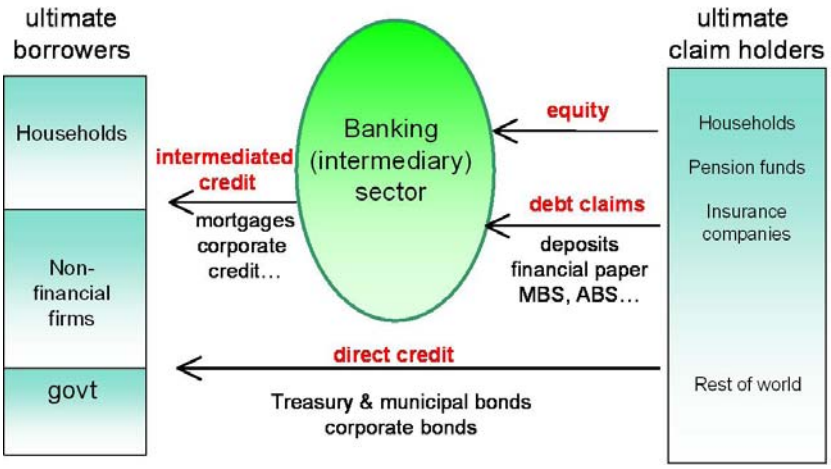
Figure 5

Stylized financial system for credit



The accounting framework presented here is based on the picture of credit flow given in Figure 5, and is drawn from Shin (2009). There are n financial intermediaries standing between the ultimate borrowers and the ultimate creditors. For convenience, we denote these intermediaries simply as "banks".

Denote by y_i the claim held by bank i on the ultimate borrowers, such as household mortgages or consumer loans. For our purposes in this paper, it does not matter much whether y_i is in face values or market values, since the purpose of this paper is to outline the underlying accounting relationships within the financial system. However, in what follows, it is useful to interpret all quantities as being in market values, since the comparative statics take on additional richness due to valuation effects.[2]

As well as claims on the ultimate borrowers, the banks hold claims on each other. Denote by x_i the total value of the liabilities (other than its equity) of bank i, by x_{ij} the value of bank i's liabilities held by bank j and by π_{ij} the share of bank i's liabilities that are held by bank j. Denoting by e_i the value of equity of bank i, the balance sheet of bank i is

Assets	Liabilities
y_i	e_i
$\sum_{j=1}^{n} x_j \pi_{ji}$	x_i

(1)

The balance sheet identity of bank i is:

$$y_i + \sum_j x_j \pi_{ji} = e_i + x_i \tag{2}$$

The left hand side is the value of assets and the right hand side is the sum of debt (x_i) and equity (e_i). The matrix of claims and obligations between banks can then be depicted as below.

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2 See Shin (2009) for more details on the relationship between book values and market values in an interconnected balance sheet network.