

Referee Report for "Modeling the Effects of Financial Constraints on Firm's Investment" by Gian Maria Tomat submitted to *economics e-journal*

All comments can be posted on the web-page of the Journal and attributed to me.

Brief Summary of the Paper

This paper presents a model of a financially constrained firm that aims at investing in physical capital. The author assumes that the firm faces two types of constraints in the financial market. First, the firm faces an upper bound on the amount of debt it can issue in a period. Second, the firm has a lower bound on its amount of cash flow (defined as the difference between the firm's profits and the sum of the adjustment cost and the interest cost of servicing debt (net of the new debt issued)). The author's main result is that the firm's marginal q on which the firm's investment positively depends includes not only the expected marginal profitability of capital (as in any standard model without financial constraints) but also a positive external finance premium. This finance premium reflects the value of accumulating capital that derives from the fact that a larger capital stock in the future will allow the firm to overcome financial constraints. In other words, the firm can invest in order to "insure itself" against the possibility that in the future the borrowing constraint or the non-negative cash flow constraints will become binding.

Does the Paper Provide a Contribution to the Literature?

In my opinion this paper certainly provides an interesting and valuable contribution to the literature. The analysis is carried out with competence and rigor and the author makes a very good effort at explaining the intuition behind his results.

Strengths of the Paper

The paper starts from a simple model built on first principles. The author carefully avoids introducing ad hoc assumptions that could hide the main result.

This simplicity is certainly one of the main strengths of the paper. Moreover, the paper offers a well-defined contribution by evidentiating the "insurance motive" that can distort upward the investment of a credit constrained firm.

Main Suggestions to the Author

In what follows I briefly discuss some dimensions along which in my opinion the paper could be improved.

1) The first and probably most important dimension is the way the credit constraint is modelled. The author assumes that the firm faces an upper bound not on the total stock of outstanding debt but on the increment of its stock of debt. In footnote 4 the author justifies this modelling choice by making reference to a number of empirical papers. The theoretical literature on credit constraints, however, typically assumes that the firm faces a constraint on its total stock of debt. This is also reasonable as the ability of a firm to obtain additional credit is likely to be inversely related to the outstanding stock of debt. I think the author should then i) at least motivate his specification of the credit constraint in a much more careful way, making reference to other papers in the literature that adopt the same specification; ii) possibly provide some robustness analysis on what would change if the credit constraint was also related to the stock of debt.

2) The second most important dimension regards the introduction of two different financial constraints in the paper. I wonder whether a better foundation can be provided for the way these constraints are modelled. In many models, it is assumed that firms can issue equity but they face a cost on equity that is larger than the cost of debt and possibly increasing in the amount of new equity issued (see, e.g., Jermann and Quadrini, 2007). It would be interesting to understand how the results would change under such an assumption. Perhaps this could also be material for an extension or a new, related paper.

3) The analysis could be better cast in the context of the literature. There is work on the impact that *expected* credit constraints have on firms' investment decision. Indeed, I also had the opportunity to touch this issue in a paper

published in 2003 in Manchester School (Iacoviello and Minetti, 2003) in which we found in a macroeconomic context that producers could have the incentive to accumulate more capital in order to increase the amount of collateral available and hence relax credit constraints. There is also in the literature the idea that agents can make precautionary savings and accumulate extra wealth to better face credit constraints in the future. There is also a paper in JMCB 1996 that explores the implications for Euler conditions of expected borrowing constraints. The author should make a better search of related papers.

4) I would invite the author to better motivate the analysis, possibly with references to the empirical literature. Is there some evidence about the distortion in investment analyzed in this paper?

Minor Comments

5) The exposition of the paper could be improved and the paper could be made more concise. This is especially true for the Introduction where I found that some sentences are not well written.