

# R&D Investment and Financial Frictions

Working Paper No. 828 Keep in mind

The series Working Papers on Economics is published by the Office for Economic Studies at the *Banco de la República* (Central Bank of *Colombia*). It contributes to the dissemination and promotion of the work by researchers from the institution. This series is indexed at Research Papers in Economics (RePEc).

On multiple occasions, these works have been the result of collaborative work with individuals from other national or international institutions. The works published are provisional, and their authors are fully responsible for the opinions expressed in them, as well as for possible mistakes. The opinions expressed herein are those of the authors and do not necessarily reflect the views of Banco de la República or its Board of Directors.

AUTHOR OR EDITOR Óscar M. Valencia AUTHORS AND/OR EDITORS Óscar M. Valencia

R&D intensity for small firms is high and persistent over time. At the same time, small firms are often financially constrained. This paper proposes a theoretical model that explains the coexistence of these two stylized facts. It is shown that self-financed R&D investment can distort the effort allocated to different projects in a firm. In a dynamic environment, it is optimal for the firm to invest in R&D projects despite the borrowing constraints. In addition, this paper shows that beyond a certain threshold, effort substitution between R&D and production appears. When transfers from investor to entrepreneur are large enough, R&D intensity decreases with respect to financial resources. Conditional on survival, the more innovative and financially constrained firms are, faster they grow and exhibit higher volatility.

I thank seminar participants at Macro Workshop at TSE, Central Bank of Colombia, the 2014 North American Winter meeting of the Econometric Society and the Spring 2014 Midwest Macro Meeting. The views expressed in the paper are those of the author and do not represent those of the Banco de la República or its Board of Directors.