February 13, 2016
Bank of Japan

Monetary Policy and Structural Reforms

Speech at the Japan Society in New York

(New York, February 12)

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Introduction

It is a great honor to have this opportunity to give a presentation at the Japan Society.

Looking back at my central banking career, which has been devoted to dealing with the economic and financial problems that have unfolded since the burst of Japan's asset bubble more than two decades ago, I have become more and more determined to overcome deflation. At the same time, I am aware, more than ever, of the importance of raising Japan's growth potential, and this is the topic that I would like to talk about today. Raising the growth potential is an issue that, I believe, is of relevance not only for Japan but also for other industrialized nations, since Japan's experience of decelerating trend growth is a potential precursor of things to come elsewhere. In fact, Japan's experience provides a good case study of the issues that need to be tackled. In the following presentation, I would like to talk about how to address the challenge of low trend growth, paying particular attention to the relationship between demand stimulus and supply-side reforms. I will then try to assess how much progress Japan has made so far.

Slower Trend Growth

Let me start with a brief overview of Japan's growth prospects.

Japan has continued to struggle with slower trend growth. The Bank of Japan estimates that Japan's potential growth rate has fallen to as low as 1/2 percent or even slightly lower. Given such a low potential growth rate, even a small negative shock or simply statistical noise can tip Japan's measured GDP growth rate into negative territory. Trend growth can be decomposed into growth in labor input and growth in labor productivity, and as is well known, both factors are responsible for the decline in Japan's slowing growth trend (Slide 1).

Will this trend continue? If so, what can be done? To give you a sense of the challenge, let me show you some calculations how the 2 percent growth which the Japanese government is aiming at can be achieved. The table shows two alternative scenarios based on different assumptions regarding labor participation (Slide 2). The first is the status quo scenario, where things remain unchanged. The other is the optimistic scenario, which is based on two assumptions: First, it is assumed that the female labor participation rate in Japan rises to the

level observed in Sweden. Second, it is assumed that all healthy elderly will continue working irrespective of the retirement age. For instance, reflecting Japan's rising life expectancy, 60 percent of 80 to 84 year olds in Japan say that they are healthy enough to go about their daily lives. We assume that all of these elderly continue to work. Setting aside how realistic they are, these assumptions mean that the labor force can be expected to increase by about 1/2 percent per year. However, as shown in the slide, to achieve 2 percent GDP growth, labor productivity still needs to rise by about 1 1/2 percent per year. That being said, in the status quo scenario, labor input shrinks by almost one percent per year, so that labor productivity would have to grow by a hefty 3 percent to achieve the 2 percent GDP growth target.

The productivity growth of 1 1/2 percent required in the optimistic scenario would still be high both from a historical and international perspective, but it may not be unachievable. Economic theory suggests that the key drivers of growth are productivity catch-up and growth at the technological frontier. There is no doubt that a number of Japanese manufacturers are at the global technology frontier, but there remains ample room for catch-up in many industries, particularly in the non-manufacturing sector. For example, it is often said that Japanese firms, especially in the non-manufacturing sector, lag behind their foreign counterparts in the use of information technology, primarily due to underinvestment in this area and a shortage of related expertise.[1] As a result, Japan's productivity level is about 35 percent below that of the United States, which is often assumed to represent the world technology frontier (Slide 3).

During their course of economic development, countries tend to enjoy rapid growth during the period of technological catch-up. Japan had largely gone through this phase by the 1980s, so productivity growth decelerated thereafter, as seen in Slide 1. That being said, as seen in the right panel of Slide 3, in the period between 2000 and 2014 Japan still enjoyed one of the highest productivity growth rates among the G7 countries, probably because there still remained some room for catch-up.

[1] K. Fukao, T. Miyagawa, H. K. Pyo, and K. H. Rhee (2012), "Estimates of Total Factor Productivity, the Contribution of ICT, and Resource Reallocation Effects in Japan and Korea," in M. Mas and R. Stehrer (eds.), *Industrial Productivity in Europe: Growth and Crisis*, Edward Elgar Publishing.

In any case, this back-of-the-envelope calculation underscores the importance of labor productivity in raising the growth potential. Particularly in an economy like Japan's, with its demographic constraints, policies should have a clear focus on raising productivity growth.

Secular Stagnation Hypothesis

What does this slower trend growth mean for central bankers?

First, slower trend growth, *other things being equal*, implies a smaller output gap (Slide 4). This is simple arithmetic: changes in the output gap equal changes in real GDP minus changes in potential output. At the height of the 1997-98 financial crisis in Japan, it was thought that Japan might fall into a deflationary spiral like that experienced by the United States during the Great Depression in the 1930s. However, in the wake of the 1997-98 crisis, even at its worst, Japan's CPI deflation rate did not substantially exceed one percent.[2] With the benefit of hindsight, the output gap was smaller than we had envisaged due to a decline in the potential growth rate. In fact, although I am afraid I may confuse you, the story actually is a bit more complicated than I have just described. I will later argue that slower trend growth may worsen the output gap, as *other things may <u>not</u> be equal*.

