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Historical Evolution of Monetary Policy (Goals and Instruments) in Japan: From the Central Bank of an Emerging Economy to the Central Bank of a Mature Economy

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Abstract:
In this paper, we review monetary policy developments in Japan from the late 19th century to the early 21st century, focusing on its goals and instruments. The goals of monetary policy have been defined based on the goals of the nation as a whole. They have changed over time in accordance with changes in the goals of the nation. On the long road to an industrialized, developed country from the late 19th century through the 1970s, the ultimate goal of monetary policy was to provide money for development while maintaining financial and price stability. Once Japan had achieved industrialization and become a leading economic power, the primary goal shifted from development to stability. Instruments of monetary policy have also changed over time while being constrained by the availability of such instruments in the financial markets, even though the central bank kept pursuing policy innovations.

* The author thanks to Shigenori Shiratsuka for insightful comments and suggestions.

1. Introduction

In this paper, we review developments in the monetary policy of the Bank of Japan (BOJ) from the late 19th century to the early 21st century, focusing on its goals and instruments. For further reference, the Bank of Japan (1982, 1983a, 1983b, 1984, 1985, 1986a) is available as the official history of the BOJ. Also, Ishii (2001) reviews the BOJ's monetary policy from a historical perspective. Shizume (2018) reviews history of the BOJ focusing on its institutional and legal framework and its role in the national economy, complementary to this paper.

Historically, the goals of monetary policy in Japan have been defined based on the goals of the nation as a whole. They have changed over time in accordance with changes in goals of the nation. On the long road to an industrialized, developed country from the late 19th century through the 1970s, the ultimate goal of monetary policy was to provide money for development while maintaining financial and price stability. Once Japan had achieved industrialization and become a leading economic power, the primary goal shifted from development to stability. Meanwhile, instruments of monetary policy have also changed over time while being constrained by the availability of such instruments in the financial markets, even though the central bank kept pursuing innovation in policy tools (Table 16.1).

Table 1 Chronology of developments in relation to the BOJ and the Japanese economy

Year	BOJ	Year	Japanese economy/politics
		1859	Opening of the treaty ports
		1868	Meiji Restoration
1882	BOJ established		
1885	First BOJ notes (silver standard)		
1897	Adoption of the gold standard	1894-1895	Sino-Japanese War
		1904-1905	Russo-Japanese War
1917	Suspension of the gold standard	1914-1918	WWI
		1927	Showa Financial Crisis
		1929	Crash of NY stock exchange (the Great Depression began)
1930	Return to the gold standard		
1931	Departure from the gold standard	1931	Mukden Incident
			Takahashi Economic Policy began
		1937	Full-scale war with China began
1942	BOJ Act of 1942	1941	War with US began
1946	Emergency Financial Measures	1945	Japan surrendered
1949	Amendment of the BOJ Act	1951	San Francisco Peace Treaty
		1960	National Income-Doubling Plan
1973	Move to flexible exchange rates	1973	First oil crisis
		1985	Plaza Accord
		1987	Louvre Accord
1998	BOJ Act of 1998	1997-1998	Heisei Financial Crisis
1999	Unconventional monetary policy began		

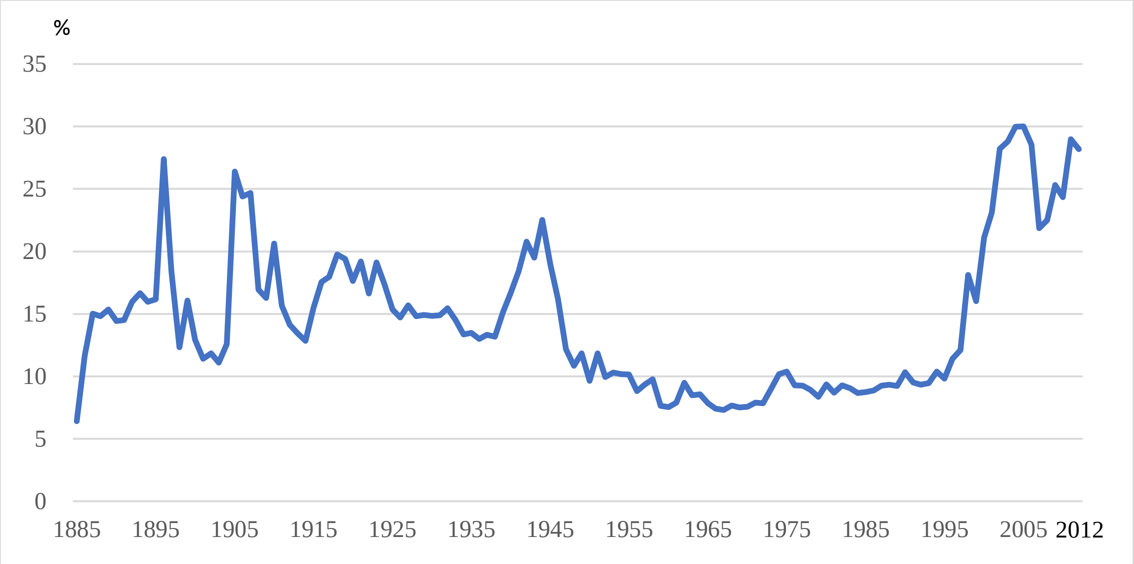
Source: Shizume (2018), 329; text.

When the BOJ was established as the country’s central bank in 1882, Japan was under the process of dynamic transformation from a feudal society to a modern one. The founders of the BOJ expected it to mobilize financial resources toward the dual national goal of “wealthy nation, strong military.”

In peacetime, the BOJ's balance sheet was around 15 percent of Japan's GDP before WWII and has been around 10 percent since. During and immediately after wars, it often exceeded 20 percent (Figure 2). Inflation accelerated when the expansion of the BOJ's balance sheet was prolonged and associated with a proportionate increase in banknote circulation on the liability side, as seen during the Asia-Pacific War. In contrast, during the Sino-Japanese and Russo-Japanese wars, balance sheet expansions were brief and associated with increases in the government deposit, not with banknote circulation. Also, since the late 1990s, the expansion of the balance sheet has been associated with an increase in private banks' deposits. In these cases, inflation subsided (Figure 2; Figure 3).

In this chapter, I use the word "the Asia-Pacific War" for the full-scale war between Japan and its main trading partners, China and the United States, between 1937 and 1945. Japan had been engaged in an undeclared war with China following the Mukden Incident in 1931, but this escalated to a full-scale war after the Marco Polo Bridge Incident in 1937. Subsequently, Japan entered war with the United States when its navy attacked Pearl Harbor in 1941.

Figure 1 BOJ balance sheet to GDP ratio



Source: The Bank of Japan (1986b), 272-304; the Bank of Japan

Figure 2 Shares of the components of the BOJ balance sheet

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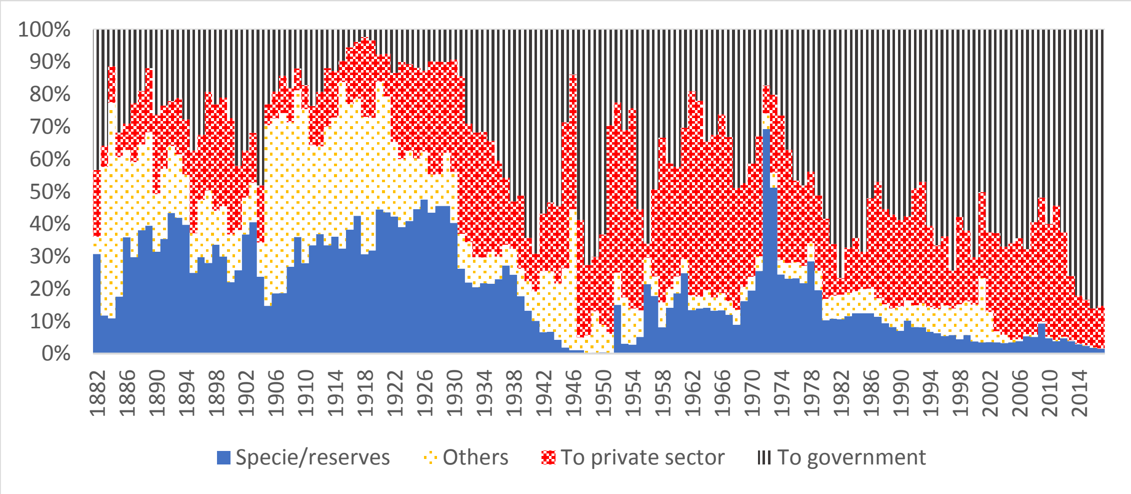

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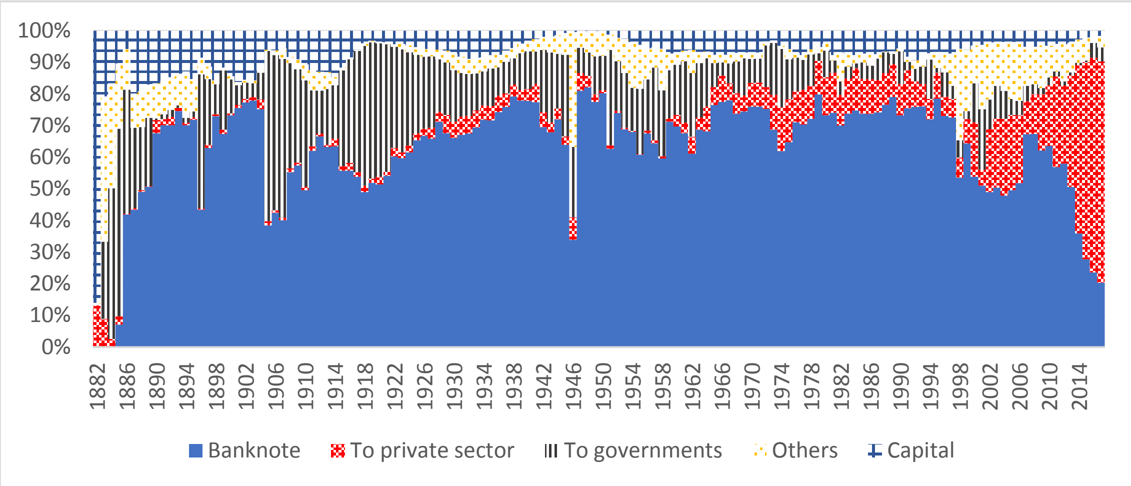
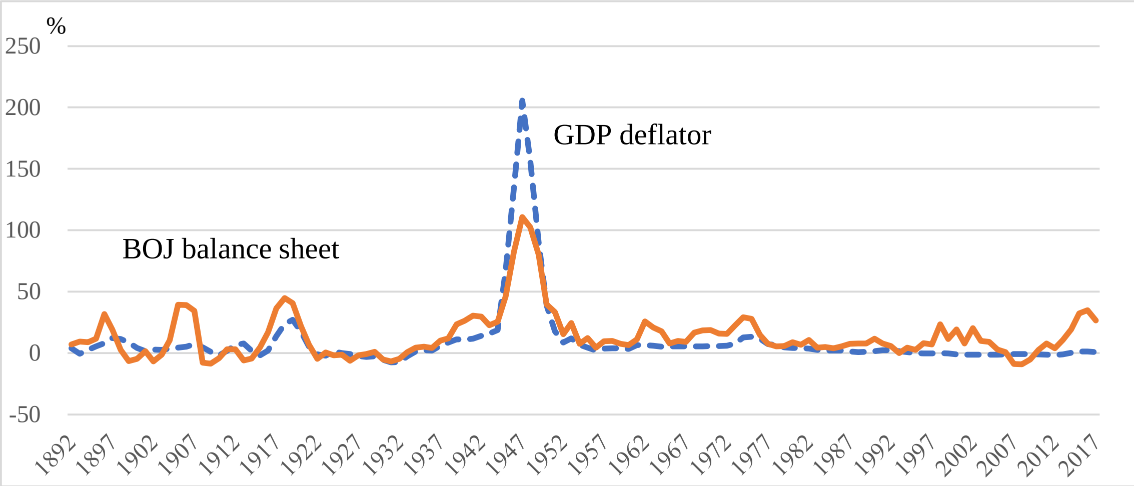


Source: The Bank of Japan (1986b), 272-304; the Bank of Japan

Figure 3 Annual change in BOJ balance sheet and GDP deflator (3-year averages)



Sources: The Bank of Japan (1986b), 272-304, long-term historical statistics, and the Cabinet Office

The BOJ used lending to private banks (discounting of bills and loans with collateral) as its main policy instrument, especially from the 1880s through the 1920s and from the 1950s through the 1960s. In addition, during its early days, it accepted private equities as well as commercial bills as collateral to fill the gap between its need to achieve policy objectives and the scarcity in existing financial instruments. It also extended credit to the government during wars including the Sino-Japanese War, the Russo-Japanese War, and the Asia-Pacific War.

