

Liquidity Trap

Liquidity trap refers to a state in which the nominal interest rate is close or equal to zero and the monetary authority is unable to stimulate the economy with monetary policy. In such a situation, because the opportunity cost of holding money is zero, even if the monetary authority increases money supply to stimulate the economy, people hoard money. Consequently, excess funds may not be converted into new investment. Liquidity trap usually is caused by, and in turn perpetuates deflation. When deflation is persistent and combined with an extremely low nominal interest rate, it creates a vicious cycle of output stagnation and further expectations of deflation that lead to a higher real interest rate. Two prominent examples of liquidity trap in history are the Great Depression in the United States during the 1930s and the long economic slump in Japan during the late 1990s.

Conventional Monetary Policy Ineffectiveness

An economy's monetary authority typically tries to manipulate money supply through open market operations that affect the monetary base—for example, buying or selling government bonds. As long as banks are legally required to maintain a certain level of reserves either as vault cash or on deposit with the central bank, a one-unit change in the

monetary base leads to more than one-unit change in money supply – the ratio between the two is referred as the money multiplier and is usually greater than one (see Money supply). The reason for this relationship is that banks do not have any incentives to hold reserves, which typically do not earn interest, beyond the legal requirement, and therefore they lend out any excess reserves. Non-bank firms and individuals behave in parallel with the banks' behavior; they have no incentive to hold excess money or funds above transaction needs, so they invest it in interest-earning financial assets such as bonds and bank deposits. Thus, excess money or funds go back to the hands of banks, leading to rounds of lending known as money creation. However, the important assumption for such behavior is that the nominal interest rate is positive, or not extremely low. In other words, money creation arises as long as the opportunity cost of holding money is greater than zero.

When the nominal interest rate is very close or equal to zero, the opportunity cost of holding money becomes zero, and economic agents--banks, firms, or individuals--tend to hoard money even if they have more money than they need for transaction purposes. More importantly, traditional monetary policy becomes ineffective in stimulating the economy because the money creation process does not function as theory predicts. Even when the monetary authority increases the monetary base, money supply becomes unresponsive or even

falls. In such a situation, because the nominal interest rate cannot be negative, there is nothing the monetary authority can do.

When an economy falls in a liquidity trap and stays in recession for some time, deflation can result. If deflation becomes severe and persistent, the real interest rate is expected to rise, which harms private investment and widens output gap. Thus, the economy gets in a vicious cycle. A persistent recession causes deflation that raises real interest rate and lowers output even further while monetary policy is ineffective.

In the case of the Great Depression in the US, between 1929 and 1933, the average inflation rate was -6.7%. Not until 1943 did the price level go back to that of 1929. In the case of the more recent Japanese slump, deflation started in 1995 and continued till 2005 although the degree of deflation was not severe: during the deflationary period, the average inflation rate was -0.2%.

Such a spiral deflationary situation is highly likely to involve failures in the financial system. Financial failure can intensify a liquidity trap because unexpected deflation increases the real value of the debt. Borrowers' ability to repay their debt, which is already weakened by overall slump in consumption and investment, declines, and banks become saddled with non-performing loans – the loans that are not repaid. Both the Great Depression and the

Japanese 1990s slump involved banking failures. In such circumstances, banks often try to reduce the amount of new loans and terminate existing loans – credit contraction called credit crunch – in order to improve their capital conditions that are worsened by writing off non-performing loans. Credit crunch can feed the vicious cycle by contracting investment and output. An increase in the amount of non-performing loans in the overall economy can make even banks with good capital conditions cautious in extending credit. Furthermore, in an economy with a fragile financial system, liquidity trap can occur when the nominal interest rate does not reach zero because holding non-money financial assets may involve the risk of losing the assets and once the risk is incorporated, an extremely low level of the nominal interest rate would be essentially the same as zero.

Overcoming a Liquidity Trap

Since conventional monetary policy becomes ineffective in a liquidity trap, other policy measures are suggested as a remedy to get the economy out of the trap. The monetarist view suggests quantitative easing as a solution to the liquidity trap. Quantitative easing usually means that the central bank sets up a goal of high rates of increase in the monetary base or money supply and provides liquidity in the economy so as to achieve the goal. It has

been argued, for instance, that the Great Depression was caused and aggravated by the misguided policies of the Federal Reserve Board, i.e. monetary contraction subsequent to the stock market crash in 1927 (Friedman and Schwartz, 1963). According to this viewpoint, unconventional money easing – or money gift, in Friedman’s words – would be the appropriate policy measure. Between 1933 and 1941, the U.S. monetary stock increased by 140%, mainly through expansion in the monetary base. More recently, after lowering the policy target rate to zero in February 1999, the Bank of Japan implemented quantitative easing policy and set a goal for the reserves available to commercial banks from March 2001 through March 2006.

The monetarists also suggest other unconventional market operations that include direct purchasing by the monetary authority of other financial assets such as corporate papers and long-term foreign and domestic bonds. They argue that purchasing merely short-term assets in open market operations does not function as a remedy to a liquidity trap. The idea is that because long-term bonds and securities are still assumed to be imperfectly substitutable to short-term assets even in a liquidity trap situation, the former can be purchased in open market operations to drive the long-term interest rate down.

In the Keynesian view, expansionary fiscal policy is the conventional measure to a

liquidity trap; the government can implement deficit spending policy to jumpstart the demand.

A typical example of expansionary fiscal policy is the implementation of the New Deal policy by President Franklin Roosevelt in 1933. This policy included public works programs for the unemployed including the Tennessee Valley Authority project. In the case of the Japanese liquidity trap, the Japanese government spent about ¥100 trillion (equivalent to 20% of GDP in 2005) for a series of public works programs over the course of a decade.

Also see: Banking crisis, Debt-deflation, Money supply, Mundell-Fleming model, Quantity Theory of Money.

Further Readings

Blanchard, Olivier, 2006, *Macroeconomics* 4th edition, New York: Pearson/Prentice Hall.

One of the chapters of this book presents a basic IS-LM framework to explain the mechanism of a liquidity trap and analyzes the U.S. Great Depression and the Japanese 1990s recession.

Friedman, Milton and Anna J. Schwartz (1963), *A Monetary History of the United States*. Princeton University Press.

This book is a seminal work in which the authors examine the development of the U.S. economy in the post-Civil War era. The biggest contribution of this book is their monetarist views on the cause of the U.S. Great Depression; they argue that the Federal Reserve Board is

responsible for worsening the Great Depression by implementing monetary contraction immediately after the stock market crash in New York.

Krugman, Paul (1998), "It's baaack: Japan's Slump and the Return of the Liquidity Trap," *Brookings Papers on Economic Activity*, 2, 137 – 187.

_____ (2000), "Thinking About the Liquidity Trap," *Journal of the Japanese and International Economies*, Vol. 14, No. 4 (December).

In these two papers, the author presents his Keynesian views on the Japanese recession of the 1990s and policy solutions to it. The author emphasizes the importance of creating expected inflation to get the economy out of the liquidity trap situation and doubts the effectiveness of any monetarist policies such as quantitative easing.

Svensson, Lars E.O., 2001, "The Zero Bound in an Open Economy: A Foolproof Way of Escaping from a Liquidity Trap," *Monetary and Economic Studies* 19(S-1), p. 277 – 312.

The author agrees with Krugman in that creating expected inflation will help the Japanese economy out of a liquidity trap. However, he clearly differs from Krugman's view in that he proposes a fixed exchange rate policy to create expected inflation until the liquidity trap situation disappears.

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