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Bank of Japan

Deleveraging and Growth: Is the Developed World Following Japan's Long and Winding Road?

*Lecture at the London School of Economics and Political Science
(Co-hosted by the Asia Research Centre and STICERD, LSE)*

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Introduction

"It was the best of times, it was the worst of times..."

Thus begins *A Tale of Two Cities*, by Charles Dickens, the bicentennial of whose birth we will celebrate next month. While this famous opening sentence of the novel refers to the year 1775, it also strikes a chord with us in 2012. On the one hand, with all due respect to the frustration vented by the Occupy protesters, the people of today's developed nations enjoy a living standard far higher than the harsh realities of Dickensian England. One of the few luxuries available to young David Copperfield, the alter ego of Dickens, was to take a plunge in the cold spring water at the old Roman Bath just a few hundred yards from this hall. On the other hand, it is also true that people feel as if the economy is in the worst possible shape. Difficult issues in their own right, such as mounting government debts, aging of the population and challenges brought about by globalization, are exacerbated by stagnant growth.

These days, when people discuss the grim economic outlook for developed countries, I find that Japan's experience is often cited. In the past twenty years, Japan's growth rate has been very low, at 1.0 percent annually in real terms and 0.4 percent in nominal terms (Chart 1). People ask whether their economies are going to experience a lost decade -- or more recently two lost decades -- like Japan. As the governor of Japan's central bank, I have mixed feelings when I hear Japan's experience referred to in such a negative context, and I should also note, for the reasons I explain later, that it is not appropriate to bunch the two decades together. Nevertheless, I cannot deny that this question also provides much food for thought for other developed countries. Therefore, with apologies to two talented Liverpoolians and a song that they wrote over 40 years ago, I would like to share with you some of my thoughts today on the theme "Is the Developed World Following Japan's Long and Winding Road?" It will be my great pleasure if my speech can be of some benefit to you.

I. Change in How Japan's Experience is Discussed

To me, the question of whether other developed countries will repeat Japan's experiences is itself surprising and appears to indicate that a significant intellectual change is under way. At various international meetings I have attended in the past ten years or so, policy makers

and academics often have not seriously discussed the issue of stagnant growth in Japan, simply dismissing it as "an idiosyncratic failure of Japan's society and its policy makers to respond to problems in a swift and bold manner." Even after U.S. housing prices started to decline in the spring of 2006 this tendency remained. The following is a comment made by a U.S. official in January 2007.¹

"The financial instability that many countries experienced in the 1990s, including Japan, was caused by bad loans that resulted from declines in commercial property prices and not declines in home prices. ... Many have learned the wrong lesson from the Japanese experience. The problem in Japan was not so much the bursting of the bubble but rather the policies that followed."

What I see behind this comment is a gross underestimation of the extent of the balance sheet repair -- or deleveraging -- required after a bubble bursts, as well as an overconfidence in the effectiveness of aggressive policy measures.² However, comparing Japan's experiences in the early 1990s after the bubble burst to what happened in the United States, the euro area, and the United Kingdom in the past few years, it is my impression that the similarities far outweigh the differences. What happened in Japan was not unique to Japan.

The first similarity is economic performance. For example, the paths of real GDP since the peak of the respective bubbles, 1990 in Japan and 2006 in the United States, are similar (Chart 2).³ Some may say that the selection of the base year is somewhat arbitrary but the same conclusion can be drawn if we choose as a starting point the year in which the

¹ Mishkin, Frederic S., "The Role of House Prices in Formulating Monetary Policy, " Speech at the Forecasters Club of New York, January 17, 2007.

² At the press conference in February 2009, President Obama said, "[I]f you delay acting on an economy of this severity, then you potentially create a negative spiral that becomes much more difficult for us to get out of. We saw this happen in Japan in the 1990s, where they did not act boldly and swiftly enough, and as a consequence they suffered what was called the 'lost decade' where essentially for the entire '90s they did not see any significant economic growth..."

³ In the case of Japan, stock prices peaked at the end of 1989 and real estate prices, based on "Published Price of Land", peaked on Jan. 1, 1991. The peak of the U.S. housing prices, based on "Case-Shiller Index", was the second quarter of 2006.

financial crisis occurred, 1997 for Japan and 2008 for the United States (Chart 3). Comparisons with experiences in the euro area and the United Kingdom also show similarities, despite some differences in degree (Chart 2 and 3 as cited above). Some interesting similarities can be also found in other bubble-related variables. For example, the pace of decline in real estate prices in the U.S. after its bubble burst was almost the same as in the Japanese case (Chart 4). Despite some differences among countries and regions, overall developments in long-term interest rates were similar (Chart 5). Cross-country similarity was also evident in developments in bank lending (Chart 6).

The second similarity is initial responses from the authorities and economists. When a bubble is being formed or even soon after it bursts, they underestimate the problem or deny its very existence. In Japan, after real estate prices started to decline, people talked about a reversal and subsequent upturn. Even after property prices continued to fall for some time, society denied the possibility that the decline would lead to a financial crisis or stagnation of the macro economy. In the case of the bursting of the housing bubble in the United States and the sovereign debt crisis in Europe, the initial reaction was also underestimation of the problem. Even at a later stage, when experts agreed on the need for public support for financial institutions, such measures met with opposition from the general public, influenced by the lingering effects of the underestimation, which was also seen in the case of Japan. In particular, injecting public funds into financial institutions was universally unpopular across countries. Likewise, the provision of financial support from core countries to peripheral countries in the euro area is politically unpopular.

The third similarity is the policies adopted by central banks (Chart 7). In developed countries, short-term interest rates declined to close to zero and central bank balance sheets expanded enormously. Since the second half of the 1990s, the Bank of Japan successively introduced various unorthodox policy measures including zero interest rates, a commitment to maintain zero interest rates, quantitative easing, and the purchase of risk assets, including stocks held by financial institutions. After the subprime loan problem materialized, the U.S. Federal Reserve adopted various policy measures that were often described as innovative, but in fact many of them are essentially similar to measures previously adopted by the Bank of Japan. This fact demonstrates the unsurprising truth that central banks act

similarly when confronting similar problems. If there was any major difference, it was that the Bank of Japan was a lonely forerunner and had to feel its way forward, making decisions in the uncharted territory of unorthodox policy.

The fourth similarity is the decline of the effectiveness of monetary policy in an economy that is deleveraging, or in other words, that needs to address the problem of balance sheet repair. When it comes to the transmission mechanism of monetary policy, in Japan, lower interest rates had previously induced an increase in banks' lending to small- and medium-sized firms. This in turn increased business fixed investment by such firms, which drove economic recovery. This mechanism did not work, however, after the bubble burst. Similarly, in the United States, a decline in long-term government bond yields has not been fully transmitted to a decline in the effective rates of mortgage loans because borrowers with low credit scores have not refinanced at lower interest rates. In Europe -- Spain is a prime example -- bank lending rates have risen due to higher interest rates for covered bonds, reflecting a deterioration in the quality of real estate collateral.

I have gone through some similarities between the current state of the U.S. and European economies and Japan's experiences. Needless to say, there are also differences.

The first difference is the fact that Japan never became the epicenter of a global financial crisis. The most important reason for this is that the Japanese authorities did not allow the disorderly failure of financial institutions. In this regard, the most challenging time for Japan was 1997, when the brokerage Yamaichi Securities, with assets of 3.7 trillion yen or 19 billion pounds at that time, collapsed. Yamaichi Securities also had sizeable presence internationally, especially in the European capital markets. At that time, as was the case when Lehman Brothers failed, Japan did not have a bankruptcy law that enabled the orderly resolution of securities companies. Given such circumstances, the Bank of Japan decided to provide an unlimited amount of liquidity to Yamaichi Securities. This measure essentially enabled an orderly resolution by replacing all exposures to the securities company held by market participants both domestic and overseas with exposures to the Bank of Japan and so prevented the materialization of systemic risk. This was truly a tough decision for the Bank of Japan. It was made without knowing whether the

institution was solvent or insolvent, and eventually resulted in some losses. I would say, however, that the benefit of preventing systemic risk from materializing far exceeded such costs. As a result, Japan did not experience a sharp and significant plunge in economic activity like the one that followed the collapse of Lehman Brothers, and negative impact from financial turmoil in Japan did not spread to the rest of the world (Chart 8).

The second difference is the length of time before the economy was exposed to acute market pressure after the bubble burst (Chart 9). In the Japanese case, non-performing assets were mainly loan assets, which were not marked to market. For that reason, it took more time before unrealized losses were recognized and correspondingly it took longer for the financial institutions involved to be exposed to acute market pressure. On the other hand, in the recent cases of the United States and Europe, the problem started in the securitized products market, which enabled the recognition at a relatively early stage of losses based on mark-to-market valuation, and therefore market pressures intensified earlier than in the Japanese case. As a result, a financial crisis materialized at an early stage and financial system stability measures were introduced in a relatively prompt manner.

Examining these differences further, however, the plunge in output might have been limited in the case of Japan simply because the scope of the crisis was confined within the country. Even if financial system measures are introduced at an earlier stage, these measures do not mark the end of deleveraging that characterizes an economy after a bubble bursts. What happened in Japan, the United States and Europe was basically the same: the paying down of excess debt, or deleveraging. For the purpose of considering policy responses after the bursting of a bubble, I believe that examining similarities and differences in this way shows that it is more constructive to focus on similarities instead of differences, and then consider factors peculiar to each country.

