Sage Journals

International Small Business Journal: Researching Entrepreneurship

Impact Factor: **4.9**
5-Year Impact Factor:

By clicking “Accept Non-Essential Cookies”, you agree to the storing of cookies on your device to enhance site navigation, analyze site usage, and assist in our marketing efforts. **Privacy Policy** **Cookie Policy**

Manage Cookies

Accept Non-Essential Cookies

Reject Non-Essential Cookies

Contents

More

Abstract

In this article, we invest ly with respect to the changes in the banking system, which are driven by the adoption of the new version of the Basel Capital Accord. Results from an instrumental variable (IV) probit model show a significant and large marginal effect of both indicators of R & D activity and R & D intensity on the probability that firms report unsatisfied credit needs. We find that the introduction of the new rules is likely to have a moderate impact on the capital requirements of banks when considering the possibility for a bank to pool together all the companies in its portfolio. However, we obtain an increase in capital requirements when we focus on the sub-sample of firms performing product innovation. In particular, the analysis suggests that the new rules on regulatory capital requirements might have a negative impact on lending conditions for those SMEs that are relatively younger, smaller and showing positive R & D expenditures.

Get full access to this article

View all access and purchase options for this article.

Get Access

1.

1. For country level analyses, see Rajan and Zingales (1998) and Guiso et al. (2004). For an analysis of the Italian context, see Benfratello et al. (2008).

2.

2. See Hall (2002) and Carpenter and Petersen (2002) for a review on this topic.

3.
3. As will be clarified in section III, the rules set by Basel II have been repeatedly modified to account for a potential worsening effect on lending conditions to SMEs.
4.
4. As highlighted by one referee, innovative SMEs find it difficult to access external finance because of their specific characteristics and idiosyncratic risk. The Basel II Capital Accord aims at standardizing credit risk assessment practices and reducing the degree of subjectivity in the evaluation of borrowers' creditworthiness. Hence, we argue that the implementation of the new system might further worsen lending conditions for these kinds of companies.
5.
5. See Hall (2002) for a review focused on financial constraints to R & D investment, and Bond et al. (2003) for country-level analyses.
6.
6. According to the 'pecking order theory of financing', firms face a hierarchy of financial sources in terms of costs. They prefer to use internal funds first, then external debt and finally external new equity to fund investments. The latter form of financing is in fact inclined to elevate *lemons premia* since shareholders are reluctant to issue new stock because they believe that management is acting on behalf of the existing shareholders and, as a consequence, the firm is expected to be overvalued.
7.
7. See Basel Committee on Banking Supervision (1988), International Convergence of Capital Measurement and Capital Standards.
8.
8. The standardized approach represents an updated version of the risk-weighting scheme set out in the original 1988 Agreement. This approach is likely to be adopted by less sophisticated banks that do not dispose of the historical data on their loan portfolio performance needed to comply with the requirements imposed by the IRB approach.
9.
9. The PD is the probability of a borrower's default over a one-year horizon. LGD, which is the complement to one of the recovery rates, is determined by considering the specific features of the operation. EAD is the credit exposure on the obligation at the time of default. M is the maturity of the loan. For a further discussion, see the Appendix.
10.
10. More precisely, the Basel Committee introduced different risk-weight functions for SMEs and large businesses, with a size-adjustment in the risk-weight formula for firms with a turnover between 5m and 50m (June 2004, para. 272—273). Moreover, banks are allowed to consider as retail those SMEs with a turnover between 1m and 5m, provided that their total exposure to any one firm remains below 1m. In that case, the credit must be managed as a retail exposure on a pooled basis (June 2004, para. 330).
11.
11. The main difference with the final Basel II formulas is that expected losses (PD*LGD) are not subtracted from the capital requirements.
12.
12. It is noteworthy that there is no worldwide uniform and accepted criterion to determine when a firm is large, medium-sized or small. The criteria, as well as the economic measures to establish their definitions

(number of employees, total assets, annual turnover ...), vary from country to country and within common economic zones (EU, USA). According to Basel II, a SME is a firm with less than 50m of annual sales.
13.
13. It is possible that statistics on formal R & D spending misrepresent the 'true' innovative effort carried out at the firm level. In fact, R & D activities carried out within SMEs are often embedded in standard production activities or, more generally, take the form of informal research or externally acquired services.
14.
14. We acknowledge the useful suggestion of an anonymous referee on this point.
15.
15. We have used a cluster method to check such a property.
16.
16. The model is estimated with STATA 9.0 and the ivprobit routine. We tested both the maximum likelihood estimator and a two-step procedure based on Newey (1987).
17.
17. On this issue, see Crespi and Scellato (2007) and Kaplan and Zingales (1997).
18.
18. We acknowledge the two authors in providing us with the model.
19.
19. See for example the study carried out by Unioncamere in 2004. Sixty-five per cent of the firms considered in the study are reported to belong to rating classes ranging from BBB- and BB-.
20.
20. Results from a survey conducted in Italy in 2006 on a sample of 12 Italian banking groups show that the majority of banks do not consider intangibles as meaningful determinants in credit risk assessment (Ughetto, 2008b). In principle, Basel II opens up the possibility for banks to use qualitative criteria (and thus innovation-related factors) together with quantitative information in appraising the creditworthiness of their borrowers. However, banks are disregarding innovation in their risk assessment. This could imply that the sole implementation of the Accord might not lead to reducing informational asymmetries between lenders and borrowers as might be expected. Hence, if innovative firms show a higher idiosyncratic risk, the bank in its portfolio optimization process might either continue to ask them to pay higher interest rates or simply deny them credit.0