The second corollary of slower trend growth for central bankers is that it implies a lower equilibrium real interest rate or natural rate of interest (Slide 5). The equilibrium real interest rate is the real interest rate that would prevail at full employment and inflation at the targeted level, and thus provides a reference point for the policy interest rate. Economic theory suggests that slower trend growth leads to a lower equilibrium real interest rate. Presented with a lower equilibrium interest rate, a central bank, unless it faces the zero lower bound, needs to cut its policy rate if it wants to maintain monetary stimulus at the prevailing level.

Recently, the decline in the equilibrium interest rate has been a hotly debated topic not only in Japan but also in other industrial economies including here in the United States. The debate was, as you probably know, initiated by Larry Summers, who put forward the secular

[2] As I have argued previously, Japan fell into a deflationary equilibrium with mild but persistent deflation due to a combination of a decline in inflation expectations and in the natural rate of interest. See H. Nakaso (2014), "The Conquest of Japanese Deflation: Interim Report," Remarks at the Athens Symposium "Banking Union, Monetary Policy and Economic Growth."

stagnation hypothesis.[3] The focus of the discussion among scholars, policy makers, and market commentators is (a) whether the lower equilibrium interest rate is a permanent phenomenon; (b) what its causes are -- slower trend growth undoubtedly is one important factor, but there may be other explanations such as a change in saving-investment preferences; and (c) how to cope with the lower equilibrium interest rate, given that nominal policy interest rates have already hit the zero lower bound in many advanced economies.[4]

Policy Implications

Due to time constraints, I will not cover all of these questions today. Instead, let me focus on possible policy measures under these circumstances. Linked to the second issue -- the causes of a lower equilibrium interest rate -- there is an ongoing debate regarding whether demand stimulus or supply-side reforms are more relevant to counter the possible secular stagnation.[5] On the one hand, those who attribute the lower natural rate of interest to excess saving advocate more demand stimulus through monetary and/or fiscal policy. On the other hand, those who argue that potential growth has declined because of a deterioration in supply-side factors tend to stress the importance of structural reforms including deregulation and educational reforms.

My answer to what kind of policies are needed is that both monetary and fiscal policies *and* structural reforms are indispensable, which is in the spirit of the joint statement of the Bank of Japan and the Japanese government issued in January 2013. There are three reasons underpinning my answer.

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[3] L. H. Summers (2014), "U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound," *Business Economics*, Vol. 49(2), pp. 65-73.

[4] My fellow central bankers have recently addressed these issues. See, for instance, A. Haldane (2015), "How Low Can You Go?," Speech given at the Portadown Chamber of Commerce, and S. Fischer (2016), "Monetary Policy, Financial Stability, and the Zero Lower Bound," Speech at the Annual Meeting of the American Economic Association.

[5] See L. Rachel and T. D. Smith (2015), "Secular Drivers of the Global Real Interest Rate," Bank of England Staff Working Paper, No. 571; O. Blanchard, E. Cerutti, and L. H. Summers (2015), "Inflation and Activity -- Two Explorations and their Monetary Policy Implications," IMF Working Paper, WP/15/230; R. J. Gordon (2015), "Secular Stagnation: A Supply-Side View," *American Economic Review*, Vol. 105(5), pp. 54-59.

First, from a practitioner's point of view, we cannot wait for the day when the academic debate is settled. If both demand stimulus and supply-side reforms are potentially important, why not try both? We need to dispense all the medicine that might work for the patient.

Second, if supply-side reforms incur short-term pain, at least part of that pain needs to be alleviated through demand measures. For instance, if labor market reforms temporarily raise the unemployment rate, it is quite sensible to stimulate demand to smooth the transition through those reforms.

Third, I think that from a theoretical perspective, the distinction between demand- and supply-side measures is quite blurred. For example, supply-side reforms raise potential growth and reduce uncertainty about the future, so that firms and households spend more today in anticipation of higher profits and incomes in the future, thus raising current demand. On the other hand, demand stimulus such as monetary easing raises potential output through an increase in the capital stock as well as labor input, thus affecting the supply side as well.[6]

This difficulty in separating demand- and supply-side aspects also applies when examining the causes of the decline in the equilibrium interest rate. For example, both the demand- and supply-side camps argue that demography -- lower or negative population growth and population aging -- play a role in lowering the natural rate of interest. From a supply-side perspective, a decline in the growth rate of the working-age population lowers the growth potential of the economy and thus the natural rate of interest. On the other hand, from a demand-side perspective, the aging of the population reduces the population share of younger generations, and since younger generations tend to borrow more heavily than older generations, a drop in their share results in a decline in the natural rate of interest through a decline in loan demand.[7]

[6] This point has been highlighted by Fed economists such as D. Reifschneider, W. Wascher, and D. Wilcox (2015), "Aggregate Supply in the United States: Recent Developments and Implications for the Conduct of Monetary Policy," *IMF Economic Review*, Vol. 63, pp. 71-109.

[7] See, for example, the overlapping generations model of G. B. Eggertsson and N. R. Mehrotra (2014), "A Model of Secular Stagnation," NBER Working Paper No. 20574.

