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PAUL GRAY

11 July 1989

INTERVENTION AND STERILISATION -  
1987 - 1988

1. Definitions

Heavy intervention to prevent sterling rising, as with the \$25bn in 1987-8, will, as a first stage, immediately:

- (i) increase the sterling money supply, and
- (ii) reduce market interest rates.

Sterilisation takes place when the effect on "monetary conditions" is contemporaneously neutralised. Depending on whether one interprets such "conditions" in terms of money supply or interest rates, this in turn implies that either:-

- (a) the money supply, however defined, is not allowed to expand and is maintained at its original quantity,  
or
- (b) market nominal short term interest rates, however defined, are maintained at their original levels.

The normal academic and IMF definition of sterilisation is in terms of the money supply [(a) above]. But since we use interest rates as the instrument and money growth as the target, the Bank would naturally think of sterilisation in terms of keeping short-term nominal interest rates unchanged [sense (b) above] rather than in terms of the target money growth.

2. Money Market Management as Sterilisation

The Bank would argue that as a rule all intervention is sterilised. Money market operations would, at the end of the day, remove any surplus cash at the prevailing intervention

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nominal interest rate. [sense (b) above]. The excess sterling due to intervention would be mopped up by the Bank selling <sup>gills</sup> bills or repos, so as to prevent a fall in short-term interest rates in the money market. In this interest-rate sense the intervention is automatically sterilised.

But since interest rates are unchanged, such sterilised intervention does not keep the exchange rate from rising. The only way to contain the exchange rate is to yield to market pressure and allow the nominal interest rate to fall. Then there is an associated expansion in the money supply through unsterilised intervention and residual money market management - to support this lower level of interest rates.

It is the persistence in pegging the exchange rate which is the proximate cause of the monetary expansion. The exchange rate peg (together with the rate of expected inflation) determines the nominal interest rate required which in turn determines the quantity of money needed to validate the fixed exchange rate. The circle is closed. As for unsterilised intervention, it is part of monetary policy and affects monetary growth and interest rates. If per contra it be sterilised, the monetary growth and exchange rates are not affected.

With sterilised intervention the private sector ends up with the same amount of money and with more <sup>gills</sup> bills (correspondingly the Bank's bill mountain melts down). In order to accommodate this increased supply of short-term liquid assets relative to long, there is likely to be some pressure to increase the downward slope of the yield curve by reductions in long rates. But this is likely to be a small effect and can be safely ignored.

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### 3. Intervention as a "Cause" of Monetary Growth in 1987-1988

In essence the proximate cause of the monetary growth of 1987-8 was the consequent need to validate the pegging of sterling to the 3.00 Dmark level when current market conditions required an exchange rate far higher at perhaps 3.30 to 3.35. Reductions of interest rates and associated monetary growth were required to hold the rate at 3.00. Unsterilised intervention contributed to the monetary growth, but that was a consquential required expansion and was determined by the 3.00 Dmark peg.

### 4. Funding

*including P7 fundan - SDS*

The full-fund rule is designed to ensure that the public sector financial balance has no effect on the money supply. What money is taken in tax receipts over and above public spending is put back into the private sector by purchases of gilts. The result - a level playing field.

In my view this is a good policy. It is easily understood by the market. Debt-management policies are therefore predictable with low levels of uncertainty.

It would be a mistake to use "over-funding", that is buying more gilts than needed for full-fund, with the objective of reducing monetary growth. First, it would cause needless consternation in the markets (as we saw some weeks ago when over-funding was, falsely, rumoured to be returning). Secondly, provided that we continue to control monetary growth through the instrument of interest rates, over-funding would then have to be offset by assistance to the money market. The conclusion is that if we judge that potential inflation requires an increase in the severity of the monetary squeeze, then we should pursue a clear policy of increasing short-term interest rates and not confuse this by arbitrary activity in the gilt market.

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## 5. Short-term effects and "psychology".