During and after the major wars with Japan's main trading partners (China and the United States) in the 1930-1940s, monetary policy was overwhelmed by war finance. The BOJ underwrote government bonds and sold them to the private sector, calling these “open market operations.” During and after WWII, Japan experienced the worst inflation in its modern history (Figure 3).

During the high growth period from the late 1950s through the early 1970s, the BOJ conducted monetary policy to facilitate economic growth while ensuring the sustainability of balance of payments. The financial system was heavily regulated, and the BOJ used interest-rate regulations based on the official discount rate (ODR) level as its main policy instrument. It also used “the window guidance” (moral suasion of private banks) and the reserve/deposit ratio as complementary measures to the interest rate policy.

Once high growth was achieved, the primary goal of monetary policy shifted from promoting economic development to maintaining economic stability. At the same time, along with deregulation of the financial system, the BOJ transformed its policy instruments from regulation-based ones to market-based ones. Since the second half of the 1990s, the central bank has faced new challenges with economic stagnation and the zero lower bound (ZLB). In response, it has employed unconventional monetary policy measures, expanding its balance sheet to an unprecedented level.

In a nutshell, the relative size of the BOJ’s balance sheet compared with the size of the national economy had been stable during peacetime until the early 1990s. The stability largely reflected a stable demand for the central bank’s money and the accommodative nature of the BOJ's policy response to such demand. In most periods of the history of the BOJ, banknotes in circulation have accounted for around 60-80 percent of its liability with some exceptions in its early days and since the late 1990s as well as temporary drops during wars (Figure 3).

However, war finance during the Asia-Pacific War disrupted the stability of the central bank's policy stance and caused rampant inflation. As for the recent experience since the 1990s, the “unconventional monetary policy” with a massive expansion of the balance sheet in peacetime marks an exception in terms of the size of the central bank's balance sheet in peacetime and of the relationship between the size of the balance sheet and the stability of prices.

2. Building a Modern Monetary System (1882-1896)

When the Bank of Japan (BOJ) was established in 1882, Japan was in the process of transformation from a feudal to a modern society. The founders of the BOJ expected it to mobilize financial resources toward the dual national goal of “wealthy nation, strong military.” To this end, they first needed to establish a credible institution that could ensure stability of the value of the national currency. In terms of policy instruments, the BOJ used lending to private banks (discounting of bills and loans with collateral) as its main policy instrument. It accepted private equities as well as commercial bills as collateral. It extended credit to the government in times of war.

2.1. The Establishment of the BOJ

When the BOJ was established in 1882, Japan was in the process of dynamic transformation from a feudal to a modern society. After Japan was forced to open its treaty ports in 1859, the nature of its economy changed from a closed to an open economy. Under the unequal treaties with western powers, Japan had no tariff autonomy, and domestic industries had to compete with their western counterparts without firm protection from the government. Annexations of territories and colonization of neighboring countries by western powers indicated that Japan was no exception. A sense of sovereign crisis mobilized the nationalists in the *samurai* (warriors) class to bring about the Meiji Restoration in 1868. The Meiji government, which replaced the Tokugawa Shogunate (1603-1867), conducted a series of economic, political and social reforms under the banner of “wealthy nation, strong military.” The reforms included the abolishment of clans and introduction of the prefectural system, a new uniform land tax system, national conscription and elimination of stipends to former samurai, debt consolidation of clans, and the integration of the national monetary and financial systems. In 1871, the government declared the introduction of the gold standard and minted gold specie, but it failed to build a domestic monetary system based on gold (the Bank of Japan 1982, 3-12).

The establishment of the BOJ was a crucial element of the national program toward the goal of “wealthy nation, strong military.” It was expected to mobilize national financial resources toward economic development and for military requirements. The founder of the bank, Finance minister Masayoshi Matsukata, intended to make it the hub of the national economy. He declared at the opening of the BOJ that he expected “the bank to work as the heart of the national economy, pumping money to the entire economy, just as the heart pumps blood to the entire body.” (the Bank of Japan 1982, 123). According to him, the aims of the BOJ were fivefold: 1) to regulate the regional supply and demand of funds, 2) to increase the financial capacity of private banks and companies, 3) to reduce domestic interest rates by removing financial bottlenecks, 4) to act as the government’s treasury management agency, and 5) to settle and adjust the balance of payments in international trade and finance (the Bank of Japan 1982, 123-136).

Before the establishment of the BOJ, monetary and fiscal policies were unseparated. Government and private banks (national banks) issued paper money besides specie and subsidiary coins minted by the government. Government notes and national banknotes were inconvertible though denominated in yen, the unit of account introduced in 1871. At the end of 1881, the total amount of currency in circulation was 196 million yen, comprising 119 million yen in government notes, 34 million yen in national banknotes, 14 million yen in gold specie, 9 million yen in silver specie, and 19 million yen in subsidiary coins (the Bank of Japan 1986b, 414-415).

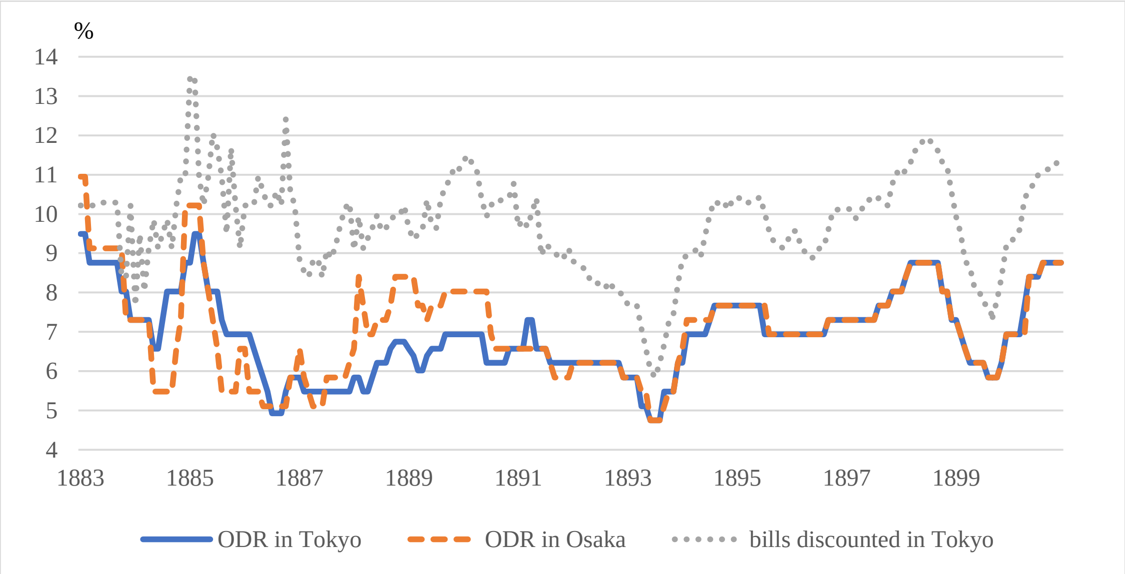
National banks were private banks established with national charters. Japan had introduced a national banking system modeled after the United States in 1872, under which national banks had been allowed to issue banknotes. Under the initial National Bank Act of 1872, which imposed strict regulations including the convertibility requirement and a high reserve ratio (2/3rd of banknotes in circulation in specie), only four national banks were established. However, the elimination of the convertibility clause and relaxation of the reserve ratio (1/5th of banknotes in circulation in government notes) in 1876 brought a banking boom, and 153 national banks were established by 1979 (the Bank of Japan 1982, 16-31).

These paper monies depreciated substantially against silver after the 1877 Satsuma Rebellion, the last civil war in Japan. Finance Minister Matsukata implemented an austerity policy during the early 1880s to enable paper monies to circulate at par (*Matsukata Zaisei*, or Matsukata Economic Policy). The BOJ first issued banknotes in 1885. These were convertible to silver, the international currency in Asia-Pacific region at that time (the Bank of Japan 1982, 107-112, 280-293).

2.2. Operations of the BOJ during its Early Days

Though the founder of the BOJ designed it to be the hub of the national financial system, engaging in the business of commercial banking, such as discounting bills, the reality of the Japanese financial markets did not allow it to engage in such activities. At the onset, it had only one branch in Osaka apart from its Head Office in Tokyo. To extend its network, it entered correspondence contracts with private banks. Figure 4 shows that the BOJ's Tokyo Head Office and Osaka Branch ODRs were different until the early 1890s, indicating that the financial markets of these two centers weren't fully integrated. In the private sector, the format of bills of exchange hadn't been standardized yet, and short-term credit was predominantly granted through various kinds of certificates, rather than the standardized form of commercial bills to be discounted. Due to the lack of credible collateral for commodities, private banks often lent without collateral or only with real estate or equities, which were not official eligible collateral for BOJ loans. The interest rate seasonality persisted until around the end of the 19th century even as the BOJ attempted to respond to demand for central bank money in an elastic manner (Fukuda 1995, 63-65, 71).

Figure 4 BOJ official discount rates and short-term market interest rates (1883-1900)



Sources: The Bank of Japan (1986b), 350-365; Asahi Shinbun Sha (1930)

From the onset, the BOJ was heavily involved in industrial policy by providing liquidity in the short run and capital in the long run to the industrial sector. Among others, the BOJ set a large line of credit and generous conditions for lending to the Yokohama Specie Bank (YSB). YSB was established in 1880 and dominated in Japan's international trade finance (the Bank of Japan 1982, 382-388, 415-421). The BOJ kept promoting industrial development, exports, and import substitution (the Bank of Japan 1982, 337-343, 425-426; Ishii 2001, 19-20).

The BOJ conducted a lender of last resort (LOLR) operation for the first time in the wake of the 1980 financial panic. After the panic, it became more aware of its role in the financial markets and played a more active role. It began to set its ODR so as to lead market participants rather than follow them. It formally started accepting equities as collateral when it extended credit to other banks, not only in a panic but also during ordinary times, in an effort to promote industrial development (the Bank of Japan 1982, 428-438, 449).

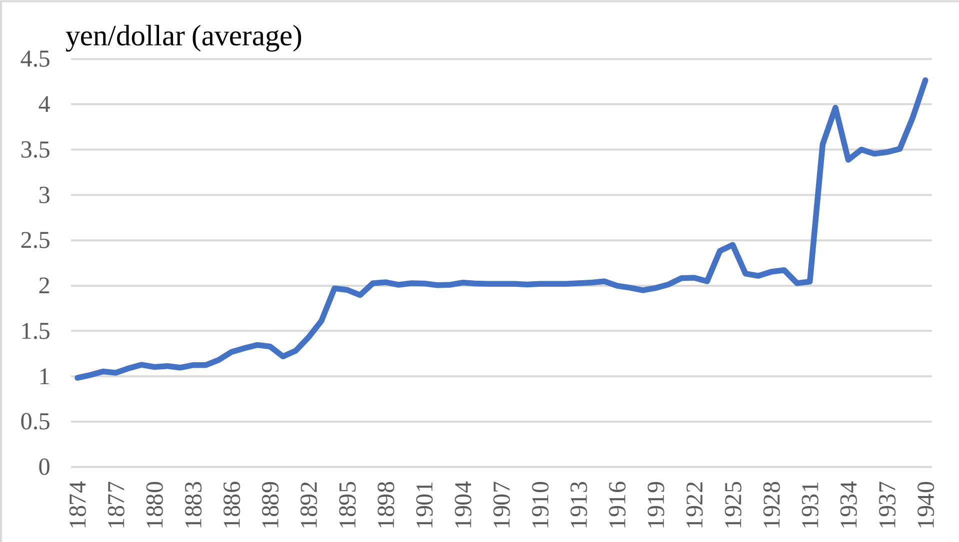
3. Guns or Butter (1897-1936)

3.1. The Adoption of the Gold Standard

At the turn of the century, Japan successfully joined the club of "first-class nations," having escaped from the risk of colonization. When Japan revised the unequal treaty with Great Britain in 1894, it succeeded in raising tariffs and abolishing British consular jurisdiction and the unilateral most-favored-nation status. The revision of unequal treaties with other western countries followed, culminating in full tariff autonomy for Japan in 1911. By this point, Japan was recognized as an emerging empire, unrivaled in Asia and a full member of the international community of western powers.