I sometimes feel that this difficulty to distinguish between supply- and demand-side factors goes beyond the issue at hand and may shake up conventional ways of thinking in other fields of economics such as the clear distinction between growth and business cycle models. Broadly speaking, business cycle models, which deal with how the output gap is determined, assume that trend growth is exogenously given. On the other hand, growth models, which examine the evolution of this trend growth, omit the output gap. This division of labor between standard models makes it difficult for economists to consider the interactions between the output gap and trend growth.[8]

In any event, all these considerations lead to the conclusion that demand stimulus and supply-side reforms are complements rather than substitutes. It is for this reason that I believe that monetary policy to overcome deflation and supply-side reforms to raise the growth potential must be pursued in tandem to bring Japan's economy back on track towards sustained growth.

I am a firm believer that, at this critical juncture, the Bank of Japan needs to provide support to the economy by pursuing its inflation targeting policy. Monetary policy needs to remain lax and in fact is lax. This is illustrated in Slide 5, which shows that, under quantitative and qualitative monetary easing, the Bank of Japan is keeping the real interest rate well below the natural rate of interest.

However, I also agree with former Chairman Bernanke that monetary policy is not a panacea.[9] In light of recent developments in growth theory and other fields, I do believe that institutions or systems matter. What is needed is an institutional framework that fosters innovation to push the technology frontier and raise productivity. Although I said that catching-up is still important for Japan, in the end the ultimate engine of growth is innovation. And by "institutional framework" here I mean not only economic institutions but also other

[8] A similar argument is made by J. Faust and E. M. Leeper (2015), "The Myth of Normal: The Bumpy Story of Inflation and Monetary Policy," in *Inflation Dynamics and Monetary Policy*, 2015 Jackson Hole Symposium: Federal Reserve Bank of Kansas City Economic Conference Proceedings.

[9] See, e.g., B. S. Bernanke (2012), "U.S. Monetary Policy and International Implications," Speech at a High-Level Seminar sponsored by the Bank of Japan and the International Monetary Fund.

aspects of society, such as the legal system, education, and so on.[10] Against this background, I strongly hope and believe that the Japanese government will play its role in providing such a framework by continuing with structural reforms.

Progress So Far

The question that naturally arises is how much progress Japan has made in addressing the challenges facing its economy.

My short answer is that there is some progress but not enough. In fact, there is one area in which good progress has been made: raising the labor participation rates of young women and the elderly, which have increased to exceed the corresponding rates in the United States (Slide 6). However, based mainly on the following three observations, I think that overall the glass remains half empty. All three observations -- concerning potential growth, growth expectations, and wage growth -- suggest that productivity growth is still not sufficiently high.

First, potential growth has not sufficiently increased. As seen in Slide 5, the Bank of Japan estimates that potential growth remains around or slightly below 1/2 percent. It is well known that real-time estimates of the potential growth rate are fraught with great uncertainty and it is often only after a considerable time lag that we can recognize changes in potential growth. For example, assuming that Japan continues to follow a steady growth path, it is well possible that we may find in hindsight that Japan's growth potential has actually already increased a bit, although I doubt that it has reached a level of 2 percent.

Second, Japanese firms have continued to hoard huge savings. It is true that Japanese firms, backed by record profits, have recently started to increase fixed investment, which, according to our December Tankan Survey, will increase by about 8 1/2 percent this fiscal year. However, if we look at the saving-investment balance of the corporate sector, in April-September last year, saving continues to exceed investment by more than 15 trillion yen

[10] D. Acemoglu and J. A. Robinson (2012), *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, Crown Business; E. Moretti (2012), *The New Geography of Jobs*, Houghton Mifflin Harcourt; R. E. Litan (2011), *Rules for Growth: Promoting Innovation and Growth Through Legal Reform*, Ewing Marion Kauffman Foundation.

or about 6 1/2 percent of GDP, as shown in the left-hand panel of Slide 7. In contrast, until the early 1990s corporate investment used to exceed corporate saving.

There may be a variety of reasons why Japanese firms keep saving. For instance, given the volatility of financial markets observed in recent times, firms may prefer to retain liquidity against the backdrop of perceived higher uncertainty in the economy. They may also try to pile up cash as a precaution due to lingering memories of financial crises in the past. However, it seems to me that the main reason behind the large saving surplus is the fact that firms' growth expectations have not sufficiently improved, as shown in the right-hand panel of Slide 7. The subdued growth expectations, in turn, will restrain productivity growth in the future as a result of insufficient capital deepening.

Third, nominal wages have not risen fast enough. Recently, nominal wages have been increasing by about 1/2 percent on a year-on-year basis. This is a big change from the situation a couple of years ago, when nominal wages were declining at a rate of about 1 1/2 percent. However, wage increases are still failing to keep up with inflation and remain well below the Bank's 2 percent inflation target. The sluggish increase in nominal wages is thought to reflect low productivity growth and the strong deflationary mindset, since, in the long run, nominal wage growth should equal productivity growth plus inflation. Again, these developments support the view that sustained improvements in productivity are necessary to maintain the economic growth momentum.