II. Facts about Low Growth in Japan

In order to explain these similarities and differences, I would like to comment on Japan's economy in a little more detail. Specifically, I will explain some facts about economic growth in Japan by looking at three different time horizons.

Economic Growth in Japan: Long-Term, Medium-Term, and Short-Term

First, examining the long-term growth trend, Japan is known as a country which once recorded surprisingly high growth rates, just like China has done in recent years. The peak period of Japan's high-growth era was the 15 years from 1956 to 1970, during which real GDP grew at 9.7 percent annually (Chart 10). Incidentally, this growth rate is exactly the same as that recorded by China in the period starting in the early 1990s. However, the good times inevitably come to an end, sooner or later, for any country enjoying such high growth. This is because some of the conditions that support high growth, especially the labor supply from rural areas to cities and the high rate of increase in labor force, will eventually reach their peak.⁴

Second is the medium-term time horizon. Although Japan's high-growth period ended in the 1970s, its rate of economic growth continued to be much higher than in other developed countries. Since the 1990s, however, Japan has ceased to be a high-growth economy, even in a relative sense. In the past twenty years, Japan's growth rate has been very low, at 1.0 percent annually in real terms and 0.4 percent in nominal terms. That is why the past twenty years are sometimes called "Japan's two lost decades" (Chart 1 as cited above).⁵

Third is very short-term growth developments. Japan's economic activity plunged after the tragic earthquake and tsunami on March 11 last year, but recovery proceeded at a higher-than-expected pace thanks to the efforts made by companies, individuals, and the public sector. Although Japan's economy is not immune to a slowdown in the global economy, compared to the United States and Europe, the stability of Japan's financial system and financial markets is notable, as evidenced by the risk spreads observed in funding markets and corporate bond markets (Chart 11).

⁴ For Japan's high growth period including a comparison with the current state of the Chinese economy, see Masaaki Shirakawa, "The Transition from High Growth to Stable Growth: Japan's Experience and Implications for Emerging Economies," Remarks at the Bank of Finland 200th Anniversary Conference in Helsinki, May 5, 2011.

http://www.boj.or.jp/en/announcements/press/koen_2011/ko110506a.htm

⁵ For Japan's experience after the bubble burst, see Masaaki Shirakawa, "Way Out of Economic and Financial Crisis: Lessons and Policy Actions," Speech at Japan Society in New York, April 23, 2009.

http://www.boj.or.jp/en/announcements/press/koen_2009/ko0904c.htm

Reasons for Low Growth over Medium Term

Of the three time horizons that I have just explained, hereafter I will focus on medium-term economic developments. Although I have used the phrase "the two lost decades," the causes of low growth in Japan in the 1990s and 2000s were different and it is somewhat misleading to discuss the two periods together. In the 1990s, low growth was mainly brought about by the deleveraging associated with the unprecedented bursting of the bubble. In the 2000s and thereafter, the major causes of low growth in Japan have been rapid population aging and population decline.

Regarding the impact of the bursting of the bubble in the first half of the two periods in question, I do not have much to add to what I have already explained. If I can point out one difference, the rise in the unemployment rate in Japan was relatively limited (Chart 12). Japan's unemployment rate peaked at 5.4 percent, significantly lower than the double digit figures reached in the United States and major European countries. This is attributable to the fact that wage levels were adjusted in a reasonably flexible manner, reflecting society's preference to prioritize employment. That people's jobs were preserved was a positive in terms of social stability. At the same time, it also had a negative consequence. Wage levels were adjusted but not sufficiently for the magnitude of the shock to the economy, and a situation arose in which effectively unemployed people retained their jobs at companies. This delayed the necessary reallocation of resources to respond to demand and cost changes after the bubble burst. The decline in wage levels also contributed to deflation through a decline in the prices of services which are labor intensive. In fact, a significant portion of the inflation differential between Japan and the United States reflects changes in service prices rather than goods prices.

As for the second of the two lost decades, low growth was mainly attributable to demographics, or more specifically, a rapid aging of the population. Japan's real GDP growth rate has declined and growth has been subdued compared to other developed countries. However, comparing the average real GDP growth rate per capita over the past ten years, Japan's growth rate is almost the same as other developed countries. Moreover, Japan is highest in terms of real GDP growth rate per working-age population (Chart 13). As indicated by these figures, the most significant challenge confronting Japan is how to

adjust to a rapid demographic change that is unprecedented in developed countries (Chart 14). To a significant extent, the decline in growth rates and deterioration in fiscal conditions are attributable to a failure to adjust to the rapid change in demographics. Although forecasts by economists almost always involve a large margin of error, demographic trends are one of the few economic variables that can be projected with relatively high accuracy. The implications of population aging and decline are also very profound, as they contribute to a decline in growth potential, a deterioration in the fiscal balance, and a fall in housing prices. Given that other developed countries will face the same problems despite some differences in timing and magnitude, the economic effects of demographics deserve further study.

III. Is the Developed World Following Japan's Long and Winding Road?

Now I would like to focus on the key question which I posed at the start of my speech. Is the developed world following Japan's long and winding road? Of course, this is not the kind of question that can be answered with a simple yes or no. Policy measures are shaped by not only economic factors but also the response of society and the political world. Every country has its own unique complexity, both in social and political terms, of which outside observers have only a limited knowledge. Therefore, instead of providing a direct answer to the question, I would like to list three factors that define the length of time necessary for adjustment.

The first factor is the size of excess debt accumulated before a crisis. And if we simply look at rough estimates of excess debt, it appears that a lengthy period of adjustment is inevitably required. The scale of the global credit bubble formed toward the middle of the 2000s was indeed gigantic.

The second factor is growth potential. In the end, whether the amount of debt assumed by an economy is excessive or not can be judged by considering it in proportion to the economy's size. For two economies with the same amount of debt, the one with higher growth potential can lighten the burden of excess debt faster. Having said that, growth potential is not fixed and can change as a result of policy measures and the response of the society after a bubble bursts. In that sense, avoiding collateral damage from the bursting

of a bubble becomes extremely important.

Collateral damage could materialize in various ways. For example, in a low-growth economy that is in the process of deleveraging, social stress tends to intensify and is more likely to result in a rise in protectionism and excessive government intervention. When lending to non-viable firms continues for political or social reasons, the resultant decline in productivity growth will lower growth potential.

Furthermore, monetary policy can also distort economic incentives. Low interest rates and abundant liquidity are necessary but if they continue for a long time, they may lower productivity by keeping inefficient firms alive. Necessary adjustment will also be delayed if low interest rates discourage the government from making efforts to restore fiscal balance.

Population decline will also prolong the adjustment of excess debt by lowering growth potential. Although these are common problems for the developed world, the decline in population growth and aging of the population profile are most serious in Japan. The rate of population growth is lower in Japan than in the United States, the euro area, and the United Kingdom. More importantly, the fast pace of decline in the population growth rate has been placing burden on Japan's economy and society. Also, compared to Japan, the contribution to population growth from immigration is significant in the United States and many European countries. However, this contribution from immigration could diminish if the stagnation of economic activity is prolonged (Charts 15 and 16).

The third factor is the growth rate of the global economy. Since the early 2000s, Japan's economy gradually overcame the post-bubble effects of deleveraging. However, Japan was also greatly helped by the high growth in the global economy at that time, growth that was almost unprecedented in the past several decades (Chart 17 and 18). In retrospect, during that period, the global economy was in the very process of creating a global credit bubble and also led by strong performance of emerging economies. Given that growth rates in developed countries are currently restrained by post-bubble deleveraging effects, it is now of prime importance that emerging economies continue growing without causing

inflation or bubbles of their own.

Of these three factors that define the length of time needed for deleveraging, the first one -- the initial size of excess debt -- is a given once a bubble bursts, but we can still influence the remaining two factors: the growth potential of individual economies and growth momentum in the global economy as a whole. After the bubble burst, the priority is to maintain the stability of the financial system. At the same time, it is also important to adapt the economy to a new environment and resist to pressures that would lead to collateral damage. This requires strong will and determination.

IV. The Role of Central Banks

Given the limited time remaining, I would like to wind up my remarks by briefly explaining my thoughts on the role of central banks in this difficult period.

In addition to the aforementioned four similarities, there is another similarity between Japan, the United States and European countries after the bursting of their respective bubbles. That is, opinions are sharply divided with regard to the roles central banks should play. In the United States, criticism of aggressive central bank measures seems to prevail, as evidenced by negative reactions by politicians to the QE2 measures. In other developed countries, however, central banks apparently face rising expectations and demands to deal with the situation against a background of sluggish growth. The recent discussion about the responses to the sovereign debt crisis in Europe confirms this point. Maintaining price stability and financial system stability are important goals of central banks, but central banks are not able to solve all problems, especially in an economy characterized by zero interest rates and deleveraging. Central bank governors including myself have made this point clear recently.⁶ I would like to concur with the assessment of my respected colleague,

⁶ See the following comments.