As its external status improved, Japan faced growing conflict between its two national goals of a wealthy nation and a strong military, both needing financial capital. It sought a new source of financial capital, external finance, to deal with the new challenge and with less concern of losing national sovereignty. It adopted the gold standard in 1897, 26 years after its unsuccessful declaration in 1871. It did so using indemnity from China after its victory in the Sino-Japanese War of 1894, following the precedent of Germany in the wake of the Franco-Prussian War of 1870-1871. When Japan set the new gold parity, yen had depreciated to half its value against the US dollar compared with the earlier parity, which was set in the early 1870s (Figure 5).

Figure 5 Exchange rates (yen/dollar, 1874-1940)

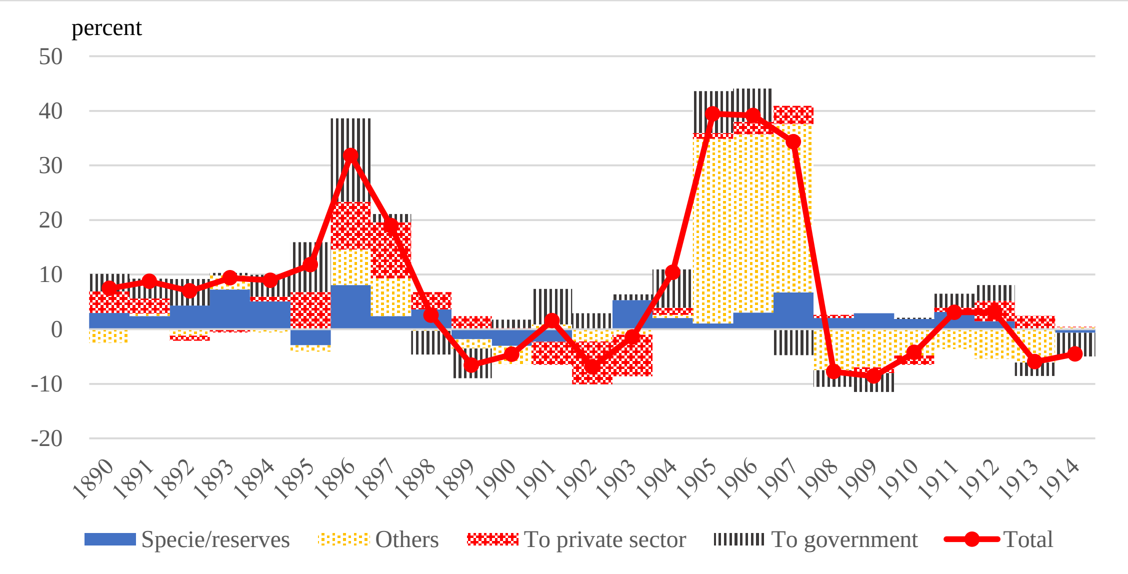


Sources: The Bank of Japan (1986b), 424-431; the Bank of Japan

When Japan adopted the gold standard, the Japanese government expected two effects *ex ante* – that it would stimulate international trade and attract international investors. Empirical evidence shows that investors weren't fully satisfied with the country's merely joining the gold standard, although international trade was stimulated as expected. There was no investment boom right after the adoption, and Japanese government bonds still required a high premium in the international capital markets. Japan finally earned a reputation as a "first class nation" in the international capital markets only after defeating the Russian army and navy during the Russo-Japanese War (1904-1905), thereby reducing its geopolitical risk (Mitchener et al. 2010; Smethurst 2007, p.170).

During the Sino-Japanese War and the Russo-Japanese War, the BOJ's balance sheet expanded, reflecting its extension of credit to the government to finance wars on the asset side (Figure 6). During the latter war, especially, it conducted a massive price-keeping operation for government bonds in the domestic market, and sent its Vice Governor, Korekiyo Takahashi, to London, New York, and other financial centers in Europe to issue Japanese bonds in foreign markets. The funds raised in the international financial markets were used to buy weapons and as the main body of foreign reserves during and after the war (the Bank of Japan 1983a, 160-182; Smethurst 2007, 141-187).

Figure 6 Asset components of the average annual balance sheet change in three years (1890-1914)



Source: The Bank of Japan (1986b), 274-283

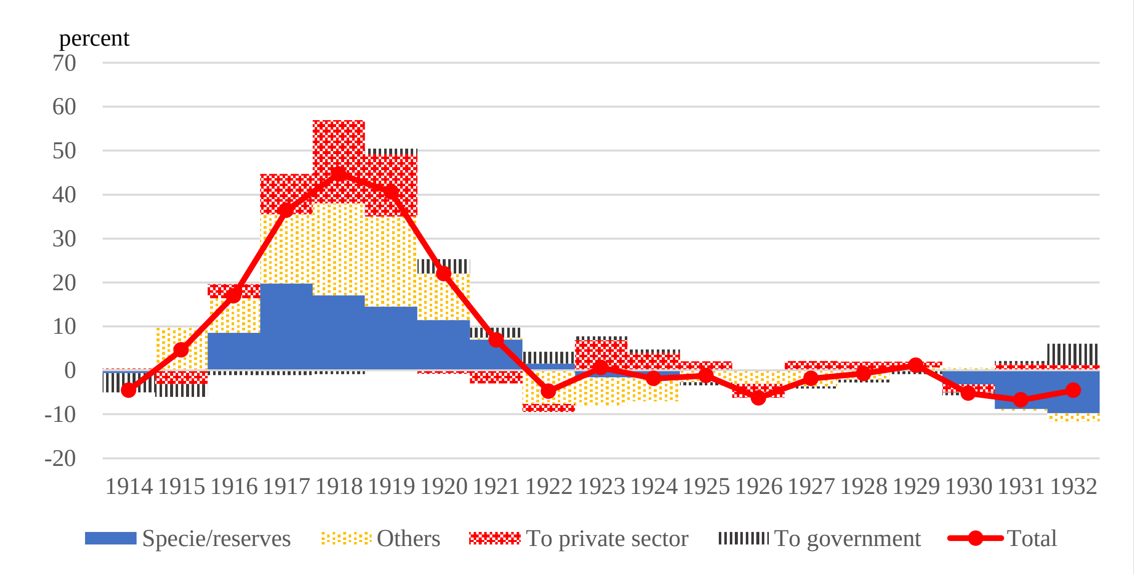
Note: Average annual balance sheet changes are three-year moving averages.

After the Russo-Japanese War, monetary and fiscal policies were constrained by a heavy burden of external debt. Japan's current account continued to record deficits due to the mounting burden of debt servicing. In the face of the declining confidence of international investors, Japanese authorities tightened fiscal and monetary policies to restore confidence. Figure 6 shows a contraction in the BOJ's balance sheet after the war. And yet, Japan had difficulties financing its current account deficits in the international financial markets (Shizume 2018, 340).

3.2. The First World War and its Aftermath

WWI changed the external conditions of the Japanese economy. Distant from the main battlefields in Europe, Japan accumulated a huge current account surplus. It obtained German territories in Asia at little military cost. It joined the United States as a creditor nation. Domestic industries enjoyed a long boom period thanks to massive exports to European countries at war, their colonies, and the United States, where the economy was booming. As a result, the balance sheet of the BOJ expanded due to accumulated specie, foreign reserves, and credit to the private sector (Figure 7). In Figure 7, a large portion of "others" consists of the BOJ's holding balances in agents in London and New York, or *de facto* foreign reserves.

Figure 7 Asset components of the average annual balance sheet change in three years (1914-1932)



Source: The Bank of Japan (1986b), 282-289

Note: Average annual balance sheet changes are three-year moving averages.

Japan experienced a prolonged period of high growth accompanied by massive inflation as commodity prices soared globally during and after WWI. The Japanese economy grew by 40 percent in terms of real output and more than threefold in nominal terms from 1914 to 1920. During the boom, many companies engaged in speculation and/or built excess production capacities with bullish expectations of the prospects for the Japanese economy (Shizume 2017, 133-134).

With growing confidence in Japan's economic and political power, Japanese policymakers expanded the nation's goal from maintaining its own independence to building an empire in the Asia-Pacific region while retaining the slogan of "wealthy nation, strong military." Though the windfall effects of WWI eased the conflict between the two goals temporarily, militaristic expansion into other parts of Asia became, in the long run, the largest potential threat for the sustainability of public finance and the conduct of monetary policy, and a heavy burden on the private sector, impeding its growth (Shizume 2018, 340).

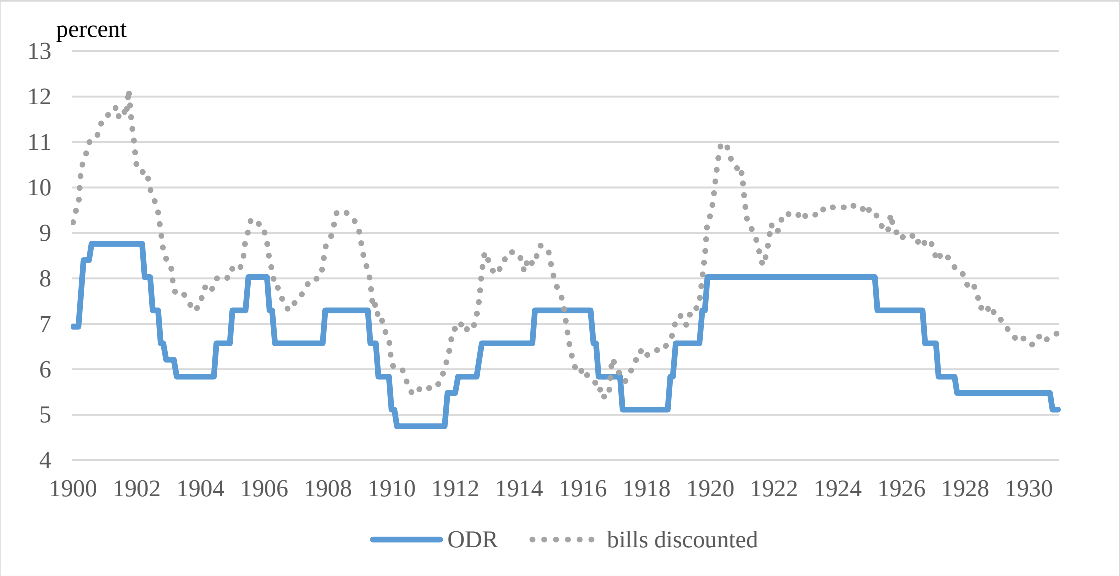
Japan suspended the gold convertibility of its banknotes in September 1917, following after the United States. At that time, these two countries were virtually the only ones remaining on gold, and there was no reason for Japan to continue on gold once the United States exited. Since then, the yen/dollar exchange rate has fluctuated (Figure 5).

After WWI, the Japanese economy suffered from economic stagnation, price deflation and bad-debt problems. Financial institutions struggled with mounting bad loans, which triggered financial panics in 1920 and 1922. Then, in 1923, the Great Kanto Earthquake hit the Tokyo metropolitan area. The BOJ responded to the tragedy by extending special loans to financial institutions located in the devastated areas. However, contrary to the BOJ's intensions, the special loan facility was abused by some banks, which were already distressed by bad loans, evincing a moral hazard problem (Shizume 2017, 135-139).

In the spring of 1927, financial panic spread nationwide (the Showa Financial Crisis). The BOJ acted as the LOLR during the crisis, swiftly extending credit to combat bank runs. The crisis accelerated the resolution of the bad-debt problems and banking reforms. The BOJ's potential loss from the special loans related to the Showa Financial Crisis were guaranteed by the government. In 1928, the authorities introduced a new prudential policy scheme – encouraging mergers and acquisitions, setting new regulations, and instituting dual inspections by the Ministry of Finance (MOF) and the BOJ (Shizume 2017, 141-142; Shizume 2018, 341-342).

