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The Determination of the Money Supply: Flexibility versus Control

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I. The Monetary Base, Money Multiplier Story

Until a relatively few years ago the determination of the money supply was generally taught in textbooks in terms of the monetary base, money multiplier story, which had been given prominence as the analytical basis for the great book on US monetary history by Friedman and Schwartz (1963). In reality this story was incorrect. Although the money multiplier is derived from an identity,² the causal direction works in exactly the reverse direction to that normally supposed in such texts. The Central Bank normally decides on the official short term interest rate that it wants to set, and the two key ratios, the currency/deposit (C/D) ratio and the desired reserve/deposit rate of the banks (R/D), determine the monetary base that the Central Bank *has* to create if it is to keep short-term market rates in line with the intended official rate. In truth, it is not so much a money multiplier, as a money divisor, which determines how much base money is consistent with the stock of money (M)³ and the two key ratios (C/D and R/D) at the chosen level of interest rates.

¹ My thanks are due to Tim Congdon, David Green, David Laidler, Mervyn King, Ed Nelson, Carolyn Sissoko and David Walker for comments on this paper. But any remaining errors are my own responsibility.

²

$$\begin{aligned} M &\equiv D + C && (1) \\ H &\equiv R + C && (2) \\ \text{Divide (1) by (2) to get, by manipulation} \\ M &\equiv H \frac{(1 + C/D)}{(R/D + C/D)} && (3) \end{aligned}$$

³ How far were the earlier great monetary economists, such as Cagan, Friedman and Schwartz, who nevertheless used the money multiplier as their framework for analysing the determination of the supply of money, aware of this two-way relationship? They were, up to a point, see below, but a proper answer would deserve a much more detailed study of the history of theory in this respect than time has yet permitted.

Thus David Laidler, in personal correspondence, wrote that

“the best applications of the money multiplier as a framework of empirical analysis, e.g. Cagan, Friedman and Schwartz always framed the interactions here as running in both directions, and with a crucial dynamic element to them as well, in which for example, setting r leads to variations in HPM and M (linked by not a rigid but a rather flexible multiplier), variations in PY , all of which might then prompt the authorities to vary r . . . and so on. I think that this is a very old story, going back to Thornton, with its origins here muddled by those usury laws, but its not far from Marshall, Fisher, and Hawtrey either.”

It is an obvious fact that the Central Bank, via its monetary policy committee, (MPC in the UK, or FOMC in the USA), sets the interest rate, and not, (prior to the attainment of the zero lower bound (ZLB)), the growth rate of the high-powered monetary base (H). So there was a patent inconsistency in much, perhaps most, earlier monetary economics. When discussing current public policy issues, monetary economists would advocate that the MPC change the official short rate to such and such an extent, whereas in their theoretical analysis they would assume that the authorities set the monetary base (H), thereby allowing short-term interest rates to be set by market forces to equate the demand and supply of money, (Goodhart 2009).

This inherent inconsistency continued for decades, troubling only a small minority of analysts. What has now given the money multiplier story the coup de grace is the recent experience during the Great Financial Crisis. Once the official desired short-term interest had reached the zero lower bound (ZLB) in early 2009, there was no further need to control the growth of H in order to maintain a desired positive level of official short-term interest rates. Instead, to enhance the degree of monetary expansion, the monetary base was raised massively via Quantitative Easing (QE). But rather than promoting a roughly equivalent rise in the broader monetary aggregates, the money multiplier totally collapsed.⁴ The broader monetary aggregates stagnated at the same time as the monetary base expanded dramatically.

A few numerical examples are shown in Table 1 below:-

While Edward Nelson wrote,

“Lloyd Mints, Friedman’s graduate teacher in monetary matters, wrote much earlier of ‘the prevailing fact that the quantity of money is actually a function of the volume of bank lending.’

With regard to H responding to M and not just vice versa under an interest-rate peg, there is an acknowledgment of this in for example page 566 of the *Monetary History*.”

⁴ There was a somewhat similar collapse in the money multiplier in the Great Depression in the 1930s, but for rather different reasons, i.e. a sharp change in the desired C/D ratio, rather than in the desired R/D ratio.

Table 1

	% change in		
	H Monetary Base	M Broad Money	Ratio M/H
US 2009	22.5	3.7	-15.3
2010	0.6	3.6	2.9
2011	31.2	9.7	-16.4
2012	2.9	8.2	5.1
2013	39.3	5.4	-24.3
2014	5.9	5.9	0.0
Japan 2009	5.2	2.2	-2.8
2010	7.0	1.8	-4.9
2011	13.8	2.6	-9.8
2012	12.5	2.1	-9.2
2013	47.7	3.3	-30.1
2014	39.1	2.9	-26.1
UK 2009	109.7	5.6	-49.6
2010	-1.3	5.5	6.9
2011	14.0	-3.1	-15.1
2012	50.5	0.2	-33.4
2013	7.6	0.7	-6.5
2014	1.5	-0.1	-1.6
Eurozone 2009	-8.2	-0.5	8.3
2010	2.7	-0.7	-3.3
2011	25.1	2.2	-18.3
2012	22.7	3.0	-16.1
2013	-26.7	0.5	37.1
2014	-0.2	4.8	5.0

Against this background, it has become, in practice, impossible to continue with the fiction that the Central Bank sets the money stock by varying the monetary base within a system in which there was a predictably stable money multiplier. With the monetary base/money multiplier theory thus discredited, a search has now started for a new, revised paradigm to explain the determination of the supply of money.

Against this background, of the need to re-examine theories of the determination of the money stock, we shall start in Section 2 with a re-statement of the array of current and prior such theories, particularly emphasising their weaknesses. Indeed, no fully satisfactory analytical approach is currently available.

Banking is essentially a service industry; its special service is to provide access to liquidity for its clients. But client demand for such access, and bank willingness to provide it, are procyclical; such cycles can, and do from time to time, exhibit boom/bust characteristics, with often damaging implications for the real economy and for price stability. So we move on in Section 3 to a normative discussion of the optimal balance between the control of monetary expansion and flexibility in allowing client access to money, via borrowing from banks. This conflict between ‘control and ‘flexibility’ also mirrors the long-running debate between the ‘Currency’ and ‘Banking’ Schools. I also try to relate this discussion to the proposals put forward by Lord King, former Governor of the Bank of England, in Chapter 7, entitled ‘Innocence Regained: Reforming Money and Banking’, of his book, *The End of Alchemy*. As will be seen, I suggest some refinements to King’s proposals.

