January 14, 2025

Bank of Japan

Japan's Economy and Monetary Policy

Speech at a Meeting with Local Leaders in Kanagawa

HIMINO Ryozo

Deputy Governor of the Bank of Japan

(English translation based on the Japanese original)

Introduction

Thank you for joining us today. Thank you also for your support for the Bank of Japan and its Yokohama Branch.

Kanagawa and the Modernization of Japan

In 1853, awakened by the blasts of cannons which Commodore Perry's fleet fired near Uraga, Japan started the process of modernization, opening the port of Yokohama and its window to the world. Yokohama was at the forefront of Japan's drive for "civilization and enlightenment," building steel mills, laying down railroads, and installing gas lamps. Since then, the Japanese economy has surprised the world with two miracles and has retreated from these miracles as a result of two major setbacks (Chart 1).

The first miracle was the modernization achieved for the first time in the non-Western world. Within only half a century, a small agricultural nation on the eastern edge of Asia became one of the world's five major powers. However, this achievement was reduced to ashes by World War II. The central area of Yokohama city, for example, was razed to the ground in a major air raid on May 29, 1945.

The second miracle was Japan's subsequent post-war reconstruction and rapid economic growth, and the industrial zone between Tokyo and Yokohama played a central role in this. Japan came to dominate world markets, one after another, starting with textiles and spreading to steel, electrical equipment, automobiles, machinery, and semiconductors. The Japanese economy survived the two oil shocks, and in the latter half of the 1980s, Japan was the world's largest creditor, the world's eight largest banks were Japanese, and the world's largest and third largest stock exchanges were those in Tokyo and Osaka.

In 1988, I accompanied Toyoo Gyohten, vice-minister of finance for international affairs at the time, who is from Yokohama, to the annual meetings of the IMF-World Bank in Berlin. It is said that Japan played a leading role in these meetings. Gyohten-san said at the press conference after the meetings, "I have never seen Japan attracting so much attention as this time." To resolve the debt problems of developing countries, Japan put forward the Miyazawa

Plan, which aimed to substitute the Baker Plan initiated by the United States, signaling that it was prepared to contribute to the governance of the global economy.

I was fortunate enough at the beginning of my career to have the opportunity to get a glimpse of the pinnacle of Japan's economic and financial influence and its leadership in the global economy. However, after that, most of my professional life overlapped with the second setback to the Japanese economy.

Some argue that the performance of the Japanese economy during this period was not too bad, given the declining population and other headwinds. Since the rapid progress made up to that point had been remarkable, however, the setback made many people in other countries wonder why it had occurred.

The Japanese economy was 73% of the size of the United States economy in 1995, but today it is 14%. In terms of per capita GDP, Japan was overtaken by Singapore in 2007, Hong Kong in 2014, South Korea in 2022, and is expected to be overtaken by Taiwan in 2024 (Chart 2). When we visit these countries and regions, we often get the sense that the people living there are wealthier than those living in Japan. Having been involved in economic policy formulation during this period, when Japan lagged behind its peers, I feel that I should share some of the blame.

I. Economic Activity and Prices

Review of Monetary Policy from a Broad Perspective

In April 2023, the Bank of Japan launched a review of monetary policy from a broad perspective. The summary of the outcome of the exercise was published in December last year. In addition, the Bank has posted on its website 46 staff papers and the reports of six conferences attended by experts from Japan and abroad.

The review covers the quarter century since the late 1990s, when Japan's period of deflation started. The review was designed to be from a broad perspective and analyzes a wide range of topics from multiple perspectives. I would argue that the rich contents of the review help us explore why the Japanese economy failed to revive even after the bursting of the bubble and subsequent banking crisis had passed.

From a monetary policy perspective, the history of the quarter century could be summarized as follows: In the 1990s, the economy fell into stagnation and moderate deflation due to various factors, on both the supply and the demand sides, and monetary policy was faced with the zero lower bound of nominal interest rates. In the 2010s, the quantitative and qualitative monetary easing (QQE) was initiated, and the economy recovered and ceased to be deflationary, but the 2 percent price stability target was not achieved, and the behavior based on the belief that wages and prices do not change persisted. However, since the COVID-19 pandemic, the rapid rise in import prices, the economic recovery, and the tightening of the labor market have triggered a virtuous cycle between wages and prices. It has now become possible to envision achieving the price stability target in a sustainable and stable manner.

The review cites various factors on both the supply and the demand sides as reasons for the moderate but prolonged deflation. Looking ahead, it is important to identify which of these factors have been resolved and which remain (Chart 3).

First, the burst of the bubble in the early 1990s forced firms to adjust their excess debt, capacity and employment. Banking crises, a credit crunch, and credit withdrawal ensued. These issues, however, were largely resolved in the 2000s.

