Daiwa
Daiwa Institute of Research

28 November 2012 (No. of pages: 11)

Japanese report: 20 Nov 12

Japan's Economy: Monthly Review

What Will Prompt Economic Recovery?

Quantitative simulation of world economy

Economic Research Dept
Mitsumaru Kumagai

Summary

- **Economic outlook revised sharply downward:** In light of the first preliminary Jul-Sep 2012 GDP report (Cabinet Office), we have revised our economic growth outlook sharply downward. We now forecast real GDP growth of +0.7% y/y for FY12 (previous forecast: +1.8%) and +0.9% for FY13 (+1.2%).

- **What will prompt economic recovery?:** With the worsening of foreign economies, it is highly probable that Japan's economy peaked in March 2012 and has slipped into recession. In this report, we examine past recoveries of the Japanese economy to elucidate conditions for a future recovery. A review of past periods when Japan's economy recovered reveals that since the 1990s the driving force of recoveries has clearly shifted from fiscal and monetary measures to exports. In the current downturn, it is highly probable that the growth of exports, such as through the recovery of foreign economies, will trigger the bottoming out of Japan's economy. Despite the existence of downside risks, as our main scenario we believe that Japan's economy will follow a path of gradual recovery in 2013 and beyond, supported by three factors: (1) pickup of the US and Chinese economies, (2) reconstruction demand related to the Great East Japan Earthquake, and (3) further monetary easing by the Bank of Japan (BOJ).

- **How should the future direction of the world economy be understood?:** The key to anticipating the direction of the world economy is the degree to which sluggish domestic demand in Europe, the US, and other advanced economies will be offset by the policy responses of emerging economies. We therefore undertook a quantitative simulation of the world economy with (1) domestic demand in advanced economies and (2) the policy responses of emerging economies serving as exogenous variables. Our simulation indicates that emerging economies aggressively implementing fiscal and monetary measures has the potential of offsetting to some degree sluggish domestic demand in advanced economies. However, should multiple risk factors materialize at the same time, such as further deepening of the European sovereign debt crisis and the US fiscal cliff, the policy responses of emerging economies alone would not be sufficient to support the world economy.

- **Risks facing Japan's economy:** Risks that will need to be borne in mind for Japan's economy are: (1) any deepening of the European sovereign debt crisis, (2) worsening of Japan-China relations, (3) the US fiscal cliff, (4) a surge in crude oil prices stemming from geopolitical risk, and (5) further appreciation of the yen.

1. Economic Outlook Revised Sharply Downward

In light of the first preliminary Jul-Sep 2012 GDP report (Cabinet Office), we have revised our economic growth outlook sharply downward. We now forecast real GDP growth of +0.7% y/y for FY12 (previous forecast: +1.8%) and +0.9% for FY13 (+1.2%).

Jul-Sep real GDP contracted an annualized 3.5% q/q in the first preliminary estimate, the first decrease in three quarters

Jul-Sep real GDP contracted 0.9% q/q, annualized at 3.5%, in the first preliminary estimate, the first decrease in three quarters. This outcome corresponded to the market consensus (-0.9% q/q, annualized at -3.6%). The contribution of private demand to q/q GDP growth fell 0.4 percentage points from the previous quarter. Principal factors responsible for the slide were personal consumption retreating (down 0.5% q/q) for the second consecutive quarter due to sluggish automobile sales impacted by the expiry of eco-car subsidies and capex declining (down 3.2% q/q) for the first time in two quarters. Foreign demand (net exports) made a negative contribution (-0.7 points) for the second consecutive quarter, as exports plunged 5.0% q/q due to the worsening of foreign economies, centering on Europe. Public works spending grew for the third quarter in a row and climbed 4.0% q/q, benefiting from reconstruction demand taking hold in 2012. Public demand, including government consumption, made a positive contribution (0.3 points) for the fourth quarter in a row. While such demand provided some support to the economy, it was not enough to offset the faltering of private-sector demand and foreign demand, and both domestic and foreign demand shrank in the Jul-Sep quarter.

What will prompt economic recovery?

With the worsening of foreign economies, it is highly probable that Japan’s economy peaked in March 2012 and has slipped into recession. In this report, we examine past recoveries of the Japanese economy to elucidate conditions for a future recovery. A review of past periods when Japan’s economy recovered reveals that since the 1990s the driving force of recoveries has clearly shifted from fiscal and monetary measures to exports. In the current downturn, it is highly probable that the growth of exports, such as through the recovery of foreign economies, will trigger the bottoming out of Japan’s economy. Despite the existence of downside risks, as our main scenario we believe that Japan’s economy will follow a path of gradual recovery in 2013 and beyond, supported by three factors: (1) pickup of the US and Chinese economies, (2) reconstruction demand related to the Great East Japan Earthquake, and (3) further monetary easing by the Bank of Japan (BOJ).

