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Evaluation of the Causes of Fall of the Economy of Japan

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Abstract: The economic downturn that befell Japan in the 1990s, commonly known as the "lost decade," resulted from a confluence of factors. The Plaza Accord of 1985, aimed at depreciating the US Dollar against the Yen, inadvertently triggered a substantial Yen appreciation, coupled with expansionary monetary policies, leading to an unsustainable asset price bubble. The burst of this bubble in the 1990s marked the onset of a balance sheet recession, where private sector deleveraging and a contracting workforce hindered traditional monetary policies' effectiveness. Additionally, a slowdown in total factor productivity (TFP) growth, stemming from a lack of innovation and inefficiencies in resource allocation, contributed to the prolonged economic downturn. High savings rates coupled with demographic challenges and implementation of the Basel 1 Accord in 1992 exacerbated the situation by constraining economic activity. This paper delves deeper into the reasons for the advent of the "lost decade" in Japan.

Keywords: Japan, balance-sheet recession, total factor productivity, TFP, yen appreciation, lost decade, economic downturn of Japan, fall of Japan's economy

I. Introduction

By 1950s, Japan became one of the most developed economies in the world, a phenomenon termed as the "Japanese economic miracle". The average rate of growth of output was 9% in 1960s and 1970s. After having recovered from the impact of war and oil price shocks, the rate averaged around 3%. During 1980-1984, the economy was on a stable growth path. By the mid-1980s, Japan again had a dramatic growth and per capita output growth rate reached 5%.

Japan used to have a very controlled financial system. Allocation of finance was state directed. In 1986, Japan deregulated the external and internal controls on finance. Measures included reducing tariffs and allowing foreign direct investment (FDI). This immediately generated a big boom. The policies gave opportunity to foreign investors and encouraged FDI and also investment from Japanese residents. This in turn generated economic growth: there was a boom in asset prices; the stock market went up by several points; land prices almost doubled by 1989; and there was a shift from the tradeables to non-tradeables. Real estate sector showed significant growth and there was a construction boom.

In the 1980s, Japanese economy was characterised by extremely low interest rates along with fuelled stock market and real estate speculation. Due to this property and public company valuations were soaring high. Upon comprehending the unsustainability of the bubble, the Bank of Japan decided to raise interest rates to curtail the speculation. This led to a crash in the stock market followed by a debt crisis. Borrowers were not able to make payments on many debts as they were backed by speculative assets. All this finally led to a banking crisis and a falling trend in the economic growth of Japan.

The policies that were responsible the growth spurt of 1980s might have led to the economy being rendered more vulnerable to external shocks which finally contributed to recession. For instance, the liberalization of 1980s encouraged big manufacturing firms to borrow from foreign investors. In the business sector, until the bubble burst, the Japanese companies had stressed on expanding market share, expanding business and maintaining employment rather than profitability. The problems and inefficiencies of this business model were magnified by the bubble economy in the late 1980 and thus caused a greater shock when the bubble burst. There was absolute recession for a year or two. Even after that it did not recover and led to what is known as the lost decade (the 1990s). It has been over three decades since the crash and the Japanese economy has not been able to get on to a growth territory.

II. Causes of Economic Downturn

A. *Slowdown in the Growth Rate of TFP*

Total factor productivity (TFP) can be defined as a measure of the efficiency of a country in producing output, given the levels of capital and labour. It can be thought of as technological progress (innovation) that affects economic growth. One of the major reasons of Japan's slow growth was the slowdown in growth of its TFP. During 1970s-1990s, the growth rate of total output was averaging around 5% a year. During that period, output growth due to capital accumulation was

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about 50% and that due to labour growth was about 20%. The remaining 30% growth in output could be attributed to growth in TFP, which grew at a rate of 1.4% a year. But 1990 onwards, the growth in TFP started stagnating and there was a productivity slowdown.

