

1

The Great Japanese Stagnation: Lessons for Industrial Countries

Michael M. Hutchison,
Takatoshi Ito, and Frank
Westermann

1.1 Introduction

Japan was the growth miracle and economic model for successful industrial development during much of the postwar period. The economy's double-digit growth rates, remarkable industrial transformation, export success, and negligible unemployment were the envy of the world. The twenty-first century was expected by many scholars to be the "Japanese century" in terms of international economic and corporate dominance. Japan's economic and social institutions were frequently held up as models to be emulated if other industrial countries wanted to keep up technologically and competitively in the world economy.

The seemingly unstoppable Japanese economy fell abruptly into recession in the early 1990s, beginning a period of either recession or weak economic activity, commodity and asset price deflation, banking failures, increased bankruptcies, and rising unemployment. This has been termed the "great recession" (Knutter and Posen 2001) or "lost decade" (Cargill, Hutchison, and Ito 2000), but more aptly should be called the Great Stagnation—a sustained period of general economic malaise not seen in the industrial world since the 1930s. Though the *depth* of the downturn in Japan over the past fifteen years is not comparable to the 1930s, many other characteristics are similar—the duration of the downturn, persistence of banking problems and financial distress, and a sustained deflation combined with zero interest rates. No other industrial country has experienced this *combination* of economic characteristics for almost seventy years. Moreover the recent period was generally one of strong economic growth and prosperity in other

We thank MIT Economics, Business, and Finance Editor Elizabeth Murry and four anonymous reviewers for helpful comments and suggestions.

industrial countries. The cumulative effect of a decade of economic stagnation in Japan amounts to a very large output loss for the country.

Years of stagnation have left an imprint on the Japanese economy, financial system, and institutional structure. Many features that traditionally characterized the Japanese economic miracle have been affected, with changes not necessarily *caused* by the stagnation of the economy but pushed faster and further than would otherwise have been the case. Key features of the Japanese economic model that have undergone major changes include the traditional life-long employment system, the “iron triangle” of close and cooperative linkages among the government, corporate governance and the banking system, the keiretsu system, the main bank system, the bank-dominated financial system, and the leadership of the Ministry of Finance and Ministry of Trade and Industry in regulating and directing the economy.

Many key questions about the causes and effects of the Great Stagnation in Japan remain unresolved. What are the factors that have made Japan so unique in experiencing this set of economic challenges, and why has the country been so slow to recover? This book considers these questions from the financial perspective and is broadly grouped into three areas: features of the financial and banking system that have contributed to economic stagnation, monetary factors and central bank policy, and the role of international financial factors (exchange rate and balance of payments).

This introductory chapter places Japanese economic stagnation in historical context, contrasting the great success of the economy during much of the postwar period with the weak performance and associated problems seen more recently. We focus on the background and institutional aspects of the financial and monetary system in Japan that both contributed to the downturn and hindered recovery, providing context for the topics that are taken up in the other chapters of the book. We describe the major financial features that characterized the “traditional” Japanese economic model—features that contributed to the success of the economy in earlier times—and show how weaknesses in the system gradually emerged and eventually led to economic decline. The next section describes the progression of Japan from “model economy” to recession, deflation, and banking crisis. Sections 1.3 and 1.4 describe the financial and monetary systems, respectively, and how they have contributed to the onset and continuation of the Great Stagnation. Section 1.5 draws out some policy lessons and makes the analogy between asset price declines and collapse in credit in Japan in the 1990s with the

German experience over the past few years. Section 1.6 considers some policy lessons for other advanced economies, particularly if housing prices should drop dramatically as they have done in Japan over the past fifteen years. Section 1.7 concludes the chapter.

1.2 The Road from Model Economy to the Great Stagnation

The sustained economic stagnation in Japan over the course of the 1990s and first part of this decade was startling and in sharp contrast with the enormously successful performance of the economy during the preceding three decades. Table 1.1 shows that Japan had by far the most rapid economic growth in the industrial world during 1960 to 1973, averaging 9.6 percent real GDP growth annually compared with 4.9 percent for the entire OECD area. Unemployment rates were very low in Japan, averaging just 1.3 percent over the period compared with 3.2 percent in the OECD area, although inflation was relatively high (6.2 percent average) compared with most other industrial countries. This period is oftentimes termed the high-growth period in Japan, and it has brought worldwide attention to the country's economic success.

Following the 1973 oil shock economic growth in Japan and other industrial countries slowed sharply. Real GDP growth in Japan in the subsequent two decades was still quite high by the standards of other industrial economies, averaging about 3.8 percent annually during 1973 to 1989 compared with about 2.7 percent for the OECD area, but clearly reflected capacity limits and other constraints on growth (e.g., labor shortages, high productivity levels, and high technological levels) facing mature industrial economies. The rate of unemployment in Japan over the 1973 to 1989 period was less than half of that prevailing on average in the OECD area, and the rate of inflation averaged only about 2.2 percent annually. During this period Japan caught up technologically with the United States and other leading industrial nations, took international leadership positions in many industries, and its economic influence grew enormously on the world stage. Japan's economy became the envy of the world, frequently heralded as a model for other industrial nations to follow.

Stagnation of the Japanese economy in the 1991 to 2005 period, juxtaposed against such strong performance during the preceding three decades, came as a complete surprise. Real GDP growth averaged only 1.5 percent during this period, about half of that recorded in

Table 1.1
Economic performance in Japan and OECD area, 1960 to 2004

	Real-GDP growth rate	Inflation (CPI)	Unemployment rate
<i>1960–1973</i>			
Japan	9.6	6.2	1.3
United States	3.9	3.2	4.8
Germany	4.3	3.4	0.8
G7 average	4.8	3.9	3.1
OECD average	4.9	4.1	3.2
<i>1973–1979</i>			
Japan	3.6	9.9	1.9
United States	2.5	8.5	6.7
Germany	2.4	4.7	3.4
G7 average	2.7	9.8	4.9
OECD average	2.8	10.8	5.0
<i>1979–1989</i>			
Japan	4.0	2.5	2.5
United States	2.5	5.5	7.2
Germany	1.8	2.9	6.8
G7 average	2.7	5.6	6.9
OECD average	2.6	8.9	7.2
<i>1990–2004</i>			
Japan	1.5	0.5	3.8
United States	3.1	2.7	5.6
Germany	1.5	2.1	7.9
G7 average	2.1	2.1	7.7
OECD average	2.9	6.1	7.4

Source: *Historical Statistics, 1960–1993* (Organization for Economic Cooperation and Development, 1993); *OECD Economic Outlook, No. 76* (Organization for Economic Cooperation and Development, December 2004).

Notes: Macroeconomic performance of Japan and various other industrial countries (average percentage changes). “Germany” is the Federal Republic until unification. G7 includes Japan, the United States, Germany, France, Italy, the United Kingdom, and Canada. OECD includes G7, Australia, Austria, Belgium, the Czech Republic, Denmark, Finland, Greece, Hungary, Iceland, Ireland, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, and Turkey. Growth rate and CPI inflation rate are annual percentage rates of change between the years indicated. Unemployment rate is unemployment as a percentage of the total labor force and the average of the years indicated.

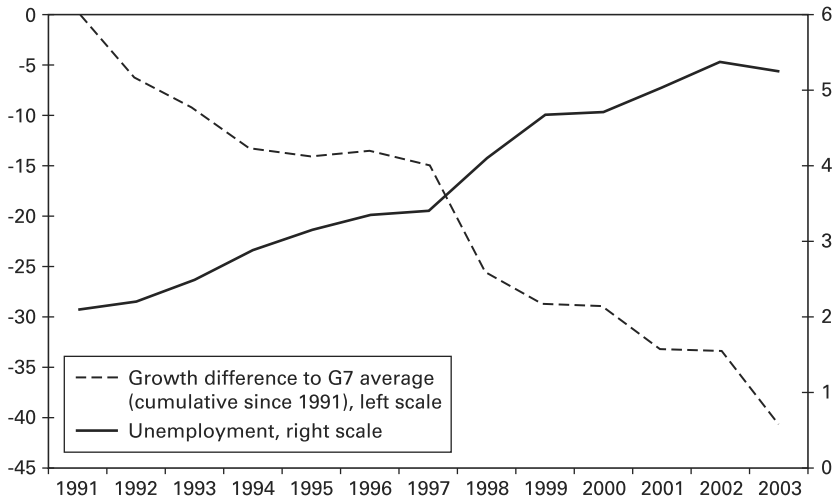


Figure 1.1

Industrial production and unemployment rate. The “growth difference” is the cumulative difference between industrial production in Japan and the average of G7 countries, without Japan, in percentage points. Over the twelve years displayed, the average of the G7 countries grew more than 40 percent faster than Japan. Source: IMF, *International Financial Statistics*.

the OECD. The economic malaise, demonstrated in figure 1.1 by the rise in Japan’s unemployment rate and weak industrial production relative to the other major industrial countries, was initially described as a lost decade, but at this writing continues for almost fifteen years. (Signs of an upturn were evident in late 2005, but it is not clear whether this is sustainable.) This is the feature that makes Japan stand out most amongst other industrial countries—the *duration* of stagnation and other economic problems. The financial problem in Japan is related to both the collapse in the stock market and other asset prices—and their failure to recover—and characterized by the burden of nonperforming loans that became institutionalized in the system (figure 1.2). The other key characteristic of the Japanese economic malaise was prolonged deflation in tandem with a sustained period of zero short-term interest rates where the central bank seemingly lost leverage to provide additional monetary stimulus to the economy (figure 1.3).