Bernanke, Ben S., Testimony at the Joint Economic Committee, U.S. Congress, October 4, 2011: "Monetary policy can be a powerful tool, but it is not a panacea for the problems currently faced by the U.S. economy."

Draghi, Mario, Interview with the Financial Times, December 14, 2011: "Monetary policy cannot do everything."

Sir Mervyn, who said that "There's a limit to what monetary policy can hope to achieve."⁷

What can be accomplished by central banks? Or, what are central banks expected to accomplish? Conversely, what cannot be accomplished by central banks? Looking back at the process of how bubbles form and burst, and the financial crises that ensue, I would like to make the following four points.

My first point concerns the role of central banks in providing liquidity to banks as "a lender of last resort," which is extremely important in maintaining financial system stability. If there is a sharp financial contraction, it becomes more likely that the economy will experience an abrupt and significant downturn in a short period of time. Given the current circumstances where the European sovereign debt crisis has been worsening, this lesson is particularly important to all of us. At the same time, we need to bear in mind that providing liquidity as "a lender of last resort" is, in essence, a policy to "buy time." It is essential that the necessary structural reforms take place while time is being bought, as the time that we can buy becomes progressively more expensive.

My second point concerns the conduct of monetary policy after a bubble bursts. Monetary easing can affect the economy either through bringing forward future demand or bringing in overseas demand. In the former case, available future demand gradually decreases as monetary easing is prolonged. In the latter case, when economic growth in developed countries is generally weak, monetary easing in individual countries aiming at bringing in overseas demand may increasingly lead to a zero-sum game, which is not desirable for the sustainable growth of the global economy as a whole. Such diminishing returns, however, do not release responsible central banks from the need to act. That is why, at the present time when short-term interest rates in major economies have declined to almost zero, central banks, including the Bank of Japan, have been making efforts to generate monetary easing effects by implementing various unorthodox measures to lower long-term interest rates and credit spreads. While central banks are buying time with these measures, it is still essential to pursue the necessary structural reforms.

⁷ This comment was made at the press conference on November 16, 2011 after presenting the Inflation Report.

My third point concerns the paradox of success in the conduct of monetary policy. The goal of monetary policy is to achieve sustainable growth with price stability. This is a well-established principle that is shared in Japan, the United Kingdom and globally, regardless of whether an inflation targeting framework is adopted. The more successful the conduct of monetary policy is, however, the more stable prices become and the less volatility is seen in economic activity and financial markets. When the expectation prevails that a stable economic and financial environment will continue for a long period of time, it is likely to encourage leverage and maturity mismatches between the assets and liabilities of financial institutions. The greater the leverage and maturity mismatches are, the more exposed the economy is to a possible unwinding triggered by a given event, so the more fragile it becomes. The bursting of bubbles is the materialization of such fragility. Before the global financial crisis, there was a debate over how to deal with bubbles, with one camp stressing ex-ante prevention and another emphasizing the importance of ex-post measures to resolve the situation in the aftermath. Following the global financial crisis, however, all now appear to agree that the cost of a bubble bursting is unbearably enormous. Most past bubbles were formed while economies enjoyed low inflation rates. Focusing obsessively on the short-term stability of the consumer price index as a way to ensure economic stability will actually have the opposite effect of increasing instability. Needless to say, bubbles are not caused by low interest rates alone. However, when the expectation prevails that low interest rates will continue for a long period of time, it is likely to encourage leverage and maturity mismatching between the assets and liabilities of financial institutions. In that sense, I believe that in the conduct of monetary policy central banks also need to be attentive to the accumulation of financial imbalances.

My final point concerns the regulatory and supervisory framework. Looking back at how bubbles are formed, the bottom line is that it comes down to aggressive activity by both borrowers and lenders. Financial institutions' activities are influenced not only by the expectation that a stable environment will continue but also by incentives created by the regulatory and supervisory framework. As for the background to such aggressive activities by financial institutions, almost without exception regulation and supervision did not prevent them from getting involved in risky lending, which was, in retrospect, an attempt to improve their low profitability. This was the case in the Japanese bubble period

and European financial institutions did the same thing during the formation of the global credit bubble in the middle of the 2000s. Central banks and the regulatory and supervisory authorities in individual jurisdictions are currently working to reform the regulatory and supervisory frameworks. One important issue in this regard is how to find the right balance between two important tasks: restraining excessive risk taking and securing the profitability of financial institutions.

Closing Words

The recent financial crisis has certainly left not one, as the Beatles song said, but many a pool of tears. As a result, if I may return to the Dickens quote, it feels for many of us like the worst of times. It may be a bit of a stretch to say that we are in the best of times, but it is too early to despair. Our economies have the resources, not only money but also the intellectual and institutional capabilities, to resolve the issues we face. If we can adapt the economy to a new environment and resist pressures that would lead to collateral damage, even after the bursting of the bubble, we should still be able to find a path leading to renewed growth. What we need is the determination and will. Ultimately, if we have this determination and will, we can shorten the long and winding road.

Thank you for your attention.

Deleveraging and Growth: Is the Developed World Following Japan's Long and Winding Road?

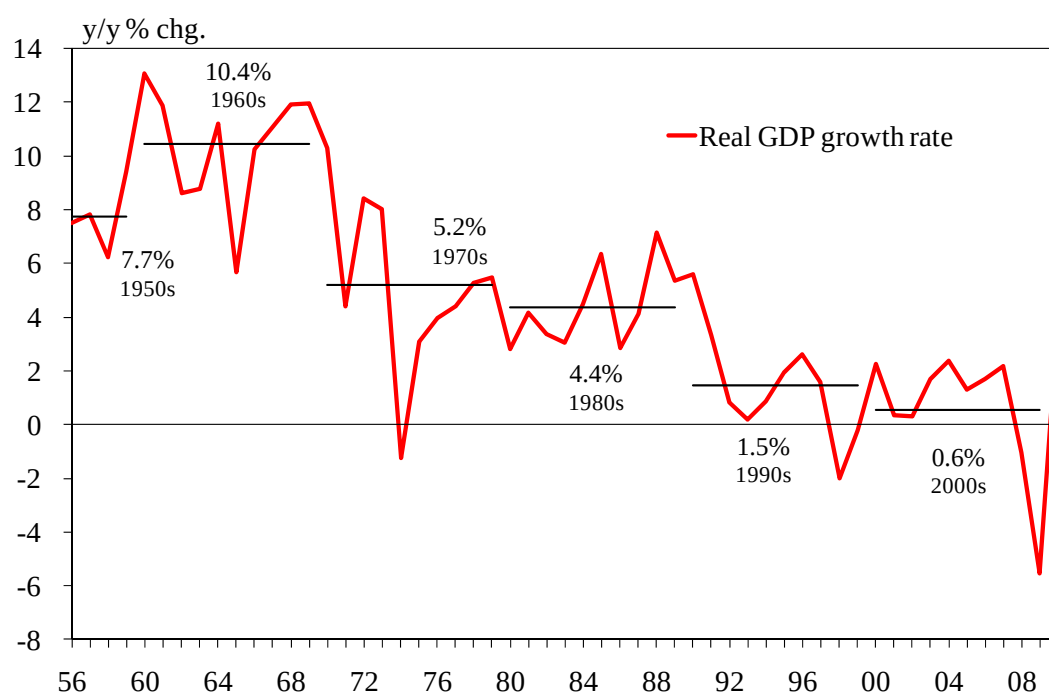
January 10, 2012

Lecture at the London School of Economics and Political Science
(Co-hosted by the Asia Research Centre and STICERD, LSE)

Masaaki Shirakawa
Governor of the Bank of Japan

Chart 1

Japan's Real Economic Growth Rate in a Long-Term Horizon



Notes: 1. Data up to 1980 are based on the 68SNA (System of National Accounts), while those from 1981 are based on the 93SNA.

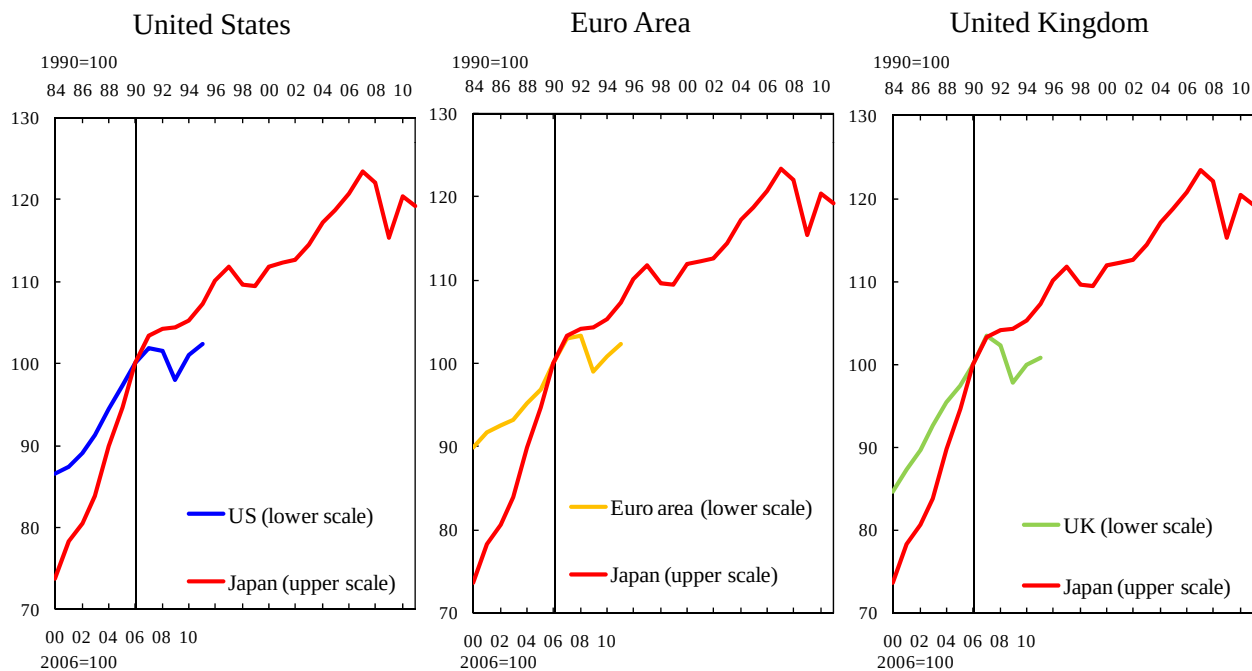
2. Data for the 1950s is the average of the year-on-year rates from 1956 to 1959.