One of the reasons for the slowdown in TFP was a stagnation in innovation. From 1950s to 1970s, Japan had experienced a rapid growth due to adoption of technologies available from abroad, to a great extent. But as the global technical frontier was achieved, there were no more prospects for that. At the same time, Japan failed to achieve much technological progress and innovation by itself. Although it is difficult to measure intangible investment, it has been observed that nominal intangible investment (investment in human capita, software and organizational capital) against nominal GDP, had been increasing, but at a very slow rate. Also, research and development (R&D) expenditure in Japan failed to contribute to the global technical frontier. The obvious relationship between R&D expenditure and TFP growth was not observed in Japan. The reason for this was that, although Japan spent a lot on R&D, it did not necessarily result in production of goods which appropriately met consumer needs; and R&D in Japan was oriented towards gradual development, rather than innovations. But unfortunately, this diminished growth potential was not recognized for a long time. So, there was over-optimistic capital accumulation till 1980s to early 1990s. When model expectations were reached, there was a loss in capital value. Both investment and consumption declined. According to Aoki (2017), *"Japan could not switch its path from being a catch-up regime — where companies enhanced productivity by copying the innovative technology of the U.S. firms — to an innovation regime — where companies grow productivity through their own R&D activities — and thus Japan fell into a low productivity trap."*

During the 1980s, Japan saw a growth in its service sector. But by the late 1980s, a poor performance was measured in the service sector of Japan. The existing service industries were old and slow to adopt innovations in technology and observed low rates of investment. At the same time, the service sector was filled with monopolies and oligopolies, with a high entry cost. This caused a substantial financial burden while at the same time increasing rents, which enhanced corporate saving. As a tradition, retained earnings are used to finance further investments. Hence, dividend payments were low and there was a lack of access to capital income. The result of this was a decrease in growth in consumption expenditure.

The government and financial sector also failed to do an efficient job of efficient allocation of resources to the best producers. TFP growth can be improved by either entry of firms with better technologies or advanced business models, in the market; or exit of firms whose productivity is declining because of use of obsolete technology. It was however observed that the number of new entrants had been low in various industries in Japan (which could be attributed to low entrepreneurial skills and financial obstacles to undertaking entrepreneurial activities). At the same time, number of firms exiting from the market was also low. This meant that even though firms might have been experiencing low earnings or low productivity, they would have continued to receive support from financial institutions, allowing them to remain in the market. So, labour and capital remained fixed in firms with low productivity. Due to this inadequate allocation of resources, full potential of innovation could not be recognized. In their 2008 work, economists Ricardo J. Caballero, Takeo Hoshi and Anil K. Kashyap argued that *"the continued lending by the Japanese financial sector to the otherwise insolvent, inefficient firms kept the Japanese market congested, affected the profitability of more-efficient firms and prevented the economy from reaching the optimal level of firm entry and exit."*

B. *Yen Appreciation*

On 22nd September 1985, an agreement was signed at Plaza Hotel, New York; between France, Germany, the US, the UK and Japan (the G-5 Economies). They agreed to depreciate the US Dollar relative to Japanese Yen and German Deutsche Mark. The objective was to reduce the trade deficit of US with Germany and US with Japan. But the latter failed to happen, with the appreciation of Yen contributing to laying the base for the "lost decade" in Japan.

There was an extremely large appreciation of Yen against Dollar, by about 50%. As a result of this appreciation, Japan's export ceased in the first half of 1986. The announcement of an intended appreciation was sufficient to lead to an investment boom. But there was no monetary contraction. Rather, the Bank of Japan, under pressure to respond, decided to introduce a macroeconomic stimulus. They did so by following an expansionary monetary policy. Home demand, in relation to foreign demand, rose. This led to an underlying real appreciation. Policy interest rates were reduced by 3 percentage points, till 1989. Japan's economy was thriving as output was on the increase, but so were asset prices. Bank of Japan lent against this boom creating a bubble economy.

At the same time, China was rapidly expanding and showed high productivity growth. Due to this, some investment funds were diverted from Japan to China. The younger economies of South East Asia also emerged. They had better technologies and higher TFP. All this, accompanied by the overvalued exchange rate, replaced Japan in international trade to an extent. This was a small factor responsible for the slowdown of Japan's economy.

But the key effect was of the over-valued yen and expansionary monetary policies (which contributed to the asset price bubble, i.e., rising value of real estate and stock in the 1980s). in the 1990s, this bubble economy was addressed to later,

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by a contractionary monetary policy, which stimulated the burst of it. This marked the beginning of the lost decade of 1990s.