The challenge in understanding this period of economic stagnation and myriad of problems is to connect the real, financial, and monetary

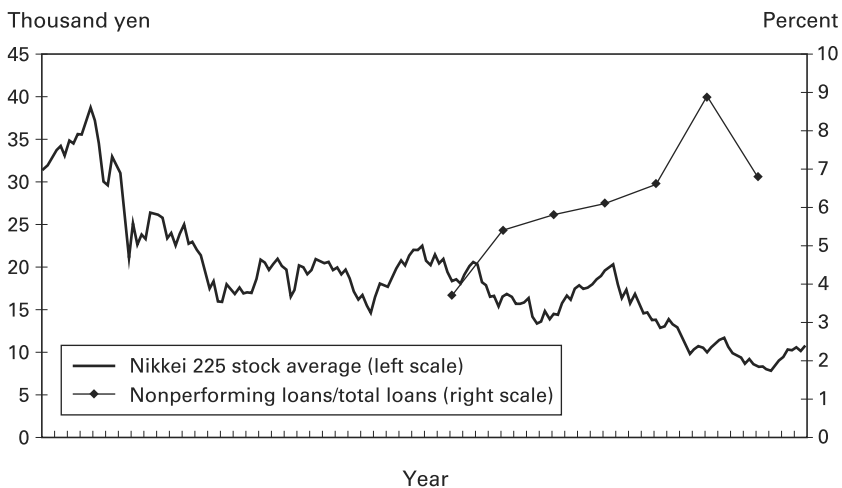


Figure 1.2 Stock market and nonperforming loans. Source: Japan Financial Services Agency.

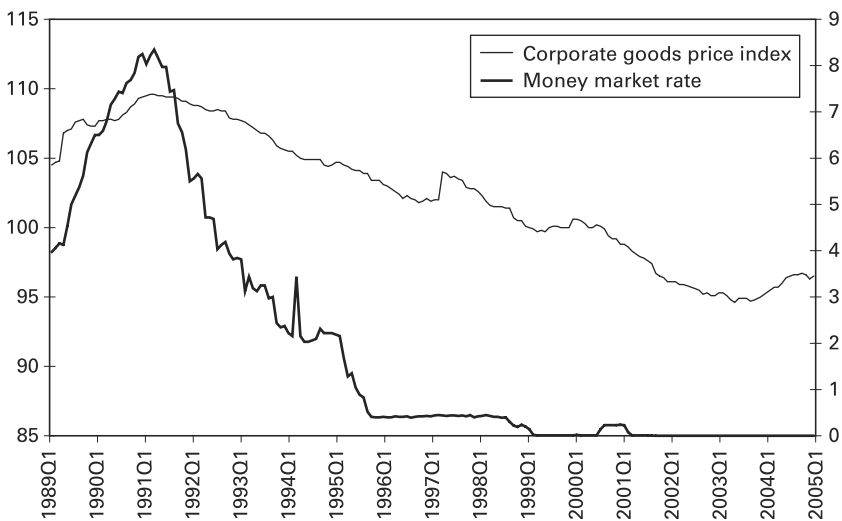


Figure 1.3 Prices and short-term interest rates. Sources: Bank of Japan and IMF, *International Financial Statistics*.

components with common causal factors. Emphasizing these linkages, Japanese Prime Minister Junichiro Koizumi February 23, 2002, directed ministries to formulate *emergency countermeasures to deflation*, stating “while deflation has a varied background, the resolution of the immediate financial problems is indispensable to overcoming deflation” (Ministry of Foreign Affairs of Japan press release, February 27, 2002). At this writing, it still remains unclear when Japan’s economy will return to its potential growth path or completely resolve its financial problems.

The Japanese economy’s prolonged downturn—the Great Stagnation—provides a fascinating case study of “depression economics” with lessons for many industrial economies today. The magnitude of the Japanese stagnation, of course, is not comparable to the economic disaster affecting much of the world in the 1930s. Fischer (2001), for example, points out that Japanese economic performance of the 1990s was unimpressive but not disastrous, and that policy probably would have been forced to be more decisive had there been a full-blown crisis. It is telling that when the financial system was momentarily at the brink of a full-blown panic, in late 1997 with the collapse of two major financial institutions (Hokkaido Takushoku Bank and Yamaichi Securities Company), there was a flurry of activity to make rapid institutional changes on both the financial and monetary side—and a brief political window of opportunity for institutional change—that helped stabilize the situation. Policy measures have been taken, albeit gradually and hesitantly, to resolve the banking problem in tandem with institutional changes in banking and financial supervision and regulation. However, Japan’s economy remains weak and is operating far below potential.

Though the depth of the recession in Japan is not comparable to that seen in many countries during the 1930s, many other characteristics are similar—the duration of the downturn, persistence of banking problems and financial distress, and a sustained deflation combined with zero interest rates. No industrial country other than Japan has experienced this *confluence* of economic events for almost seventy years. Moreover this period was generally one of strong economic growth and prosperity in other industrial countries and the cumulative effect of a decade of economic stagnation in Japan amounts to a very large output loss for the country. Not only does the Japanese stand out by the seeming inability of policy makers to pull the economy out of its stagnation, but the worrisome prospect that other countries could fall

into similar dire economic circumstances. We argue in section 1.5 that Germany has several of the characteristics that were associated with the *onset* (preconditions) of the Great Stagnation in Japan.

1.3 Japan's Financial System and the Great Stagnation

1.3.1 *Traditional Characteristics of the Japanese Financial System*

Several key characteristics of the “traditional” Japanese financial system were important factors in the country’s remarkable postwar growth performance, but also contributed to instability as the economy matured. The most important features in this context include the dependence of the economy on the banking system (“indirect” finance), the keiretsu system, “main bank” affiliations, and the nature of bank supervision and regulation. These institutional features, however, failed to evolve quickly enough to keep pace with the transformation, internationalization and modernization with other parts of the economy. The banking crisis of the 1990s and beyond can in large part be traced to a failure of the old financial framework to adapt to new economic realities.

Firms in Japan traditionally acquired credit for investment through the banking system—“indirect finance” was the predominant channel through which funds moved from savers to borrowers. Corporate bond and bill markets, as well as equity markets—direct financial channels—played a small role in raising funds for investment in Japan until the 1980s. The traditional system weakened as open financial markets developed in Japan and, at the same time, many of the largest internationally oriented corporations were both flush with funds from retained earnings (allowing them to largely self-finance investment) and had easy access to world bond and equity markets. The traditional indirect finance system in Japan, similar to Germany and other countries in continental Europe (as opposed to the United States and Great Britain), fostered a high degree of “co-dependence” between banks and firms that was facilitated and encouraged by established legal and institutional structures.

Keiretsu and Main Bank Affiliations in Japan

The keiretsu system, also known as enterprise or industrial groups, has its origins in the pre-war zaibatsu system where business enterprise

groups were closely affiliated with, and financed by, banks owned by the same family. In the zaibatsu system, family-owned banks were the only lender and controller of the large business enterprises.

Although these large conglomerates were broken up after the Second World War, some of their features remained in the modern keiretsu system. The rigid structure of the zaibatsu was dissolved after the war but was replaced by a looser structure of company groups with leadership provided by a large bank and the main bank system. In general terms, keiretsu consist of formal and informal links between firms, customers and suppliers, and financial institutions. Key elements were bank dominance of the enterprise groups and in the flows of funds, both of which were special characteristics of Japanese finance during the period 1950 to 1971 (Cargill and Royama 1988). In many ways keiretsu connections facilitate coordinating, financing, and monitoring firm investment. In particular, these tight networks oftentimes have provided Japanese firms with strategic international competitive advantage, easier access to financing during economic downturns, management support from banks, and other benefits (Hoshi et al. 1991).