Source: Cabinet Office.

Chart 2

Real GDP

After the Collapse of the Bubble Economy: Comparison with Japan's Experience

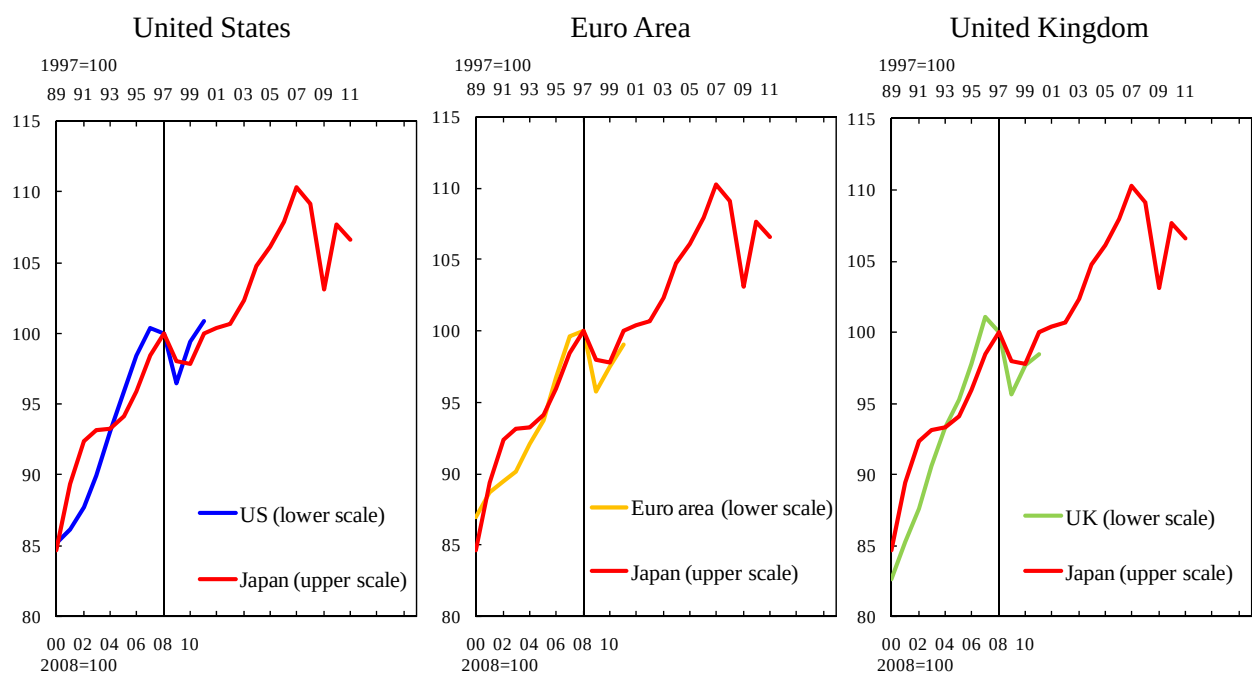


Sources: ONS; Eurostat; BEA; Cabinet Office.

Chart 3

Real GDP

After the Financial Crisis: Comparison with Japan's Experience



Sources: ONS; Eurostat; BEA; Cabinet Office.