In this regard, the current spring wage negotiations, or "Shunto" in Japanese, are critically important. It is too early to tell the outcome at this stage and the picture is mixed. Since faster wage increases are indispensable for steady consumption growth and higher inflation, we are now carefully monitoring how the negotiations unfold.

Recent Monetary Policy

Structural reforms have been steadily moving forward, but it will take time until such reforms boost the potential growth rate. In a country where the natural rate of interest has declined, the central bank has to implement monetary policy based on the lower rate. As I explained earlier, monetary easing means achieving a real interest rate that is lower than the natural rate

of interest. In pursuing monetary policy in Japan, the challenges resulting from the decline in the natural interest rate had been compounded by the increasing difficulties in lowering real interest rates. These difficulties reflected the fact that nominal interest rates at the shorter end of the yield curve had already been subject to significant downward pressure and were facing the zero lower bound, while inflation expectations had faded.

In order to tackle this suboptimal situation, the Bank of Japan judged it necessary to lower the real interest rate by shoring up inflation expectations and at the same time seeking room for a further decline in nominal interest rates. Quantitative and qualitative monetary easing (QQE), which the Bank of Japan launched in April 2013, provided a major breakthrough in these two dimensions. The main transmission mechanism that QQE envisages is twofold. The first is to convert people's deflationary mindset and raise their inflation expectations though a strong commitment toward achieving the price stability target of 2 percent. The second is to encourage nominal interest rates to decline further across the entire yield curve through large-scale purchases of Japanese government bonds (JGBs). Together, these two mechanisms have the effect of pushing real interest rates down further.

QQE has produced its intended effects. The decline in real interest rates has stimulated private sector demand and has brought about record profits at firms and full employment in the labor market. Moreover, the underlying trend in inflation has been steadily improving. The annual rate of change in the CPI excluding fresh food and energy -- items subject to large price fluctuations -- has remained positive for 27 consecutive months and recently climbed to 1.3 percent. Looking ahead, the baseline scenario assumes that Japan's economy is likely to be on a moderate expanding trend and the annual rate of change in the CPI is expected to revert to an uptrend toward the price stability target of 2 percent.

The Bank of Japan recently took further actions to strengthen monetary easing by adding a negative interest rate dimension to QQE. The decision was taken against the backdrop of volatile global financial markets reflecting the further slide in crude oil prices and growing uncertainty over the outlook for emerging and commodity-exporting economies. We judged that there was an increasing risk that the improvement in business confidence could be undermined and the conversion of people's deflationary mindset be delayed. Consequently,

we were worried that this would negatively affect the underlying trend in inflation. In order to preempt the manifestation of this risk and maintain the momentum toward achieving the price stability target, we judged that it was necessary to further strengthen monetary easing at this juncture.

In introducing "QQE with a Negative Interest Rate," we focused on two points. First, the introduction of a negative interest rate is an additional element that leaves the basic framework of QQE intact. That is, the Bank will continue to push down the entire yield curve through large-scale purchases of JGBs under QQE. In addition, it aims to create even more powerful easing effects by lowering the short end of the yield curve through the introduction of the negative interest rate policy (Slide 8). Thus, quantitative easing and the negative interest rate are not inconsistent but instead complement each other.

In designing the policy, we benefitted a great deal from the wisdom and experiences of those central banks in Europe that have adopted a negative interest rate policy. Simply transplanting the policy, however, was out of the question, since Japan's idiosyncratic circumstances need to be taken into account. Specifically, in Japan, reserves at the central bank are far larger than in Europe and under QQE will continue to increase at an annual pace of around 80 trillion yen. To address the concern that a negative interest rate might impose an excessive burden on financial institutions and have an adverse effect on the functioning of financial intermediation, we adopted a multiple-tier system so that a negative interest rate is applied only to the marginal increase in excess reserves (Slide 9). This is a unique feature of our policy framework.

The second important aspect of "QQE with a Negative Interest Rate" is that it aims to provide scope for further monetary easing in terms of the "interest rate" dimension, in addition to the "quantity" and "quality" dimensions. If judged necessary, we are ready to take further actions in terms of "quantity" and "quality," and we do not share the view that the Bank's asset purchases are approaching their limit. To further supplement these tools, the new policy adds an "interest rate" option to these two existing options, so that the Bank can now pursue additional monetary easing measures in terms of three dimensions: "quantity," "quality," and "a negative interest rate." The new policy framework will provide significant reinforcement

to complete our mission to overcome deflation.

Our monetary policy initiatives will also contribute to shoring up the potential growth rate. The Bank aims at providing accommodative financial conditions and dispelling people's persistent deflationary mindset by pursuing "QQE with a Negative Interest Rate." We believe it will contribute to creating a business environment that encourages firms to pursue more proactive investment strategies and make greater efforts to improve productivity. If all economic entities fully take advantage of this extremely favorable environment, this should help to improve the potential growth rate. I fully expect this will happen.

Concluding Remarks

Japan needs to raise the trend growth of the economy. This is necessary not only for the sake of the current generation but also to ensure that future generations can enjoy a decent life with a sense of hope and security. To that end, we need to utilize both demand- and supply-side measures to the greatest possible extent. Now that the Bank of Japan has taken monetary easing one step further at the end of last month, I think that the original third arrow of Abenomics, the growth strategy, must also fly faster. The challenges ahead are formidable, but it is time now to deliver results, no matter how difficult the challenges are. I hope that by doing so Japan sets an example for other countries similarly facing a decline in trend growth.

