

# Japan's liquidity trap

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## Abstract

Japan has experienced stagnation, deflation, and low interest rates for decades. It is caught in a liquidity trap. This paper examines Japan's liquidity trap in light of the structure and performance of the country's economy since the onset of stagnation. It also analyzes the country's liquidity trap in terms of the different strands in the theoretical literature. It is argued that insights from a Keynesian perspective are still quite relevant. The Keynesian perspective is useful not just for understanding Japan's liquidity trap but also for formulating and implementing policies that can overcome the liquidity trap and foster renewed economic growth and prosperity. Paul Krugman (1998a, b) and Ben Bernanke (2000; 2002) identify low inflation and deflation risks as the cause of a liquidity trap. Hence, they advocate a credible commitment by the central bank to sustained monetary easing as the key to reigniting inflation, creating an exit from a liquidity trap through low interest rates and quantitative easing. In contrast, for John Maynard Keynes (2007 [1936]) the possibility of a liquidity trap arises from a sharp rise in investors' liquidity preference and the fear of capital losses due to uncertainty about the direction of interest rates. His analysis calls for an integrated strategy for overcoming a liquidity trap. This strategy consists of vigorous fiscal policy and employment creation to induce a higher expected marginal efficiency of capital, while the central bank stabilizes the yield curve and reduces interest rate volatility to mitigate investors' expectations of capital loss. In light of Japan's experience, Keynes's analysis and proposal for generating effective demand might well be a more appropriate remedy for the country's liquidity trap.

**Keywords:** Liquidity trap; Japan; monetary policy; interest rates

**JEL Classifications:** E02, E40, E43, E50, E52, E58, E60

## I. Introduction

Japan has experienced low economic growth and either low inflation or deflation for more than two decades. Nominal GDP has been stagnant for almost 25 years in Japan. Real GDP has been essentially flat since the mid-1990s. Slow growth in Japan resulted in the country falling further behind the US in the growth of real GDP per capita. Nominal short-term interest rates have been close to zero. Nominal long-term interest rates, as measured by the yields of Japanese government bonds (JGBs), have also been extremely low for many years, while the Bank of Japan's (BoJ) monetary policy has been highly accommodative for decades.

Japan appears to be in an economic condition where accommodative monetary policy, characterized by low nominal interest rates and an elevated balance sheet of the central

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bank, is insufficient to revive growth. Gross domestic business fixed investment has not responded favorably to low nominal interest rates. Monetary easing has been unable to overcome deflationary trends. When taken together, these characteristics are generally regarded in the economics literature as a case of a liquidity trap, originally described in Keynes's (2007 [1936]) *General Theory*.

The phenomenon of feeble economic growth and low nominal interest rates is no longer unique to Japan since the global financial crisis. Long-term interest rates in the US, the UK, and Canada have remained ultra-low by historical standards many years after the global financial crisis.

Several countries in the euro zone, such as Germany, France, Netherlands, Austria, and Finland, and a few countries outside of the euro zone, including Sweden and Switzerland, are experiencing either exceptionally low interest rates or even negative interest rates across the yield curve on government bonds. Quite recently, interest rates in Japan have also turned negative.

In light of the prevalence of feeble economic growth and low nominal interest rates in advanced capitalist economies, understanding Japan's liquidity trap can be quite useful for understanding the same phenomenon elsewhere. Some of the key questions facing economists and policymakers, both in Japan and abroad, are as follows: What are the causes of the sustained liquidity trap in Japan? Will enhanced quantitative and qualitative monetary easing (QQME) being pursued by the BoJ be sufficient to generate inflation and revive economic growth?

Besides accommodative monetary policy, what other measures, if any, can the Japanese authorities (and policymakers in other advanced countries) undertake to overcome the country's liquidity trap and achieve sustained economic growth and prosperity?

This paper attempts to address these questions by carefully examining the case of Japan's liquidity trap in light of: (i) past and recent economic developments in Japan, drawing on Akram (2014), Akram and Das (2014a, 2014b), Bernanke (2000), Hayashi and Prescott (2002), Koo (2008), Krugman (1998a, 1998b), Lam and Tokuoka (2011), Posen (2010), Sher (2014), Tokuoka (2012), and Uedo (2012); and (ii) different strands in the theoretical literature on liquidity trap and related issues, including Adam and Billi (2006), Bernanke (2000, 2002), Eggertsson (2005, 2006, 2012), Eggertsson and Krugman (2010), Eggertsson and Pugsley (2006), Eggertsson and Woodford (2003), Jung, Teranishi, and Watanabe (2005), Keynes (1930, 2007 [1936]), Kregel (1998, 2011, 2014), Krugman (1998a, 1998b), Refischenedier and Williams (2000), Uedo (2012), Wolman (2005), Woodford (2001, 2003), and Wray (2003 [1998], 2012).

Section II examines Japan's economic performance and the key characteristics of its economy since the onset of the country's economic stagnation in the mid-1990s. Section III discusses the theory of a liquidity trap and critically presents several theoretical arguments concerning a liquidity trap, contrasting Keynes's (1930, 2007 [1936]) view with that of contemporary theorists, such as Krugman (1998a, 1998b) and Bernanke (2000, 2002). Keynes believes that the risk of a liquidity trap originates from a sharp rise in investors'

liquidity amid heightened uncertainty. His analysis can be useful in understanding the case of Japan's liquidity trap.

Keynes advocates a multifaceted strategy for overcoming a liquidity trap. Keynes's strategy for overcoming a liquidity trap consists of not just low interest rates and the containment of interest rate volatility in monetary policy but also public investment and employment creation in fiscal policy and measures to boost the marginal efficiency of capital to raise business confidence.

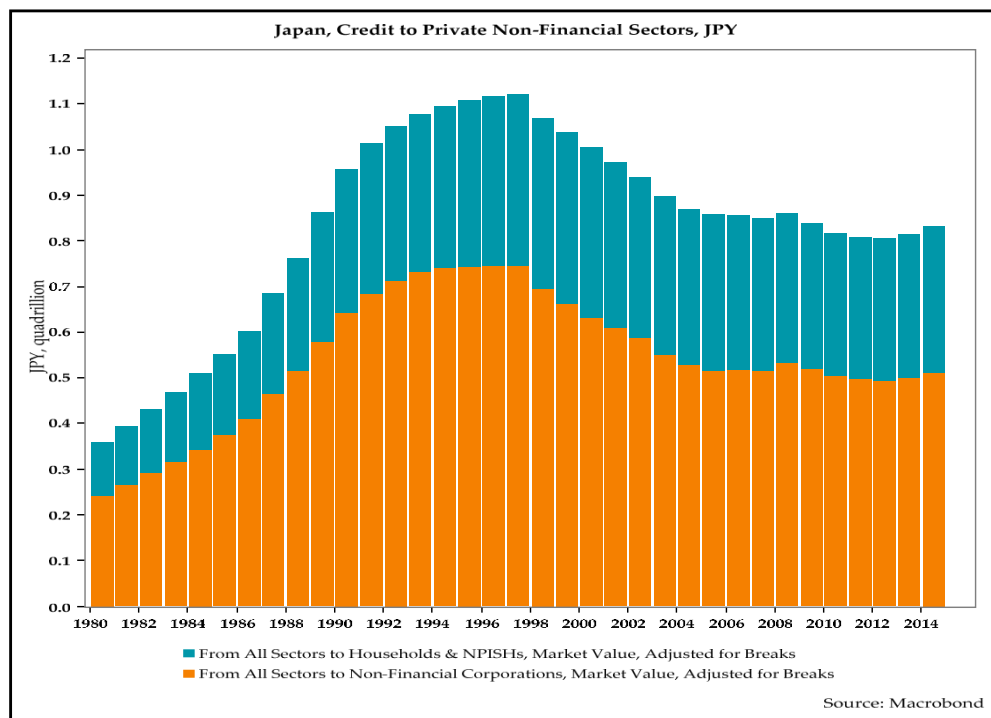
Keynes's strategy provides a solid basis for Japanese authorities to formulate and implement measures to overcome the country's liquidity trap and stagnation. Section IV concludes.

## II. Japan's economic performance and key characteristics of its economy

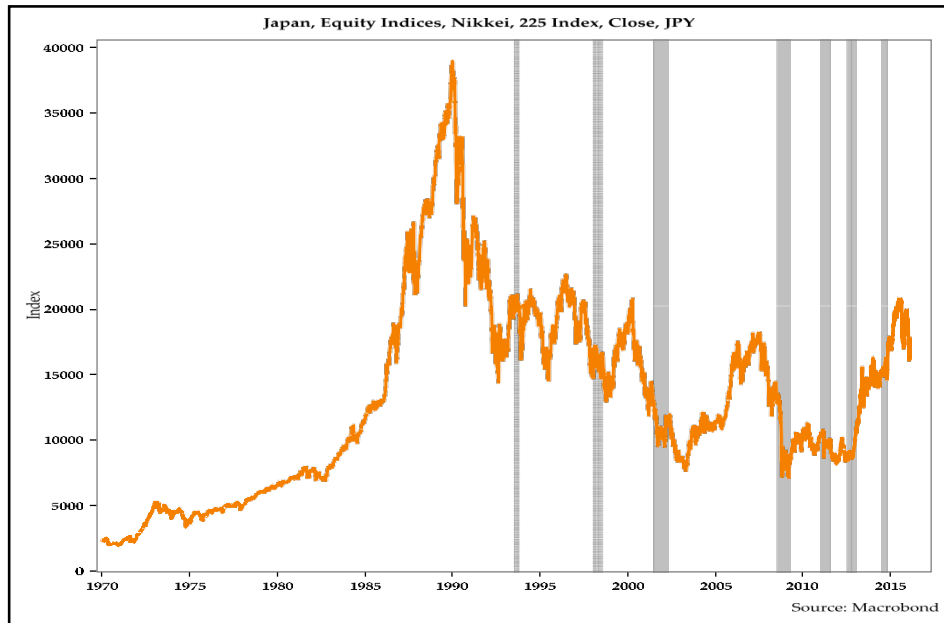
### *Japan's Economic Stagnation and the Causes of Sustained Slow Growth*

Japan experienced strong private sector credit growth in the 1980s and the early 1990s (figure 1). There was a huge surge in credit to the country's corporate sector. This strong credit growth, in conjunction with speculation in real estate and financial assets, fueled the bubbles in the 1980s. Land prices and equities prices rose substantially. However, the bubble in equities ended in the early 1990s (figure 2). Residential land prices also collapsed in the early 1990s.