Two key characteristics of keiretsu, discussed in the next subsection, proved particularly problematic with the economic downturn and fall in asset prices of the 1990s: (1) the system of cross-ownership, across firms and banks, created by large purchases and holding of equity positions, and (2) the predominance of corporate financing coming from the large "city" banks that form the core of each of the large keiretsu groups.

Cross-ownership of shares distinguish Japanese banks, as well as those in Germany, from other most countries. For example, it was illegal in the United States until recently for banks to hold shares in non-bank corporations (under the Glass-Steagall Act) and this practice is subject to considerable regulation in the United Kingdom. The regulatory agencies in many other countries either control the total amount of cross-shareholding or severely limit the extent to which revaluation gains from equity holdings can be included as capital when computing the capital-asset ratios that are relevant to comply with international agreements. Japan allows these unrealized equity revaluation gains to be applied liberally in calculating capital-asset ratios.¹

Furthermore banks in Japan still commonly have representatives on the boards and in managerial positions of the firms to which they lend. By this means banks are able to exert direct control over the

decision and the management of the firms. In principle, this relationship allows banks to monitor firms more effectively and to steer them directly in time of financial difficulties. In times of distress the firms gain from this “main bank” affiliation by maintaining their ability to borrow and invest. While up to and through the 1980s these features were viewed as one of the key positive attributes of the Japanese economy, more recently researchers have argued that it may also be responsible for the recent slowdown of economic growth. Eser, Peek, and Rosengren (chapter 5) analyze how this feature of the Japanese financial system helps to understand the financial crisis in the mid-1990s. In particular, they demonstrate empirically that traditional main bank relationships has frequently led to poor lending decisions by banks, especially “ever-greening” of loans. Banks are lending too much to firms in which they have close ties (through keiretsu/main bank linkages), oftentimes simply making loans to allow firms to pay interest on their existing debts, that is, ever-greening the loans. This way main bank links are diverting funds away from productive uses (new productive investments) to existing problematic debtors.

Government Prudential Regulations and Enforcement

Another key feature of the Japanese financial system that eventually led to serious problems and contributed to the banking crisis was the traditional practice of supervisory forbearance and the absence of effective prudential regulation of the banking sector. This a key feature in the model of Dekle and Kletzer (chapter 3). They show that public deposit insurance and weak prudential regulation may have led to the accumulation of nonperforming assets, banking crises and *permanent* declines in economic growth.

Over the last two decades banking supervision has gone through several stages in Japan. The main responsibility for designing and enforcing regulations was until 1998 held by the Banking Bureau of the Japanese Ministry of Finance. Officials from this ministry regularly visited banks and classified loans according to their own subjective evaluation about the likelihood of repayment. While banks with a high percentage of “questionable” loans were put on notice, and in severe cases merged with stronger banks, there was no systematic and tractable early warning system that forced the banks to write off bad loans at an early stage. Much was left to the discretion of the bank

examiner, and some even retired into executive positions at commercial banks while maintaining close contacts with the Ministry of Finance (a practice referred to as the *amakudari* system). Supervisory forbearance was typical and a general practice in this regulatory environment.

The Financial Supervisory Agency (FSA) was created in 1998 to address the serious lapses in bank supervision that contributed to the banking crisis. The FSA reported directly to the Financial Reconstruction Commission of the Prime Minister's Office until 2001, when it became a part of the government. The FSA was reorganized as the Financial Services Agency (new) in 2000. The FSA took on many of the supervisory and regulatory responsibilities formerly held by the Ministry of Finance, and was charged with implementing a new system to assess the quality of bank's loan assets. The FSA developed a new nonperforming loan classification system that is rigorous and consistent across banks. Slower progress has been made with other reforms and in the area of enforcement. The FSA has proved more successful than the Ministry of Finance especially since 2002 in supervising and regulating banks so as to both resolve the bad loan problem in Japan, force management accountability in the banking system, and avoid future crises from occurring (Hoshi and Ito 2004). It is noteworthy that the FSA was created *after* the banking crisis and, in this context, is constrained in that a tighter assessment of nonperforming loans would lead to banks further abandoning firms in distress, inducing even more bankruptcies and contributing to continued weakness in the economy.

In chapter 4, Spiegel and Yamori show that banks voluntary disclosure of their balance sheet positions is necessary for market discipline in a modern financial sector. If voluntary disclosure is not forthcoming, then government-imposed strict disclosure rules are necessary to ensure financial stability. Spiegel and Yamori show empirically that voluntary disclosure did not work in Japan—weak banks were reluctant to disclose the magnitude of their nonperforming loans while healthy banks voluntarily made public more accurate assessments of their true balance sheet positions. Moreover the Ministry of Finance did not strictly enforce disclosure rules. The authors find that stricter disclosure rules enforced by the Ministry of Finance would have helped to avoid the Japanese banking crisis, or at least limit its magnitude. The authors also provide concrete policy options for efficient regulation of the Japanese economy in future.

1.3.2 *The Banking Crisis and Public Bailouts in Japan: A Chronology of Events*

The evolution of the banking crisis in Japan may be highlighted in the context of its traditional financial characteristics. The burst of the stock market bubble, starting on the first trading day of 1990 and continuing into the mid-1990s, led to significant losses for the banks because of their large equity holdings associated with their main bank relationships. The simultaneous decline of real estate prices further led to bankruptcies and debt service problems of private corporations in the real-estate related sectors. At this initial phase, the magnitude of the nonperforming loans problem was difficult to assess due to the lack of disclosure of the banks.

The first public awareness of the seriousness of Japan's banking problems emerged publicly with the failure of a number of small financial institutions in 1995, most notably the *Jusen* (housing) finance companies. The *Jusen* were created in the mid-1970s as subsidiaries of banks, securities firms, and life insurance companies. They provided household credit and, in the 1980s, turned to real estate finance. The *Jusen* collapsed with the downturn in the economy, especially hard-hit by the drop in the real estate property market. The initial failure of *Jusen* and some small banks in the mid 1990s led to questions about whether the banks would be bailed out by the government and, if so, who would ultimately assume the losses and bear responsibility.

Insolvent banks initially were merged with another healthy private bank (a practice known as the *convoy system*) and, in 1995, 685 billion yen of public funds were used for this purpose. This was the first major public bailout of a financial institution in Japan. Because of a lack of explicit burden sharing rule when insolvent financial institutions fail, this injection only came after severe disagreements among the Ministry of Finance, the Ministry of Agriculture, Forestry and Fishery, and private banks. These internal disputes prevented a more decisive solution of the nonperforming loans problem and ultimately led, by the end of 1997, to the second phase of the banking crisis with the failures of much larger financial institutions, most notably the Hokkaido Takushoku bank and Yamaichi Securities. By November 1997 Japan was on the edge of financial panic (Cargill, Hutchison, and Ito 2000).

In order to prevent a full-blown financial crisis, the government provided a total of 1.8 trillion yen to 21 financial institutions in the form of preferred shares and subordinated debt. The long-term credit

bank (LTCB) and the Nippon Credit Bank also were nationalized in 1998. These public rescue measures were not sufficient, however, and the government injected another 7.5 billion yen into 15 banks in March 1999. These monies, combined with extensive guarantees of deposits and a strengthened deposit insurance system for assisted mergers, helped stem the crisis.

In the following years banks used this buffer of capital to write off some of the nonperforming loans on their balance sheets. A wave of mergers also accompanied this period of financial consolidation. Most prominently three large banks, Fuji, Daiichi-Kangyo, and the Industrial Bank of Japan, joined to form the Mizuho Financial Holdings in 1999. The last remaining zaibatsu, Sakura and Sumitomo joined to form the Mitsui-Sumitomo Financial group (completed in 2002). Some recovery in the stock market, due largely to the worldwide boom in IT shares, facilitated financial consolidation as it created unrealized capital gains to banks.

In March 2001, however, the stock market declined sharply again with the burst in the IT bubble. The Nikkei stock index fell 50 percent from its peak. Under these circumstances even additional capital injections in 2001 and 2002 (2 trillion yen each) were still insufficient to restore the solvency of bank balance sheets, and they were pushed to the limit of their operational capabilities. In April 2003, stock prices fell to below one-fifth of their peak in 1989. Two more banks failed in 2005.

