

JAPAN – THE LASTING EFFECTS OF THE ASIAN CRISIS

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## ABSTRACT

In the 1980's Japan was the second largest economy in the world that was experiencing growth and gains in assets that were greater than that of the U.S. However the recession that occurred in the late 1980s, along with the large impact felt by the Asian Crisis, Japan currently remains financially unstable. Monetary and fiscal policies that have been used to combat the problem remain unsuccessful as the economy continues to stagnate. Could this be due to inadequate policy, or is something else causing the economy to lag in the worlds longest recession? This thesis covers and explores the different factors that have effected this economy from a governmental, monetary, economic, and sociological standpoint in an effort to explain why Japan's economy has still not recovered.

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# CHAPTER I

## INTRODUCTION

During the early 1980's, Japan was sustaining a constant average of monetary growth of 8% per year<sup>1</sup>, which exceeded the United States and Europe. This series of growth, and the monetary policies that created it, had been labeled as an ideal economic model for all the other developed economies to follow<sup>2</sup>. Japan used to be the world's second largest economy when it had experienced huge growth, large increases in land and asset values, and currency appreciation that exceeded the United States within a short period of time. This growth resembled the same huge growth that was experienced in Japan between the periods of the middle 1950's and 1970's<sup>3</sup>. The significant difference was that the whole region of East Asia were experiencing the phenomenal growth rate of 10% or higher for many years leading up to the latter part of the 1990's.

This growth rate cannot be maintained indefinitely, and thus came to a stop with the recession that occurred in Japan during the middle of the 1980's. Later on, there was a crisis that hit in 1997 that spread at a phenomenal rate from the East Asian countries, which was feared to continue to spread to the other developed economies all over the world. Problems like massive currency devaluations, over-inflated prices, and

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<sup>1</sup> Sharma, Shalendra (2003), "The Asian Financial Crisis – Crisis, Reform and Recovery." p.17

<sup>2</sup> *The Economist* (1997)

<sup>3</sup> Ito, Takatoshi; Weinstein, David (1996), "Japan and the Asian Economies: A "Miracle" in Transition." *Brookings Papers on Economic Activity*, p.205

devaluations of stocks and other real assets in East Asia turned into major issues directly effecting monetary policy among each country and their central banking.

Japan was one of the hardest hit countries from this crisis, and it is still feeling residual effects from it almost eight years later. Even with the warnings and foreign aid programs it was still a major problem for the Japanese, as it has been labeled “the world’s slowest economic crisis”<sup>4</sup>. Another result was the economic crisis remained within the East Asian countries, but did not spread to the United States and Europe as feared. Is this attributed to poor economic/monetary policy? Or is it the result of a bad series of unfortunate events? To further understand the reasons for this result, the components of what happened and what was affected will be broken down and analyzed further.

This thesis will begin with the history and circumstances that led up to the crisis, and will also include the impact it had on the world economy. The next section will then analyze what is still being affected and the environment surrounding the circumstances in Japan. This will include any policies that may have contributed to the problem and the international responses of any warnings or support. The following section will take a look into the theory and effect of economic and financial contagion and attempts to provide an answer as to why the crisis was limited to that region. Finally, the conclusion will cover some possible solutions and reforms to the problems that still plague the nation of Japan.

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<sup>4</sup> Woo, Wing; Sachs, Jeffrey; Schwab, Klaus (2000), “The Asian Financial Crisis – Lessons for a Resilient Asia.” p.185

## CHAPTER II

### WHAT IS THE ASIAN CRISIS?

#### 2.1 Asian Crisis Defined

The Asian crisis was a financial crisis that started in July 1997 in Thailand, and affected the currencies, stock markets, and other asset prices of several Asian countries. Thailand, South Korea, Singapore, and Indonesia were the countries that were mostly affected by the crisis. This crisis also spread to affect the economies of Hong Kong, the Philippines, Malaysia, and Japan. This economic phenomenon had been analyzed by economists for its breadth, speed, and dynamism. It had affected dozens of countries with a direct impact on the livelihood of millions, and occurred within the course of only a few months which made it difficult to stay ahead and measure the size of the crisis. Since it occurred in such a short time, it was quite confusing to anticipate what would be happening or effected next. Was it over or just the beginning of something worse? By the end of the crisis, it left some of the developed economies of the world unharmed.

#### 2.2 Countdown to the Crisis

Japan's economy was already in the process of experiencing a long-term recession when the crisis occurred in mid-1997. This pre-existing condition only helped amplify the effects and hardships of the crisis. The economy first showed a sign of serious strain in the late 1980's when the boom of the 'bubble economy' had popped. Since the collapse of this asset-price bubble, economic growth in Japan stagnated. This also greatly affected the financial institutions of Japan, where a significant portion of

their financial reserves were in asset holdings. As the prices of those assets crashed, other asset related loans like real estate, became a problem as they continued to lose value.

During this period of recession from the late 1980s and early 1990s, the Yen exchange rate value was appreciating rapidly. Since this rate would cause higher costs of labor for the domestic production, many corporations were moving large amounts of their capital and manufacturing over to the other Asian countries with lower labor costs. This movement increased the involvement of the Japanese banks, as they conducted more foreign direct investment so they could finance and accommodate the corporations. As shown in Table 2.1, by mid-1997 the Japanese banks made up of more than 1/3 of the international foreign direct investment to the other East Asian countries. This would only continue to complicate the financial problems of the banks and other investment companies when the crises will occur, as their assets would continue to drop in value rapidly.

Table 2.1 Asia's Foreign Bank Borrowing as of June 1997

Borrowing Country	Total Foreign Loans	Total From Japanese Banks	% of Total from Japanese Banks
Indonesia	59	23	38.98%
Malaysia	29	10	34.48%
South Korea	103	24	23.30%
Thailand	69	38	55.07%
Total	260	95	36.54%

Source: Bank of International Settlements (1998).

The net result of the recession, combined with the effects of the Asian crisis was the collapse, closings, and bankruptcies of major companies. The closings were not limited to just corporations, but also included major banks and insurance companies that were forced to default on their loans. For example, one of Japan's largest banks, Takugin

(otherwise known as Hokkaido Tokushoku Bank), went bankrupt despite of the efforts to save it thru another bank merger<sup>5</sup>. It was estimated that the total bad loans of just the major Japanese banks alone was close to 7% of the nations GDP<sup>6</sup>. (This would be approximately 21 trillion yen in 1999.) Overall, the prolonged recession in Japan combined with the crisis, greatly reduced the wealth and the demand for imports from the rest of Asia.

### 2.3 Causes of the Crisis

The explanation for the Asian Crisis has been the subject of much argument. There is no easy consensus to be reached on what lay behind the problems of these afflicted economies. Many aspects of the economies had been thought praiseworthy when they were booming. Table 2.2 below shows a chronology of events starting with the source of the crisis followed up by events that showed the spread of the crisis or had direct effect to Japan or the U.S. Some of the underlying causes of the Asian crisis arose from, but not limited to five main issues:<sup>7</sup> large current account deficits, over-dependence on short-term foreign funds, no regulatory framework for businesses, over-inflated asset prices, and the actual structure of the central banking system.

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<sup>5</sup> Woo, Wing; Sachs, Jeffrey; Schwab, Klaus (2000), "The Asian Financial Crisis – Lessons for a Resilient Asia." p.185

<sup>6</sup> Sharma, Shalendra (2003), "The Asian Financial Crisis – Crisis, Reform and Recovery." p.20

<sup>7</sup> Other Issues are discussed in papers such as Radelet, Steven; Sachs, Jeffrey; Cooper, Richard; Bosworth, Barry (1998), "The East Asian Financial Crisis: Diagnosis, Remedies, Prospects." *Brookings Papers on Economic Activity*, p.23

**Table 2.2** A Chronology of Asia's Financial Crisis

Date	Occurrence	Additional Comment
Jan-97	Leading South Korean steel maker defaults on loans	The first of a string of multiple major corporate failures
May-97	Japan hints they might raise interest rates to defend the yen. Thailand is forced to impose certain exchange controls	Baht currency is attacked by speculators
Jul-97	The bath's peg against the dollar is official abandoned The Philippines & Malaysia abandon their pegged exchange rates	Overnight interest rates are raised to 32% at one point
Aug-97	Indonesia raises interest rates	Hong Kong dollar also comes under attack
Oct-97	Devaluations of the Asian Countries vs. the dollar average 20 - 30%	Stock markets in the west are still setting new highs
Nov-97	IMF Economic aid is issued to the crisis countries. Japan withdraws its proposal for an Asian Monetary Fund to supplement the IMF	
Dec-97	Talks led by U.S. Fed Reserve begin to re-negotiate debts	Crisis countries begin a free floating exchange rate system
Jan-98	Japan's Finance Minister resigns following a scandal involving ministry bank inspectors  The largest investment bank in Hong Kong goes bankrupt The Dow Jones drops more than 200 points amid fears of the Asian crisis  House Banking Committee holds hearings on the Crisis	
Feb-98	Most Asian markets continue recovery as confidence returns. Japanese government declares its economy "stagnant" as more dismal projections are made Japan's approves a 30 trillion yen bailout package for the nation's bank Alan Greenspan states there is a risk that the crisis could spread to the U.S. and more IMF aid still fails to show signs of improvement and threatens to cut off package funds. With no board implemented, the IMF releases a 4th installment to crisis countries U.S. trade reports suggest the crisis is starting to affect the U.S. economy Japan gives a long-awaited package of measures to support the poor economy and market Tokyo emphasizes in addition to IMF commitments, it would pledge export credits to region Japan stock market is attacked by doubts of any economic stimulus action being taken	This is in response to announcement of new currency boards  U.S. trade deficit rose in December 24% to \$10.8 billion No fiscal stimulus or tax cuts. Just future promises

**Table 2.2** A Chronology of Asia's Financial Crisis

Mar-98	IMF continuously disperses funds to the crisis countries Japan's ruling party proposed a fiscal package of 16 trillion yen	Also donating countries are being asked to give more
Apr-98	Bank of Japan survey showed corporate confidence in the economy sunk to a new low Japan uses another fiscal stimulus package by cutting income taxes totaling 4 trillion yen	Waves of selling drive stocks sharply lower for the region
May-98	Joint Economic Committee holds hearings on the IMF and International Economic Policy Economies in East Asia also begin to show signs of collapse thru political upheaval Russian financial markets come under pressure	Russian central bank tipped interest rates to 150%
Jun-98	The second phase of the crisis begins with another speculative attack on the Hong Kong dollar Bank of Japan cuts short term interest rates to 0.25% U.S. begins to intervene in the foreign exchange markets The weakness of the yen causes additional pressure on East Asian currencies	Prompted by Japanese economy contracting in 1998  Attempting to support the yen
Jul-98	U.S. investigation into Japan's role and trade relations begins From this point on, crisis has affected the economies of Russia and Brazil U.S. also begins investigation on the transparency and financial structure of IMF	Noticeable thru exchange rate drops
Aug-98	The Dow Jones drops more than 500 points amid fears of spread of crisis to other economies	

Source: CRS Report for Congress (1998) (Modified)

Most Asian economies in the crisis had large current account deficits, where in some cases it exceeded 5% of their GDP. Most of these deficits were financed by attracting inflows of capital from abroad, often short-term capital. The capital inflows into the East Asia countries were very high prior to the crisis, and reversed rapidly during the beginning of it. International institutions like the International Monetary Fund (IMF), tried to encourage developing countries to move towards free capital mobility, since it would promote growth in the region. The problem was not the free movement of capital; however, it was the reliance on these funds that would cause severe volatility in their economies when any small shocks to their economy would occur.

The problem with the countries was not just allowing the current account debts to build up; rather it was the form in which they took. A large part of the capital inflows were huge lending amounts, which led to domestic banks in a number of countries to actively seek foreign funds from the west to finance their lending. Lending booms occurred in the entire crisis countries just prior to the onset. The East Asian banks were motivated by the prospect of large profits, especially where they could take advantage of fixed exchange rates in order to reduce the cost of their borrowing. As the IMF noted in many speeches and briefs, the problem was that the borrowing from foreign sources became excessive. The crisis countries were also highly illiquid before the onset of the crisis. The problem with form of short-term borrowing was that they should have a very large liquidity requirement. This problem also amplified the deterioration of the bank balance sheets when it came to nonperforming loans.