Chart 4

Real-Estate Prices

After the Collapse of the Bubble Economy: Comparison with Japan's Experience

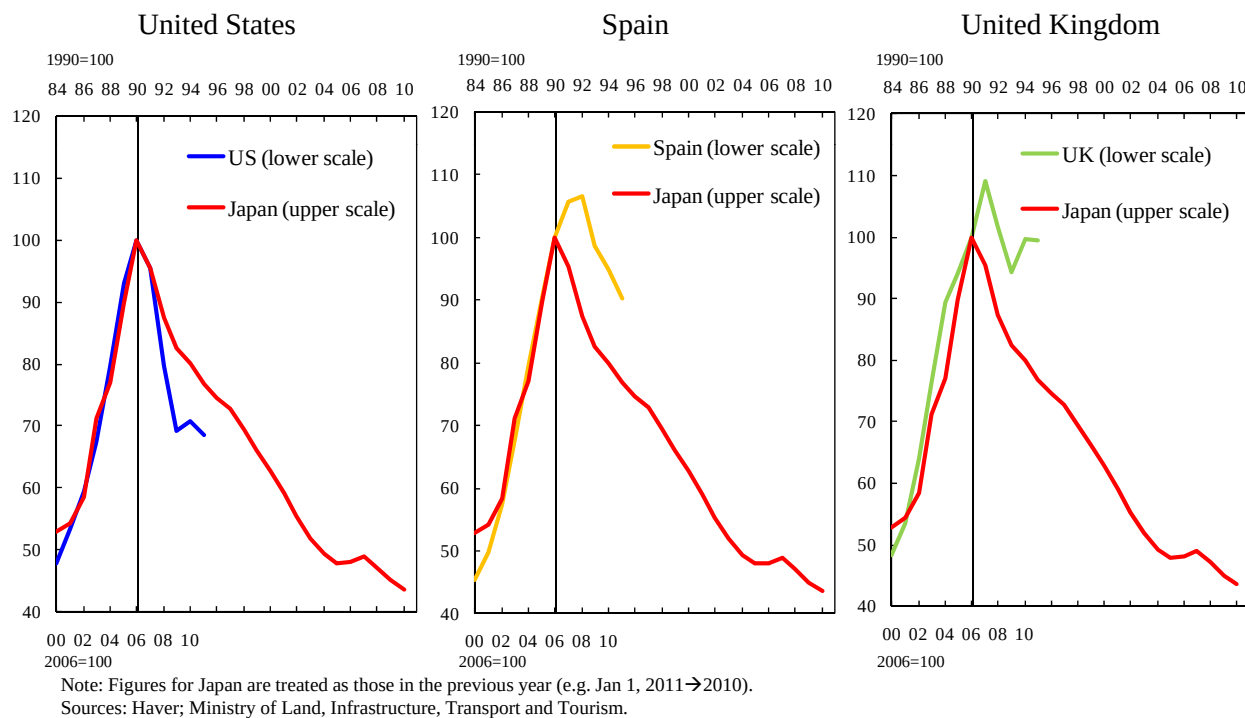


Chart 5

Long-Term Interest Rates

After the Collapse of the Bubble Economy: Comparison with Japan's Experience

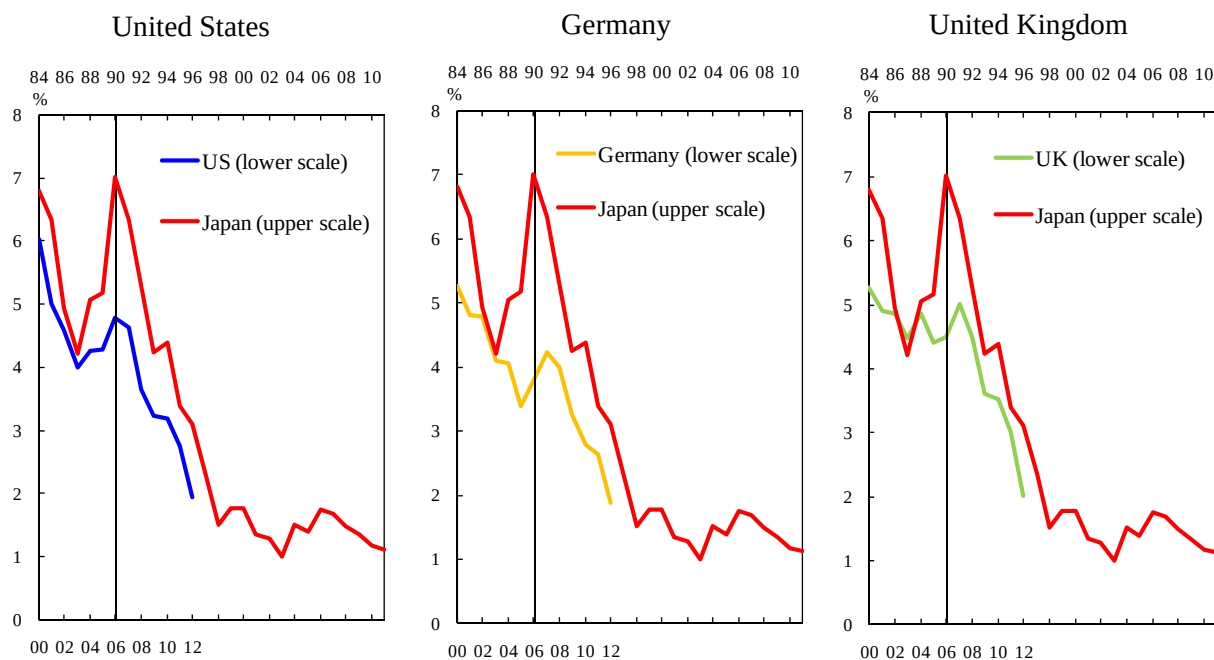


Chart 6

Bank Loan

After the Collapse of the Bubble Economy: Comparison with Japan's Experience

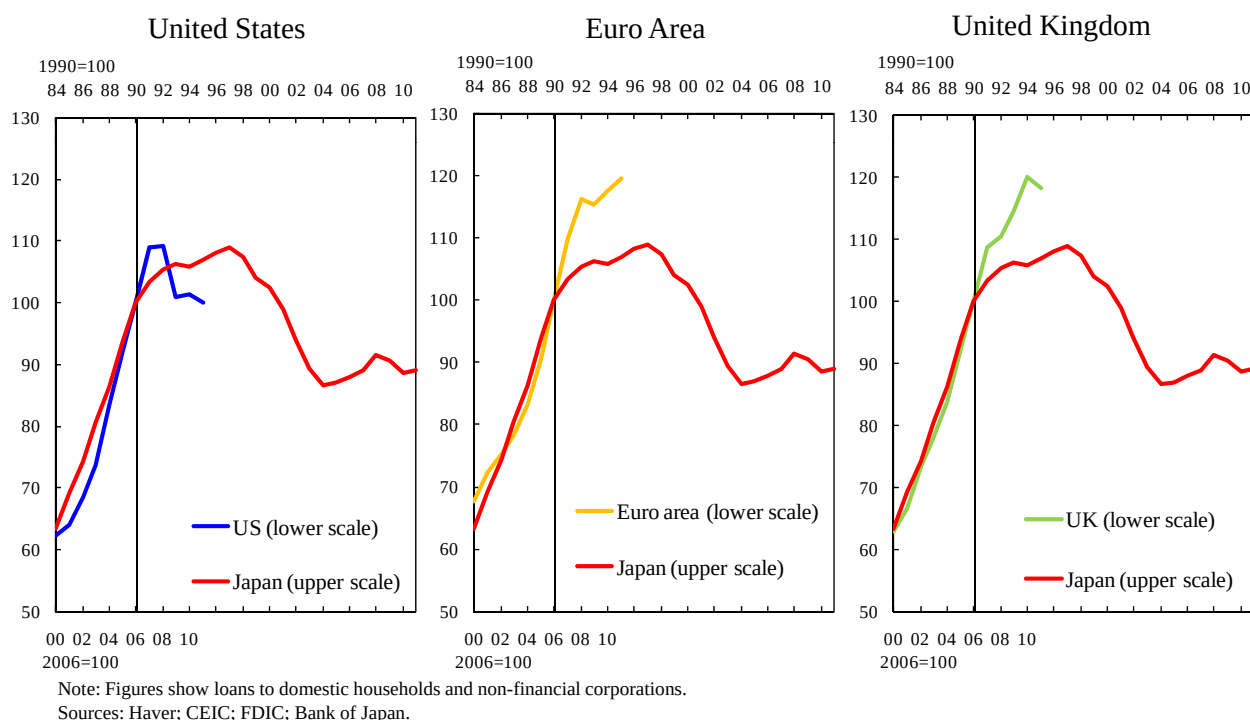


Chart 7

The Bank of Japan has introduced various unorthodox policy measures since the second half of the 1990s, ahead of other central banks.

		BOJ	FRB	ECB	BOE
Extremely low interest rates		02/1999 ¹	12/2008	05/2009	03/2009
Commitment to maintain extremely low interest rates		04/1999 ¹	08/2011	—	—
Quantitative/Credit easing		03/2001	11/2008	—	03/2009
Purchases of risk assets	ABS	06/2003	11/2008 ²	—	—
	ABCP	06/2003	09/2008 ³	—	06/2009
	CP	12/2008	10/2008 ⁴	—	01/2009
	Corporate bonds	01/2009	—	—	01/2009
	ETFs	10/2010	—	—	—
	J-REITs	10/2010	—	—	—
	Stocks held by financial institutions	10/2002	—	—	—
	Subordinated loans to banks	03/2009	—	—	—
	Agency debt Agency MBS	—	11/2008	—	—
	Covered bonds	—	—	05/2009	—

Notes: 1. The time at which the Bank of Japan first introduced its zero interest rate policy and made its commitment to maintain zero interest rates.

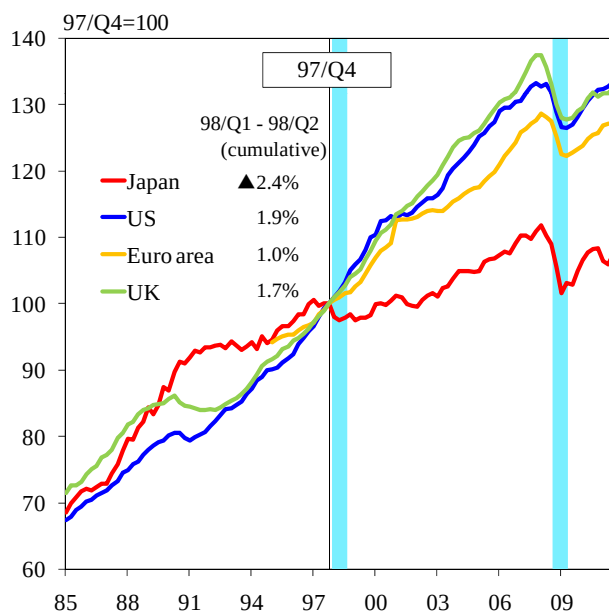
2. Introduction of TALF (Term Asset-Backed Securities Loan Facility), which provides non-recourse loans against collateral, mainly ABS, effectively purchases ABS.

3. Introduction of AMLF (ABCP Money Market Mutual Fund Liquidity Facility), which provides U.S. depository institutions and bank holding companies with non-recourse loans against ABCP as collateral, effectively purchases ABCP.

4. Introduction of CPFF (Commercial Paper Funding Facility), which provides SPVs with loans against collateral, mainly CP, effectively purchases CP.

Financial turmoil in Japan did not trigger a global financial crisis.

Real GDP following the Financial Turmoil in Japan



Real GDP following the Failure of Lehman Brothers

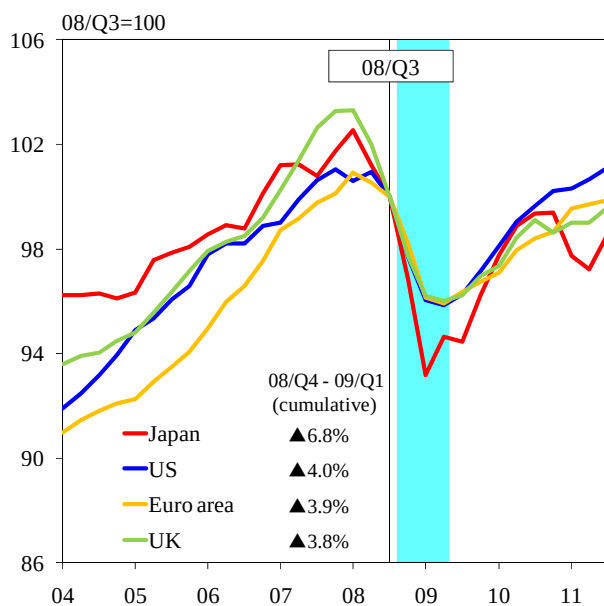
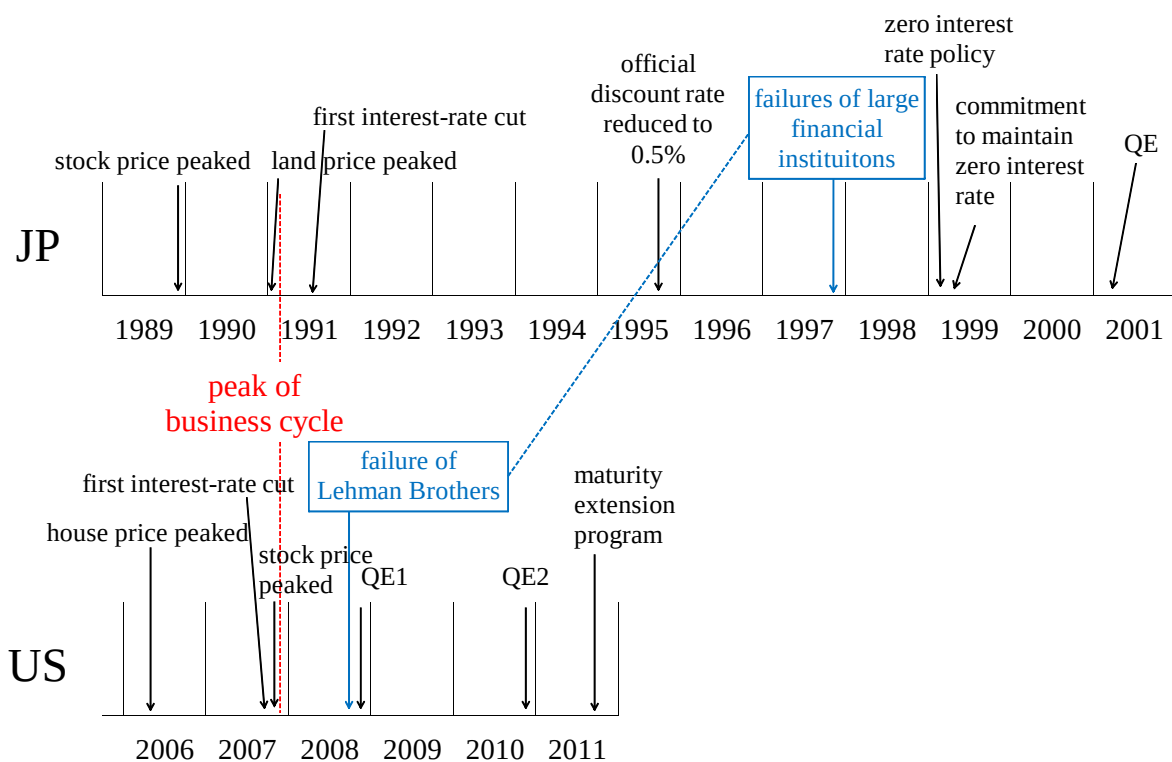