Risks facing Japan’s economy

Risks that will need to be borne in mind for Japan’s economy are: (1) any deepening of the European sovereign debt crisis, (2) worsening of Japan-China relations, (3) the US fiscal cliff, (4) a surge in crude oil prices stemming from geopolitical risk, and (5) further appreciation of the yen.

2. What Will Prompt Economic Recovery?

A review of past periods when Japan’s economy recovered

In this section, we examine past recoveries of the Japanese economy to elucidate the conditions for a future recovery. A review of past periods when Japan’s economy recovered reveals that since the 1990s the driving force of recoveries has clearly shifted from fiscal and monetary measures to exports. In the current downturn, it is highly probable that growth of exports will trigger the bottoming out of Japan’s economy.

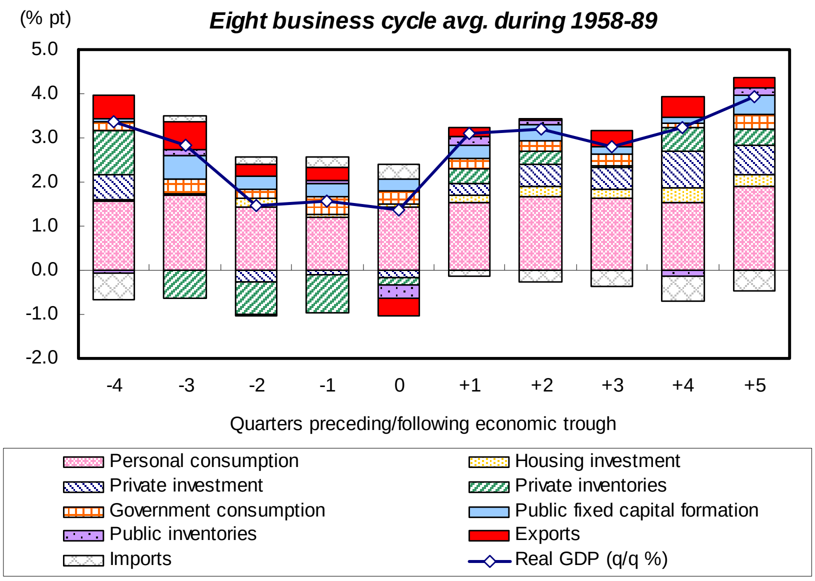
Fiscal and monetary measures drove economic recoveries to the 1980s

Chart 1 presents an average pattern of eight recoveries Japan experienced to the 1980s (1958 to 1989). Features shared by these recoveries are (1) inventory investments turning to increase, (2) lower interest rates giving way to higher housing investments and capex, and (3) ongoing support of the economy through public works spending. In other words, fiscal and monetary measures were the locomotive of economic recoveries in Japan in historical terms. While personal consumption's contribution to real GDP growth is substantial, its marginal effect on economic growth has been limited during recovery periods. The momentum of exports in driving the economy was not strong compared to recent recovery phases.

Features of Recovery Phases During Eight Business Cycles (1958-89) **Chart 1**

(1) Inventory investment began to pick up following the end of inventory adjustments.
(2) Housing investment and capital investment began to pick up reflecting lower interest rates.
(3) The economy was supported by continuous public investment.
(4) Personal consumption made a substantial contribution to real GDP growth but its marginal effect in boosting the economy was limited.
(5) The momentum of exports in driving the economy was not strong compared to recent recovery phases.

Japan: Breakdown of GDP Growth in Recovery Phases



Source: Cabinet Office; compiled by DIR.

Exports have driven economic recoveries since the 1990s

Chart 2 presents an average pattern of four recoveries Japan experienced since the 1990s. These recent recoveries share three features. First, the driving force of recoveries has clearly shifted from fiscal and monetary measures to exports. Second, a few quarters after the trough of the business cycle, capex and inventories clearly increase. The lead actor in the rise of capex is assembly industries being stimulated by foreign demand. Third, the upside effect on the economy of personal consumption, public works spending, and housing investment has greatly diminished compared to the past.