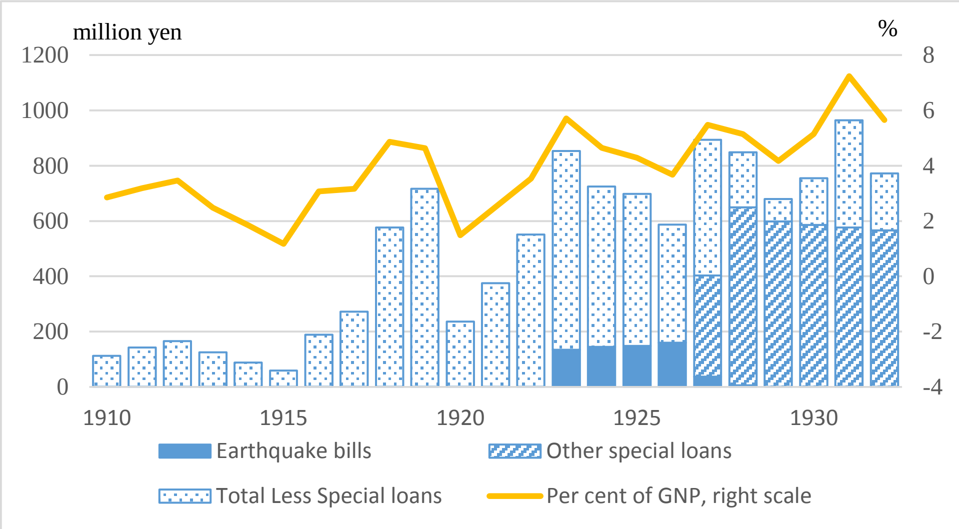
Thanks to the BOJ's extended credit and banking reforms, domestic financial markets were finally stabilized. Market interest rates, which had stayed high until the spring of 1927, reflecting high risk premium, went down through the rest of the 1920s (Figure 8). However, the BOJ had to bear a new constraint on its monetary policy. Though guaranteed by the government, the special loans accounted for a large part of its private lending and could not be repaid in the short term. As a result, the BOJ lost flexibility in its monetary policy operations (Figure 9; Shizume 2017, 143-145; Shizume 2018, 342-343).

Figure 8 BOJ official discount rates and short-term market interest rates (1900-1930)



Sources: The Bank of Japan (1986b), 350-365; Asahi Shinbun Sha (1930)

Figure 9 BOJ loans to the private sector



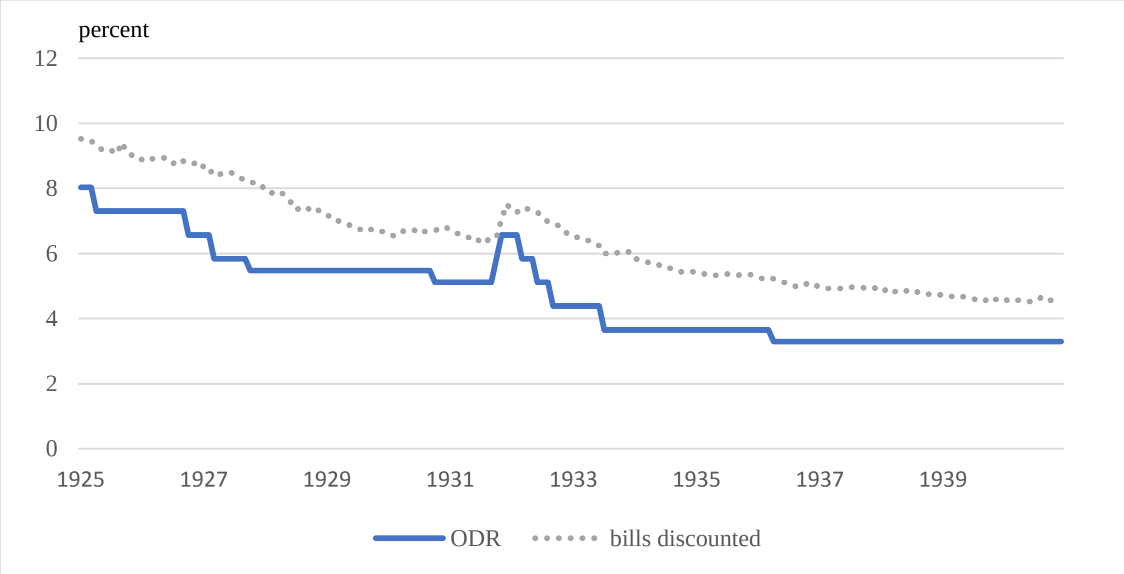
Source: The Ministry of Finance, *Reference Book for Financial Matters*, annual editions

3.3. Japan During the Great Depression

In 1929, the government decided to return to the gold standard. Judging that domestic financial stability was finally restored and Japan was ready to return to "normality" as per pre-WWI standards, the government did so in January 1930. However, the timing was bad because the Great Depression was spreading and intensifying globally, and the move brought a severe economic contraction and deflation to the Japanese economy. Already depressed by fiscal and monetary austerity policies in preparation for returning to the gold standard, Japan experienced double-digit price deflation in 1930-1931 (Metzler 2006, 199-239; Shizume 2009, 4-6).

When Britain departed from the gold standard in September 1931, the yen was under speculative attack in the international financial markets because investors anticipated that Japan would soon follow suit. In response, the BOJ raised its lending rates twice to protect the yen (Figure 10), which only caused further contraction of the domestic economy and had little effect in terms of preventing capital outflows. In the end, Japan lost almost 60 percent of its reserves (the Bank of Japan 1986b, 334).

Figure 10 BOJ official discount rates and short-term market interest rates (1925-1940)



Sources: The Bank of Japan (1986b), 350-365; Asahi Shinbun Sha (1930)

In December 1931, veteran finance minister Korekiyo Takahashi returned to office for the fifth time in his career. He led a drastic macroeconomic stimulus package including departure from the gold standard, an increase in fiscal expenditure, and an accommodative monetary policy (*Takahashi Zaisei*, or Takahashi Economic Policy). From 1930 to 1933, the yen depreciated to almost half its value against the US dollar. The departure from the gold standard also freed the government and the BOJ from the constraints of maintaining gold parity. The government increased its expenditure toward public works in rural areas and the war in mainland Asia. The BOJ supported public finance by underwriting government bonds and selling them to financial institutions in accordance with conditions in the financial markets. The BOJ called it an "open market operation." At the same time, the BOJ relaxed its monetary policy by reducing interest rates (Figure 10, Shizume 2009, 6-8; Shizume 2018, 343). Some observers argue that the scheme involving the underwriting of government bonds by the central bank dampened fiscal discipline because the government no longer had to worry about financial market conditions when it decided spending in annual budgets (Shizume 2009, 9; Shizume 2018, 344).

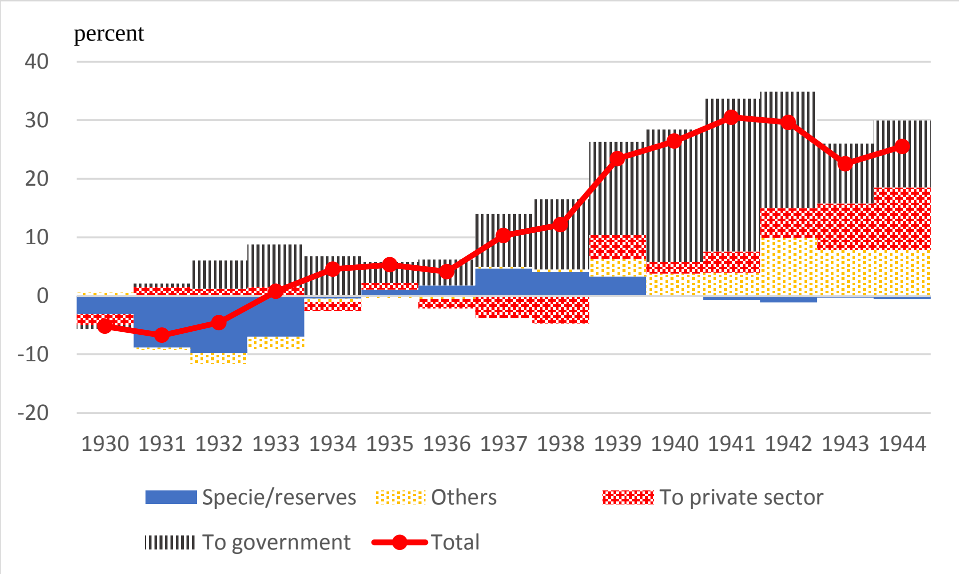
Thanks to Takahashi's stimulus package, the Japanese economy recovered from the Great Depression earlier than others. It recorded growth at an annual rate of 6 percent from 1931 to 1936, with low inflation.

Meanwhile, the Mukden Incident of September 1931 marked a critical point for Japan, pushing it toward war with its main trading partners, China and the United States. The Japanese army stationed in Manchuria staged it by falsely claiming an attack by the Chinese army and starting an undeclared war. The Japanese government initially tried to make a deal with the Chinese government for a stand-down but failed because of provocative actions by the Japanese troops and approved extra budget for the actions *ex-post facto*.

The consequence of the Mukden incident was, in retrospect, the government's loss of control over its own troops in China. As a result, fiscal and monetary policies became overwhelmed by military expenses. The BOJ's scheme of underwriting government bonds lacked market-based checks and balances for fiscal discipline. In the budgetary process, the military could submit a request for whatever amount it wanted to the MOF, and if the MOF approved the amount, then the BOJ had to underwrite government bonds to finance it. When Korekiyo Takahashi cut military expenditure for fiscal 1936 on his responsibility and authority as finance minister, a group of soldiers assassinated him in February 1936 (Smethurst 2007, 268-298; Shizume 2009, 8).

From 1932 through the early 1940s, the largest increase in the BOJ's balance sheet came from "credit to the government" (Figure 11). The sum of "specie reserves" and "others" fell below half of the BOJ's balance sheet even as the share of "credit to the government" continued to grow. As a large portion of "others" consisted of *de facto* foreign reserves, the BOJ increased credit to the government instead of holding specie and foreign reserves after its departure from the gold standard (Figure 2).

Figure 11 Asset components of the average annual balance sheet change in three years (1930-1944)



Source: The Bank of Japan (1986b), 278-292

Note: Average annual balance sheet changes are three-year moving averages.

3. War Finance and Inflation (1937-1951)

The war with China escalated in 1937, when two armies accidentally came face to face at Marco Polo Bridge near Beijing. Once again, the Japanese government tried to call a ceasefire but failed because of provocative actions by the Japanese army.

The breakout of WWII in Europe in 1939, economic sanctions against Japan by the United States and other countries, and Japan's attack on Pearl Harbor in 1941 further exacerbated the external condition of the Japanese economy. Since Japanese industries had relied heavily on overseas supplies of essential materials such as fuel oil and iron, they now faced severe resource shortages. At the same time, the escalation of the war intensified demand for goods and services related to the war and, squeezed domestic physical, human, and financial resources to the extreme (Shizume 2018, 344-345).

To deal with the increasing inflationary pressures owing to external constraints and massive war expenses, the authorities introduced direct control measures, including capital controls, financial repression, and price controls. In 1937, the government passed three wartime control laws, one of which, the Temporary Capital Adjustment Law, required government permission for long-term fundraising for capital formation.

From 1938 to 1945, the government formulated annual Goods Mobilization Plans. In each year's plan, the government estimated the supply of essential materials from imports and domestic production, and allocated it to military and civilian use. The government continued to make these plans until 1945, but never achieved the estimated supply mainly due to essential material imports falling short. Also, in 1938, the National General Mobilization Law was promulgated, stipulating that the government may “mobilize” personnel and material resources for national defense in wartime. Financially speaking, all funds including short-term operations were subject to government permission. In 1939, to deal with general price hikes in the wake of the breakout of WWII, the government issued an imperial order intended to freeze wages and the prices of all commodities (Nakamura 1994, 87-101).

Under the wartime regime, the BOJ devoted itself to the national objective, to fight the war, under the government's control. It underwrote war bonds and then resold them to private financial institutions. It rationed all private credit, which was subject to government control. It provided money to war industries (Chart 16.11).

In 1942, the Bank of Japan Act of 1882 was replaced by the new Bank of Japan Act, which defined the BOJ as a state entity and strengthened the government's control over its operations. Under the new law, the BOJ was literally to devote itself entirely to achieving the national goal (Shizume 2018, 345-346).

Despite all the efforts by the authorities, wartime control of the economy was poorly managed. Actual production of goods for military and daily necessities fell short of the government’s initial plans. Due to a huge gap between supply and demand, black markets prevailed in an open secret, and prices soared (Nakamura 1994, 117-122; Shizume 2018, 346).