C. *Monetary Policies*

In 1980s, Japan's economy was characterized by an unsustainable bubble with high and unsustainable valuations of real estate and in the stock market. But by the beginning of the 1990s, this bubble had burst. Real estate value fell back to their initial (pre-boom) value and stock market valuation showed a downward trend for two decades thereafter. Since most loans were taken keeping property as collateral, this fall in value of property caused the severe problem of overleveraged firms and households. According to Japan's National Income Accounts and Flow of Fund Statistics, during the 1980s (bubble period), the non-financial firms held about 35% of total stock market value in the economy, and deposit taking banks held 12%. At the same time, the non-financial firms held about 24% of land value. After the burst of the bubble, non-financial firms lost about 201 trillion yen from stock holdings and 133 trillion-yen land holdings, in the form of unrealized capital loss. Similarly, banks lost about 36 trillion yen. The definition of capital included unrealized capital gains on stocks held by banks. Thus, in this situation of falling stock value, there was an erosion of bank capital. The various capital ratios showed a decline, which adversely affected the risk-taking capacity of banks. There developed a situation of credit crunch (shortage of credit at prevailing prices) causing further economic stagnation, aggravating the problem of asset price declines and causing further financial instability. At the same time, banks were large net sellers of stocks and non-financial firms were large net sellers of land. These "fire-sales" of assets contributed largely to falling asset prices. This was the situation of a negative feedback loop.
The regulatory authorities of banks, during these during this time, delayed the decision to recapitalize the banks. Added to this, the decline of asset prices resulted in value of the reduced collateral, such that it was not capable of recovering the loan losses. This led to increase in bad loans. There was a debacle of large organizations like the Yamaichi Securities, the Long-Term Credit Bank of Japan, and the Hokkaido Takushoku Bank. Initially, the Japanese government tried to keep these afloat, but finally let them go bankrupt. The disposition of bad loans became a long-drawn process. Due to the deterioration in balance sheet, institutions started repaying excessive debt by curbing spending (particularly investment). Added to this, credit misallocation was another major problem. Banks continued lending to inefficient (zombie) companies (to evade recognition of losses on the balance sheets). So, there was a difficulty in lending to new and more efficient firms. According to Fukao and Kwon (2008), *"the productivity level of exiting firms was higher than that of staying firms in many industries in Japan during 1994-2001."* Japanese banks supported the zombie companies and loans were rolled over to them for a long time. The bad loans thus became much greater than they would be had this issue had been addressed earlier, in the 1990s itself.
In this period, a mild deflation prevailed in the economy. The expectations for future were of low-growth and low-inflation. This, added with the situation of balance sheet recession, hindered the efficacy of monetary policies.

D. *Balance Sheet Recession*

Recessions are generally caused by the usual business cycle. But balance sheet recessions are different in the sense that they are triggered by the private sector deleveraging (or minimization of debt), after the burst of an asset price bubble. In such situations, monetary policies like lower interest rate or increasing liquidity would not be effective in kick starting a recovery process. The private corporate sector and the household sector first try to cover up their loans (fix their balance sheet) rather than investing more and expanding their business. Before the bubble burst, most companies in Japan had concentrated on expanding their share in the market, increasing the size of their business business, and increasing employment (rather than profitability). This business model was inefficient. These inefficiencies were further exaggerated during the 1980s, due to the presence of a bubble economy.
In the 1990s, in Japan, when the debt-financed bubble burst, asset prices fell; however, liabilities remained the same. Due to this, most of the private sector banks' balance sheets had liabilities were worth more than the assets, giving them a negative net worth. In this situation, banks, to improve their financial health and credit ratings, forced the households and businesses to increase their savings and pay down debts so that the banks could repair their balance sheets. This reduced the aggregate demand in the economy pushing the economy into a balance sheet recession.
Japan's corporate sector, which used to be a huge borrower, changed its role from a large borrower and investor to a large re-payer of debts. In this situation, monetary policy would not work because people were not willing to increase their borrowings at any interest rate. Even the lenders were not willing to lend because they already had their own share of problems regarding their balance sheet. The private sector was mostly using its bank deposits to repay debt. This constricted the supply of money which mostly comprised of bank deposits. In this environment of zero rate of interest and absence of people borrowing and spending money, when the private sector deleveraged, the economy entered a deflationary spiral. The economy continuously lost demand (savings + net debt repayments).