I will stop here. Thank you very much.

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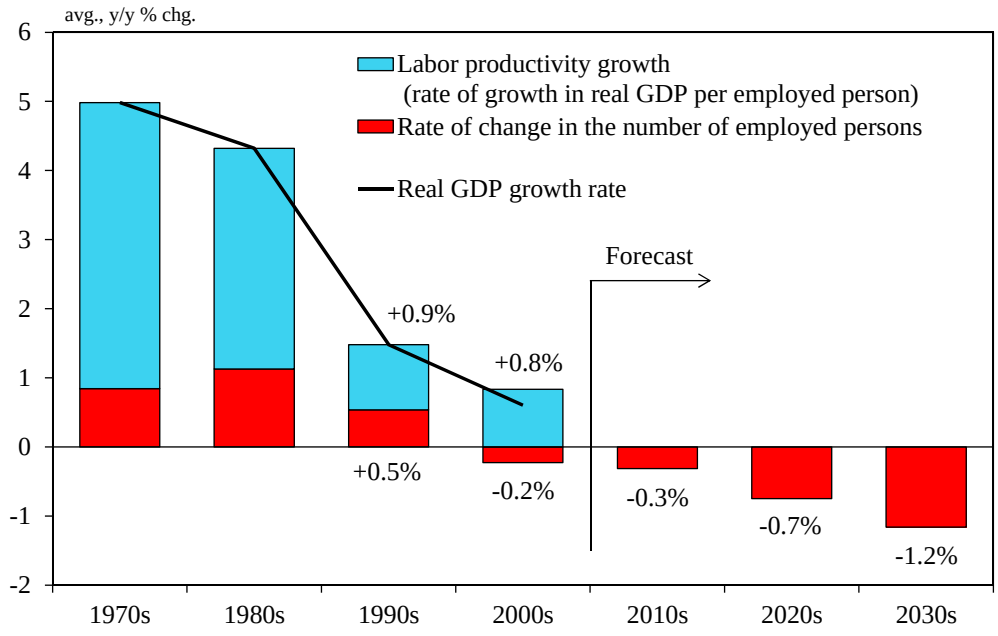
Japan's Real GDP Growth



Note: Fiscal-year basis. The rates of change in the number of employed persons from 2015 onward are calculated using the population outlook (medium variant) and projected labor force participation rates (assuming the labor force participation rate for each age/sex group remains the same as in 2014).
Sources: Cabinet Office; Ministry of Internal Affairs and Communications; National Institute of Population and Social Security Research.

Labor Productivity Growth Necessary to Achieve 2% Real GDP Growth

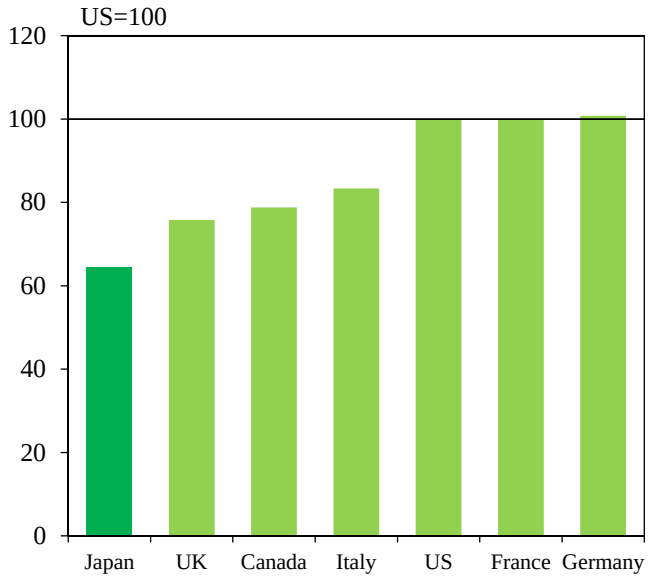
avg., y/y % chg.

	Japan				United States	
	FY 1980 -2014	FY 1990 -2014	Projections for FY 2015-2040		CY 1980 -2014	CY 1990 -2014
			Assumption regarding labor participation			
			Status quo scenario	Optimistic scenario		
Real GDP	2.0%	1.1%	2.0%		2.6%	2.4%
Labor productivity	1.6%	0.9%	2.9%	1.6%	1.5%	1.5%
Number of employed persons	0.4%	0.1%	-0.9%	0.4%	1.1%	0.9%

