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Imperfect capital markets, income distribution and the choice of external finance: A financial equilibrium approach☆

Spiros Bougheas *

School of Economics, University of Nottingham, Nottingham, NG7 2RD, United Kingdom

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Abstract

We develop and analyze a simple financial equilibrium model with capital market imperfections. We allow agents to choose on which side of the market they participate. We also allow for the co-existence of bank loans and direct finance. Our findings suggest that financial development depends on both the initial level of aggregate wealth and its distribution among the agents in the economy. We also identify a number of new issues that can potentially be addressed by following our financial equilibrium approach.

JEL classification: G20; E44

Keywords: Income distribution; Imperfect capital markets; Financial development

1. Introduction

The strong development of direct finance (stock and bond markets) has provided an alternative source of funds for a large number of borrowers, especially large firms, which previously relied on bank loans for their financial needs. In practice, bank loans are more expensive than direct finance and as a result only those borrowers without access to capital markets apply for bank loans. This co-existence of alternative sources of finance has recently been the subject of a fast

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* Tel.: +44 115 8466108.
E-mail address: spiros.bougheas@nottingham.ac.uk.

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growing literature that aims to theoretically explain the reasons behind the proliferation of financial sources.[1]

Most of the literature has followed a partial equilibrium approach by focusing on the demand side of financial markets. In the majority of the models, the economy comprises of a fixed number of firms that each needs funds to finance a fixed size project. Firms are distinguished by their level of net worth that determines, if any, their source of finance. Funds are supplied either by financial intermediaries or the capital market (bonds and/or equity). Total credit in these models is completely determined on the demand side of the market. An interesting exception is the paper by Bolton and Freixas (2000) where the supply of funds is endogenous and it is simply specified as a function of the interest rate. In contrast to the rest of the literature, in that model the equilibrium interest rate is endogenously determined.

More general formulations have been considered in financial market imperfections models where firms have access to a single source of finance.[2] In these models, agents are divided into two types, namely borrowers (entrepreneurs) and lenders. Both the supply and the demand for funds are endogenous and their interaction determines the equilibrium interest rate.

In this paper, we explore a further generalization of the financial equilibrium approach. Our starting point is the observation that changes in market conditions do not only affect the financial options of borrowers and the investment opportunities of lenders but also influence agents' participation decisions. Put differently, an agent's decision of whether to participate on the supply or on the demand side of the market is itself endogenous. Thus, our main contribution is to introduce both endogenous participation and more than one source of funds in a unified framework where financial markets are imperfect. Asymmetries in the distribution of information among heterogeneous agents might impose restrictions on a sub-group of these agents not only on their choice of external finance but also on its overall availability. In order to investigate these issues we are going to consider a model where the only heterogeneity between agents is their initial level of wealth. Potentially, all agents can become entrepreneurs. We are going to demonstrate that when capital markets are imperfect, poor agents are unable to finance their projects and become lenders, agents with low-medium wealth levels borrow from banks, agents with medium-high wealth levels have access to the capital market and wealthy agents self-finance their projects. We also show that the exact taxonomy depends on both the aggregate level of wealth in the economy and its distribution. Then, we use our framework to analyze issues related to the interplay economic development and financial development. More specifically, we investigate how changes in income inequality affect both financial development and average welfare.

Capital market imperfections arise in our model because it is costly for lenders to observe the realized returns of other agents' projects. This 'costly state verification' environment was originally studied by Townsend (1979). In our model, relatively wealthy agents can self-finance a sufficiently high fraction of their projects and as a result lenders do not need to verify their

[1] The choice most frequently examined is that between bank loans and direct debt (Berlin & Mester, 1992; Besanko & Kanatas, 1993; Boot & Thakor, 1997; Chemmanur & Fulghieri, 1997; Diamond, 1991, 1997; Hart & Moore, 1995; Holmstrom & Tirole, 1997; Hoshi, Kashyap, & Scharfstein, 1993; Park, 2000; Repullo & Suarez, 2000). The choice between bank loans and equity finance has been studied by Bhattacharya and Chiesa (1995) and Yosha (1995). Finally, the co-existence of bank loans, equity finance and public debt is addressed by Bolton and Freixas (2000).

[2] The financial market imperfections literature that employs this type of model is very expansive and includes theories of financial intermediation (e.g. Diamond, 1984; Williamson, 1986), theories of economic fluctuations (e.g. Bernanke & Gertler, 1989, 1990; Greenwald & Stiglitz, 1993; Kiyotaki & Moore, 1997; Williamson, 1987b) and theories of economic development (e.g. Bencivenga & Smith, 1991; Boyd & Smith, 1998; Greenwood & Smith, 1997; Guzman, 2000; King & Levine, 1993b).