II. Money Supply Theories

In this Section, we will outline four differing theories of money supply theory, focussing primarily on the weaknesses of each. These four theories are set out schematically in Table 2, roughly in the order in which they appeared and took centre stage.

Table 2
Money Supply Theories

	Theory	Role of			
		Commercial Banks	Private Sector	Central Bank	Treasury Fiscal Policy
A	Deposits cause Loans	Passive	Dominant	Background	Background
B	Money Base Multiplier	Just vary R/D ratio	Just varies C/D ratio	Dominant	Ignored
C	Credit Counterpart	Quite passive	Major role	Several Roles	Major Role
D	Loans create Deposits	Dominant	Background	Background	Ignored

II(A)

Theory A, that deposits create booms, has been the commercial bankers’ theory. In this bankers are relatively passive, except that they can offer better terms and conditions to clients. They then wait

passively for cash and cheques drawn on other banks to be placed with them, and, if the net inflow is positive, they then decide how to distribute the net inflow amongst alternative assets. Similarly, if the net flow is outwards, they decide how to meet that cash drain, initially by running down cash and Central Bank (CB) reserves, but ultimately by an overall portfolio rearrangement.

The initial weakness in that story is that banks buy assets, and make loans, by writing up both sides of their balance sheet, so there is no initial loss of cash reserves. But, if we assume, as was historically realistic, that we have a banking system of many banks, then any single bank making loans, or buying assets, faster than its peers, can expect a nearly commensurate loss of cash reserves. The problem is *not* that the theory ignores the fact that banks pay for assets initially by creating a liability on themselves, but rather that the theory, although historically a reasonable representation of the reality facing an *individual* bank(er), tells us nothing about the forces driving the determination of the *aggregate* money stock.

The relevance of this theory, which emphasizes the relative passivity of the individual bank(er), was much further weakened by the growth of wholesale money markets, from the 1960s onwards. In so far as these markets were broad, deep and liquid, (and large relative to the size of the individual bank), each banker could plan the disposition and size of their asset portfolio independently of worrying about their retail deposit base! A shrinkage in that base could be offset by more wholesale borrowing. It was only when such wholesale markets became dysfunctional in 2008/9 that the prior verities of traditional deposit banking came back into focus. Before then wholesale money markets allowed bankers to plan their strategies for the objectives of expansion, profitability and risk avoidance largely independently of the fluctuations in their traditional deposit base, (n.b. the US investment banks, the initial centre of the crisis, had a zero traditional deposit base).

II(B)

Theory B, the money base multiplier theory, was developed in the inter-war period with the aim of explaining fluctuations in the *aggregate* money supply, by economists such as Keynes (1930) and C.A. Phillips (1920). As such, it abstracted entirely from the portfolio redistribution exercises going on in the background in individual banks. The basis for this theory was that the ultimate, top-level, high-powered source of payment settlement was under the complete monopoly control of the CB,

and hence *could* be varied so as to provide a dominant influence over the total of the second-level, broad money stock. If such base money, H , was fixed in total by the CB, all that remained for the private sector was to distribute that between bank reserves at the CB (the R/D ratio) and CB currency held by the public (the C/D ratio). Moreover, bank reserve deposits at the CB and currency had zero yields, so under normal circumstances banks could be expected to hold a stable minimum (R/D) ratio and the public to hold a relatively stable (C/D) ratio; so an injection of new H of $X\%$ could lead to a rise of M of approximately $X\%$ also, (a roughly stable money base multiplier).

An immediate problem for this theory was that in crisis, abnormal times, with bank solvency under threat, either the C/D ratio, as in the USA in 1931-33, or the R/D ratio, after 2008/9, could (and did) vary enormously. So the base money multiplier would be stable, *except* under those conditions when one most needed stability, when it would become highly unstable. But, according to Friedman and Schwartz (*ibid*), this need not be an insuperable problem since each CB could track the four variables involved on an almost continuous basis and hence vary H so as to offset any effects of unwanted changes of R/D and C/D on M .

A much more serious drawback of this theory was that, while CBs could, *in principle*, have managed the money and banking system in this way, in practice they did not do so. Instead they have chosen to set an official short-term interest rate. That interest rate is one of the key variables determining the monetary behaviour of banks, investors and savers, and hence the current rate of growth of the broad money stock. Given M , the R/D and C/D desired ratios then determine how much H the CB *has* to create to be consistent with its official short-term interest rate (i). The money base multiplier actually works in reverse.

Why did CBs choose to set i , rather than H ? Basically CBs are interested in variables of direct relevance to people, such as the exchange rate, the rate of inflation, the unemployment rate, etc., rather than in the size of the monetary aggregates, a statistical abstraction of no immediate public concern. Given the variability of velocity and of demand for money functions, e.g. as revealed in the 1980s, the ability of CBs to control the relevant ultimate target variables was greater via operating directly on i , than by setting M and then letting i be determined in money markets. Moreover fixing M would normally have led to great short-term volatility in i , in view of the relative short-term interest inelasticity of the demand for R and C , whereas setting i would not lead to such short-term

volatility in M .⁵ So the efficiency of the banking structure would be reduced under a monetary base control (mbc) system. This was a bone of contention in the UK in the early 1980s.

Some of those academics in closer touch with official money market operations, such as Richard Sayers, did realise that the authorities had to keep short-term money market rates, such as Treasury Bill rates, in line with Bank rate, and hence they sought in their writing to shift the fulcrum for the working of the base multiplier from H , the liabilities of the CB, to the wider base of liquid assets available to the banks, see later editions of *Modern Banking* (e.g. Fifth Edition, 1960) and the *Radcliffe Report* (1959). But this concept and definition of liquidity was less clear than that of base money, e.g. the commercial banks could create their own liquid assets, by lending via commercial bills, and this revision to the multiplier theory never really caught on.