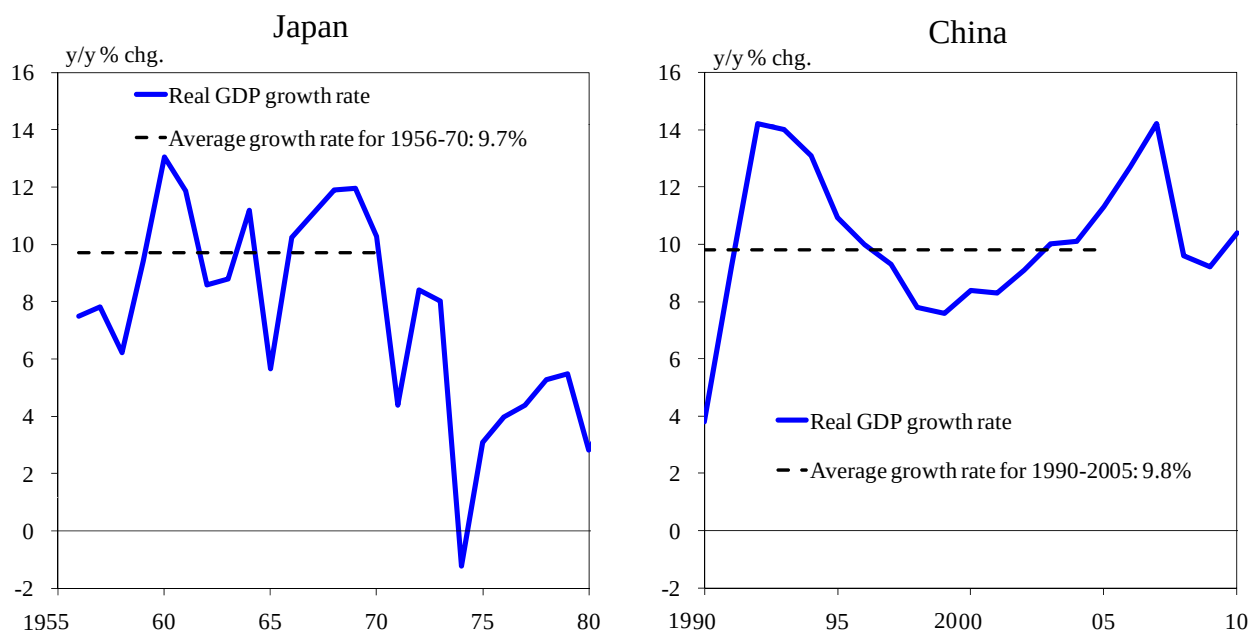
Chart 9

Time Length from the Collapse of the Bubble Economy until the Occurrence of the Financial Crisis



Note: The land price of Japan in this chart is based on "Published Price of Land".

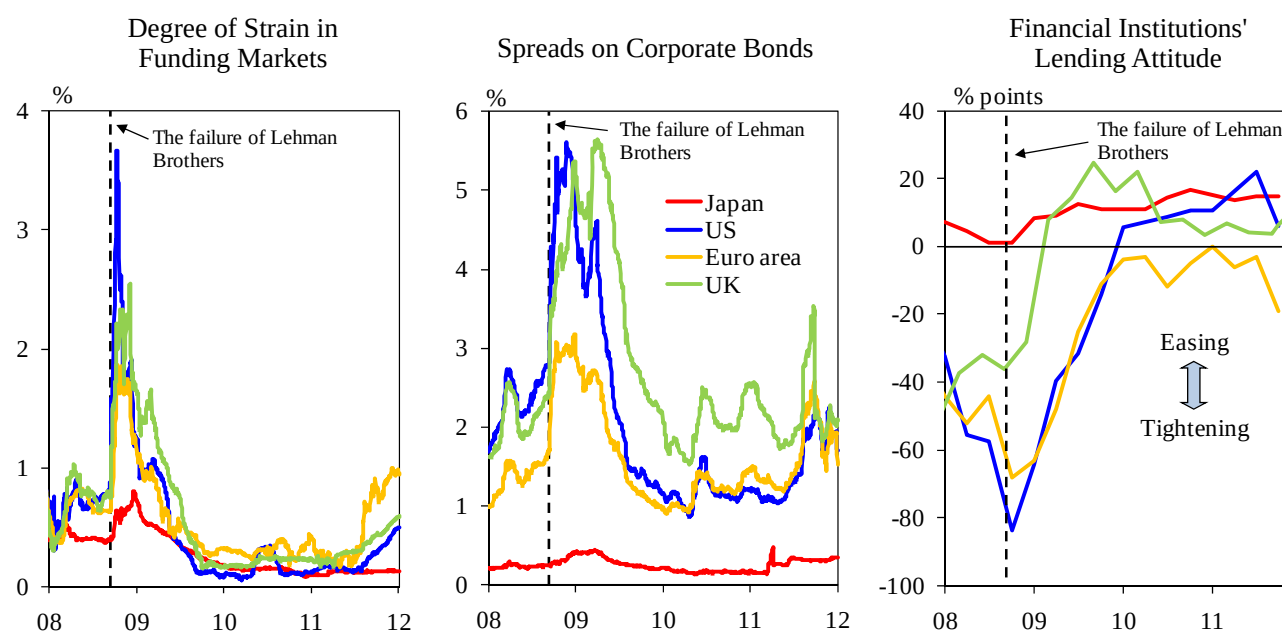
Japan's High-Growth Era: Comparison with China



Sources: Cabinet Office; National Bureau of Statistics of China.

Chart 11

The stability of Japan's financial system and financial markets is notable compared to the United States and Europe.



Notes: 1. The degree of strain in funding markets is 3-month Libor minus 3-month overnight index swap (OIS) rates.

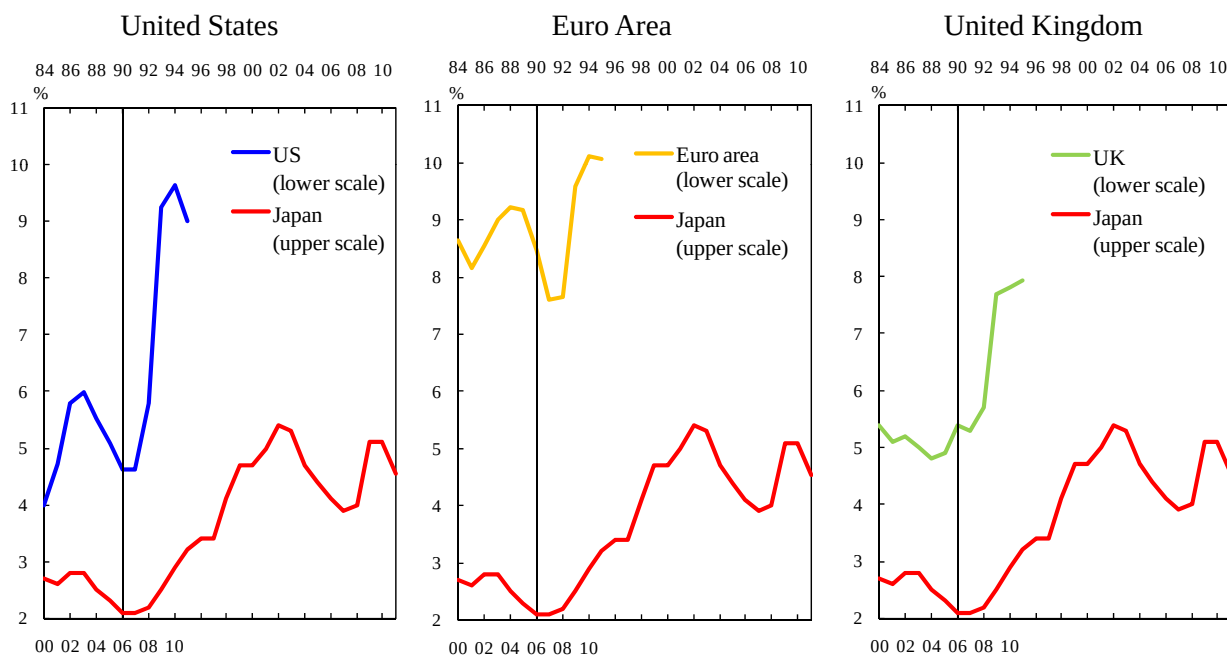
2. The spreads on corporate bonds (rated AA) are corporate bond yields minus government bond yields.

