

WORKING MACROPRUDENTIAL TOOLS

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Macro-prudential Regulatory Policies: The New Road to Financial Stability?

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The views expressed here are those of the author and not necessarily those of the Banco de España or the Eurosystem

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Outline

- Why macroprudential/countercyclical tools?
- Dynamic provisioning in Spain
- Other tools:
 - Smoothing capital requirements

Why macroprudential/countercyclical tools?



- Spain had last year -3.6% real GDP change...
- ... the worse outcome in more than 60 years
- Spain has an unemployment rate close to 20%
- Fiscal deficit last year was more than 10% of GDP...
- ...while current account deficit was more than 5% of GDP
- The spread between the German and the Spanish government bond has widened significantly in 2010
- Thus, a bleak and miserable economic environment...

Why countercyclical tools?

- ... but we are the World Cup Champions





DYNAMIC PROVISIONS

Lending cycles



- Banking supervisors know that banks' lending mistakes are more prevalent during upturns
 - Borrowers and lenders are overconfident about investment projects
 - Banks' over optimism implies lower lending standards
- During recessions, banks suddenly turn very conservative and tighten lending standards
- Lending cycle with impact on the real economy
- Too much competition may make things worse
- Monetary policy (i.e. long periods of low interest rates) may increase bank risk taking

Lending cycles

- There is ample evidence of looser credit standards during expansions
- For Spain Jiménez and Saurina (IJCB 2006) find robust evidence of
 - A direct though lagged relationship between credit growth and credit risk
 - Loans granted during boom periods have a higher PD than those granted during slow credit growth periods
 - In boom periods collateral requirements are relaxed while the opposite happens during recessions
- Banking supervisors' concerns are well rooted in empirical ground
- Need of a tool to cope with the potential problems due to rapid credit growth/under-pricing of risk
- One answer is dynamic provisions

Dynamic provisions-Summary



- Set aside in mid-2000; modified in 2004 (to be consistent with IFRS)
- Spanish LLP cover the increase in credit risk/losses during lending expansions
- Build up a buffer in good times to be used in bad times
- They are a macroprudential tool to decrease procyclicality
- Based on extensive research and statistics on historical loan loss experience for bank loan portfolios in Spain
- Transparent mechanism
- The crisis has shown they are very useful...but not a silver bullet

Accounting framework

- Specific provisions cover incurred losses already identified in a specific loan
- General provisions cover incurred losses not yet individually identified in a specific loan through a collective assessment for impairment
- Banco de España (BdE) provides a model based on the historical credit loss information obtained from our Credit Register (CIR)
 - *Information for homogenous groups of loans (credit cards, mortgages, loans to SMEs, loans to governments,...)*
- BdE model applies to cover incurred losses only for credit activity in Spain
 - *not possible to apply Spanish parameters to loans granted abroad by Spanish banks*

A simple countercyclical mechanism



- In periods of expanding credit risk/under-pricing of risk/increase in incurred collective losses, a buffer of provisions is being build up, precisely to cover the increase in credit risk and incurred losses not yet materialized in specific loan
- In periods when specific losses materialize in individual loans, the banks can draw down from the previously build buffer of provisions
- The Spanish general provision also includes a cap in the amount of the general fund being build up to avoid excess provisioning
- There is a simple formula governing the process

Specific mechanics

- Currently, we have specific provisions and general provisions
- General provisions are set aside according to:

$$\dot{gen}_t = \alpha \Delta C_t + \left(\beta - \frac{\dot{espe}_t}{C_t} \right) C_t$$

- C_t is the stock of loans and ΔC_t its variation
- α which is the average estimate of the credit loss
- β is the historical average specific provision

Specific mechanics

- The former formula is a simplified way of presenting things
- In fact, α and β are assigned according to the six risk buckets or six homogeneous risk categories
- The parameter vectors are:
 - (0%; 0.6%; 1.5%; 1.8%; 2%; 2.5%) for α
 - (0%; 0.11%; 0.44%; 0.65%; 1.1% y 1.64%) for β
- Six homogeneous groups:
 1. zero risk (cash, public sector debt)
 2. home mortgages with LTV below 80%, corporates with rating A or above
 3. loans with real guarantees and home mortgages with LTV above 80%
 4. rest of loans, including corporates and SMEs
 5. consumer durables financing
 6. credit cards and overdrafts