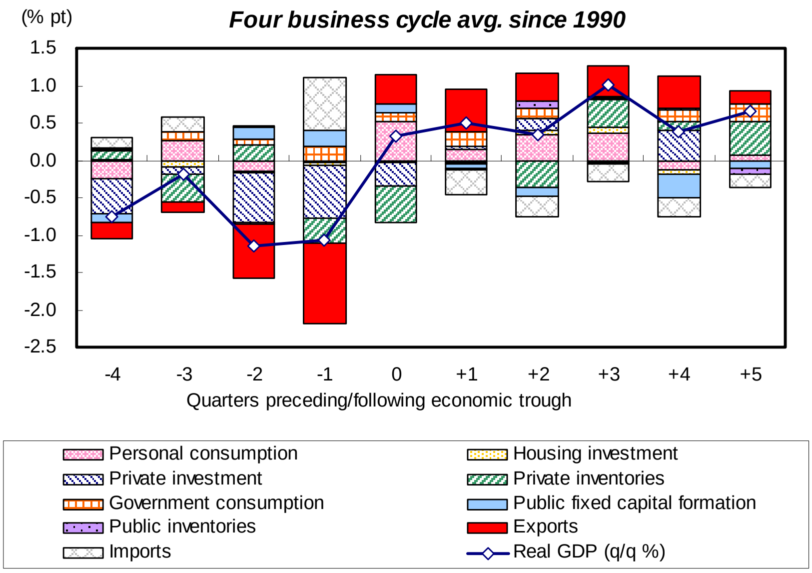
Reasons why the effect of fiscal and monetary measures has greatly decreased

Several reasons can be cited for why the effect of fiscal and monetary measures has greatly decreased since the 1990s. With respect to fiscal measures, as the budget deficit rapidly expands, the effectiveness of fiscal measures in supporting the economy is reaching a limit. In the case of monetary measures, factors that can be noted are (1) the growing trend among companies to hold capex within the scope of cash flow, (2) the shift from indirect to direct financing in fund raising, and (3) the substantial decline, particularly since the 2000s, in the latitude for further monetary easing.

Features of Recovery Phases during Four Business Cycles Since 1990 — **Chart 2**

(1) Exports drove recovery, especially in the last two recovery phases (2002 and 2009).
(2) Capital investment and inventory investment clearly picked up two-to-three quarters following an economic trough, especially for export-driven assembly industries.
(3) However, effects of personal consumption, public investment, and housing investment in boosting the economy were weak compared to recovery phases up to 1989.

Japan: Breakdown of GDP Growth in Recovery Phases



Source: Cabinet Office; compiled by DIR.

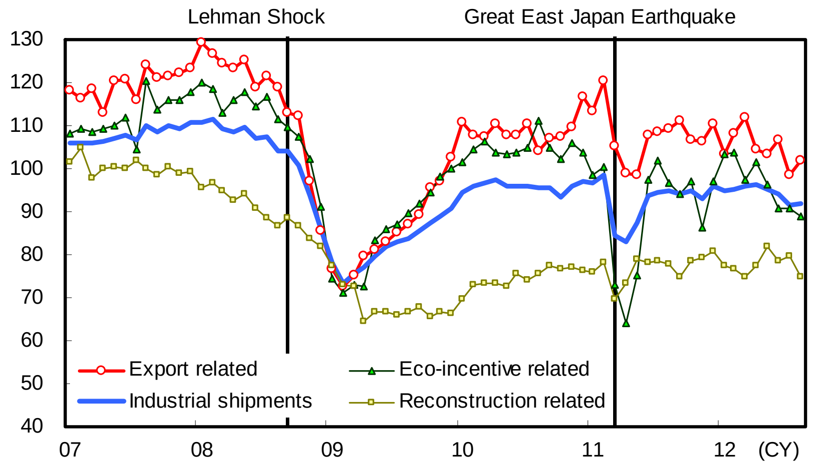
Exports will hold the key to future recoveries

Given the weakness of the autonomous recovery mechanism led by domestic demand, the Japanese economy is likely to depend on exports in future recoveries. The economy has grown more dependent on exports in recent years, and a close relationship has developed between the export volume index and industrial shipments. In the current downturn, it is highly probable that growth of exports, such as through the recovery of foreign economies, will trigger the bottoming out of Japan's economy.

Breakdown of industrial shipments in Japan

Chart 3 provides a breakdown of industrial shipments in Japan. Eco-incentive-related shipments, defined as domestic consumer durables that are eligible for eco-car tax breaks and the eco-point program, have slowed. Export-related shipments appear to be stalling on account of the sluggishness of foreign economies centering on Europe. In contrast, reconstruction-related shipments, such as construction materials and capital goods (excl. transportation equipment) are trending firmly for the most part. Thus, it appears that reconstruction demand is currently the sole source of support for Japan's economy. Based on such analysis, if Japan's economy is to rebound, a key issue will be whether foreign economies will recover and export-related shipments will turn upward.

Breakdown of Industrial Shipments (2005 = 100) **Chart 3**



Source: Ministry of Economy, Trade and Industry; compiled by DIR.
Notes: 1) Eco-incentive related: Durable goods for the domestic market that are eligible for eco-car subsidies/tax breaks and eco-point programs.
2) Reconstruction related: Construction materials and capital goods (excl. transportation equipment).