In the present situation banks are continuing to face three major challenges. First, there remains a problem of nonperforming loans in the banking system, although substantial progress has been made in recent years. For example, in mid-2005 the FSA officially declared the bad-loan crisis to be over (*Financial Times*, May 25, 2005). Although the “crisis” atmosphere and urgency may be over, nonperforming loans still weigh down bank balance sheets. Signs of a recovering economy in 2005 should help on this front. Second, maintaining the 8 percent capital adequacy ratio—required by FSA to meet the international Basle accord—remains a challenge for most banks. Part of the 8 percent rule was satisfied using unrealized capital gains from banks’ stock holdings. Recent losses in their stock portfolios, however, have had the reverse effect and have put additional pressure on banks’ capital positions. (The analogy to the German banking system is discussed in detail in the end of the chapter.) Third, the proportion of deterred tax assets is becoming an increasingly large share of bank capital. As the provision to bad loans is conducted from profits after taxes, the taxes

that are paid at the time of provisioning will be repaid by the government in case the loans turn out to be nonperforming *ex post*. This tax credit can be deducted from profits in the future (when the next income taxes are due). A major current problem of the banking system is that the majority of the banks capital consists of either direct capital injections from the government or deferred tax credit assets.

Ito and Harada (chapter 2) demonstrate that it is possible to monitor the magnitude of the banking problems in Japan using private market indicators, not just official statistics on nonperforming loans published by the FSA or balance sheet disclosures provided by the banks themselves. They show that institutional changes have made the “Japan premium” (the extra interest charged on international borrowing by Japanese banks) less useful as an indicator of the probability of banks defaulting on their obligations, but that credit derivative spreads are very informative. In this context, Ito and Harada demonstrate empirically that the bank fragility is still very much in evidence more than ten years since these problems first came to light in Japan.

1.4 Monetary Policy: Background and Institutions

1.4.1 Background

Monetary policy in Japan during the postwar period has undergone a number of distinct phases.² The first distinct phase of monetary was the Bretton Woods system of fixed exchange rates when Japan’s real GDP was consistently growing at double-digit rates. The key policy anchor for almost twenty years in Japan, operating between 1950 and 1971, was the exchange rate peg at 360 yen per dollar. Monetary policy during this period, working together with active foreign exchange intervention and controls on international capital movements, was directed to maintaining the fixed exchange rate. A secondary objective—pursued only when it didn’t conflict with the exchange rate peg—was managing aggregate demand through occasional changes in the official discount rate and borrowed reserves.

Policy was largely passive during the Bretton Woods phase in the sense that monetary policy changes were in large part directed to maintaining the fixed exchange rate peg. The instruments of policy, against a background of tightly regulated financial markets and a bank-dominated lending system, were primarily “window guidance” (i.e., quantitative limits on commercial bank lending), quantitative

limits on Bank of Japan (BOJ) loans to commercial banks (i.e., discount loans), and changes in the discount rate (i.e., the interest rate charged for discount loans). The BOJ alternated between periods of tight and loose monetary policy depending on whether the balance of payments was in deficit or surplus (Ito 1992). “Fine-tuning” of aggregate demand was not a major issue—the Japanese economic miracle was in full swing and attempts at limiting aggregate demand growth to slow inflation and maintain the exchange rate peg were the main monetary policy concerns.

The breakup of the Bretton Woods exchange rate system in 1973, and the loss of the exchange rate anchor, presented a major challenge to the BOJ.³ A period of high inflation (the “wild inflation”) at this time—averaging about 16 percent during 1973 to 1975—was caused by a major oil shock, an episode of very stimulative fiscal policy and, at least initially, an accommodative policy stance by the Bank. High inflation occurred in tandem with a sharp recession, and this confluence of events was in large part responsible for labor strife and social discord that proved disastrous for the economy and threaten the foundations of the Japanese model of economic cooperation.

To combat inflation and stabilize the economy, the BOJ embarked on a new “money-focused” monetary policy in the mid-1970s that emphasized steady moderate growth in the broad monetary aggregate (M2 + CDs) and predictability in the form of publicly announced monetary growth forecasts. Interbank interest rates were the primary operating instrument of policy, supported by occasional changes in the discount rate. With financial liberalization in the economy, and the development of financial markets, interest rates became the most important mechanism through which monetary policy actions were transmitted to the economy.

The primary emphasis of the money-focused policy was to control inflation, and it was enormously successful in doing so. The rate of growth of the monetary aggregates declined steadily, and inflation followed suit, from 1975 to 1979. Inflation declined from double-digit rates in 1974 and 1975 to only 3 percent by 1979. This policy, with some modifications, was largely in place from the mid-1970s until the mid-1990s.

The main policy challenge in the late 1980s was setting the course of policy in a highly unusual economic environment—low inflation by conventional measures such as the consumer price index combined with very rapid economic growth and an unprecedented boom in asset

prices (e.g., equities, land, commercial real estate, and other assets). This remarkable period is now termed the “asset price bubble,” of course, but the BOJ at the time observed low inflation and was reluctant to tighten policy. By May 1989, however, the BOJ finally acted. Policy was tightened over the subsequent fourteen months and, in five steps, the discount rate was eventually raised by 3.5 percentage points.

1.4.2 Steps to Ease Monetary Policy during the Great Stagnation⁴

The stock market collapsed in Japan in 1990 and land and real estate prices started to decline in 1991.⁵ Following the fall in asset prices, the economy slowed, and weakness in the banking system began to emerge—the Great Stagnation had begun. Monetary policy during this period was changed several times, starting with a gradual reduction in interest rates using the conventional money-focused framework. As deflation and economic stagnation continued unabated, the BOJ was eventually forced to abandon its traditional approach to policy and introduced more radical measures such as “zero interest rate policy” (ZIRP) and “quantitative easing.”

With signs of increasing weakness in the economy and the downward movement in asset prices, the BOJ began to lower interest rates in July 1991 with a 50 basis point decrease in the official discount rate. Over the next four years, as the economy continued to stagnate, the BOJ reduced the official discount rate eight more times until it stood at only 0.5 percent (September 1995) and the interbank interest rate (uncollateralized overnight call rate) was reduced in tandem. The target for the interbank interest rate, the primary operating instrument of the BOJ, stood at only 0.25 percent by late 1998.

February 12, 1999, marked the start of the zero interest rate policy (ZIRP) when the BOJ stated that it wanted to “encourage the uncollateralized overnight call rate to move as low as possible.” The BOJ made it clear, however, that this was an extraordinary move and was done reluctantly. This policy lasted for eighteen months, and in August 2000 the BOJ lifted the ZIRP, claiming “Japan’s economy has reached the stage where deflationary concern has been dispelled.” The government opposed this move, however, pointing out that deflation had not abated and the economy was still weak.

Economic condition started to deteriorate as soon as the BOJ lifted the ZIRP with industrial production declining 5 percent over the subsequent four months. The BOJ was reluctant to publicly announce a

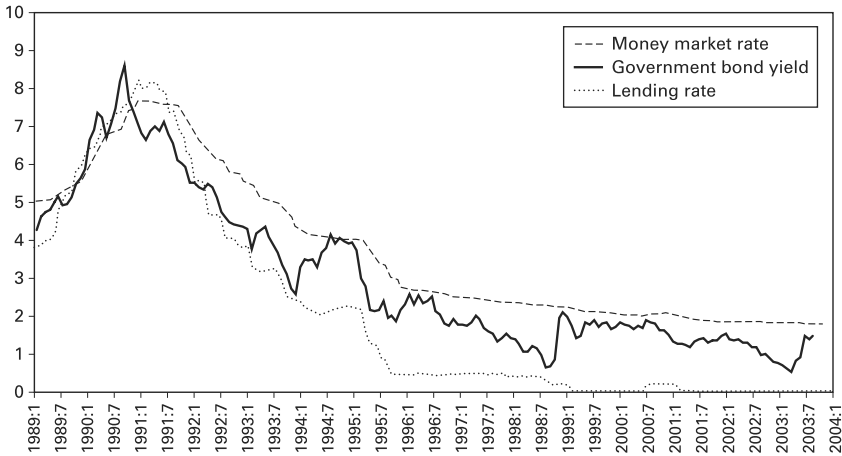


Figure 1.4

Interest rates in Japan. Source: IMF, *International Financial Statistics*.

return to the ZIRP, in part for political reasons, for by doing so would be an acknowledgment that abandoning the policy had been a mistake. However, the BOJ responded in other ways. In February 2001, the Bank reduced the official discount rate, which had been constant at 0.50 percent since 1995, to 0.35 percent, and also created a “Lombard-type” lending facility that provided funds to financial institutions at the official discount rate. At the end of the month it lowered the discount rate to 0.25 percent and moved the overnight call rate effectively to zero (0.15 percent).

