Referee Report

The Impact of Basel III on Money Creation: a Synthetic Analysis

The topic of the paper is highly relevant. Financial regulation aims at influencing the incentives of banks and other financial intermediaries in carrying out maturity, liquidity and risk transformation. Since when they provide credit to the economy, banks also create inside money, the paper asks to which extent the LCR, the leverage ratio and the risk-based capital requirements limit the lending and money creation process.

However, the paper is not able to provide a reliable answer to this question.

The prudential regulation has the objective of eliminating (or reducing) the externalities created by financial intermediaries. Banks' supply of inside money is the result of a profit maximization problem and is determined by marginal returns and marginal costs of additional loans. The fact that in maximizing their profits banks do not take into account the costs that they may generate for the society in terms of financial instability justifies the introduction of regulatory constraints on banks' balance sheets: regulations reduce those externalities by increasing the marginal cost of lending (when the regulatory limit become binding for a bank).

But banks' cost of funding new loans is sensitive to the health of the underlying financial environment. In a general equilibrium perspective an economy that is more "financially resilient" may reduce the cost of funds and the cost of capital and relax endogenously regulatory constraints (see on this CGFS, 2015).[1]

Therefore, a general equilibrium approach is crucial in order to understand whether prudential regulations will play an important role in affecting banks' behaviours in the money creation process.

The paper, instead, analyzes this issue employing a stock-flow model that imposes highly ad-hoc (and in some cases unreliable) assumptions on the behavior of balance sheets items. As an example, in the model it is assumed a positive correlation between reserves and government bonds in banks' balance sheets (G=g*R). As a result the authors claim that "under all three regulations the money multiplier responds negatively to the increase of monetary base". But this is just because the authors do not take into account how the central bank operates when it "increases" the monetary base. It is sufficient to think about quantitative easing (QE) in order to understand that this relation is not necessarily true: to the extent that the central bank purchases government bonds held by banks, reserves increases and government bonds decrease in banks' balance sheets. In this case the LCR, the leverage ratio and the risk-based capital are all unchanged. But also in normal times, the central bank "injects" reserves in the monetary system either through outright purchases (the central bank purchases government bonds in exchange of reserves) or through collateralized loans (the central bank lend reserves in exchange of a collateral): the relation between reserves and bonds in the banks' balance sheet may well be negative.

[1] https://www.bis.org/publ/cgfs54.htm

In addition there are many inconsistencies between the assumptions and the results of the analysis. For example, in describing the model the authors assume that Government bonds (G) and Capital (C) are constant functions of the amount of reserves (R). But when the authors compute the derivative of the outside money with respect to reserves, this assumption disappears:

As an example, let's take equation (32), which states that $M = \frac{4(R+G)}{\mu r_{LCR}}$ and $\frac{\partial M}{\partial R} = \frac{4}{\mu r_{LCR}}$. But since the authors assume that $G = gR$ shouldn't be $\frac{\partial M}{\partial R} = \frac{4(1+g)}{\mu r_{LCR}}$?

Similarly, in equation (33) the money multiplier is defined as $m = \frac{4(1+g)}{\mu r_{LCR}}$, and therefore the money multiplier does not depend on the amount of reserves. But when taking the derivative it comes out (equation 35) that $\frac{\partial m}{\partial R} < 0$.

Finally, in the paper there are many statements that seem more personal opinions than results obtained from reliable theoretical models or empirical analyses. For example, the authors claim that "we argue that in contrast to the attenuation of the reserve requirement as a constraint on bank lending, **prudential regulations have played an increasingly important role in affecting bank behaviors in the money creation process**." Or "with the answer to these questions **we will be able to understand why the money multiplier collapses after massive expansion of the monetary base**". These claims are quite surprising (and not proved in the paper) especially if referred to the past. I would say that two other factors may explain the reduction in the money multiplier observed after the outbreak of the global financial crisis: on the one side, according to the literature on financial cycles and on debt super cycles, demand factors and deleveraging (see for example Borio, 2012 and Lo and Rogoff, 2015) are the main explanation of the decrease of inside money; on the other side, the increase of the outside money is the result of unconventional monetary policies aimed at reducing long term interest rates (Quantitative easing in main advanced economies) and liquidity premiums in some specific markets (SMP and LTROs in the euro area, ABS purchases by the Fed and the ECB). The combination of these two explanations are sufficient to explain why the velocity of circulation (and, therefore, the money multiplier) has decreased.