

Financial Development, Financing Choice and Economic Growth

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Abstract

In an overlapping generations economy households (lenders) fund risky investment projects of firms (borrowers) by drawing up loan contracts on the basis of asymmetric information. An optimal contract entails either the issue of only debt or the issue of both debt and equity according to whether a household faces a single or a double moral hazard problem as a result of its own decision about whether or not to undertake costly information acquisition. The equilibrium choice of contract depends on the state of the economy which, in turn, depends on the contracting regime. Based on this analysis, the paper provides a theory of the joint determination of real and financial development with the ability to explain both the endogenous emergence of stock markets and the complementarity between debt finance and equity finance.

Extended Abstract

It has been widely recognised for some time that financial development is a multi-faceted process that takes place through various distinct stages – from the emergence and expansion of debt-oriented finance to the materialisation of stock markets and the increasing use of equity as an additional instrument by which firms are able to raise funds (e.g., Goldsmith 1969; Gurley and Shaw 1955, 1960). Modelling this process has so far eluded the attention of most researchers and there remains little by way of a complete account of events that lead an economy to undergo transition from a financial system based wholly or predominantly on the issue of debt to one involving a much greater (though not exclusive) reliance on the issue of equity.

The only exceptions to the above that we know of are the contributions by Boyd and Smith (1996, 1998). These authors develop a dynamic general equilibrium model in which producers of capital choose between two different types of technology that are financed in two different ways. The first type of technology is one that yields a relatively low expected return, is publicly observable and is financed by means of equity at no expense. The second type of technology is one that yields a relatively high expected return, is not directly observable by lenders and is financed by means of debt subject to a standard costly state verification problem (e.g., Diamond 1984; Townsend 1979). Assuming plausible parameter values, it is shown that there is a critical level of per capita income below which only a debt market exists. As capital accumulation takes place, however, the cost of state verification increases due to a fall in the relative price of capital. Eventually (i.e., once the threshold level of income is reached), a stock market emerges as firms begin to make more use of the observable technology and less use of the unobservable technology, implying an increase in the amount of equity finance relative to debt finance.

The present paper shares the same basic objective as that of Boyd and Smith (1996, 1998) namely, to model the co-evolution of the real and financial sectors of an economy in a way that enables one to explain why the emergence of stock markets occurs relatively late in this process and why debt markets continue to remain active thereafter. Our approach to this is based on an analysis that is quite different, however, from the analysis presented by those authors. We imagine an economy in which households (lenders) fund risky investment projects of firms (borrowers) by drawing up loan contracts involving some optimally-determined combination of debt and equity. Capital market imperfections arise due to asymmetric information: each household is unable to observe (and therefore control) directly both the type of project selected by a firm and the level of effort that a firm devotes to running its project. The first of these difficulties can be resolved if a household is prepared to spend a fixed amount of resources on choosing a project, itself, and enforcing this choice on a firm, in which case the household is confronted by a single moral hazard problem in terms of the firm's input of effort. If, on the other hand, a household is not willing to undertake such action, then it is faced with a double moral hazard problem over a firm's selection of both its effort and project. We show that the optimal contract that solves the single moral hazard problem is a pure debt contract, whereas the optimal contract that solves the double moral hazard problem is a mixed debt-equity contract. Significantly, the actual (preferred) choice of contract both

influences and is influenced by the state of the economy such that only debt financing takes place at relatively low levels of development along a relatively low capital accumulation path, while both debt and equity financing occur at relatively high levels of development along a relatively high capital accumulation path. Accordingly, the economy displays multiple development regimes associated with different growth trajectories and different financial systems. Transition between these regimes is characterised by the endogenous emergence of a stock market which has a positive feedback effect on growth. Transition is not inevitable, however, and there exists the possibility of multiple long-run outcomes which depend fundamentally on initial conditions.

The implication of our model that both debt and equity markets are active at same time during the later stages of development may appear to be somewhat at odds with the popular belief that debt and equity represent substitute sources of corporate finance. Yet there is strong evidence to suggest that this belief is misguided and that debt and equity act more as complements to each other (e.g., Demirgüç-Kunt and Levine 1996a,b; Demirgüç-Kunt and Maksimovic 1996). In Boyd and Smith (1996, 1998) this complementarity arises because of an increase in the cost of pure debt financing to such an extent that it eventually becomes infeasible for firms to continue issuing debt without also issuing equity. In our analysis complementarity is realised as a natural outcome of lenders' optimal decisions in the face of multiple moral hazard problems. A positive growth effect from the emergence of a stock market in response to these problems is explained by the cost savings to lenders from leaving project investment decisions entirely up to borrowers. This accords with the view that one of the major impediments to real economic development is the loss of resources associated with informational frictions in financial markets (e.g., McKinnon 1973; Shaw 1973).