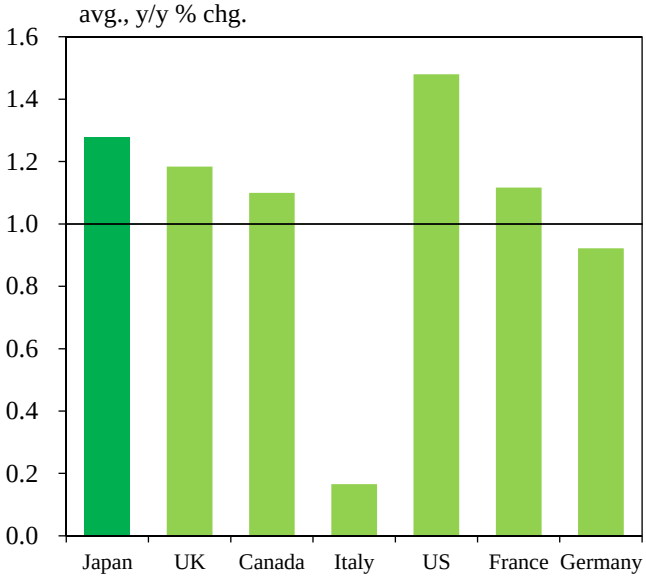
Notes: 1. The status quo scenario is based on the assumptions that the labor force participation rate for every age and sex remains unchanged from that in 2014.
2. The optimistic scenario is based on the following two assumptions:
(1) The labor force participation rates for women aged 25-59 rise by 2040 to the labor force participation rates in Sweden in 2010.
(2) The labor force participation rates of those aged 60 and above rise by 2040 to a level at which all healthy elderly work.
Sources: Cabinet Office; Ministry of Internal Affairs and Communications; National Institute of Population and Social Security Research; OECD; Bureau of Economic Analysis; Bureau of Labor Statistics.

International Comparisons of Labor Productivity

Productivity Level

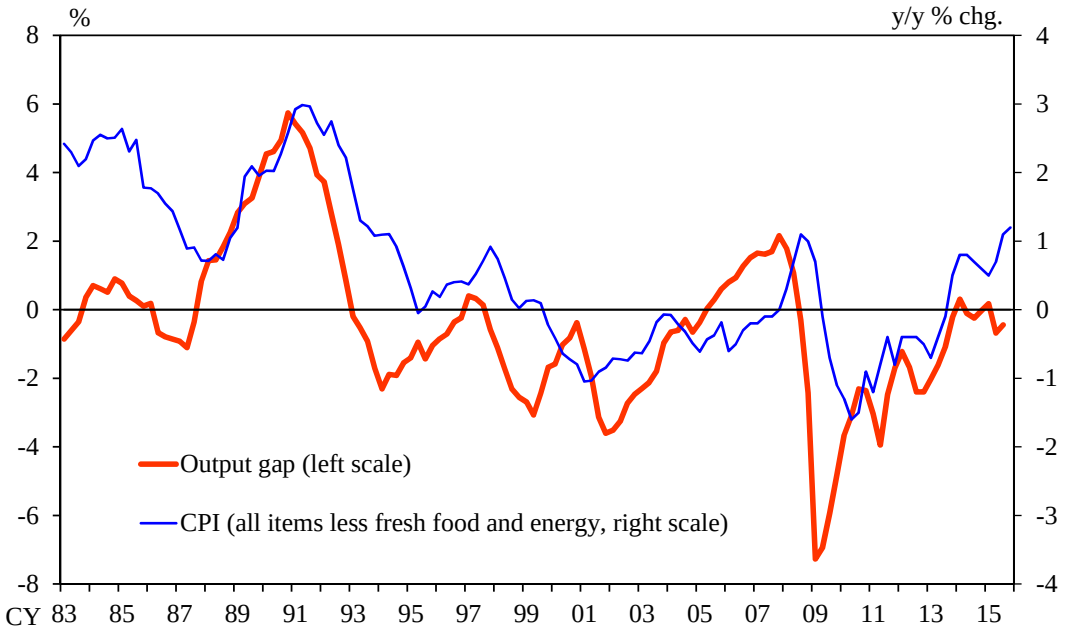


Productivity Growth Rate



Notes: 1.The left panel shows the nominal GDP per hour worked as of 2014.
2.The right panel shows the average year-on-year rates of change in the real GDP per hour worked from 2000 to 2014.
Source: UK Office for National Statistics.