One reason for the attraction of the money base multiplier theory was that, with bank reserve deposits at the CB bearing a zero interest rate, banks receiving additional reserves would normally be keen to use such funds expeditiously to invest in higher yielding investments. But, as Bernanke has written (2015, p. 325),

“in 2008, we needed the authority to solve an increasingly serious problem: the risk that our emergency lending, which had the side effect of increasing bank reserves, would lead short-term interest rates to fall below our federal funds target and thereby cause us to lose control of monetary policy. When banks have lots of reserves, they have less need to borrow from each other, which pushes down the interest rate on that borrowing – the federal funds rate.”

The rise in commercial bank reserves subsequently became so large, e.g. as a consequence of Quantitative Easing (QE), in all other developed countries as well as the USA, that short-term money market interest rates would get pushed down to whatever level was paid on such reserves. The interest rate payable on commercial bank deposits now has become the effective determinant of short-term money market rates. Moreover, it is a riskless rate, and holding such reserve deposits now involves no capital backing, (with the UK FPC removing such reserve deposits from leverage ratio requirements in August 2016, as they were already removed from Risk Weighted Asset (RWA) requirements). Consequently banks now find themselves in something of a liquidity trap, where

⁵ There is the counter-argument that if M (or its growth rate) is fixed in the longer term, then the economy remains stable, whereas if i remains fixed the economy becomes unstable. True, but no one advocated holding i fixed as inflation and the output gap varied.

holding additional reserve deposits at the CB is as good, or better, as a use of funds than expanding any other potential assets. The reserve base of commercial banks has sky-rocketed, and the base multiplier has ceased to work even in principle. Commercial banks are now in a position where future injections, or withdrawals up to a limit, of reserve balances will have no more than a minor, second-order effect on their strategic dispositions.

The money base multiplier almost never operated in practice; now it is defunct even in theory and in principle.

II(C) The Credit Counterparts Approach

Whereas academics seemed unconcerned about espousing a theory (the monetary base multiplier) so at odds with the facts, Central Banks knew at first hand that they generally aimed to set a short-term interest rate, and then manipulated open market operations so as to achieve conditions in markets consistent with that prior choice. If the CB set i rather than H , what then determined the supply of M ?

The answer that was then commonly given rested on another balance sheet identity, that bank assets equalled bank liabilities. Thus one could set out a (simplified) bank balance sheet as follows:-

Liabilities	Assets
Deposits	Bank Lending to Private Sector
Other Liabilities (e.g. equities)	Bank Lending to Public Sector
	Net External Assets

Furthermore bank lending to the public sector was definitionally equal to the Public Sector Borrowing Requirement less debt sales to non-banks. This had the merit, in the eyes of Central Bankers, of tying the determination of the money stock to three key policy concerns, fiscal policy (PSBR), funding policy (debt sales to non-banks), and credit control (bank lending to the private sector). Moreover, being based on banks' balance sheets, it was (relatively) comprehensive, and fitted nicely into a flow of funds framework, a framework which has regularly promised more analytical insights than has been delivered.

So, on this view the supply of money was the *residual* outcome of all other external forces operating on banks' balance sheets. But what if the demand for money was greater than this residual supply? Then the private sector could replenish its insufficient M holdings by borrowing more from banks, by buying less public sector debt or by selling foreign assets to government or to the banks.

But this approach had numerous drawbacks. It worked best if the M aggregate that was the focus of attention formed the bulk of bank liabilities. If narrow money, M1, excluding time deposits, etc., was the focus, then potentially large shifts between time and sight deposits, for example on account of changes in relative interest rates, would make a credit counterparts approach of doubtful use. More recently, the growing utilisation of wholesale money market funds, not included in broad money, to finance bank assets plus banks' ability to securitise, and to park assets in non-bank vehicles, has put the validity of this approach into serious question. If banks can, and do, adjust primarily now via such market mechanisms, wholesale funding and securitisation, what then determines M? is M now purely demand determined, with balance sheet adjustment obtained via these market mechanisms? Has the aggregate link between bank assets and *deposit* liabilities become so weak that the credit counterparts approach has reached its 'sell-by' date?

There are other problems as well. By looking, in effect, at all the elements of bank balance sheets, with bank deposit liabilities becoming the residual, the approach could be described as a comprehensive *description* of the main factors affecting that balance sheet, rather than a *theory*. Moreover, the focus in this approach is on the factors, external to the banks, influencing the context in which they have to operate. Prior to the implementation of Competition and Credit Control in 1971, this was largely justified, since the interest rate cartel severely restricted banks' ability and willingness to compete for business.

Since 1971, however, banks have had much more leeway to pursue their own time-varying objectives of profitability, expansion and risk avoidance, by a mixture of (market) mechanisms, such as interest rate competition, competition on lending terms, e.g. collateral requirements, wholesale funding, securitisation, etc., etc. Against this background, it is doubtful whether the credit

counterparts approach, (though it was on this view the best available approach in earlier decades), is now worthy of resuscitation.

II(D) The New Paradigm? Bank loans create deposits.

With commercial banks having, and using, the freedom, since 1971, to become more, or less, expansionary, this has now led to a new approach which puts commercial bank action in providing loans to the private sector at centre stage. As noted earlier, in many, but not all, cases a bank makes a loan, a term loan to a corporate, or a mortgage loan to a person, by simultaneously writing up both its asset book (loan to X) and its liabilities (deposit of X). That loans create deposits has been a (reasonably) well-known fact for a century, or more; this argument is, for example, to be found in Dennis Robertson's textbook on *Money*, first published in 1922.

This argument, that loans create deposits and, thus, that commercial banks themselves determine the supply of money, has the considerable advantage that it is partially true, unlike the monetary base/money multiplier story which got the whole process the wrong way around, the reverse of truth. So, initially, I quite welcomed this line of thought. But it is, at best, only partially true, as I shall recount shortly, and the policy implications that some adherents of this approach draw from it, for example that commercial banks' capacity to create loans and deposits needs to be further curtailed or removed, need to be treated sceptically. This is, perhaps, all the more important since this analytical approach appears to be receiving the imprimatur of the Bank of England.