In addition, the Japanese economy suffered from various exogenous shocks, such as the global financial crisis, the Great East Japan Earthquake and the COVID-19 pandemic, but the direct effects of these shocks to the Japanese economy have largely dissipated, though the impact of the Noto earthquake and flood last year continues to be felt. In the wake of the global financial crisis, the Japanese economy suffered from an extreme appreciation of the yen, caused by monetary easing in the United States and Europe among other factors, but from 2022 onward, the yen saw a rapid depreciation as these countries tightened their monetary policy.

The review also points out that the conventional monetary policy tool, i.e., the adjustment of short-term rates, ceased to stimulate the economy adequately. There were three reasons: First, the short-term interest rate reached its zero lower bound. Second, real interest rates, or the nominal rates minus the expected inflation rates, rose as the inflation rate turned negative. Third, as a result of the decline in the potential growth rate and other factors, lower real rates than before were needed to stimulate the economy. A combination of the three made the conventional monetary policy tool ineffective.

The first of the above three reasons still applies: The level of the short-term rate is still at 0.25 percent and without much room for reduction. However, the second reason no longer applies: with positive inflation rates, it has become possible to keep real interest rates at a reasonably low level. In fact, real interest rates are currently the lowest they have been for 25 years. I would like to discuss the third reason later.

The review also cites the behavior based on the belief that wages and prices do not move, as background to the persistence of deflation. Firms prioritized cost cutting in their business strategies and kept prices unchanged even when costs rose. Society prioritized employment stability over wage increases. The public sector provided subsidies to prevent rises in administered prices.

I believe, however, that behavior and mindset will change in line with changes in the economic structure. If behavior and mindset that are inconsistent with the new structure persist, reforms will be attempted. Indeed, firms' wage- and price-setting behavior has been changing since the beginning of the 2020s, with the import price shock working as a catalyst and thanks to the efforts of the government, businesses and unions.

I would argue that the deflationary factors I have mentioned so far have been largely resolved or are in the process of being resolved. On the other hand, there are some other factors which still linger on. Firstly, the declining birthrate and aging and shrinking population, and secondly, economic globalization.

The first factor is becoming more acute. 25 years ago, around 1.2 million babies were born every year, but the number is now 0.7 million, and the decline is accelerating. The baby boomer generation has entered the "late elderly stage," becoming over 75 years old, and the second generation baby boomers are now in their 50s.

On the other hand, there are divergent views about the future of globalization. Some argue that globalization in economic activity, which had accelerated since the 1990s, began to slow down after the global financial crisis in 2008, and might have started to unwind in the wake of the COVID-19 pandemic and the escalation of geopolitical tensions. Whatever the pace of change may be, however, the level of economic globalization will remain elevated. Moreover, cyberspace is breaking down national borders and language barriers, and digital globalization may have a bigger impact than the globalization in trade and finance. Japan, however, does not seem to be in the vanguard of the IT revolution. In short, globalization, or the increasing degree of exposure to the relative gap in competitiveness at home and abroad, continues to be a major challenge for the Japanese economy.

In sum, many factors have been resolved or are being resolved, but some remain. The question is whether the remaining ones will prevent us from realizing a brighter future.

In the following, I would like to briefly review the impact the shrinking population and economic globalization have had on the corporate and household sectors. My conclusion is that the two sectors have addressed these factors by transforming themselves over the years, and excessive pessimism is not warranted.

Corporate Sector under Population Decline and Globalization

The investment behavior of the Japanese corporate sector is often explained as follows: Investment in Japan, where the population continues to decline, is not profitable, whereas investment in overseas markets can be profitable. Firms' investment in Japan is therefore limited to the renewal of existing plant and equipment and confined to the amount of depreciation expense. They instead focus on expanding their overseas operations. If this narrative reflects the reality, the stagnation of the domestic economy will not cease as long as the combination of population decline and globalization continues.

It is true that Japanese companies have actively expanded their overseas operations (Chart 4). The number of overseas subsidiaries has been growing consistently. Companies that have established overseas subsidiaries have half of their employees and sales proceeds outside Japan. While other jurisdictions have slowed the pace of globalization in the wake of the global financial crisis, Japanese companies have continued to expand abroad. (Chart 5)[1].

However, this does not necessarily mean that companies were less profitable in the domestic market than in the overseas market (Chart 6). The profit margins of large domestic companies have been higher than those of their overseas subsidiaries most of the time. Since the global financial crisis, while the profit margins of overseas subsidiaries have remained flat, the profit margins of large domestic companies have continued to improve, and the gap between the two has been widening.

