

## SOME OBSERVATIONS ON THE RETURN OF THE LIQUIDITY TRAP

*Scott Sumner*

Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back.

John Maynard Keynes

By the mid-1990s, most macroeconomists had probably assumed that the concept of a “liquidity trap” was safely dead and buried. Many of the newer intermediate macro texts failed to even mention the term. It would hardly be the first time, however, that a seemingly discredited macroeconomic concept suddenly regained a measure of respectability. With prominent macroeconomists, such as Paul Krugman (1998), now offering advice on how Japan can escape from its liquidity trap, it is appropriate to look at some neglected historical and theoretical issues raised by that dubious concept.

Although it is easy to find definitions of the term “liquidity trap,”<sup>1</sup> its original meaning and interpretation are somewhat unclear. For instance, what did Keynes actually intend when he used the term “liquidity trap” in the *General Theory*? How does the modern interpretation differ? How can we identify the existence of a liquidity trap? What policies can prevent its formation, or allow an economy to move out of an existing trap? What monetary policy is optimal in a liquidity trap? Until very recently, contemporary macroeconomists had given little thought to those questions. Many of the answers are surprising.

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<sup>1</sup>A fairly standard definition of a liquidity trap is “In a liquidity trap, the economy is satiated with liquidity and the nominal interest rate is zero. . . . Expansionary open-market operations, where the central bank purchases bonds and increases the monetary base, then have no effects on nominal and real prices and quantities” (Svensson 1999: 223).

## Keynes' View of the Liquidity Trap

There is so much ambiguity in Keynes' writings that it is difficult to know exactly what assumptions he was employing in his discussion of the liquidity trap. He probably did not intend the concept to apply only to central banks constrained by a rigid gold standard regime.<sup>2</sup> But there is *no* evidence that Keynes intended this concept to apply to a government embarked on a policy of almost unlimited creation of unbacked fiat currency, as occurred for example in Germany during the early 1920s (Sumner 1999). The only real-world example of the liquidity trap in the entire *General Theory* appears on pages 207–8, and refers to a situation where open market purchases by the Federal Reserve failed to boost the economy during the spring of 1932. Yet that is an odd case to cite because offsetting outflows of gold prevented the purchases of bonds from boosting the money supply (see Currie 1934, Laidler 1999).

The view that monetary policy might be ineffective during a depression was widely held during the interwar period, both in academia and in the financial markets. But those who held that opinion generally opposed an unconstrained fiat money regime (termed “greenbackism”) for being likely to lead to high inflation as well as rapid exchange rate depreciation. And this seems to have been Keynes' view as well.

If Keynes' views on the effectiveness of monetary policy were constrained by exchange rate considerations, and if he believed that the sort of monetary expansion necessary to push an economy out of a liquidity trap would cause undesirable currency depreciation, then the Keynesian liquidity trap was actually an example of the theorem that it is impossible to hit two policy targets with one policy tool. This “two targets–one tool trap” bears no relationship, of course, to the liquidity trap as defined by modern theorists.

In volume two of the *Treatise on Money*, Keynes (1930: 372) briefly mentioned another factor that might result in monetary ineffectiveness. He noted that a central bank engaged in open market purchases might run out of eligible assets before it was able to achieve its policy goals. Thus, if the Federal Reserve were restricted to buying only U.S. Treasury securities, and if the U.S. national debt were to be completely paid off, then the Fed's ability to boost aggregate demand would be severely constrained. As with the two targets–one tool trap,

<sup>2</sup>Roberts (1995) noted a possible connection between Keynes' views on the liquidity trap and the constraints imposed by an international gold standard. In my 1999 paper I cited several pieces of evidence for that connection.

this potential limitation on policy does not really correspond to the liquidity trap as conventionally defined. Moreover, this constraint was never imposed during the most famous examples of alleged liquidity traps, such as the United States during the period between 1932 and 1940, and Japan during the past decade. And if such situations were encountered, it seems likely that the constraint would be removed by institutional reforms that allowed for a wider range of assets to be purchased in open market operations.

### Krugman's Model

In 1998, Krugman argued that Japan was probably in a liquidity trap, but for rather unconventional reasons. He suggested that the standard IS-LM model does not provide a useful framework for explaining liquidity traps, and instead developed an intertemporal model in which monetary injections that are expected to be *temporary* have little or no impact on aggregate demand.