Two recent examples are McLeay, Radia and Thomas (2014), and Jakab and Kumhof (2015).⁶ The summaries of these two papers are as follows:-

First, MacLeay, Radia and Thomas,

- "This article explains how the majority of money in the modern economy is created by commercial banks making loans.

⁶ Also see Ryan-Collins, et al. (2011), and Werner (2014 a and b).

- Money creation in practice differs from some popular misconceptions — banks do not act simply as intermediaries, lending out deposits that savers place with them, and nor do they ‘multiply up’ central bank money to create new loans and deposits.
- The amount of money created in the economy ultimately depends on the monetary policy of the central bank. In normal times, this is carried out by setting interest rates. The central bank can also affect the amount of money directly through purchasing assets or ‘quantitative easing’.”

Next, Jakab and Kumhof,

“Abstract

In the intermediation of loanable funds model of banking, banks accept deposits of pre-existing real resources from savers and then lend them to borrowers. In the real world, banks provide financing through money creation. That is they create deposits of new money through lending, and in doing so are mainly constrained by profitability and solvency considerations. This paper contrasts simple intermediation and financing models of banking. Compared to otherwise identical intermediation models, and following identical shocks, financing models predict changes in bank lending that are far larger, happen much faster, and have much greater effects on the real economy.”

There are, perhaps, three main reasons for being sceptical whether this new view really provides a significantly improved general theory of the determination of the money supply, because:-

- (a) It is only a partial approach, focussing on just one segment of banks’ portfolios;
- (b) It exaggerates the role of banks in initiating private sector credit expansion;
- (c) It does not show how the equilibrium portfolio position is to be achieved.

II(D)(a) Bank Finance of the Public Sector

A purchase by a commercial bank of public sector paper, a bond or a bill, creates money in *exactly* the same way as does a bank loan to the private sector. The bank buys the bond, say, and pays for it by crediting the seller with a cheque written upon itself. As noted earlier, the recipient of a loan is no more likely to keep the proceeds on deposit with the same bank than is the seller of the government bond to the bank.

But we tend not to think of bank lending to the public sector as being the initiating factor in creating money, in the same way as many do think of bank lending to the private sector as creating money. This is because banks are the passive residual providers of finance to the public sector. When the government runs a fiscal deficit, not covered by debt sales to the non-bank public, the excess spending is financed in the first instance by creation of monetary base, which mostly ends up in larger commercial bank deposits at the Central Bank. The commercial banks then, effectively, have the choice of how to distribute their portfolio of claims on the public sector between deposits at the Central Bank, Treasury Bills, short-dated bonds, etc. This latter portfolio choice will depend on relative expected rates of return, perceived (interest rate) risk, liquidity requirements, etc.

So whether a bank expanding its asset portfolio does so by writing up its own liabilities is *not* the key issue, which is, instead, which party to the transaction, the borrower or the lender, plays the key role in initiating the transaction. We turn to this next in considering the role of bank borrowers and lenders in initiating private sector credit expansion.

II(D)(b) Private Sector Lending: Who takes the initiative?

Let us start with the instance most favourable to the claim that bank loans create deposits, that is the occasion when a bank makes a term loan, or grants a mortgage, and does so by, indeed, writing up both sides of the balance sheet. What would happen if the bank client had not, beforehand and expressly, asked the bank to do so? Picture yourself as a bank client in a situation where, without your leave, the bank increases both a claim on you and a deposit liability to you. Since the interest on the bank loan is (almost always) significantly greater than the deposit interest, the bank would be benefiting at your expense. You would, rightly, be furious, and, if necessary, seek to take legal action against the bank.

The crucial point is that the bank does *not* initiate the bank loan; the borrower does. Banks are in a service industry, like restaurants and hotels. Banks set out the terms and conditions under which they will grant a loan, and then wait for private sector clients to approach them, rather as restaurants set out their menus and prices. You may respond that, even if a private sector potential borrower appears to meet all of a bank's stated conditions, a bank can still veto the proposed deal and send the prospective borrower away. But equally a restaurant can refuse to serve a client

because (s)he is improperly dressed, drunk, too noisy, with an animal, or for a range of other reasons.

Rather than claim that banks create credit, and then such loans create money, it would be much nearer the truth to say that the private sector creates credit and money for itself, and that the banking sector is the medium through which private sector clients do so, on the terms and conditions set out by the banks.

This latter becomes even clearer when we turn from term loans and mortgage to overdrafts and credit card lending.⁷ In this latter case the key initial decision is the *limit* of borrowing that the bank will honour. The borrower normally pays a small sum for the ability to borrow for a particular duration up to an agreed limit, and then the activation of that right is entirely in the hands of the borrower. The bank does *not* write up both sides of its balance sheet. The first time that the bank is aware of the transaction is when the payment order, by cheque, card or otherwise, comes in from the borrower. The bank then writes up the loan side of its book, while the counterpart is a debit to another bank, or to another customer of the same bank. The key initial decision is that of the private sector borrower to agree an (overdraft) facility with the bank, on the terms and conditions set by the bank. Thereafter the timing and usage of that facility are (almost) entirely in the hands of the borrower, not of the bank. Indeed the bank in most such cases would be legally committed to doing so.

In a world in which the cash flows of private sector agents can fluctuate sharply in an unpredictable manner, such overdraft facilities are extremely valuable, even when unused. In so far as the cash flow fluctuations are random, the banks can even them out overall through the law of large numbers. Thus overdraft and credit card lending represents a sizeable proportion of total private sector lending, exclusive of mortgage loans, see Appendix 1.

Thus, the timing and activation of much actual bank borrowing is done entirely at the initiative of the private sector borrower, not of the bank. Fluctuations in such borrowing are far from random.

⁷ As recognised in the Deutsche Bundesbank Monthly Report on 'The role of banks, non-banks and the central bank in the money creation process', (2017).