In addition, if the main motivation during this period was to invest overseas because of the low profitability of the domestic market, the movements of domestic and overseas capital investment should have been inversely correlated. But if we compare the movement of net domestic investment, or domestic capital expenditure less depreciation, and the movement of outbound direct investment, they seem to have moved rather in tandem. Of course, individual companies must have decided their investment destinations based on various motives, but broadly speaking, when Japanese companies were suffering from excess capacity after the bubble burst, there was weaker activity in both domestic and overseas investment, but as companies overcame this and regained their vigor, both domestic and overseas investment became active.

These developments suggest that the pessimism based on the combination of the shrinking population and globalization might not well reflect reality. The past 25 years can be divided into two periods: in the first half, Japanese firms struggled to overcome the aftereffects of the burst of the bubble, while in the second half they have, on the whole, become more and more active, both at home and abroad.

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1 Chart 1 of Hogen,Y., Ito, Y., Kanai, K., Kishi, N., "Changes in the Global Economic Landscape and Issues for Japan's Economy, " *Bank of Japan Working Paper Series, 24–E–3*, 2024.

Household Sector under Population Decline and Globalization

Now let's turn to the household sector. It is a common perception that the key issues for the household sector are the declining number of workers and sluggish real wage growth.

However, the shape of the population pyramid, the way we work, and the pattern of labor force participation are all changing, and the average value statistics might not tell the whole story.

For example, suppose that Worker A, who used to work 8 hours a day, retired from her full-time job and started a part-time work, and that Worker B, who had been on leave of absence, returned to the workplace and resumed a part-time work. A and B work together and complete the job A did before by working 5 hours a day each and 10 hours in total, to cover the time needed for coordination between the two. Finally, suppose the sum of the wages A and B receive is the same as the wages A received before.

In this case, wages and labor productivity per worker are halved, and hourly wages and labor productivity are reduced by 20%. Though this change in the average values gives us a negative impression, GDP and total real wages are maintained, and the total amount of wages after tax probably increases. Perhaps this case could be seen as a successful reversal of the effects of a decline in the working-age population.

To assess the changes, particularly from a longer perspective, we therefore need to look at households as a whole, not just the average values per person or per hour.

After the burst of the bubble, especially after the banking crisis in 1998, firms' efforts to slash excessive debt, capacity, and employment had significant impact on households. However, since 2004, when the firms' adjustment process has largely been completed (Chart 7), although the working-age population has recorded a steep decline, the decline in total working hours has been moderate.

Furthermore, real GDP, which is the total amount of added value created through work, and total real wages, which is the portion of GDP distributed to employees, have been growing steadily, except for the temporary declines due to the global financial crisis and the COVID-19 pandemic.

It is true that total real wages declined, causing hardship on households, in 2022 and 2023, while real GDP recovered. According to the analysis by the Bank's staff[2], this gap was mainly due to the deterioration in the terms of trade caused by the rise in energy and other commodity prices. The decline in the labor share contributed to the gap as well. Subsequently, the terms of trade has improved, and the total amount of real wages earned by all employees has picked up in 2024.

In sum, contrary to the conventional image that the corporate and household sectors have faced an inescapable impasse arising from the shrinking population and globalization, it may be argued that, after resolving the issues of excess debt, capacity and employment, they have so far succeeded in overcoming the structural challenges reasonably well.

II. Monetary Policy

Developments in Prices and Monetary Policy Outlook

I mentioned earlier that real interest rates rose after deflation began in the late 1990s. Then QQE was introduced in 2013, and since then Japan has no longer been in deflation in the sense of prices continuing to fall. Real interest rates turned negative (Chart 8).

The era of the negative nominal interest rate, when you were worse off depositing your money with the Bank of Japan than by keeping it under your mattress, ended in March last year. Real interest rates, however, remain negative. The real value of money lent or deposited continues to decrease as the interest cannot keep up with inflation.

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[2] Chart 17 of Fukunaga, I., Hogen, Y., Ito, Y., Kanai, K., Tsuchida, S., " Potential Growth in Japan: Issues on Its Relationship with Prices and Wages, " *Bank of Japan Working Paper Series, 24–E–16*, 2024.

A negative real interest rate means that it pays to borrow and invest in a project whose real economic value gradually erodes.

There is no consensus among economists on whether real interest rates could remain negative indefinitely. Ben Bernanke, former chairman of the Fed and Nobel laureate, argues that they could not.[3] On the other hand, Lawrence Summers, who served as secretary of the Treasury and president of Harvard University, points out that negative real interest rates are not so uncommon.[4]

I have no intention to try present a solution to the dispute, but I would say that in a situation where the economy is being affected by negative shocks or when deflationary factors remain strong, it is necessary and would not be abnormal for real interest rates to be negative. However, I do not think it normal for negative real interest rates to persist once the shocks and deflationary factors are resolved.

