Are Capital Buffers Pro-Cyclical?

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Comments from George Sheldon (University of Basel)

This paper investigates whether the capital that banks hold in excess to that which capital requirements demand them to hold (i.e., buffer, excess, or surplus capital) varies pro-cyclically in Spain. The authors interpret a pro-cyclical variation in surplus capital as a sign that banks build an additional capital cushion during an economic upswing to provide added protection against losses suffered in a downswing. The authors feel that it would be encouraging if banks freely chose to take such measures as it would temper the possible tendency of capital requirements to amplify the effects of the business cycle as in the case of a credit crunch.

The authors use a panel of some 142 Spanish commercial and savings banks covering the period 1986 to 2000 to investigate the cyclical pattern of the surplus capital of Spanish banks. Their findings show that banks' excess capital does not vary pro-cyclically, as they had hoped, but anti-cyclically instead, which by the authors' logic means that banks horde capital in a downturn and deplete it in an upturn, thus amplifying the impact of the business cycle on the loans market.

The empirical investigation is carefully executed employing state-of-the-arts econometric techniques. On that score the paper is convincing.

The main weakness of the paper is that a bank's excess capital can vary for any number of reasons, some of which have little to do with the story the authors tell. The ambiguity results from the fact that surplus capital is a residual calculated by subtracting required capital from total capital. Hence the movements of buffer capital depend on the changes in the other two stocks.

As a consequence, excess capital can vary anti-cyclically even though total capital and required capital both fluctuate pro-cyclically. All that is required in this case is for total capital to vary less than required capital. There is also good reason to believe that total capital and required capital do evolve pro-cyclically. Total capital should vary in this manner because profits and banks' ability to re-capitalize move pro-cyclically; and required capital should fluctuate in this way since capital requirements based on Basel I are linked to the risk structure of bank portfolios, and banks are more likely to invest in more risk in an upturn than in a downturn. Nor would an anti-cyclical pattern to buffer capital be a cause for concern in this scenario, as the weaker cyclical fluctuation of total capital would tend to smooth any excess volatility that capital requirements might engender.

In principle, it is also possible that total capital evolves pro-cyclically, while required capital moves anti-cyclically. We can rule this possibility out, however, as it would imply a pro-cyclical pattern to excess capital, which conflicts with the authors' findings.

Two other constellations exist which could yield the anti-cyclical variability of surplus capital that the authors observe. The one would be for total capital to evolve anti-cyclically and required capital to vary pro-cyclically, and the other would be for both total and required capital to fluctuate anti-cyclically, but required capital to vary by less. In these cases the authors' concerns would seem more justified, but to repeat: this scenario need not underlie the anti-cyclical movement of required capital.

In short, the question at issue is which scenario seems to conform better with the data? From the estimated sign of ROE in the authors' regressions I would gather that the first scenario, the only one in which total capital varies pro-cyclically, comes closest to explaining the anti-cyclical movement of surplus capital. The reason is that the negative sign of ROE in the regressions indicates that ROE varies inversely with surplus capital, implying that ROE fluctuates pro-cyclically. This in turn suggests that total capital moves pro-cyclically since the latter includes retained earnings. If the first scenario does indeed underlie the observed anti-cyclical movement of surplus capital then the authors' results give little cause for concern.

Yet even if we were able to identify the underlying causes of the anti-cyclical movement of excess capital, I doubt whether the results would shed much light on the rationing effects of capital requirements, as these requirements do not appear to have acted as a binding constraint on Spanish banks in the sample period. According to the figures in Table 1 of the paper, at least one bank fell short of meeting its capital requirement by 76.7 percent and yet was not shut down. If capital requirements can be so flagrantly ignored, it would not seem that Spanish experience with capital requirements can provide much guidance for other countries.

A final point needs to be made. According to the authors, Spain changed its capital requirements in 1993. In the sample period prior to 1993 both a gearing ratio and a risk asset ratio were used to assess capital requirements, with the larger of the two ratios determining the capital requirements of a bank. After 1993 only a risk asset ratio based on Basle I applied. From looking at chart 1 in the paper, it appears that the link between GDP growth and surplus capital weakened after the introduction of the new capital requirements in 1993. To control for this the authors should have interacted a dummy variable for regulatory change with the GDP growth variable. According to footnote 11 in the paper, they instead merely added a regime dummy without interacting it with GDP growth. Unsurprisingly, this did not alter the results. My bet is that the business cycle dummy which the authors interact with GDP growth is picking up the effect of the regulatory change because in the years prior to the regulatory change in 1993 growth declined and thereafter rose. It could very well be that the anti-cyclicality of buffer capital that the authors discover breaks down when appropriate control is taken for the change in capital requirements.

To summarize, I find the paper interesting and thought-provoking, but its results too unclear to provide much guidance on how Spanish banks adjust their capital in response to the business cycle.