Lending rates and government bond yields also declined to unprecedented low levels (figure 1.4). The low interest rates seen in Japan over the past six years are unprecedented for any industrial country since the 1930s.

In March 2001, the BOJ introduced its policy of “quantitative easing,” at the same time that the Bank lowered the interest rate to zero (consisting of bank reserves and current account balances of exempted institutions). At this time the BOJ began targeting the outstanding balance of banks’ current accounts (consisting of required and excess reserves of commercial banks). The BOJ initially announced a target of around ¥5 trillion with the objective of pushing the overnight call rate to zero. The BOJ also announced that this procedure would continue “until the consumer price index (excluding perishables, on a nationwide statistics) registers stably a zero percent or an

increase year on year.” The target current account balance (held at the BOJ) was raised three times in 2001, twice in 2002, three times in 2003, and again in January 2004.

The BOJ also announced other policy measures at the time of quantitative easing. In particular, the BOJ gradually increased the amount of outright purchase of long-term government bonds over this period from to ¥400 trillion ¥1.2 trillion per month and, in late 2002, introduced a plan of buying ¥2 trillion of stocks held by banks over a two-year period. (The latter was not discussed in the context of monetary policy, in particular quantitative easing, but as a measure to improve the balance sheets of banks.)

1.4.3 Bank of Japan Institutional Changes, and the Political Economy of Monetary Policy

The late 1990s was a turbulent period for monetary policy in that (1) policy had limited effectiveness in stimulating the economy, (2) policy makers were operating in uncharted territory once interest rates fell to zero, (3) the BOJ was under intense political pressure to do more to ease policy, and (4) the BOJ underwent dramatic institutional changes. In particular, the legal foundation of the BOJ went through a major change in 1998 when a change in the central bank law gave it formal independence from the Ministry of Finance.

After the change in the central bank law granting it more independence, the BOJ immediately was at odds with the Ministry of Finance, and the government more generally. The BOJ stated that monetary policy alone could not create an economic recovery. Rather, the BOJ argued that structural reforms in the economy, and particularly in the banking system, were essential to restore economic growth. Their view was that the prolonged recession was a structural problem and Japan needed structural reforms for the economy to recover. Moreover the BOJ was very slow to accept that deflation was an overriding concern for monetary policy. Only when quantitative easing was introduced in early 2001, after several years of deflation, did the BOJ state that its objective was to continue the procedure “until the consumer price index (excluding perishables, on a nationwide statistics) registers stably a zero percent or an increase year on year.” The BOJ denied that it was implementing inflation targeting, however, negating a potentially important announcement effect. The government meanwhile announced “antideflationary measures” and encouraged the BOJ to take “bold

monetary policy," while the BOJ once again stressed the importance of structural reforms and the need to strengthen the financial system in order to stop deflation.

Governor Masaru Hayami completed the five-year term in March 2003, and Toshihiko Fukui became the new governor of the BOJ. The arrival of Governor Fukui initially did not immediately create an explicit break in the BOJ's policy, but overtime it became clear that a more expansionary stance would be followed. Most important, Governor Fukui clearly stated the BOJ would continue quantitative easing until deflation stopped.

1.4.4 How Stimulative Was BOJ Policy?

It is evident that the Bank of Japan tried to follow a more expansionary policy in the 1990s by successively lowering the call money (interbank) interest rates from the peak of 8.2 percent in March 1991 to virtually zero in March 1999.⁶

The difficulty, of course, is that growth in the broader money aggregate of M2 + CDs—the key monetary policy indicator—has been very low and the economy remains stagnated. The key monetary aggregate (M2 + CDs) rose at only about 1.5 to 2.0 percent (annualized rate) during 2003 and the first half of 2004 despite the monetary base growing at an annualized rate of over 14 percent during this period.⁷ Conventional monetary policy instruments—interest rates and base money growth—have also been ineffective in stopping the Japanese deflation. Japanese deflation continued in 2003 and 2004 as the GDP deflator fell at an annual rate of about -2.5 percent and continued at this pace during the first half of 2005.⁸ The Japanese price level has been declining by several measures since the mid-1990s.

The empirical evidence reported in Arai and Hoshi (chapter 6) suggests both a structural (downward) shift in the money multiplier in the late 1990s and a structural break in the monetary transmission mechanism. A major channel of the monetary transmission mechanism is through the banking system, and this channel has been stymied since 1995. Growth in the broad monetary aggregates—money created through the banking system—has been very weak, and there has been a sharp absolute decline in the amount of bank credit.

Moreover Fujii (chapter 8) demonstrates empirically that one means of combating deflation—through depreciation of the yen exchange rate—has lost much of its effectiveness.⁹ In any case, the yen is

not under pressure to depreciate but rather to appreciate. Müller-Plantenberg (chapter 9) provides empirical evidence that pressure on the yen to appreciate is likely to continue, since it is closely tied to the surplus in Japan's balance of payments. He concludes that depreciation of the yen exchange rate is not a viable option to ease deflation and pull the economy out of stagnation.

Arai and Hoshi argue that the BOJ, despite its attempts to employ conventional instruments of monetary policy to stimulate the economy, fell short in its efforts. In particular, they argue that the Bank could have expanded base money even further and made a firmer public commitment to combating deflation—perhaps by formally introducing an explicit positive inflation target for an extended period. Okina and Shiratsuka (chapter 7) document that the ZIRP had the effect of flattening the yield curve at the short- and medium-term duration. They interpret this as evidence of market confidence that the BOJ was committed to the ZIRP and that it would continue for a sustained period. The question arises, however, why longer term rates were not affected by the BOJ's policy actions. Okina and Shiratsuka suggest that the ZIRP was not able to offset strong underlying deflationary pressures, and hence longer term rates proved insensitive to the BOJ policy stance. An alternative explanation, consistent with Hutchison (2004) and Arai and Hoshi (chapter 6), is that the BOJ was not as expansionary as it could have been and that a stronger institutional commitment to the ZIRP would have been possible.

1.5 Lessons for Advanced Economies

There is no exact analogy between the financial problems facing Japan and other industrial countries today. Research to date has drawn out the similarities of the Japanese experience with industrial countries during the Great Depression (Cargill et al. 2000; Hutchison 2004). This comparison only goes so far, however, since Japan's output performance, while disappointing, does not compare with the full-scale economic collapse of the 1930s.

What then are the lessons that may be applied to other industrial countries in a modern setting? One clear lesson from the Japanese experience, also highlighted in other chapters of this volume, is to make concerted efforts to avoid the onset of the problem or, at the least, take aggressive policy measures to move out of stagnation—recession,

deflation, and banking sector dysfunction—before monetary and fiscal policies become paralyzed as effective stabilization instruments.

1.5.1 Is Germany Following in the Footsteps of Japan?

In terms of avoiding the onset of the problem, recent developments in the banking sector of Germany and elsewhere in Europe are worrisome. In this respect the Germany economy at present is reminiscent of the *beginning* of the banking crisis in Japan in the early 1990s. While the magnitude of the problem might differ in Japan in the early 1990s and Germany today, the timing between the fall in equity prices, collapse in credit, and emergence of a “capital crunch” and weak performance of the real economy is remarkably similar. Moreover both countries faced special situations with respect to the macroeconomic environment and to the regulatory characteristics of the banking system at these times. There is no indication at present that Germany has a weak bank supervisory structure and an emerging nonperforming loan problem of the sort or magnitude that characterized Japan in the early 1990s. On the other hand, Japan was in a stronger economic position in 1990—stronger real growth, a more profitable and competitive industrial sector, better fiscal balance, and exceptionally low unemployment—than Germany was in 2001. And the collapse of the Japanese economy was not only completely unexpected, but its weak performance has lasted for fifteen years. Might an already weak Germany economy follow the path of Japan into a Great Stagnation?

In both Japan and Germany lending booms ended in stock market crashes—1990 in Japan and 2001 in Germany—while banks aimed to achieve the international agreements on capital adequacy requirements (i.e., the Basle I and Basle II accords). Japanese as well as German Banks also hold substantial amounts of equity in nonbank firms in which they also have outstanding loans. As Ito and Sasaki (2002) points out, changes in stock prices in these banking systems—in contrast to other OECD countries—directly translate into fluctuations in banks’ balance sheets and capital positions. A fall in stock prices therefore reduces the risk-based capital-ratio (Basle I), reduces the ability of banks to lend, and induces a “credit crunch.”