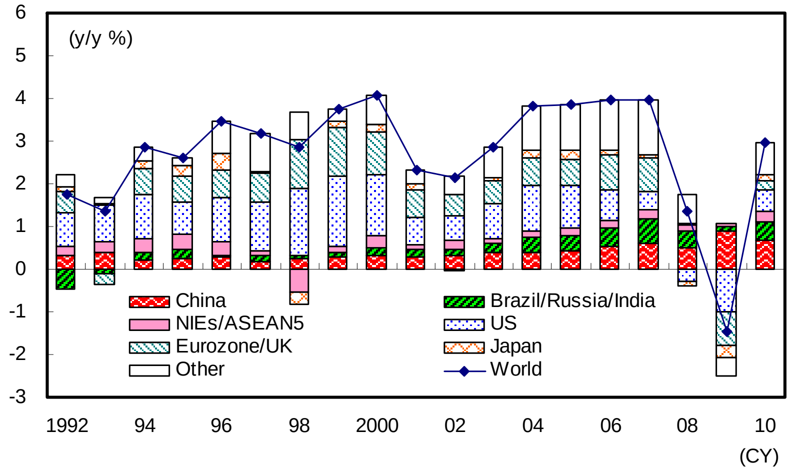
3. How Should the Future Direction of the World Economy Be Understood?

3.1 Sluggish domestic demand in advanced economies spreads to emerging economies

Cautious outlooks intensify regarding the world economy

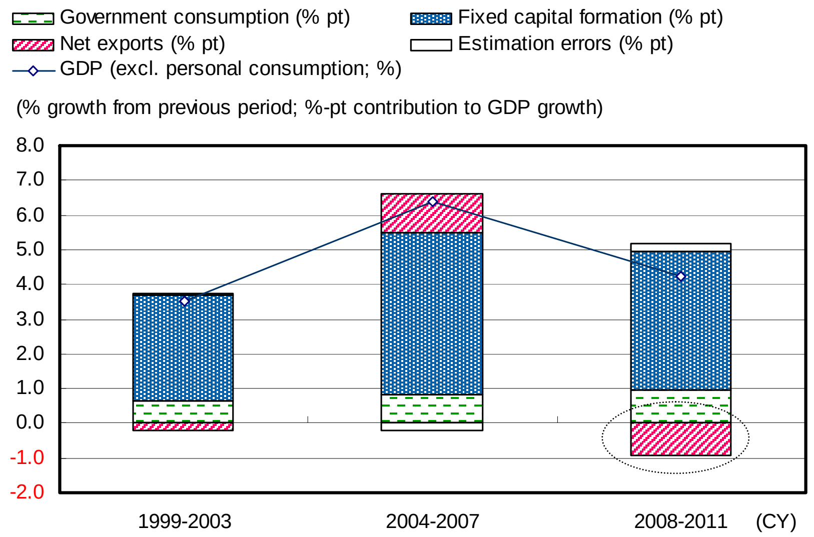
In this section, we examine from a broad perspective the direction of the world economy, which holds the key to the recovery of Japan's economy. Cautious outlooks are intensifying in global financial markets regarding the world economy and, in October 2012, the IMF revised downward its outlook for the world economy. The reasons it offered for this downgrade were (1) the faltering of the European economy from the sovereign debt crisis and (2) the slowing of advanced economies (centering on Europe) spreading to emerging economies centering on China. Chart 4 illustrates the growth rate of real final consumption and fixed capital formation for the world economy. It is evident from the chart that the world economy is being supported by emerging economies. Chart 5 portrays DIR's estimate of BRICs' real GDP (excl. personal consumption). In recent years, exports have become a drag on their economies, suggesting the possibility that the sluggishness of domestic demand in advanced economies is spreading to emerging economies.

Real Final Consumption/Fixed Capital Formation **Chart 4**



Source: United Nations; compiled by DIR.
Notes: 1) Real term (2005 benchmark); US dollar basis.
2) Taiwan included in China but not in NIEs.

DIR Estimate of BRICs' Real GDP* (excl. personal consumption) **Chart 5**



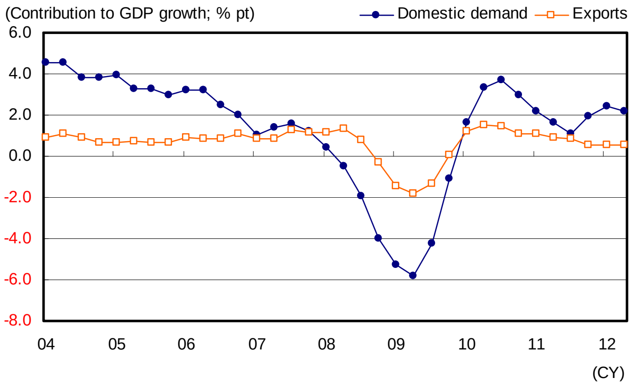
Source: IMF, National Bureau of Statistics of China, Instituto Brasileiro de Geografia e Estatística, Russian Federation Federal State Statistics (GKS), Central Statistical Organization (India), Haver Analytics; compiled by DIR.
*Comprising real GDP of Brazil, Russia, India, and China based on purchasing power parity of 2000 benchmark.