**Figure 1:** Japan experienced strong private sector credit growth in the 1980s



**Figure 2: Japan's equity bubble burst in the early 1990s**



With the bursting of the bubble, economic growth slowed down markedly. Labor productivity growth in Japan slowed noticeably since the 1990s in comparison to the strong rise in labor productivity from the early 1950s to the late 1980s. Labor productivity also slowed in Japan since the 1990s in comparison to that of most other advanced countries, including the US, during the same period. Hayashi and Prescott (2002) and Akram (2014) have documented the remarkable decline in the country's labor productivity growth. Moreover, during the same period, labor force growth in Japan was noticeably slower than in the past and also in comparison to most other advanced countries, particularly the US.

Real GDP growth has been noticeably slow since the early 1990s (figure 3). The slowdown in growth started after the bursting of the bubble, but has continued since then, exacerbated by the global financial crisis, the Tohoku earthquake, and the tax hike of 2014. This is in sharp contrast to the strong growth performance that the country experienced between the decades of the 1950s to the 1980s. Nominal GDP has been stagnant since the early 1990s (figure 4).

Figure 3: Japan's real GDP growth has been disappointing since the mid-1990s

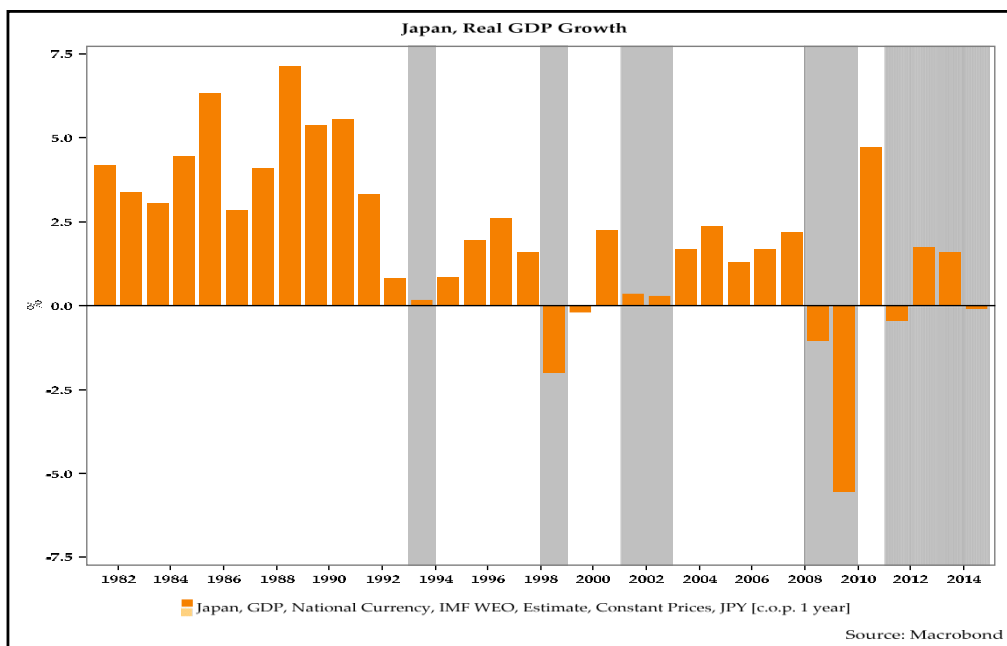
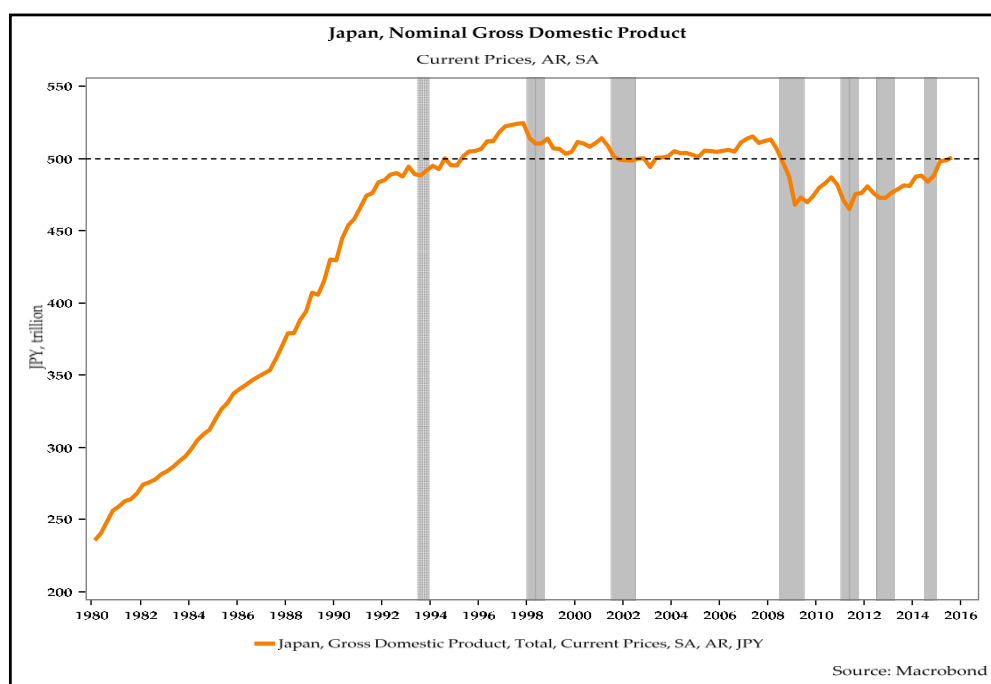


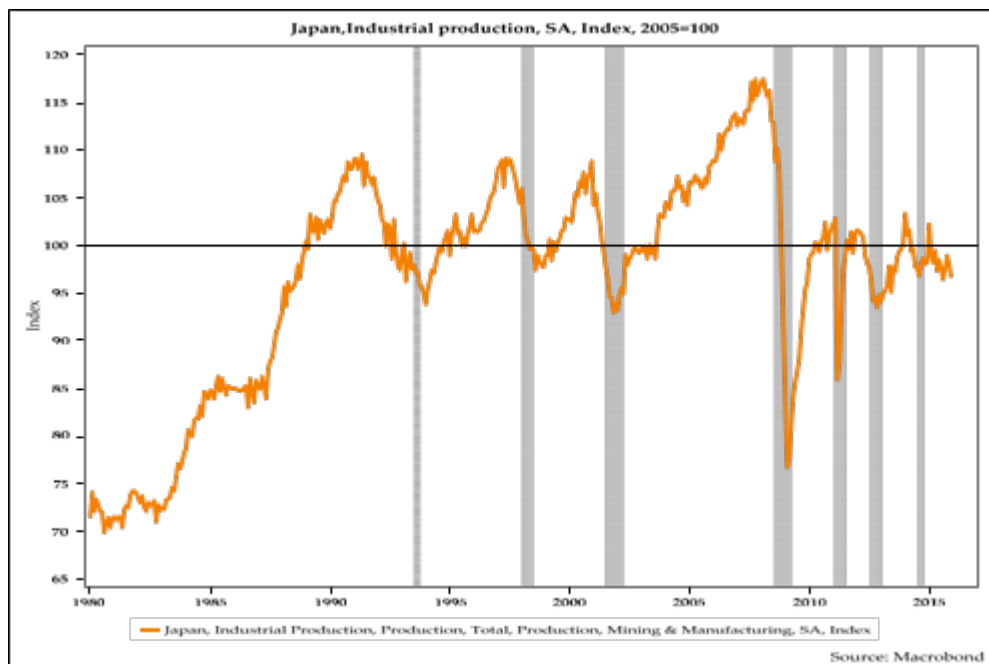
Figure 4: Nominal GDP has been stagnant since the mid-1990s



Industrial production in Japan has been remarkably weak since the mid-1990s (figure 5). Industrial production declined during the slowdowns of the 1990s and the early 2000s. After the recession of 2001, industrial production did rise moderately, but it fell sharply during the global financial crisis. The decline in industrial production in Japan was particularly sharp, as

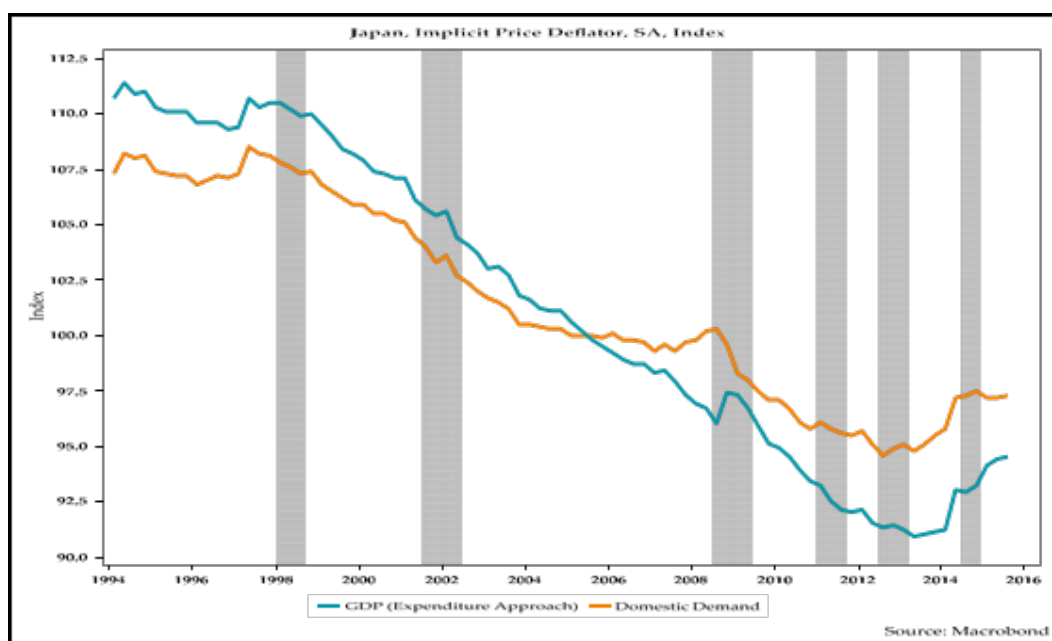
the advanced manufacturing, motor vehicle production, and the electronics industries were severely affected (Sommer 2009). In 2011, industrial production and exports were disrupted by the Tohoku earthquake and fell sharply again. Recovery in industrial production has remained weak since then.