References

Altman EI, Sabato G., (2005) Effects of the new Basel Capital Accord on bank capital requirements for SMEs. *Journal of Financial Services Research* 28: 15-42.

Crossref

Google Scholar

Arrow K. (1962) *Economic welfare and the allocation of resources for invention* . In: Nelson R (ed.) *The Rate and Direction of Incentive Activity: Economic and Social Factors*. Princeton, NJ: Princeton University Press.

Google Scholar

Audretsch D., Elston J., (2002) Does firm size matter?: Evidence on the impact of liquidity constraints on firm investment behaviour in Germany. *International Journal of Industrial Organization* 20: 1-17.

Crossref

Web of Science

Google Scholar

Basel Committee on Banking Supervision (1988) *International Convergence of Capital Measurement and Capital Standards*, Bank for International Settlements.

Google Scholar

Basel Committee on Banking Supervision (2004) *International Convergence of Capital Measurement and Capital Standards*, Bank for International Settlements.

Google Scholar

Basel Committee on Banking Supervision (2005) *An explanatory note on the Basel II IRB Risk Weight Functions*, Bank for International Settlements.

Google Scholar

Beck T., Levine R., and Loayza N. (2000) Finance and the sources of growth. *Journal of Financial Economics* 58: 261-300.

Crossref

Web of Science

Google Scholar

Benfratello L., Schiantarelli F., and Sembenelli A. (2008) Banks and innovation: Microeconomic evidence on Italian firms. *Journal of Financial Economics* 90: 197-217.

Crossref

Web of Science

Google Scholar

Bhattacharya S., Ritter J., (1983) Innovation and communications: Signalling with partial disclosure, *Review of Economic Studies* 50: 331-346.

Crossref

Web of Science

Google Scholar

Bond S., Elston JA, Mairesse J., et al. (2003) Financial factors and investment in Belgium, France, Germany and the United Kingdom: A comparison using company panel data . *The Review of Economics and Statistics* 85: 153-

165.

Crossref

Web of Science

Google Scholar

Carpenter R., Petersen B., (2002) Capital market imperfections, high-tech investment and new equity financing. *Economic Journal* 112: 54-72.

Crossref

Web of Science

Google Scholar

Crespi F., Scellato G. (2007) *Ownership structure, liquidity constraints and investment decisions: Microeconomic evidence for Italy. To appear in* The Manchester School.

Google Scholar

Dietsch M., Petey J., (2002) The credit risk in SME loans portfolios: Modelling issues, pricing and capital requirements. *Journal of Banking and Finance* 26: 303-322.

Crossref

Web of Science

Google Scholar

Encaoua D., Laisney F., Hall BH, et al. (2000) *Economics and Econometrics of Innovation* . Amsterdam: Kluwer.

Crossref

Google Scholar

Fazzari SR, Hubbard G., and Petersen B. (1988) Financing constraints and corporate investment. *Brookings Papers on Economic Activity* 1: 141-195.

Crossref

Google Scholar

Guiso L. (1998) High-Tech firms and credit rationing. *Journal of Economic Behaviour and Organization* 35: 39-59.

Crossref

Web of Science

Google Scholar

Guiso L., Sapienza P., and Zingales L. (2004) Does local financial development matter? *Quarterly Journal of Economics* 119: 929-969.

Crossref

Web of Science

Google Scholar

Hadlock C. (1998) Ownership, liquidity, and investment. *The RAND Journal of Economics* 29: 487-508.

Crossref

Web of Science

Google Scholar

Hall BH (1992) *Research and development at the firm level: Does the source of financing matter? NBER Working Paper No. 4096*.

Google Scholar

Hall BH (2002) The financing of research and development. *Oxford Review of Economic Policy* 18: 35-51.

Crossref

Web of Science

Google Scholar

Hao KY, Jaffe AB, (1993) Effect of liquidity on firm's R & D spending . *Economic Innovation and New Technology* 2: 275-282.

Crossref

Google Scholar

Haroff D. (1998) Are there financing constraints for innovation and investment in German manufacturing firms? *Annales d'Economie et de Statistique* 49-50: 421-456.