Aggregate credit volume, shown in figures 1.5 and 1.6, has stagnated in Germany since the first quarter of 2001 and closely mirrors the

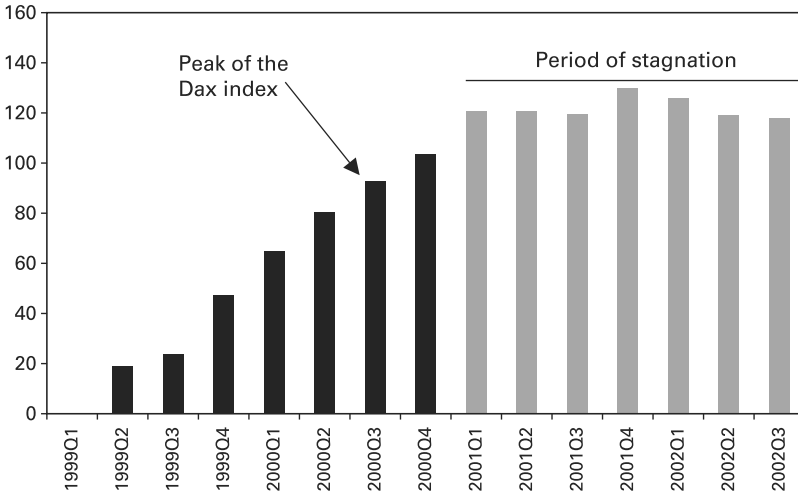


Figure 1.5
Bank credit in Germany.

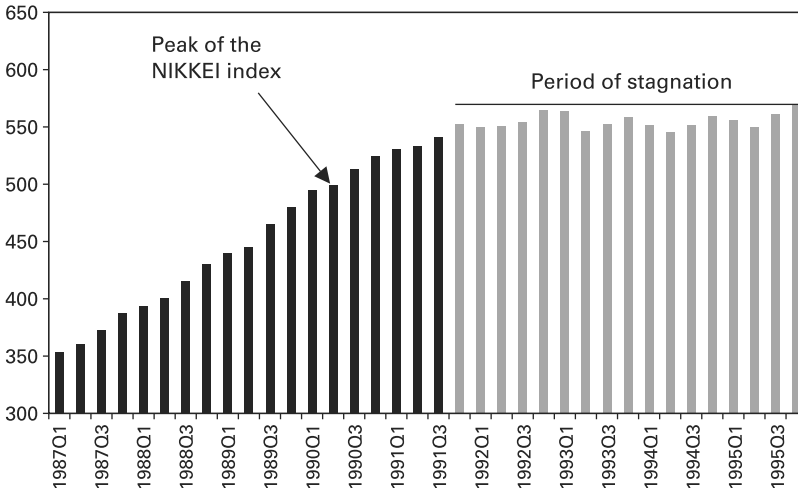


Figure 1.6
Bank credit in Japan. Shown are the accumulated changes of bank credit to domestic enterprises and economically independent individuals. Sources: Statistische Beilhefte zum Monatsbericht, 2002, *Bankenstatistik, I. Banken in Deutschland, 7. Kredite an inländische Unternehmen und Privatpersonen*, reihe 7 + 11, p. 34, and IMF, *International Financial Statistics*.

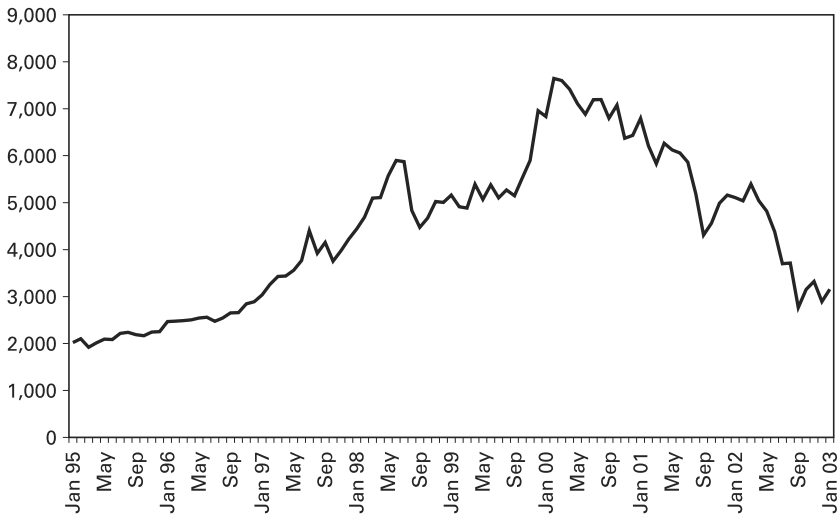


Figure 1.7
German stock market index, DAX.

development of credit in Japan at the beginning of the 1990s. In both Germany and Japan a stock market crash preceded the collapse in aggregate credit by between one and two years (figures 1.7 and 1.8). Moreover the decline in asset values was not a gradual incremental change but rather a large discrete fall that reduced value of the major aggregate stock indexes by about 60 percent in both of the two countries.

Falling stock prices do not only affect the banks directly via their balance sheets, but also indirectly reduce their ability to meet the required capital-ratios. In principle, there are two ways to increase the capital-ratio: either by raising additional capital or by reducing lending and shifting asset to “zero-risk-weight” government bonds. The indirect effect of the stock market crash is to make the former option more difficult. As the new issues of equity are highly correlated with the stock prices themselves in the two countries, the difficulty of raising new capital in the stock market makes the reduction of lending the only alternative for maintaining the required capital asset ratio.

Perhaps even more informative than the volume of aggregate as an indicator of a bank credit crunch is the development of an important substitute for bank credit—short-term commercial paper.¹⁰ If changes



Figure 1.8
Japanese NIKKEI 225 index.

in aggregate credit were mainly due to changes in the *demand* for credit, then all substitutes of bank credit would be expected to display fairly similar fluctuations. In particular, commercial paper held and issued by firms should therefore also decline during an aggregate decline in the demand for credit. As figure 1.9 shows, however, there was no decline in commercial paper in Germany after aggregate credit began to stagnate. On the contrary, the beginning of the credit crunch and the structural discontinuity in aggregate lending coincide with a boom in alternative sources of financing. This suggests that *supply side* changes played an important role, adversely affecting firms in a credit crunch situation.

Similar developments occurred in Japan, although changes in the composition of external finance are less clear than in Germany. Net issues of commercial paper boomed in Japan since the introduction of the market in 1988, shown in figure 1.10, but the short time series makes the experience more difficult to interpret. Nonetheless, the pattern after the crash is strikingly similar to Germany.

Finally, figure 1.11 shows the results of the Tankan Survey in Japan, which asks firms about the perceived lending attitude of the banks. This question can be answered by each firm as "lax," "normal," or "right," and it is aggregated into an indicator that shows the percent-

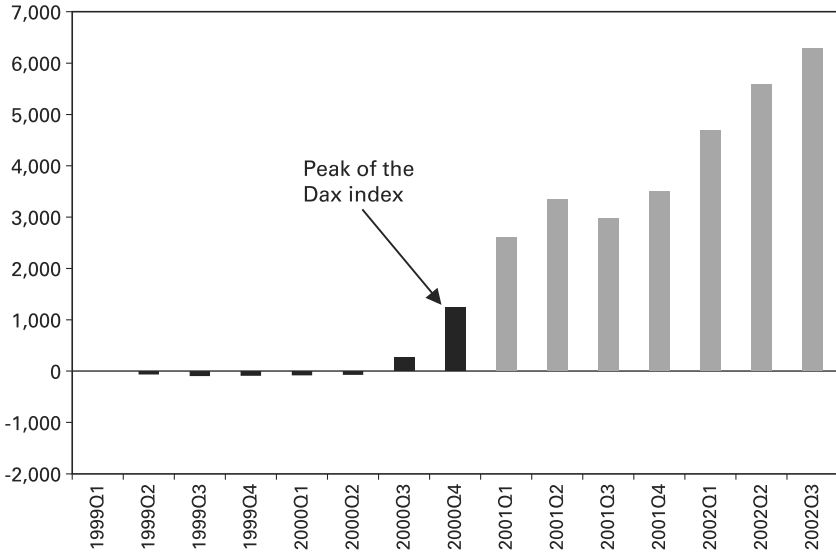


Figure 1.9

Commercial paper in Germany (increment of stocks since 1999). Shown are the accumulated changes of the net issuance of short-term commercial paper, up to four years. Source: Deutsche Bundesbank, Statistische Beihefte zum Monatsbericht, *Kapitalmarktstatistik*, 2002.