The evidence from every study I have seen is that sterilised intervention has only a positive effect which can be measured only in hours (in sophisticated markets) or a few days (in less sophisticated markets). Then it is gone. Nevertheless it is asserted that this fly-by-night effect is useful psychologically, particularly in falling markets, because it shows that the authorities "really care" and are not happy with these consequences of monetary policy.

I am not a psychologist (but nor are they who make such allegations!). Furthermore, I have seen no studies, by psychologists or laymen, of these psychological effects. I remain very doubtful if such alleged positive effects outweigh the portfolio losses which are incurred in such intervention.

The Treasury and Bank sometimes point out that the intervention is not sterilised immediately and so may have some effects on exchange rates. Because of the operation of our money market assistance, etc, and the interest rate definition of sterilisation, I do not see how that can be of any quantitative importance. Of course even with fixed nominal interest rates there will generally be some effect on the quantity of money (the relationship between money and nominal interest rates is not tight) and the Treasury or Bank may be anticipating, at fixed interest rates, some quantity-of-money effect on the exchange rate. But that must be both relatively small and unpredictable in magnitude on the exchanges.

## 6. The "Genius" Case for Intervention (unsterilised).

If we knew that a substantial increase in the demand for sterling was transitory and if we knew precisely the magnitude and duration, when it would subside and to what level, then

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There is a case for intervention to prevent the exchange rate movement occurring - "ironing out the bumps". Broadly speaking this is the view that the Chancellor took in 1987-8, and it is a policy promoted by some academics (eg Ronald McKinnon of Stanford). The trouble is that no-one could ever have sufficient knowledge to pursue such a policy. We do not know, even after the event, how the demand for sterling moved, what part was transitory and what part permanent. How much more difficult it is, then, to forecast successfully such movements before they take place. The attempt to insulate the exchange rate from market oscillations usually gives rise only to distortions and sudden reversals.

7. The Main Problem of 1987-8

In response to your request for my view whether intervention or constraining interest rates was more damaging, the answer is clearly the interest rate. In our system, this determines monetary policy and the permissible extent of unsterilised intervention.

ALAN WALTERS *AW*

cc Professor Brian Griffiths

Andrew Turnbull

Charles Powell

*Sir Peter Middleton*

*Michael Scholar.*

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ce Professor Walker, Dr Gray, Professor Conforth  
How do you reconcile your view (para 11) that there  
was some unsterilised intervention and that it added to  
growth of M0 with Treasury (Bank view that all intervention  
was sterilised? Either you are saying that they did not  
succeed in sterilising? Or that sterilization was only in respect  
of broad funding / broad money but that at level of M0  
sterilization was incomplete?

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ANDREW TURNBULL 17 July 1989

AT 18/7

INTERVENTION AND STERILISATION -  
1987 - 1988

with AT?

On your comments dated 16 July:

(i) As I said, there are many definitions of sterilisation. I was concerned to define it so that we knew the principles which lay behind it. The normal definition among economists (eg the IMF) is one that leaves the quantity of high-powered money constant. I would contend that, since we target M0, this is a sensible definition for the UK. The Treasury quantity definition, however, is one which, through funding levels, holds a much broader aggregate constant - so that the private sector acquires gilts equal in market value to the intervention. This is a relevant definition if you are targetting a broad aggregate, but, since we simultaneously contend that the broad aggregates are misleading, it is clearly inconsistent to hinge the definition of sterilisation on such a disavowed indicator of monetary conditions. The "funding" definition of sterilisation is a hangover from the old days of credit control and targetting. We should, therefore, use M0 as our sterilisation standard and concentrate on the monetary, not the credit, conditions being held constant.

Alternatively, using the short interest rate criterion, instead of the M0 constant condition, we do have sterilisation in the sense that we sell bills to maintain the short interest rate. In fact, since short interest rates remain the same, Eddie George properly regards all intervention as immediately sterilised.

In my view, this interest rate definition is not as reliable or as useful as the M0-fixed definition. Many of the reasons for this view are obvious, but one is worth noting - we should be fixing the real rate of interest, not the nominal value.