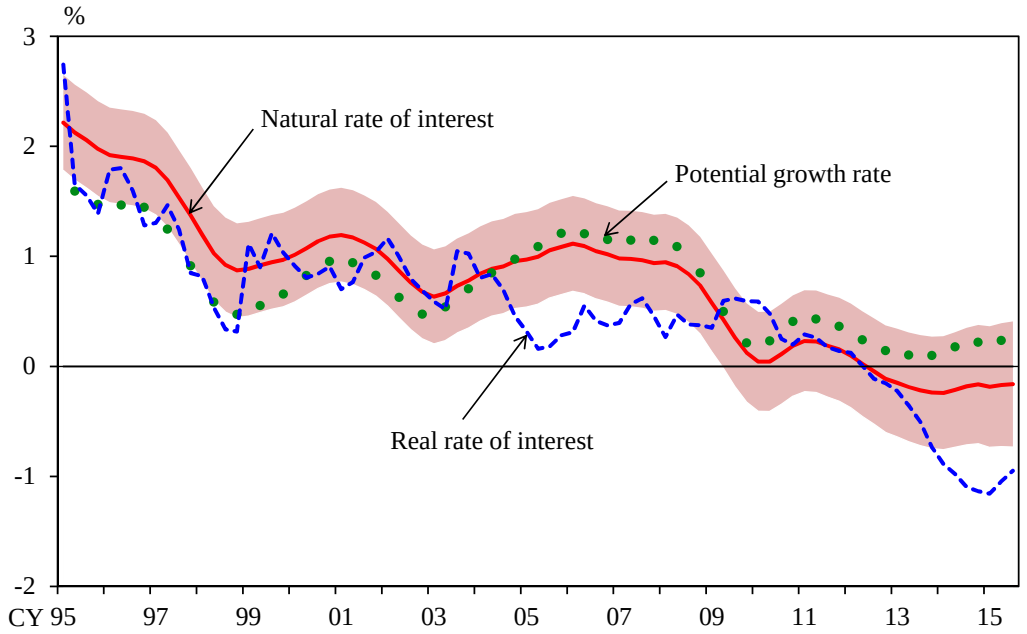
Output Gap and Consumer Price Index



Notes: 1. The output gap is estimated by the Research and Statistics Department, Bank of Japan. For details of the estimation procedures, see Hara *et al.* (2006), "The New Estimates of Output Gap and Potential Growth Rate," Bank of Japan Review Series, 2006-E-3.
2. Figures for the CPI (all items less fresh food and energy) are calculated by the Research and Statistics Department, Bank of Japan. Figures are estimated adjusting for the direct effects of the consumption tax hike.

Sources: Ministry of Internal Affairs and Communications; Cabinet Office, etc.

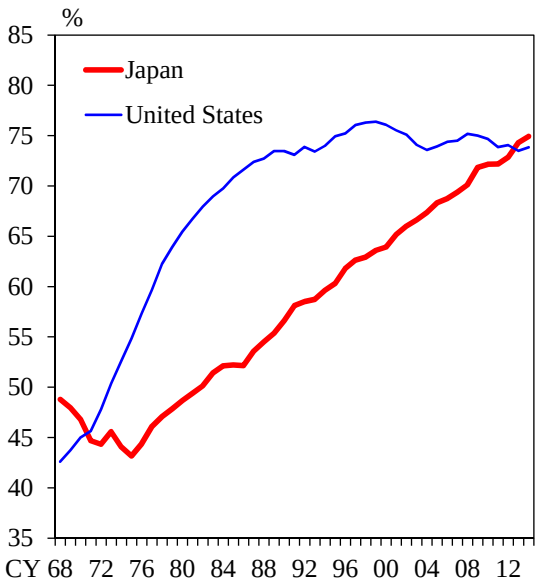
Natural Rate of Interest and Potential Growth Rate



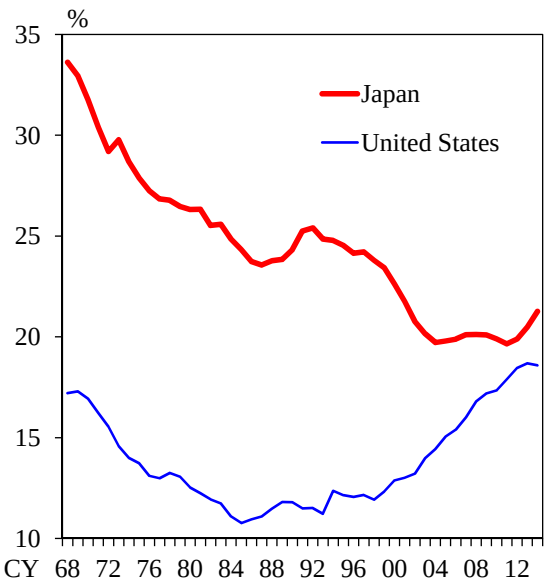
Notes: 1. The natural and real rates of interest are calculated based on 10-year government bond yields.
2. The shaded area indicates the 95 percent confidence interval for the natural rate of interest.
3. For details of the estimation procedures, see Imakubo *et al.* (2015), "The Natural Yield Curve: Its Concept and Measurement," Bank of Japan Working Paper Series, 15-E-5. For the estimation procedures of the potential growth rate, see Note 1 in Slide 4.

Labor Force Participation Rate

Women (aged 25-34)



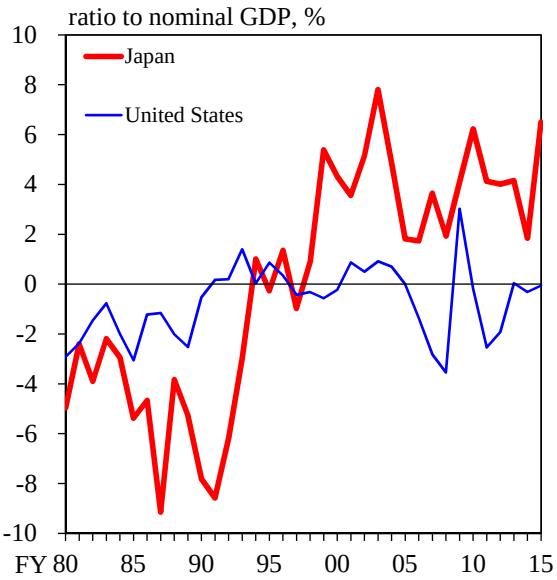
Elderly (aged 65 and above)