**Figure 5: Industrial production remains below its pre-crisis peak**



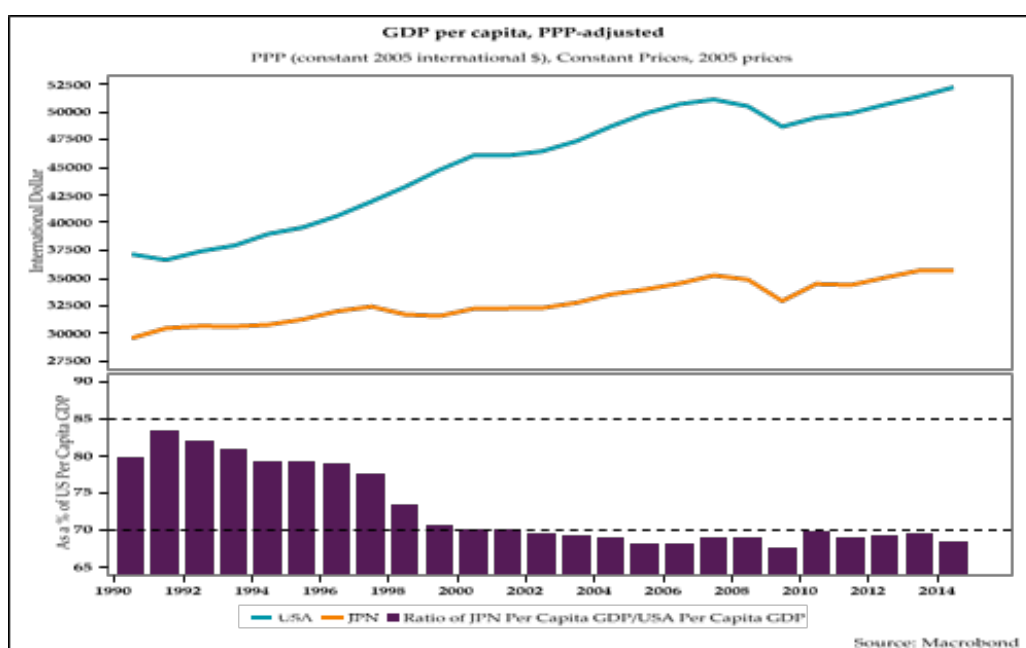
The weakness of effective demand has resulted in persistently low inflation and deflationary trends for several decades (figure 6). As a result, the price level has declined notably since mid- 1994

**Figure 6: Japan has experienced low inflation and deflation as measured by implicit price deflators for several decades**

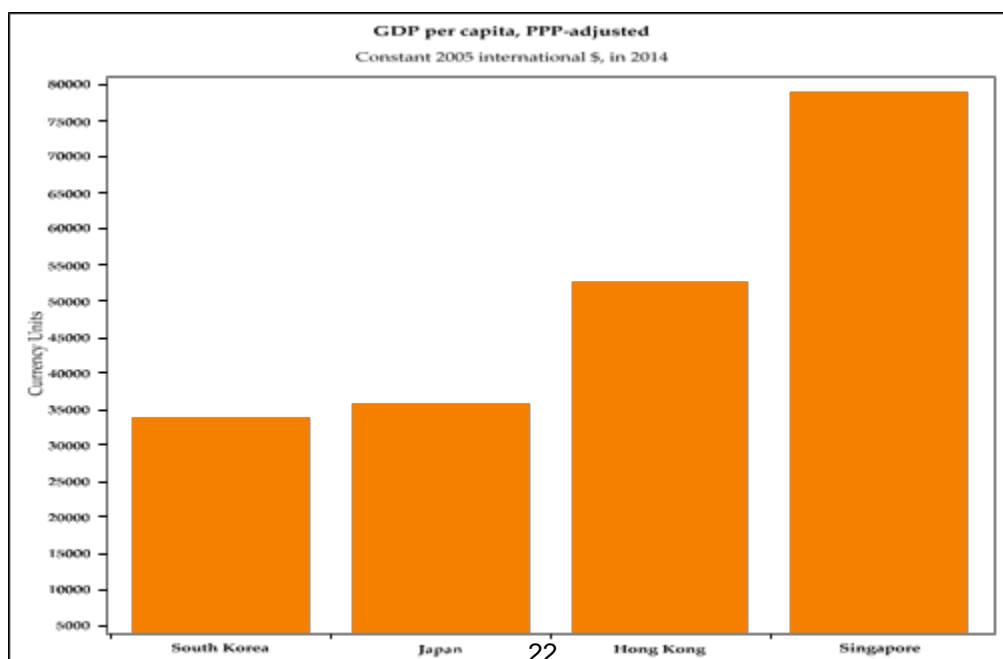


Japan's economic stagnation has put a dent in real income growth and the relative standard of living. Due to protracted economic stagnation, per capita real income growth (measured on a purchasing power parity basis) has been tepid. The gap in per capita real income between the US and Japan has increased. While in the early 1990s, Japan's per capita real income was nearly 80% of the US's per capita real income, as of 2014 it amounted to 70% (figure 7). Per capita real income in Japan was the highest in Asia in late 1980s, but it is now behind some of its Asian neighbors, including Singapore and Hong Kong (figure 8). As of 2014, its per capita real income is barely ahead of South Korea's per capita real income.

**Figure 7:** Per capita real income growth has slowed, resulting in a widening of the gap between Japan and the US

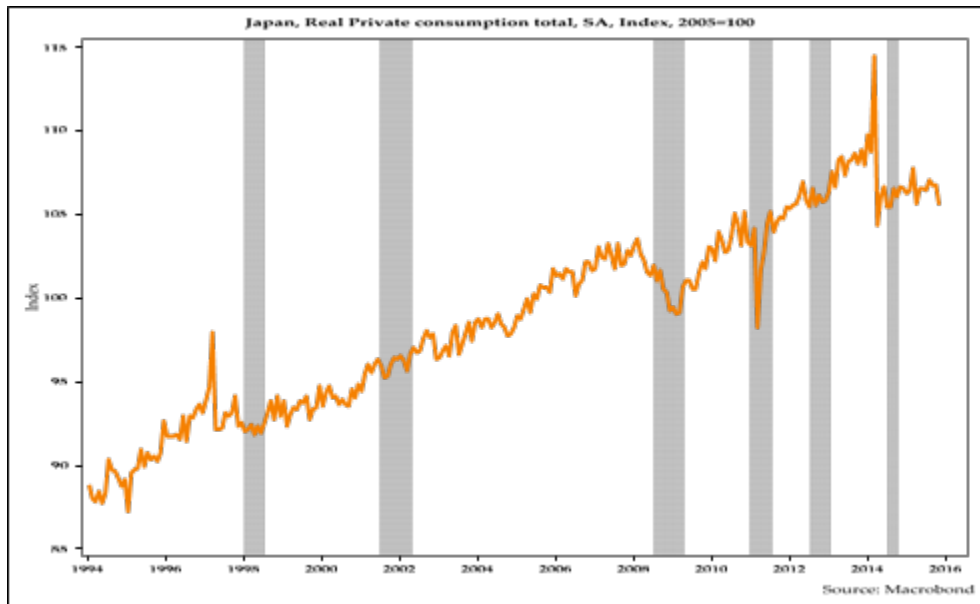


**Figure 8:** Per capita real income in several Asian countries exceeds that of Japan



Real consumption growth has slowed down markedly due to the lack of growth in real disposable income and the feeble pace of growth in real earnings (figure 9). It was already fairly tepid since the mid-1990s, but consumption declined during the 2008 recession and again after the Tohoku earthquake. Prior to the tax hike in April 2014, consumption had spiked for several months in anticipation of higher prices, but immediately after the tax hike consumption dropped drastically. Since then it has remained quite weak

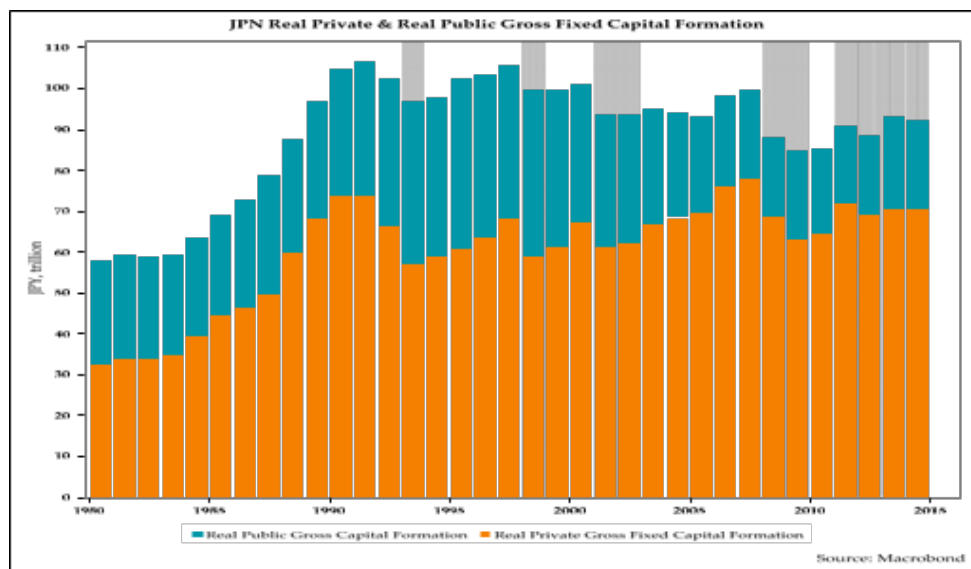
**Figure 9:** Real consumption has been weak since the mid-1990s



Investment spending has been stagnant since the early 1990s (figure 10). The level of private investment has been fairly flat, while the level of public investment in Japan has declined, particularly since the beginning of the century. Japanese corporations have preferred to invest overseas rather than domestically because of tepid effective demand and the high cost of production at home. They have invested in emerging Asian countries to take advantage of stronger growth, access to markets, and the lower cost of production and wages.



