Discussion of the paper
'*Catharsis - Tracing the Real Effects of Bank Insolvency and Resolution*'
by Josef Korte

Carlo D. Mottura

1. Problem

- The objective of the paper is to empirically analyze how the so-called 'Bank catharsis indicator' produces effects on real economic growth, using a European dataset over a period of 8 years, from 2003 to 2010.

2. Definition and meaning of the Catharsis indicator

The Bank catharsis indicator is defined as the ratio between

$$Bank\ catharsis\ indicator_{k,t} = \frac{Failed\ bank\ assets\ that\ have\ been\ resolved_{k,t}}{Bank\ assets\ that\ should\ have\ been\ resolved_{k,t}}$$

- The identification of this indicator is very challenging.

  Given the dataset:

  − for the denominator, a bank that 'should have been resolved' is defined as the bank having a capital ratio, in terms of equity over total assets, less than 8%. Hence, it is assumed a positive capital closure rule. Such rule states the insolvency of the bank, determines automatic regulatory intervention and eventually the resolution of the bank;

  − for the numerator, a bank that 'has been resolved' is defined as the bank that has ceased existence as a legal entity (by ways of purchase or closure or liquidation) and fallen below the above capital ratio threshold. The numerator is a subset of the denominator.

  Accordingly to the definition, this Indicator has values between 0 and 100%:

  − it is equal to 0 if all the banks that should have been resolved under the assumed capital rule have not been resolved (it is the perfect "forbearance" case);

  − it is equal to 100% if all the banks that should have been resolved, have been resolved (it is the perfect "catharsis" case).

- From a theoretical point of view, I only note that this Indicator is undefined if banks that should have been resolved do not exist. But I think that in the tested period, especially after 2008, this is just a theoretical remark.

- What is this indicator for? It is a measure of the strength of the resolution regime of de facto Insolvent banks. As such, a zero or low level of the catharsis indicator means the absence of a strict insolvency resolution regime for banks.

- There are a lot of theoretical and empirical studies showing that the absence of a strict insolvency resolution regime for the banks produces:
  - distorted incentives for depositors' and regulators' decisions,
  - distorted incentives for banks' decisions,
  - such distorted incentives produce distorted credit allocation by the banks and negative effects on the real economy: projects with particular risk-profiles or that belong to certain asset categories could be preferred to the best projects from an economic and profitability point of view.

- Some examples on distorted incentives for depositors', banks' and regulators' decisions:
  - banks which are de facto insolvent may attempt to "gamble for resurrection" or to became "too big to fail" or "too many to fail";
  - regulators have to face a trade-off between preserving short-run financial stability and preventing long-run moral hazard, or in other terms, between a bailout approach and a "catharsis" approach. In the first case to preserve system's liquidity (with the risk of creating "zombie banks", technically insolvent but allowed to operate). In the second case forcing insolvent banks to close;
  - depositors: when banks' lending decisions are prone to moral hazard, if deposits are properly insured by a deposit insurance system 'insured depositors' might have an interest in high risk-taking by their banks as long as they get high deposit interest rates.

  All these examples do not seem really theoretical at the moment.

- This part of the paper (i.e. section 1 and 2) is an exhaustive excursus of the empirical results presented in the literature in the analyzed framework.

- Taking into account previous results presented in some articles dating from 2002, the Author supports the hypothesis of a "catharsis effect", where the closure of insolvent banks determines benefits to the real economy by (re)establishing incentives for efficient credit allocation.

- On the other hand, the direction of the "catharsis effect" is a priori not obvious. This is because it produces the positive effects of re-establishing incentives for credit allocation. But the counterargument says that such positive effects may be outweighed by the negative effects due to banks closure, for example in terms of growth opportunities, of credit crunch or of contagion effects.

- So, the problem is to empirically test the existence of a causal link between:
  - the *bank catharsis indicator* as main explanatory variable; and
  - the *firms' growth*, in terms of *operating revenue*, as dependent variable, which measures the real economic growth.