A third factor to the crisis was the absence of an adequate regulatory framework for businesses in these countries, banks in particular. Not having this vital oversight complicated the problem by allowing unsound and corrupt relationships and agreements to develop between businesses across these countries. This also contributed to what is termed as “Crony capitalism”, where people are not directly linked to the actual transaction, thus creating no clear line of ownership of assets/loans. (People were allowed to make arrangements using pseudonyms rather than using their real names/businesses.)

Another weakness of the economies that made them vulnerable to the sharp downturn was the unrealistically high asset values. The cause was that the money supply was growing too quickly for the real economy to absorb. Excess credit was used to fuel speculative booms in the real estate, factories, and the stock market. This was especially hurtful in Japan since most of their banks used the pricing and valuations tied to land and equity assets.

These are mostly underlying economic problems that were building up during the Asian ‘bubble’. However, the actual structures of the governing central banks were also a problem when it came to making policies to help combat the crisis. Central banks in emerging market countries had only a very limited ability to get their countries out of a financial crisis. Given the small nature of the emerging economies, any small shock or change in monetary policy would create a more magnified effect on the economy resulting in currency depreciation and higher interest rates as a result of changes in the

expectations of inflation. While the companies were making these transactions, they were doing so by taking advantage of the fixed exchange rate policy to the U.S. dollar.

In the case for Japan, when the dollar lost value to the yen prior to the crisis, it made it cheaper for Japan to import from the other Asian countries. This major trading added more direct investment from Japan due an over-valued yen, and thus created a significant shift of the economy toward these nations. When the dollar appreciated sharply in 1995 to the yen from the recession they were experiencing, the crisis was starting as it magnified perceptions on the dependence on short-term capital inflows, the large capital deficits, and the speculative investing on high risk ventures.

#### 2.4 Economic Impact

The loss of global financial wealth in the three months following the peak of the Asian crisis was estimated to be \$2.4 trillion, which was equivalent to 19 percent of the Organization for Economic Co-operation and Development (OECD) consumers' expenditure, so it had a large impact to the total world wealth. The Asian crisis also had affected emerging economies such as those in Russia and Latin America severely. The effects on the real sector of the western industrialized countries have been felt thru reduced trade flows and lower foreign direct investment.

When the equity markets in the Asian countries fell, it caused a negative wealth effect on investors across the world, just as they had upon the investors from East Asia. The stock market declines directly affected market declines across the globe through asset pricing and expectation changes. To a large extent, the size of any negative wealth

effect on the major nations would depend on the size of their holdings in the East Asian countries prior to the crisis.

Some investors managed, for one reason or another, to avoid some of the collapse in Asian markets by reallocating funds before the crisis emerged. Less prescient western financial institutions, having seen the value of their assets decline once the crisis began, tried to get their money out of these countries. This has been measured in an article about capital flight from the region. However, the dilemma in such a situation was that attempts to liquidate assets also contributed to pushing the markets to lower value, which also prompts further sales of assets from other investors.

The loss of wealth by western investors in the Asian countries, even with such large holdings, would have been dwarfed by the losses incurred by their holdings in their domestic markets. The direct financial effects of the Asian crisis would have been limited, if they had not triggered falls in other equity markets, especially in Japan.

While depreciating currencies gave a competitive trade advantage to Asian companies, the cost of acquiring overseas assets should increase at the same time, just as the companies face a shortage of available funds. With this fact and the contribution of the crisis to the start of the Russian and Brazilian crises of 1998, the foreign direct investment projects were cut back severely as banks were more reluctant to lend to other countries. Also when it comes to conducting any investment in these countries again, it becomes extremely difficult to find out exactly how credit worthy these countries are. Businesses like Sony in Japan outsourced all of their product inputs to other countries for cheaper labor. As more and more business conducted this form of outsourcing in their

attempt to limit production costs, it artificially inflates the country's own import/export figures and distorts the any real observable economic growth, due to the factors of production.

## CHAPTER III

### CURRENT EFFECTS

The Asian crisis that peaked in the middle of 1997 is still of particular interest, since countries like Japan still have not fully recovered from the impact. During the past year of 2004, the government and central bank were needed to bail out the banks and other financial institutions that were still experiencing the lingering effects of the crisis. To find the causes of these problems, research must be conducted to analyze the policies, international responses, and the changes in international trade during and after the crisis. For all of the data presented below there is a complimentary set of graphs found in the Appendix section.

#### 3.1 Japanese Policies

There were many different types of policies and approaches that were taken to combat the crisis. Part of the analysis will focus on the government structure and the environment for which the policies were made. This information will then help with the understanding of the monetary and fiscal policies that were used.

##### 3.1.1 Government Structure

To understand what had happened in the 1990s, it is useful to establish how the system was structured prior to the crisis. The basic shape of the earlier economic system emerged out of government controls imposed during the Second World War. The hand of government was heavy, inspired by the explicit goal of guiding the economy and a

strong mistrust of outside markets. Main elements of this system included conservative fiscal policies, strong control of financial markets, corporate governance emphasizing managerial control, encouragement of company-based unions and with lifetime employment in large firms, encouragement of cartels and other forms of cooperative industrial behavior, enforcement of a very strong protectionist barriers on both trade and investment, and the creation of a vertical and hierarchical keiretsu (enterprise group) relationships.

In the financial sector, the hand of government was particularly heavy for the desire to guide the economy. Bonds were easily controlled by establishing very stiff eligibility requirements and granting discretionary authority for approval to the Japanese Ministry of Finance (MOF). This effectively permitted the MOF to allow only a handful of favored corporations to issue bonds. With the control of interest rates for deposits and for loans, the MOF was in a position to virtually guarantee profits.

On the governmental side, Japan's Prime Minister Junichiro Koizumi, had set up three main priorities at the same time of cleaning up the banks balance sheets so that normal lending can resume, reduce the government's huge budget deficit and continue to deregulate the domestic economy to make it more competitive and efficient. However, the country faces massive problems it regaining its economic status. No sector of aggregate demand was growing as of the beginning of 2002 and fiscal policy tools had already been exhausted without any success. At this point the BoJ was struggling to push money into the economy to stop the deflation.

To go along with this direct involvement of the government in shaping the problem that exists today, there are also broader aspects of the structure of Japanese society. Information traditionally has not flowed freely in Japanese society, except within group settings characterized by close personal relationships. The evolution of the ‘main bank’ system created long-term personal relationships between specific lenders tied to specific borrowers creating these keiretsu relationships between the product manufacturers and the suppliers of their component parts favored by government and the private sector. The structure of these relationships formed a vertical hierarchy system where a select few of the main banks were in charge of the system. All Japanese social groups depend on constant attention to the details of personal relationships that was also used in banking.

The concern of this top-down system is where the few banks that are at the top are the ones who affect and dictate the policies. The Japanese culture has been very protectionist and centralistic in its action and in policies in the past. This frame of thought is still very apparent in recent years with the ban on ‘too large’ stores such as building a Super Wal-Mart®. Today, Japan is slowly becoming more modern in its thought towards policies for an open market economy. However, with the select few in charge at the top of the hierarchy, these protectionist and isolationist views will persist in their policies and continue to slow the growth potential of the country.

### 3.1.2 Monetary & Fiscal Policies

One of the largest criticisms of the ongoing crisis in Japan has been the slow creation and implementation of policies. There has been some argument that if the

government had not delayed in implementing the necessary reform and stimulus packages, the recession would not be as long or as severe as it has been. To fully understand this, the study of past decisions of the Bank of Japan's (BoJ) monetary policies and fiscal policies will give insight into the attempted success and failures to fix the problem. The time frame starting with the collapse of the 'bubble economy' will be a good place to start for this analysis.

Japan's monetary problems began with the currency agreements of 1985 with the other G-7 countries that attempted to establish a more predictable foreign exchange intervention system that used the exchange rate targeting method. This forced the BoJ to buy U.S. dollars in the markets to maintain the target, which increased the money growth rate of Japan from 8% per year to 12% per year<sup>8</sup>. By increasing the growth rate and its use of purchasing foreign currency in the open markets, one result was the sudden appreciation of the Japanese yen to the U.S. dollar.

Table 3.1 contains all recent data that could be obtained for exchange rate movements on a yearly/monthly basis. For the years of 1990 – 1993, shows the period of appreciation of the Japanese yen relative to the dollar. From there monthly data is provided starting in the middle of 1994, where the continued appreciation of the yen can be observed until the middle of 1995. From this point there is a slow but stable depreciation in the exchange rates that persists until after the Asian crisis to a new low on July of 1998. After this point, there is a somewhat stable fluctuation of exchange rate values as Japan tries to regain control of its economy.

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<sup>8</sup> Sharma, Shalendra (2003), "The Asian Financial Crisis – Crisis, Reform and Recovery." p.17

**Table 3.1** Japanese Exchange Rates (Yen per U.S. dollar)

Date	Japan Yen	Index	Date	Japan Yen	Index	Date	Japan Yen	Index
Annual Averages			Oct-97	120.48	104.8	Jul-01	125.00	108.8
1990	144.79	100.0	Nov-97	128.21	111.5	Aug-01	119.05	103.6
1991	134.71	93.0	Dec-97	129.87	113.0	Sep-01	119.05	103.6
1992	126.65	87.5	Jan-98	126.58	110.1	Oct-01	121.95	106.1
1993	111.20	76.8	Feb-98	126.58	110.1	Nov-01	123.46	107.4
Monthly Closing			Mar-98	133.33	116.0	Dec-01	131.58	114.5
Jul-94	100.00	100.0	Apr-98	131.58	114.5	Jan-02	133.33	116.0
Aug-94	100.00	100.0	May-98	138.89	120.8	Feb-02	133.33	116.0
Sep-94	99.01	99.0	Jun-98	138.89	120.8	Mar-02	133.33	116.0
Oct-94	97.09	97.1	Jul-98	144.93	126.1	Apr-02	128.21	111.5
Nov-94	99.01	99.0	Aug-98	140.85	122.5	May-02	123.46	107.4
Dec-94	100.00	100.0	Sep-98	136.99	119.2	Jun-02	120.48	104.8
Jan-95	99.01	99.0	Oct-98	116.28	101.2	Jul-02	119.05	103.6
Feb-95	97.09	97.1	Nov-98	123.46	107.4	Aug-02	119.05	103.6
Mar-95	86.21	86.2	Dec-98	112.36	97.8	Sep-02	121.95	106.1
Apr-95	84.03	84.0	Jan-99	116.28	101.2	Oct-02	121.95	106.1
May-95	84.75	84.7	Feb-99	119.05	103.6	Nov-02	121.95	106.1
Jun-95	84.75	84.7	Mar-99	119.05	103.6	Dec-02	119.05	103.6
Jul-95	87.72	87.7	Apr-99	119.05	103.6	Jan-03	120.48	104.8
Aug-95	98.04	98.0	May-99	121.95	106.1	Feb-03	117.65	102.4
Sep-95	99.01	99.0	Jun-99	120.48	104.8	Mar-03	119.05	103.6
Oct-95	102.04	102.0	Jul-99	114.94	100.0	Apr-03	119.05	103.6
Nov-95	102.04	102.0	Aug-99	109.89	95.6	May-03	119.05	103.6
Dec-95	103.09	103.1	Sep-99	106.38	92.6	Jun-03	120.48	104.8
Jan-96	106.38	106.4	Oct-99	104.17	90.6	Jul-03	120.48	104.8
Feb-96	105.26	105.3	Nov-99	102.04	88.8	Aug-03	116.28	101.2
Mar-96	106.38	106.4	Dec-99	102.04	88.8	Sep-03	111.11	96.7
Apr-96	105.26	105.3	Jan-00	107.53	93.6	Oct-03	109.89	95.6
May-96	107.53	107.5	Feb-00	109.89	95.6	Nov-03	109.89	95.6
Jun-96	109.89	109.9	Mar-00	103.09	89.7	Dec-03	107.53	93.6
Jul-96	106.38	106.4	Apr-00	107.53	93.6	Jan-04	106.38	92.6
Aug-96	108.70	108.7	May-00	107.53	93.6	Feb-04	108.70	94.6
Sep-96	111.11	111.1	Jun-00	105.26	91.6	Mar-04	104.17	90.6
Oct-96	113.64	113.6	Jul-00	109.89	95.6	Apr-04	109.89	95.6
Nov-96	113.64	113.6	Aug-00	106.38	92.6	May-04	111.11	96.7
Dec-96	116.28	116.3	Sep-00	107.53	93.6	Jun-04	108.70	94.6
Jan-97	121.95	122.0	Oct-00	108.70	94.6	Jul-04	111.11	96.7
Feb-97	120.48	120.5	Nov-00	111.11	96.7	Aug-04	109.89	95.6
Mar-97	123.46	123.5	Dec-00	113.64	98.9	Sep-04	109.89	95.6
Apr-97	126.58	126.6	Jan-01	116.28	101.2	Oct-04	106.38	92.6
May-97	116.28	116.3	Feb-01	117.65	102.4	Nov-04	103.09	89.7
Jun-97	114.94	100.0	Mar-01	125.00	108.8	Dec-04	102.04	88.8
Jul-97	119.05	103.6	Apr-01	123.46	107.4	Jan-05	103.09	89.7
Aug-97	120.48	104.8	May-01	119.05	103.6	Feb-05	104.17	90.6
Sep-97	120.48	104.8	Jun-01	125.00	108.8	Mar-05	104.17	90.6

