Japanese versus American Financial Crises: Are There Any Lessons to Learn from the Japanese Experience?

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ABSTRACT

The purpose of this paper is to analyze the origins of the Japanese crisis of the 1990s and determine the ways the Japanese economy was recovered. Having done that, the Japanese crisis will be compared to the American crisis of 2008-2009 in terms of the causes of the economic downturn. Finally, after considering the similarities between the two crises, the conclusion will be made about what policies that the Japanese government implemented are applicable to the current situation in the United States.

INTRODUCTION

The current economic situation not only in the United States but around the world as well has received great attention for the past year-and-a-half. There is at least one article in *The New York Times* every day on how the government is trying to stimulate the economy with hundred-billions-dollar stimulus packages or by lowering interest rates and stimulating consumption. In addition, there have been a number of articles in *The New York Times* and *The Economist* that draw a comparison between the financial crisis we face today and that faced by the Japanese in the 1990s. Moreover, the authors of these articles are trying to extract some lessons from the Japanese and make them applicable to the American crisis of 2008-2009. For instance, in his *New York Times* article "Japan's Big-Works Stimulus is a Lesson," Martin Fackler writes about Japan's numerous infrastructure works done during the late 1990s that had little long-term economic benefit to the society. He also argues that, while keeping in mind Keynesian philosophy on government spending role during the economic downturn, the government should increase spending wisely on infrastructure and not simply be "digging out holes and filling them back up." In *The Economist* article "Big Government Fights Back," the author compares the size of spending by the Japanese government in the 1990s and the American government these days and concludes that taking into account the sizes of the two economies the U.S. government would need to spend far more in stimulus packages than it has as of the end of 2008.

Having come across several articles mentioned above, I decided to concentrate my research on comparing the two financial crises: the Japanese crisis of the 1990s and the American crisis of 2008-2009. First, I shall present background information on some of the causes of the Japanese financial crisis. Second, I shall study the Japanese financial system and determine the changes that were implemented

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after the crisis occurred. In addition to analyzing the financial system, I am going to examine the monetary and fiscal policies Japan adopted during the financial crisis. Following that, I shall present my analysis of how applicable the changes to its financial system and monetary and fiscal policies that Japan had to make in response to the crisis are to the crisis taking place in the United States at this moment. After studying the nature of the Japanese economy and culture, I shall be able to say what some of the lessons that the United States should take out of the Japanese crisis of the 1990s are. Certainly not all policies implemented by the Japanese government are suitable for the U.S. economy simply because of the difference in the size of the two economies and the time period during which the current financial crisis is taking place. However, given that there are similarities in the nature and causes of the two crises, certain strategies can be and should be taken by the American government as lessons from Japan.

LITERATURE REVIEW

Several previous papers have done a comparison of Japan and the U.S. including an article from the *New England Economic Review* (2001) by Lynn E. Browne "Does Japan Offer Any Lessons for the United States?" In her article, Browne compares Japan's rapid growth in the 1980s to the United States' economic growth in the 1990s. In both situations stock market prices were rapidly rising which resulted in great economic growth. However, the only difference between the two countries' economic growth rates was that the growth in Japan, in addition to rapidly increasing stock prices, was accompanied by rapidly rising real estate values and consequently the value of land, which caused the so-called housing bubble. Despite this difference in the two economic situations in Japan and the United States, Browne concludes that American policymakers should take some important lessons from the Japanese crisis of the 1990s and avoid making the same mistakes such as discontinuing stimulus packages too soon and lowering interest rates that brought few positive results.

Another paper that focuses on comparing Japan to the United States in terms of economic growth and slowdown was written by Federal Reserve economists Alan Ahearne, Joseph Gagnon, Jane Haltmaier, and Steve Kamin in June 2002. It is called "Preventing Deflation: Lessons from Japan's Experience in the 1990s." The authors of this work draw parallels between Japan in the 1990s and the United States in 2001 in terms of monetary policymaking in a situation of a zero nominal interest rate. As in the previous paper mentioned above, these authors tried to prevent the same situation as in Japan in the 1990s from happening in the United States in 2001. In other words, they described what the Japanese government did in order to pull the economy back to normal growth and pin pointed the mistakes that the government made. The paper then concluded with what the U.S. government needed to avoid and what to adopt in terms of monetary and fiscal policy making in order to avoid making the same mistakes as the Japanese government.

As described above, previous papers were written on comparing the Japanese and the United States' economic growth in the 1980s and 1990s respectively and comparing the monetary and fiscal policies of

the two countries in the 1990s (Japan) and 2001 (the U.S.). My work will concentrate on answering the question "Can Japan's Financial Crisis of the 1990s Serve as a Lesson for the United States' Macroeconomic Policymakers in the Current Financial Crisis?" I shall base my idea on Browne's work in comparing the two economies. However, the time period considered will differ from that described in her work. I shall also take the idea of comparing Japan's and the United States' monetary and fiscal policies from the authors of "Preventing Deflation: Lessons from Japan's Experience in the 1990s" and apply it to a different time frame. As a result, I keep the Japanese economic crisis of the 1990s as it has been done in previous works but compare it to the financial crisis that is currently taking place in the United States.

HYPOTHESIS AND METHODOLOGY

Given the question posed throughout this research work, "Can Japan's Financial Crisis of the 1990s Serve as a Lesson for the United States' Macroeconomic Policymakers?", my hypothesis for this paper is that there are certain strategies that the United States should keep in mind and possibly even implement based on the Japanese experience in the 1990s to resolve the current economic crisis. I am going to use comparative and logical reasoning in order to answer my research question. I shall compare the two financial crises – the U.S. and Japanese – then study the policies and actions of both the Bank of Japan and Japanese government that were undertaken to resolve the crisis as quickly as possible. Finally, taking into consideration the difference in sizes of the American and Japanese economies, different cultures and different time periods the crises occur in, I shall attempt to determine whether the strategies used by the Japanese in the 1990s provide any lessons to American macroeconomic policymakers about what they should do in response to the current crisis.

