

# Overdose

## Economist Insights

In their bid to revive the ailing global economy, the major central banks are on the hunt for a medicine that works. Having explored almost all other options, markets are now speculating that monetisation could be the next step. Monetisation can look like a free lunch when interest rates are stuck at zero. But economics teaches us that there is no such thing as a free lunch, so who would end up picking up the bill?



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Central banks have been searching for new medicines to help ailing economies, but some of the treatments could have unpleasant side effects. One of the most radical, and possibly most effective, policies is monetisation, known popularly as helicopter money (see Print prescription, 26 April 2016). Monetisation seems to be an easy way to raise inflation expectations, which is useful if expectations have fallen below target. But economics teaches us that there is no such thing as a free lunch, so who picks up the bill?

Unsurprisingly it is central banks, which might explain why central banks are not so keen on monetisation. In a world where interest rates are already at (or below) zero, the problems from monetisation may not be so apparent. So fast forward to some point in the future when inflation is high and the central banks need to raise interest rates.

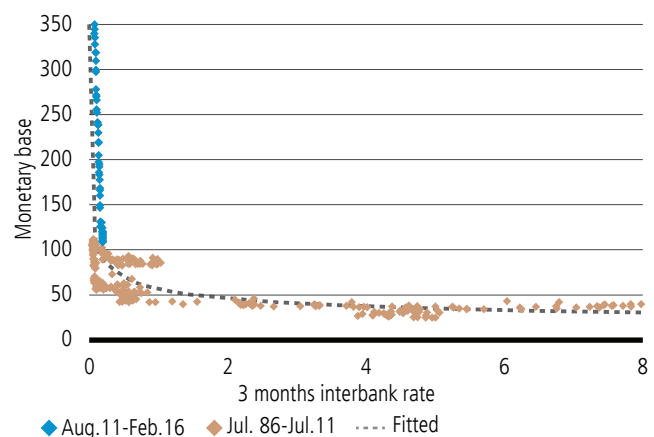
In a market you can control either quantity or price, but never both. Central banks had been controlling the quantity of the monetary base (through monetisation), but now need to target the price of money (the interest rate). Traditionally, they would decide on the interest rate and then their open market operations team would inject or remove enough liquidity to move the interest rate. To get interest rates higher, a central bank removes liquidity to make money more scarce, and hence more expensive (chart 1). Injecting liquidity pushes interest rates lower.

There is a lower limit to interest rates around zero. A situation where the central bank can increase liquidity but have no effect on interest rates is known as a liquidity trap. The trap is not complete: extra liquidity will still affect longer term interest rates or the price of other assets. But the effectiveness of monetary policy is still severely curtailed.

In a liquidity trap it does not really matter if the liquidity injection came from quantitative easing (QE) or monetisation. But it does matter once you try to reverse the liquidity so as to raise interest rates.

**Chart 1: Liquidity trap**

Bank of Japan relationship between monetary base and the 3-month interbank rate



Source: Bank of Japan, Bloomberg Finance LP

With QE, the bank injected liquidity by creating money to buy assets. So removing liquidity is easy, just do QE in reverse. Sell the asset and then destroy the cash that you get for it. With monetisation the bank injects liquidity by giving it to the government (or directly to households), but does not receive any assets in return. That means there is nothing to sell to soak up the extra cash.

The difference is nicely illustrated by comparing how the central bank's balance sheet would look if it raised rates following QE, versus the same increase following monetisation. To make it

more realistic, we base the illustration loosely on a simplified version of the Bank of Japan (BOJ) balance sheet (chart 2). We will call this imaginary institution the Central Bank of Japan (CBJ).

So far the imaginary CBJ has bought over JPY 300 trillion of Japanese government bonds, which makes up almost all of the asset side of its balance sheet. This was paid for by creating bank reserves (which are electronic cash). With a zero deposit rate, the CBJ does not pay any interest to banks for the reserves that they keep at the CBJ. The bonds do pay interest, averaging about 0.5%. So the CBJ is making a decent profit (chart 2a), although from this it has to pay for its own operating expenses.