As mentioned before in Table 3.1, there was an appreciation of the Japanese yen leading all the way up to the later part of 1995. This was the creation of the ‘bubble’ as stocks, equity prices, and real estate began to rise quickly during the 1980s until 1995. Since the banks were becoming more involved with financing their loans and reserves through construction and real estate, this sudden appreciation of values allowed them to extend more credit and funding. According the Bank of International Settlements, Japanese banks were allowed to use 45% of the market value of their equity holdings as their bank reserves. By the middle of the 1990s, this speculative boom generated hundreds of billions of dollars in bad debt once the sectors began to come out of the bubble and it was realized that valuations and prices were over-inflated. With the decline in stock prices shown in Table 3.2, as well as the land asset values, their reserves were significantly reduced, causing a reliance on short-term financing to maintain requirements. This was usually facilitated thru foreign direct investment from the other East Asian countries causing a dependence on these transactions.

**Table 3.2** Stock Market Indices for Japan (Monthly from January 1985 - March 2005)

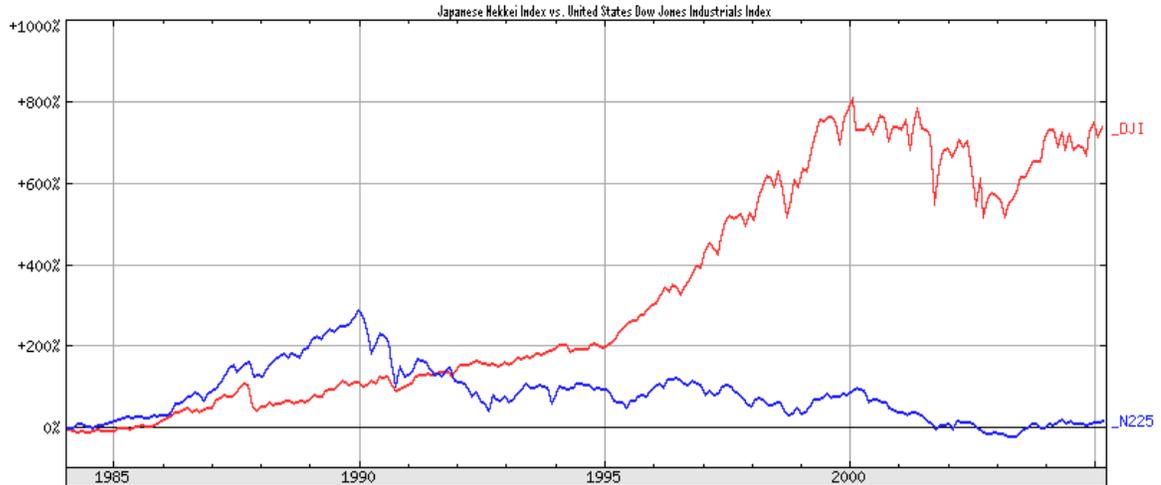
Japan			Japan			Japan		
Date	Nikkei 225	Index	Date	Nikkei 225	Index	Date	Nikkei 225	Index
2-Jan-85	11,993	100.0	1-Sep-88	27,924	232.8	1-May-92	18,348	153.0
1-Feb-85	12,322	102.7	3-Oct-88	27,983	233.3	1-Jun-92	15,952	133.0
1-Mar-85	12,590	105.0	1-Nov-88	29,579	246.6	1-Jul-92	15,910	132.7
1-Apr-85	12,426	103.6	1-Dec-88	30,159	251.5	3-Aug-92	18,061	150.6
1-May-85	12,790	106.6	4-Jan-89	31,581	263.3	1-Sep-92	17,399	145.1
3-Jun-85	12,882	107.4	1-Feb-89	31,986	266.7	1-Oct-92	16,767	139.8
1-Jul-85	12,263	102.3	1-Mar-89	32,839	273.8	2-Nov-92	17,684	147.5
1-Aug-85	12,713	106.0	3-Apr-89	33,713	281.1	1-Dec-92	16,925	141.1
3-Sep-85	12,700	105.9	1-May-89	34,267	285.7	4-Jan-93	17,024	141.9
1-Oct-85	12,939	107.9	1-Jun-89	32,949	274.7	1-Feb-93	16,953	141.4
1-Nov-85	12,763	106.4	3-Jul-89	34,954	291.5	1-Mar-93	18,591	155.0
2-Dec-85	13,083	109.1	1-Aug-89	34,431	287.1	1-Apr-93	20,919	174.4
6-Jan-86	13,024	108.6	1-Sep-89	35,637	297.1	6-May-93	20,552	171.4
3-Feb-86	13,641	113.7	2-Oct-89	35,549	296.4	1-Jun-93	19,590	163.3
3-Mar-86	15,860	132.2	1-Nov-89	37,269	310.8	1-Jul-93	20,380	169.9
1-Apr-86	15,826	132.0	1-Dec-89	38,916	324.5	2-Aug-93	21,027	175.3
1-May-86	16,739	139.6	4-Jan-90	37,189	310.1	1-Sep-93	20,106	167.6
2-Jun-86	17,654	147.2	1-Feb-90	34,592	288.4	1-Oct-93	19,703	164.3
1-Jul-86	17,510	146.0	1-Mar-90	29,980	250.0	1-Nov-93	16,407	136.8
1-Aug-86	18,821	156.9	2-Apr-90	29,585	246.7	1-Dec-93	17,417	145.2
1-Sep-86	17,853	148.9	1-May-90	33,131	276.3	4-Jan-94	20,229	168.7
1-Oct-86	16,911	141.0	1-Jun-90	31,940	266.3	1-Feb-94	19,997	166.7
4-Nov-86	18,083	150.8	2-Jul-90	31,036	258.8	1-Mar-94	19,112	159.4
1-Dec-86	18,821	156.9	1-Aug-90	25,978	216.6	1-Apr-94	19,725	164.5
5-Jan-87	20,048	167.2	3-Sep-90	20,984	175.0	2-May-94	20,974	174.9
2-Feb-87	20,422	170.3	1-Oct-90	25,194	210.1	1-Jun-94	20,644	172.1
2-Mar-87	21,567	179.8	1-Nov-90	22,455	187.2	1-Jul-94	20,449	170.5
1-Apr-87	23,275	194.1	3-Dec-90	23,849	198.9	1-Aug-94	20,629	172.0
1-May-87	24,772	206.6	4-Jan-91	23,293	194.2	1-Sep-94	19,564	163.1
1-Jun-87	24,176	201.6	1-Feb-91	26,409	220.2	3-Oct-94	19,990	166.7
1-Jul-87	24,488	204.2	1-Mar-91	26,292	219.2	1-Nov-94	19,076	159.1
3-Aug-87	26,029	217.0	1-Apr-91	26,111	217.7	1-Dec-94	19,723	164.5
1-Sep-87	26,011	216.9	1-May-91	25,790	215.0	4-Jan-95	18,650	155.5
1-Oct-87	22,765	189.8	3-Jun-91	23,291	194.2	1-Feb-95	17,053	142.2
2-Nov-87	22,687	189.2	1-Jul-91	24,121	201.1	1-Mar-95	16,140	134.6
1-Dec-87	21,564	179.8	1-Aug-91	22,336	186.2	3-Apr-95	16,807	140.1
4-Jan-88	23,622	197.0	2-Sep-91	23,916	199.4	1-May-95	15,437	128.7
1-Feb-88	25,243	210.5	1-Oct-91	25,222	210.3	1-Jun-95	14,517	121.0
1-Mar-88	26,260	219.0	1-Nov-91	22,687	189.2	3-Jul-95	16,678	139.1
1-Apr-88	27,434	228.8	2-Dec-91	22,984	191.6	1-Aug-95	18,117	151.1
2-May-88	27,417	228.6	6-Jan-92	22,023	183.6	1-Sep-95	17,913	149.4
1-Jun-88	27,769	231.5	3-Feb-92	21,339	177.9	2-Oct-95	17,655	147.2
1-Jul-88	27,912	232.7	2-Mar-92	19,346	161.3	1-Nov-95	18,744	156.3
1-Aug-88	27,366	228.2	1-Apr-92	17,391	145.0	1-Dec-95	19,868	165.7

**Table 3.2** Stock Market Indices for Japan (Monthly from January 1985 - March 2005)

Japan			Japan			Japan		
Date	Nikkei 225	Index	Date	Nikkei 225	Index	Date	Nikkei 225	Index
4-Jan-96	20,813	173.5	1-Sep-99	17,605	85.4	1-May-03	8,425	40.9
1-Feb-96	20,125	167.8	1-Oct-99	17,942	87.1	2-Jun-03	9,083	44.1
1-Mar-96	21,407	178.5	1-Nov-99	18,558	90.1	1-Jul-03	9,563	46.4
1-Apr-96	22,041	183.8	1-Dec-99	18,934	91.9	1-Aug-03	10,344	50.2
1-May-96	21,956	183.1	4-Jan-00	19,540	94.8	1-Sep-03	10,219	49.6
3-Jun-96	22,531	187.9	1-Feb-00	19,960	96.9	1-Oct-03	10,560	51.2
1-Jul-96	20,693	172.5	1-Mar-00	20,337	98.7	4-Nov-03	10,101	49.0
1-Aug-96	20,167	168.2	3-Apr-00	17,974	87.2	1-Dec-03	10,677	51.8
2-Sep-96	21,556	179.7	1-May-00	16,332	79.3	5-Jan-04	10,784	52.3
1-Oct-96	20,467	170.7	1-Jun-00	17,411	84.5	2-Feb-04	11,042	53.6
1-Nov-96	21,020	175.3	3-Jul-00	15,727	76.3	1-Mar-04	11,715	56.9
2-Dec-96	19,361	161.4	1-Aug-00	16,861	81.8	1-Apr-04	11,762	57.1
6-Jan-97	18,330	152.8	1-Sep-00	15,747	76.4	6-May-04	11,236	54.5
3-Feb-97	18,557	154.7	2-Oct-00	14,540	70.6	1-Jun-04	11,859	57.6
3-Mar-97	18,003	150.1	1-Nov-00	14,649	71.1	1-Jul-04	11,326	55.0
1-Apr-97	19,151	159.7	1-Dec-00	13,786	66.9	2-Aug-04	11,082	53.8
1-May-97	20,069	167.3	4-Jan-01	13,844	67.2	1-Sep-04	10,824	52.5
2-Jun-97	20,605	100.0	1-Feb-01	12,884	62.5	1-Oct-04	10,771	52.3
1-Jul-97	20,331	98.7	1-Mar-01	13,000	63.1	1-Nov-04	10,899	52.9
1-Aug-97	18,229	88.5	2-Apr-01	13,934	67.6	1-Dec-04	11,489	55.8
1-Sep-97	17,888	86.8	1-May-01	13,262	64.4	4-Jan-05	11,388	55.3
1-Oct-97	16,459	79.9	1-Jun-01	12,969	62.9	1-Feb-05	11,741	57.0
4-Nov-97	16,633	80.7	2-Jul-01	11,861	57.6	1-Mar-05	11,873	57.6
1-Dec-97	15,259	74.1	1-Aug-01	10,714	52.0			
5-Jan-98	16,628	80.7	3-Sep-01	9,775	47.4			
2-Feb-98	16,832	81.7	1-Oct-01	10,366	50.3			
2-Mar-98	16,527	80.2	1-Nov-01	10,697	51.9			
1-Apr-98	15,641	75.9	3-Dec-01	10,543	51.2			
1-May-98	15,671	76.1	4-Jan-02	9,998	48.5			
1-Jun-98	15,830	76.8	1-Feb-02	10,588	51.4			
1-Jul-98	16,379	79.5	1-Mar-02	11,025	53.5			
3-Aug-98	14,108	68.5	1-Apr-02	11,493	55.8			
1-Sep-98	13,406	65.1	1-May-02	11,764	57.1			
1-Oct-98	13,565	65.8	3-Jun-02	10,622	51.5			
2-Nov-98	14,884	72.2	1-Jul-02	9,878	47.9			
1-Dec-98	13,842	67.2	1-Aug-02	9,619	46.7			
4-Jan-99	14,499	70.4	2-Sep-02	9,383	45.5			
1-Feb-99	14,368	69.7	1-Oct-02	8,640	41.9			
1-Mar-99	15,837	76.9	1-Nov-02	9,216	44.7			
1-Apr-99	16,702	81.1	2-Dec-02	8,579	41.6			
6-May-99	16,112	78.2	6-Jan-03	8,340	40.5			
1-Jun-99	17,530	85.1	3-Feb-03	8,363	40.6			
1-Jul-99	17,862	86.7	3-Mar-03	7,973	38.7			
2-Aug-99	17,437	84.6	1-Apr-03	7,831	38.0			