With regard to Japan, I have argued today that many of the shocks and deflationary factors have been resolved, and that, although the two major structural factors, shrinking population and globalization, persist, they may not be unsurmountable.

They may not be unsurmountable, but can we actually surmount them? The road will surely be bumpy. However, more workers today are switching to companies that enhance productivity and raise wages. Both firms and the government are pursuing strategies to adapt to the emerging structure of the international economy. If we continue to overcome the various challenges associated with a declining population and globalization in a creative manner, a future can be envisioned in which real interest rates will no longer be deeply negative.

In conducting monetary policy, it is also necessary to pay close attention to short-term developments in economic activity, prices, and financial conditions. Let us look at the recent

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[3] Ben Bernanke, "Why are interest rates so low, part 2: Secular stagnation" *Brookings commentary,* March 2015.

[4] Lawrence Summers, "On secular stagnation: Larry Summers responds to Ben Bernanke" *Brookings commentary,* April 2015.

developments in prices. The change in the consumer price index (less fresh foods) reached 4 percent in December 2022 and January 2023, due to the sharp rise in import prices and other factors, but has gradually decelerated since then. The main scenario the Bank of Japan envisages is that the inflation rate for the next two fiscal years (April to March) will be around 2 percent (Chart 9).

On the other hand, inflation expectation has risen from below one percent to around one and half. The Bank of Japan aims to achieve the price stability target of 2 percent in a sustainable and stable manner. This target cannot be achieved unless the actual inflation rate declines as envisioned. At the same time, if inflation expectation does not rise toward 2 percent, the actual inflation rate will eventually fall below 2 percent, and it thus would not be possible to achieve the target in a sustainable and stable manner.

The path we have drawn is a difficult one, in which the actual inflation rate will decline and inflation expectations will rise, and both will land at around 2 percent. So far, however, the developments in prices and inflation expectation, including the economic mechanisms behind them, seem to have been largely on the path.

If this outlook will continue to be realized, the Bank will raise the policy interest rate accordingly and adjust the degree of monetary easing, as it did in March and July last year. What I have described so far are the central scenario for the prices and the broad outlook for the monetary policy. But there are various risk factors at home and abroad, both upside and downside, and the policy should be conducted with due attention to them.

On the domestic front, one of the issues we should pay close attention to is the outlook for wage increases in fiscal 2025. Each firm faces unique challenges, and raising wages would by no means be a simple matter. But I hope to see strong wage hikes in fiscal 2025 as we did in fiscal 2024, given the high ratio of firms reporting favorable business conditions, strong corporate profits, low labor share ratio, accelerating labor shortages, employees searching and changing jobs increasingly actively, and the minimum wage raised last October.

On the occasions of New Year ceremonies, leaders of various sectors gave encouraging messages on wage increases in fiscal 2025. At our branch managers' meeting held last week, we heard many positive reports, and multiple branch managers talked about companies which incorporated plans on continued wage increases in their medium-term business plans. The ratio of companies which respond that they will raise wages in fiscal 2025 and the rate of planned wage increases are broadly at or above the levels seen one year ago, according to many of the relevant surveys.

Regarding the overseas economy, one of the issues to look at is the policies of the new U.S. administration and their impact on the U.S., global and Japanese economy. Continuous monitoring will be warranted, but the inaugural address next week will give us an idea on the broad direction of policies the new administration will pursue. Experts will continue their debates on medium- to long-term effects of new policies, but, based on what has been known by today, many expect the U.S. economy to continue performing strong over the coming period, which seems to be in contrast with the outlook entertained around August last year when downside risks were the focus.

In any case, including these issues, the Bank is currently updating the outlook for Japan's economic activity and prices for this year onward by scrutinizing the latest data available and other information. The outlook will be presented in the Bank’s report, Outlook for Economic Activity and Prices, to be released next week.

In conducting monetary policy, it is difficult but essential to judge the right timing. At the monetary policy meeting to be held next week, the board will have discussion to decide whether to raise the policy rate or not, based on the outlook to be compiled in the Report.

Communication on Monetary Policy

We often hear requests that the Bank of Japan should strive for more effective communication on the conduct of monetary policy. Let me make three points on this matter.

First, in February 1999, facing the zero lower bound on the interest rate, and aiming for additional monetary easing, the Bank of Japan began to provide guidance on the future path of monetary policy, adopting the proposal by Kazuo Ueda, the current governor, who then was a member of the policy board. This strategy, initially dubbed the "policy duration effect", came to be known as forward guidance. As other advanced economies also faced the zero lower bound, this strategy was adopted by central banks around the world, and it became commonplace for central banks to provide certain guidance in advance on the outcome of future monetary policy meetings.