THE ORIGIN OF THE CRISIS AND JAPAN'S FINANCIAL SYSTEM

According to Takeo Hoshi and Anil K. Kashyap (2004), the origin of the Japanese financial crisis of the 1990s goes back to rapidly rising stock market prices in the 1980s (see Appendix 1) accompanied by similarly rapidly rising land prices (see Appendix 2). Economic growth was steadily rising in the middle of the 1980s and at the end of 1980s the growth rate dropped significantly by nearly 7 percentage points starting from 1988 through 1993 (see Appendix 3). As a result of rising real estate values the value of land also increased rapidly. Because of the rapid economic expansion, lending and investment were growing. However, when the consumer confidence started to fall and there were more than one default on a mortgage and a loan on property, the value of the land and stock prices began to fall. From 1990 through 1992 the stock prices dropped by almost 60% (from 38,916 down to 15,910 percentage points) and the growth of land prices fell by nearly 17% (from 15% down to -2%). Stock prices have not returned to the 1990 peak even today. Land prices began to rise in 1993, however the prices did not reach the 1984 level even after 6 years.

During the 1970s and 1980s, Japanese economic growth was superior to the other major Western economies.[1] Although, Japan's ability to manufacture high - quality products at low cost was one of the reasons for the rapid growth, government guidance was another factor that resulted in the Japan's superior economy. The Japanese government made strategic moves in determining which industries had high growth potential and therefore needed financial support. In addition to government support, major Japanese companies were isolated from short-term financial pressures because they would form alliances among each other and around a main bank, thus making their ownership shares the majority and providing management independence from outside stockholders. Major companies in Japan primarily received their financing from banks and rarely relied on sales of stock or bonds. However, the emergence of the crisis in the 1990s proved the system to have many weaknesses, which were mainly due to the bank's dependence on land prices since land was used as primary collateral for mortgages and other property loans. Therefore, when the housing market bubble burst, the decline in land value resulted in many losses for banks and, thus led to decreased lending that companies heavily depended on (Krugman, 1999; 63-64).

Although the banking industry was regulated by the government in the 1980s, banks started to break more rules in terms of determining ways to direct their capital. Due to the rapid economic growth and times being good, banks began to extend credits to businesses without making sure that those businesses had good repayment potential. According to Paul Krugman, "Japan's banks lent more, with less regard for quality of the borrower, than anyone else's; and in so doing they helped inflate the bubble economy to grotesque proportions." (Krugman, 1999; 69) This situation is commonly classified as moral hazard because while having government support and knowing that it would step in and help to finance them, banks were prone to taking more risk than they usually would. This problem of moral hazard resulted in many debtors defaulting on payment. The default on payment forced debtors to sell their assets and use the proceeds to pay back the loan. However, selling their assets drove the prices of those assets further down as there were more and more defaults on debts. That is how the housing market collapse occurred. When businesses in the construction industry were unable to repay their debts, they were forced to sell their buildings, particularly residential buildings. As a result, prices of houses that reached their peak only months ago dropped substantially. As the prices of houses dropped, the value of land decreased as well. And since land was used as collateral for most of the loans, its declining value resulted in banks being in big trouble because of the inability to receive the amount lent even after selling all the assets (Hoshi, 2004). This resulted in banks' liability to pay their depositors exceeding their assets side of the balance sheet. As a result, Japan went from an economic crisis to a financial one.

It was clear that along with a number of stimulus packages aimed at curing the financial system and banking industry in particular there was a need for a reform that would change the way the system operated. The major goal was to restore investors' confidence in the financial system and establish stability of the system as a whole. One such reform was the new Bank of Japan Law that became effective on April 1, 1998 and it was an event of major significance in 115-year history of the bank. The

two major principles that the new law established was "independence" of the monetary policy-setting by a politically neutral Policy Board and "transparency" – proper disclosure of policy-making processes. The primary goal of the new law was "to pursue price stability, thereby contributing to the sound development of the national economy, and to ensure smooth settlement of funds among financial institutions, thereby contributing to the maintenance of an orderly financial system" (Bank of Japan, 1997). Another reform of the Japanese financial system was the "Big Bang" deregulation package that mainly aimed at revival of the Tokyo market as a free and active global market (Matsushita, 1997).

JAPAN'S MONETARY AND FISCAL POLICIES

Given the collapse of the financial system and effect of that on consumer confidence, a standard response to this situation would be to cut interest rates in order to restore borrowing and spending and help to stimulate economic growth. At first the Japanese government was slow in cutting short-term nominal interest rates after the bubble burst, but eventually interest rates were cut to zero (Krugman, 1999; 74). According to Table 1 in Appendix 4, it took a year-and-a-half (1991) since the beginning of the crisis for the Bank of Japan to start slowly cutting interest rates. It took another five years, when the interest rates reached almost zero in 1996 as indicated by the graph in Appendix 4.1. However, "perhaps because of its aging population, perhaps also because of a general nervousness about the future, the Japanese public does not appear willing to spend enough to use the economy's capacity, even at a zero interest rate" (Krugman, 1999; 73). This situation is referred to as a liquidity trap by economists. The liquidity trap is the situation when monetary policy becomes ineffective in helping the economy recover from a recession through cutting interest rates. The monetary policy ineffectiveness is due primarily to consumers, banks and firms becoming more risk averse and giving more preference to liquidity of cash instead of using the credit offered (*The Economist*). The question then becomes what is the next step the government or the central bank can take to help the economy recover.

The next option the Japanese government chose was to increase government spending and thus create jobs. Since the beginning of the 1990s, the government introduced a number of stimulus packages that were directed to building roads and bridges whether the country needed them or not. To demonstrate the amount of government spending in stimulus packages, Paul Krugman presents the statistics that "in 1991 Japan's government was running a fairly hefty budget surplus (2.9 percent of GDP); by 1996 it was running a quite nasty deficit of 4.3 percent of GDP" (Krugman, 1999; 74). However, the fear of long-term impact of the budget deficit and the responsibility of the government to provide the aging population of Japan with proper pension and health care compensation made Japan's Ministry of Finance increase taxes to reduce the budget deficit in 1997. This move resulted in even deeper recession and in 1998 the government was forced to return to massive government spending policy (Krugman, 1999; 75).