A couple of important things to notice in Table 3.2 are the periods that were selected. The data for this starts with the Nikkei 225 closing in 1985 all the way to present day on a monthly basis. There are two indexed periods though, the first set of data are indexed to 1985 which is the pre-asset bubble that was experienced in Japan. The huge jump in prices and valuations can be seen especially during the last quarter of 1989 where the index hit a record 324.5 to the 1985 closing. However, this was the turning point for the economy as it is clearly observable that the index settles back to near 1985 levels up to the crisis. In mid of 1997, the data is indexed once again to track the progress of the market as the Asian crisis begins to spread and impact the economy. Immediately there is a sharp decline as the market reaches an all time low at the start of the second quarter in 2003, which still is smaller than the closings in 1985.

The fact that the closing today is a little more than half of what the market used to be is only one piece of evidence that the economy has not recovered twenty years later. With the slow monthly growth that is observable in the data, the persistence of the recession and stagnation of the economy is still apparent. Figure 3.1 below shows the performance of the Nikkei 225 with comparison to the Dow Jones Industrial average over the time periods from just prior to 1985 till present day. The Dow Jones outperforms by at least 750% despite any economic crisis, while the Nikkei Index is struggling to maintain its current levels.



**Figure 3.1 - Nikkei vs. Dow Jones Indices**

By the mid-1990s the recession in Japan, combined with the still positive growth of the American economy, resulted with the dollar appreciating rapidly against the yen. In 1996 there was an attempt to overhaul the financial system. Though they have been successful in deregulating the financial markets and even produced a slight upswing in 1996, it was not the most important reform needed at the time as the economy was still going deeper into recession in the second half of 1997 when the crisis hit. As shown in Table 3.3 below, the total real growth of GDP over the four quarters of 1997 was close to  $-0.4\%$  and Japan continued to remain in a recession well thru the beginning of 1999. The significant note in this table is the constant negative capital account balance, the consistent negative government budget balance, and the rapid increase in the exchange rate particularly for the year of 1997. This size and scope of the current account, government debt, and budget balance can be observed in the graphs found in the appendix graph A.4.

**Table 3.3** Japan - Pre-crisis Situation

	1990-94	1995	1996	1997
Growth Rate of Real GDP (%)	2.2	1.5	3.9	(0.4)
CPI Growth Rate (%)	2.0	(0.1)	0.1	2.1
Exports (% of GDP)	9.0	8.6	8.9	10.0
Fixed Investment (% of GDP)	30.4	28.5	29.7	28.3
Gross Domestic Savings (% of GDP)	32.5	30.0	31.3	30.8
Current Account Balance (% of GDP)	2.5	2.2	1.4	2.2
Reserve Money Growth (%)	2.2	7.8	8.5	7.3
Narrow Money Growth (%)	5.8	13.1	9.7	8.6
Broad Money Growth (%)	3.2	2.7	2.3	3.1
Government Expenditure (% of GDP)	20.5	-	-	-
Government Budget Balance (% of GDP)	(0.7)	(3.7)	(4.1)	(2.9)
Exchange Rate (vs. U.S.\$)	119.2	102.8	116.0	130.0
Real Exchange Rate (1990=100, WPI Based)	89.1	85.8	95.2	94.9
Nominal Wage Index	105.0	110.7	111.8	114.0
Real Wage Index	100.6	103.4	104.3	104.2
Current Account Balance (U.S.\$ Billion)	97.3	111.0	65.9	94.4
Capital Account Balance (U.S.\$ Billion)	(78.6)	(66.2)	(31.4)	(122.1)
Foreign Direct Investment (U.S.\$ Billion)	1.4	-	0.2	3.2

Source: The Asian Financial Crisis (2000) (p. 186-187)

One of the solutions that the BoJ attempted to combat and control this economic problem was by monetary packages that in particular involved the direct manipulation of the overnight nominal interest rate. Table 3.4 below has a complete comparison between the Japanese and U.S. Central Bank discount rates from the beginning of 1985 to the current quarter in 2005. From these data, it can be observed that the BoJ did something very unusual in the middle of 1989. Fearing a hard landing from the asset pricing boom, the BoJ steadily raised interest rates in 1989 and 1990 as high as six percent, hoping the economy would gradually slow. Instead, the bubble burst, ending the country's long sustained economic expansion and begun the long recessionary period that still continues to this day.

**Table 3.4** Central Bank Discount Rates for Japan and U.S.

End of Quarter from 1985 - 2004

Date	Japan	United States	Date	Japan	United States
Dec-84	5.00	8.00	Mar-95	1.75	5.25
Mar-85	5.00	8.00	Jun-95	1.00	5.25
Jun-85	5.00	7.50	Sep-95	0.50	5.25
Sep-85	5.00	7.50	Dec-95	0.50	5.25
Dec-85	5.00	7.50	Mar-96	0.50	5.00
Mar-86	4.00	7.00	Jun-96	0.50	5.00
Jun-86	3.50	6.50	Sep-96	0.50	5.00
Sep-86	3.50	5.50	Dec-96	0.50	5.00
Dec-86	3.00	5.50	Mar-97	0.50	5.00
Mar-87	2.50	5.50	Jun-97	0.50	5.00
Jun-87	2.50	5.50	Sep-97	0.50	5.00
Sep-87	2.50	6.00	Dec-97	0.50	5.00
Dec-87	2.50	6.00	Mar-98	0.50	5.00
Mar-88	2.50	6.00	Jun-98	0.50	5.00
Jun-88	2.50	6.00	Sep-98	0.50	5.00
Sep-88	2.50	6.50	Dec-98	0.50	4.50
Dec-88	2.50	6.50	Mar-99	0.50	4.50
Mar-89	2.50	7.00	Jun-99	0.50	4.50
Jun-89	3.25	7.00	Sep-99	0.50	4.75
Sep-89	3.25	7.00	Dec-99	0.50	5.00
Dec-89	4.25	7.00	Mar-00	0.50	5.50
Mar-90	5.25	7.00	Jun-00	0.50	6.00
Jun-90	5.25	7.00	Sep-00	0.50	6.00
Sep-90	6.00	7.00	Dec-00	0.50	6.00
Dec-90	6.00	6.50	Mar-01	0.25	4.50
Mar-91	6.00	6.00	Jun-01	0.25	3.25
Jun-91	6.00	5.50	Sep-01	0.10	2.50
Sep-91	5.50	5.00	Dec-01	0.10	1.25
Dec-91	4.50	3.50	Mar-02	0.10	1.25
Mar-92	4.50	3.50	Jun-02	0.10	1.25
Jun-92	3.75	3.50	Sep-02	0.10	1.25
Sep-92	3.25	3.00	Dec-02	0.10	0.75
Dec-92	3.25	3.00	Mar-03	0.10	2.25
Mar-93	2.50	3.00	Jun-03	0.10	2.00
Jun-93	2.50	3.00	Sep-03	0.10	2.00
Sep-93	1.75	3.00	Dec-03	0.10	2.00
Dec-93	1.75	3.00	Mar-04	0.10	2.00
Mar-94	1.75	3.00	Jun-04	0.10	2.25
Jun-94	1.75	3.50	Sep-04	0.10	2.75
Sep-94	1.75	4.00	Dec-04	0.10	3.25
Dec-94	1.75	4.75			

Source: The Bank of Japan (2005)

Since the economy was already in a full recession, the position of the BoJ was to cut rates in hopes of creating enough economic stimuli to get the economy going again. As shown in Table 3.4, the BoJ target interest rate in 1990 was continually cut in response to the rapid deflation of the bubble economy, and continued cutting throughout the recession until it hit levels that fell below 1% in 1995. The central bank then made a policy decision that was still highly criticized in many discussions and was also directed as one of the major reasons for the lingering effects, the zero nominal-interest rate policy in 1999. The BoJ made it clear that it would keep the rates at zero until the deflationary concerns were over. However, as listed in Table 3.4, the BoJ is still maintaining this rate policy six years later and their banks as of last year still required the bail-out packages from their government.

Despite these constant changes to the monetary policy, there is a problem that exists of having a zero rate policy, the creation of a liquidity trap. The theory is that once these rates have bottomed out, there will be enough liquidity in the markets to support and fund the short-term needs of the economy while promoting growth. The lower interest rates in practice have been used in economies, such as the U.S., in order to provide expansionary stimulus for an attempt to prevent or reverse a recessionary/contraction period. However, once the rate has reached the lower bound as in Japan's case, the central bank can no longer create additional liquidity thru policy changes to the interest rates to provide further growth in the economy. This became a particular problem with the economy of Japan since there was no improvement from what was anticipated from making this policy.

Using the manipulation of the short-term interest rates as the indicator of monetary policy is a form of quantitative monetary economics; where the effects on aggregate activity are of particular interest. In a 2002 journal article written by Ryuzo Miyao, he argues that given the institutional features of the BoJ's operating procedures, a vector autoregressive (VAR) model that consists of interest rates, money, stock prices, and output may serve as a useful guide for Japan to use. There is only a small amount of literature for Japan in a VAR analysis, but those existing studies hardly discuss the institutional characteristics of the operating procedures by the BoJ to select their particular approach. Therefore, there was a problem as to what strategy is most effective in practice for Japan. The features analyzed are the use of policy thru short-term interest rates and monetary aggregates such as the monetary base. The main finding of the paper is that monetary policy shocks have a persistent effect on real output in Japan, especially in the rise and fall of Japan's bubble economy of the late 1980s. The evidence in the paper also suggests that the Bank of Japan's policy moves in the early 1990s to lower the official discount rate from six percent to eventually half a percent, may not be viewed as active monetary policy, but should be viewed as accommodative responses to the stagnated real economy.

This study's effects can still be seen in present day policy, as the BoJ has not reversed its zero nominal-rate policy and the economy has not recovered yet. However, there are some points mentioned that were not included in the analysis. One of the factors not included was the effect of the foreign exchange rates or the factor of poor corporate governance in the business and financial bad loan problems. Neither of these

could change the results and effects of the policy. Instead, it should be a starting point to help show what effective policies should be used, other than putting an ineffective “band-aid” policy in place.