Thus, following the bankruptcy of Lehman Bros in September 2008, there was quite a large increase in bank lending to the private sector in the UK and Eurozone despite the sharp decline in activity, see Table 3. This was to some large, but unknowable, extent driven by borrowers' fears that banks might either become insolvent, (and therefore be unable to honour their overdraft commitment), or would seek as soon as possible to lessen the scale of their facility,⁸ or to withdraw it entirely. It, therefore, became temporarily worthwhile to protect access to liquidity by paying the adverse spread, while shifting the resulting deposit to a safer bank. So in this quarter (Q4, 2008) there was the remarkable coincidence of a (temporary) surge in bank lending and deposits exactly at the time when the banking system was trying to cut back on facilities and new lending agreements as fast as it could. From the viewpoint of overall liquidity and purchasing power, it was the latter effect (rather than the former) that mattered. The banks were tightening terms and conditions of lending drastically in Q4 2008, and underlying liquidity was falling sharply then, not rising.

Table 3
Bank Lending to the Private Sector

	UK £ bn	Eurozone € bn
2008 Q2	2246	8786
Q3	2318	8928
Q4	2395	8953
2009 Q1	2462	8965
Q2	2422	8934

Sources: BoE, ECB

More generally, turning points in the cycle are frequently related to unexpected declines in sales and increases in inventories at the start of the downturn, and the reverse at the start of the recovery. So there is likely to be an unexpected shortfall in cash flow in the former case, and vice versa in the latter case. Then the unexpected cash flows may be, quite largely, met by calling on used overdraft facilities. This helps to explain why the contemporaneous relationship between changes in GDP and in bank lending is often counter-cyclical, although the relationship between GDP growth and lagged bank credit is strongly positive, see Jakab and Kumhof, (2015, p. 36).

⁸ The author's personal overdraft limit was summarily reduced by his bank in November 2008 from £10 thousand to £2 thousand.

To summarise, in dealing with the private sector, the commercial banking sector acts as a service industry, setting out the terms and conditions on which it will provide its financial services, notably including loan and mortgage provision. Given these, its private sector clients then make most of the running, determining the timing and amount of bank credit provision. The key variables are the banks' choice of such terms and conditions and the private sector's appetite for borrowing (on such terms) from the banks. Seen in this light, the claim that bank credit is the genesis of money creation without any mention of the private sector's key role in the process amounts to a misrepresentation.

That said, the banks' influence on the rate of growth of both loans and deposits, via shifts in setting their terms and conditions, can still be large and significant. Although the *level* of short-term interest rates is set by the monetary authorities, the *spread* between deposit and lending rates is controlled by the commercial banks; and this spread is generally found to be a significant factor in determining the growth rate of both loans and deposits.⁹ Similarly, changes in banks' risk aversion can trigger sizeable fluctuations in the provision of lending limits, both overdraft and credit card, and in required terms for collateral and margin. But, partly because time series data on unused facilities and lending terms are scarce,¹⁰ the actual contribution of banks to the growth of loans and deposits has not been satisfactorily modelled, or even properly analysed.

II(D)(c) Reaching an Equilibrium?

What we argued in the previous sub-section was that, having set the terms and conditions on which they will lend to (private sector) clients, banks are largely passive in the face of (short term) fluctuations in private sector (client) demand for such loans. Assume that there is an unexpected surge in the demand for such loans; what can banks then do in response? There are a variety of possible responses:-

- (1) Expand liabilities to match, if necessary via wholesale funding.
- (2) Reduce other assets, e.g. via securitisation or sales.

⁹ N.B. If the spread goes to zero, it is rational for borrowers to both borrow and hold extra deposits until the marginal utility of extra liquidity goes to zero. If the spread rises indefinitely, borrowing will fall to zero.

¹⁰ US data on overdrafts and credit lines seem as scanty in the USA as in the UK. There is some limited data on consumer revolving credit, <http://www.federalreserve.gov/releases/g19/current/g19.pdf>, and on small business credit card use, https://www.frb services.org/communications/payment_system_research.html, but not much else.

(3) Tighten terms and conditions, and/or reduce overdraft limits.

Which course any bank will take will depend on their objectives and the constraints on their actions arising from capital requirements, the competitive milieu, etc. The monetary base multiplier assumed that the availability of cash was the key restraint; while this claim was always exaggerated, we have argued that, under present conditions, there is no effective liquidity constraint; rather a liquidity trap.

Option (3) is a medium horizon response, probably depending most on the pressures of competition, profitability and capital limits.

The choice between options (1) and (2) will depend on capital limits and the relative profitability of these alternatives.

The banking system is moving from a condition in which liquidity was, especially at times of crises, a key constraint to one in which capital requirements are, most often, the main external constraint. Moreover, how bankers respond, notably in setting terms and conditions for lending, depends on the state of competition and their business models, or, in other words, their micro-founded objectives. Yet such a model of banking, which is based on such micro-foundations, with capital requirements as the main external constraint, is currently conspicuous by its absence.

To conclude, at present we have no satisfactory model of the supply of money, or of the working of the banking system.

III. Flexibility versus Control

What I have sought to emphasise in the previous Sections is that banks provide a service, of access to liquidity, and that the initiative to make use of that service, on the terms and conditions set by the

CB and the banks jointly, comes from the borrowers, both public and private sector, not from the banks. On this view, it is nearer the truth to state that the private sector creates credit for itself, using the banks as an intermediary and vehicle for this purpose, rather than focussing on the banks as the driving force in this exercise.

This service, of providing access to liquidity, is extremely valuable. Stein (2013, pp 3/4) put this very well,

“One of the primary economic functions of banks and other financial intermediaries, such as broker-dealers, is to provide liquidity—that is, cash on demand—in various forms to their customers. Some of this liquidity provision happens on the liability side of the balance sheet, with bank demand deposits being a leading example. But, importantly, banks also provide liquidity via committed lines of credit. Indeed, it is probably not a coincidence that these two products—demand deposits and credit lines—are offered under the roof of the same institution; the underlying commonality is that both require an ability to accommodate unpredictable requests for cash on short notice. A number of other financial intermediary services, such as prime brokerage, also embody a significant element of liquidity provision.