As discussed above, neither the cut of short-term interest rates nor the government's massive spending helped the economy recover from the crisis because neither of the two forced an increase in spending and borrowing, thus leading Japan into a deflationary era (see Appendix 5). The problem, according to Paul Krugman, was that "an economy which is in a liquidity trap needs expected inflation – that is, it needs to convince people that the yen they are tempted to hoard will buy less a month or a year from now than they do today" (Krugman, 1999; 78). In order to fight deflation, the Bank of Japan started large purchases of government debt and setting certain levels for expected inflation to foster consumer spending. Creating expected inflation reduces the real interest rates (nominal interest rates less inflation) at zero nominal interest rates. The real interest rates reflect the true expected return on an asset. Therefore, with falling real interest rates consumers are willing to borrow today because they would have to repay in less valuable yen when their debt matures.

ANALYSIS

BACKGROUND ON AMERICAN CRISIS OF 2008

In 2006 and 2007, the United States experienced rapidly growing stock prices as indicated by the S&P and NASDAQ indices (see Appendix 6) accompanied by the rapid growth of the housing prices (see Appendix 7). Home prices, which peaked in the middle of 2006, slowly started to decline thereafter. An even sharper decline was seen at the end of 2007 and the beginning of 2008 when the price index dropped from 174 down to 145. The home price index has continued to fall even through the first quarter of 2009 as indicated by the graph presented in Appendix 7. The stock market was volatile from September 2007 until September 2008. After September 2008, the market collapsed as illustrated by the graph in Appendix 6. In addition to the housing and stock market collapses, several financial institutions failed during 2008 mainly because they held large amounts of mortgage-backed securities that lost their value once the housing market collapsed. For instance, Lehman Brothers Holdings Inc. filed for bankruptcy at the end of 2008 and Merrill Lynch was acquired by the Bank of America around the same time in order to save the institution from going bankrupt (Yahoo Finance). As illustrated in the graph in Appendix 8, the United States real GDP growth has been falling since 2004. However, there has been an even sharper decline starting from the end of 2006 and continuing to the present.

APPLICABILITY OF THE JAPANESE STRATEGIES TO RESOLVING AMERICAN CRISIS

In order to determine the applicability of the Japanese tactics and strategies to resolving the American crisis these days, the similarities and differences between the two economic downturn situations have to be assessed first. In the next paragraph, I will present the analysis of the causes of the crises and the subsequent situations.

Although there are no quantitative similarities between the Japanese and American crises, it is still possible to draw qualitative parallels between the two. First, the situation with the housing and stock markets seem to be similar in the sense that both experienced rapid growth followed by a drastic collapse at some point. In Japan, after the stock prices tripled in the period of five years (from 1985 through 1990), they dropped down by nearly 60% within the next two years (see Appendix 1). Also, land prices were steadily rising from 1985 until 1990 and had increased by almost 13% when there was a sudden drop in land prices by nearly 20% in the subsequent three years (see Appendix 2). In the United States, stock prices fell by nearly 32% in one month (from September 2008 through October 2008). Constantly rising home prices in the U.S. dropped by almost 36 percent from 2006 through the first quarter of 2009. Second, the effect of the housing market collapse on the financial institutions is similar because in both countries land and residential property were heavily used as collateral for mortgages and other property loans and, thus, when the value of the collateral dropped, the value of banks' mortgages and loans on property followed the same path. Similar to Japan's lending practices, American banks, due to the rapid economic growth, began to give out loans and mortgages without hardly checking for debtors' creditworthiness, which led to more defaults on payments then it otherwise would had been. Although the effect of the housing bubble on the financial system seems to be similar, there is one significant difference in this factor. The Japanese firms were more highly dependent primarily on banks and less so on bond and stock markets for raising capital, when compared to the United States. The United States companies rely both on debt as well as on equity financing. Therefore, some of the policies the Japanese government directed at curing the country's financial system will need a closer observation in terms of their applicability to the American financial and economic situation.

Having assessed the similarities and differences on the major causes of the two crises, the applicability of the policies can now be discussed. The first monetary policy tool the Japanese central bank used was to lower short-term nominal interest rates. Although this strategy proved to be ineffective in Japan because of its aging population and the nature of the society to save rather than spend, cutting interest rates might be appropriate for the United States situation because American do not save as much as the Japanese. The mistake the American government should learn from the Japanese is not to be slow in cutting interest rates as the Japanese government was. However, the government should also be aware of the aging population of baby boomers whose retirement is approaching and, thus pushing the government into paying pension and health care compensations. Because of the aging population and consumer uncertainty about the future, the effectiveness of nominal interest rates cuts in the United States might be less as well. Therefore, the next step would be to stimulate government spending through stimulus packages. This government strategy has been in the news since the time the official recession was announced. The U.S. government has already spent hundreds of billions of dollars in stimulus packages injecting funds in troubled companies through a number of bailout programs and in banks through the process of purchasing their troubled assets in order to stimulate banks' lending and normal course of operation. Specifically, the U.S. government spent $168 billion on tax cuts and rebates in 2008

and $789 billion on another stimulus package in 2009 ("Economic Stimulus," The New York Times). The amount of stimulus packages cannot and should not be compared mainly because the U.S. economy and population is much greater than those of Japan, thus it implies only that the U.S government will have to spend significantly more funds in stimulus packages than Japan did. Also, there is a mistake the American policymakers can learn from the Japanese in terms of when to stop government aid. As mentioned above, the Japanese government, in fear of large budget deficits and their impact in the long-run, stopped stimulus financing in 1997 which led to worsening the recession in 1998 and forced the government to resume its aid to the public as well as private sector. Therefore, the lesson to be learned is that the government should not eliminate stimulus package financing too soon, though, there is a fear of large budget deficit that will have a negative impact in the long-run. However, in the case with the United States, the danger of the budget deficit might not be as great as that of Japan's because the reputation of the dollar and the U.S. government might result in other nations pumping investments in the country which will allow the government to use these funds for stimulus packages.