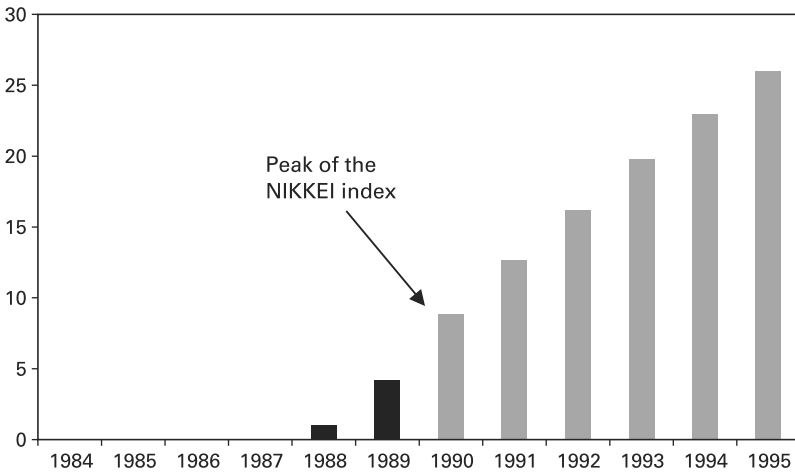


Figure 1.10

Commercial paper in Japan (increment of stocks since 1984). Shown are the accumulated changes of the net issuance of short-term commercial paper. Source: TANKAN, Short-term Economic Survey of All Enterprises in Japan.

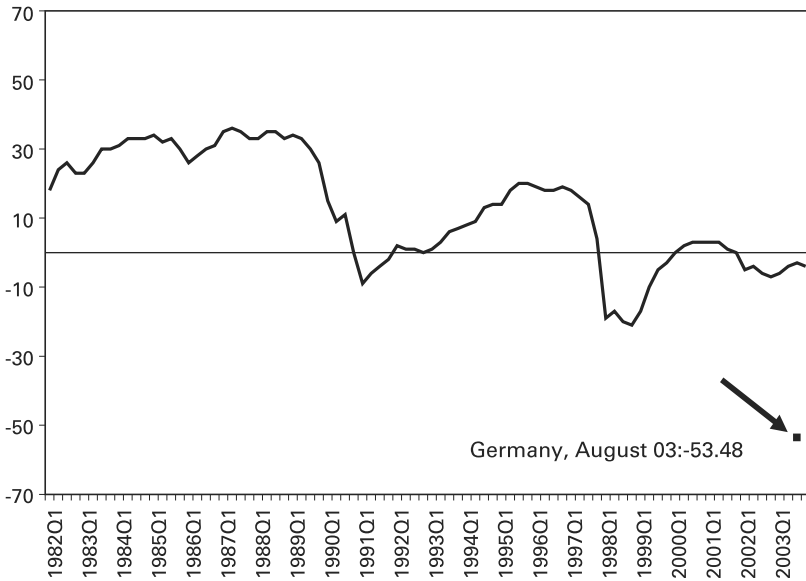


Figure 1.11

Lending attitudes of banks in Germany and Japan. In the TANKAN and IFO surveys, banks' attitudes toward lending are evaluated by firms on a scale ranging from "accommodating" to "severe." Sources: TANKAN, *Short-term Economic Survey of All Enterprises in Japan*, and Ifo Institut.

age of the firms that answer accordingly on a scale of 50 (accommodating) to -50 (severe). Cargill, Hutchison, and Ito (2000), Hutchison (2000), and others use this indicator to show that Japanese firms are strongly affected by the credit crunch even today. Only recently, however, has a comparable indicator become available in Germany. The Ifo Institute, a think tank that conducts regular surveys on the business climate in Germany, started asking the question about credit conditions in exactly the way as that used in Japan for the Tankan Survey.¹¹ The first results, from August 2003, show that Germany firms indeed perceive the recent slowdown in credit to be partly attributable to supply side factors (figure 1.11). In particular, it is telling that from the perspective of firms, the credit situation in Germany is *severe*.¹²

By contrast, the property price bubble that occurred in Japan in the 1980s is not evident in Germany. German property price increases have been relatively modest compared with other European countries (or with Japan in the 1980s), shown in figure 1.12, and do not indicate that a sharp correction is imminent.

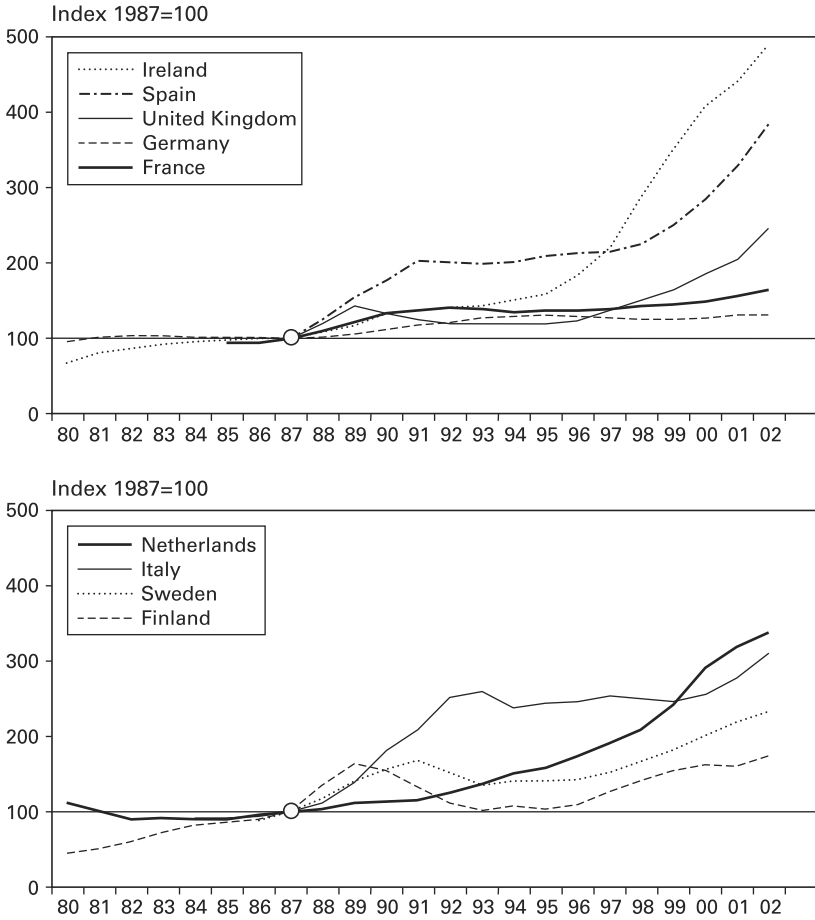


Figure 1.12 Housing prices in European countries. Index 1987 = 100. Sources: EEAG Report 2005. Principal data from Deutsche Bundesbank, ECB, Nationwide Building Society (UK), and Ifo Institut calculations.

1.5.2 Real Property Price Declines and Financial Distress: A Problem for Advanced Economies?

In the 1980s and 1990s a number of advanced economies experienced severe bank crises similar to that of Japan—Finland (1991–94), Italy (1990–94), Norway (1987–93), Portugal (1986–89), Sweden (1990–93), and the United States (1984–87). Japan’s experience seems to fit with the general characterization of the causes of these banking crises in at least two ways (Hutchison and McDill 1999): macroeconomic instability (boom and bust cycles in asset prices and real output) and weakness in financial structure (financial liberalization, deposit guarantees, and weak supervision and regulation).

However, the slow response of the regulatory authorities to resolve the banking problems—and their subsequently long duration—makes Japan a very special case. Only in mid-2005, after a decade of banking problems, did Japan’s Financial Services Agency declare that the bad-loan crisis was “officially” over (*Financial Times*, May 25, 2005). Most observers are not so sanguine, having heard overly optimistic statements by the Japanese Ministry of Finance many times before about the magnitude of bad loans in the banking system. Nonetheless, it is evident that banking problems in Japan are less severe today than just a few years ago, as the sector has gradually responded to widespread bank restructuring, government bailouts of the industry, and improvements in the overall economic environment.