Domestic demand and exports closely related in advanced economies

To what extent are domestic demand and exports related in advanced economies? Chart 6 examines the relationship between domestic demand and exports in advanced economies using data from the US, EU, Japan, and OECD. Broadly speaking, we can conclude that domestic demand and exports are closely related in advanced economies. The exception is the US, where domestic demand, such as robust personal consumption, tends to drive economic growth, and the relationship between domestic demand and exports is not that strong in relative terms. In contrast, Japan has a typical export-led economic structure, and domestic demand and exports are closely linked.

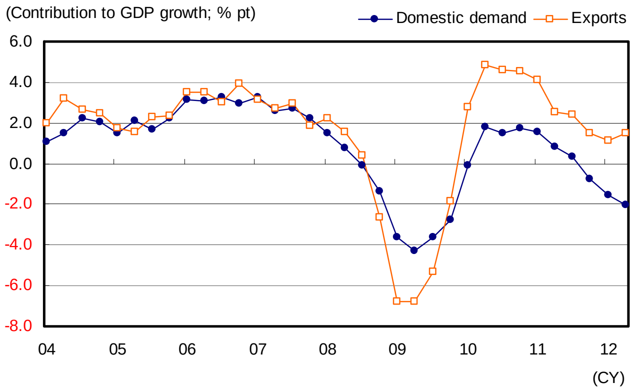
Domestic Demand and Exports Moving in Tandem in Advanced Economies — Chart 6

US: Domestic demand and exports



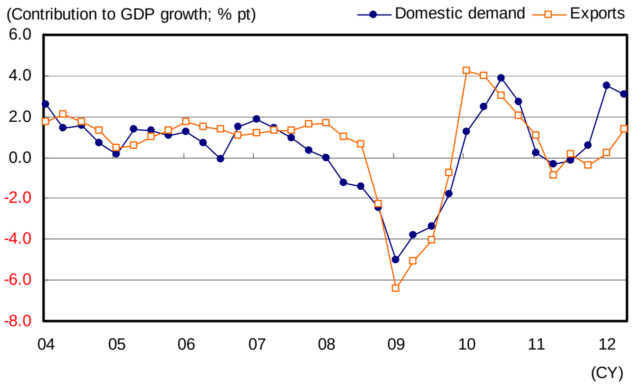
Source: OECD; compiled by DIR.

EU: Domestic demand and exports



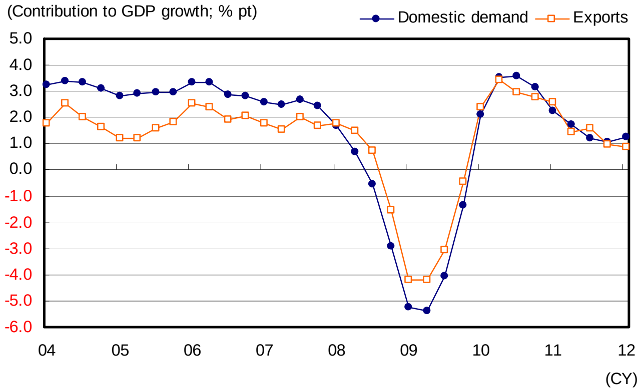
Source: OECD; compiled by DIR.

Japan: Domestic demand and exports



Source: OECD; compiled by DIR.

OECD Member Nations: Domestic demand and exports



Source: OECD; compiled by DIR.

Relationship between domestic demand and exports weak for emerging economies

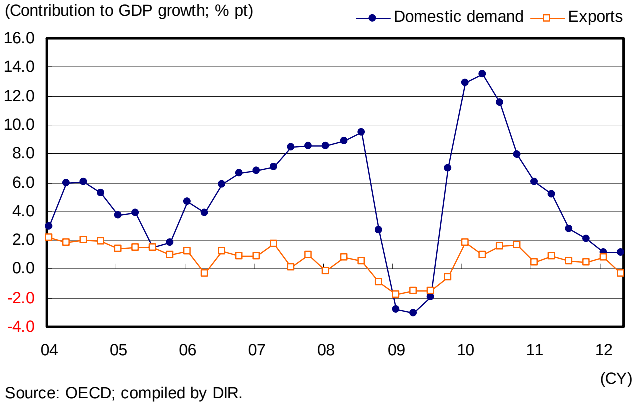
In the case of emerging economies, the relationship between domestic demand and exports is relatively weak. Chart 7 illustrates the relationship between them for such emerging economies as Brazil, Russia, India, and China. Contrasting with advanced economies, it is difficult to say that they are closely linked in emerging economies. A matter of profound interest is their slight inverse correlation in China. As highlighted by the phrase "*bao ba*" (ensure eight [percent growth]), often repeated by Chinese officials, when foreign economies worsen and exports slow, China unleashes aggressive fiscal and monetary measures to maintain an economic growth rate above a certain level. In the current deceleration of the world economy, China has resorted to fiscal and monetary measures, and we believe that an economic relapse will be avoided.