In addition to the monetary and fiscal policy tools that the U.S. government can use to help the economy recover, the government should consider ways to confront falling expected inflation which is due mainly to consumers' fear and unwillingness to spend. As illustrated by the graph in Appendix 9, from the middle of 2006 through July of 2007, the rate of inflation dropped nearly one percentage point. After that inflation rate started to increase, however, there was another sharp decline in July 2008 of almost one percent in a period of five months. Although inflation rose in the late 2008 and early 2009, as illustrated by the graph, it has been falling since April 2009. Although the United States has not been experiencing deflation yet, certain government actions should be taken to prevent it from happening.

In order to understand which policies are suitable for the current situation, two models of the Phillips curve that differ in how inflation expectations are formed should be examined. The first, "unanchored" Phillips curve is based on the assumption that inflation rates depend mainly on past inflation rates. The logic behind this model is that in the beginning of a recession rising unemployment causes inflation rate to fall. As a result, people expect future inflation rate to follow the same pattern and, thus a deflation spiral forms. The deflation is stabilized only when unemployment starts to fall. The second model is where inflation expectations are "well anchored." This means that expectations about inflation are consistent with the goals and policies of the central bank. Even during severe recessions, people expect the central bank to keep inflation rates positive. The deflationary spiral can form when there is high unemployment and when monetary policy actions are ineffective at curing the economy. The two models of the Phillips curve have different implications for the possibility of deflation to occur. According to John Williams, due to rising unemployment "the estimated probability of deflation is about 30% for 2009 and 85% for 2010 for the Phillips curve model which is based on the "average" behavior of inflation over the past five decades… A Phillips curve model estimate using data since 1993 is consistent with well-anchored inflation expectations and precludes emergence of a deflationary spiral." (Williams, 2009) As Williams suggests, the Federal Reserve should employ all available tools to preserve price stability and keep

inflation expectations well anchored. Taking the lesson from the Japanese, the practice of quantitative easing should be implemented by the Federal Reserve along with actions aimed at reducing unemployment to prevent expectations of deflation from developing in the United States.

According to the data extracted from the St. Louis Federal Reserve Bank website, expected inflation experienced a sharp decline in the middle of 2008 but since December 2008 it has been rising (see Appendix 10 and 11). This fact implies that the Federal Reserve has been able to keep inflation expectations well anchored by affectively implementing the practice of quantitative easing and, therefore, increasing consumers' confidence.

CONCLUSION

At times of economic downturns like the one taking place in the United States today, it is useful to look back at similar situations and extract some lessons in terms of policy-making in order to avoid similar mistakes and take advantage of already established ways for recovering from a recession.

After observing the causes of the two crises, drawing some parallels between the two, and looking at the monetary and fiscal policies as well as some of the financial system reforms made in Japan, I made an analysis of the policies that could be applied to the United States scenario. I found that such policies as increasing government spending through a number of stimulus packages and increasing the central bank's purchases of government debt and setting certain levels for expected inflation to stimulate lending and consumer spending could and should be applied to the current economic downturn in the U.S. However, the strategy of cutting interest rates to nearly zero might not prove to be effective because of the aging population of baby boomers and fear of uncertain future which all contribute to saving more even at a zero nominal interest rate.

In conclusion, there are lessons to be learned from the Japanese experience in the 1990s for the American macroeconomic policymakers. The first lesson discussed in the paper was lowering short-term interest rates that proved to be ineffective in Japan but might be applicable to the American situation. Cutting interest rates in the United States might be less effective as well as in Japan because of the uncertainty in the future and increasing aging population. There is one mistake to learn from the Japanese crisis and that is not to be slow in cutting interest rates which might reduce its effectiveness. The second lesson was to stimulate government spending through the use of a number of stimulus packages. The biggest mistake the American policymakers should keep in mind is not to stop stimulating spending too soon which proved to worsen the situation in Japan. The final lesson to be taken out of the Japanese crisis of the 1990s is to confront falling expected inflation. As discussed in this paper, the Federal Reserve should keep inflation expectations well anchored by implementing the practice of quantitative easing and taking actions aimed at reducing unemployment.

ENDNOTES

1. Japan's real GDP growth over that period of time reached 100.7%. At the same time, real GDP growth in UK was 48.7%, France 63.4%, Germany 55.7%, Italy 72.1%, Canada 78.8% and US 73.3%. The data was found from Robert J. Gordon "Macroeconomics" textbook (eleventh edition), Appendices A and B.
2. The information on Japanese stock performance was found on the Yahoo Finance website <www.finance.yahoo.com>.
3. These statistics were extracted from the IMF Working Paper (2000) "The Japanese Banking Crisis of the 1990s: Sources and Lessons" written by Akihiro Kanaya and David Woo.
4. The statistics were extracted from Robert Gordon's "Macroeconomics" textbook, Appendix B.
5. These data were obtained from the Bank of Japan official website that is available at <http://www.stat-search.boj.or.jp/ssi/mtshtml/m_en.html>.
6. These data were obtained from the Bank of Japan official website that is available at <http://www.stat-search.boj.or.jp/ssi/mtshtml/m_en.html>.
7. The statistics were extracted from Robert Gordon's "Macroeconomics" textbook, Appendix B.
8. The information on the U.S. stock performance was found on the Yahoo Finance website <www.finance.yahoo.com>.
9. The data are available from the online source by Robert Shiller.
10. The data are available on the St. Louis Federal Reserve Bank website at <http://research.stlouisfed.org/fred2/series/GDPCA?cid=106>.
11. The data are available on the St. Louis Federal Reserve Bank website at <http://research.stlouisfed.org/fred2/series/CPILFESL/downloaddata?cid=9http://research.stlouisfed.org/fred2/series/CPILFESL/downloaddata?cid=9>.
12. The data are available on the St. Louis Federal Reserve Bank website at <http://research.stlouisfed.org/fred2/series/MICH?cid=98>.
13. The data are available on the St. Louis Federal Reserve Bank website at <http://research.stlouisfed.org/fred2/categories/115>.