**Chart 2: Balancing the sheet**

Illustrative central bank balance sheet under QE and monetisation when interest rate is 0% and increases to 0.5%, JPY trillions

Interest rate at 0%			
a. Quantitative easing		b. Monetisation	
Asset	Liab	Asset	Liab
Bonds 310	339 Reserves	Bonds 0	339 Reserves
Others 56	27 Others	Others 56	27 Others
Int rec'd 1.8	0.0 Int Paid	Int rec'd 0.3	0.0 Int Paid
Interest rate at 0.5%			
c. Quantitative easing		d. Monetisation	
Asset	Liab	Asset	Liab
Bonds 70	99 Reserves	Bonds 0	339 Reserves
Others 56	27 Others	Others 56	27 Others
Int rec'd 0.6	0.5 Int Paid	Int rec'd 0.3	1.7 Int Paid

Source: Bank of Japan Statement of Income Apr.1-Sept.30 2015. UBS Asset Management. Note: For simplicity we assume that the assets yield a 0.5% return

Suppose instead the CBJ monetised the government debt by simply writing off that debt. The government would need to respond by increasing their spending to have an economic impact (as set out in our previous Economist Insights), but that is not important for the balance sheet. Once the bonds have been written off, there is no longer any revenue. The CBJ still makes a profit because they do not have to pay any interest, and there is a little income from other assets on the balance sheet (chart 2b). But it is far less than under QE, and the CBJ has negative equity (liabilities exceed assets). Nobody is going to be too worried about negative equity as long as the CBJ is still making a profit.

Now suppose the CBJ wants to raise interest rates to 0.5%. The first step would be to increase the deposit rate, so that reserves are now paid 0.5%. This would provide a floor to the interest rate because no bank wants to lend to another bank for less than they could get by leaving cash at the CBJ. Under QE, to get the interbank market to match 0.5%, the CBJ would need to soak up about JPY 240 trillion of liquidity. Ignoring for the moment the shock that would cause to the government bond market, this would shrink both bonds and reserves by the same amount (chart 2c). Revenues would fall, but so would liabilities. The fall in liabilities is useful because now the CBJ has to pay interest. Overall the CBJ is still making a profit, albeit a much smaller profit than before.

If the CBJ had monetised, then the only mechanism they have for raising interest rates is by raising the deposit rate. There is still plenty of extra liquidity floating around the system, so the interbank market is likely to be behaving very strangely. But crucially, interest received is unchanged although now interest must be paid on a huge level of reserves (chart 2d). Not only does the CBJ now have negative equity, but it also has negative interest income. This is much more worrying.

### Inequitable

Big deal, you might say, why doesn't the CBJ does print more money to make up for its loss? Effectively, the CBJ would be monetising its own liabilities. Unfortunately, creating cash ultimately means creating reserves, and interest would have to be paid on those reserves. That means a bigger income hole that has to be plugged. It is easy to see this spiralling out of control: printing money to balance the books, only to find that this creates an ever bigger need to print more money. Next thing you know the central bank has lost control of the money supply. Hyperinflation, here we come.

The next option is for the government to come to the rescue. This seems only fair, given that the CBJ had just written off most of the government's debt. One way to do this is to plug the income gap, and give the CBJ enough money to balance out the loss on interest. This means higher taxes, (yet another blurring of the distinction between fiscal and monetary policy). And it would also mean the central bank was no longer really independent of the government.

The second approach would be to recapitalise the bank's balance sheet. The government would issue debt and place it on the bank's balance sheet. But this has effectively reversed the monetisation, turning it into a temporary measure. And from an economic perspective, a temporary monetisation is indistinguishable from QE – although it may have encouraged a fiscal stimulus at the time.

Arguably the CBJ should not be considered insolvent because in the future it can be expected to earn income from creating money. The net present value of this future stream of seignorage, as it is called, could arguably offset the losses, as long as the losses are not too large. But again this blurs the line with fiscal policy – if the seignorage revenues are going to the CBJ rather than the government, there will be a budget shortfall that requires revenue to be raised.

No doubt there could be some innovations to circumvent some of these effects. For example, maybe the CBJ could only raise the deposit rate on marginal changes in reserves rather than all reserves. (much as the BOJ recently announced with negative deposit rates). Or make 100% of the reserves mandatory so that banks can't effectively re-use them. But there are still no free lunches; it would simply mean that commercial banks pick up the tab.

As with any medicine, dosage in monetary policy is important. The level of monetisation in the example above would almost certainly be an overdose that would send inflation expectations spiralling. A smaller injection of monetisation would produce commensurately smaller side effects.

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