Emerging economies likely to avoid sharp decline in stock prices through monetary easing

As concerns intensify in regard to the slowing of the world economy, emerging economies are foreseen to strengthen their stance toward monetary easing. Helped in part by the effect of looser monetary policies, stock prices are expected to avoid plunging in emerging economies. Chart 8 illustrates the relationship between stock prices and real interest rates in emerging economies, which shows a weak inverse correlation. Going forward, given that emerging economies are expected to strengthen their stance toward monetary easing, it is not unreasonable to think that stock prices in emerging economies will trend firmly for the most part.

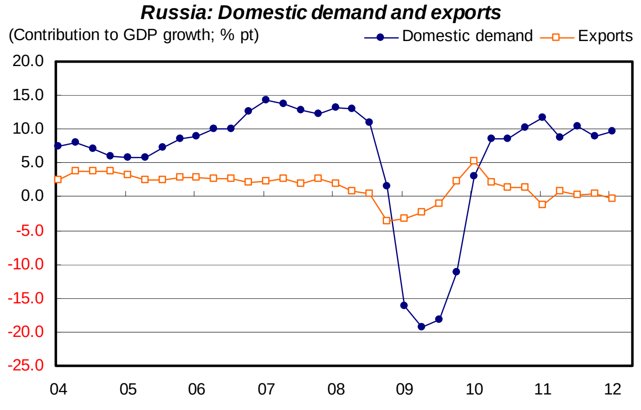
Domestic Demand and Exports Moving Independently in Emerging Economies — Chart 7

Brazil: Domestic demand and exports



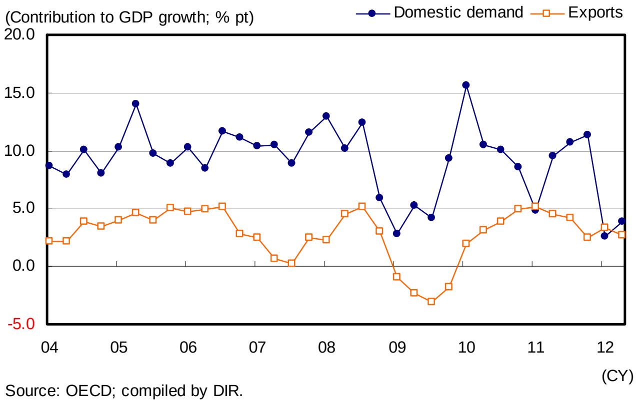
Source: OECD; compiled by DIR.

Russia: Domestic demand and exports



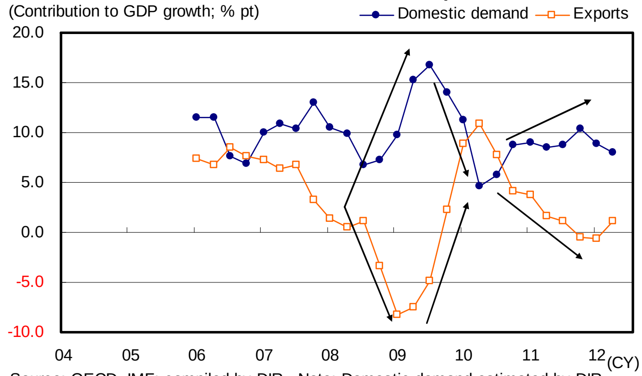
Source: OECD; compiled by DIR.

India: Domestic demand and exports



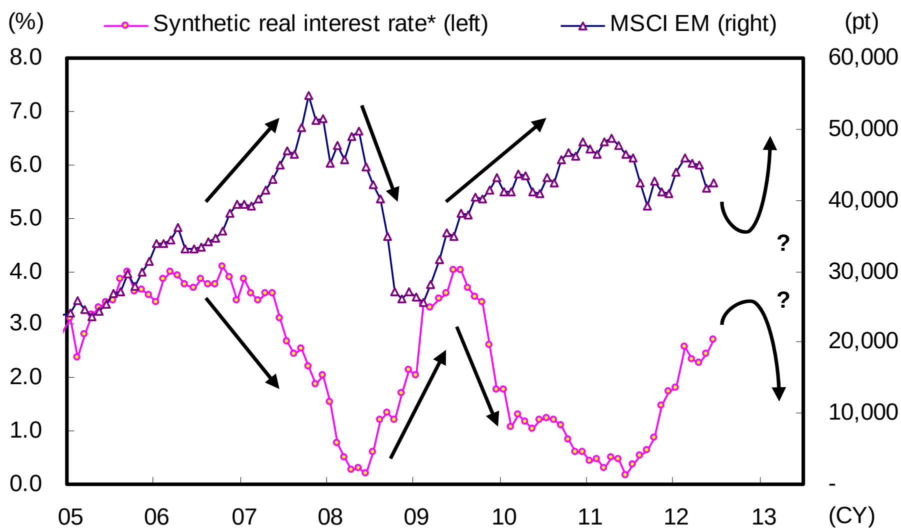
Source: OECD; compiled by DIR.