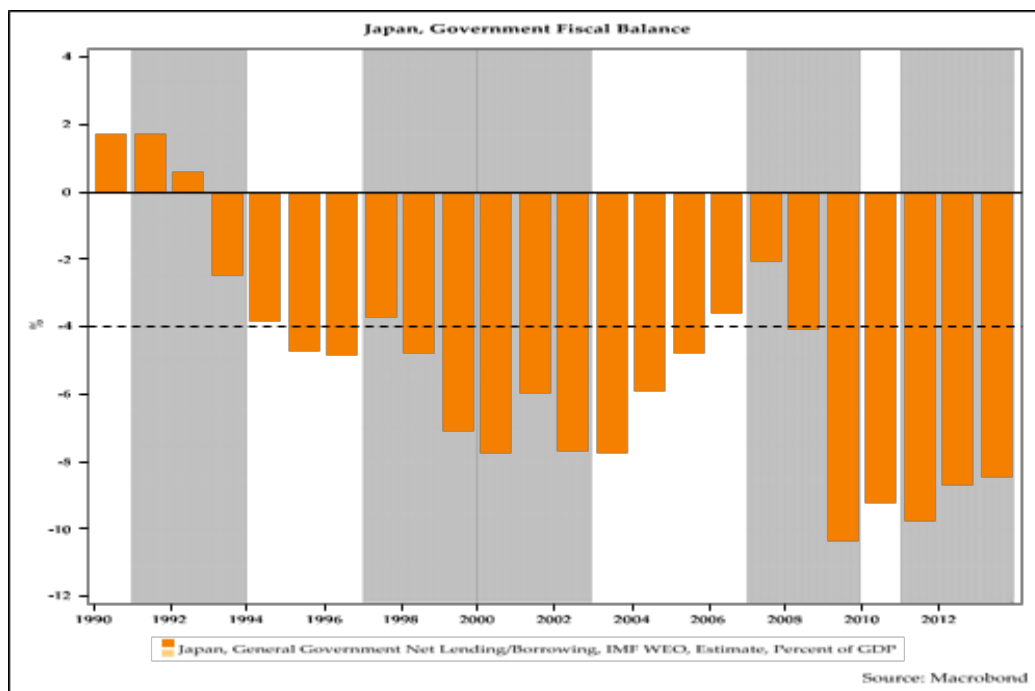
**Figure 10:** The level of investment has been soft, especially in the public sector



The Government of Japan has been running persistently large fiscal deficits (net borrowing) as a share of nominal GDP since the mid-1990s (figure 11). The country has had large fiscal deficits because tax revenues have been weak due to stagnant nominal GDP and stagnant real income.

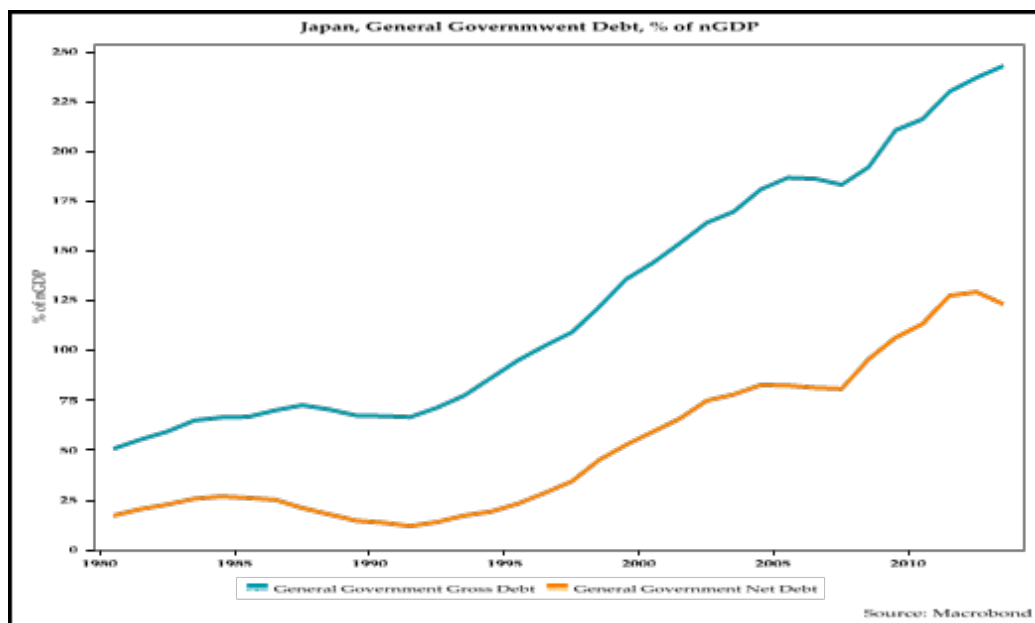
Expenditures have risen due to automatic stabilizers and increased transfers, including social security and medical expenditures related to the aging of the population. Oftentimes the Japanese authorities have increased discretionary spending in response to softening of activity to provide stimulus to the economy, while at times the authorities have raised taxes in efforts to institute fiscal discipline, but such efforts have proven to be counterproductive. In general, large fiscal deficits have stabilized Japan's economy and prevented economic contraction and crisis (Koo 2008). Government spending, taxes, and transfers have also maintained Japan's high standard of living, social stability, and prevented a sharp rise in after-tax income inequality. It has also enabled aggregate business profits to be decent and has maintained the stability of businesses' share of profits in the national income. Nevertheless, there are questions about the effectiveness and efficiency of public spending, fiscal stimulus, and transfer programs in Japan. Oftentimes public expenditures have been directed toward investments and programs that are of limited social benefit to the general public.

**Figure 11:** The Japanese government has been running persistently large fiscal deficits since the mid-1990s



Japan's chronic fiscal deficits have led to elevated ratios of public debt, measured as the ratio of government gross debt and government net debt to nominal GDP (figure 12). Among the major advanced countries, Japan has the highest ratio of public debt. However, the rise in the ratios of public debt has enabled the private sector in Japan to improve its balance sheet. Japanese public debt is held mostly by Japanese financial institutions.

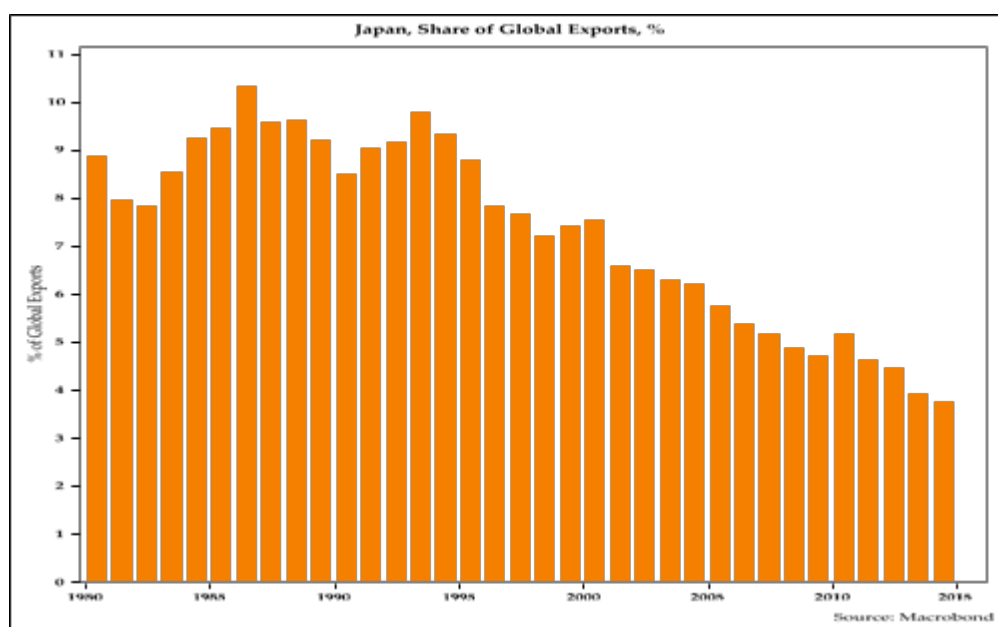
**Figure 12:** Chronic fiscal deficits have led to elevated ratios of public debt to nominal GDP



The country's share of global exports has declined notably since the mid-1990s (figure 13). The decline in its share of global exports is partly due to the rise of Asian emerging markets (such as China, South Korea, Hong Kong, Singapore, and Taiwan) as major manufacturing centers, as well as the loss of competitiveness of Japanese exports due to the sustained appreciation of the Japanese yen in the early 1990s, in the early 2000s, and again from mid-2000s to late 2012.

Japanese manufacturers of motor vehicles, electronics, machinery, and other goods face stiff competition from overseas manufacturers, not just in emerging Asian countries but also in other advanced countries, including Germany and the US. The Japanese yen's depreciation started in December 2012. In spite of the depreciation, Japan's global exports have been faltering. Motor vehicle exports are still lower than at their peak, but have risen a bit lately. Electronics exports have declined notably and have remained soft due to competition.

**Figure 13:** Japan's share of global exports has declined markedly



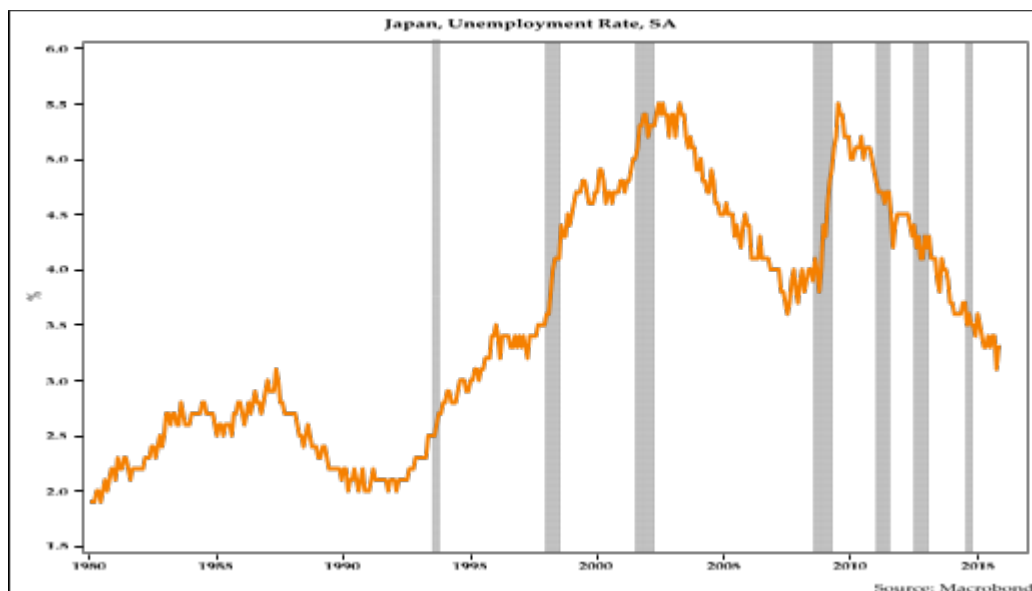
Employment growth in Japan has been disappointing since the mid-1990s (figure 14). Indeed there was hardly any employment growth from 1994 to 2012. Since 2013, however, the Japanese economy has increased employment. The unemployment rate in Japan had been very low until the early 1990s. During the decades of stagnation the unemployment rate rose from around 2.5% in 1994 to around 5.5% in 2002 (figure 15), but continued to decline until the global financial crisis. The unemployment rate rose sharply during the financial crisis but has steadily declined since then to around 3.5% as of mid-2015. Compared to other advanced countries, Japan's unemployment rate remained low even during the global financial crisis and recession; however, there have been substantial changes in the labor market during the years of stagnation. The labor force participation rate has declined, mainly due to the aging of the population. Japan's labor force peaked in the late 1990s and has begun to decline. The ratio of the female to male labor force participation is low in Japan

compared to other advanced countries, and has remained low. Since the late 1990s, the share of part-time employment has increased markedly, and it now constitutes nearly 30% of total employment. The bargaining position of Japanese workers has deteriorated due to the weakness of effective demand, decline in the rate of unionization, globalization, and the decline in the share of manufacturing employment. As a result, real wages have declined since the late 1990s (figure 16). In recent quarters, the aggregate of employees' nominal income (obtained by taking the product of the number of employees, times hours worked and nominal wage per hour) has been rising, but the aggregate of employees' real income (obtained by taking the product of the number of employees, times hours worked and real wage per hour) is still falling sharply. Growth in nominal wages is less than inflation, so real wages are still declining. The weakness of employees' wage income has in turn dampened effective demand.