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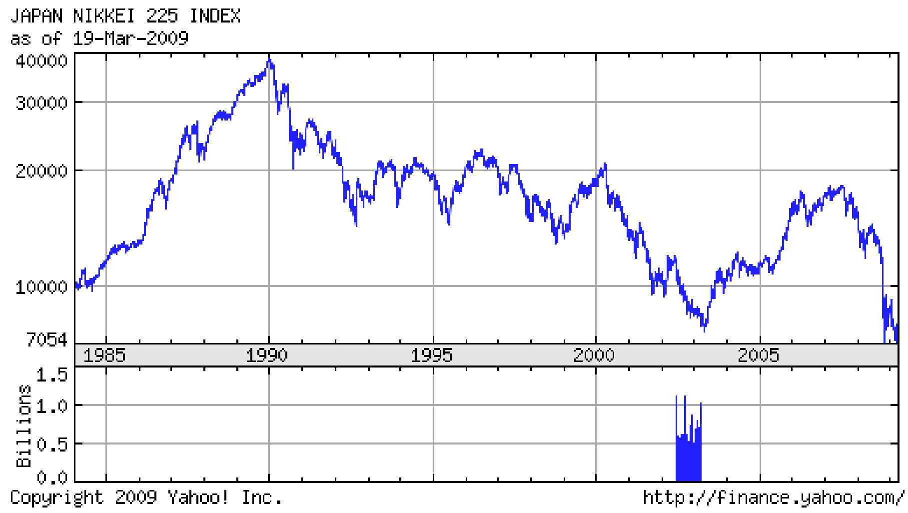
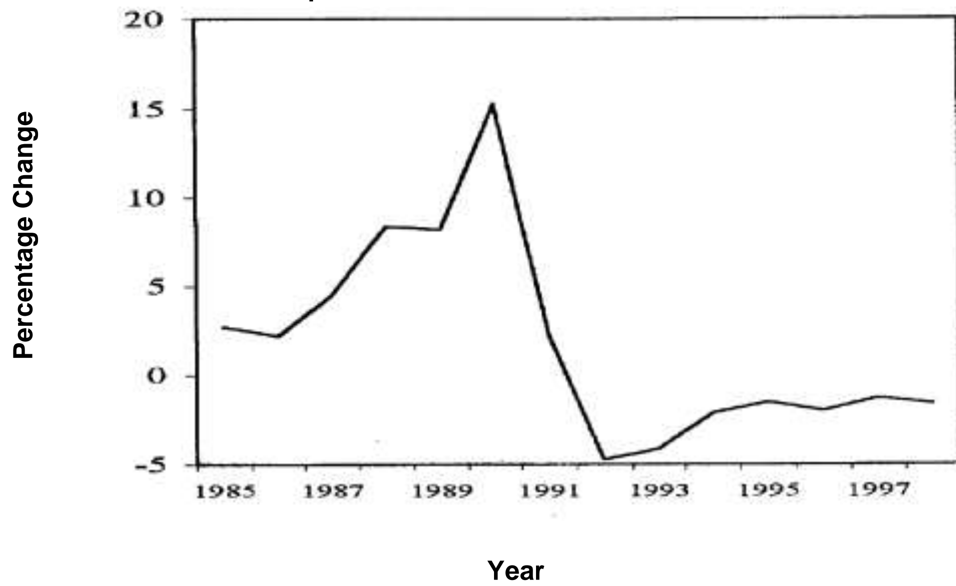
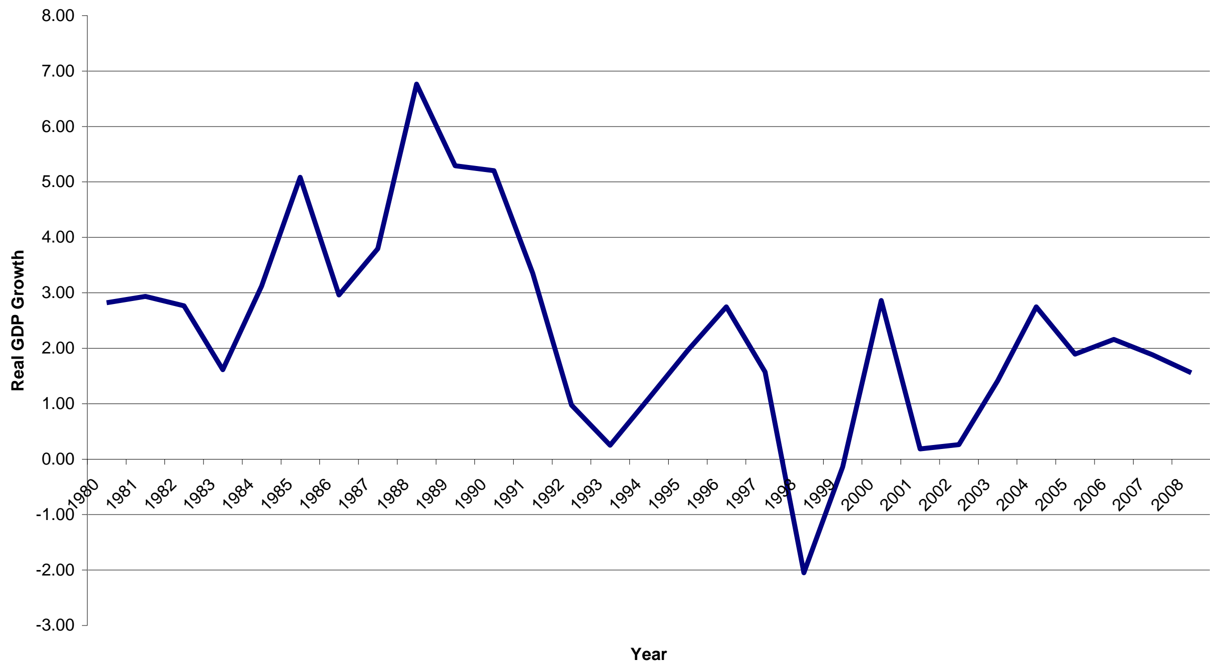
APPENDIX 1[2]
Japan Nikkei 225 Index