China: Domestic demand and exports



Source: OECD, IMF; compiled by DIR. Note: Domestic demand estimated by DIR based on real GDP (OECD) and balance of payments (IMF).

Emerging Economies: Stock Prices vs. Interest Rate — Chart 8



Source: MSCI, Haver Analytics; compiled by DIR.

*DIR estimate based on policy interest rates, which we deflated by prices and weighted by the real GDPs of ten emerging economies—Brazil, Korea, Taiwan, and Thailand (deflated by core CPI), Russia, China, Hong Kong, Indonesia, Singapore (overall CPI), and India (overall WPI).

Note: MSCI EM=MSCI Emerging Markets Index (home currency basis).

3.2 Simulation of the future direction of the world economy

Will policy responses of emerging economies be able to offset sluggish domestic demand of advanced economies?

Finally, to summarize the discussion of this section, we present a quantitative simulation of the world economy with (1) domestic demand in advanced economies and (2) the policy responses of emerging economies serving as exogenous variables.

Risk for advanced economies

A major risk for advanced economies is the further slowing of the European and US economies.

With respect to Europe, should the financial stabilization mechanism currently being implemented falter, such as the unification of financial regulations and the support framework for countries with fiscal problems, the financial crisis has the potential of widening further. In the *Global Financial Stability Report* (GFSR) published in October 2012, the IMF estimates that, in the worst case, the 58 banks in the eurozone would need to deleverage by $4.5 trillion. Such deleveraging would lead to the calling in of loans and to decreased lending and would have a significant impact on the real economy. The IMF estimates that Europe’s GDP would be reduced by 1.4 percentage points.

The impending fiscal cliff in the US that is drawing international attention is also a serious issue. This term describes a situation where the end to tax cuts and the mandatory reduction of government expenditures occur at the same time. The fiscal cliff would expose the US economy to an added burden of around 4% of nominal GDP. Various views have been voiced regarding the fiscal cliff. The Congressional Budget Office (CBO) has estimated that, should it prove to be unavoidable, real GDP would experience downward pressure of 2.2 points compared to the situation where it is avoided.

Forecasting model overview

What sort of impact would the slowing of advanced economies have on the Japanese and world economies? To examine this question, we developed a simple model taking into account the trade structure of the world economy. The structure of the model we employed in this report is as depicted in Chart 9.

Advanced economies we included in our analysis were Japan, the US, UK, and eurozone, and the emerging economies we included were Brazil, Russia, India, and China. The forecasting model variables we chose were, in the case of advanced and emerging economies, real GDP, real imports and exports, domestic demand, real effective exchange rates, nominal export values, and, in the case of emerging economies, fiscal expenditures, policy interest rates, and inflation rates. The forecasting model is composed of 21 equations and 16 identities, and uses 121 variables.

The forecasting model assumes that domestic demand of advanced economies (excl. Japan) and the economic policies of emerging economies (fiscal expenditures and policy interest rates) are determined by exogenous factors. The model also assumes that domestic demand of emerging economies is determined by economic policies and exports and that domestic demand of Japan is determined by real exports.

Using this model, we applied a shock to domestic demand of advanced economies to analyze the effects of the European financial crisis and the US fiscal cliff.

Simulation results

In Chart 9, the top horizontal boxes give the impact of risk scenarios for advanced economies. In the simulation, we assumed that the worsening of the financial crisis in Europe and the US fiscal cliff would reduce domestic demand by a similar amount to the impact estimated by the IMF and CBO.

Should the worsening of the financial crisis in Europe and the fiscal cliff in the US occur at the same time (Scenario a & b), Japan's economy has the potential of experiencing downward pressure of 1.7%. The slowing of advanced economies would, through the route of international trade, undermine emerging economies, and world GDP would shrink around 1.2%.