Without question, these liquidity-provision services are socially valuable. On the liability side, demand deposits and other short-term bank liabilities are safe, easy-to-value claims that are well suited for transaction purposes and hence create a flow of money-like benefits for their holders. And loan commitments are more efficient than an arrangement in which each operating firm hedges its future uncertain needs by “pre-borrowing” and hoarding the proceeds on its own balance sheet; this latter approach does a poor job of economizing on the scarce aggregate supply of liquid assets.”

But, as Stein goes on to say (ibid, pp 4/5),

“At the same time, as the financial crisis made painfully clear, the business of liquidity provision inevitably exposes financial intermediaries to various forms of run risk. That is, in response to adverse events, their fragile funding structures, together with the binding liquidity commitments they have made, can result in rapid outflows that, absent central bank intervention, lead banks to fire-sell illiquid assets or, in a more severe case, to fail altogether. And fire sales and bank failures—and the accompanying contractions in credit availability—can have spillover effects to other financial institutions and to the economy as a whole. Thus, while banks will naturally hold buffer stocks of liquid assets to handle unanticipated outflows, they may not hold enough because, although they bear all the costs of this buffer stocking, they do not capture all of the social benefits, in terms of enhanced financial stability and lower costs to taxpayers in the event of failure. It is this externality that creates a role for policy.”

Actually the problems are even worse, since confidence and optimism in economic upturns will lead banks to offer easier terms and conditions, (and run down their liquidity buffers), just at the moment

when the private sector will want to borrow more. And both the monetary and fiscal authorities may well get infected by that same optimism, and the availability of higher tax receipts, and fail to provide a sufficient counter-balance. So, the system is inherently and inevitably procyclical. Such procyclicality can degenerate into a boom/bust crisis.

So, how do, and should, the monetary authorities find the correct balance between control, to stabilise the macro-economy, and flexibility, to allow banks to offer their clients access to liquid with most ease and efficiency? Those putting greater weight on 'Control' gravitate towards the Currency School (Laina, 2015); those putting more weight on flexibility to the Banking School (Goodhart and Jensen, 2015).

The pendulum between these desiderata naturally swings depending on the accidents of history. The worse the recent financial boom/bust experience, the greater the tendency to go for control, even at some expense in efficiency, growth and flexibility. The greater the prior experience of stability, and the greater the ingenuity of the bankers, the more is the banking system allowed to generate flexibility and (apparent) efficiency. This provides yet another facet to the Minsky dictum that 'stability breeds instability'.

Historically the Banking School thought that the answer to the question of finding the right balance lay in following the 'Real Bills' doctrine. Under this approach banks should distinguish between lending to finance trade and production, and discriminate against financing for speculative purposes. 'Real' in this sense meant trade related, as contrasted with speculative. This was desirable, according to its adherents, on macro-economic, monetary policy grounds, since a version of the Quantity Equation, $MV = PY$, indicated that if M rose in line with Y (Y – real output), then P , the price level would remain roughly constant. It was also desirable for financial stability purposes, since trade-related lending could, and would, be paid back from the receipts of the sales/output; in contrast speculative lending would only get repaid if the relevant prices did rise.

Thus the 'real bills' doctrine seemed both to unify, and to satisfy, both price and stability stabilisation objectives. Note, however, that housing and property finance was assumed to be outside the functions of a commercial banking system, as was the case until the second half of the

20th Century. In the latter half of the 19th Century, this 'real bills' doctrine, and the Banking School came to dominate. The Federal Reserve System, established in 1913, was consciously set up to follow this model.

The doctrine was, however, anathema to the Currency School. Trade and output, and hence 'real bills' fluctuate procyclically. So, following this approach both allows output to rise above equilibrium in a boom, and fall, sometimes way below it, in a depression. The collapse of trade and output in the USA in 1929-33 meant that the Fed had insufficient trade bills to rediscount. The Great Depression led to the demise of the 'real bills' doctrine and the re-emergence of Currency School proposals to control monetary expansion, and to stop runs, e.g. The Chicago Plan.

So, here we are again, in the aftermath of the Great Financial Crisis, wondering whether the structure of banking should shift somewhat back towards 'Control' and away from 'Flexibility'. The latest eminent author to try to find the optimal balance between these two objectives is Lord King, whose proposals are set out in Chapter 7 on 'Innocence Regained: Reforming Money and Banking' in his book *The End of Alchemy*, (2016).

The rest of this Section contains a commentary of his proposals, suggesting how I would prefer to tweak them in order to achieve my own preferred balance between flexibility and control. His basic principle (p. 271) is "to ensure that banks¹¹ will always have sufficient access to cash to meet the demands of depositors and others supplying short-term unsecured debt". For this purpose,

"Each bank would decide how much of its assets it would position in advance at the central bank – that is, how much of the relevant assets the central bank would be allowed to examine and which would then be available for use as collateral. For each type of asset the central bank would calculate the haircut it would apply when deciding how much cash it would lend against that asset. Adding up all assets that had been pre-positioned, it would then be clear how much central bank money the bank would be entitled to borrow at any instant. Because these arrangements would have been put in place well ahead of any crisis, there would be no difficulty in the central bank agreeing to lend at a moment's notice. The assessment of collateral, and the calculation of haircuts, have become routine since the crisis and would become a normal function of a central bank.... The amount which a bank

¹¹ This focus on banks does raise the question of how to handle 'shadow banks' who may issue liquid liabilities, which may have some monetary attributes despite not counting formally as deposits.

was entitled to borrow against pre-positioned collateral, added to its existing central bank reserves, is a measure of the 'effective liquid assets' of a bank.

The second step is to look at the liabilities side of a bank's balance sheet – its total demand deposits and short-term unsecured debt (up to, say, one year) – which could run at short notice. That total is a measure of the bank's 'effective liquid liabilities'. The regulatory requirement on banks and other financial intermediaries would be that their effective liquid assets should exceed their effective liquid liabilities. Almost all existing prudential capital and liquidity regulation, other than a limit on leverage, could be replaced by this one simple rule. The rule would act as a form of mandatory insurance so that in the event of a crisis a central bank would be free to lend on terms already agreed and without the necessity of a penalty rate on its loans. The penalty, or the price of the insurance, would be encapsulated by the haircuts required by the central bank on different forms of collateral.”