3. Dataset

- The dataset contains more than 2 million observations and covers 39 countries over the period 2003-2010. In particular, this dataset is limited by the Author to European countries because, respect to the US, the rules for bank insolvency are mostly determined by national authorities.

- I would like to note about such issue the new regulatory European framework, i.e. the expected European banking union under the European Central Bank.

4. Quantification of the Catharsis indicator

- By the dataset, the sample mean of the bank catharsis indicators is between 2.2% and 4.5%, which seems surprisingly low. The Author explains it by the limited willingness of regulators to close banks and by the existence of healthy banks with low capital ratios. However, such low levels may suggest that this indicator is unable to capture the phenomena it is supposed to.

- In other terms, the positive capital closure rule (the existence of a strict insolvency resolution regime) is rather hypothetical as data shows a low level of implementation for most countries and years.

- For robustness tests, the Author considers several alternatives to calculate the bank catharsis indicators, to check that results are not driven by the choice of the cutoff (for example, he also calculates the Indicator at 7% or 9% simple capital ratio).

- Looking at Summary statistics in table 1, it results that the higher the cutoff, the lower the Catharsis indicator. I also note that:
    - if the Indicator is calculated with respect to Tier1, it is double with respect to the other levels, even if low;
    - different numbers of observations for different cutoff levels or definition of the indicator are used.

- However, since the indicator exhibits considerable variation over time and across countries it is possible to empirically verify a causal dependence. It means to verify if the countries that seem to have a closer implementation of the positive capital closure rule actually show higher growth rates in their real economy.

5. Methodology

- From a methodological point of view, to empirically test the existence of a causal link between the *bank catharsis indicator* and the *real economic growth*, a three step regression framework is implemented (as introduced in a paper by Giannetti and Ongena published in 2009).

- In the first step a simple regression framework (*Simple OLS)* is performed, considering the firm's operating revenue growth as dependent variable and the Bank catharsis indicator as explanatory variable. To analyze the potential endogeneity of bank catharsis, which could simply be an answer to expected growth, two more steps are then performed in order to establish a valid causal relationship.

- The second step is the Instrumental Variable model.

- The third step is the Interaction approach, which allows to control for a full range of additional unobservables and to exclude almost any potentially omitted variable. This specification is used to overcome endogeneity concerns.

6. Results

- The results show, in general, a significant positive causal effect of the capital closure rule on firm growth. In other terms, the sign of the coefficient of the Catharsis indicator appears significantly positive (so a 'catharsis effect' results from the empirical analysis).

- Also two potential transmission channels from bank insolvency resolution to firm growth are tested:

- A quality channel, meaning that the 'catharsis effect' has a stronger positive effect on more profitable firms;

- A quantity channel, meaning an higher effect in the reallocation of credit for those firms that structurally depend more on bank finance.

- Anyway, the final result of this "catharsis effect" is not obvious, as the positive effects of re-establishing incentives for credit allocation could be outweighed by the negative effects due to banks closure (as growth opportunities or credit crunch or contagion effects).

- In particular, the Author empirically verifies that the effectiveness of the 'catharsis effect' depends on how open the banking system is. The results of this test (in table 7) show that the more open the banking system, the stronger the 'catharsis effect'. Hence care should be taken when firms' access to international finance is low.

- On the possible negative effects on firm growth due to banks closure, being the dataset used by the Author just referred to European banks it seems important to consider the consequence on real economy due to the exposure of European banks to the Government bonds market, as public data shows.

- It is well known that, especially in Europe, Government bonds are bought by banks and banks' liabilities could be guaranteed by the Government issuer. The "interconnection" between countries and banks, *via* Government bonds, may have a key role on how finance has to deal with real economy.

In conclusion, more research is needed on the final result of a full implementation of a positive capital closure rule on real economic growth. This is particularly true in the Euro-zone countries, and especially in the peripheral ones, also because of the link between States and banks *via* Governments bonds.