Discussant comments on
Bank capital buffers, lending growth and economic cycle: empirical evidence for Brazil
Benjamin Miranda Tabak, Ana Clara Noronha, and Daniel Cajueiro
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* These comments reflect the views of the author and not necessarily those of the BIS or of central banks participating in the meeting.
Comments by Gerald P. Dwyer on Bank Capital Buffers, Lending Growth and Economic Cycle

By Benjamin M. Tabak, Ana Clara, B.T.F. Noronha and Daniel O. Cajueiro

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Bank Capital

• Many calls for more bank capital
  – Greenspan (2010)
  – Flannery (2010) – contingent convertible bonds
• What are the effects likely to be?
• Is Basel II pro-cyclical and does it affect loan growth?
Bank Capital and Lending

• Bank capital

\[ \Delta Buf_{i,t} = \alpha_C + \beta_1 ROE_{i,t-1} + \beta_2 Npl_{i,t-1} + \beta_3 Size_{i,t-1} + \beta_4 Gap_{t-1} + \varepsilon_{i,t} \]

• Lending

\[ \Delta Loans_{i,t} = \alpha_L + \gamma_1 Gap_{t-1} + \gamma_2 Npl_{i,t-1} + \gamma_3 \Delta Selic_{t-1} + \gamma_4 \Delta Buf_{i,t-1} + \eta_{i,t} \]
Bank Capital and Lending

- Bank capital
  \[ \Delta Buf_{i,t} = \alpha_C + \beta_1 \text{ROE}_{i,t-1} + \beta_2 \text{Npl}_{i,t-1} + \beta_3 \text{Size}_{i,t-1} + \beta_4 \text{Gap}_{t-1} + \varepsilon_{i,t} \]
  \[ \beta_1 < 0, \beta_2 < 0, \beta_3 < 0, \beta_4 < 0 \]

- Lending
  \[ \Delta \text{Loans}_{i,t} = \alpha_L + \gamma_1 \text{Gap}_{t-1} + \gamma_2 \text{Npl}_{i,t-1} + \gamma_3 \Delta \text{Selic}_{t-1} + \gamma_4 \Delta \text{ Buf}_{i,t-1} + \eta_{i,t} \]
Bank Capital and Lending

- Bank capital

\[ \Delta Buf_{i,t} = \alpha_C + \beta_1 \text{ROE}_{i,t-1} + \beta_2 \text{Npl}_{i,t-1} + \beta_3 \text{Size}_{i,t-1} + \beta_4 \text{Gap}_{t-1} + \epsilon_{i,t} \]

\[ \beta_1 < 0, \beta_2 < 0, \beta_3 > 0, \beta_4 < 0 \]

- Lending

\[ \Delta Loans_{i,t} = \alpha_L + \gamma_1 \text{Gap}_{t-1} + \gamma_2 \text{Npl}_{i,t-1} + \gamma_3 \Delta Selic_{t-1} + \gamma_4 \Delta Buf_{i,t-1} + \eta_{i,t} \]

\[ \gamma_1 < 0, \gamma_2 < 0, \gamma_3 < 0, \gamma_4 \leq 0 \]
Bank Capital and Lending

• Bank capital

$$\Delta Buf_{i,t} = \alpha_C + \beta_1 ROE_{i,t-1} + \beta_2 Npl_{i,t-1} + \beta_3 Size_{i,t-1} + \beta_4 Gap_{t-1} + \varepsilon_{i,t}$$

• Results (FGLS):

$$\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 < 0$$

• Lending

$$\Delta Loans_{i,t} = \alpha_L + \gamma_1 Gap_{t-1} + \gamma_2 Npl_{i,t-1} + \gamma_3 \Delta Selic_{t-1} + \gamma_4 \Delta Buf_{i,t-1} + \eta_{i,t}$$

• Results (FGLS):

$$\gamma_1 < 0, \gamma_2 > 0, \gamma_3 > 0, \gamma_4 < 0$$
Addition to Model of Bank Capital

• Bank capital

$$\Delta Buf_{i,t} = \alpha_C + \beta_1 ROE_{i,t-1} + \beta_2 Npl_{i,t-1} + \beta_3 Size_{i,t-1} + \beta_4 Gap_{t-1} + \varepsilon_{i,t}$$

• Government, foreign and private banks
  – No statistically significant differences in levels
  – Government banks have $\beta_4<0$
  – Private banks have $\beta_4>0$
  – Foreign banks have $\beta_4=0$
Addition to Model of Bank Capital