With his emphasis on maintaining an appropriate balance between the maturity and liquidity of assets and liabilities, King is, in several respects, much closer to the Banking School than to the Currency School.

The Banking School was even keener, than was the Currency School, on restricting bank assets to short-term and/or liquefiable assets. Thus Bagehot, a leading member of the Banking School, in the April 1861 edition of *The Economist*, in the article on 'How to read Joint Stock bank accounts', warned against judging a bank primarily on the adequacy of its capital and reserves. Rather, 'we should add together all the liabilities of the bank – its circulation, its drafts, and its deposits: see what the total is carefully; and then we should compare it with the amount of cash, loans to bill brokers, Government securities, and other immediately tangible and convertible assets which the bank has in hand. If the available money bears a good proportion to the possible claims, the bank is a good and secure bank'. On the question of 'the specific proportion between the cash reserve and the liabilities of the bank to the public', Bagehot refused to 'lay down any technical or theoretical rule upon it'. The cash ratio must be allowed 'to vary in some degree with the nature of the bank's business'.¹² For the Banking School financial and banking stability would be maintained by ensuring that bank assets were essentially self-liquefying by relating to current trade. Longer-term capital needs, e.g. for fixed investment, should come from capital markets; speculative finance to buy assets (financial or real) should be discouraged; and housing (property) finance mainly provided through non-bank, specialist intermediaries.

¹² Not for Bagehot rigid control of the banking system through operations on the cash base and a stable multiplier. But then, the Banking School was a family matter for him; he had married Eliza Wilson, daughter of James Wilson, an early member of the Banking School and founder of *The Economist* in 1843. See Arnon (2011, p. 245).

There are, perhaps, three qualifications to Lord King's proposals that I would make. The first is that access to liquidity by borrowers, drawing on their pre-committed overdraft limits, is as socially valuable as preserving the access of depositors to their money. If the return on assets that can be collateralised at the CB is significantly lower than on riskier loans, which cannot be so pre-positioned, then a complete ban on any excess of effective liabilities greater than effective assets, might prevent banks from offering overdraft facilities, credit cards, or any other form of lending where the timing and initiative for drawing on the facility was at the command of the borrower, since banks might normally then only keep a small buffer of excess effective liquid assets above effective liquid liabilities.

This could be handled, however, by switching from an outright ban to a time-varying penalty. Thus the first period, say a month, in which effective liquid liabilities exceeded effective liquid assets could have a minimal penalty, but the penalty could build up over time, the longer-held, and greater, was that excess, until after some length of time the penalty represented an outright ban. Care would have to be taken to avoid ingenious forms of window-dressing. The purpose of the exercise, however, would be to set the penalty structure so as to allow the continuation of the overdraft and credit card system on a day-to-day basis, while continuing to enforce the appropriate relationship between the maturity and liquidity of bank assets and liabilities. King does not go into any detail about the penalties that should be applied if effective liabilities should exceed effective assets. This is a lacuna that would need to be rectified if any such reform was to be put into place.

The second qualification is that King's categorisation of liabilities and assets, in Chapter 7, is very broad brush. He divides liabilities into deposits and short-term (less than one year) unsecured debt on the one hand, and longer term debt and equity on the other. As for assets, these are just divided into liquid securities and illiquid loans, see pp 272/73, in what is, admittedly, 'a simple example'.

The Basel Committee on Banking Supervision has, however, carried out a much more meticulous study of the Available Amount of Stable Funding (ASF) represented by *all* the various categories of liability, e.g. equity has a 100% ASF, see Table 1 in BCBS 'Basel III: the net stable funding ratio', (October 2014), and equivalently the Required Stable Funding Ratio (RSF) for assets, e.g. cash and

reserves has a zero weight, all assets that are encumbered for a period of one year or more has a 100% weight, see Table 2, (ibid). I would interpret King's position as proposing that calculating and enforcing the Net Stable Funding Ratio (NSFR) should be *the* central regulatory control. Yet King does not mention the application or implementation of the NSFR, (it is certainly not in the index). It would be interesting to learn how Lord King would describe the relationship between his own suggestions and the NSFR. Note that *neither* discuss the structure and form of penalties to be imposed if the proposed ratios (excessive effective liabilities or NSFR) become breached.

The third qualification is, on this view, the elephant in the room, that neither King nor the BCBS really tackle, which is the issue of the structure of housing finance. As Lord Turner has illustrated several times, banking has ceased to be primarily a vehicle for the (short-term) finance of industry, but has become mainly a vehicle for the finance of property, both residential and commercial. The finance of long-term mortgages by short-term funding is inherently dangerous. Unlike trade finance, residential mortgages, and some forms of commercial real estate loans, do not generate income in due course and are hence not self-financing. Until the 1980s most residential mortgages in the UK were provided by specialist institutions, the Building Societies. What is needed is a long careful look at the present structure of housing finance.

In his book, King remarks, p. 258, that those who set risk weights "did not imagine how risky mortgage lending... would become," but otherwise he does not mention mortgage lending on property in his Chapter on 'Reform Money and Banking'; meanwhile the BCBS still gives such residential mortgage lending a risk weighting advantage over other longer-term loans (65% vs 85 or 100%), (see Table 2, *op cit*). it is precisely because mortgage lending for house purchase, especially for first-time buyers, is the most politically favoured form of lending that it needs the most dispassionate and rigorous analysis. In all the hullabaloo about the transgressions of banks and bankers, the central role of inappropriate and unwise property finance has almost slipped by unnoticed.

Conclusions

Bank clients can get access to cash, to the ultimate form of liquidity, in two ways, either by drawing on their deposits or on their precommitted lines of credit, (overdrafts or credit (card) limits). It is the thesis of this paper that both mechanisms for making payments are, almost equally, socially valuable. Virtually no one denies that the need to ensure access for depositors to their money. My argument is that it is just as important to enable potential borrowers to arrange, and then utilise, their overdraft facilities. The danger of most narrow bank proposals is that they could preclude the latter role of banks.