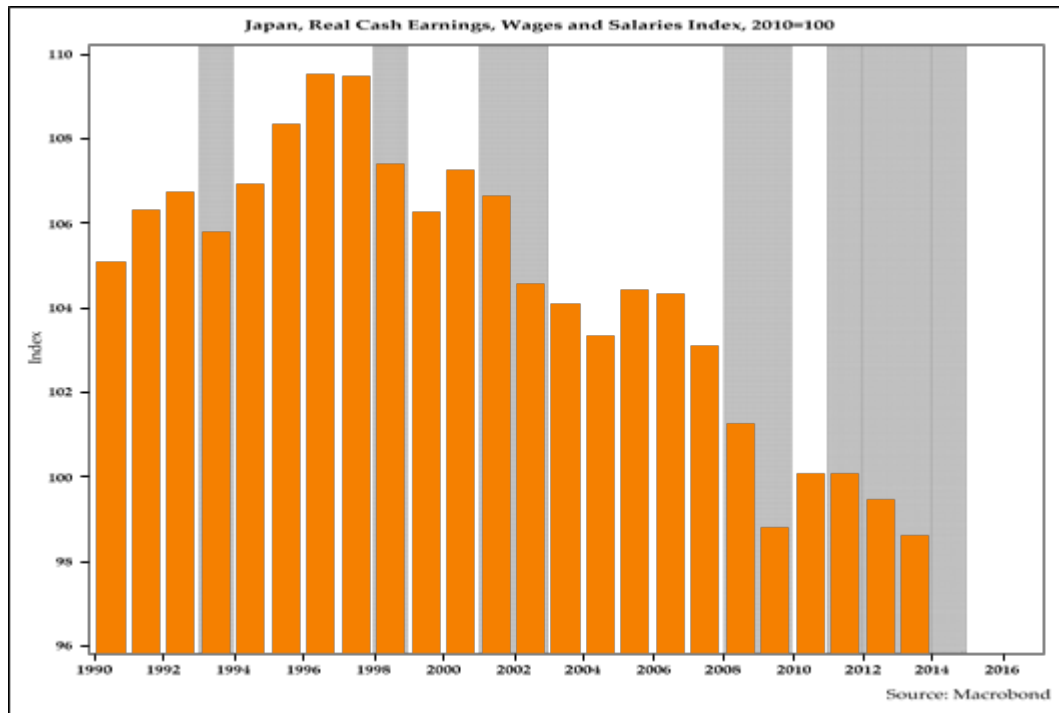
**Figure 14:** Employment growth has been soft since the early 1990s until recently



**Figure 15:** The evolution of the unemployment rate in Japan



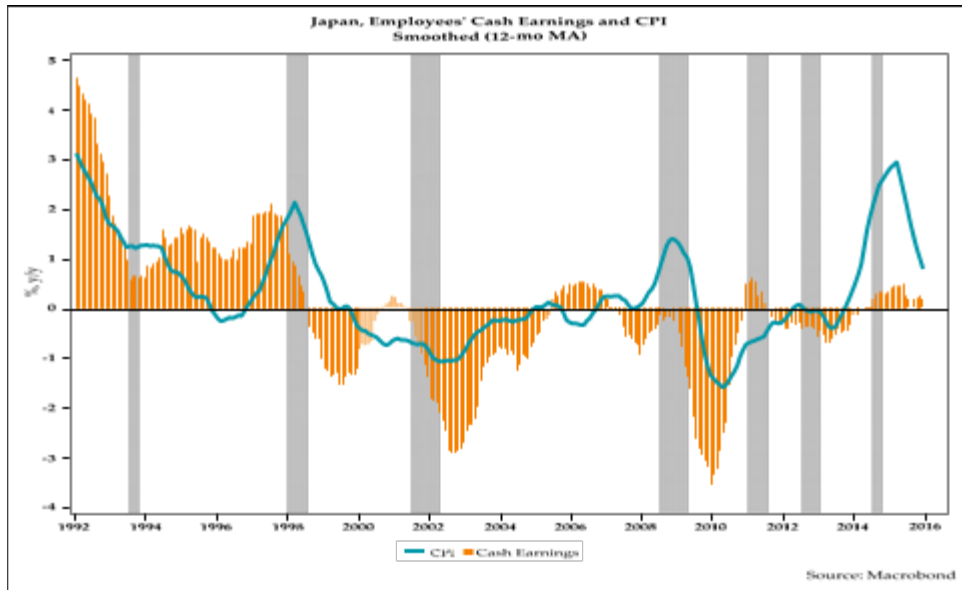
**Figure 16:** Real wages have declined since the late 1990s



Core consumer price index (CPI) inflation has been weak in tandem with weakness in nominal wages (figure 17). The decline in wages and the lack of wage growth in Japan have been key drivers of low inflation and deflationary trends. Core inflation had risen in 2014 but it is flat now. Price inflation on producer goods is again softening. A weaker yen (depreciation) raises import prices somewhat with lags, though the pass-through from the exchange rate to core consumer prices is limited. In Japan there has been almost no connection between the expansion of the central bank's monetary base (high-powered money) and inflation. One-time factors were primarily responsible for the rise in inflation in 2014. In particular, the increase in the consumption tax led to higher headline and core inflation last year. The combination of "Abenomics," QQME, and a tax hike (real or expected) had briefly lifted inflationary expectations. The effects of the tax hike on inflation (but not consumption) have dissipated.

Hence it is entirely conceivable that a deflationary mind-set could be re-emerging.

Figure 17: Core consumer price index inflation has been weak in tandem with weakness in nominal wages



Aggregate business profits have been fairly decent in Japan (figure 18), despite stagnant nominal GDP. Business profits' share has remained around 20% of national income (figure 19).

Government deficits have contributed to the sustaining of aggregate business profits, as Michal Kalecki (1971) held. Thanks to the restraint in nominal wages and labor costs, and continued decent profits, Japanese businesses have plenty of idle cash on hand (figure 20). Sher (2014) reports that Japanese nonfinancial firms have accumulated cash at the expense of investment and dividends and estimates that Japanese nonfinancial firms have cash holdings available for investment equal to about 5% of nominal GDP.