- Bank capital
  \[
  \Delta Buf_{i,t} = \alpha_C + \beta_1 ROE_{i,t-1} + \beta_2 Npl_{i,t-1} + \beta_3 Size_{i,t-1} + \beta_4 Gap_{t-1} + \varepsilon_{i,t}
  \]

- \(\Delta Selic\) – change in overnight interest rate
  - Higher \(\Delta Selic\) associated with higher \(\Delta Buf\)
  - No statistically significant differences between government banks, private banks and foreign banks
Addition to Model of Bank Lending

• Lending

\[
\Delta \text{Loans}_{i,t} = \alpha_L + \gamma_1 \text{Gap}_{t-1} + \gamma_2 \text{Npl}_{i,t-1} + \gamma_3 \Delta \text{Selic}_{t-1} + \gamma_4 \Delta \text{Buf}_{i,t-1} + \eta_{i,t}
\]

• Gap times ΔBuf
  – Positive coefficient
  – Have negative coefficients on Gap and ΔBuf
Combined Coefficients

• Illustration of issue

\[ \Delta \text{Loans}_{i,t} = \alpha_L + \gamma_1 \text{Gap}_{t-1} + \ldots + \gamma_4 \Delta \text{Buf}_{i,t-1} + \gamma_5 \text{Gap}_{t-1} \Delta \text{Buf}_{i,t-1} + \eta_{i,t} \]

\[ \gamma_1 = -0.710, \gamma_4 = -0.285, \gamma_5 = 3.964 \]

\[ \frac{\partial \text{Loans}_{i,t}}{\partial \text{Gap}_{t-1}} = \gamma_1 + \gamma_5 \Delta \text{Buf}_{i,t-1} = -0.710 + 3.964 \Delta \text{Buf}_{i,t-1} \]

\[ \frac{\partial \text{Loans}_{i,t}}{\partial \Delta \text{Buf}_{i,t-1}} = \gamma_4 + \gamma_5 \text{Gap}_{t-1} = -0.285 + 3.964 \text{Gap}_{t-1} \]
Addition to Model of Bank Lending

• Lending

\[ \Delta Loans_{i,t} = \alpha_L + \gamma_1 Gap_{t-1} + \gamma_2 Npl_{i,t-1} + \gamma_3 \Delta Selic_{t-1} + \gamma_4 \Delta Buf_{i,t-1} + \eta_{i,t} \]

• \( \Delta Selic \) times \( \Delta Buf \)
  – Positive coefficient on \( \Delta Selic \) times \( \Delta Buf \)
    • Positive coefficient on \( \Delta Selic \)
    • Negative coefficient on \( \Delta Buf \)
Combined Coefficients

- Illustration of issue

\[ \Delta \text{Loans}_{i,t} = \alpha_L + \ldots + \gamma_3 \Delta \text{Selic}_{i-1} + \gamma_4 \Delta \text{Buf}_{i,t-1} + \gamma_5 \Delta \text{Selic}_{t-1} \Delta \text{Buf}_{i,t-1} + \eta_{i,t} \]

\[ \gamma_3 = 0.004, \gamma_4 = -0.246, \gamma_5 = 1.805 \]

\[ \frac{\partial \Delta \text{Loans}_{i,t}}{\partial \Delta \text{Selic}_{t-1}} = \gamma_3 + \gamma_5 \Delta \text{Buf}_{i,t-1} = 0.004 + 1.805 \Delta \text{Buf}_{i,t-1} \]

\[ \frac{\partial \Delta \text{Loans}_{i,t}}{\partial \Delta \text{Buf}_{i,t-1}} = \gamma_4 + \gamma_5 \Delta \text{Selic}_{t-1} = -0.246 + 1.805 \Delta \text{Selic}_{t-1} \]
Addition to Model of Bank Lending

• Lending
  \[ \Delta Loans_{i,t} = \alpha_L + \gamma_1 Gap_{i,t-1} + \gamma_2 Npl_{i,t-1} + \gamma_3 \Delta Selic_{t-1} + \gamma_4 \Delta Buf_{i,t-1} + \eta_{i,t} \]

• Government, foreign and private banks
  – No differences in level
  – Some evidence that private banks respond more to buffer values
    • i.e. \( \gamma_4 \) is more negative for private banks than for government banks
General Comments

• I would explore some aspects of results further
• Might be better to set up equations as reduced form equations