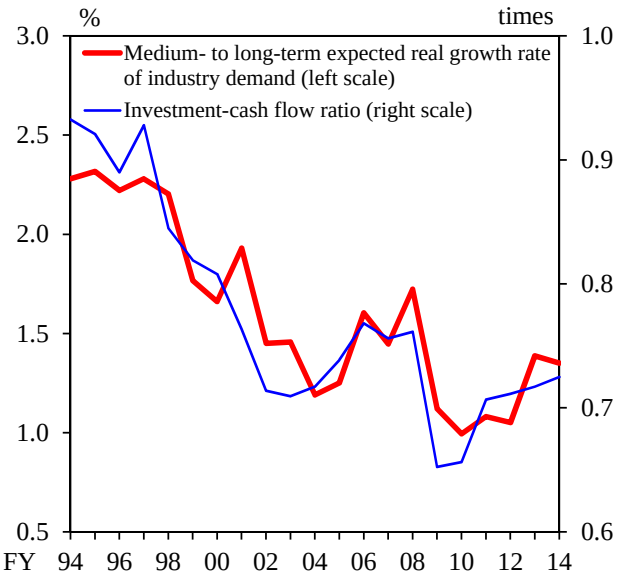
Source: OECD.

Corporate Sector

Financial Surplus and Deficit of Private Nonfinancial Corporations



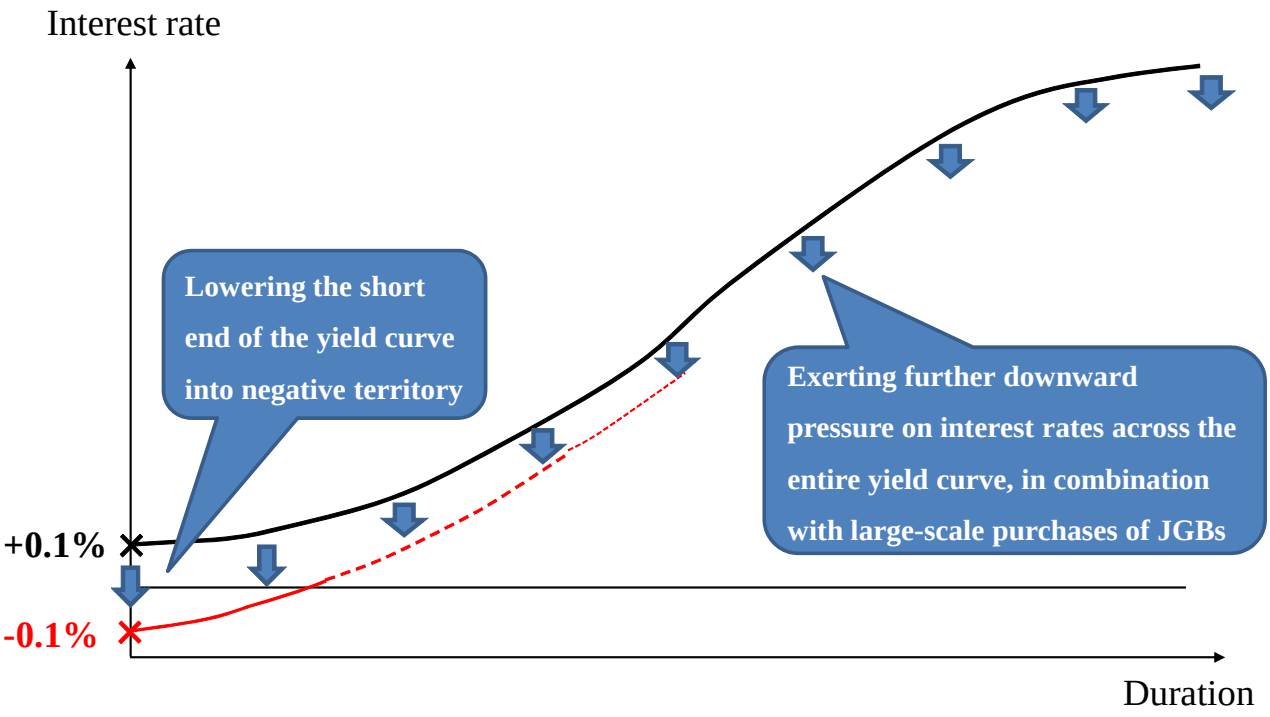
Expected Growth Rate and Investment-Cash Flow Ratio



Notes: 1. Figures for 2015 are the sum of the 2nd and 3rd quarter of 2015.
2. The medium- to long-term expected real growth rate is the expected real growth rate for the five years ahead, calculated using the forecasts of real growth rates of industry demand from the "Annual Survey of Corporate Behavior."
3. Cash flow = consumption of fixed capital + (operating surplus + net property income) / 2.

Sources: Bank of Japan; Cabinet Office; Research Institute of Economy, Trade and Industry; Bureau of Economic Analysis; FRB.

Quantitative and Qualitative Monetary Easing with a Negative Interest Rate



Three-Tier System