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In this period, people were paying down debt because of a fall in prices of assets (not consumer goods). So, inflation targeting would not be a solution to this. Also, the money multiplier was negative at margin and hence the central bank could not produce a money supply growth that would increase the inflation rate. This was accompanied by a high savings rate. S,o there was a situation of more savings than investment or spending. This resulted in very low aggregate demand.

E. *High Savings Rate*

Japan's rate of saving has been very high compared to the rest of the world, the personal saving rate being one of the highest. Japan's underdeveloped social security system prior to 1973, fostered in people, a requirement to save up for their post retirement days. This was one of the factors that caused the savings rate to be high, which was further corroborated by the fact that the savings rate started declining slowly as the social security system started expanding from 1973. Additionally, the tax system in Japan encouraged savings. Personal tax on income from capital had been very light and when the gains were less than a certain amount, the capital gains on stocks were not taxed (if the number of transactions was less than 50,000 per year).
In the 1960s and 1970s, the housing prices in Japan remained extremely high. The requirement of down-payment to purchase a house has been very high too. About 40% of the purchase price of a house had to be accumulated by the people before they could borrow the remaining fraction. Also, there was a non-availability of housing loans. The wish to purchase of a house, therefore, encouraged the Japanese to save a large portion of their income. The family system in Japan also has been such that elderly parents often invited their children over to live with them or they shift to the household of their children, after retirement. Thus, when parents retired, they carried their accumulated assets to their children's' households. So, when the elderly and younger households merged, there was a transfer from older parents' household to that of their children. As the wealth came to be mostly managed by younger people, the savings rate was higher than expected from an elderly population.
The graph shows how the savings rate in Japan varied during the period 1990-2008. A comparison has been done with the prevailing saving rate in US during the same period to highlight the fact that the average saving rate in Japan was much higher.

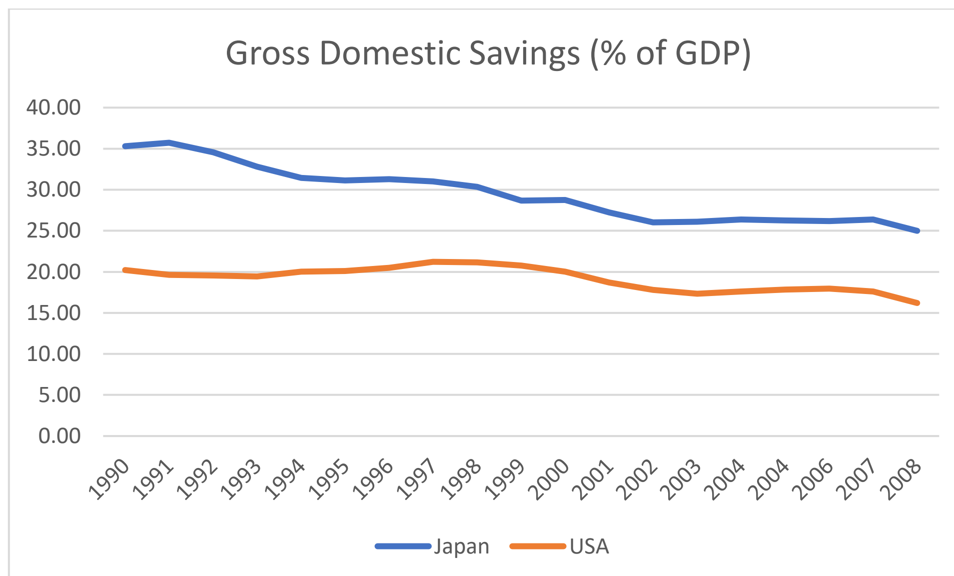

Fig. 1: Comparison between savings rates of Japan and USA

F. *Declining Labour Force*

Japan, over a period of time, has experienced a low birth rate and thus slow population growth. For economies that are initially young, benefits of demographic dividend can be gained from this. But in the 1980s, youth dependency was already low in Japan. So, due to an ageing population, there was a contraction in workforce. The slower population growth led to a slower growth in GDP (although the per capita GDP and marginal product of labour increased). At the same time, Japan had very strict policies against immigration and hence there was a lack of replacement immigration, which added further to the problem of contracting labour force.