3. Financial institutions' lending attitude is the average of the DIs for large, medium-sized, and small firms for Japan, large and medium-sized firms for the United States, large firms for the euro area, and firms of all sizes for the United Kingdom.

Sources: Bloomberg; Japan Securities Dealers Association; Bank of Japan; FRB; ECB; BOE.

Unemployment Rate

After the Collapse of the Bubble Economy: Comparison with Japan's Experience

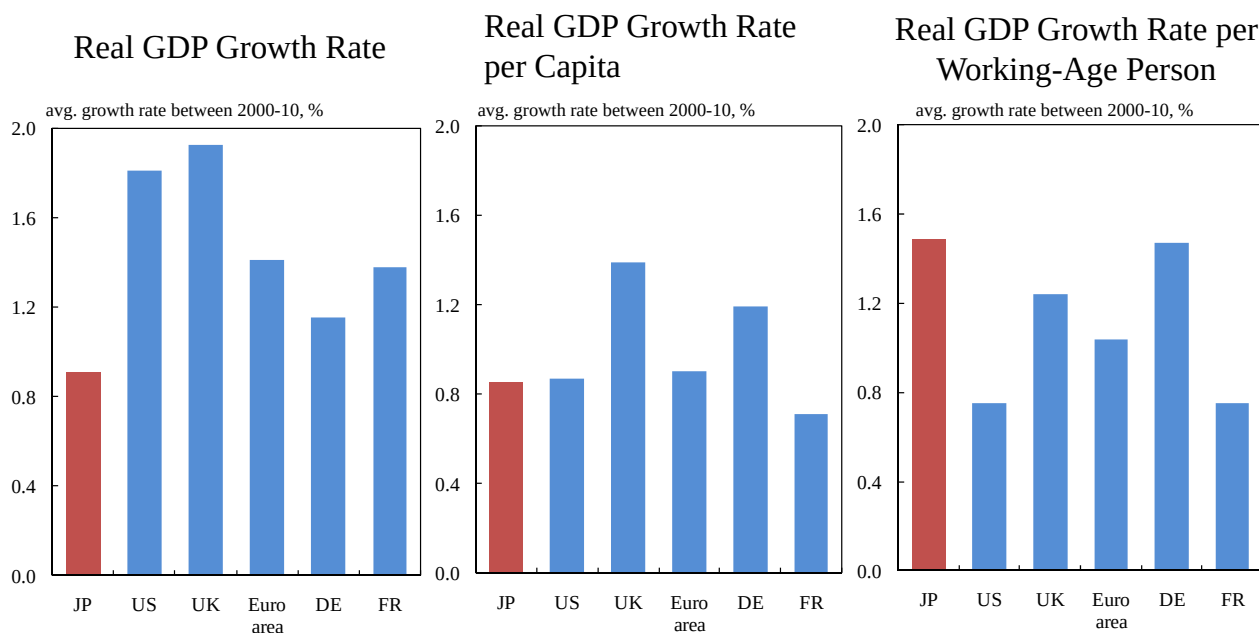


Sources: ONS; Eurostat; BLS; Ministry of Internal Affairs and Communications.

Chart 13

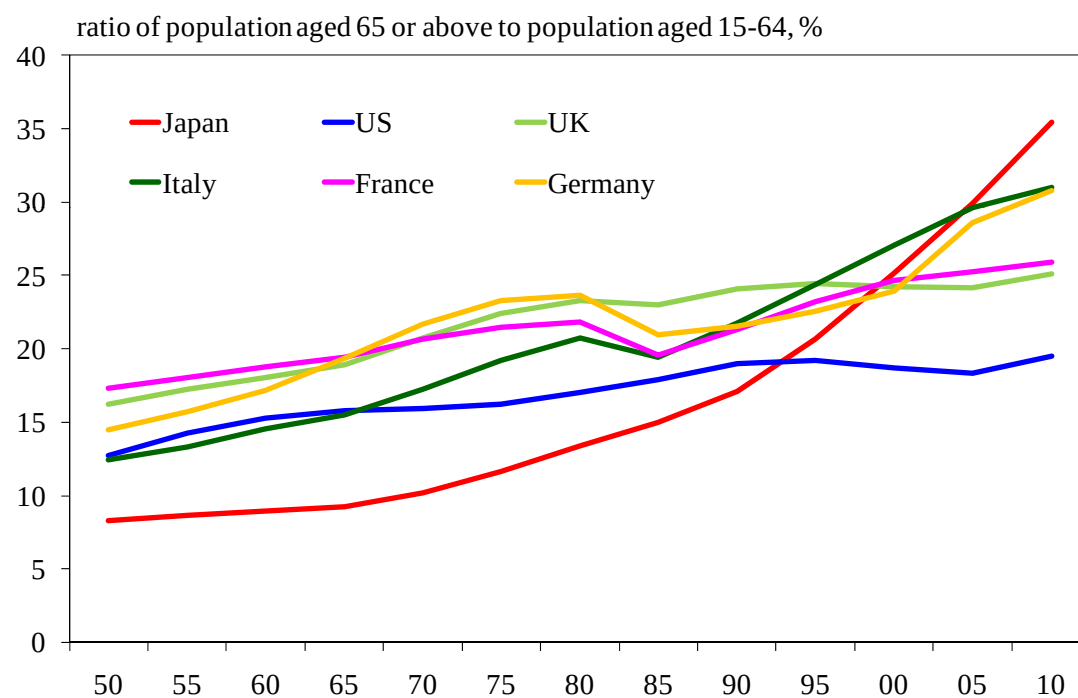
Japan's Growth Rate

----- The lowest in terms of real GDP growth rate, the highest in terms of real GDP growth rate per working-age person.



Sources: World Bank; Haver.

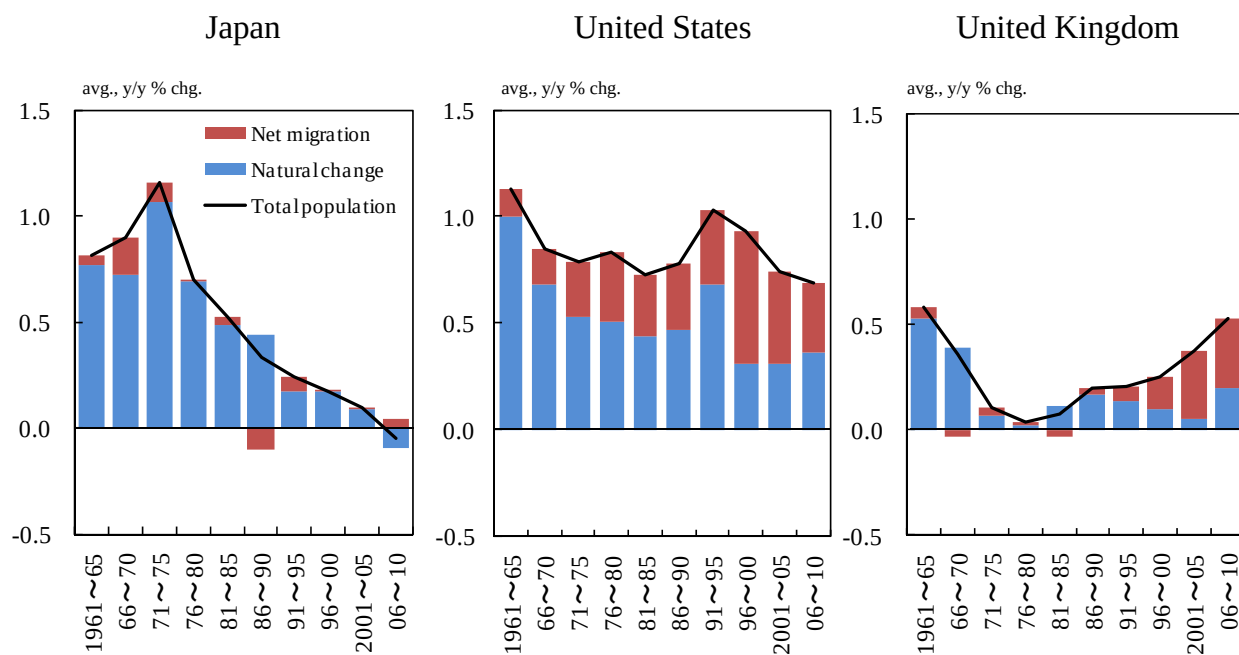
Japan has been facing a rapid demographic change.