(ii) Here you are implicitly postulating that there is always an infinitely elastic demand for gilts whatever the quantity in the portfolio of the private sector. You "suppose there is an increase in the demand for sterling" - but what you really mean is that there is an increased demand for highly transitory transactions sterling which is immediately sunk in buying gilts at the constant interest rate and exchange rates. The Government simply supplies the gilts and pockets the foreign exchange. You are then quite right. To simplify, if foreigners are willing to absorb unlimited quantities of gilts, the expansion of sterling is sterilised without affecting interest rates or exchange rates. This applies only if the additional (net) demand for sterling is a net movement in the demand curve for gilts. But is it not far more likely that the net demand increase would not be entirely for gilts? In which case, in order to sell gilts equal to the intervention, one would have to increase the interest rates.

But, *cet par*, that would attract a larger demand for sterling and so would drive up the exchange rate. This, in turn, would induce more intervention, more gilts sales to sterilise and higher interest rates, upward pressure on sterling, etc.

So far, this ignores the dynamics and expectations effect. I believe that these considerations will exacerbate the effects and render the system probably unstable. But that is a long story.

(iii) As I indicated on page 2, I do not think that the effect on the yield curve would be anything but very small. I doubt very much whether one would ever be able to discriminate between the Treasury (more gilts) result and the money market (more bills) result. The yield curve slope is determined primarily by expectations and is affected only to the extent that different policies on sterilisation generate different expectations.

(iv) I remain convinced that unsterilised intervention did contribute to monetary growth in 1987-88. In order to maintain the exchange rate, interest rates were reduced dramatically (on a first definition) and M0 grew faster (on a second definition) than it would have expanded without this intervention. If it stood up to critical examination it would certainly be an important result.

(v) The ephemerality of sterilised intervention has been argued above. I would add, however, that all the studies I have ever seen confirm this empirically (using the M0 constant definition). If you know of a counter-example, I would very much like to review it. If it stood up to critical examination, it would certainly be an important result.

Alan Clack

P.P. ALAN WALTERS

cc Paul Gray  
Professor Brian Griffiths



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ANDREW TURNBULL

19 July 1989

With reference to yours of 18 July: <sup>with AT?</sup>

The reconciliation of my view (some unsterilised intervention) with the Treasury view (all intervention sterilised) is definitional but of interest.

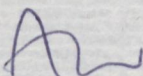
I contend that if intervention affects "monetary conditions", then it is not sterilised. A comprehensive definition of "monetary conditions" is:

- (i) all quantities of money, however defined, remain unaffected;
- (ii) all interest rates remain constant.

So far as I know, no-one adopts this comprehensive definition, for the good reason that it is very difficult, perhaps impossible, to deliver. Try it and see! We fix one, the most "important" or "fundamental", and leave the rest alone. Your Treasury definition is one that, by matched gilt sales, holds a particular broad money aggregate M3 constant. Yet since you are selling gilts you must affect gilt yields. Unless you claim that by so doing you only twist the yield curve and affect only gilt yields and do not affect short market rates, you will affect M0 through the money markets. Furthermore, the high yields on gilts will offset your intervention by attracting more demand for sterling - leading to more sterilised intervention and a renewed pressure on interest rates and a pressure for sterling to rise.

At this stage, the policy decision to hold sterling can be implemented only by reducing short interest rates - and that is most easily achieved by flooding the money market, and increasing M0. Of course the Treasury may well continue

sterilising the intervention by selling gilts, but the intervention required will be much lower, even negative, since the demand for sterling will be reduced by the lower interest rates. The Treasury claim is that the intervention is "sterilised" in all cases. In my view, this is not monetary sterilisation in any meaningful economic sense. You may claim it is "credit" sterilisation, but I thought we already agreed that credit was an unreliable indicator of monetary conditions. And since we have M0 as a target rather than M3, let alone the more stable M4, it seems to be schizophrenic, and quite misleading, to claim that the sterilised intervention in this sense does not affect monetary conditions. It does.



ALAN WALTERS

cc Professor Brian Griffiths

Paul Gray