Perhaps the easiest way to envision Krugman's model is to consider the following thought experiment. Suppose the central bank doubled the money supply between period one and two, but was expected to return the money stock to its original level in period three. According to the simple quantity theory of money, the price level would be expected to double in period two, and then fall to half in period three. But this would imply a 100 percent expected real return on holding currency between periods two and three, clearly an implausibly high *ex ante* real rate of return. Instead, the real return on holding currency (the expected rate of deflation) should not exceed the *ex ante* real interest rate (usually in the 2 to 4 percent range.) This implies that once the expected rate of deflation reached the real interest rate, any additional money creation in period two would have no incremental impact on the period two price level. Krugman suggested that the equilibrium real interest rate in Japan is probably negative, though one could also model this situation with a slightly positive real interest rate, combined with expectations of deflation.

Krugman's explanation of the Japanese liquidity trap is not based on the assumption that the monetary injections were temporary, but rather that they were *perceived* to be temporary by the Japanese public. This raises the question of why the Japanese public would lack confidence in the Bank of Japan's willingness to persevere with money creation. Krugman suggested several possible explanations. The public knew that the Bank of Japan was reluctant to allow a substantial depreciation of the yen, particularly during the East Asia crisis of 1998, and thus may have doubted the ability of the BOJ to

maintain a position of monetary ease for any extended period of time. Krugman also suggested that the BOJ's reputation for maintaining price level stability may have kept inflation expectations in Japan low enough to drive nominal interest rates close to zero. Any monetary injections inconsistent with long-run price stability were not expected to be permanent.

Are Keynes and Krugman talking about the same concept? Probably not, although the exchange rate constraint does come up in both analyses. Instead, Krugman's analysis is arguably much closer to the literature on monetary policy in the American colonies.

### Historical Antecedents for Recent Liquidity-Trap Analyses

During the 1750s and 1760s several of the American colonies engaged in just the sort of policy discussed by Krugman. During that period large currency injections were made with the explicit promise that the currency would be retired over a period of 10 to 15 years. These large currency injections were not associated with comparable price-level increases. Over the past 20 years a substantial literature has been generated in a debate over whether or not the colonial currency episodes are consistent with the quantity theory of money.

Bruce Smith (1985) argued that the colonial currency episodes were inconsistent with the quantity theory, and instead suggested that they provided support for the "backing-theory" developed by Thomas Sargent and Smith (1987) and Neil Wallace (1981). The backing theory argued that open market operations that fail to alter the government's balance sheet would also fail to impact the price level.

Defenders of the quantity theory of money raised a number of issues in response to Smith's hypothesis. Several of these authors developed Krugman-type models in which the price level was determined recursively under the assumption that the expected return on currency could not exceed the real rate of interest (Sumner 1993, Bernholz 1988).<sup>3</sup> These models predict that even massive currency injections, if perceived as temporary, will only lead to small increases in the price level. Instead, nominal interest rates would be driven close to zero as prices would be expected to fall once the new currency is retired from circulation. Even Sargent and Wallace (1981) had previously shown how expectations regarding the future path of

<sup>3</sup>In my 1993 paper, I noted that temporary currency injection models could also explain the relatively low nominal interest rates experienced by the United States between 1938 and 1945.

the money supply could explain why temporary currency injections might fail to raise the price level.

To summarize, Krugman's explanation for the Japanese liquidity trap follows in the tradition of several previous analyses of temporary currency injections. Interestingly, this literature did not focus on the concept of the liquidity trap, and certainly did not employ Keynesian modeling or analysis. For the issue at hand, the key question is not whether Krugman's model makes sense, but rather whether it makes sense as a model of the liquidity trap. In the generally accepted definition of the liquidity trap (see Svensson's definition in footnote 1), monetary policy ineffectiveness is a central component. The temporary currency injection literature does suggest a scenario where money supply increases have no impact on either real or nominal aggregates, but only because they are temporary, not because nominal interest rates are stuck at zero. Unfortunately, the temporary currency injection literature has little to say about whether a determined central bank would be able to adequately stimulate aggregate demand. The colonial currency injections were made not for the purpose of boosting aggregate demand, but rather to finance spending on temporary military campaigns.

Krugman (1998: 161) argued that the best way for Japan to exit its liquidity trap would be for the BOJ to "credibly promise to be irresponsible"—that is, to set a positive inflation target. But if Japan really were in a liquidity trap of the conventional type, then why would the Japanese public believe that a promise to inflate was credible? Krugman's proposed policy probably would work, but precisely for the reason that Japan is not stuck in a conventional liquidity trap, as the term is generally understood. In Krugman's model, *permanent* money supply increases raise *current* inflation expectations, and thus lower current real interest rates.

