Crude oil price (avg USD/bbl)	86	69	84	90	95	100	105	110	115	120	125	130	50	107

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

United States

(Percent yoy change unless otherwise indicated)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	10-year average	
	actual	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	2000-2009	2010-2019
Real GDP	0.4	− 2.6	2.1	2.4	2.8	3.0	2.7	2.5	2.4	2.4	2.4	2.4	1.9	2.5
Domestic demand 〈contribution〉	〈− 0.8〉	〈− 3.6〉	〈2.3〉	〈2.6〉	〈3.0〉	〈3.2〉	〈2.8〉	〈2.6〉	〈2.5〉	〈2.5〉	〈2.5〉	〈2.5〉	〈1.9〉	〈2.6〉
Personal consumption	− 0.2	− 0.7	1.5	2.0	2.4	2.6	2.5	2.4	2.3	2.2	2.2	2.2	2.5	2.2
Fixed investment	− 5.1	− 18.8	1.9	4.5	6.0	7.1	6.0	4.8	4.2	3.6	3.6	3.6	− 0.5	4.5
Net exports 〈contribution〉	〈1.2〉	〈1.0〉	〈− 0.2〉	〈− 0.2〉	〈− 0.2〉	〈− 0.2〉	〈− 0.1〉	〈− 0.1〉	〈− 0.1〉	〈− 0.1〉	〈− 0.1〉	〈− 0.1〉	〈− 0.0〉	〈− 0.1〉
Consumer price index	3.8	− 0.5	1.9	2.0	2.2	2.3	2.3	2.2	2.1	2.0	2.0	2.0	2.5	2.1
Current acct. bal. (% nominal GDP)	− 4.9	− 3.3	− 3.6	− 3.9	− 3.9	− 3.9	− 3.7	− 3.6	− 3.5	− 3.4	− 3.3	− 3.2	− 4.8	− 3.6
FF rate upper target (ending)	0.25	0.25	1.00	3.00	4.00	4.50	4.50	4.50	4.50	4.50	4.50	4.50	2.70	3.95
10-year Treasury yield (average)	3.7	3.3	4.0	4.5	4.8	5.5	5.4	5.3	5.2	5.2	5.2	5.2	4.5	5.0

Euro Area

(Percent unless otherwise indicated)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	10-year average	
	actual	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	2000-2009	2010-2019
Real GDP (yoy change)	0.7	− 4.1	0.5	1.2	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.4	1.5
Domestic demand 〈contrib〉	〈0.7〉	〈− 3.0〉	〈0.3〉	〈0.9〉	〈1.5〉	〈1.6〉	〈1.7〉	〈1.7〉	〈1.6〉	〈1.6〉	〈1.6〉	〈1.5〉	〈1.3〉	〈1.4〉
Final consump. exp. (yoy chg)	0.4	− 0.8	0.5	1.1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4
Fixed capital form. (yoy chg)	− 0.4	− 9.9	− 0.2	1.5	2.0	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.1	1.7
External demand 〈contrib〉	〈0.0〉	〈− 1.1〉	〈0.2〉	〈0.3〉	〈0.2〉	〈0.0〉	〈− 0.1〉	〈− 0.0〉	〈0.0〉	〈0.0〉	〈0.0〉	〈0.0〉	〈0.0〉	〈0.1〉
HICP (yoy chg)	3.3	0.3	1.2	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.1	1.6
Current acct. bal. (% nominal GDP)	− 1.1	− 0.5	− 0.2	0.1	0.0	− 0.1	0.0	0.1	0.1	0.0	0.0	0.0	− 0.2	0.0
EUR/USD (in USD)	1.47	1.40	1.40	1.30	1.30	1.30	1.40	1.50	1.50	1.55	1.55	1.55	1.19	1.44
EUR/JPY (in JPY)	152	126	133	130	143	143	140	150	143	147	140	132	131	140
ECB policy rate (ending)	2.50	1.00	1.00	1.75	2.50	3.00	3.25	3.50	3.50	3.50	3.50	3.50	2.88	2.90
10-year German bund yield (avg)	4.0	3.3	3.7	3.8	4.2	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.4