While the BoJ was conducting this monetary policy, the government of Japan implemented multiple fiscal policies to also help give the economy a boost. During the time of the crisis in 1998, the government approved its 13<sup>th</sup> broad fiscal stimulus package in April totaling to 17 trillion yen. In October of 1998, the government implemented a much larger package that provided 60 trillion yen in funds to bail out the banks. The legislation included 25 trillion for help prior to bankruptcy, 18 trillion for cleaning up after the bankruptcy, and 17 trillion to protect depositors. Even though these were implemented, the policies still failed to resolve the problems of a faltering economy. In addition, the ineffective packages massively increased the Japanese government debt creating yet another problem for Japan to deal with as show in Figure A4.

By the end of 1999, three of the top twenty major banks in Japan were closed. Mergers during the second half of 1999 would consolidate ten of the remaining seventeen banks into four new institutions. Despite the attempts of restructuring through this type of consolidating, the government and the central bank still had to bail out these corporations multiple times in 2004 in what appeared to be a never-ending cycle.

In 1999, the economy recovered slightly, as stimulus from public investment and easing of financial constraints added to slowly expanding consumption. In 2001, the economy once again began to contract again. Further heightening the unease about economic conditions was the performance of Japan’s banking sector, coupled with the

continuing weakness of equity and land prices and the downgrading in November 1998 of the nation's sovereign debt due to rapidly rising fiscal deficits and public debt. Also, restructuring in the business sector was pushing the unemployment rate up while causing employee compensation to fall, both factors affecting the decline in consumption spending.

The traditional methods of stimulating the economy, such as public work projects and very low money market interest rates, did not work. By year-end 2001, the unemployment rate had reached a record high of 5.6 percent, and consumption and business investment were both declining, as was public investment. Prices for virtually all aggregate demand segments were falling, except for import prices.

While Japan has depended to a large extent on the fiscal stimulus, the government periodically pumps into the economy for public investment projects. Recently the finance minister has been turning away from further fiscal stimulus since it has shown to be ineffective by either showing an extremely short term improvement or none at all.

### 3.1.3 Low-Inflation Environment

Another area of research is the analysis on the effect that monetary policy has on inflation. While few doubt that very high inflation is bad for growth, there is less agreement about the effects of moderate inflation<sup>9</sup>. This has been a major topic of debate as to what role it plays when deciding macroeconomic policy and also if there really exists and natural rate of inflation to represent positive growth. Japan in particular has been experiencing an environment of very low inflation. Also, they are in a unique

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<sup>9</sup> Kirshnes, Jonathan "The Political Economy of Low Inflation" *Journal of Economic Surveys* p.41

position as the BoJ attempts to combat their existing problems listed above, while operating at the zero-nominal rate policy in this environment.

A paper written by David Reifschneider and John Williams employs both a small, stylized model and a large-scale, open-economy, forward-looking model of the U.S. economy (the Federal Reserve Bank (FRB/US) model, developed at the Board of Governors of the Federal Reserve System) to quantify the importance of the zero lower bound, and to explore policy operations in the face of a binding zero lower bound. Using these models to simulate macroeconomic response under a variety of monetary policy rules, they highlight the following three observations.

Under severe recessions, the economy could experience an unstable deflationary spiral. One issue in this model is they exclude any fiscal policy response to or effect on the economy. In particularly severe recessions, monetary policy can lose control of the economy. Deflationary tendencies cannot be offset by expansionary monetary policy. The mechanism is simple; as inflation falls, real rates rise, and the economy contracts, exerting further downward pressure on inflation. The central bank lowers interest rates to offset these contractionary influences, but for large enough shocks, pushing the interest rate down to zero from moderate levels does not lower real rate enough to stabilize the economy. For sufficiently large recessions, the economy can become caught in a deflationary spiral.

Second, the authors show that the zero lower bound can provide a moderate deterioration in macroeconomic stability as the inflation target approaches zero. For this point, they consider the consequences of operating near the zero lower bound from the

perspective of the FRB/US model. Note that the FRB/US model includes a fiscal policy rule for taxes and expenditures estimated from the average fiscal response over postwar history. This allows the model to avoid the deflationary spiral episodes alluded to above in most cases.

The zero lower bound affects both the size and the variability of recessions as the inflation target declines. As the target falls to zero, the frequency of mild recessions declines, and the incidence of severe recessions increases. The overall variability of the output also increases as the inflation target falls. In sum, the FRB/US implies that the zero lower bound causes a modest deterioration in macroeconomic stability for inflation targets below two percent.

The third point in the paper is that alternative policy rules can mitigate the effects of the zero lower bound obtained under the Taylor rule. They find that this approach succeeds under one condition; the model assumes perfect credibility upon announcement of future policy actions. However, in practice the rules are somewhat arbitrary. Consideration of optimal policy rules, defined as rules chosen to minimize a weighted combination of inflation, output, and interest rate variability, leads to somewhat different conclusions. The authors find much smaller deterioration in output and inflation variability as the inflation target falls for optimal policy rules than for the simple ad hoc rules. Thus, consideration of the effects of the zero lower bound under optimal policy rules suggests smaller macroeconomic consequences.

This low-inflation environment has also produced many other papers of discussion. Rapid output growth and low inflation are the most common objectives of

macroeconomic policy. It is rather surprising that a consensus about the relationship between these two variables has yet to emerge. Generally it is understood that there is a negative relationship between inflation and growth, which holds at all of the high inflation rates, but not at lower levels. So if inflation is bad for growth, is disinflation good? This is not the case since disinflation may lower GDP growth, at least in the short run.

So now the focus on monetary/economic policy is to discuss the effects of a moderate 'natural' inflation rate. This has been debated in academic papers as being both good and bad for economies.<sup>10</sup> However, the costs of inflation are extremely difficult to show. For example, inflation can weaken the informational role of prices that can also reduce the efficiency by increasing uncertainty. Even at low rates of inflation can have sustained real economic costs where the inflation interacts with and increases any of the inefficiencies in the tax system resulting in a large dead-weight loss.

On the other hand, there are competing arguments that provide reasons why some inflation might actually be a good thing. Such arguments often center on the view that in an economy where nominal prices are sluggish to adjust downward, some inflation would allow for changes in relative prices, an essential feature of any growing economy, to occur faster and more efficiently. Also, very low inflation might undermine monetary policy, given a nominal interest rate floor of zero percent. Thus, it is possible to argue that inflation may be a necessary part of the process where it permits maximum employment and output. Disinflation can raise the natural rate of unemployment, adding

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<sup>10</sup> Papers such as Tobin (1965), Aiyagari (1990), Feldstein (1997), Demetriades (1989), Davis and Kanago (1996), and McCadless and Weber (1995).

to any permanent real costs to reducing inflation. In sum, the arguments regarding inflation are indeterminate which goes contrary to the stubborn insistence that inflation at any rate/level is always bad.

However, a different point of view such as the monetarist view looks at it a different way. If money is truly neutral, then there is no reason to care about the rate of inflation. A concern for inflation is in fact inconsistent with monetarism and rational expectations. Despite these views, there are four separate perspectives on this subject; the sociological, neoclassical, modern political economy, and a micro-politics perspective.<sup>11</sup> Although these have varying opinions on an optimum rate of inflation, they all do agree that low inflation is good on the basis that there is absence of conflict, absence of exogenous shocks (such as supply), absence of government intervention, and absence of interest group conflicts.

This low-inflation environment has been the goal of many countries to reach. The U.S. congress proposed to instruct the Federal Reserve to lower the inflation rate to zero from the rate of around five percent back in 1990. However, it was determined that when other policy options are considered, the zero inflation policy was not advisable. Its benefits would be very small, if any at all, while the costs would probably be significant. Other, more direct policy options could produce most of the same benefits with fewer costs. This proves that Japan's current position in this environment is a unique matter that can't be easily duplicated.

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<sup>11</sup> Kirshner, Jonathan (2001), "The Political Economy of Low Inflation." *Journal of Economic Surveys*, p.58

## 3.2 International Responses

Since the beginning of the stagnation of Japan's economy, the government has been given advice for macroeconomic reform policies. Much of this advice has come from sources such as the International Monetary Fund (IMF), Economic Conferences, and the U.S. Federal Reserve on this topic.

### 3.2.1 The IMF

Japan is a donating member of the IMF, and as with every member nation, must meet requirements every year to fulfill its commitment. Although the country of Japan did not receive aid in the form of IMF packages, it did receive several warnings about the crisis affecting its economy from this organization. Also the role of the IMF in the crisis has been highly debated as one of the sources of continuing the crisis, rather than curing it.<sup>12</sup> The IMF is charged with safeguarding the stability of the international monetary system<sup>13</sup>. One of the main goals in supporting aid packages is to help restore confidence in the economies of crisis nations.

As a part of the aid packages to these countries, there were three main goals to be achieved: financing, tightening of macroeconomic policies, and structural reforms in the effected economies<sup>14</sup>. These goals should restore confidence, help stabilize exchange rates and inflation, and also provide reformed corporate governance via an improved

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<sup>12</sup> Radelet, Steven; Sachs, Jeffrey; Cooper, Richard; Bosworth, Barry (1998), "The East Asian Financial Crisis: Diagnosis, Remedies, Prospects." *Brookings Papers on Economic Activity*, p.4

<sup>13</sup> Krueger, Anne (1998), "Whither the World Bank and the IMF?" *Journal of Economic Literature*, p.1985

<sup>14</sup> IMF Staff (1999), "The IMF's Response to the Asian Crisis."

financial system. However, the outcomes of the packages were less successful than planned as depreciating currencies and more financial failures persisted, causing the countries to experience deeper recessionary periods.

With the failure of the packages, there has been much discussion about the actual effectiveness of the international financial system. Some of the system failures have been attributed to giving aid to countries without supervising its use in the economy, lack of information and transparency to the financial system and the extent of the crisis, the timing of when the aid is received, and the problem of moral hazard, which will be discussed later. Also, it is important to notice that even though there were no aid packages for Japan; its economy was still failing due to the same reasons.

The recovery advice by the IMF was not just limited to the aid countries, but it was also directed at the situation in Japan. In a speech given Tokyo by Stanley Fischer<sup>15</sup> in April of 1998, an entire section of the speech on the crisis was dedicated to the problems in Japan. Fischer advised that in order for the stagnation of the Japanese economy to recover, essential things must happen first:

These things include early identification and prompt closure of insolvent institutions; aggressive efforts to dispose of problem loans; linking future injections of public funds to strong restructuring plans, including a requirement to raise funds from the market; an end to regulatory forbearance in recognizing the extent of bad loans; adoption of international disclosure standards; and a large increase in resources for a new financial supervision authority, more currently envisaged, to allow it to fulfill its mandate.

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<sup>15</sup> Stanley Fischer is First Deputy Managing Director, International Monetary Fund, Washington, D.C.

Despite this advisement, the Japanese economy still lags to this date with the same lingering problems. One criticism that is shared among most academic journals and by the IMF is the constant delay for the BoJ and the government to initiate the policies necessary to combat the crisis. These delays have contributed to the constant slow growth in Japan since any policy initiated after a delay, will become only marginally effective as the situation continues to worsen.

### 3.2.2 Economic Conferences

During October 18th-20th, 1999 a conference sponsored by the seven Federal Reserve Banks and the Board of Governors of the Federal Reserve met to discuss the effect of monetary policy in a low-inflation environment. Although one of the major topics of discussion was inflation, there was also a lot of discussion involving Japan and its monetary policy of a zero-nominal interest rate. These particular points of interest were the topics of overcoming the zero lower bound, a theoretical analysis regarding this bound on nominal interest rates, and direct commentary from Kazuo Ueda<sup>16</sup> about the policies, current status, and future possibilities of the Bank of Japan.

In these discussions, some of the ideas expressed were the ideas of creating negative nominal interest rates, the effects on manipulating the money supply, and the possible effects of using nontraditional assets as sources of open market operations that the central bank could use. Most of these are covered in a paper presented by Marvin Goodfriend.

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<sup>16</sup> Kazuo Ueda is a member of the Policy Board of the Bank of Japan.