One test of Krugman's inflation-targeting proposal occurred in April 1933, when President Roosevelt devalued the dollar with the avowed intention of dramatically raising the price level. One could hardly ask for a better test of liquidity trap remedies than the dollar depreciation program of 1933–34, which occurred in the midst of a period of maximum skepticism about monetary policy effectiveness. In less than nine months (the only nine months between 1879 and 1968 when the dollar was not pegged to gold at a fixed price), the Roosevelt administration was able to raise consumer prices by roughly 10 percent, and wholesale prices by 20 percent, despite the highest unemployment in American history. And then, after raising the price of gold from \$20.67 to \$35 an ounce, the program ended. But the program did not end because its critics thought that a price of \$350,

or \$3,500 an ounce, would fail to boost prices further. Instead, they feared the possible inflationary consequences of the program. Even Keynes ([1934] 1982: 312), on hearing of Roosevelt's plan to return to a fixed gold parity for the dollar, congratulated the president for resisting the demands of the "extreme inflationists."

So in the end Keynes got his way. He supported Roosevelt's initial decision to devalue the dollar, but opposed the sort of move to an unlimited fiat money regime that would have been necessary to quickly boost nominal expenditure back up to predepression levels. Two years later, Keynes developed a model that replaced the monetary approach to aggregate demand with an expenditure approach. Monetary policy ineffectiveness was a key factor in Keynes' decision to discard the monetary approach. Had Roosevelt persevered with a move to replace the gold standard with a highly expansionary fiat money regime, then it is unlikely that the *General Theory* would have been written. And even if it had, its reception in America would have been vastly different.

### Suggestions for Identifying a Liquidity Trap

The preceding analysis suggests that a true liquidity trap is unlikely to occur in a pure fiat money regime. We cannot really know whether this is the case, however, unless we can identify a liquidity trap when it occurs. A good place to start would be to ask why so many observers seem to believe that Japan is currently in a liquidity trap. The answer seems fairly simple. Japan is currently experiencing near-zero interest rates on short-term government debt, and yet the Japanese economy remains sluggish.

There are two slightly different ways of identifying a liquidity trap in the preceding set of facts. The simplest would be to argue that the low nominal interest rates show that easy money has already been tried, and that the continued sluggishness of the economy shows that it has been ineffective. That would be like arguing that the high nominal interest rates observed during a hyperinflation show that a tight monetary policy is ineffective at stopping a hyperinflation. Of course, just as a highly expansionary monetary policy can cause high nominal interest rates, a highly contractionary policy can ultimately lead to very low nominal interest rates. More sophisticated defenders of the liquidity trap would argue that even if an expansionary monetary policy had not yet been tried, the near-zero interest rates experienced by Japan would prevent any future easing of monetary policy from having an impact on spending. Even this view, however, has a serious flaw. Monetary policy affects a wide variety of asset

prices. Nominal interest rates need not decline at all for policy to impact aggregate demand (see Brunner and Meltzer 1968, Meltzer 1995).<sup>4</sup> For instance, nominal interest rates were fairly stable during the dollar depreciation program of 1933–34, and yet prices and output grew rapidly, and Frank Steindl (2000) showed that near-zero nominal interest rates did not prevent monetary expansion (linked to gold inflows) from dramatically boosting the U.S. economy after mid-1938.

The preceding discussion does not mean that the existence of near-zero interest rates is irrelevant to the question of whether a liquidity trap exists. Certainly it is a necessary condition. But to make a convincing case for a liquidity trap one also needs to show the ineffectiveness of monetary policy, and that requires both interest rate and money supply data. A country experiencing extremely rapid money supply growth, weak aggregate demand, *and* extremely low nominal interest rates would seem to best fit the description of a liquidity trap. I use the term “extremely rapid” because fiat money creation is essentially costless. A country “stuck” in a liquidity trap is a country where the central bank has tried hard to boost aggregate demand and has failed. Given the ease of money creation in an unconstrained fiat money regime, growth rates of a few percentage points are hardly sufficient to demonstrate serious effort. The BOJ certainly has no lack of government debt to purchase.