Figure 18: Aggregate business profits have been quite decent

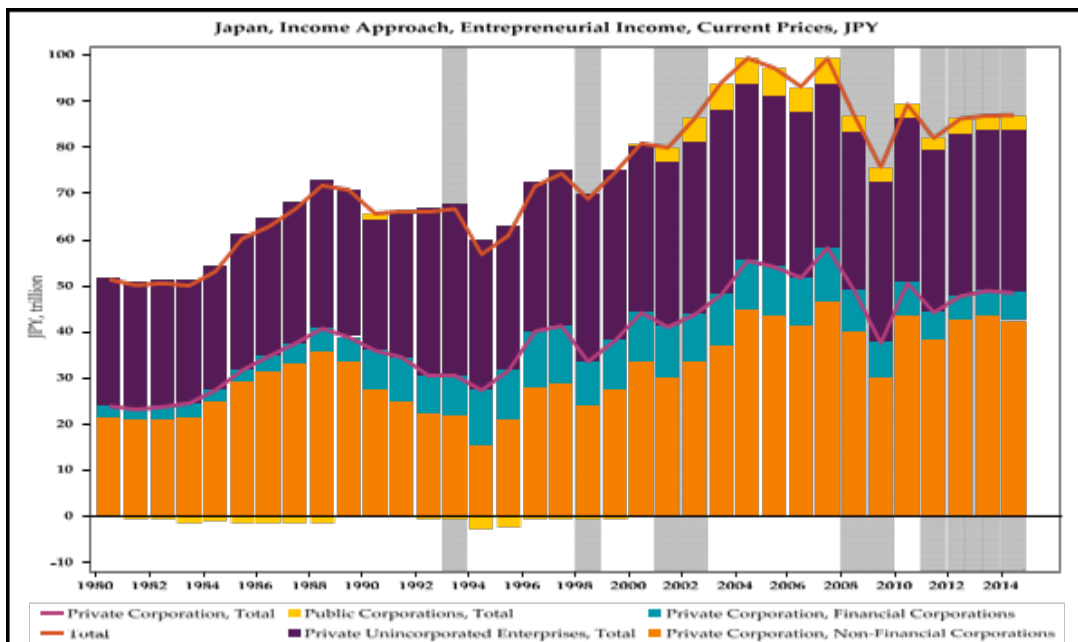


Figure 19: Business profits remain around 20% of national income

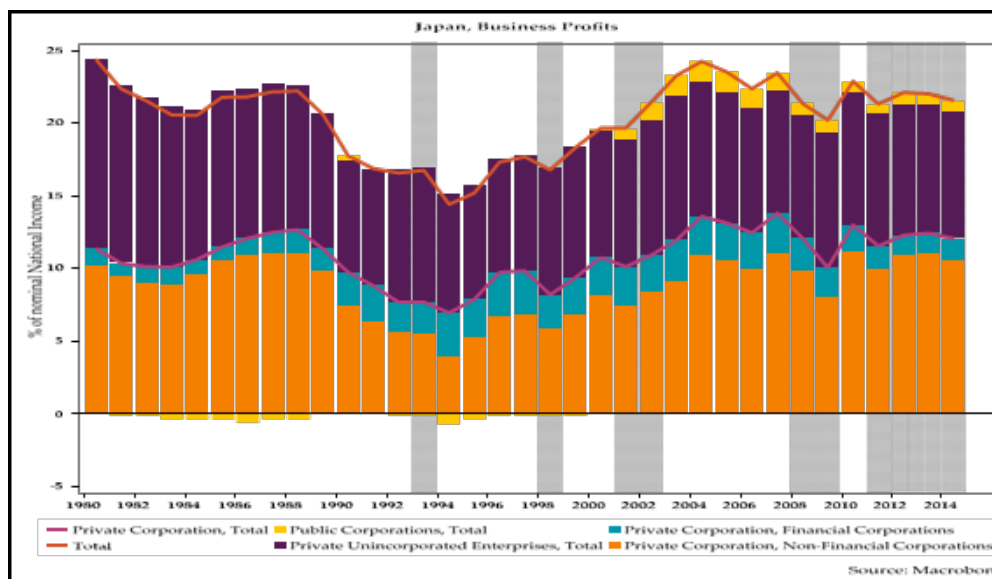
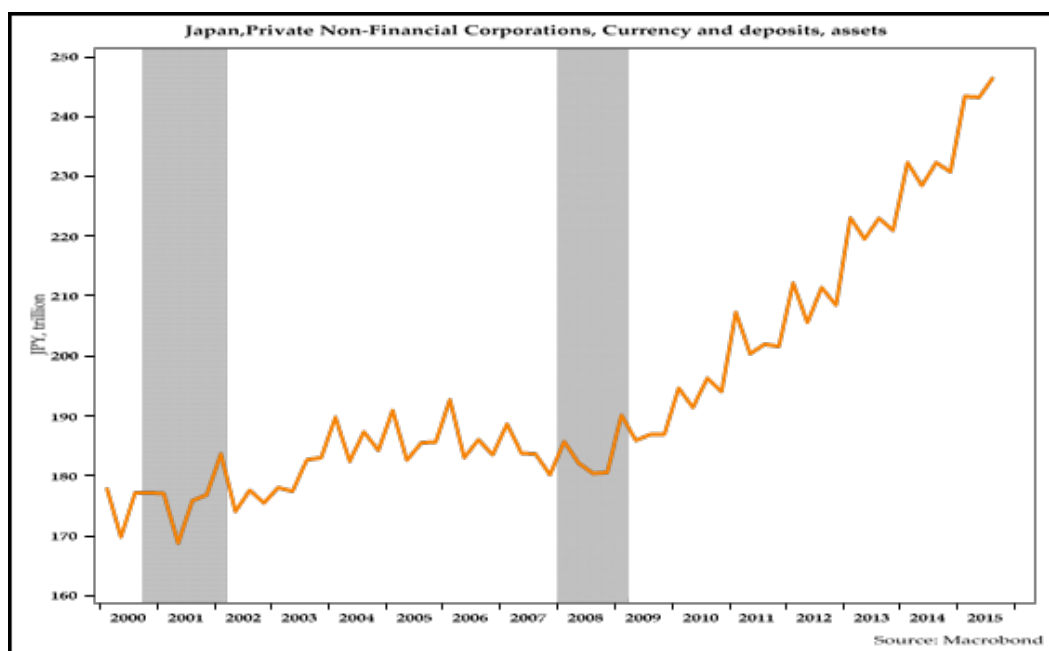


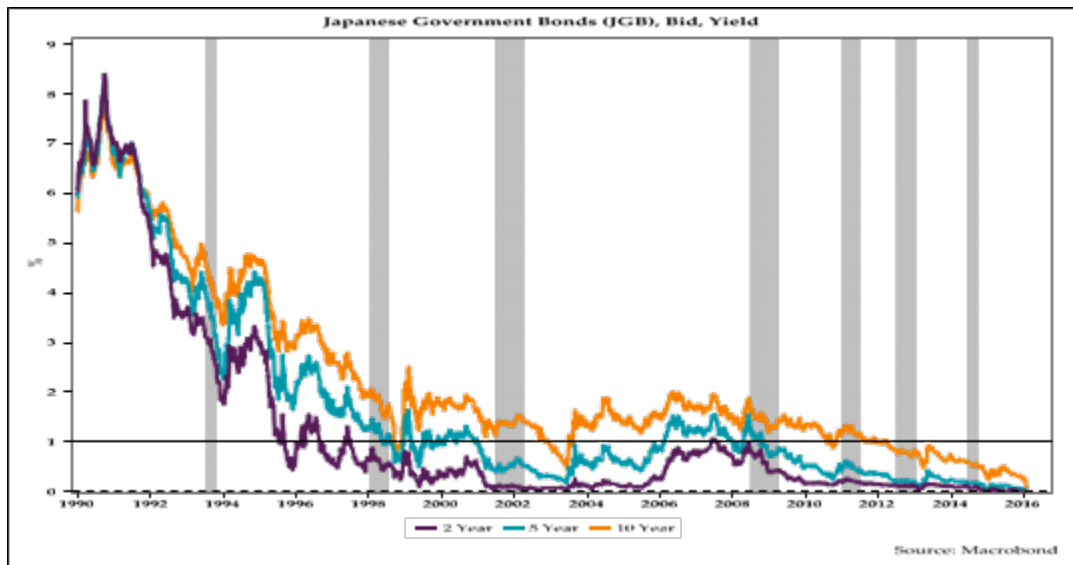
Figure 20: Japanese businesses have plenty of idle cash on hand



Despite an increase in public indebtedness and chronic fiscal deficits, the nominal yields on JGBs have declined amid economic stagnation and deflationary trends and have stayed remarkably low (figure 21). Akram (2014) and Akram and Das (2014a, 2014b) argue that low short-term interest rates, induced by the BoJ's accommodative monetary policy, have been the main reason for JGBs' low nominal yields. They note that Japan has monetary sovereignty, which gives the Government of Japan the ability to meet its debt obligations and the BoJ the operational ability to set the policy rates and expand its balance sheet as

required. Hence, the BoJ can restrain upward pressures on the JGBs' nominal yields by keeping short-term interest rates low and using other tools of monetary policy, in spite of chronic fiscal deficits and elevated ratios of public indebtedness, in contrast to the fears of Lam and Tokuoka (2011) and Tokuoka (2012) that Japan's rising public debt ratios would invariably result in a sharp rise in the nominal yields of JGBs. The governments of countries with their own sovereign currencies have no operational constraints in servicing their debt, as has been noted in Sims (2013), Woodford (2001), and Wray (2003 [1998], 2012).

**Figure 21:** Despite increase in public indebtedness, Japanese government bonds' nominal yields declined amid economic stagnation and deflationary trends and have stayed remarkably low since late 1990s



The BoJ holds a large volume of JGBs, around ¥270 trillion as of late 2015! The BoJ holds more than 25% of outstanding JGBs. Effectively the BoJ is cornering the market for JGBs, particularly since the advent of QQME! Domestic financial institutions continue to hold the bulk of JGBs.

The ratings downgrade had no effect on the nominal yields of JGBs. The near-zero policy rate implies low and close-to-zero short-term interest rates on Japanese Treasury Bills. JGBs' nominal yields are fairly closely correlated with interest rates on T-bills. Changes in the nominal yields of JGBs usually tie in with changes in T-bills on interest rates. With low inflation, short-term interest rates are likely to stay near zero. And long-term interest rates on JGBs are likely to remain ultra-low as long as the factors that have kept long-term interest rates low stay unchanged.

The Japanese yen has appreciated notably since the 1990s (figure 22). The yen began to appreciate after the Plaza Accord. The yen appreciated from an average of ¥200/\$ in the 1980s to around ¥135/\$ by 1990. The yen continued to appreciate from 1990 to 1996. It again appreciated from 1998 to mid-2012. In 2012, the yen's exchange rate averaged nearly ¥86/\$. The yen began to depreciate in late 2012 and has averaged around ¥120/\$ as of 2014. The protracted period of yen overvaluation had a detrimental effect on the nation's exports.

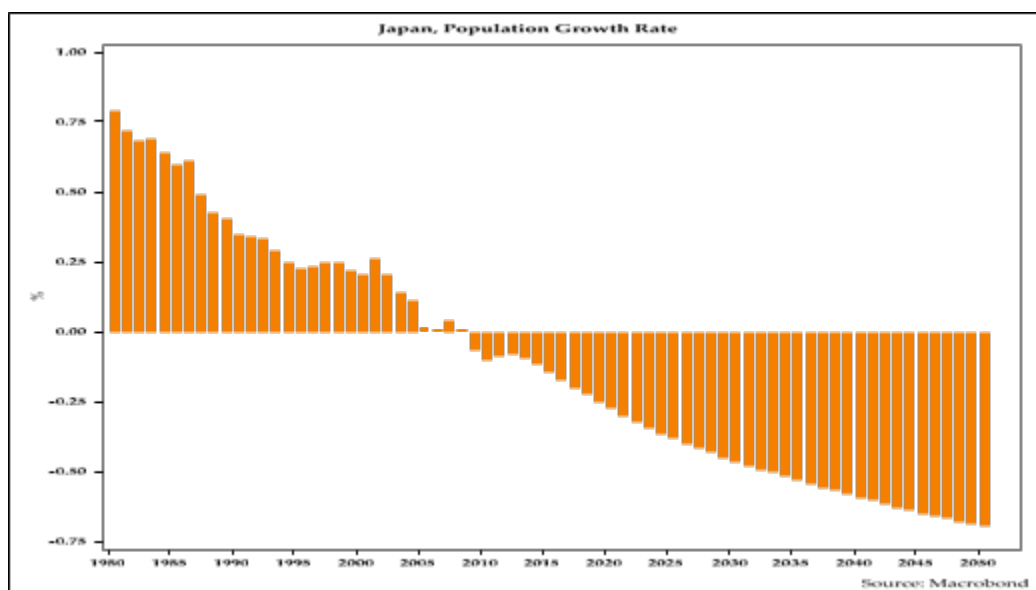


**Figure 22:** The evolution of the exchange rate of the Japanese yen

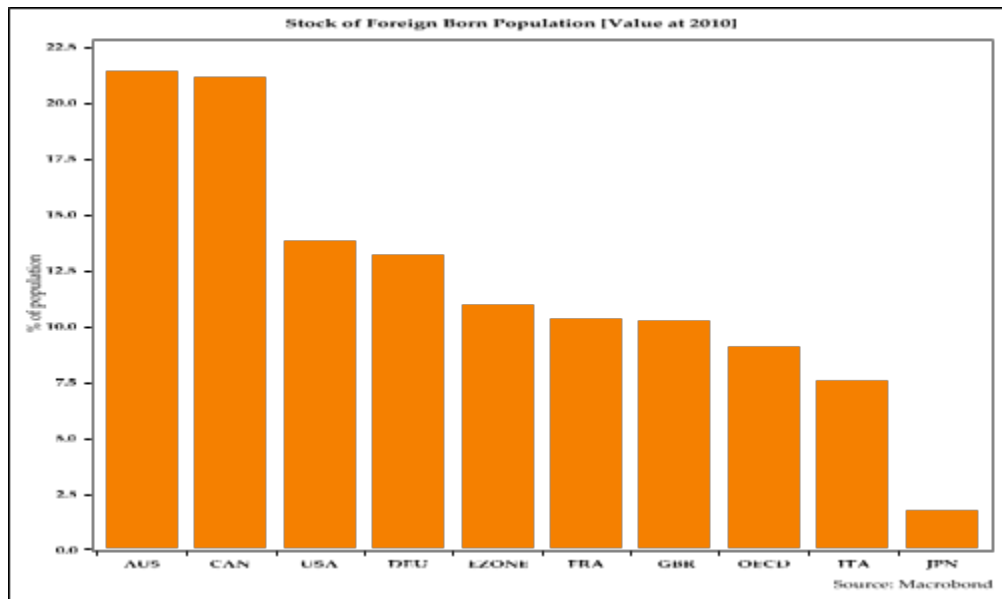


Japan is undergoing substantial and rapid demographic changes. Its population is declining (figure 23). Its population is rapidly aging. The share of the working-age population is declining. The size of the country's labor force has peaked and has been declining. The fertility rate is quite low. Japan is not very open to immigration of foreigners. This is reflected in the low stock of the foreign-born share of the population compared to that in other major developed countries (figure 24). The combination of a low fertility rate that is substantially below the replacement rate and a low rate of immigration is the cause of Japan's declining population.