China

(Percent unless otherwise indicated)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	10-year average	
	actual	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	2000-2009	2010-2019
Real GDP (yoy chg)	9.0	7.5	8.2	8.2	8.4	8.4	8.1	7.9	7.7	7.6	7.5	7.4	9.7	8.0
Consumer price index (yoy chg)	5.9	− 0.5	1.2	2.0	2.2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	2.3
1-year lending rate (ending)	5.3	5.3	5.3	5.6	5.6	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.8	5.7
10-year govt. bond yield (ending)	2.8	3.7	4.5	5.0	5.5	6.0	6.0	5.8	5.5	5.5	5.5	5.5	3.7	5.5
USD/CNY (in CNY)	6.9	6.8	6.7	6.6	6.5	6.4	6.3	6.2	6.1	6.0	5.9	5.8	7.9	6.3

Note: Average yield of 10-year government bond for 2000-2009 is calculated from August 2002.

Emerging Markets

(Percent unless otherwise indicated)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	10-year average	
	actual	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	2000-2009	2010-2019
Real GDP (yoy change)	6.0	1.5	4.7	5.0	5.0	5.0	5.3	5.3	5.6	5.6	5.6	5.5	5.9	5.2
China	9.0	7.5	8.2	8.2	8.4	8.4	8.1	7.9	7.7	7.6	7.5	7.4	9.7	8.0
India	7.3	5.4	6.8	7.2	7.3	7.4	7.8	7.7	8.2	8.2	8.2	8.2	7.0	7.7

Comparison of Alternate Scenarios

Standard Forecast

(Percent unless noted)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	10-year average	
	actual	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	2000-2009	2010-2019
JAPAN real GDP (yoy chg)	-3.2	-2.9	1.5	2.0	1.9	1.6	1.7	2.6	0.2	1.1	1.7	1.7	0.7	1.6
USA real GDP (yoy chg)	0.4	-2.6	2.1	2.4	2.8	3.0	2.7	2.5	2.4	2.4	2.4	2.4	1.9	2.5
EURO area real GDP (yoy chg)	0.7	-4.1	0.5	1.2	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.4	1.5
CHINA real GDP (yoy chg)	9.0	7.5	8.2	8.2	8.4	8.4	8.1	7.9	7.7	7.6	7.5	7.4	9.7	8.0
Call rate (end)	0.10	0.10	0.10	0.50	1.50	2.00	2.50	2.50	2.50	2.50	2.50	2.50	—	—
FF rate target (end)	0.25	0.25	1.00	3.00	4.00	4.50	4.50	4.50	4.50	4.50	4.50	4.50	2.70	3.95
ECB policy rate (end)	2.50	1.00	1.00	1.75	2.50	3.00	3.25	3.50	3.50	3.50	3.50	3.50	2.88	2.90
10-year JGB yield (avg)	1.5	1.4	1.6	2.0	2.6	2.9	3.2	3.6	3.6	3.6	3.8	3.8	1.4	3.1
10-year U.S. Treaury yield (avg)	3.7	3.3	4.0	4.5	4.8	5.5	5.4	5.3	5.2	5.2	5.2	5.2	4.5	5.0
10-year German bund yield (avg)	4.0	3.3	3.7	3.8	4.2	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.4
USD/JPY in JPY (avg)	100	90	95	100	110	110	100	100	95	95	90	85	111	98
EUR/USD in USD (avg)	1.47	1.40	1.40	1.30	1.30	1.30	1.40	1.50	1.50	1.55	1.55	1.55	1.19	1.44
EUR/JPY in JPY (avg)	152	126	133	130	143	143	140	150	143	147	140	132	131	140

Note: Shows fiscal year results for Japan, and calendar year results for the U.S., Euro Area, and China.