However, while forward guidance has been effective, there has been a growing awareness that it may become a constraint when a policy change is necessary, and that in some cases, it may even have the adverse effect of delaying a necessary policy change. For this reason, many central banks withdrew forward guidance in 2022, when they were freed from the zero lower bound.

At present, the base line of many central banks' communication is to say that they look carefully at the totality of the data available up to the time of each policy meeting and make decisions on a meeting-by-meeting basis. In Japan, the period with forward guidance lasted much longer than in other jurisdictions, and post-forward guidance communication is newer than in other jurisdictions, as the Bank of Japan dropped language binding the future course of policy from its publications only in March last year. It has therefore not been well acknowledged, and is worth emphasizing, that the transition did happen in Japan as well.

Second, it is not desirable for the conduct of monetary policy to intentionally cause surprises, except in times of crisis where perceptions need to be drastically changed. In addition, if market participants' expectations diverge from the central bank's thinking, a market tantrum can occur in the process of resolving the expectation gap. It is therefore desirable to communicate in a way that prevents the excess growth of expectation gaps. Furthermore, the effectiveness of monetary policy depends significantly on how widely and accurately the central bank's intentions are understood. Therefore, it is essential to communicate the policy reaction function and views on the current economic condition so as to help people understand and form expectations about the future conduct of monetary policy.

However, this does not mean that the outcome of each monetary policy meeting should be telegraphed in advance so that it can be fully priced in by the market. It is not possible to do so, as the outcome of a policy meeting fully depends on the discussion at the meeting. In addition, if market participants start to assume that each policy meeting will be preceded by communication intended to let them price in the decision in advance, then they will focus more on the language the Bank uses than on the economic developments and outlook. Such would not be desirable.

Thirdly, we would like to learn from our experience and improve our communication. The content is of course important, but there can be improvements in the manner of communication as well. For example, there were cases in the past where there were four speeches by board members in two weeks, and then none for a whole month. We would like to even out the timing of the speeches. Also, if the Bank announces the schedule of a speech at the last minute, it may be misunderstood as though the Bank was about to give some urgent message. We intend to announce the schedule of speeches as soon as practicable. We will continue to explore better approaches, benefitting from suggestions from stakeholders and perhaps learning by trial and error.

Conclusion

Hokusai's Great Wave

In July last year, the Bank of Japan issued a series of new banknotes. Your cooperation has made it possible to achieve smooth distribution. I would like to express the Bank's gratitude.

The new 1,000-yen bill features Katsushika Hokusai's masterpiece *Kanagawa Oki Namiura* (Chart 10). There is no consensus yet, but many argue that it depicts the scenery seen somewhere off Yokohama Port. This means that, if we transpose the scenery to a contemporary setting, we may be able to see this meeting venue beyond the waves. This woodprint work, which is said to have been an inspiration to Van Gogh and to Debussy, is known overseas as *The Great Wave*.

Central bankers often call the period since the mid-1980s the Great Moderation. They argue that business cycle fluctuations have become much milder during this period and that – though it may somewhat sound like a self-praise -- the rise of independent central banks and their proper conduct of monetary policy have been the key factors contributing to the moderation.

Recently, however, external shocks have struck one after another, and the governor of Banque de France, François Villeroy de Galhau, commented that we may have entered an era of Great Volatility.[5] It might also be named the era of the Great Wave.

Hokusai's work depicts small human beings facing the great force of nature, our ancestors enduring rough seas together on a small boat being toyed with by the waves. Far beyond the waves, we also see the immovable figure of Mt. Fuji, which symbolizes a constant, stable, balanced and awakened self to be found amid life's impermanence and chaos. I do not know what kind of era awaits us, but even if it is the era of the Great Wave, I hope we can stand firm together, with the figure of Mt. Fuji in our mind, as depicted in this picture.

Thank you for your kind attention. Now I would like to open the floor. I look forward to hearing your comments and opinions.

[5] François Villeroy de Galhau, "Monetary policy in perspective (II): Three landmarks for a future of "Great Volatility"" *Speech at the London School of Economics,* October 2024.

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Kanagawa and the Modernization of Japan

Commodore Perry's Fleet

Source: Edo-Tokyo Museum, "Samurais Getting Ready to Fight on the Arrival of American Ships."

Air Raid on Yokohama

Source: U.S. National Archives and Records Administration.

"Civilization and Enlightenment"

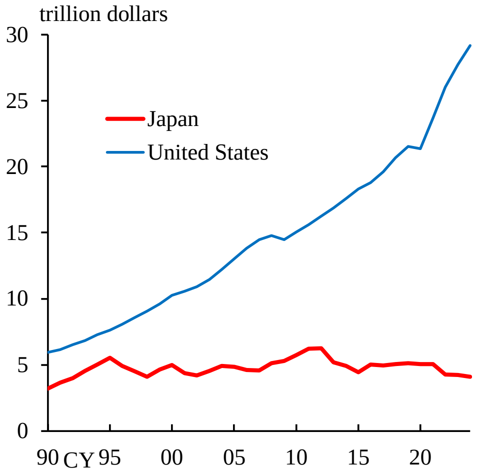
Source: Yokohama Museum of Art, "Steam Train on the Yokohama Coastal Railway" (painted by Utagawa Hiroshige III, and donated by Ms. Saito Ryu).

