Report on "The bottom-up foundations of the banking-macro nexus". MS 855

January 19, 2013

The paper provides interesting insights into the importance of micro-foundations for understanding connections between banking sector and macro aggregates.
In the first part, the article presents in a masterly way the different theories of the history of economic thought that have followed in describing the Monetary theory (Friedman, Keynes, Schumpeter, Hicks, Minsky...). In a second part, the author revises interactions and differences between the top-down and bottom-up approaches, focusing on the strengths and weaknesses of these two views. Finally, the author presents his contribution to model interaction between the financial and real economy in an Agent-Based model framework.
This article, even if it goes in the right direction to highlight the importance of the bottom-up micro-foundations to better identify, monitor and address the interaction between micro-meso and macro phenomena, is not original and is only partially complete. I have a list of major comments and also some minor comments that I suggest the Author to take into account in their revision. I am inviting a revise and resubmit without guarantee of acceptance. In particular, I wish that the author respond to the following comments:

Comment 1

The review of literature the author presents is interesting and well structured. However, a strong weakness emerges in the exposition: What is the original contribution of this article with respect to the extensive literature on the bottom-up micro-foundations? The author should emphasize in a more persuasive way the originality of his contribution with respect to this line of research. For example, there is a new important book by Delli Gatti et al. (2011)[1] "Macroeconomics from the Bottom-up", where all these issues are already well described, what is new in this paper with respect to DelliGatti's (or/and to the many other papers

[1]Delli Gatti, D., Desiderio, S., Gaffeo, E., Cirillo, P., Gallegati, M (2011). Macroeconomics from the Bottom-up. Ed Springer, Series: New Economic Windows.

already mentioned by the author?). The author must clearly distinguish his contribution, otherwise the article seems a simple puzzle bringing together the different contributions of other authors.

Comment 2

The author places a great emphasis on the importance of a "generic" (vs genetic) rule-based approach in order to micro-found agents' behavior. I absolutely agree that one "representative" standard utility function maximizing individuals' choices is both unjustified and leads to conclusions which are usually misleading and often wrong. However, the "rules of thumb" are a very weak point of the bottom-up approach. The main issue I have is that, in agent-based models, one can find many behavioral rules able to reproduce the same macro-dynamics; so there is hardly any justication for the modeling choices made. This is particularly embarrassing for agent-based models which have so many degrees of freedom. It seems to me that an interesting paper could be built out of the material presented but this would require a much deeper discussion of the different rule-based approaches which the bottom-up literature suggests. In this regard, there is, for instance, an important research area that the author does not mention at all: I am referring to the important works on experimental economics[2].

Comment 3

The exposition is far from ideal. In fact, although the state of art of the theoretical literature is detailed, the empirical literature on the bottom-up approach is almost absent (just few lines at page 13). The author should acknowledge previous works in the field (see, for instance all the studies of Gallegati on agents' strategies in credit markets[3], of Mantegna on agents' strategies in financial markets[4], of Kirman et al. on agents' strategies in fish markets[5]; and the empirical

[2]See, for instance, the basic contributions of Cars Hommes, who uses experimental economics to better understand, identify and monitor agents' behavioral rules in different economic systems.

[3]-Bargigli, L. and Gallegati, M., 2012. "Finding communities in credit networks," Economics Discussion Papers 2012-41, Kiel Institute for the World Economy.
-Bargigli, L. and Gallegati, M., 2011. "Random digraphs with given expected degree sequences: A model for economic networks," Journal of Economic Behavior and Organization, vol. 78(3).

[4]Vaglica,G., Lillo, F., Moro, E., Mantegna, R., 2008. Scaling laws of strategic behavior and size heterogeneity in agent dynamics. Physical Review E 77 (3) 036110.

[5]see, for instance: -P. Cirillo, G. Tedeschi, M. Gallegati (2012). The Boulogne fish market: the social structure and the role of loyalty. Applied Economics Letters, 19:11, 1075-1079;
-G. Tedeschi, S. Mignot, M. Gallegati, A. Vignes (2012). Lost in transactions: the case of the Boulogne s/mer fish market. Physica A, Volume 391, Issue 4.
-Kirman, A., Vignes, A., (1991), Price Dispersion. Theoretical Considerations and Empiri-

evidence that market participants are very heterogeneous in size[6]).
The absence of a good review on the empirical literature reveals an additional weakness in this paper. In fact, ABMs, using rules of thumbs, have some value only if they can be calibrated and validated on empirical data. This comment is strongly linked to my previous one:" in agent-based models, one can find many behavioral rules able to reproduce the same macro-dynamics". This observation is not anymore valid if the model is calibrated and validated on empirical evidences (or if it reproduces the behavior emerging in the data analysis). I encourage the author to analyze in more detail this point.

Minor Comments

A Some of the more recent studies on the interaction between the real economy and the banking sector should be included. For instance: Battiston et al. (2012a,b), Gai P and Kapadia S (2010) and Tedeschi et al.(2012)[7] have shown that the diversification of credit risk across many agents has ambiguous effects on systemic risk.

B There are some printing errors in Sections 6 "References". In particular, if in a papers there are many coauthors the reference must contain all authors names and not "et al." (see, for instance: Battiston, St. et al. (2009); Berg, J. et al. (2005); de Bondt et al. (2010); de Masi, G.D. et al. (2011); Delli Gatti, D. et al. (2009); Dopfer, K. (ed.) (2005); Keynes, J.M. (2008) [1936]; Minsky, H.P. (2008) [1986]; Mittnik, St. and Semmler, W. (2012); Pozsar, Z. et al. (2012); Schelling, Th. (1978); Schweitzer, F. et al. (2009); Veblen, Th. (1898); Veblen, Th. (2000) [1899]; Veblen, Th. (2009) [1904]; Veblen, Th. (2009) [1914]).

There are some typos as page 13 "niche"; page 16 "donat" "bankas; page 17 many a^0

cal Evidence from the Marseilles Fish Market, in K.G. Arrow (ed), Issues in Contemporary Economics, London (UK): Macmillan.

[6]see, for example, Pareto, 1897; Zipf, 1949; Ijiri and Simon, 1977; Axtell, 2001; Pushkin and Aref, 2004; Gabaix et al.,2006.

[7]-Battiston S, DelliGatti D, Gallegati M, Greenwald BC, Stiglitz JE (2012a) Liaisons dangereuses: Increasing connectivity, risk sharing, and systemic risk. J. of Economic Dynamics and Control, forth.
-Gai P, Kapadia S (2010). Contagion in financial networks. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Science. 4662120, 2401.
-Battiston S, DelliGatti D, Gallegati M, Greenwald BC, Stiglitz JE (2012b) Default cascades: When does risk diversification increase stability? Journal of Financial Stability, 8 (3): 138-149
-G. Tedeschi, A. Mazloumian, M. Gallegati, D. Helbing (2012). Bankruptcy cascades in interbank markets. PLoS ONE 7(12): e52749.

I also suggest the paper will be revised/edited by a native english speaker before it is resubmitted.