Pessimistic Forecast

(Percent unless noted)

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	10-year average	
	actual	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	2000-2009	2010-2019
JAPAN real GDP (yoy chg)	-3.2	-2.6	2.2	2.6	2.5	2.4	1.9	3.0	0.5	1.6	1.9	1.8	0.7	2.0
USA real GDP (yoy chg)	0.4	-2.3	2.8	3.2	3.5	4.0	3.5	3.0	2.8	2.7	2.6	2.6	1.9	3.1
EURO area real GDP (yoy chg)	0.7	-4.1	1.0	2.0	2.3	2.4	2.2	2.2	2.0	2.0	2.0	1.8	1.4	2.0
CHINA real GDP (yoy chg)	9.0	8.5	10.0	10.2	10.3	10.6	10.3	10.1	10.0	9.9	9.9	9.9	9.7	10.1
Call rate (end)	0.10	0.10	0.10	1.00	2.00	2.50	3.00	3.00	3.00	3.00	3.00	3.00	—	—
FF rate target (end)	0.25	0.25	1.50	3.50	4.50	5.00	5.00	5.00	5.00	5.00	4.75	4.75	2.70	4.40
ECB policy rate (end)	2.50	1.00	1.25	2.00	2.75	3.50	3.75	4.00	4.00	4.00	4.00	4.00	2.88	3.33
10-year JGB yield (avg)	1.5	1.4	1.6	2.0	2.6	3.0	3.3	3.7	3.7	3.7	4.0	4.0	1.4	3.2
10-year U.S. Treaury yield (avg)	3.7	3.4	4.5	5.0	5.6	6.0	6.0	5.8	5.8	5.6	5.4	5.4	4.5	5.5
10-year German bund yield (avg)	4.0	3.3	4.0	4.2	4.6	4.8	5.0	5.0	5.0	5.0	5.0	5.0	4.2	4.8
USD/JPY in JPY (avg)	100	90	90	90	95	100	110	115	115	110	110	110	111	105
EUR/USD in USD (avg)	1.47	1.40	1.50	1.50	1.40	1.40	1.40	1.30	1.30	1.30	1.30	1.30	1.19	1.37
EUR/JPY in JPY (avg)	152	126	135	135	133	140	154	150	150	143	143	143	131	143

Note: Shows fiscal year results for Japan, and calendar year results for the U.S., Euro Area, and China.

Optimistic Forecast

(Percent unless noted)

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	10-year average	
	actual	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	forecast	2000-2009	2010-2019
JAPAN real GDP (yoy chg)	-3.2	-3.4	-0.6	0.3	1.1	1.5	1.5	1.3	1.5	1.7	2.5	0.2	0.7	1.1
USA real GDP (yoy chg)	0.4	-2.8	-0.2	0.5	1.0	1.8	2.3	2.3	2.2	2.0	1.8	1.8	1.9	1.6
EURO area real GDP (yoy chg)	0.7	-4.1	-0.3	0.4	0.8	1.2	1.4	1.4	1.4	1.4	1.2	1.2	1.4	1.0
CHINA real GDP (yoy chg)	9.0	7.4	7.0	7.3	7.4	7.7	7.9	7.8	7.6	7.4	7.2	7.1	9.7	7.5
Call rate (end)	0.10	0.10	0.10	0.10	0.50	1.00	1.50	1.50	2.00	2.00	2.00	2.00	—	—
FF rate target (end)	0.25	0.25	0.25	0.25	0.25	1.00	2.00	3.00	3.00	3.00	3.00	3.00	2.70	1.88
ECB policy rate (end)	2.50	1.00	1.00	1.00	1.50	2.25	3.00	3.00	3.00	3.00	3.00	3.00	2.88	2.38
10-year JGB yield (avg)	1.5	1.4	1.6	1.7	1.8	2.0	2.2	2.2	2.4	2.4	2.4	2.4	1.4	2.1
10-year U.S. Treaury yield (avg)	3.7	3.2	3.3	3.4	3.4	3.6	3.7	3.8	3.8	3.6	3.6	3.6	4.5	3.6
10-year German bund yield (avg)	4.0	3.3	3.4	3.5	3.6	3.8	4.0	3.8	3.8	3.8	3.8	3.8	4.2	3.7
USD/JPY in JPY (avg)	100	90	80	70	70	80	90	100	100	100	100	100	111	89
EUR/USD in USD (avg)	1.47	1.50	1.60	1.70	1.70	1.65	1.65	1.60	1.60	1.60	1.60	1.60	1.19	1.63
EUR/JPY in JPY (avg)	152	135	128	119	119	132	149	160	160	160	160	160	131	145

Note: Shows fiscal year results for Japan, and calendar year results for the U.S., Euro Area, and China.