Industrial Zone in Kanagawa

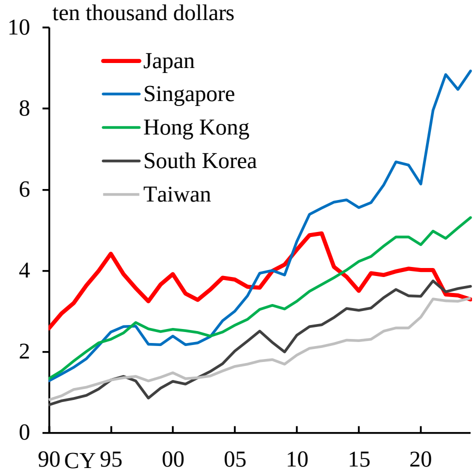
Source: Kawasaki City.

Economic Growth of Japan and Peers

GDP of Japan and the U.S.



GDP per capita in Asia



Note: Figures are for nominal GDP in U.S. dollar terms.
Figures for 2024 are IMF projections in the October 2024 *World Economic Outlook*.
Source: IMF.

Factors behind Prolonged Deflation

- Burst of the bubble economy
- Excessive debt, capacity, and employment
- Banking crises
- Credit crunch and credit withdrawal

- Global Financial Crisis
- The Great East Japan Earthquake
- COVID-19 pandemic

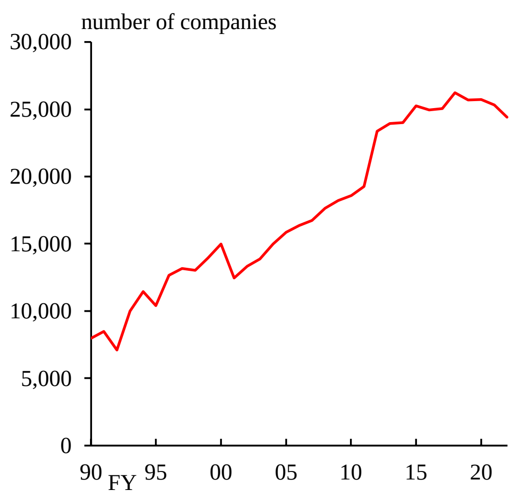
- Yen appreciation resulting from monetary easing in Europe and the United States

- Zero lower bound, rise in real interest rates, and decline in the natural rate of interest
- Behavior based on the belief that wages and prices do not move

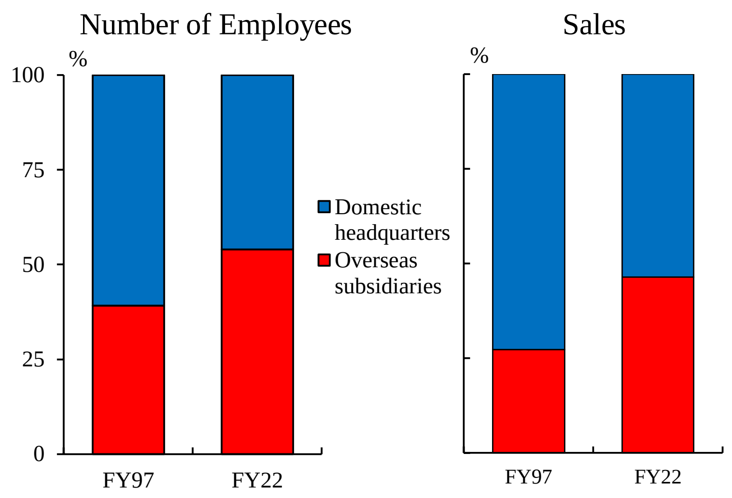
- Declining birthrate, and aging and shrinking population
- Globalization of economic activities

Overseas Expansion of Japanese Firms

Number of Overseas Subsidiaries



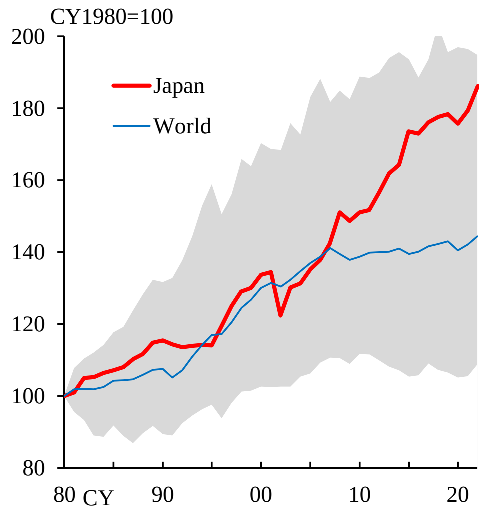
Size of Overseas Subsidiaries Relative to Domestic Headquarters



