

Direct versus intermediated finance: An old question and a new answer

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Abstract

We consider a closed economy where a risk neutral bank competes with a competitive bond market. Firms can finance a risky project either by a bank credit or by issuing a bond which is directly sold to risk averse investors who also hold safe deposits at the bank. We show that the bank tends to allocate more capital to lower quality projects but there are some interesting qualifications. If the asymmetric information concerns only the success probability, then we observe adverse selection while if it concerns only the expected return, bad types are driven out of the market.

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1. Introduction

Corporations have to rely on external financing whenever internal cash flows are too small to finance new projects. The largest fraction of external financing by U.S. nonfinancial corporations comes from debt, while net equity issues are mostly negative.¹ The starting point of our paper is a striking observation concerning the corporate debt structure in the presence of private (bank) and public debt markets (bonds). There is

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¹See the *Flow of Funds Account* of the Federal Reserve System, March 9, 2006, Table F.102.

significant empirical evidence of the fact that bad risks are predominantly financed by banks while good risks obtain most of their funds from public debt markets. An early study by James (1987) shows that firms announcing new bank loans and privately placed debt have a higher default risk and are on average smaller than those announcing publicly placed straight debt offerings. In an analysis of corporate financing in Japan, Hoshi et al. (1993) find that high net worth firms are more likely to use public than bank debt. Johnson (1997) presents evidence of the fact that the proportion of bank debt is negatively related to firm size and age and positively related to leverage and to earnings growth volatility. All these characteristics can serve as proxies for credit risk: Small and young firms as well as highly leveraged firms or firms with high earnings growth volatility can generally be considered more risky than firms with the opposite characteristics. Similar results for more general private debt are reported in Krishnaswami et al. (1999). Finally, the tremendous growth of the market for credit derivatives in the last decade can also be viewed as evidence for the risk accumulation by banks.²

The theoretical literature that provides explanations for the observed debt structure of firms is large and too extensive to be reviewed in detail. Hence, we only give a brief overview over the proposed explanations and contrast them with the contribution of this paper. The literature mainly focusses on three aspects that can explain the choice between bank loans and public debt, namely information costs, monitoring and renegotiation. The information cost aspect was stressed by Fama (1985) who pointed out that the issue of public debt requires the provision of information for a large group of potential debt holders (via bond ratings or audits) while there is only one contracting party in case of a bank loan. Fama (1985) concluded that the information cost for public debt financing is higher for smaller than for larger firms, so that small firms prefer bank loans while large firms prefer public debt. This prediction is consistent with the empirical evidence in James (1987) and Johnson (1997). In the sequel several authors have pointed out that a bank loan involves close monitoring of the financed project which is not the case for publicly traded debt. Several papers take this monitoring activity to be the defining characteristic of a bank. Since monitoring is costly bank loans are more expensive than public debt and hence only those firms rely on bank credit which require monitoring. These can be firms that have not built up a reputation of repaying their debt as in Diamond (1991) or firms that are highly leveraged so that the market does not expect them to behave diligently if they are not monitored as in Holmstrom and Tirole (1997). These predictions are consistent with the empirical observation that firms announcing new bank loans have a higher default risk (James, 1987) and have a higher leverage (Johnson, 1997) than firms announcing the issue of public debt. Finally, it is much easier to renegotiate a bank loan than publicly traded debt since the holders of public debt are typically widely dispersed while a bank loan only involves one contracting partner. Debt renegotiation can prevent inefficient liquidation and hence firms with a high probability of financial distress prefer bank loans over bonds (see Chemmanur and Fulghieri, 1994; Bolton and Freixas, 2000). This prediction is consistent with the observation that bank debt is increasing in the earnings growth volatility (see Johnson, 1997). Also, as Rajan (1992) argues, debt renegotiation is costly since banks gain bargaining power over the firm's profits once projects have begun.

²Banks and other financial institutions are the main participants in the credit derivatives market, which according to the Credit Derivatives Report 2003/2004 of the British Bankers' Association grew from \$180 billion in 1997 to about \$5,000 billion in 2004 and is expected to exceed \$8,000 billion in 2006.

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