Table 15.1 Expansion of the money supply by the trading bank system

Bank	(1) Acquired reserves and deposits	(2) Required reserves	(3) Excess reserves, or (1) − (2)	(4) Amount which the bank can lend; new money created = (3)
Bank A	$100.00 (a_1)	$20.00	$80.00	$ 80.00 (a_2)
Bank B	80.00 (a_3, b_1)	16.00	64.00	64.00 (b_2)
Bank C	64.00 (b_3, c_1)	12.80	51.20	51.20 (c_2)
Bank D	51.20 (c_3, d_1)	10.24	40.96	40.96 (d_2)
Bank E	40.96	8.19	32.77	32.77
Bank F	32.77	6.55	26.22	26.22
Bank G	26.22	5.24	20.98	20.98
Bank H	20.98	4.20	16.78	16.78
Bank I	16.78	3.36	13.42	13.42
Bank J	13.42	2.68	10.74	10.74
Bank K	10.74	2.15	8.59	8.59
Bank L	8.59	1.72	6.87	6.87
Bank M	6.87	1.37	5.50	5.50
Bank N	5.50	1.10	4.40	4.40
Other banks	21.97	4.40	17.57	17.57
Total amount of money created				$400.00

will note that each single bank in the banking system is lending only an amount equal to its excess reserves. How do we explain these seemingly conflicting conclusions? Why is it that the *banking system* can lend by a multiple of its excess reserves, but *each individual bank* can only lend dollar for dollar with its excess reserves?

The answer lies in the fact that reserves lost by a single bank are not lost to the banking system as a whole. The reserves lost by bank A are acquired by bank B. Those lost by B are gained by C. C loses to D, D to E, E to F, and so forth. Hence, although reserves can be, and are, lost by *individual* banks in the banking system, there can be no loss of reserves for the banking *system* as a whole. Hence, we reach the curious conclusion that an individual bank can only safely lend an amount equal to its excess reserves, but the trading bank system can lend by a multiple of its excess reserves. This contrast, incidentally, is a fine illustration of why it is imperative that we keep the fallacy of composition firmly in mind. Trading banks *as a group* can create money by lending in a manner much different from that of the *individual banks* in that system.

The monetary multiplier

The rationale involved in this *current-deposit*, or *monetary*, *multiplier* is not unlike that underlying the income multiplier discussed in Chapter 12. The income multiplier was based on the fact that the expenditures of one household are received as income by another; the deposit multiplier rests on the fact that the reserves and deposits lost by one bank are received by another bank. And, just as the size of the income multiplier is determined by the reciprocal of the MPS (i.e. by the leakage into saving which occurs at each round of spending), so the deposit multiplier D is the reciprocal of the required reserve ratio R (i.e. of the leakage into required reserves which occurs at each step in the lending process). In short,

$$D = \frac{1}{R}$$

In this formula, D tells us the maximum number of new dollars of current deposits which can be created for a *single dollar* of excess reserves, given the value of R. We can easily adjust the formula to show the maximum amount of new deposits which can be created

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