Goodfriend proposed three policy options for a central bank to deal with the zero lower bound - a carry tax on money (both currency and bank reserves), open market purchases of long-term bonds, and monetary transfers to the public. The carry tax would enable the nominal interest rate to become negative. When this happens, the open market operations would have more scopes to act through a portfolio rebalancing channel, and argues for a carry tax on currency and vault cash as well as electronic reserves. In his view, imposing a carry tax occasionally is a solution to the zero-bound problem; as it would not distort the opportunity cost of holding money. Thru the carry tax, open market purchases of long-term assets can become possible to stimulate the economy as a quantitative monetary policy objective. With the low rates, the central bank can manipulate these long term assets to artificially increase prices. From this point, the government can then initiate monetary transfers at the depressed rate begin money creation.

The views are very well stated; however there are severe limitations for this to work. First, with the quantitative monetary approach, the key in the success is the importance of forming the desired expectations in the economy. The public will need to credibly expect to see a constant sequence of rising asset prices into the future. Another condition for the success of this policy would be that the monetary transfers would need to be reversed at a later date in order to maintain price stability. Also, the monetary authority has to be willing to take a capital loss when implementing and reversing the transfers.

In concluding the conference Ueda comments that the BoJ took this zero-interest rate policy and will remain there until deflationary concerns are over. However, at the time of the conference, it was unclear if this was enough. Their projections for the year of 1999 were looking well with fiscal stimulus packages to continue into 2000. Ueda also discussed the three methods proposed by Goodfriend, and found that the proposal to create negative nominal interest rates an unpractical idea. Furthermore, the effect of purchasing long-term assets would have a minimal effect on the economy since rates are already depressed. The possibility of other assets like stock and real estate might work, but are prohibited by Japanese law. Also, the BoJ cannot engage in foreign exchange intervention since it is against the ruling of the Ministry of Finance.

Despite the discussion at this conference, the BoJ hasn't implemented any of the policies discussed. As shown in Table 3.4, the zero-interest rate nominal policy is still in place. The expectations for the future from the conference did not happen, as the fiscal stimulus packages wore off by the end of 1999. As had been evaluated by Ralph Bryant's review on Goodfriend (as well as other articles), the BoJ should have pursued an even more aggressive expansion of its monetary base than it did, and the government should have initiated large, temporary tax cuts to stimulate the economy.

### 3.2.3 U.S. Federal Reserve

The Federal Reserve has made it a point to study every aspect of the Asian crisis as well as the economy of Japan. The value of expectations in the economy plays a very important role as to the direction it takes. Monetary policies only serve to cater to the liquidity needs of the economy during the times of the recessionary period, and

conferences hosted by the Federal reserve have also evaluated the usefulness of these policies and additional alternative forms of policies has been suggested.

However, the testing of the expectations hypothesis for Japan becomes necessary if the economy is going to recover. Spending decisions, especially investment, are largely determined by long-term interest rates. An important analysis is how the policies used effect people's expectations and the formation of the yield curve. The zero-rate policy has implications due to market participants forming expectations based upon short-term rates or how long the policy will remain in effect. Given the length of the period of zero rates, it is suggested that expectations are very low and that the economy would not improve.

There was great caution that was done by the U.S. Federal Reserve during its own economic crisis after the tragedy of September 11<sup>th</sup>, 2001 and the collapse in confidence in the economy after many corrupt corporations filed for bankruptcy. As shown previously in Table 3.4, during this crisis, the Federal Reserve was extremely reluctant to follow in Japan's footsteps of falling into the liquidity trap. There was only a brief time where the federal funds rate fell below one percent. It was also during this time that many corporate and governmental structural reforms were put into place to restore confidence in the economy. Unlike Japan, the next few quarters to this day the U.S. has recovered out of the possible liquidity trap and the economy has greatly improved.

### 3.3 International Effect on Trade

There are positives and negatives of the crisis as it affects international trade. The lower value of the Asian currencies causes import prices to fall, benefiting consumers and

manufactures that use imported Asian inputs in their production process. Lower import prices also can reduce inflation in the short-run. The fall in East Asian product prices to global consumers was significant. Asian producers were desperate to maintain demand as close to pre-crisis levels as possible by cutting prices. Western manufacturers had some pressure caused by this to reduce their prices in order to maintain their competitiveness with these imports.

Another positive form is that unaffected countries like the U.S. would benefit from capital inflows in the belief that the country is a safe haven. As the countries that contributed to the amount of capital flight from the troubled nations, their funding would be re-directed to more stable economies. This foreign direct investment boost would generate growth, and decrease any negative impacts from the spread of the crisis.

One effect on industrialized countries of the Asian crisis was the income effect caused by falling international imports. Because East Asian currencies had devalued, there was a weakening of demand for western goods in these countries, which are relatively more expensive. Western goods were relatively more expensive in third-party countries as well. Thus, it created a pause on the growth of exports from the major economies.

As shown in Table 3.5 below, the amount of exports far exceeded the imports which only increased the trade deficit for the nation. The devaluation of the currencies became apparent as it approached 1997 thru the volume of imports (Indexed) increases in value. It is also important to take note of the top four export categories for Japan in 1996. As it becomes cheaper for the Japanese companies to manufacture in the Asian countries,

they begin to outsource more of their industry. This is reflected in the sharp increase in all four categories, most noticeably electrical machinery as it nearly doubles in size. For example, companies like Sony would produce the basic components for items such as TV's, and then export them to Malaysia to be assembled.

**Table 3.5** Japan - Pre-crisis Situation - Imports & Exports

	1990-94	1995	1996	1997
Export Value (U.S.\$ Million)	340,300	443,116	410,900	420,957
Composition of Exports (Top 4 in 1996, U.S.\$ Million)				
Road Vehicles	76,637	78,057	74,724	n/a
Electrical Machinery, Apparatus & Appliances	42,323	73,102	66,552	n/a
Office Machines & Automatic Data Processing	27,592	33,895	32,560	n/a
General Industrial Machinery & Equipment	20,321	28,602	27,748	n/a
Import Value (U.S.\$ Million)	244,494	335,882	349,151	338,753
Composition of Imports (Top 4 in 1996, U.S.\$ Million)				
Petroleum & Petroleum Products	21,553	34,991	41,412	n/a
Electrical Machinery, Apparatus, & Appliances	10,064	20,683	22,146	n/a
Articles of Apparel & Clothing Accessories	11,677	17,630	18,831	n/a
Office Machines & Automatic Data Processing	6,894	15,249	18,762	n/a
Exports' Dependence on Unaffected Markets (%)	52	46	45	n/a
Volume of Exports (Index)	102	107	107	118
Volume of Imports (Index)	107	136	141	145

Source: The Asian Financial Crisis (2000) (p. 186-187)

## CHAPTER IV

### CONTAGION ANALYSIS

#### 4.1 Contagion Defined

The term ‘contagion’ is best described as the rapid spread from one market to another of declining prices, decreasing liquidity, and increased volatility. Some research has shown that there is a very noticeable relation between the traders own effect of reacting in the markets which they trade<sup>17</sup>. Contagion reduces the benefits from portfolio diversification due to market frictions, and raises issues for risk management.

#### 4.2 Theories of Contagion

Given the effects of contagion, there has been much research into the different channels that would create this problem. Financial crises are important part to study when it comes to the effects of contagion because they raise the costs of intermediation and restrict credit. This causes market friction and cause periods of lower growth that could push an economy into a recessionary period. The fact that it can create such a large effect suggests that any changes felt in one sector can cause more reactions in other sectors and infect the other economies. There are different channels by which this can occur and have been studied in previous academic journal articles<sup>18</sup> as to what would cause this spread.

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<sup>17</sup> Kyle, Alber; Xiong, Wei (2001), “Contagion as a Wealth Effect.” *The Journal of Finance*, p.1401

<sup>18</sup> Allen, Franklin; Gale, Douglas (2000), “Financial Contagion.” *The Journal of Political Economy*, p.2

One channel that is analyzed is the concept of overlapping banking systems. When one region suffers a bank crisis, the other regions suffer a loss because their claims on the trouble region fall in value. If this effect is strong enough, it can cause a crisis in the adjacent regions. In extreme cases, the crisis passes from region to region and becomes a contagion. The critical ingredient in this research is that any two regions are connected by a chain of overlapping bank liabilities. Banks in region A have claims on banks in region B, which in turn have claims on banks in region C, and so on.

Also in this channel, inter-bank deposits play an important role as well. Since financial institutions must maintain liquidity requirements, if one region receives a small shock that depreciates assets, the shock is then transmitted directly to the financial institution that holds deposits in that region thus creating contagion. This shock was observed in the data when banks in Japan started to move assets and keep foreign currencies as part of their portfolio in response to the changes of appreciation and depreciation of the yen.

Another channel that could cause contagion is the assumption of incomplete information. If the intermediaries have incomplete information, when there is a shock in one region, they will assume it is a signal predicting a shock in another region. Thus, a crisis in one region may create a self-fulfilling expectation of a crisis in another region. The idea of information transmission as being a source of contagion is that the fundamental risks are spread across varying assets. Thus, when one asset declines in price because of noise trading, rational traders reduce the prices of all assets if they

cannot distinguish between selling based on liquidity shock or shocks to changes in the economy as a whole.

Another channel that has been extensively studied<sup>19</sup> is the effect of international currency markets in the propagation of financial crises from one country to another. A country's financial system is internationally illiquid if its potential short term obligations in foreign currency exceed the amount of foreign currency it can have access to in short notice. This condition may be crucial for the existence of financial crises and/or exchange rate collapses. This illiquidity can be traced from the financial liberalization, the shortening of the foreign debt structure, and the currency denomination of assets versus liabilities. The financial crises of the exchange rate collapse can be due to a government policy of both fixing exchange rates and acting as a lender of last resort.

After looking at all the different possible channels of creating the problem of contagion, the theme of the dependence of funds and cash flows from other countries stands out. It can be concluded then as a country moves towards free trade and free capital mobility, the more vulnerable that country will be toward contagion. Naturally this would become a barrier to prevent countries from opening their economies and restrict trading. However, this becomes a duality as there is an economic loss when there are restrictions to prevent the economy from growing. One way to prevent this isolationist approach would be to show and provide accurate and transparent information on companies and creditworthiness of the countries involved.

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<sup>19</sup> Some examples of previous papers are Calvo (1995) and Chang and Velasco (1998)

### 4.3 Contagion Failure of the Rest of the World

Despite the definition and the different channels that cause contagion, the effect of the Asian crisis had little to no effect to the rest of the world's developed economies. The channels were present and observed in the East Asian countries and it helped fuel similar crises in Russia and Latin America. So, why wasn't this transmitted to the United States and Europe as feared?

Contagion in the inter-bank market implies that reduction in loan flows to one country is quickly followed by similar reduction in other countries, whether due to common economic shocks or for reasons unrelated to fundamental economic factors. In the wake of an international financial crisis, the risk of contagion is heightened due to high uncertainty among creditors regarding the true cause of the crisis and the creditworthiness of borrowers. Therefore contagion in the international loan market is not global in nature, rather limited to specific borrowing groups or geographic regions.

Another reason for the limited nature of the crisis was the countries that were not affected had a much better information system. The transparency and accuracy of information is extremely important when developing the investing decisions and expectations in the global market. Combined with strict monetary controls in each country, it would trigger an early pull out of investment when the crisis hits. This would create a minimal effect to the unaffected countries as they may take a minimal loss in anticipation of the problem.

## CHAPTER V

### POSSIBLE SOLUTIONS

In discussing what the countries need to do to make the system operate better; there are at least five key elements. First, macroeconomic policies, including the choice of an exchange rate system; second, provision of a better information system; third, strengthening of the banking and financial system; fourth, strengthening corporate finance governing systems including the bankruptcy laws; and fifth, measures to deal with potential reversals of capital flows.

#### 5.1 Recommended Policies

Under normal conditions we can easily establish what needs to be done to promote growth in the economies. Under textbook conditions, depending on which exchange rate regime the country falls under, there are two different approaches to enact policies that could be used to improve the economy. Under the flexible exchange rate regime it is taught that only monetary policy works, where the fixed exchange rate regime fiscal policy works. Both of these policies were used in trying to solve the economic crisis with no success. Although these are extreme academic examples on either end of the spectrum, the failure of these policies stems from other problems such as timeliness, confidence, and expectations.