**Figure 23:** Japan's population has started to decline since 2010 and is expected to shrink further in the coming decades



**Figure 24:** The stock of the foreign-born share of the population in Japan remains markedly low compared to other major developed countries



The initial, but short-lived, revival of growth under Abenomics was led primarily by a moderate fiscal stimulus; subsequently the authorities switched to a contractionary fiscal policy. Nominal bank lending growth had moderately picked up; however industrial production and service activity are still soft. Higher taxes took a toll on real private consumption. Public fixed investment moderately rose at the beginning of the Abe administration, but recovery in business fixed investment has been disappointing. Japanese firms have been reluctant to invest domestically, even though corporate Japan has a lot of cash in its coffers. Housing investment has been disappointing due to weak growth in real disposable income and Japan's decline in population. Business surveys suggest a tepid pace of expansion.

The above discussion of Japan's recent economic development and economic performance suggests the following. First, Japan's economy is stagnating amid deflationary trends though there is no financial crisis. Second, both short-term and long-term interest rates have been low due to highly accommodative monetary policy and low inflation, in spite of chronic fiscal deficits and elevated ratios of public debt. Since late January 2016, interest rates on the front end of the JGB yield curve have turned negative. Third, investment and consumer spending have remained tame and have not responded favorably to low interest rates. Fourth, the Government of Japan has provided fiscal stimulus from time to time, but the effectiveness of the fiscal spending has been fairly limited. Fifth, the Japanese yen had been overvalued for decades. Last but not least, the Japanese economy faces several structural challenges, such as low labor productivity growth, a decline in the labor force, a shrinking population, a low fertility rate, a relatively low female labor force participation rate, a reluctance to allow the immigration of foreign workers, and so forth. The protracted period of ineffective monetary policy, characterized by low nominal interest rates and stagnant fixed investment by business, implies that Japan is enmeshed in a liquidity trap amid weak effective demand.

### III. Theoretical perspectives on a liquid trap

#### ***Liquidity Trap***

Under standard economic theory, as articulated in the classics, an economy should not face a problem of insufficient aggregate demand. This view is regarded as Say's Law (Sowell 1972; Baumol 1977). Aggregate demand and aggregate supply will be in equilibrium. This is based on the notion that the production and sale of goods and services shall generate income that will be either consumed or saved. What is saved will be spent as investment. In essence the production of goods and services gives rise to income that is devoted to either the purchase of consumer goods and services or saving which is equal to investment spending. As a result, there is no problem when aggregate demand is less than aggregate supply.

Variants of Say's Law(s) are expressed in the classical works of Adam Smith, James Mill, David Ricardo, John Stuart Mill, and others. Thomas Robert Malthus and Karl Marx were among the early critics of Say's Law, but Keynes (2007 [1936]), in *The General Theory*, systematically extends and develops Malthus's critique of Say's Law. In Keynes's view there is the inherent problem of a modern capitalist monetary economy that can face an occasional or even chronic shortfall in aggregate demand, resulting in the level of employment persistently remaining below full employment. For Keynes, in a modern capitalist economy, agents have a liquidity preference due to fundamental uncertainty about the future with states of affairs for which probabilities cannot be properly assigned. Agents' liquidity preference is also shaped and reinforced by social and psychological factors. Agents hold money or different types of financial assets as a store of value and thus savings may not be invested in real goods and services. As a result, the economy may fail to reach full employment. Changes in interest rates may not be enough to induce sufficient investment and attain full employment.

#### ***Liquidity trap in the IS-LM framework***

In discussing Japan's liquidity trap, it is useful to start with Hicks's (1937) early interpretation of Keynes as presented in the IS-LM framework. This is the standard interpretation of Keynes's work, even though it may not quite be an accurate representation of Keynes's view on the limitations of monetary policy due to a liquidity trap. Indeed, in his later works, Hicks himself recanted this interpretation of Keynes. Nevertheless it is a useful and standard toolkit for analysis.

In the IS-LM framework, in a liquidity trap, monetary policy does not work, because price level adjustments alone do not stabilize the economy at the full employment level. If the demand for money is infinitely interest elastic over a range, the LM curve becomes horizontal. Even if prices and wages are fully flexible, increasing the nominal and real money stock may not shift the LM curve, but the economy remains at an equilibrium below the full employment level. The liquidity trap prevents the interest rate from falling further below some "lower bound." Moreover if the IS curve is interest inelastic, that is, the demand for credit for investment is insensitive to changes in the interest rate, then a shift in the LM curve to the right may not be able to achieve full employment. However, under both circumstances, fiscal policy can restore full employment by shifting the IS curve to the right.

### ***Two schools of thought on the solutions for Japan's liquidity trap***

What is the way out of a liquidity trap for Japan? There are two schools of thought regarding solutions. The divergence in proposed remedies arises from the difference in the diagnosis of the cause of a liquidity trap.

The main cause of the liquidity trap, according to Krugman (1998a, 1998b), Bernanke (2000, 2002), and most mainstream economists, such as Adam and Billi (2006), Eggertsson (2005, 2006, 2012), Eggertsson and Pugsley (2006), Eggertsson and Woodford (2003), Eggertsson and Krugman (2010), Jung, Teranishi, and Watanabe (2005), Refischenedier and Williams (2000), Wolman (2005), Woodford (2001, 2003), and Uedo (2012) is that the real interest rate remains high. Even if nominal interest rates decline, if inflation does not decline or the economy experiences deflation, then real interest rates may still remain high or could even rise. This hampers business investment and spending. Hence, the solution must lie in raising inflation and expected inflation through monetary policy. Krugman (1998a, 1998b) and Bernanke (2000, 2002) emphasize accommodative monetary policy as the principal tool for overcoming a liquidity trap. Interestingly, Keynes (1930), in his *Treatise*, also suggests highly accommodative monetary policy, along the lines of a zero-interest rate policy and quantitative easing (Kregel 2014).

In contrast to modern macroeconomic analysis, for Keynes a liquidity trap originates from investors' liquidity preferences, as demonstrated in Kregel (2000). Keynes observes that when the interest rate is already quite low, investors would prefer to hold cash rather than bonds with duration risks because a small change in the interest rate would cause investors capital losses. With a low interest rate for the investors, the opportunity cost of holding money is just the loss of interest receipts from holding bonds, while the loss from holding bonds could be substantial because of potential capital losses that would occur if interest rates were to rise. Kregel (2000) shows that "Keynes's definition of the liquidity trap will occur when even investors expect interest rates to rise more than the square of the current interest rate, for they will then prefer to hold money rather than bonds." Keynes holds that "the lower the rate of interest, the more likely that liquidity trap" could occur because it may take more time for the capital loss from a higher interest rate to be offset from the gains of reinvesting at a higher interest rate (Kregel 2000). The intuition for this is that the lower the rate of interest the higher the duration of a bond. The liquidity trap arises from investors' liquidity preferences, which rise sharply if uncertainty about the future increases.

### ***Extraordinary monetary accommodation to tackle liquidity trap***

Krugman (1998a, 1998b) and Bernanke's (2000, 2002) solutions consist of making a credible commitment to a continuous increase in money supply and the expansion of the central bank's balance sheet. In this view the central banks must act credibly to raise the public's inflation expectations, mainly through increasing high-powered money with the expansion of the central bank's balance sheet. The central bank must increase inflation expectations into perpetuity. This solution implicitly assumes that monetary accommodation would eventually lead to higher expectations of inflation and induce risk taking due to the effect of an increased monetary stock on aggregate demand. In this view, the nominal interest rate should be lowered as much as possible, in order to induce investment and consumer spending. However, if the nominal interest rate cannot be lowered beyond some lower bound, then the

central bank ought to engage in the purchase of long-duration assets and thus reduce long-term interest rates. This would induce portfolio rebalancing by encouraging investors to seek higher yields in riskier assets. Bernanke (2000, 2002) indicates that such accommodative policy can also induce exchange rate depreciation, which in turn may lift aggregate demand through improvement of net exports.

Krugman's (2010) key policy proposal for when the economy is diagnosed as being caught in a liquidity trap is for the central bank to credibly promise "to print more money in the future, when the zero lower bound no longer binds."

It is worth noting the solutions that Bernanke and Krugman advocate ultimately rest on the quantity theory of money. The key issue for Bernanke (2000, 2002) and Krugman (2010) is to get the central bank to credibly commit to producing inflation. They both fault the BoJ for being unable to do enough to generate inflation and reset inflationary expectations among the public and investors. In their view the BoJ had a credibility problem. Krugman (1998b) is quite explicit in stating that "if monetary expansion does not work [...] it must be because the public does not expect it to be sustained." In essence, then, according to this view, the BoJ's failure to convince the public that it will undertake a sustained monetary expansion is the culprit. The Japanese economy cannot get out of a liquidity trap because the real interest rate stays high, as the central bank's failure to credibly commit to monetary expansion means that inflation and inflation expectations stay low or that deflationary pressures persist. If only the BoJ could convince the public that it is committed to maintaining monetary expansion, inflation and inflationary expectations would be set aright.

