The (i, j)th entry in the table is the debt owed by bank i to bank j. Then, the ith row of the matrix can be summed to give the total value of debt of bank i, while the ith column of the matrix can be summed to give the total assets of bank i. We can give the index $i + 1$ to the outside creditor sector (households, pension funds, mutual funds etc.), so that $x_{i,n+1}$ denotes bank i's liabilities to the outside claimholders. Deposits would be the prime example of a liability that a bank has directly to outside creditors.

	bank 1	bank 2	$\cdots$	bank n	outside	debt
bank 1	0	x_{12}	$\cdots$	x_{1n}	$x_{1,n+1}$	x_1
bank 2	x_{21}	0		x_{2n}	$x_{2,n+1}$	x_2
$\vdots$	$\vdots$	$\vdots$	$\ddots$	$\vdots$	$\vdots$	
bank n	x_{n1}	x_{n2}	$\cdots$	0	$x_{n,n+1}$	x_n
end-user loans	y_1	y_2	$\cdots$	y_n		
total assets	a_1	a_2		a_n		

From balance sheet identity (2), we can express the vector of debt values across the banks as follows, where Π is the $n \times n$ matrix where the (i, j)th entry is π_{ij}.

$$[x_1, \cdots, x_n] = [x_1, \cdots, x_n] \begin{bmatrix} & & \\ & \Pi & \\ & & \end{bmatrix} + [y_1, \cdots, y_n] - [e_1, \cdots, e_n] \tag{3}$$

or more succinctly as

$$x = x\Pi + y - e \tag{4}$$

Solving for y,

$$y = e + x(I - \Pi)$$

Define the leverage of bank i as the ratio of the total value of assets to the value of its equity. Denote leverage by λ_i. That is,

$$\lambda_i \equiv \frac{a_i}{e_i} \tag{5}$$

Since $x_i/e_i = \lambda_i - 1$, we have $x = e(\Lambda - I)$, where Λ is the diagonal matrix whose ith diagonal entry is λ_i. Thus

$$y = e + e(\Lambda - I)(I - \Pi) \tag{6}$$

Thus, the profile of total lending by the n banks to the end-user borrowers depends on the interaction of three features of the financial system - the distribution of equity e in the banking