Using the preceding criteria, there is little evidence that Japan is currently in a liquidity trap. Although it is not clear exactly how much money growth would be necessary to demonstrate the existence of a liquidity trap, Robert Hetzel (1999) showed that Japanese money growth rates actually *slowed* dramatically in the 1990s, as compared to the 1980s. Recently, growth has picked up somewhat, but this is consistent with the expected one-time increase in money demand associated with lower inflation expectations. The same phenomenon occurred in the United States when inflation fell sharply after 1982. And, as already noted, money growth rates were actually *negative* during the spring 1932 episode cited by Keynes.

To summarize, the historical events most often cited as examples of a liquidity trap do not exhibit the sort of stylized facts that could be considered even roughly consistent with a scenario of monetary policy ineffectiveness. A BOJ that was serious about boosting aggregate demand could undoubtedly create enough money to do so. The ability

<sup>4</sup>A recent paper by McCallum (2000) discusses how monetary policy could operate via the exchange rate transmission mechanism even when nominal interest rates fall to zero.



to print fiat currency is an incredibly powerful weapon. Central banks that want inflation do not need to try very hard.

Recently, the BOJ announced a policy switch that may provide a test of the preceding hypothesis. Under its new policy the operating target of open market operations will be a bank reserve-type aggregate, rather than the overnight call rate that had been previously employed. The level of these reserves will be increased by roughly 25 percent. In addition, the BOJ has committed to maintain an expansionary policy until the 12-month core inflation rate turns non-negative.

Bennett McCallum (2001) notes that while the BOJ's policy switch represents a step in the right direction, there are still some important uncertainties. In particular, he notes that "a zero percent core inflation rate is still deflationary, given that the CPI tends to overstate actual inflation" and "the increased reserve balance is a one-time stock commitment, not an ongoing flow commitment" (McCallum 2001: 7). Thus, the effectiveness of the new policy remains to be seen. A recent article in the *Economist* (2001: 74) also expresses skepticism about the BOJ's intentions, asking how the Bank can "argue that an expansionary policy will not work, while at the same time worrying about hyperinflation?" As noted earlier, this is the same inconsistency that Keynes exhibited in 1933.

## Conclusion

The preceding analysis suggests that the relatively dubious reputation of the liquidity trap is well deserved, at least for a fiat money regime. It may be helpful to conclude with two thought experiments that show how sloppy thinking on this subject can lead to misguided policies. In the standard textbook analysis, monetary policy becomes less effective (relative to fiscal policy) as money demand becomes more elastic, and in the extreme case where money demand is perfectly elastic, monetary policy becomes completely ineffective. This sort of mindset might lead one to exonerate the BOJ for the recent bouts of deflation experienced by the Japanese economy. But what actually is the optimal monetary policy under this scenario?

First, consider the extreme case of a pure liquidity trap. If monetary policy has no impact on nominal or real variables, then the optimal policy for the BOJ would be to buy up the entire world's stock of wealth. Not only would the government debt burden on the Japanese public be eliminated, but purchases of foreign assets would also yield income that could be utilized to finance Japanese public expenditures. And there would be no inflationary consequences.



If the preceding thought experiment seems far-fetched, it is not because there is anything illogical in the analysis of a pure liquidity trap, but rather that the reader probably (at least implicitly) rejects the *assumption* of a pure liquidity trap. But now consider the case where the interest elasticity of money demand is relatively high but falls short of being perfectly elastic. Does the standard IS-LM model not call for fiscal expansion in this type of near-liquidity trap? Actually, just the opposite implication holds. The fact that monetary policy is relatively “ineffective” when money demand is highly elastic is a point in *favor* of using monetary expansion to move out of a deflationary environment. Money injected through open market purchases has the effect of reducing the outstanding total of government debt held by the public, and thus reduces the burden of the debt on future generations. The larger the monetary injection required to hit a given price level target, the *more* favorable the impact on public finances.

Unfortunately, Japanese policymakers seem to have drawn exactly the opposite conclusions from the low interest rate environment experienced during the 1990s. Rather than boosting the money supply enough to prevent deflation, they relied on massive fiscal expansion (partly on the advice of U.S. policymakers.) This Keynesian “pump-priming” has left Japan with a budget deficit of 8 percent of GDP and a national debt that is larger than its GDP. Thus, the standard Keynesian remedies for a liquidity trap appear to have done little or nothing to boost Japanese economic growth, while leaving Japan with a fiscal overhang that will make it much more difficult to meet the looming pension crisis of the 21st century.

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