When Japan lost the war in 1945, the economy was in a state of disorder. The labor force badly needed to be restructured from military services and war-related industries to civil industries. One-fourth of total physical assets were lost during the war. Once the war ended, black markets were no longer a secret; brokers sold goods at skyrocketing prices on the streets of cities (Nakamura 1994, 131-132; Shizume 2018, 346-347).

Right after the war, two government measures accelerated inflation. The government paid war expenses to compensate repatriated soldiers and civilians who had worked for the military and the war industries or had lost their houses in air raids. This fueled the sharp rise in inflation. The government also lifted price controls on fresh foods, intending to promote their supply, but only resulting in further price hikes (Figure 3, Shizume 2018, 347).

One piece of good news for the Japanese economy was the demilitarization of Japanese society and economy, which freed fiscal and monetary policies and the public sector from the burden of military spending. Now, the national goal was reset to "wealthy nation without a strong military" even though the legal and institutional setting of the BOJ hadn't changed much.

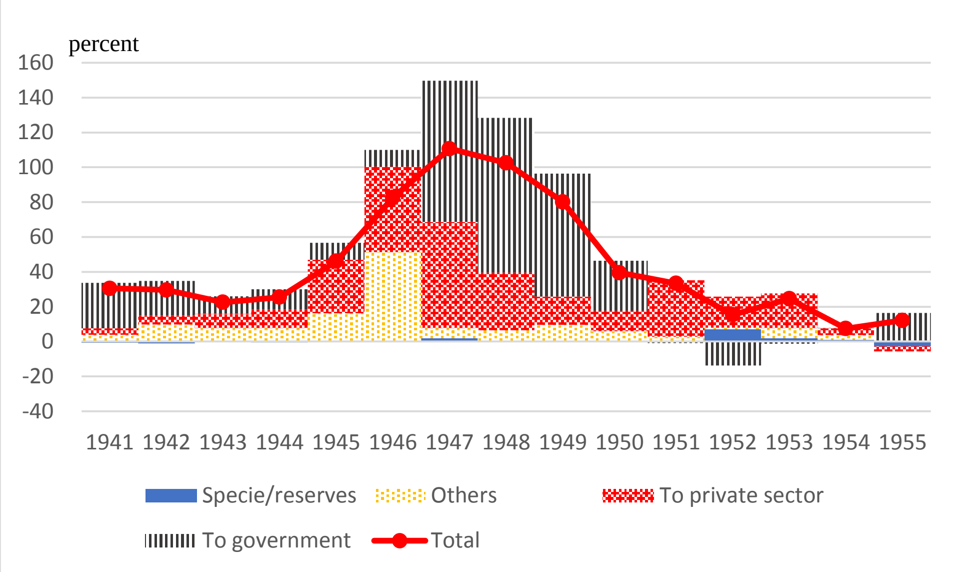
The occupation forces led by the United States decided to take the form of an indirect government. The Japanese government and the central bank continued to conduct policies under the directives of the General Headquarters (GHQ) of the Supreme Commander for the Allied Powers (SCAP).

The urgent challenge for the government and the BOJ right after WWII was to balance stabilization and reconstruction. Since inflation was so severe while the need for structural adjustments was huge, monetary policy went back and forth between the two objectives.

In February-March 1946, the government implemented the Emergency Financial Measures. All cash had to be deposited with financial institutions, new banknotes were issued, limits were set on withdrawals, and strict government control over prices was resumed. Inflation due to the black markets subsided at least temporarily (Nakamura 1994, 149-150; Shizume 2018, 347).

In 1947, the Public Finance Act was promulgated, banning the BOJ from underwriting government debt. However, prior to the promulgation of the law, the government had initiated the Priority Production System to concentrate physical and financial resources in key industries such as coal and steel, intending to remove bottlenecks in production and power up the whole economy. The Reconstruction Financial Bank (RFB) was established to finance key industries, issuing bonds to be underwritten by the BOJ. Technically, RFB bonds were not government bonds. In effect, the provision of central bank credit through RFB bonds bloated up the BOJ's balance sheet and reignited rampant inflation (Figure 13, the Bank of Japan 1985, 102-104, Shizume 2018, 348).

Figure 13 Asset components of the average annual balance sheet change in three years (1941-1955)



Source: The Bank of Japan (1986b), 290-297

Note: Average annual balance sheet changes are three-year moving averages.

In 1949, a Detroit banker, Joseph Dodge, who became the adviser to General Douglas MacArthur, the Supreme Commander of the GHQ, initiated a stabilization plan called the "Dodge Line." This involved implementing fiscal austerity and fixing the yen's exchange rate at 360 yen to the US dollar, to prepare for joining the Bretton Woods System. Post-war inflation subsided, but a severe recession hit the economy.

Also, in 1949, the Bank of Japan Act was amended, adding a policy board modeled after the Federal Reserve System into the BOJ's governance structure. However, this had little effect on the monetary-policy-making process (Shizume 2018, 349).

The BOJ conducted monetary policy in a way as to accommodate the fiscal austerity and the resulting recession, by extending credit to the private sector. It bought government bonds and RFB bonds to support key industries, small and medium sized enterprises (SMEs), and the agricultural sector (Figure 13). The Japanese economy recovered thanks to massive procurement demand during the Korean War (1950-1953; the Bank of Japan 1985, 354-364; Shizume 2018, 348-349).

Japan concluded the San Francisco Peace Treaty in 1951. Japan resumed its sovereignty when the treaty came into effect in 1952 and joined the Bretton Woods System (International Monetary Fund: IMF) in the same year.

During the reconstruction period, financial intermediation shifted from a combination of banks' balance sheets and securities to mainly through banks. In order to bring down inflation, the whole financial system was kept heavily regulated as under the previous wartime regime. With rampant inflation, long-term debts lost their value in real terms, and equity finance virtually didn't function under such heavy regulation. As a result, private companies had to rely on bank lending for fundraising. Meanwhile, following the Public Finance Act of 1947, the government employed the balanced-budget principle until 1965, issuing virtually no bonds (Ito 1992, 165).

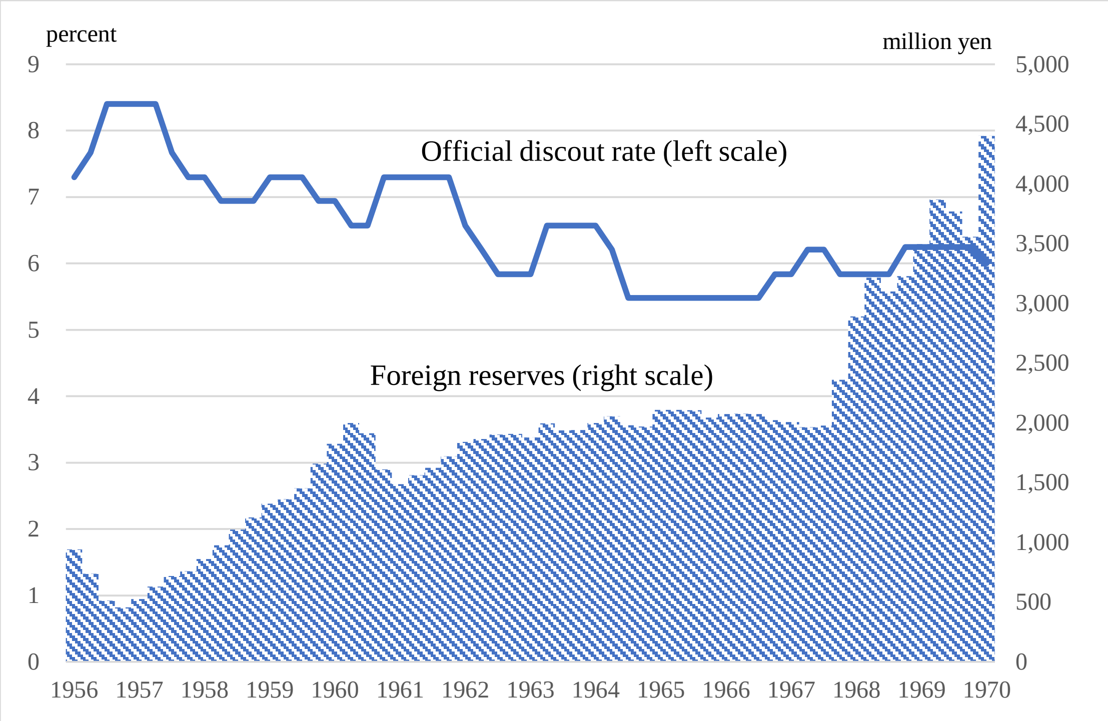
As domestic financial intermediation shifted to banks' balance sheet, instruments of monetary policy began to be focused on banks' balance sheet. When allocating credit to private banks, the BOJ prioritized essential industries for national economic reconstruction such as coal, steel, and fertilizers, and then exporting industries such as textiles. The facilities included reduced-rate lending and the rationing of funds. The facilities for export promotion were retained for years, throughout the following high growth period and until the Smithsonian Agreement in 1971 (the Bank of Japan 1985, 90-92, 123-132, 337-338, 589).

4. Financing High Growth (1952-1970)

The Japanese economy continued to grow at an annual rate of around 10 percent from the early 1950s through the early 1970s (“the high-growth period”). The growth elevated Japan from a developing country to an industrialized, developed country.

During the high growth period, the BOJ funneled short-term liquidity and long-term capital into the economy while maintaining a fixed exchange rate against the US dollar. The BOJ conducted monetary policy to facilitate economic growth while ensuring sustainability of the balance of payments. As national governments were allowed to regulate international capital flows under the Bretton Woods System, the overall balance of payments was largely determined by the current account balance. The BOJ kept domestic interest rates as low as possible to promote industrial activities and raised the interest rate to curb demand when the balance of payments deteriorated and foreign reserves fell to a certain level (Figure 14, Ito 1992, 114-118).

Figure 14 Official discount rates and balance of payments (1956-1970)



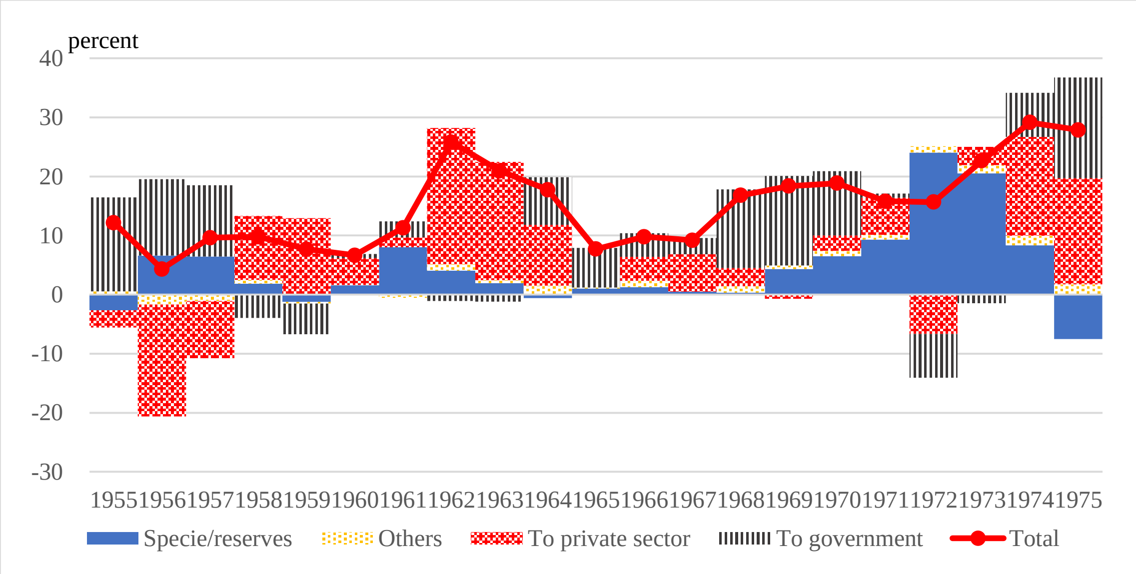
Sources: Source: Bank of Japan, *Economic Statistics Annual*, annual editions

During the high-growth period, the BOJ's main policy instrument was the ODR. The whole financial system was heavily regulated, and debtors depended mainly on banks for fundraising. Interest rates on deposits and the lending rates of private banks were set according to the ODR (Ito 1992, 114-115, 119). However, *effective* interest rates for banks and their borrowers fluctuated even when contracted interest rates did not change. During this period, banks required their customers to retain a portion of lending as compulsory deposits. By changing the ratio of the compulsory deposit to lending, banks were able to change their lending interest rates effectively (Ikeo 1985, 89-93,109-116).