In this latter role, banks play a major role in negotiating the terms and conditions on which overdraft (credit card) lines and limits are set. But once such negotiations are completed, banks are essentially passive. The timing, and amount, of such bank lending to the private sector is then initiated by the private sector itself, *not* by the banks. So, it would be nearer the truth to say that bank lending to the private sector is driven by the private sector's demand for money, on the terms and conditions set by banks, rather than bank lending creates deposits.

The part of banking business where the ethos and approach of narrow banking *would* be most valuable relates to property finance. If banks were forbidden from issuing long-term mortgages until they had arranged appropriate backing from long-term funding, banking would become much safer. Moreover, the process of house purchases is generally so long drawn-out that delays caused by the need for banks to arrange appropriate funding should not be too onerous, (in contrast, most credit card and business overdraft borrowers need to make immediate payments). Perhaps because of the political sensitivities involved, proponents of the narrow banking idea rarely apply that approach specifically to housing finance, where it would do most good.

In his book, Lord King seeks to find an optimal balance between 'Control' and 'Flexibility' by applying a, rather broad brush, stable funding ratio approach. I would broadly concur with the thrust of his arguments, subject to:-

- (i) Refining the categories, along the lines of the BCBS' NSFR.

- (ii) Setting the penalty structure in such a way as to safeguard the overdraft (credit card) systems.
- (iii) Constructing a safer, and perhaps separable, structure for property finance, possibly along narrow banking lines.

Appendix 1

Reliance on unused overdraft facilities in the UK differs markedly between sectors. The Bank of England publishes statistics on committed credit facilities and on credit (lending) outstanding. The difference between the two is a good proxy for unused (or undrawn) facilities. These statistics are broken down by UK industries and credit to individuals (the latter includes credit card facilities). The data are available on the Bank's website (Table C1.2 in Bankstats). The overall figure derived (total facilities outstanding less total lending outstanding) for the latest date, July 2015, comes to about £417 billion, or 18.2% of total loans outstanding. However, reliance on unused overdrafts differs greatly between sectors, as shown in Table X below. It is very low in lending to other financial intermediaries, (except for insurance companies and pension funds) and to individuals on mortgages, (below 5%). It is much higher for lending to manufacturing, (nearly 120%), utilities (138%), trade (74%), transport and information (101%), construction (42%) and other (non-mortgage related) loans to individuals (62%). In short, if one strips out the network of intra-financial loans and the (massive) mortgage business, then the usage of committed, but undrawn, overdraft facilities is a central feature of the working of the British banking system.

Table X
(from Bankstats C1.2)

July 2015
Lending in All Currencies

	Agriculture	Fishing	Mining & Quarrying	Manufacturing	Utilities	Construction	Wholesale & Retail	Accommodation
Amounts Outstanding	17,104	244	6,353	35,625	13,644	35,330	41,723	22,684
Amounts of Facilities Less Amounts Outstanding	6,535	66	26,411	42,261	18,839	14,975	30,825	5,953
2 as a % of 1	38.2%	27%	415%	118.6%	138%	42.5%	74%	26%

	Transport	Real Estate, Services & Support	Admin, Education, Health	Recreation	Financial Intermediation	Insurance Co. & Pension Funds	Auxiliary Financial
Amounts Outstanding	28,657	176,894	41,455	8,815	383,347	25,595	253,881
Amounts of Facilities Less Amounts Outstanding	28,867	51,557	8,833	3,891	37,524	9,125	4,433
2 as a % of 1	101%	29%	21.5%	44%	9.8%	35.5%	1.75%

	Total Financial & Non-Financial Businesses	Individuals Housing	Individuals Other Loans	Total Individuals Loans	Total UK Residents
Amounts Outstanding	1,091,352	1,083,111	120,139	1,203,250	2,294,602

Amounts of Facilities Less Amounts Outstanding	290,095	32,110	74,709	126,820	416,914
2 as a % of 1	26.6%	4.8%	62%	10.5%	18.16%

Unused overdraft facilities are as much immediate liquid purchasing power as bank deposits, as Keynes noted in his *Treatise on Money* (1930).¹³ In principle one should consider aggregating the two together, but previously one could not do so because the UK banks had been unwilling to provide the data, (until quite recently). When the government tried to control bank lending by quantitative ceilings, prior to the Competition and Credit Control reform of 1971, one claim that the banks made was that they could not control such lending because it was pre-committed via overdraft facilities. So, as documented in Goodhart (2015b), the Treasury then, e.g. in the late 1960s, sought to ask the banks for data on such facilities, but the banks refused, (correctly fearing that the authorities would seek a quantitative limit on such facilities); the authorities, the Treasury and the Bank, did not, however, press the case then, possibly on the grounds that any limit on formal, legal, borrowing facilities might be avoided by their transformation into informal agreements.

¹³ Ibid, pp 42-3,

“The reader must notice that it is not the amount of the customer's used overdraft appearing on the asset side of the bank's balance-sheet, but the amount of his *unused* overdraft, which does not (at present) appear anywhere at all in a bank's statement of its assets and liabilities, which corresponds to a cash-deposit; —so that it is the total of the cash-deposits and the unused overdraft facilities outstanding which together make up the total of *Cash Facilities*. Properly speaking, unused overdraft facilities—since they represent a liability of the bank—ought, in the same way as acceptances, to appear on both sides of the account. But at present this is not so, with the result that there exists in unused overdraft facilities a form of Bank-Money of growing importance, of which we have no statistical record whatever, whether as regards the absolute aggregate amount of it or as regards the fluctuations in this amount from time to time.

Thus the Cash Facilities, which are truly cash for the purposes of the Theory of the Value of Money, by no means correspond to the Bank Deposits which are published. The latter include an important proportion of something which is scarcely money at all (not much more than e.g. a Treasury Bill is), namely the savings-deposits; whilst, on the other hand, they take no account of something which is a Cash Facility, in the fullest sense of the term, namely unused overdraft facilities. So long as savings-deposits and unused overdraft facilities are both of them a nearly constant proportion of the total deposits, the figures of Bank Deposits as published are a sufficiently satisfactory index of the amount of Cash available. But if, as we shall see subsequently, these proportions are capable of wide fluctuations, then we may be seriously misled, as indeed many people have been misled, by treating Bank Deposits as identical with Cash.”

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