APPENDIX 2[3]
Japan's Growth in Residential Land Prices



APPENDIX 3[4]



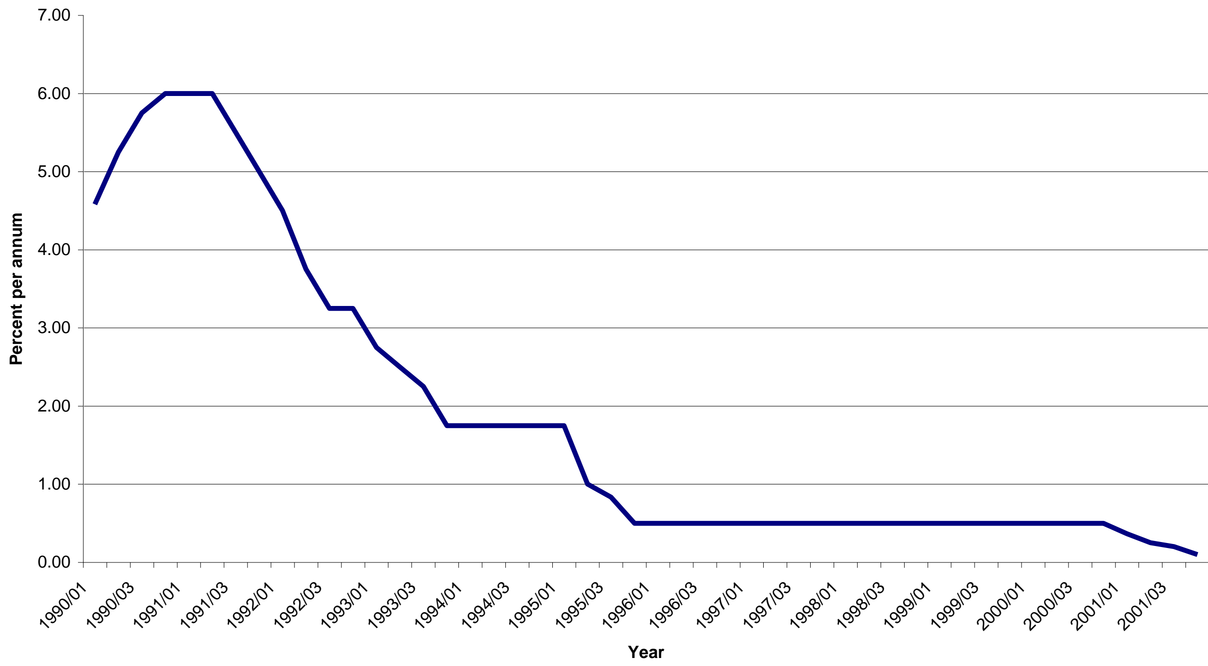
APPENDIX 4[5]