The BOJ used “the window guidance” as a complementary device to the ODR. Through this device, the BOJ applied moral suasion on private banks regarding the volume of their lending to customers. During the high-growth period, the interest rates were set below equilibrium, and excess demand always existed. Private banks depended on central bank credit for funding. Though the BOJ had no legal authority to set a quantitative limit on the lending of individual banks, it used its bargaining power with private banks as a leverage for moral suasion. The BOJ also used the reserve/deposit ratio as a complementary measure (Hagiwara and Masubuchi 1986, 68, 74; Ito 1992, 114; Itoh et al. 2015, 193-196).

In 1962, the BOJ introduced the New Monetary Operation Framework, aimed at reducing private banks' dependence on central bank credit. It replaced its lending to banks by corporate-bond-buying operations to supply new money into the economy corresponding to economic growth (Figure 15). It also set limits on the amount of lending to individual banks (the Bank of Japan 1986a, 97-122; Hagiwara and Masubuchi 1986, 110).

Figure 15 Asset components of the average annual balance sheet change in three years (1955-1975)



Source: The Bank of Japan (1986b), 296-303

Note: Average annual balance sheet changes are three-year moving averages.

In 1964, Japan gained the IMF Article 8 status and joined the Organization of Economic Cooperation and Development (OECD). The moves marked the full return of Japan into the international community. At the same time, Japan was expected to take on responsibilities as an industrialized, developed country. As part of these responsibilities, it was asked to liberalize its financial markets. It was required to remove all restrictions in current account transactions and to reduce restrictions in capital account transactions.

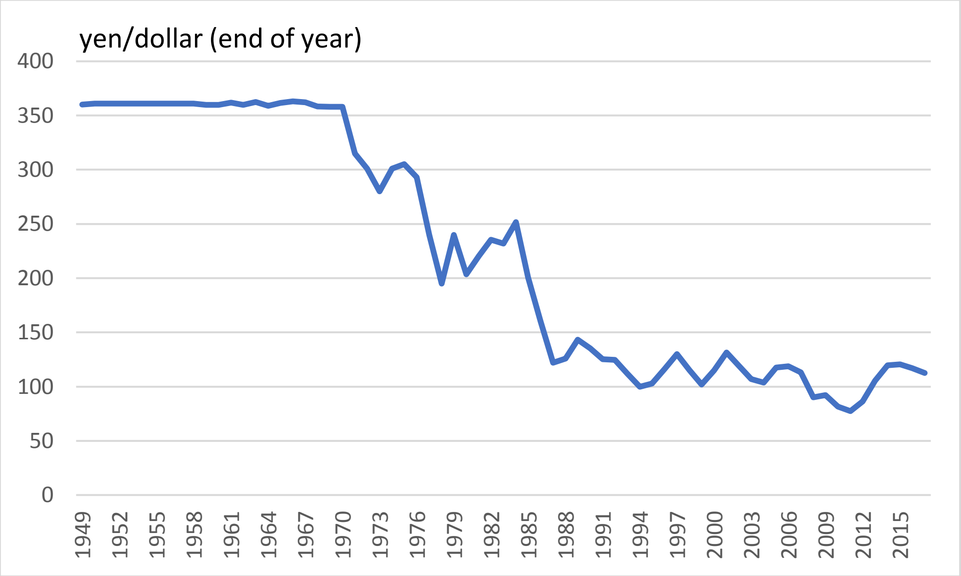
In 1965, a recession and financial instability hit the Japanese economy after the 1964 Tokyo Olympic boom. To deal with them, the government initiated fiscal stimulus, issuing government bonds. At this point, the BOJ added government bonds to its list of buying operations for providing growth money (Hagiwara and Masubuchi 1986, 112).

From the late 1960s through the early 1970s, Japan recorded continuous current account surpluses, reflecting improved productivity under the fixed exchange rate. The balance of payments no longer bound monetary policy and did not work as a signal for monetary tightening (Figure 14; Figure 15; Hagiwara and Masubuchi 1986, 116).

5. Deregulation and Decelerated Growth (1971-1990)

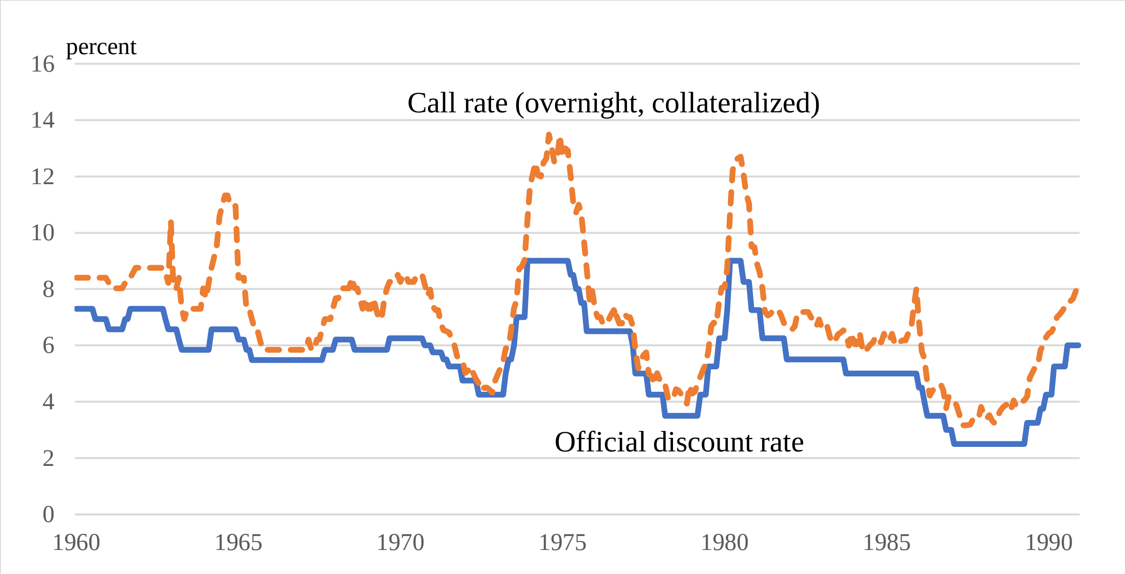
After the breakdown of the Bretton Woods System in August 1971, the Japanese economy went through a turbulent period. Following an unsuccessful attempt to maintain the previous exchange rate (360 yen to US dollar), Japan floated the yen, set a new exchange rate of 308 yen to US dollar at the end of the year, and floated the yen again in February 1973 (Figure 16). Afraid of the deflationary impact of the yen's appreciation, the BOJ maintained an accommodative monetary policy. Then, the first oil crisis hit developed economies. Japan was in the worst condition among the major industrialized countries due to the already overheating economy and a delay in monetary tightening. Consumer prices in Tokyo soared by 12 percent in 1973 and by 23 percent in 1974. The BOJ raised the ODR from 4.25 percent in April 1973 to 9.0 percent in December of the year (Figure 17). The monetary tightening triggered stagflation: for the first time since 1946, Japan recorded negative growth in output in 1974, and the double-digit inflation could not be brought under control until 1976 (the Bank of Japan 1986a, 356-436).

Figure 16 Yen/dollar exchange rates (1949-2017)



Source: The Bank of Japan

Figure 17 BOJ official discount rates and short-term market interest rates (1960-1990)



Source: The Bank of Japan

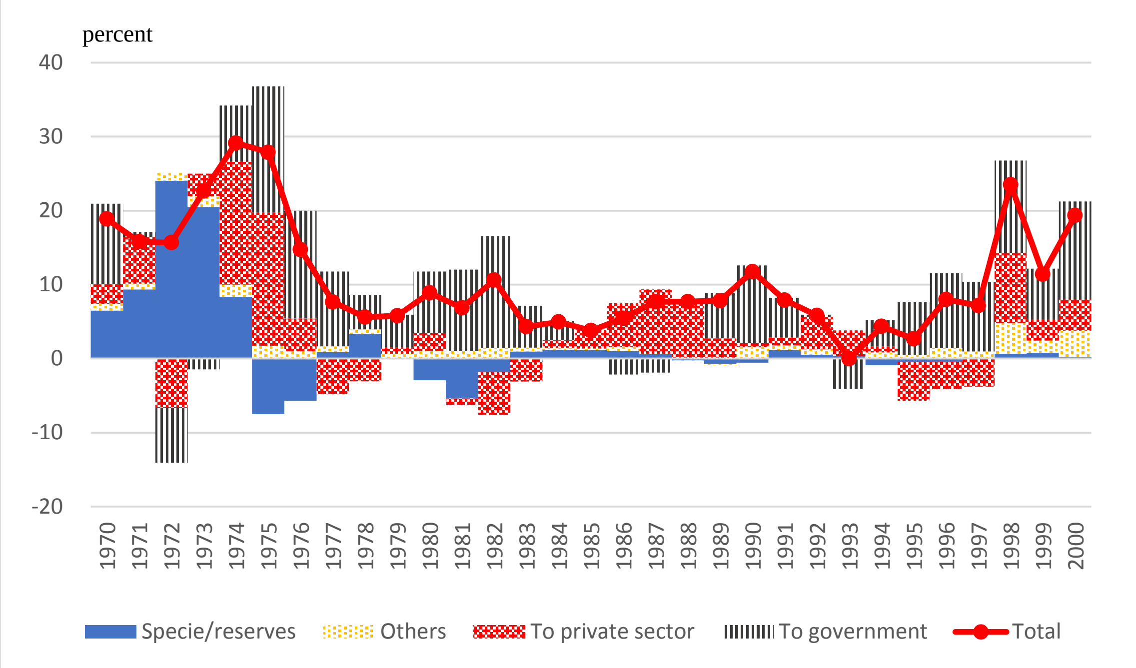
The first oil crisis marked the end of the high-growth period. GDP growth decelerated from an annual rate of around 10 percent to 5 percent.

The government, the central bank, companies, consumers, and labor unions learned lessons from the first oil crisis. In the short run, the monetary authorities became aware that they should have acted promptly, thereby avoiding an increase in inflation expectations in the private sector. Companies and consumers realized that they should not have built up inventories, thereby further accelerating inflation. Labor unions reflected that they should not have made such high demands in their annual negotiations with management, thereby causing a wage-price inflation spiral (the Bank of Japan 1986a, 489-522; Itoh et al. 2015, 106). In the long run, the government and the private sector initiated an energy-saving campaign to reduce the consumption of oil. Companies reviewed their products and production processes to reduce energy consumption.

Starting the late 1970s, the BOJ put more emphasis on the monitoring of monetary aggregates in its policy operation. Although it never set a formal target for monetary aggregates, it started reporting them monthly in 1978, in light of the lessons learned in the early 1970s when excess liquidity drove speculation and inflation (Itoh et al. 2015, 197-199).

From the late 1970s through the early 1980s, the BOJ's balance sheet growth remained modest. Also, it accumulated “credits to the government” steadily, reflecting the central bank's stance of providing new money corresponding to economic growth through its buying operations targeting government and corporate bonds (Figure 18).

Figure 18 Asset components of the average annual balance sheet change in three years (1970-2000)



Source: The Bank of Japan (1986b), 300-303; the Bank of Japan

Note: Average annual balance sheet changes are three-year moving averages.

A by-product of the transformation toward an energy saving economy and society was an enhanced non-price competitiveness of products made in Japan, which featured the advantages of "light, thin, short and small" in the new global energy environment. When the second oil crisis hit the developed economies in the late 1970s and the early 1980s, the Japanese economy showed great resilience, achieving rigorous growth in exports of automobiles and electronic devices. Things made in Japan were preferred by consumers in Japan and abroad, bringing continuous current account surpluses for Japan (Itoh et al. 2015, 112).

Deregulation in the financial markets proceeded during the late 1970s through the 1990s along with securitization and globalization of the financial/capital markets.