Domestic Demand Shock in Advanced Economies vs. Policy Responses in Emerging Economies: Impact on GDP of World and Japan (% deviation from base scenario) **Chart 9**

		Domestic demand shock in advanced economies			
		Base scenario	Scenario (a) EU demand to shrink1.4% (Financial crisis to deepen)	Scenario (b) US demand to shrink 2.2% (Fiscal cliff)	Scenario (a & b)
Policy responses in emerging economies	Base scenario	World GDP: +0.0% Japan's GDP: +0.0%	World GDP: -0.5% Japan's GDP: -0.5%	World GDP: -0.8% Japan's GDP: -1.2%	World GDP: -1.2% Japan's GDP: -1.7%
	Response (1) Boost government spending by 5% of nominal GDP	World GDP: +0.3% Japan's GDP: +0.5%	World GDP: -0.1% Japan's GDP: -0.0%	World GDP: -0.5% Japan's GDP: -0.7%	World GDP: -0.9% Japan's GDP: -1.2%
	Response (2) Cut policy interest rate by 2% pts	World GDP: +0.2% Japan's GDP: +0.4%	World GDP: -0.3% Japan's GDP: -0.1%	World GDP: -0.6% Japan's GDP: -0.8%	World GDP: -1.1% Japan's GDP: -1.3%
	Response (1 & 2)	World GDP: +0.5% Japan's GDP: +0.9%	World GDP: +0.0% Japan's GDP: +0.4%	World GDP: -0.3% Japan's GDP: -0.3%	World GDP: -0.7% Japan's GDP: -0.8%

Source: Compiled by DIR based on various statistics.
Notes: 1) Policy interest rate deflated by inflation rate.
2) "Scenario (a): EU demand to shrink 1.4% (Financial crisis to deepen)" based on *Oct 2012 Global Financial Stability Report* by IMF.
3) "Scenario (b) US demand to shrink 2.2% (Fiscal cliff)" based on outlook by the US Congressional Budget Office.

Model description

Estimation model	Simple model composed of 21 equations and 16 identities
Variables (a)	Real GDP, real exports and imports, domestic demand, real effective exchange rates, and nominal export values (advanced and emerging economies)
Variables (b)	Fiscal expenditures, policy interest rates, and inflation rates (emerging economies)
Assumption (1)	Domestic demand of advanced economies (excl. Japan) to be determined exogenously; that of emerging economies by monetary and fiscal policies and real exports; and that of Japan by real exports; economic policies of emerging economies (fiscal expenditures and policy interest rates) to be determined exogenously
Assumption (2)	Real imports and exports of a given economy to be determined by other economies' domestic demand weighted by nominal export values
Advanced economies	Japan, US, UK, Eurozone
Emerging economies	Brazil, Russia, India, and China

China and other emerging economies, however, have more latitude to expand fiscal measures, and those nations free from inflationary worries can be expected to loosen monetary policy. Thus, concerns that the world economy would slow from the shortfall of domestic demand in advanced economies should be mitigated to some degree by emerging economies.

In Chart 9, left vertical boxes give the impact of policy responses by emerging economies. Here we see that the stepping up of fiscal measures and monetary easing (Response 1 & 2) have the potential of augmenting growth of the world economy by 0.5% and the Japanese economy by 0.9%.

Even if the financial crisis deepens further in Europe (Scenario a), if emerging economies freely implement policy measures (Response 1 & 2), world GDP would remain flat and Japan's GDP would increase 0.4%. Similarly, should the fiscal cliff materialize in the US (Scenario b), downward pressure on the world economy and the Japanese economy would respectively be limited to 0.3%.

Summarizing the above, emerging economies aggressively implementing fiscal and monetary policy measures has the potential of offsetting to some extent sluggish domestic demand in advanced economies. However, should multiple risk factors materialize at the same time, such as the deepening of the European sovereign debt crisis and the US fiscal cliff, the policy responses of emerging economies alone will be insufficient to support the world economy.

Outlook for Japanese Economy, Interest Rates **Chart 10**

	2011	2012				2013	FY10	FY11	FY12	FY13
	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar				
Indicator	Actual				DIR estimates		Actual		DIR estimates	
Real GDP										
Q/q %, annualized	-1.2	5.2	0.3	-3.5	-0.9	1.6				
Y/y %	-0.7	2.9	3.3	0.1	0.2	-0.7	3.3	-0.0	0.7	0.9
Current account balance SAAR (Y tril)	6.7	5.9	6.1	3.7	3.6	3.7	16.7	7.6	4.3	4.5
Unemployment rate (%)	4.5	4.5	4.4	4.2	4.3	4.4	5.0	4.5	4.3	4.3
CPI (excl. fresh foods; 2010 prices; y/y %)	-0.2	0.1	-0.0	-0.2	-0.0	-0.0	-0.9	-0.0	-0.1	-0.1
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; %)	0.98	0.99	0.83	0.77	0.75	0.80	1.26	0.99	0.79	0.95

Source: Compiled by DIR.
Note: Estimates taken from DIR's *Japan's Economic Outlook No. 175*.