Proponents of this view believe that large-scale asset purchases can be a useful tool for lifting an economy from a depressed state and reviving growth. Whereas Arthur Pigou (1943) held that falling prices would raise the real net worth of the private sector and induce consumption, proponents of this view, such as Bernanke (2002), argue that large-scale asset purchases raise asset prices, thus lifting nominal values of financial asset from depressed prices, raising the real net worth of households, which in turn can stimulate consumption and investment spending.

### ***A multifaceted strategy to overcome a liquidity trap and stagnation***

For Keynes the solution to the problem of a liquidity trap is not solely or primarily monetary expansion in itself. He holds that the central bank may have to lower the policy rate and undertake quantitative easing through extensive open market operations. Keynes, however, is skeptical of the simplistic linkages between monetary aggregates, inflation, and nominal income as envisioned in the quantity theory. He observes that "[i]f, however, we are tempted to assert that money is the drink which stimulates the system to activity, we must remind ourselves that there may be several slips between the cup and the lip" (Keynes 2007 [1936]: 173). This view emphasizes expansionary fiscal policy and direct interventions to induce employment and investment to overcome the liquidity trap, without denying the importance of monetary policy actions.

Keynes's solution to the problem of a liquidity trap is multifaceted. It would require the central bank to act, not just to keep the policy rates and short-term interest rates low, but also to keep the long-term interest rates low as a part of a program to affect the whole complex of interest

rates and risk spreads (Kregel 2000). In this view then the central bank needs to do more than just lower the interest rates. The central bank must also reduce the volatility of interest rates and the directional uncertainty about the path of interest rates. Its actions must convince the public that the potential of an upward shift in the yield curve has been minimized, and that the possibility of a sharp selloff in the government bond market has been contained. Monetary expansion per se would not do. He advocates specific policies and innovations in monetary policy, arguing that the central bank: (1) be “prepared to deal both ways on specified terms in debt of all maturities”; and (2) “in debts of varying degrees of risk” (Keynes 2007 [1936]: 205). Keynes (2007 [1936]: 206; cited in Kregel 2000) holds that “a complex offer by the central bank to buy and sell at stated prices gilt-edged bonds of all maturities, in place of the single bank rate for short-term bills, is the most important practical improvement which can be made in the technique of monetary management.”

Targeting the yield curve and reducing interest rate volatility is a prerequisite for overcoming a liquidity trap. Keynes is skeptical that low interest rates by themselves would induce investment, particularly amid heightened uncertainty, where the investors’ expectations of future demand have been diminished. He believes that investors may prefer to stay liquid and hold cash and cash equivalents. He notes that if the investor expects that in the future the interest rate would rise more than the square of the current interest rate, he may prefer to hold cash (Kregel 2014: 2–3). Keynes (2007 [1936]: 201; cited in Kregel 2014: 3) argues that “[u]ncertainty to future course of the rate of interest is the sole intelligible explanation of liquidity-preference  $L_2$  which leads to the holding of cash  $M_2$ .” He believes that “there is the possibility [...] that, after the rate of interest has fallen to certain level, liquidity preference may become virtually absolute in the sense that almost everyone prefers cash to holding a debt which yields so low a rate of interest. In this event the monetary authority would have lost effective control over the rate of interest” (Keynes 2007 [1936]: 207; cited in Kregel 2014: 3). He is doubtful about the prospects of a low interest rate inducing investment and effective demand. He states: “Only experience, however, can show how far management of the rate of interest is capable of continuously stimulating the appropriate volume of investment. For my own part I am now skeptical of the success of a merely monetary policy directed toward influencing the rate of interest” (Keynes 2007 [1936]: 164; cited in Kregel 2014: 3).

For Keynes, the solution to depressed economic activity lies in an integrated strategy. It consists of: (1) the central bank acting to reduce interest rates and interest rate volatility; (2) appropriate programs of public investment and employment creation; and (3) other public efforts to restore business confidence. He writes: “It will require not merely passive movements of bank rates to lift us out a depression of this order, but a very active and determined policy” (Keynes 1930; cited in Kregel 2011: 9). While earlier Keynes (1930, 1932) thought that a low interest rate and tools of monetary policy alone would suffice – or at least be the primary tool – to revive economic activity, by the time he wrote the *General Theory* he was convinced that the solution would require additional proactive policies (Kregel 2011: 6), including fiscal stimulus, direct job creation, and concerted efforts at boosting business confidence. Keynes’s approach also calls for raising the expected marginal efficiency of capital, which requires the restoration of business confidence through a combination of public actions to create employment and induce the private sector to initiate fixed business investment and employ workers.

Keynes's (2007 [1936]) solution emphasizes fiscal expansion and direct employment creation by the public sector and the improvement of business confidence by increasing the investors' expected marginal efficiency of capital but it does *not* neglect supportive monetary policy. In Keynes's view, in the context of a liquidity trap, fiscal expansion leads to a higher level of output with no increase or little increase in the interest rate, particularly if the central bank follows a policy of stabilizing interest rates and reducing interest rate volatility. Since interest rates are unchanged there is no (or quite limited) "crowding out" of private investment. Public-sector investment and direct public-sector employment programs can boost growth, reduce uncertainty, and restore investors' confidence.

While the classical solution to an elevated unemployment rate or sharp increase in the unemployment rate insists on wage and price flexibility, usually in the form of a downward adjustment of workers' wages, Keynes argues that increased nominal wage and price flexibility may *fail* to restore full employment or sustain growth, and indeed might be counterproductive. He writes: "There is [...] no ground for the belief that a flexible wage policy is capable of maintaining continuous full employment – any more than for the belief that an open market monetary policy is capable, unaided, of achieving this result. The economic system cannot be made self-adjusting along these lines" (Keynes 2007 [1936]: 267).

### ***The relevance of Keynes's insight to Japan's experience of stagnation***

Keynes's insights about liquidity traps are quite relevant to the case of Japan. First, the BoJ's monetary policy has been quite accommodative for many years and has successfully kept long-term interest rates low but it has not been able to revive the Japanese economy. Second, fiscal deficits in Japan have been chronic but fiscal policy has not always provided stimulus. Indeed, often the authorities have undertaken contractionary fiscal policy under the rubric of restoring fiscal sustainability. During the past decades, whenever the Japanese authorities tried to raise taxes they have hampered effective demand and consumption (Koo 2008; Akram 2014). Third, the Japanese authorities have not pursued direct employment policies. The unemployment rate in Japan has been low, particularly in comparison to other advanced countries, but the labor market has seen various structural changes, such as increase in the share of part-time employment, corporate restructuring, de-unionization, the decline of manufacturing employment and globalization, and a decline in the overall size of the labor force and the labor force participation rate due to demographic changes. Fourth, business confidence has been weak, as reflected in Japanese firms' reluctance to increase domestic fixed investment. Fifth, the downward flexibility in wages and prices witnessed in Japan during the past decades has not helped overcome the weakness of the labor market or reversed the tepid pace of per capita real income growth.

### ***Common ground***

While these are two distinct approaches to the problems of a liquidity trap, it should be pointed out that these approaches are not mutually exclusive. The proponents of the first school, such as Krugman (1998a, 1998b) and Bernanke (2000, 2002), stress accommodative monetary policy, but do *not* rule out the necessity for expansionary fiscal policy. Likewise, Keynes and other proponents of the second school of thought, such as Kregel (2000, 2014), emphasize the role of fiscal policy and direct job creation. They also acknowledge that accommodative monetary policy is a vital component of a strategy to combat deficiency in



effective demand and that it is necessary to keep interest rates low and, most importantly, enforce the reduction of interest rate volatility to avoid a liquidity trap. Indeed, as Kregel (2011) shows, Keynes in his *Treatise* was an early advocate of unconventional monetary policy, arguing for extraordinary measures and highly accommodative monetary policy, including very low interest rates and large-scale asset purchases.

For his part, Krugman (2007) is skeptical that accommodative monetary policy alone can revive an economy facing a problem of an entrenched liquidity trap. Krugman (2007) writes:

“[D]o I believe that monetary policy was helpless in the 1930s? Yes, I do. At the beginning of the Depression, expansionary monetary policy might have averted the worst. But after the banking crisis had run its course, and interest rates were almost zero, what could open-market operations have accomplished? They would simply have pushed cash into idle hoards, as happened in Japan in the late 1990s.”

#### **IV. Conclusion**

Japan remains in a liquidity trap and faces deficiency in effective demand. Accommodative monetary policy action alone will not overcome this liquidity trap. Japan needs prudent, effective, and efficient fiscal policy to enhance productivity, foster real wage growth, restore export competitiveness, and support resilience in effective demand. A rise in the aggregate of employees' real income is necessary for strong and sustained economic growth in Japan. The authorities have postponed the planned tax hike from October 2015 to April 2017; however the idea of a tax hike is premature as growth is still soft. Headline and core inflation will decline notably in the coming months as the effect of the tax hike in 2014 wanes and also due to lower energy and food prices. The Bank of Japan has restored the negative policy rate and could be forced to undertake additional quantitative easing. The question of exit is not really relevant at this time. Nominal yields on JGBs will stay low due to a near-zero or negative interest rate policy, quantitative and qualitative easing, very low observed inflation, low inflationary expectations, persistent deflationary pressures, and unfavorable global economic and financial conditions that are exerting downward pressure on long-term interest rates in most advanced economies.

Modern mainstream macroeconomics has made valiant attempts to cope and come to terms with a liquidity trap and has made some advances. However, it is still entrapped by the limitations of the quantity theory of money, as is evident in the primary emphasis on monetary expansion to generate inflation in the works of Krugman (1998a, 1998b), Bernanke (2000, 2002), and the majority of contemporary macro theorists. In contrast, Keynes's (2007 [1936]) analysis in the *General Theory* still provides a solid basis for understanding many aspects of a liquidity trap. The modern Keynesian perspective builds on Keynes's foundations and may offer a richer understanding by applying it when analyzing the causes of Japan's liquidity trap and appropriate policy measures for reviewing growth. Keynesian measures of keeping interest rates low and mitigating interest rate volatility through monetary policy actions and targeting the yield curve, in tandem with countercyclical and activist fiscal policies, proactive employment policies (including direct public-sector employment and state-backed private-sector employment), and efforts to raise the expected marginal efficiency of capital would be



appropriate for Japan. Of course it is true that Japan faces not only problems of effective demand but also structural challenges primarily due to its unfavorable demographic trends and various constraints imposed by cultural, social, and geopolitical institutions and real resources. Japan's first priority, however, is to revive the country's economy through supportive fiscal and full-employment policies. Rather than pursue ill-advised programs of fiscal austerity, Japan needs to undertake appropriate structural reforms to raise labor productivity and enhance the capabilities and the standard of living of its citizens as the country prepares for its anticipated long-term demographic changes.

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