Securitization of the financial/capital markets proceeded with increasing issuance of government bonds. To deal with economic stagnation and a decline in tax revenues, the government increasingly depended on public debt. Initially, a syndicate of financial institutions underwrote government bonds and held them outright or sold them to the BOJ. However, as the balance of their holdings of government debt increased steadily, they demanded the government allow them to sell government bonds and got the permission to do so starting 1977. As bond holders became diversified, the secondary market for government bonds emerged and grew (the Bank of Japan 1986a, 526-532; Itoh et al. 2015, 116-117).

Globalization of the financial/capital markets went along with the growing presence of

Japan in the global economy. The government prepared for the lifting of capital controls in line with Japan's IMF Article 8 status. In 1979, the new Foreign Exchange Control Law was promulgated and became effective the following year, stipulating foreign exchange transactions be free in principle. This was a drastic change in the legal principle. In the previous flamework, all international transactions were subject to some kind of regulation. In the new flamework, international transactions were free unless otherwise designated to be regulated (the Bank of Japan 1986a, 541-545; Itoh et al. 2015, 110).

Under the Reagan Administration (1981-1989) in the United States, large current account imbalances arose, and the resulting trade dispute became the central political issue in the US-Japan relationship. Reaganomics, a combination of tight monetary policy and aggressive fiscal policy, induced conditions for a strong US dollar and capital inflows into the United States. The first-term Reagan Administration kept a free-market approach in terms of exchange rates. It blamed Japan for creating external imbalances by shutting down its financial/capital markets from inflows of foreign investments, leading to a cheap yen (Itoh et al. 2015, 119).

To discuss the issues related to the external imbalances, the two governments jointly established the Japan-U.S. Yen-Dollar Committee in 1983. Whether ill-motivated or not, the committee's report published in 1984 had a huge impact on the conduct of monetary policy in later periods. Most notably, the committee set a scheduled roadmap for the elimination of the regulations remaining in the Japanese financial markets. The report delivered a final blow to the regulated scheme for monetary policy, which consisted of a regulated interest rate system based on the ODR, the window guidance, and the reserve/deposit ratio. In 1988, the BOJ initiated a series of reforms in the short-term money markets and the conduct of monetary policy operations. It first revised the procedures of interest rate setting for market participants and introduced new facilities for open market operations. It ended the window guidance in 1993 and started announcing a target for the call rate, the representative short-term interest rate, in 1997 (Miyanoya 2000; Itoh et al. 2015, 121-123).

The second-term Reagan Administration had a different strategy for dealing with the external imbalances. New US Secretary of the Treasury James Baker proposed multilateral adjustments in exchange rates between the United States and its main trading partners. As per his idea, the strengthening of the yen and other currencies against the US dollar, induced by joint interventions in the foreign exchange market, would have a switching effect that would help curb massive exports to the United States from countries such as Japan and Germany. In 1985, the finance ministers and central bank governors of the G5 countries (the United States, Japan, West Germany, United Kingdom and France) gathered at the Plaza Hotel in New York and agreed on joint intervention as part of a concerted effort to correct misalignments among major currencies (the Plaza Accord, Figure 16). In 1987, finance ministers and central bank governors gathered again at the Louvre in Paris and agreed to coordinate macroeconomic policies, including fiscal, monetary, and exchange rate policies (the Louvre Accord; Itoh et al. 2015, 124-137).

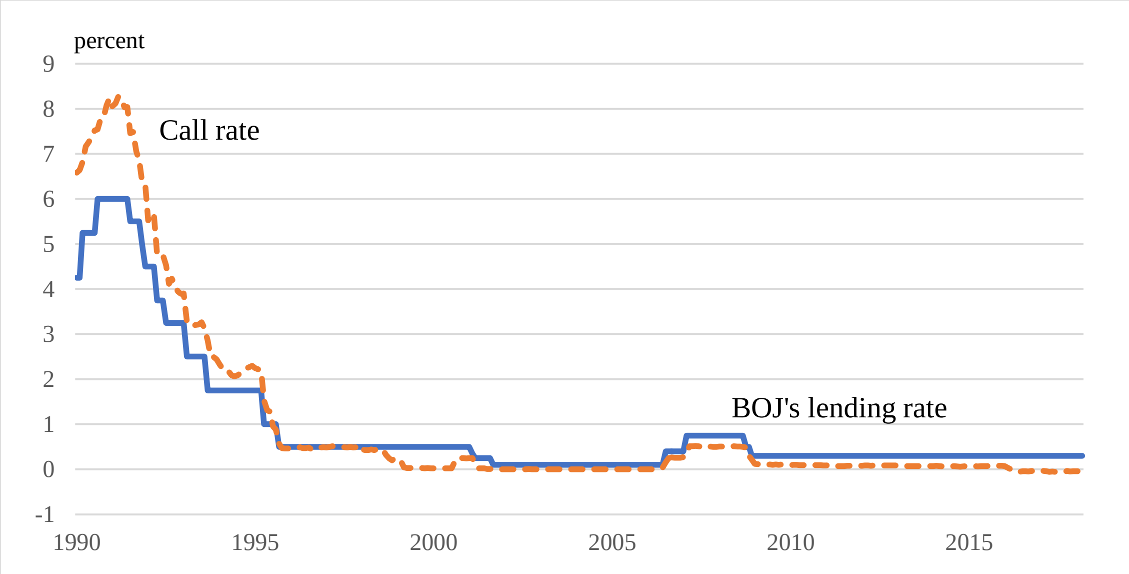
As part of the concerted efforts to reduce external imbalances, the BOJ employed easy monetary policy to stimulate the economy, thereby reducing the current account surplus. While the inflation in general prices was curbed thanks to the stronger yen and stable oil prices, financial bubbles formed as a result of easy money and bullish expectations regarding Japanese economic prospects. Asset prices, such as stock and real estate prices, soared to historical highs. When the bubble collapsed, the BOJ learned its lesson: put your own home in order rather than making an effort to achieve an international goal, and keep a close watch on financial indicators as signs of potential risk in the long run even if headline economic indicators show steady growth with low and stable inflation (Okina et al. 2001, 444-445; Shizume 2018, 353-354).

6. New Challenges (1991-2017)

In the 1990s, financial bubbles collapsed, asset prices plunged, and Japan experienced financial distress and economic stagnation. The business sector suffered from excess capacity built during the bubble period. The financial sector suffered from non-performing loans and constraints in new lending (Nakaso 2001, 2-16; Shizume 2018, 355). At the same time, increasing competition with the other emerging Asian economies eroded the made-in-Japan brand and dulled Japan’s edge in productivity. Growth fell to an annual rate of around zero percent during the 1990s and beyond.

To tackle economic stagnation and fiscal distress, the government expanded its fiscal expenditure. The administrative branch of the government tried capital injection into the financial sector but was trapped by public resentment and political backlashes. The delay in financial restructuring paved the way for the financial crisis of 1997-1998 (Nakaso 2001, 6, 18-19). The BOJ lowered interest rates to stimulate demand and support the restoration of financial stability. When the BOJ reduced the ODR to 0.5 percent in 1995, it virtually hit the zero lower bound (ZLB) (Figure 19; Ueda 2005, 333).

Figure 19 BOJ lending rates and short-term market interest rates (1990-2017)



Source: The Bank of Japan

The Bank of Japan Act was amended in 1997 and became effective in 1998. The new act stipulated autonomy and required transparency in the BOJ's policy formation. The roles of the BOJ were defined as: 1) issuing banknotes, carrying out currency and monetary control; and 2) ensuring smooth settlement of funds among banks and other institutions, thereby contributing to the stability of the financial system. The currency and monetary controls of the BOJ were to aim to achieve price stability, thereby contributing to the sound development of the national economy. The BOJ's autonomy in currency and monetary control were to be respected, while the BOJ was to endeavor to clarify to the citizens the content of its decisions and decision-making process regarding currency and monetary control. The Monetary Policy Meeting was to comprise the Governor, two Vice Governors, and other board members (up to six in number), who would be fully responsible of monetary policy (Shizume 2018, 354).

Because the new Bank of Japan Act was promulgated in the midst of financial distress and economic stagnation, the BOJ with its new Policy Board faced challenges from the onset. It had to deal with the financial crisis. It had to innovate new policy tools to conduct monetary policy under the ZLB. In response, it introduced a series of policy innovations called "unconventional monetary policy" measures, pioneering a new paradigm of monetary policy ahead of other central banks (Table 16.2; Ueda 2005, 332).

Table 2 Monetary policy innovations during and after the 1990s

Start date	End date	Name/description
Feb. 1999	Aug. 2000	Zero Interest Rate Policy (ZIRP)
Mar. 2001	Mar. 2006	Quantitative Easing Policy (QE)
Oct. 2010	Apr. 2013	Comprehensive Monetary Easing (CME)
Feb. 2012	Apr. 2013	Enhancement of Monetary Easing (Introduction of "the Price Stability Goal," etc.)
Jan. 2013	Apr. 2013	Joint Statement of the Government and the Bank of Japan; "Price Stability Target" and the "Open-Ended Asset Purchasing Method"
Apr. 2013	-	Quantitative and Qualitative Monetary Easing (QQE)
Oct. 2014	-	Expansion of the Quantitative and Qualitative Monetary Easing
Jan. 2016	-	Quantitative and Qualitative Monetary Easing with a Negative Interest Rate
Sept. 2016	-	Quantitative and Qualitative Monetary Easing with Yield Curve Control

Sources: Ueda (2005); the Bank of Japan

In April 1999, the BOJ introduced the Zero Interest Rate Policy (ZIRP). As part of the ZIRP scheme, the BOJ not only reduced its interest rate target to zero but also committed itself to maintaining the target until a pre-announced condition was fulfilled. Governor Masaru Hayami declared that the bank would continue the ZIRP "until deflationary concerns were dispelled." This was the first time anywhere in the world that a central bank had used the length of time during which a zero rate is maintained as an instrument of monetary policy. The BOJ, facing the ZLB, ended up at the forefront of monetary policy innovation in trying to affect expectations of future monetary policy actions and, thus, short-term interest rates. Other central banks followed suit after the collapse of Lehman Brothers in 2008, calling such a policy instrument "forward guidance" (Ueda 2005, 334).

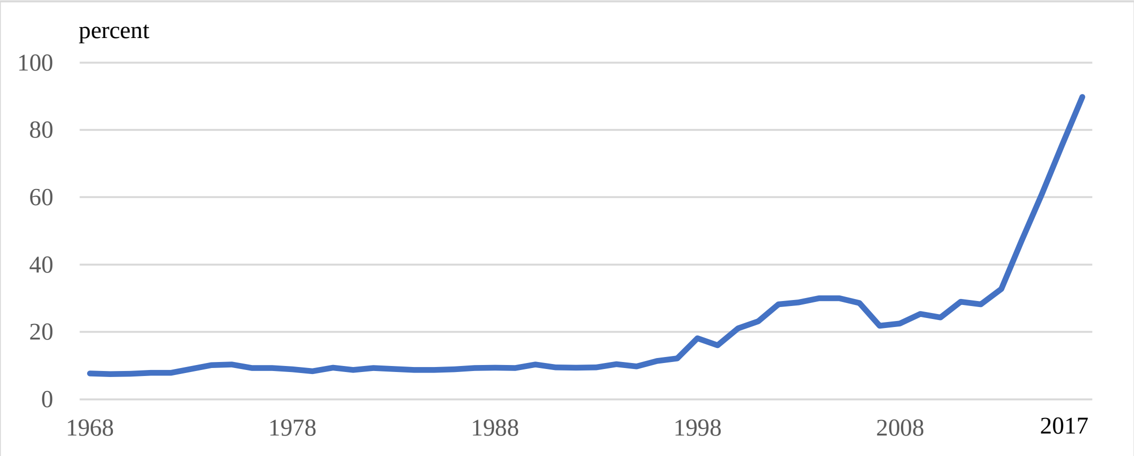
In August 2000, the BOJ lifted the ZIRP, as the economy was recovering with signs of overcoming deflation. In late 2000, however, the economy began to deteriorate again in the face of a global decline in the demand for high-tech goods. The BOJ adopted the Quantitative Easing (QE) policy in March 2001 (Ueda 2005, 334).