Source: United Nations.

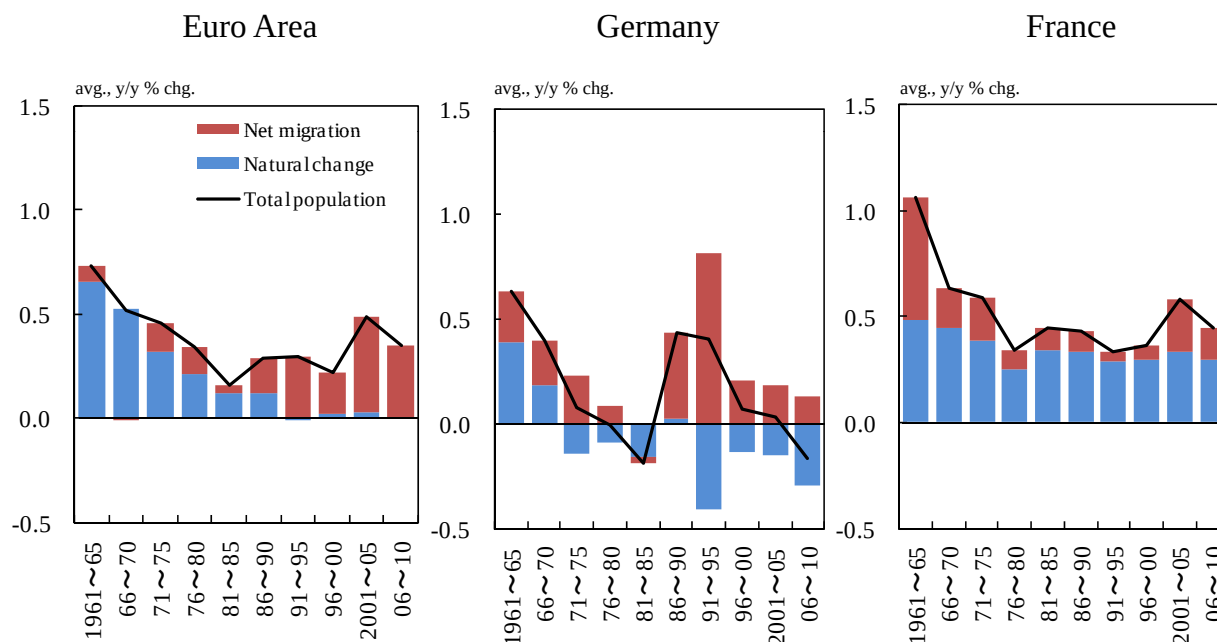
Chart 15

Population Growth Rate



Source: World Bank.

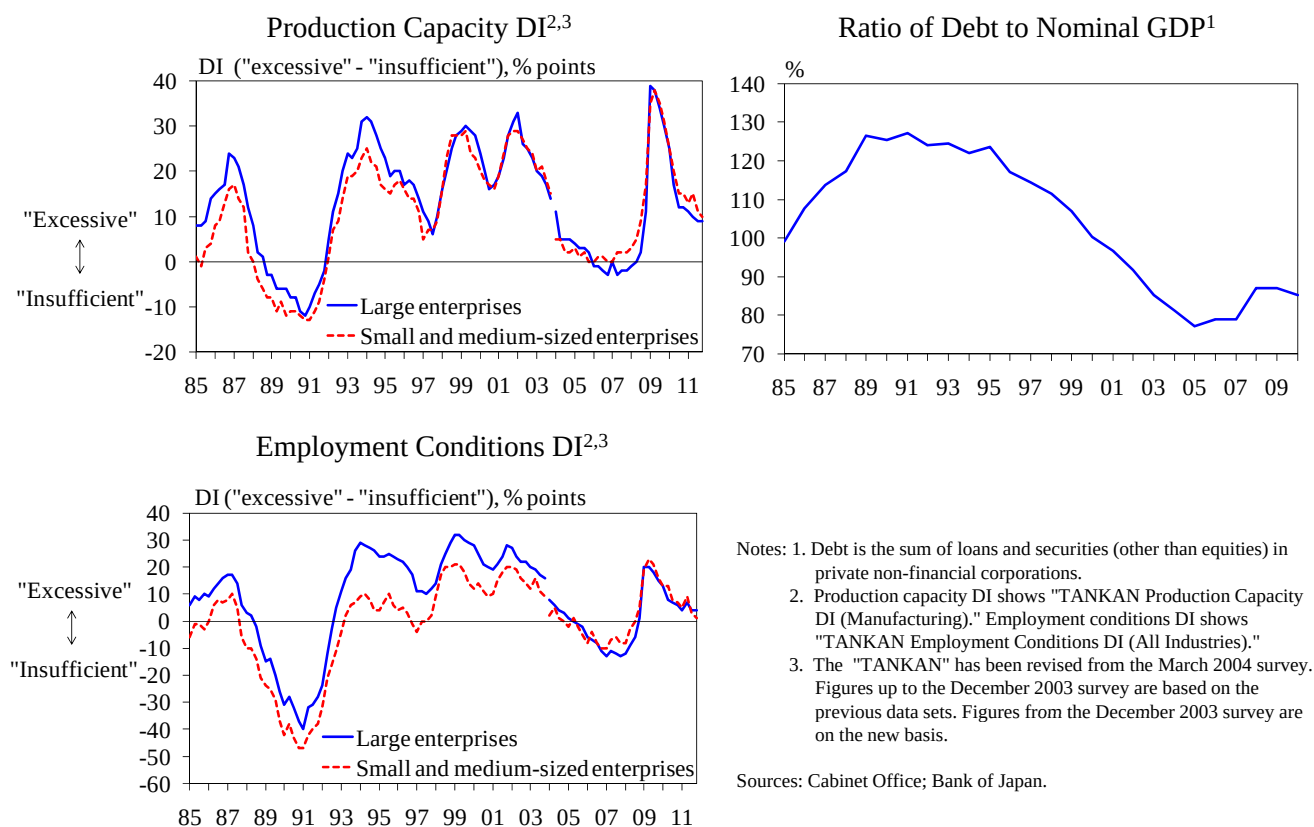
Population Growth Rate (Cont.)



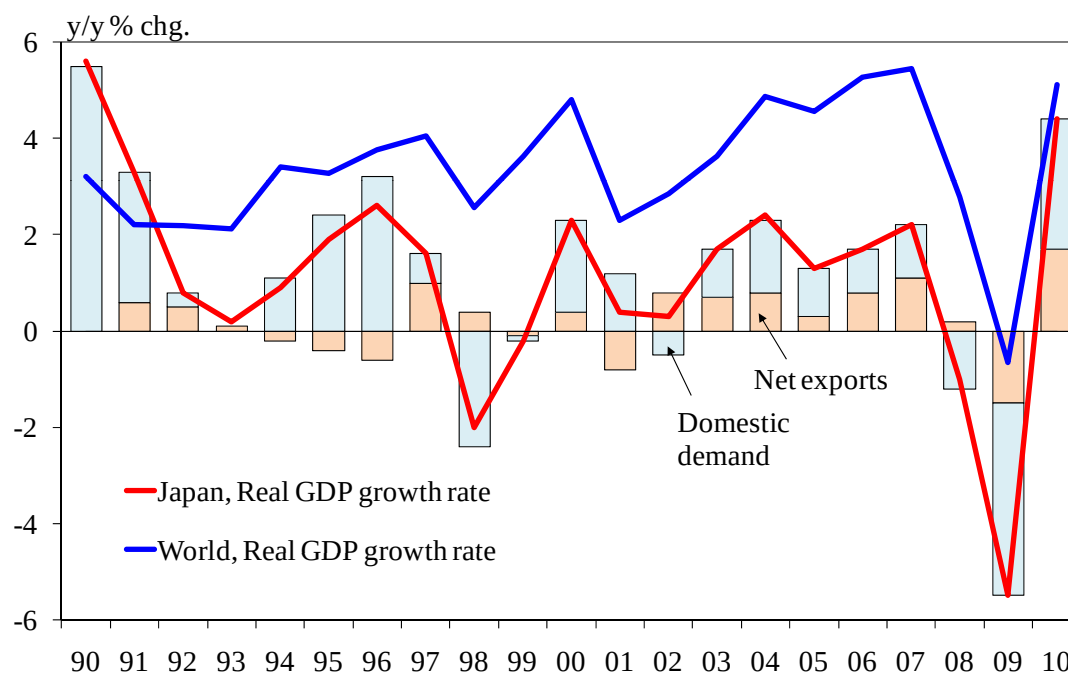
Source: World Bank.

Chart 17

Since the early 2000s, Japan's economy gradually overcame the post-bubble effects of deleveraging.



Japan's economic recovery since 2002 was supported by the high growth of the global economy.



Sources: Cabinet Office; IMF.