Corporate Sustainable Growth and the Financing of Innovation: Evidence from Cash-Flow Disaggregation

Amani Kahloul, Institut Supérieur de Gestion de Sousse & Faculté des Sciences Economiques et de Gestion de Tunis, Tunis, Tunisia
Ezzeddine Zouari, Faculté des sciences économiques et de gestion de Sousse, Tunis, Tunisia

ABSTRACT

R&D investments are a channel for growth, at the macro and micro levels. However, they are known to be characterized with high adjustment costs, therefore, it is generally admitted in the literature that firms try to smooth their R&D investments in face of shocks to internal finance, and the literature supposes that the observed investment—current cash-flow sensitivities are downward biased because R&D expenses are expected to respond to the permanent component of cash-flow but not to its transitory component. However, very few proofs, if at all, exist on the link between R&D and cash-flow components and its implications in terms of its contribution to the corporate sustainable growth. The authors decompose cash-flow into its permanent and transitory components and provide formal evidence that R&D- current cash-flow sensitivity is downward biased and that R&D- permanent cash-flow sensitivity better informs about the contribution of cash-flow to R&D smoothing, which shows a managerial commitment to sustainability. Unexpectedly, and in spite of the negligible observed sensitivities of R&D to the transitory component of cash-flow, the authors’ regressions reveal that these sensitivities have an asymmetric pattern: they are higher when cash-flow is expanding than when it is declining. This reveals a managerial preference for immediate growth, which jeopardizes sustainable growth, because of the risk of costly liquidation inherent to the reliance on the volatile transitory cash-flows.

Keywords: Corporate Sustainable Growth, Investment-Cash-Flow Sensitivity, Permanent and Transitory Components, Physical Investment, R&D

1. INTRODUCTION

The transformation of the firm from a “mere economic-entity” to an entity that is obliged to take into account new aspects such as: the social and environmental aspects as well as the economic aspect, forces firms to rethink their development strategies, not only in a rationale of maximization of firm’s profit or wealth, but rather to think in terms of sustainable growth, which we define based on the Brundtland Commission as development that meets the needs of the present without compromising the future. And this is all the more true for technological firms and their R&D investments, which are recognized as an important driver of growth,
at the macro level as well as the firm-level (Brown, Fazzari & Petersen; 2009 provide a useful link between finance and growth through innovation efforts).

For the R&D investments to help sparking and keeping corporate sustainable growth, they must be driven by sustainable management practices, namely “reasonable” finance channels. Huang and Liu (2009) argue that “the financial idea of the sustainable growth means the actual growth of the enterprise must be harmonized with its resources”.

R&D investments have special characteristics. In fact, they are known to be characterized with great information asymmetry on financial markets. This information asymmetry comes from the risky nature of the R&D activity itself and of the innovation-based capital investments, which prevent outside investors from making accurate appraisals of the investments value. These information asymmetries are also often deliberately maintained by firms, for strategic considerations. In fact, R&D activities are highly competitive and information leakage to competitors may have heavy consequences on the firm. Therefore, innovative firms face severe adverse selection problems on the equity and debt markets, which make external financing costly, if available at all. These problems are further compounded on the debt market by the poor collateral value of R&D and R&D-related projects and by the bankruptcy risk. All those aspects make R&D-intensive firms very dependent on internal finance or to be more precise on permanent internal finance. In fact, Himmelberg and Petersen (1994) argue that R&D expenses are predominantly payments to highly-trained engineers and qualified scientists and specialists, who embody the knowledge capital of the firm. Hiring and firing them is very costly, that’s why R&D are considered as having high adjustment costs; consequently they only respond to permanent cash-flows, not to transitory shocks to cash-flows.

The issue of R&D financing has always been studied in the framework of the investment-cash-flow sensitivity literature, which is one of the largest and oldest bodies of corporate finance. In the previous twenty years, it has driven a flow of studies on R&D investments that helped us understand several aspects of R&D financing features. However some other characteristics of the R&D financing pattern remain ambiguous. In fact, while most R&D researchers agree that R&D response is downward biased and that R&D react to permanent cash-flows but not to transitory shocks in cash-flows, these assertions, have never been proved empirically (except the pioneer work by Himmelberg and Petersen (1994)) and very little is known about the way permanent cash-flow influences R&D and therefore corporate sustainable growth or the real amplitude of the R&D investments’ response to permanent and transitory components of cash-flows. Our contribution is to fill in this gap and accordingly, we address the following research questions: 1) To what extent are the R&D-current cash-flow sensitivities downward biased? 2) What are the characteristics of the R&D sensitivity to the permanent and transitory components of cash-flow? 3) To what extent do managers follow sustainable management practices in order to achieve corporate sustainable growth?

We test the R&D - permanent cash-flow sensitivity within the q model framework. We decompose cash-flow following a decomposition technique from Dechow et al. (1998) and Roychowdhury (2006). We produce 2 decomposition methods: one with panel-fixed effects estimation and the other with GLS. We discuss the results of both decomposition methods and demonstrate the superiority of the decomposition based on the panel fixed-effects estimation. Then we estimate the sensitivity of R&D to the permanent and transitory components within the q model on a sample of R&D-intensive surviving and non surviving American publicly-traded firms on the 1989-2007 period.

While our major interest is on R&D, we also consider capital investment, first, for a comparison purpose, and second, as have been mentioned by Himmelberg and Petersen (1994), “it is inappropriate to see the firm as having separate sources of finance for each investment”. So we consider that studying
Related Content

Entrepreneurial Thinking in the Educational System
www.igi-global.com/chapter/entrepreneurial-thinking-in-the-educational-system/192216?camid=4v1a

Triple Helix, Quadruple Helix and Quintuple Helix and How Do Knowledge, Innovation and the Environment Relate To Each Other? : A Proposed Framework for a Trans-disciplinary Analysis of Sustainable Development and Social Ecology
www.igi-global.com/article/triple-helix-quadruple-helix-quintuple/41959?camid=4v1a
Sustainable Infrastructure Assets: Capability for Infrastructure Capacity Management
[www.igi-global.com/chapter/sustainable-infrastructure-assets/43798?camid=4v1a](www.igi-global.com/chapter/sustainable-infrastructure-assets/43798?camid=4v1a)

Could Bunker Fuel Price Changes Impact Coal Spot Rates and Shipping's Carbon Emissions?
Nasima T. Chowdhury and John Dinwoodie (2016). *Sustainable Logistics and Strategic Transportation Planning* (pp. 148-164).