Crossref

Google Scholar

Hart O., Moore J., (1995) Debt and seniority: An analysis of the role of hard claims in constraining management. *American Economic Review* 85: 567-585.

Web of Science

Google Scholar

Himmelberg CP, Petersen B., (1994) R & D and internal finance: A panel data study of small firms in high tech industries. *Review of Economics and Statistics* 76: 38-51.

Crossref

Web of Science

Google Scholar

Jaffee DM, Russell T., (1976) Imperfect information, uncertainty and credit rationing . *Quarterly Journal of Economics* 90: 651-666.

Crossref

Web of Science

Google Scholar

Jensen M., Meckling W., (1976) Theory of the firm, managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics* 5: 305-360.

Crossref

Web of Science

Google Scholar

Kaplan S., Zingales L., (1997) Do investment-cash flow sensitivities provide useful measures of financing constraints? *Quarterly Journal of Economics* 92: 169-176.

Crossref

Web of Science

Google Scholar

King R., Levine R., (1993) Finance and growth: Schumpeter may be right. *Quarterly Journal of Economics* 32: 367-386.

Google Scholar

Lev B. (2001) *Intangibles: Management, Measurement and Reporting*. Washington, DC: Brookings Institution Papers.

Google Scholar

Meier-Ewert M. (2002) *Basel II: The remaining issues*. CEPS Policy Brief No. 13.

Google Scholar

Merton RC (1974) On the pricing of corporate debt: The risk structure of interest rates. *The Journal of Finance* 29: 449-470.

Google Scholar

Mulkay B., Hall BH, and Mairesse J. (2001) *Investment and R & D in France and in the United States* . In: Deutsche Bundesbank (ed.) *Investing Today for the World of Tomorrow*. New York: Springer.

Google Scholar
Myers S., Majluf N., (1984) Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13: 187-221.

Crossref

Web of Science

Google Scholar

Nelson RR (1959) The simple economics of basic scientific research. *Journal of Political Economy* 67: 297-306.

Crossref

Web of Science

Google Scholar

Newey WK (1987) Efficient estimation of limited dependent variable models with endogenous explanatory variables. *Journal of Econometrics* 36: 231-250.

Crossref

Web of Science

Google Scholar

Piga CA, Atzeni G., (2007) R & D investment, credit rationing and sample selection. *Bulletin of Economic Research* 59: 149-178.

Crossref

Google Scholar

Rajan R., Zingales L., (1998) Financial dependence and growth. *American Economic Review* 88: 559-586.

Web of Science

Google Scholar

Saurina J., Trucharte C., (2004) The impact of Basel II on lending to small and medium-sized firms: A regulatory policy assessment based on Spanish credit register data. *Journal of Finance Services Research* 26: 121-144.

Crossref

Google Scholar

Scellato G. (2007) Patents, firm size and financial constraints: An empirical analysis for a panel of Italian manufacturing companies. *Cambridge Journal of Economics* 1: 55-76.

Google Scholar

Schiantarelli F. (1996) Financial constraints and investment: A critical survey of the international evidence. *Oxford Review of Economic Policy* 12: 70-89.

Crossref

Web of Science

Google Scholar

Schumpeter JA (1942) *Capitalism, Socialism, and Democracy*. New York: Harper and Row.

Google Scholar

Schwaiger WS (2002) *Basel II: Quantitative Impact Study on Austrian Small and Medium-sized Enterprises. Vienna* Technical University of Vienna.

Google Scholar

Stiglitz J., Weiss A., (1981) Credit rationing in markets with imperfect information . *American Economic Review* 71: 393-410.

Web of Science

Google Scholar

Ughetto E. (2008a) Does finance matter for R & D investment?: New evidence from a panel of Italian firms. *Cambridge Journal of Economics* 32: 907-925.

Crossref

Web of Science

Google Scholar

Ughetto E. (2008b) *The financing of innovative activities by banking institutions: Policy issues and regulatory options*. In: Laperche B and D Uzunidis (eds) *Powerful Finance and Innovation Trends in a High-risk Economy*. Basingstoke: Palgrave Macmillan.

Google Scholar

Unioncamere (2004) *Basilea II: L'affidabilità delle Imprese Minori*. Rome: Mediacamere Scrl.

Google Scholar

Wooldridge JM (2002) *Econometrics of Cross Section and Panel Data*. Cambridge, MA: MIT Press.

Google Scholar

You currently have no access to this content. Visit the access options page to authenticate.

Download PDF

Also from Sage

CQ Library

Elevating debate

Sage Data

Uncovering insight

Sage Business Cases

Shaping futures

Sage Campus

Unleashing potential

Sage Knowledge

Multimedia learning resources

Sage Research Methods

Supercharging research

Sage Video

Streaming knowledge

Technology from Sage

Library digital services