As discussed above, a major factor in the banking crises in Japan and elsewhere has been a collapse in the property market. Property prices in Japan continue to decline—after a period of fifteen years—following the remarkable bubble in prices that occurred in the 1980s. Land prices in Tokyo today are less than a third of their peak value reached in 1990. Residential land prices nationwide (average) in Japan are less than half their peak value reached in 1990. It is also noteworthy that the most severe banking crises in the early 1990s were in Scandinavia—and these cases were directly related to price bubbles in the commercial and residential property markets. Residential property prices declined by 38 percent in Finland during 1989 to 93; the banking crisis onset was in 1991. Residential property prices in Sweden declined by 19 percent during 1991 to 93, and the onset of the banking crisis was in 1990. Similarly commercial property prices in the capital of Norway declined by over 40 percent during 1986 to 1991 and the banking crisis started around 1987.

A generalized increase in property prices in Europe, such as Ireland, Spain, and the Netherlands (figure 1.9), and other economies such as Australia and the United States, has raised the specter of future financial instability and other economic problems should there be a sharp housing price correction. If these price rises are unrelated to fundamentals, meaning price “bubbles,” then at some point corrections will occur. Similarly, if the rapid rise in prices is related to extremely low interest rate levels—a fundamental determinant, but likely to be temporary—then a return to interest rates more in line with “normal” historical levels will also cause a sharp drop in real property prices. In either case sharp declines in property prices would lead to deterioration in household and bank balance sheets and could induce financial instability.

The lessons from Japan for other countries in these cases are clear. First, an adequate supervisory and regulatory structure should be in place to monitor and accurately measure bank performance and loan portfolios in a timely manner. Second, the authorities need to be able to act quickly and decisively if bank problems arise. This difference in response is perhaps most striking between Japan and Sweden. Japan responded very slowly, taking the better part of a decade to fully implement structural changes in the banking system. By contrast, Sweden in early 1990 acted quickly to the bank crisis—within several months—with far-reaching nationalizations, management changes, and public funds infusion. The result in Sweden was a rapid and low-cost solution of the banking problem. The outcome in Japan—combined with a number of other causal factors discussed above—was the Great Stagnation.

1.6 Conclusion

The problems in the financial system that emerged in the early 1990s were recognized too late and initially not acted upon. The political impasse slowing the restructuring of the banking system and reluctance by a newly independent Bank of Japan to act quickly and aggressively on monetary stimulus were just two of the hindrances to economic recovery. Adverse financial developments stood at the center of Japan’s economic morass. These observations, and the Japanese experience generally, provide some important cautionary tales for other advanced economies.

Recent declines in asset prices and the collapse in bank credit in Germany present worrying signs, especially because the two countries

share many of the same institutional characteristics in their financial structures. There is also the potential for sharp price declines in real property markets in many advanced economies, following a pattern similar to that seen in Japan over the past fifteen years. Recent jumps in property prices in Australia, Ireland, the Netherlands, Spain, the United Kingdom, the United States, and elsewhere present the worrisome prospect that a price bubble has formed and may be followed by sharp price declines. Substantial stress on the financial system and a drag on the real economy would likely occur if real property prices collapse in other advanced economies.

Japan has been faced with economic stagnation for fifteen years, partly because its financial system was initially vulnerable and partly because its government and central bank failed to take aggressive actions when problems first arose. Other advanced countries, starting from much worse economic circumstances than seen in Japan at the beginning of 1990, cannot afford to follow the same passive approach.

Each chapter in this book sheds light on a particular aspect of the financial problem facing Japan today, and highlights how the factor contributed to the onset and duration of the Great Stagnation. The first part of the book focuses on the financial system, and the second part emphasizes monetary policy and central banking issues. The third part of the book looks at international financial factors. All the chapters consider analytical as well as empirical perspectives to issues at hand. In addition they consider policy implications arising from the analysis and provide insights into ways that Japan can help move its economy forward. Taken as a whole, the contributions to this book demonstrate the key importance of financial factors in fostering robust economic growth and healthy economies. Unfortunately, they also demonstrate the enormous costs to the economy from having a dysfunctional financial system. Hopefully the chapter analyses in this book will provide a better understanding of the financial problems that have pulled down the Japanese economy for the past fifteen years and help other countries avoid the same fate.

Notes

1. In particular, the so-called Basel criterion sets the risk-based capital–asset ratio of banks doing substantial business internationally at 8 percent. Japan and Germany allow banks to apply 45 and 35 percent of equity unrealized capital gains, respectively, in calculating their capital base for this ratio.

2. See Cargill, Hutchison, and Ito (1997, 2001) for detailed reviews of Japanese monetary policy.
3. See Hutchison (1986) for a description of this policy and its introduction.
4. This subsection draws on the working paper version of Arai and Hoshi's chapter 6 in this volume. We thank them for allowing us to summarize their institutional background section.
5. The Nikkei stock price index reached 38,915 on the last business day of 1989. The index dropped to around 20,000 by October 1990 and below 15,000 by summer 1991. This represents a decline of more than 60 percent.
6. The collateralized overnight interest rate (end of month) was lowered from 0.34 in December 1998 to 0.22 in January 1999 and 0.07 in February 1999. The rate was raised to the 0.20 to 25 range for a few months in late 2000 and early 2001, but again lowered to below 0.01 for most of 2001 and through September 2004.
7. The monetary base (percent changes from a year earlier in average amounts outstanding) rose 25.7 percent in 2002, 16.4 percent in 2003, 13.8 percent in 2004Q1, and 6.1 percent in 2004Q2.
8. Nominal GDP rose 0.3 percent in 2003 and at a similar annual rate in the first half of 2004. Real GDP growth, by contrast, indicated some recovery of the economy in 2003 and early 2004. (2003 real GDP growth was 3.2 percent.)
9. He estimates that a 10 percent depreciation of the yen exchange rate led to roughly a 1 percent rise in the price level in Japan in the 1980s but only a 0.5 percent increase in the 1990s.
10. Kashyap, Stein, and Wilcox (1993) employ this indicator for the United States. They find that firms substitute commercial paper for bank credit after contractionary monetary policy of the Fed, and interpret this as evidence of the credit channel of monetary policy.
11. In particular, firms are asked whether they perceive the lending conditions of financial institutions to be "accommodative," "not so severe," or "severe."
12. Nearly 2000 firms that participated in the survey and, on a scale from -100 to +100, assigned an average value of -53 (midpoint between "not so severe" and "severe" credit condition) to this question. This value is lower than the values Japanese firms have given in any point in the past twenty years, which included a stock market crash and a major banking crisis. Country fixed effects probably play a role in the results, as cultural and historical influences are important when answering such a question and the differences in levels should not be overinterpreted.

References

- Cargill, T., M. Hutchison, and T. Ito. 1998. *The Political Economy of Japanese Monetary Policy*. Cambridge: MIT Press.
- Cargill, T., M. Hutchison, and T. Ito. 2000. *Financial Policy and Central Banking in Japan*. Cambridge: MIT Press.
- Fischer, S. 2001. Comments on Knutter and Posen. *Brookings Papers on Economic Activity* 2: 161-66.

Hoshi, T., and T. Ito. 2004. Financial regulation in Japan: A sixth year review of the Financial Services Agency. *Journal of Financial Stability* 1: 229–43.

Hoshi, T., and A. Kashyap. 2001. *Corporate Finance and Governance in Japan: The Road to the Future*. Cambridge: MIT Press.

Hoshi, T., A. Kashyap, and D. Scharfstein. 1991. Corporate structure, liquidity and investment: Evidence from Japanese industrial groups. *Quarterly Journal of Economics* 106 (1): 33–60.

Hutchison, M. 2004. Deflation and stagnation in Japan: Collapse of the monetary transmission mechanism and echo from the 1930's. In R. Burdekin and P. Siklos, eds., *Fears of Deflation and the Role of Monetary Policy: Some Lessons and An Overview*. Cambridge: Cambridge University Press.

Ito, T. 1992. *The Japanese Economy*. Cambridge: MIT Press.

Ito, T., and Y. Sasaki. 2002. Impacts of the Basel capital standard on Japanese banks' behavior. *Journal of the Japanese and International Economics* 16: 372–97.

Kashyap, A., J. Stein, and D. Wilcox. 1993. Monetary policy and credit conditions: Evidence from the composition of external finance. *American Economic Review* 83 (1): 78–98.

Knutter, K., and A. Posen. 2001. The Great Recession: Lessons for macroeconomic policy from Japan. *Brookings Papers on Economic Activity* 2: 93–160.

Krugman, P. 1998. It's Baaack: Japan's slump and the return of the liquidity trap. *Brookings Papers on Economic Activity* 2: 137–205.