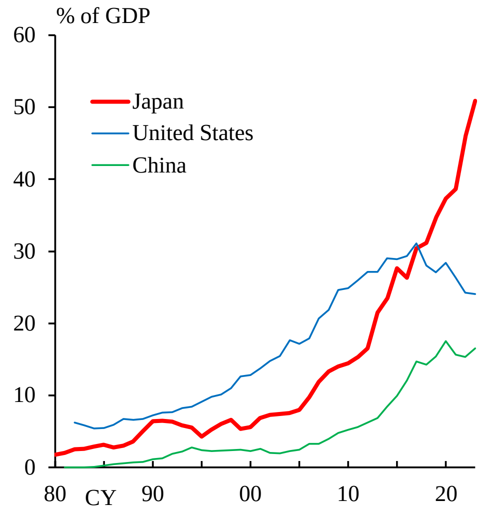
Note: The right-hand chart shows the ratio of domestic headquarters and overseas subsidiaries for firms that have overseas subsidiaries.
Source: Ministry of Economy, Trade and Industry.

Japan's Pace of Globalization Compared to Peers

KOF Globalization Index



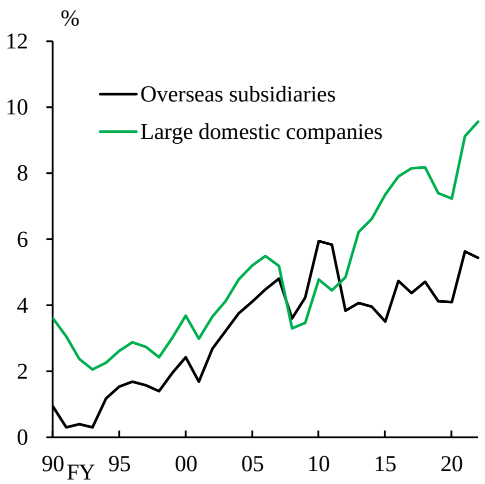
Stock of Outbound Direct Investment



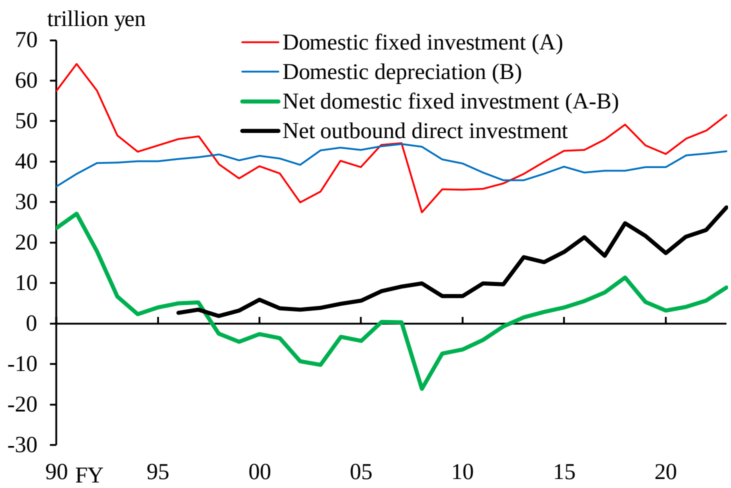
Note: In the left-hand chart, the index is calculated based on several statistical indices, such as trade volume. The shaded area indicates the 10th-90th percentile range of 158 countries.
The right-hand chart shows the stock of outbound direct investments from Japan, the United States, and China.
Figures are calculated based on Hogen et al. (2024) using the latest data.
Sources: UNCTAD; KOF Swiss Economic Institute; BEA.

Profits and Investment at Home and Abroad

Profit Margin Ratio

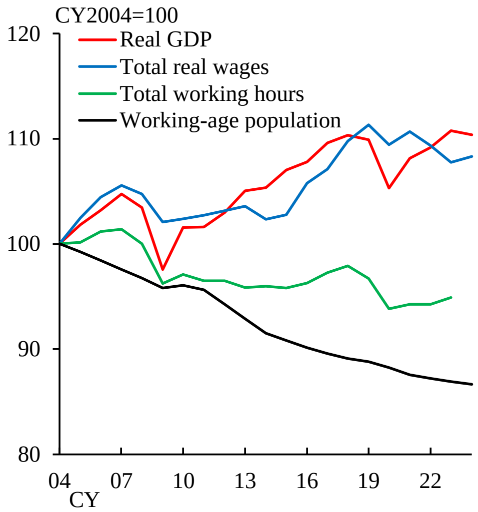


Domestic Fixed Investment and Outbound Direct Investment



Note: In the left-hand chart, large domestic companies are non-financial firms with a capitalization of 1 billion yen or more, including those that do not have foreign subsidiaries.
In the right-hand chart, domestic fixed investment and domestic depreciation show the aggregate figures for domestic non-financial firms.
Sources: Ministry of Economy, Trade and Industry; Ministry of Finance.