Under these special circumstances however, the already imposed policies such as the zero-interest rate, normal actions become unsustainable to give the desired turn of the economy. Therefore, one priority is to get out of the liquidity trap that the BoJ created

via the zero-interest rate policy. It becomes necessary for the central bank to generate funds via the different methods that were introduced in the economic conference. As Ueda stated at the conclusion of the conference, “Don’t put yourself in the position of zero interest rates. You’ll have to face a lot of difficulties. I can tell you it will be a lot more painful than you can possibly imagine.”

Japan’s government issued numerous huge fiscal stimulus packages; however the manner in which these packages were given could also stem from ineffective policy. Each of the packages was broad spectrum, with no real focus on sectors or targets for the economy to work on. Also a lot of the policies were implemented after a long delay, if the existing policies were implemented sooner, there are a consensus that the crisis would not have lasted as long or not be as severe as it is now. With the fiscal packages that are offered, there should be guidelines for its use that would provide a supervisory element to reform the affected sectors.

A low-inflation environment is important to consider when making monetary policy. Despite the conflicting literature, inflation does affect key economic variables such as unemployment, output, and prices. In the graphs provided in the appendix, it is shown that unemployment is positive just less than five percent, the Consumer Price Index is still slightly negative, and GDP for the nation both Real and Nominal are sluggish in growth. To help stimulate the economy, the belief of a moderate rate of inflation would help stimulate the economy in asset prices, increase output, and lower unemployment artificially for the short-run. This should help in restoring expectations in the economy for the long-run to get out of the constant recessionary period.

## 5.2 Suggestions for Investment

One of the most important factors when it comes to any decision for investment is information. The Asian crisis owes a great portion of the intensity to a general lack of transparency about the sizes of positions that had been built up by both borrowers and lenders. Improvements in information require efforts by the private sector to adopt sound accounting practices and appropriate standards of disclosure to investors, financial institutions, and official agencies.

Another factor in the decisions for investment is having accurate information to create rational expectations. Due to the complexity of asymmetric information and lack of transparency in Japan, information is distorted and thus causes the expectations hypothesis and any policy to fail.

## 5.3 Improvements to the System

There are many improvements that need to be implemented both domestic and international. As for the domestic improvements, there needs to be a better banking system in place with tighter controls and regulations given by a more involved central bank of Japan. Economic financial weaknesses in Japan contributed to the crisis in Asia, both by weakening exports from the other crisis countries, and because Japanese banks were withdrawing funds from these countries to strengthen up their balance sheets from all of the bad debts. As stated in the contagion analysis, the role of a central bank should be to complete markets. In the market structure with a central bank, all banks have a link to it. By intervening appropriately, the central bank can ensure that the inefficient liquidation associated with contagion can be avoided.

Another action to be taken domestically is the strengthening of corporate finance including bankruptcy laws and their implementation. This includes the addition of appropriate auditing and accounting standards, principles of good corporate governance, and efficient bankruptcy procedures (both laws and courts to enforce them). If there was a more clear corporate governance and management, the banks would no longer need to be bailed out on a regular basis by the central bank.

One way to help correct this problem would be a system that would eliminate the insolvent assets that the banks hold as a part of their reserves. To combat this problem, the BoJ can create a policy that would provide an interest rate on the reserves that the banks hold. This would create an incentive that would help keep the banks liquid and out of the insolvency issue.

These changes alone are not enough to make a significant improvement to the system of Japan. In order for any of these changes listed above to be effective, they need to completely change the frame of mind when it comes to making policies and structural reform. Specifically, the elimination of the top-down keiretsu system is necessary where the top few people in charge of the banks dictate narrow-minded protectionist policies. This form of isolationism prevents any form of open market free trade and also serves to stunt economic growth in the long run.

## CHAPTER VI

### CONCLUSIONS

Japan used to be considered the second largest economy in the world; however these lingering problems are still keeping the country in what appears to be a never ending recession. For the country to come out of this problem, it will require major improvements to the system. The policies that have already been implemented have either had a minimal effect, or created more problems than before.

The road to recovery is long and hard, and it requires immediate decisive action before more problems arise from delays. In order for the country to improve, Japan should first focus on cleaning up the individual sectors before implementing the larger macroeconomic reforms. Improvement in the individual sectors, such as the financial sector, combined with the removal of the keiretsu system, will provide a firm foundation on which to conduct effective macroeconomic policy.

In reducing economic contagion, the proposed reforms should reduce the frequency, effect, and spread of contagion between Japan and its trading neighbors. This can only be done by improving the quality of information, strengthening banking and financial systems, improving macroeconomic policies, and increasing the strength of the economies.

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APPENDIX  
INTERNATIONAL ECONOMIC TRENDS – JAPAN  
DATA FOR SHORT & LONG-TERM GRAPHS

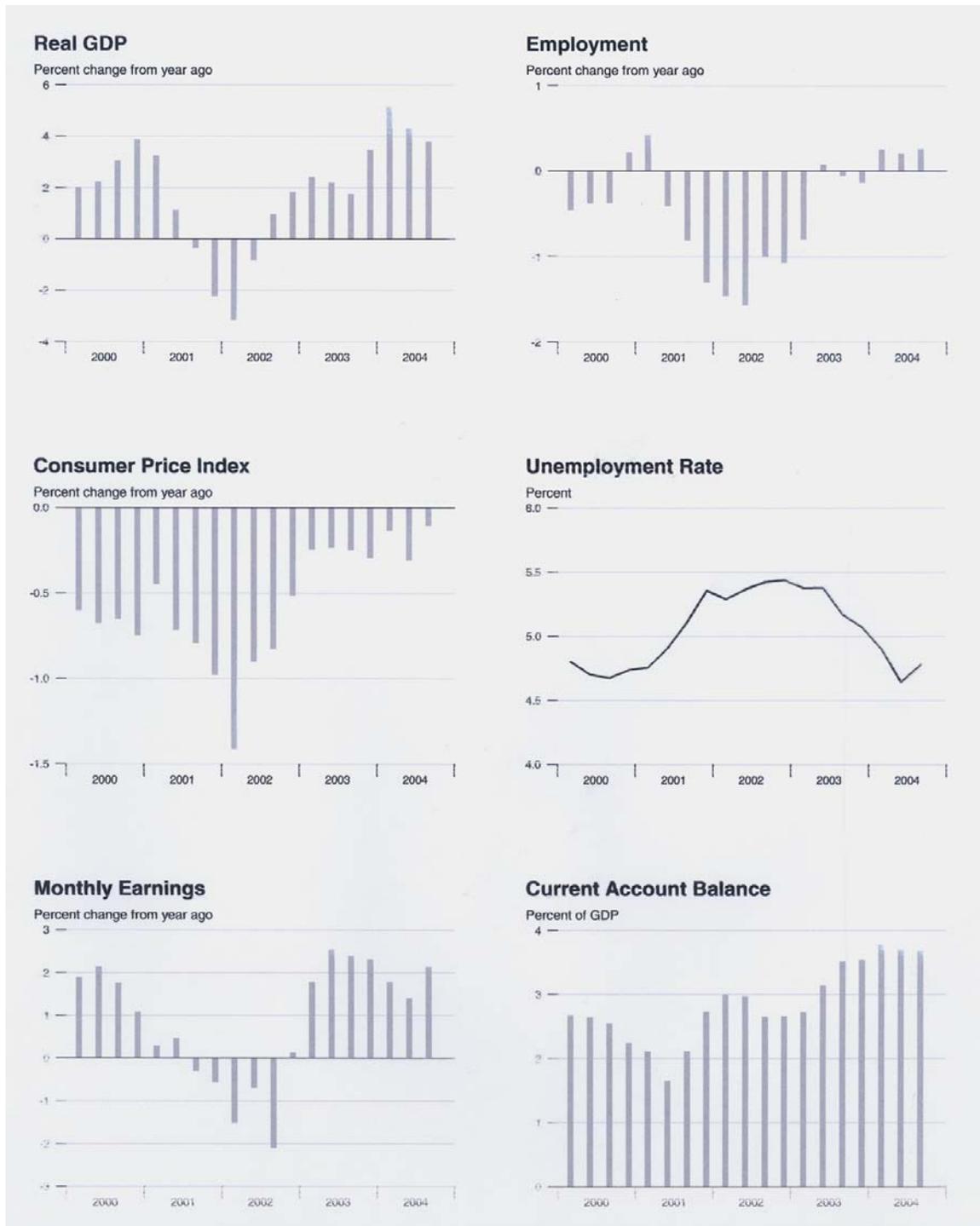


Figure A.1 – Short-Term Economic Overview  
 Source: Federal Reserve Bank of St. Louis

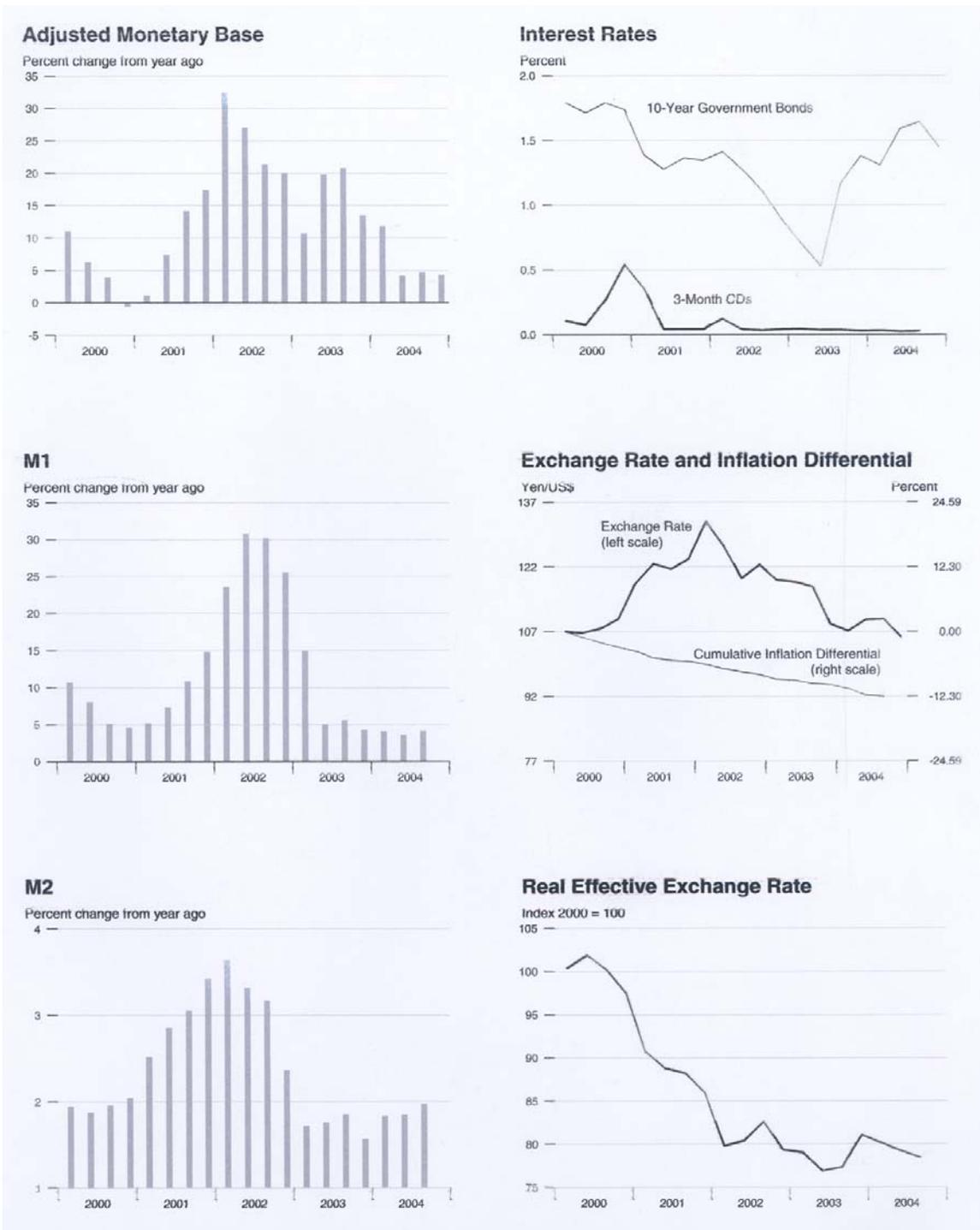


Figure A.2 – Short-Term Financial Markets  
Source: Federal Reserve Bank of St. Louis