Ueda (2005) divides the unconventional monetary policy measures under the scheme of the Quantitative Easing Policy (QE: 2001-2006) into three elements: 1) shaping or managing interest-rate expectations, 2) altering the composition of the central bank’s balance sheet to change the relative supply of securities in the market, and 3) expanding the size of the central bank’s balance sheet beyond the level required to set the short-term policy rate at zero (Ueda 2005, 335-336). Under the schemes of Comprehensive Monetary Easing (CME: 2010-2013) and Quantitative and

Qualitative Monetary Easing (QQE: 2013-present), the BOJ has purchased or accepted risky assets such as CPs, exchange traded funds (ETFs), and real estate investment funds (REITs) as collateral. This type of policy measure is also called credit easing because it aims to reduce risk premiums on private assets. Under the scheme of QQE, the BOJ purchases government debts in longer maturities, intending to reduce the term premiums of these bonds.

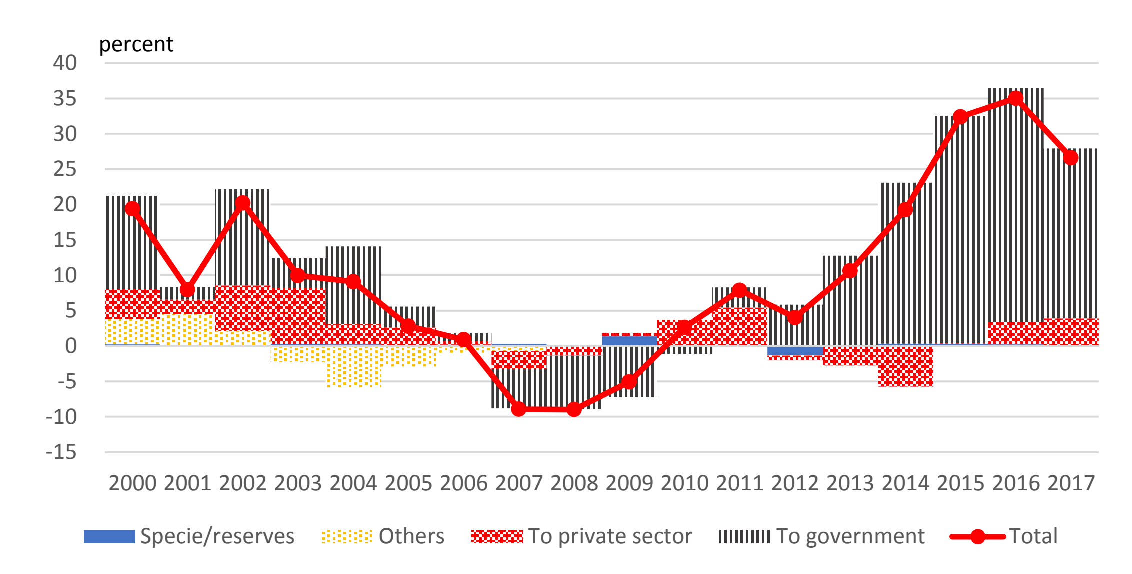
QQE starting April 2013 has been the most unconventional policy in terms of size. Declaring a clear annual inflation target of two percent, the BOJ has been pursuing aggressive monetary easing. As a result, the QQE regime is literally unprecedented in terms of the central bank’s balance-sheet size compared with the national economy. The BOJ's balance sheet reached 90 percent of GDP in 2017 (Figure 20). Most of the recent growth in the balance sheet has been due to increase in credit to the government by means of the purchase of government bonds (Figure 21). Despite the massive increase in the central bank's balance sheet over the past five years, however, the inflation target has not been achieved while monetary aggregates have stayed stable since the 1990s even with recent policy innovations (Figure 22; Shizume 2018, 355).

Figure 20 BOJ balance sheet/GDP ratio (1968-2017)



Sources: The Bank of Japan (1986b), pp.272-304; the Bank of Japan

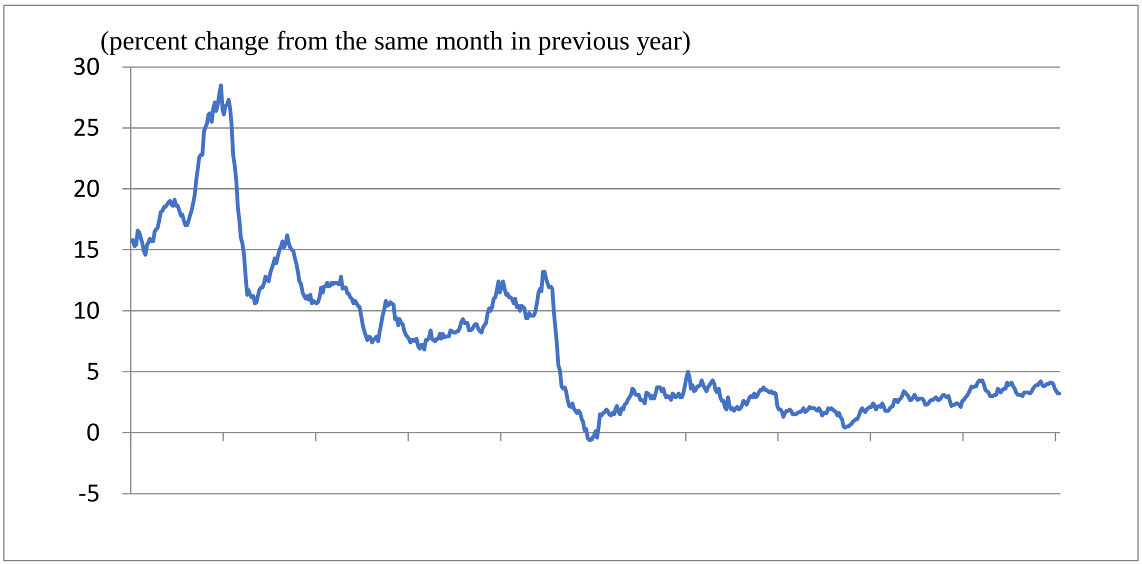
Figure 21 Asset components of the average annual balance sheet change in three years (2000-2017)



Source: The Bank of Japan

Note: Average annual balance sheet changes are three-year moving averages.

Figure 22 Money stock (M2)



Source: The Bank of Japan

7. Conclusion

Historically, the goals of monetary policy have been defined based on the goals of the nation as a whole. They changed over time in accordance with changes in the goals of the nation. On the long path to an industrialized, developed country from the late 19th century through the 1970s, the ultimate goal of monetary policy was to provide money for development. In the pre-WWII period, the central bank faced a conflict between two national goals – a wealthy nation and a strong military. Especially, during the big wars with Japan's main trading partners in the 1930s-1940s, monetary policy was overwhelmed by war finance and resulted in rampant inflation. In the post-WWII high-growth period, monetary policy was focused on growth without interference from war finance. Once Japan had achieved industrialization and become one of the leading economic powers, the primary goal shifted from development to stability. Meanwhile, the country faced new challenges owing to the maturing of its economy and society.

Instruments of monetary policy have also changed over time. They were constrained by the availability of instruments in the financial markets while the central bank pursued policy innovations. In the early days, the central bank faced lack of standardized financial instruments and began accepting equities as collateral for lending. During wars, the central bank supported war financing. When the government issued a large volume of bonds in the 1930s-1940s, the central bank underwrote the bonds and sold them to the private sector, calling those operations "open market operations." During the high-growth period in post-WWII Japan, the main policy instrument was interest-rate regulation accompanied by window guidance and the reserve/deposit ratio. When the Japanese economy, having achieved complete the high growth, became a major economic power, instruments of monetary policy shifted from regulation-based ones to market-based ones. In the 1990s, Japanese economy hit the ZLB, and the central bank has since been trying to deal with it by inventing unconventional monetary policy measures.

References:

Asahi Shinbun Sha,. *Nihon Keizai Toukei Souran* (Comprehensive Volume of Japanese Economic Statistics), Tokyo: Asahi Shinbun Sha, 1930 (in Japanese).

Fukuda, Shin-ichi, "The Founding of the bank of Japan and the Changed Behavior of Interest Rates and Inflation Rates," *Journal of the Japanese and International Economies*, Vol.9, 1995, pp.56-74.

Hagiwara, Kiyohito and Minoru Masubuchi, *Zusetsu Nippon Ginkou* (An Illustration of the Bank of Japan), Zaikei Shouhou Sha, 1986.

Ikeo, Kazuhito, *Nihon no Kin'yuu Shijou to Soshiki* (Financial Markets and Institutions in Japan), Toyo Keizai Shinposha, 1985 (in Japanese).

Ishii, Kanji, ed., *Nippon Ginko Kin'yuu Seisaku Shi* (Historical Studies on the Bank of Japan), University of Tokyo Press, 2001 (in Japanese).

Itoh, Masanao, Ryoji Koike and Masato Shizume, "Bank of Japan's Monetary Policy in the 1980s: A View Perceived from Archived and Other Materials," *Monetary and Economic Studies*, Vol.33, November 2015, pp.97-199.

Matsukata, Masayoshi, *Report on the Adoption of the Gold Standard in Japan*, The Government Press, 1899.

Metzler, Mark, *Lever of Empire: The International Gold Standard and the Crisis of Liberalism in Prewar Japan*, University of California Press, 2006.

Mitchener, Kris James, Masato Shizume, and Marc D. Weidenmier, "Why Did Countries Adopt the Gold Standard? Lessons from Japan," *Journal of Economic History*, Vol.70, No.1, March 2010, pp.27-56.

Miyanoya, Atsushi, "A Guide to Bank of Japan's Market Operations," *Financial Markets Department Working Paper*, 00-E-3, the Bank of Japan, 2000.

Nakamura, Takafusa, *Lectures on Modern Japanese Economic History, 1926-1994*, LTCB International Library Foundation, 1994.

Nakaso, Hiroshi, "The Financial Crisis in Japan during the 1990s: How the Bank of Japan Responded and the Lessons Learnt," *BIS Paper* No.6, October 2001, Basel: Bank for International Settlements.

Okina, Kunio, Masaaki Shirakawa and Shigenori Shiratsuka, "The Asset Bubble and Monetary Policy: Japan's Experience in the Late 1980s and the Lessons," *Monetary and Economic Studies*, Special Edition, February 2001, pp.395–450.

Shizume, Masato, "The Japanese Economy during the Interwar Period: Instability in the Financial System and the Impact of the World Depression," Bank of Japan Review, 2009-E-2, Reprinted in Ögren, Anders and Lars Fredrik Øksendal, eds., *The Gold Standard Peripheries: Monetary Policy, Adjustment and Flexibility in a Global Setting*, Palgrave Macmillan, 2012,

pp.211-228.
Shizume, Masato, "Financial Crises and the Central Bank: Lessons from Japan during the 1920s," Isao Suto and Hugh Rockoff eds., *Coping with Financial Panics: Some Lessons from Financial History*, Springer Studies in Economic History, 2017.
Shizume, Masato, "A History of the Bank of Japan, 1882-2016," Jacobson, Tor, Daniel Waldenström, and Rodney Edvinsson, eds., *Sveriges Riksbank 350 Years: A Central Bank in A World of Central Banks*, Cambridge University Press, 2018, pp.328-360.
Smethurst, Richard J., *From Foot Soldier to Finance Minister: Takahashi Korekiyo, Japan's Keynes*, Harvard East Asian Monographs; 292, 2007.
The Bank of Japan, *Nippon Ginko Hyakunen-Shi* (Bank of Japan: The First Hundred Years), Vol.1, 1982 (in Japanese).
The Bank of Japan, *Nippon Ginko Hyakunen-Shi* (Bank of Japan: The First Hundred Years), Vol.2, 1983a (in Japanese).
The Bank of Japan, *Nippon Ginko Hyakunen-Shi* (Bank of Japan: The First Hundred Years), Vol.3, 1983b (in Japanese).
The Bank of Japan, *Nippon Ginko Hyakunen-Shi* (Bank of Japan: The First Hundred Years), Vol.4, 1984 (in Japanese).
The Bank of Japan, *Nippon Ginko Hyakunen-Shi* (Bank of Japan: The First Hundred Years), Vol.5, 1985 (in Japanese).
The Bank of Japan, *Nippon Ginko Hyakunen-Shi* (Bank of Japan: The First Hundred Years), Vol.6, 1986a (in Japanese).
The Bank of Japan, *Nippon Ginko Hyakunen-Shi* (Bank of Japan: The First Hundred Years), Related Materials and Statistics, 1986b (in Japanese).
Ueda, Kazuo, "The Bank of Japan's Struggle with the Zero Lower Bound on Nominal Interest Rates: Exercises in Expectations Management," *International Finance*, Vol.8, Issue 2, December 2005, pp.329-350.