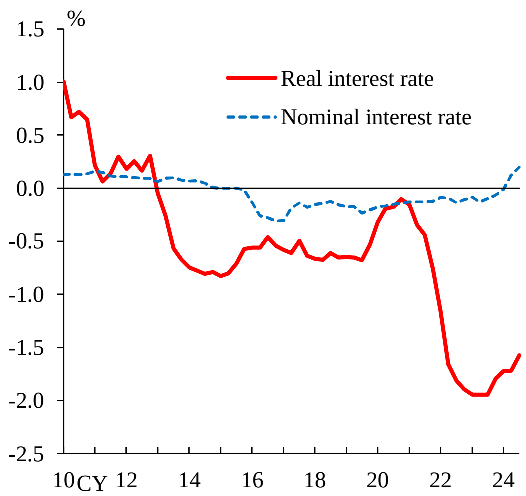
Shrinking Population, Work Hours, GDP, and Wages



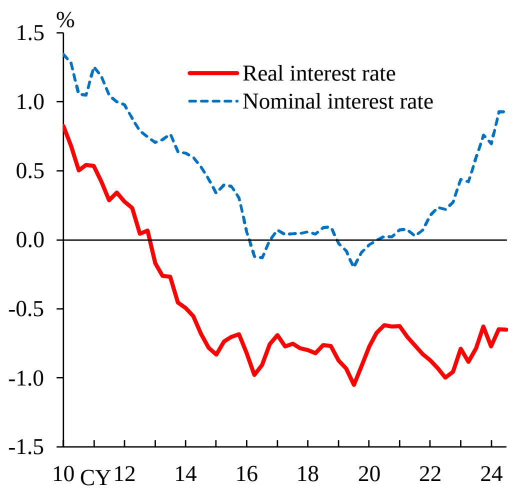
Note: Total real wages are real compensation of employees in SNA. Figures for real GDP and total real wages for 2024 are up to Q3. Total working hours is the working hours of the total workforce.
Sources: Ministry of Internal Affairs and Communications; Cabinet Office.

Developments in Real Interest Rate

Real Interest Rate (1-Year)

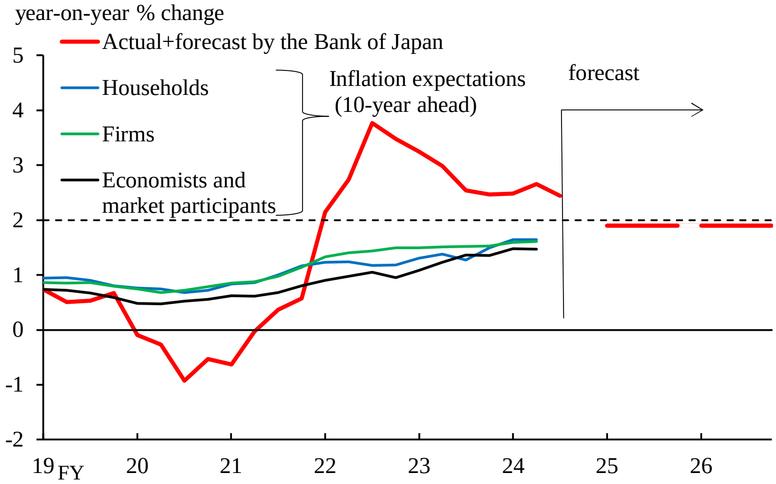


Real Interest Rate (10-Year)



Note: Figures for real interest rates are calculated as government bond yields minus the composite index of inflation expectations (Bank of Japan staff estimates).
Sources: Bank of Japan; QUICK, "QUICK Monthly Market Survey <Bonds>"; Consensus Economics Inc., "Consensus Forecasts"; Bloomberg.

Developments in Consumer Prices and Inflation Expectations



Note: The figure for actual for 2024/Q4 is the October-November average.
Sources: Ministry of Internal Affairs and Communications; Bank of Japan; QUICK, "QUICK Monthly Market Survey <Bonds>"; Consensus Economics Inc., "Consensus Forecasts"; Bloomberg.

Hokusai's Great Wave Depicted on New 1,000 Yen Note

Source: National Printing Bureau.