Figure A.3 – Long-Term Production and Sales  
Source: Federal Reserve Bank of St. Louis

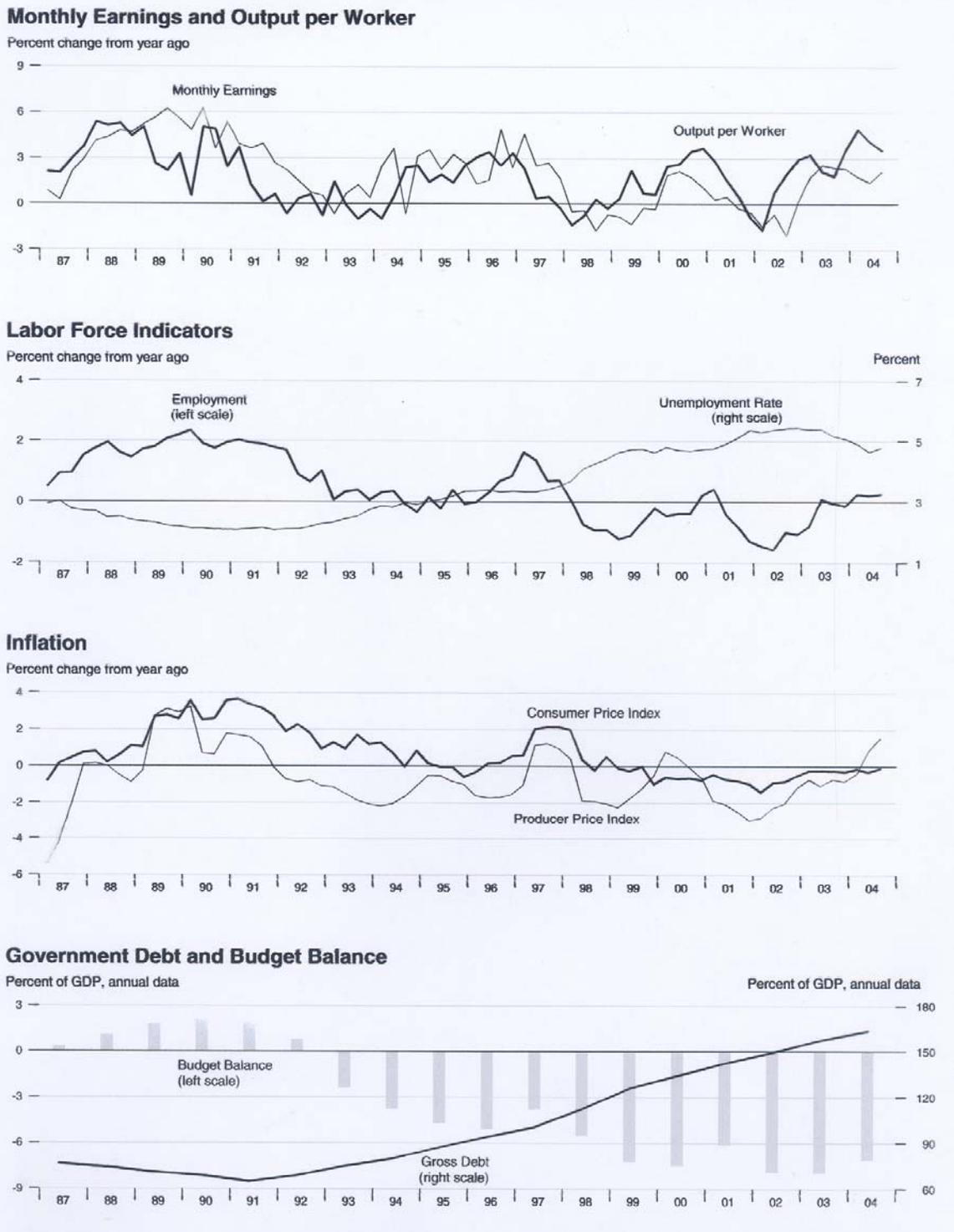


Figure A.4 – Long-Term Labor, Inflation, and Government Data  
 Source: Federal Reserve Bank of St. Louis

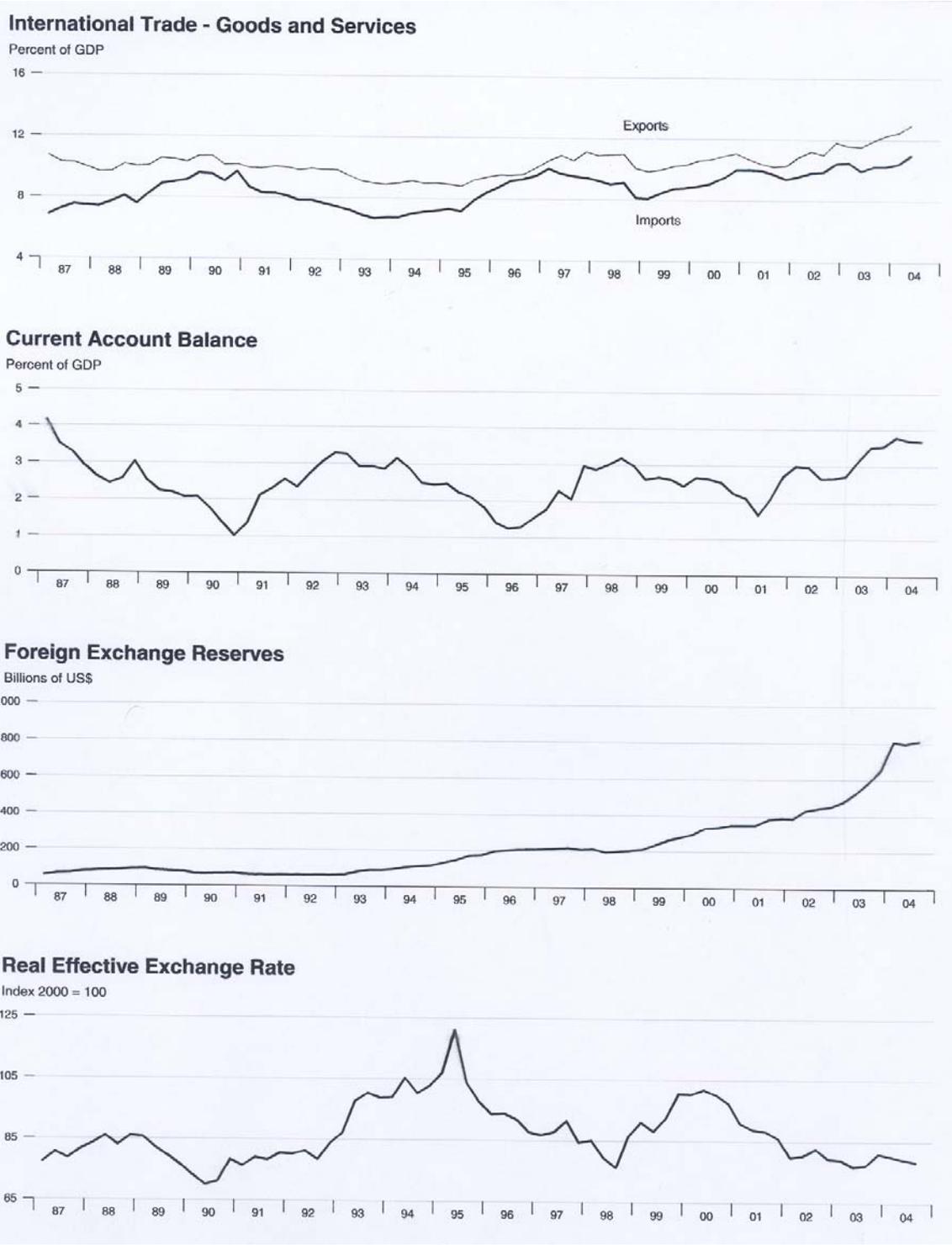


Figure A.5 – Long-Term Foreign Sector  
Source: Federal Reserve Bank of St. Louis

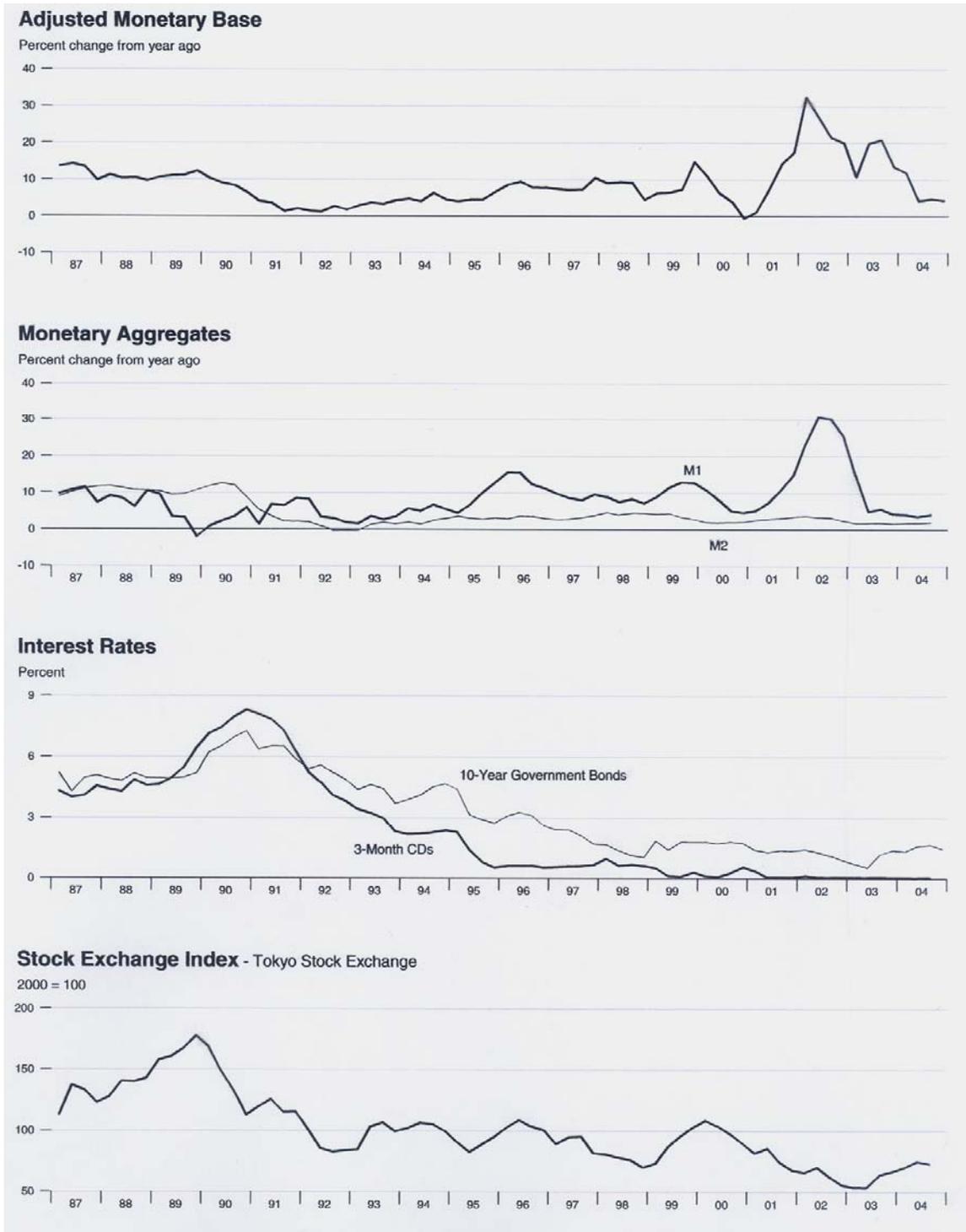


Figure A.6 – Long-Term Financial Markets  
 Source: Federal Reserve Bank of St. Louis

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