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J. Finan. Intermediation

journal homepage: www.elsevier.com/locate/jfi



Financing and corporate growth under repeated moral hazard[☆]

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ARTICLE INFO

Article history:

Received 9 November 2007

Available online 6 December 2009

JEL classification:

G32

D92

O16

Keywords:

Financing

Leverage

Control rights

Growth

Moral hazard

Hold-up

Dynamic capital structure

Internal and external equity

ABSTRACT

We develop an incomplete contracts model to study the extent to which control rights of different financings affect corporate growth. The model admits a standard hold-up problem under equity financing; insiders may be disincentivized to do R&D because outside investors can use their control rights to expropriate large parts of the returns by hiring more efficient managers in the future. Debt financing may give rise to a double moral hazard problem; both managers and shareholders may divert corporate resources to themselves before debt is serviced. However, in many cases, these phenomena do not occur in equilibrium and control rights are irrelevant. Cross-sectional predictions are derived from those cases where control rights matter. Consistent with the empirical evidence, leverage is inversely related to growth and to profitability.

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[☆] We have benefitted from the comments of seminar participants at CREST, ECARES, HEC Lausanne, HEC Jouy en Josas, INSEAD, London School of Economics, Norwegian School of Economics and Business Administration (NHH), Said Business School (Oxford), Stockholm School of Economics, the Universities of Amsterdam, Vienna, and Zürich, VUA, CEPR/TMR Meeting in Barcelona, the Workshop in Growth and Incentive Design at IRES, CEPR/CeRP/ESF/FEEM/Fondazione Courmayeur-CNPDS Conference at Courmayeur, the 2005 Joint Alberta/Calgary Finance Conference, the WFA in Portland OR, 2005, and the 2007 Skinance conference in Lech, Austria, as well as from Sudipto Bhattacharya, Mark Garmaise, Denis Gromb, Boyan Jovanovic, Matthias Kahl, Christian Laux, Antoine Renucci, Neal Stoughton, Masako Ueda, Ernst-Ludwig von Thadden (the editor), David Webb, and two anonymous referees. We also thank Rajiv Guha for research assistance. We are grateful for financial support from the European Union's Training and Mobility of Researchers Network, Contract No. FRMX-CT960054 and Belgian French Community Action de Recherche Concertée, 99/04-235. We also thank NCCR-FINRISK for financial support.

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1. Introduction

There is evidence that financial contracting affects growth. For example, studies by Goldsmith (1969) and Rajan and Zingales (1998) provide evidence that financial development stimulates economy-wide growth.¹ At the corporate level, Lang et al. (1996) find that firms with high growth rates have less leverage than slower growing firms. Possible explanations include the ideas that debt reduces over-investment by reducing the agency costs of free cash flows (Jensen, 1986) and that debt inhibits investments due to the debt overhang problem (Myers, 1977).

In this paper, we study an alternative link between financing and corporate growth. We develop the idea that financial contracts may affect corporate growth through the way they allocate control rights *over time* i.e., between agents who make strategic decisions at one phase in the life of the corporation and those agents who will be in control at a later stage of life of the firm. The agency problem between outside investors and insiders will evolve as growth opportunities appear and disappear and as senior management changes are made. Alternative financial structures may have very different implications for investment decisions confronted by the firm at different points of its history.²

Probably the simplest and most wide-spread example of how the allocation of control rights over time arises is the case of the classic start-up firm that begins life with an initial growth opportunity developed by an entrepreneur but which in time gives rise to an opportunity for further growth that would require bringing new techniques *and new managerial expertise* into the firm. It is precisely this case that we analyze in the two-stage growth model we explore in detail in this paper. However, the same sorts of problems will arise repeatedly for mature firms where changing technology and market environment will create growth opportunities that may make the interests of incumbents and investors diverge.

Our model traces a firm from an R&D phase through a capital investment phase and on to a production stage where cash flows are generated. A key feature is that at some point the firm will be confronted by a growth opportunity which would require the replacement of the original insider by new management if the expanded firm is to be operated efficiently. The model thus incorporates two key stages of growth: the initial R&D stage and the entrepreneurial replacement stage. One can view the incumbent manager literally as an entrepreneur whose expertise lies in developing ideas. Alternatively, the ‘entrepreneur’ may represent a manager whose skills may be outdated and is unable to take the firm to a higher technological level.

To focus on control rights, the model is cast in an incomplete contracts framework along the lines of Bolton and Scharfstein (1990, 1996) and Hart and Moore (1998) where cash flows are non-contractible.³ Thus, the model incorporates agency costs along the lines of Jensen and Meckling (1976) and Jensen (1986); whoever runs the firm has the ability to divert cash flows to themselves. An important implication is that if the entrepreneur is replaced, he suffers a loss of private benefits and therefore a potential reduction in the return to his R&D efforts.

In a non-contractible cash flows framework, Fluck (1998) has already established an important property of outside equity contracts which give insiders effective control over short-term decisions in the firm. She shows that outside equity financing is only feasible in an infinite (or uncertain) horizon model in the sense that in a finite horizon model the only subgame perfect equilibrium involves insiders stealing all available cash flows every period. In an infinite horizon setting there is a tradeoff for managers between short-term gains from retaining current cash flows on the one hand and the long-term benefits from continued employment, on the other (see also Myers, 2000). Thus in an infinite horizon model the equilibrium serves to mitigate the adverse effects for outside investors of ceding control to insiders in an equity contract.

¹ See Levine (2005) for an overview.

² Empirical evidence that the distribution of control rights is an important consideration behind the choice of financing in some cases is provided by Kaplan and Stromberg (2003).

³ Zender (1991) develops a model with a mixture of contractible and non-contractible cash flows.

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