TABLE 1

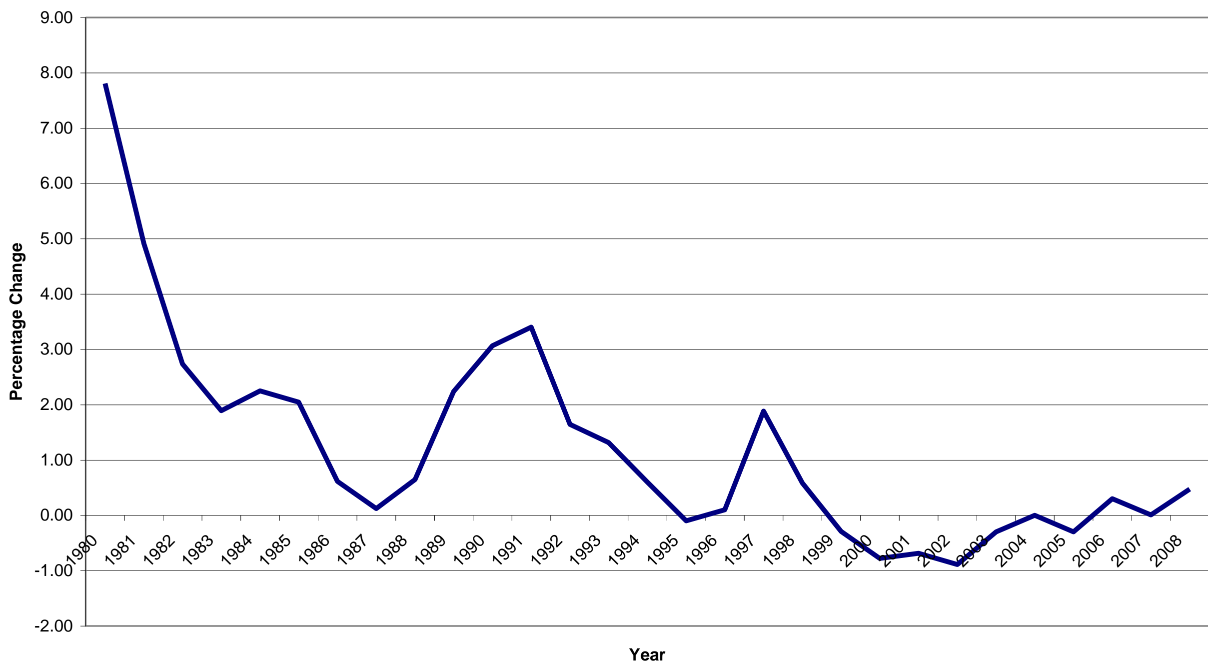
Japan's Basic Loan Rate, 1990-2001

Year	Basic Loan Rate	Year	Basic Loan Rate
1990/01	4.58	1996/01	0.50
1990/02	5.25	1996/02	0.50
1990/03	5.75	1996/03	0.50
1990/04	6.00	1996/04	0.50
1991/01	6.00	1997/01	0.50
1991/02	6.00	1997/02	0.50
1991/03	5.50	1997/03	0.50
1991/04	5.00	1997/04	0.50
1992/01	4.50	1998/01	0.50
1992/02	3.75	1998/02	0.50
1992/03	3.25	1998/03	0.50
1992/04	3.25	1998/04	0.50
1993/01	2.75	1999/01	0.50
1993/02	2.50	1999/02	0.50
1993/03	2.25	1999/03	0.50
1993/04	1.75	1999/04	0.50
1994/01	1.75	2000/01	0.50
1994/02	1.75	2000/02	0.50
1994/03	1.75	2000/03	0.50
1994/04	1.75	2000/04	0.50
1995/01	1.75	2001/01	0.37
1995/02	1.00	2001/02	0.25
1995/03	0.83	2001/03	0.20
1995/04	0.50	2001/04	0.10

APPENDIX 4.1.[6]

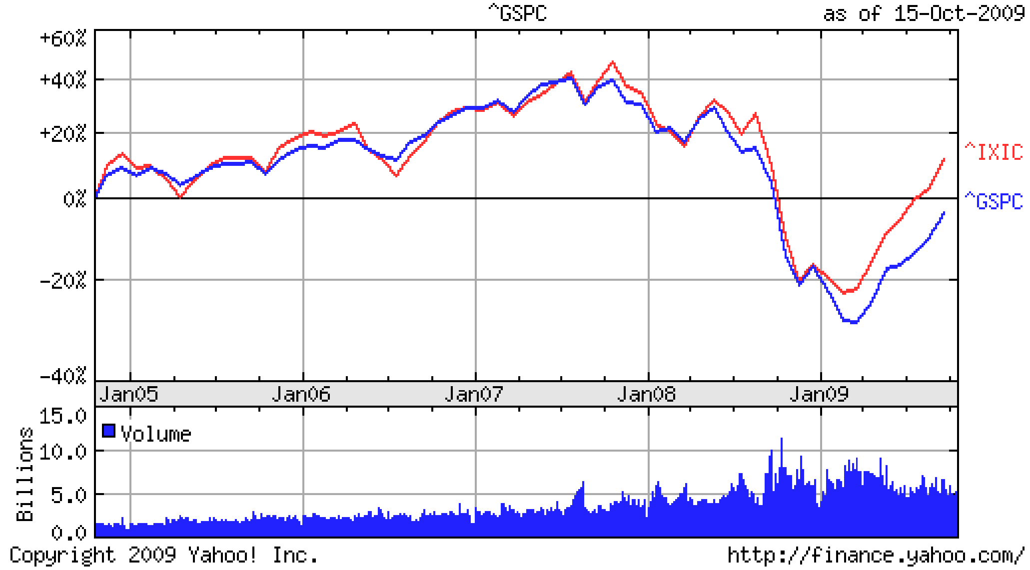


APPENDIX 5[7]

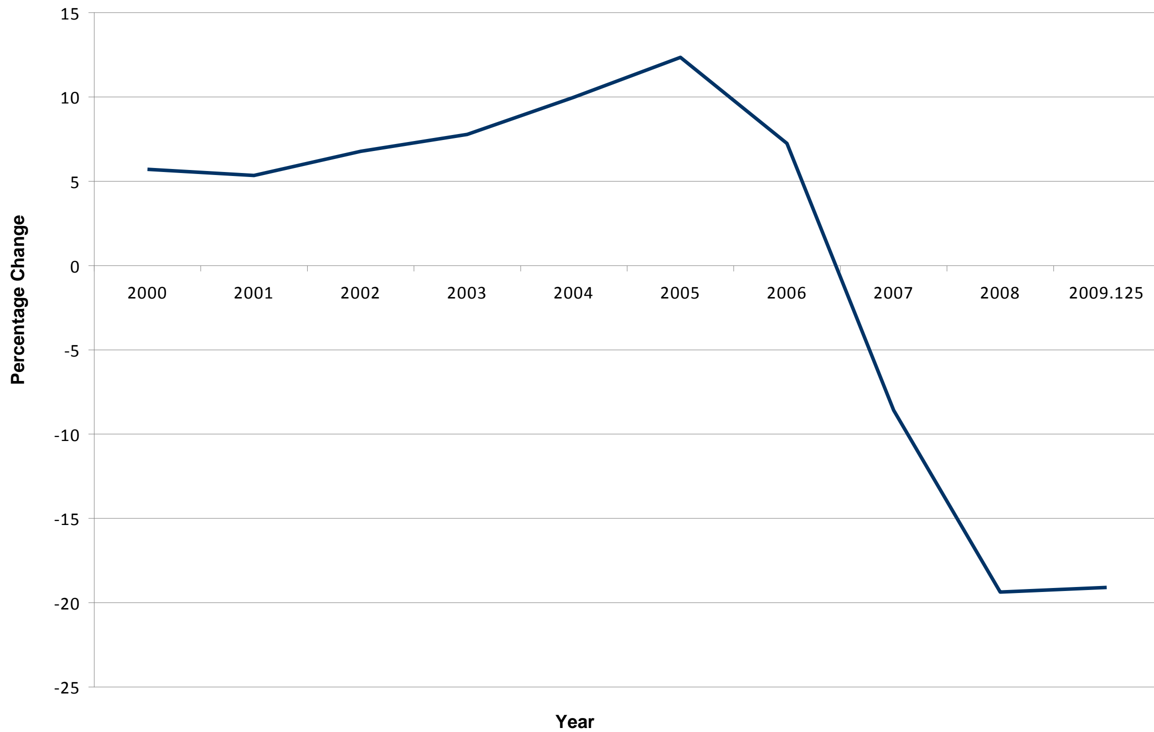


APPENDIX 6[8]