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Japanese companies had systems such as system of lifetime employment and seniority-based wage system. This system worked very well initially, during the area of high economic growth, when the population was on the increase. But as the population matured, it was realized that these same systems hindered labour mobility and the workers did not get the chance to demonstrate their potential productivity. Moreover, as the population declined, Japanese companies faced shrinking domestic market.
The following diagram shows how the percentage of population in the age group 15-64 has decreased over time and that of 65 and above has increased over time (during the period 1990-2008).

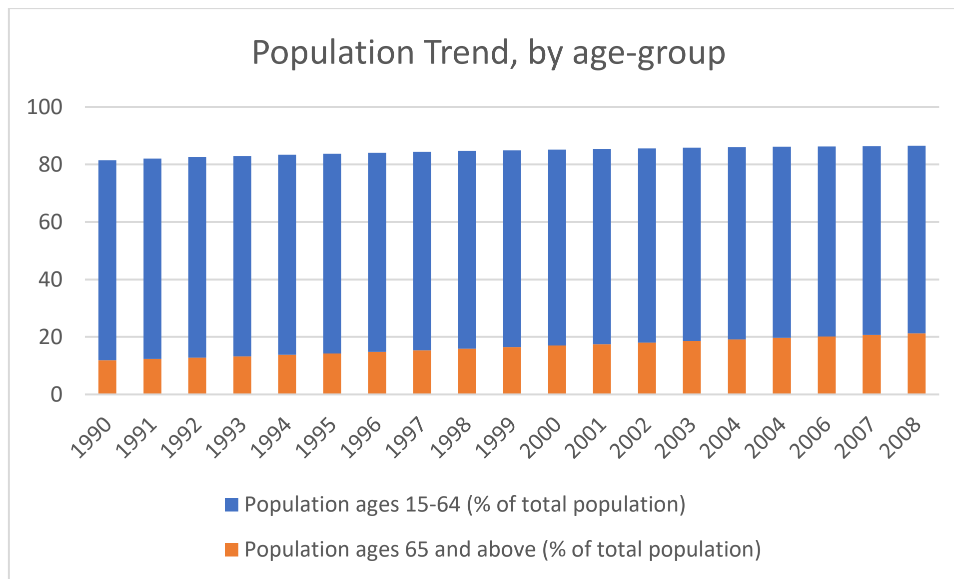

Fig. 2: Change Japan's age demographic

G. Basel 1 Accord

The Basel Committee, which is under the Bank of International Settlements (BIS), came up with the agreement of introduction of Basel 1 Accord in 1988. The banks in Japan were given a transitional period of 5 years and the Basel 1 Accord became binding on them from fiscal year 1992. Under this, banks that operated internationally were obligatory to maintain a BIS ratio of capital to risk-weighted assets (RWA) of minimum 8% and banks without foreign branches were required to maintain capital to RWA ratio of minimum 4%. To raise capital ratio to meet the requirement of 8%, banks could follow one or both of two options: either the numerator of the ratio could be increased by increasing capital (by increasing loan loss reserves or by issuing subordinated debt or preferred stock); otherwise, the denominator of the ratio could be decreased by reducing high risk assets (like loans) and substituting them with relatively riskless assets (such as government bonds). The result was that the banks were reluctant to lend money and caused them to forcibly withdraw money from borrowers, and undermined real business.

III. CONCLUSION

Japan in 1990s faced many difficulties making it difficult for Japan to come out of its depression over the next three decades. Bank of Japan could have been quicker to act when the crisis was starting. Its reluctance to act and tardiness in recapitalizing banks deepened the crisis.
A major mistake committed was that that the recession was dealt with in such a way as if it was a standard recession. It was not realized in time that a balance sheet recession had to be dealt with in another way. In this situation, the central bank injecting liquidity into the banking system would not work because it will be difficult to reverse the decline in bank deposits when there are no borrowers and the money multiplier is zero (or negative at margin). A fiscal expansion would have worked better in this situation.
The demographic problems were not solved by Japan's government. Their reluctance to raise retirement age and strict labour laws against immigration exacerbated the problem of declining workforce.
The feeble and unstable recovery of Japan, declining workforce, deteriorating worker conditions and low saving rate show the structural difficulties Japan had been in. In this situation, neo-liberalistic policies and firm-centric order only further deepened the crisis. To bring Japan completely out of the downward spiral, a structural reform would be necessary.

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