M. Molinari: Firm Age, Financial Constraints and Firm Productivity. New evidence from a panel of Italian manufacturing firms

In the theoretical and empirical industrial dynamics literature, firm age is often assumed to be one of the factors that help mitigate financial constraints (See, among others, Cooley and Quadrini (2001-AER), Cabral and Mata (2003-AER), Oliveira and Fortunato (2007-SBE) and Guariglia (2007-JBF).). The rationale behind this assumption is that that one can reasonably expect young firms to be endowed with less cumulated wealth, or be given access to a narrower set of external financial sources.

Young firms may be particularly penalized by financial markets and banks as they have not yet a reliable credit history whereas older firms can exploit a reputation effect that ease the provision of external funding. This translates into a positive wedge between the cost of internal and external finance and such cost may be particularly high for young firms.

This lack of internal and external resources implies that young firms typically exhibit excessive sensitivity to the availability of cash-flow and a large number of studies has documented that cashflow plays a significant role in investment (Fazzari et al. 1998, 2000 and related studies) or growth regressions (Fagiolo and Luzzi (2007-ICC), Guariglia et al. (2011-JDevEcon), Molinari 2013-SCED).

Finance (or the lack thereof) does not only matter for investment and firm growth. A parallel strand of literature has indeed focused on the effect on productivity. For instance, Nucci et al. (2005-RivPolEc), Gatti and Love (2008-Econ of Trans.), and Moreno-Badia and Slootmaekers(2009-IMF), Chen and Gauriglia (2013-JCompEcon) find significant effects of financial variables on firms total factor productivity for a number of different countries.

The effect of productivity on financial constraints has instead received scant attention and the paper aims to shed light on this aspect.

The aim of the present study is hence to map financial constraints as firms age and expand upon the existing literature by explicitly accounting for heterogeneity in firm productivity. More in detail, our starting point is to recognize that at the beginning a a firm life, there is considerable uncertainty over firm productivity. This means that the firm itself may not know its own level of efficiency and that financial markets and banks do not know it either. Being risk averse, providers of external finance will typically provide a positive risk premium on the cost of external finance and this would be applied to all young firms irrespectively of their (unknown) level of productivity. As firms age though, they will learn and, in some cases, reveal such level of productivity and, to the extent that financial markets are able to recognize it, they will factor it in when pricing the cost of credit.

If banks properly learn over time to select productive firms and their ability to perform such selection improves with firm age, we expect to observe that (I) productivity does not affect the sensitivity of firm growth to cashflow (henceforth CFS) for young firms and (II) that this should instead be the case for older firms. In particular we expect to observe that highly productive old firm suffer less than low productive firms from financial constraints and hence should display lower CFS.
We test this hypotheses against the possibility that bank-based relationships may have perverse effects on the provision of credit. For example, some firms may invest in establishing tight relationship with banks in order to obtain credit despite their low level of productivity. Old inefficient and yet connected firms may be able to get more credit than their young efficient counterparts.

Our empirical analysis exploits a panel database provided by the Italian Account Data Service Centrale dei Bilanci, CeBi and consists of about 10.000 Italian manufacturing firms observed between 1998 and 2003 for which we have detailed information on both financial and real variables. Italy is known to be a bank-based system in which venture capital and financial markets paly a minor role and most of the credit is provided by bank lending. As such, it appears to be a particularly suitable choice for measuring the efficiency of relationship banking in relaxing financial constraints to those firms that most deserve it.