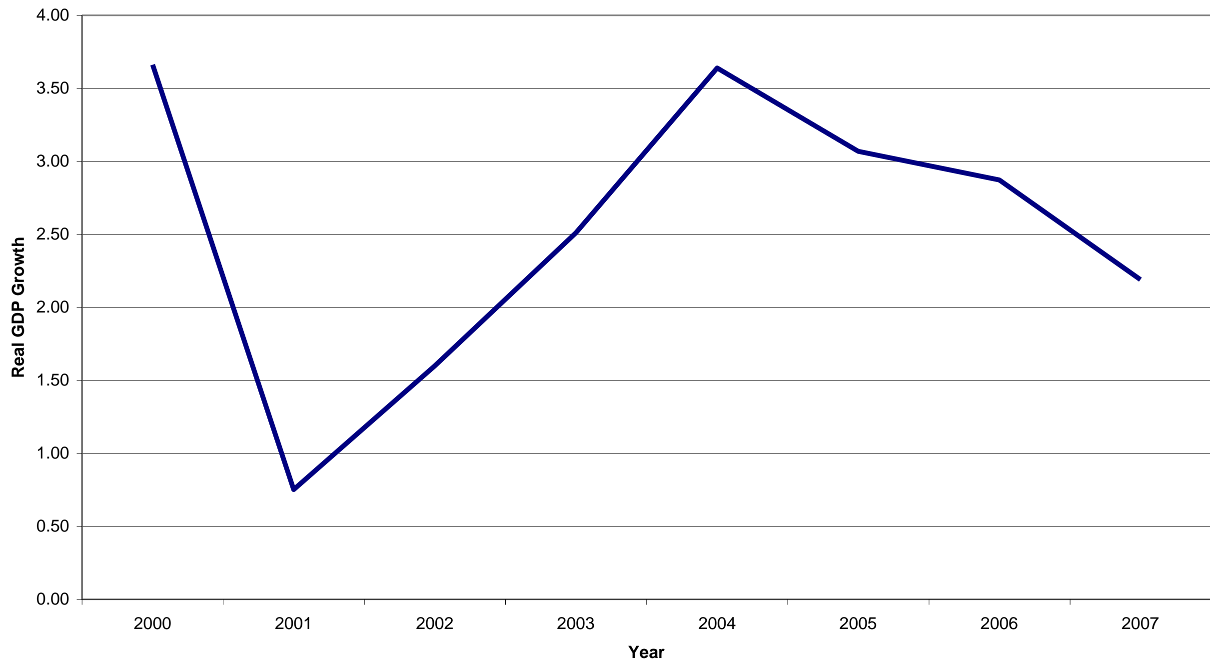
Comparison of the U.S. S&P 500 (GSPC) and NASDAQ (IXIC) Indices



APPENDIX 7[9]

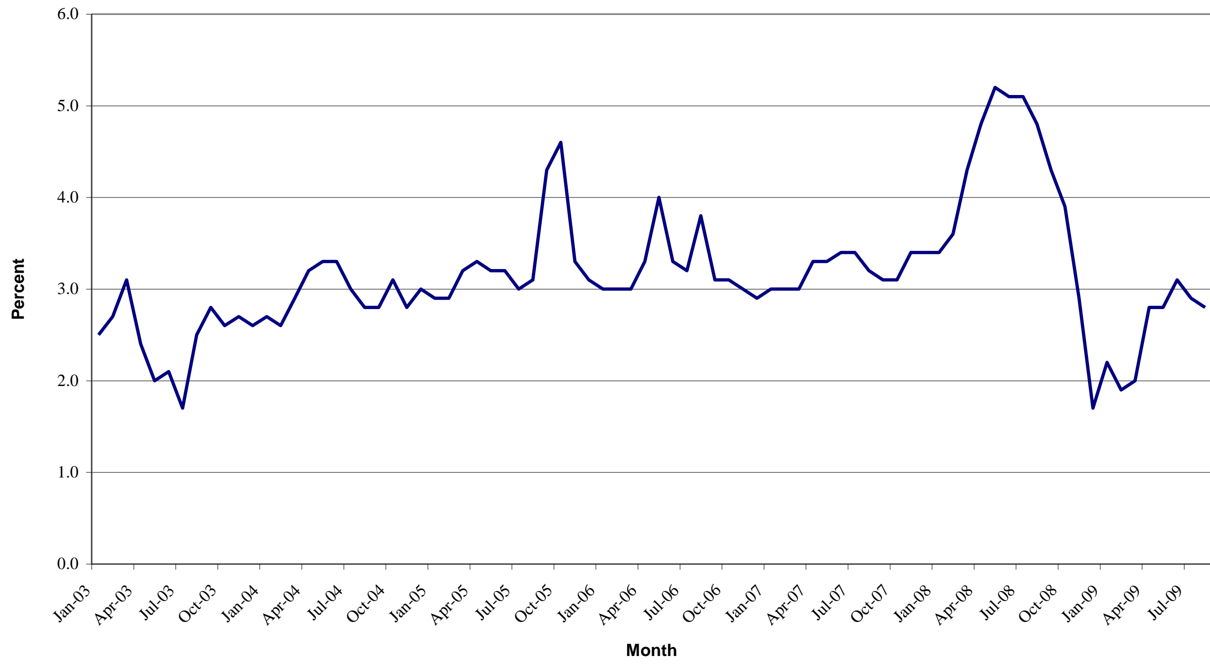


APPENDIX 8[9]



APPENDIX 9[11]

APPENDIX 10[12]



APPENDIX 11[13]