Specific mechanism

- The formula of the new general provision is:

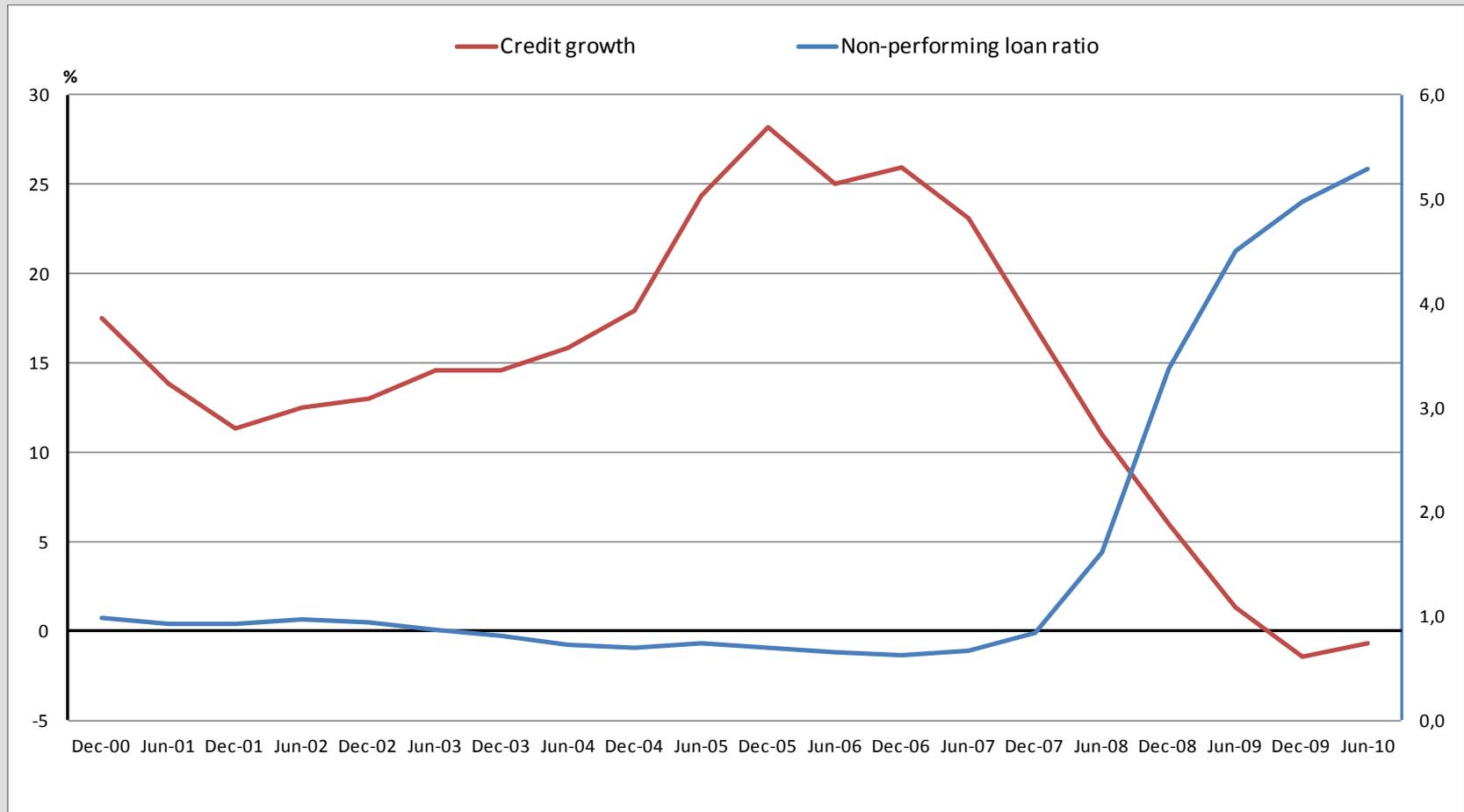
$$\dot{gen}_t = \sum_{i=1}^6 \alpha_i \Delta C_{it} + \sum_{i=1}^6 \left(\beta_i - \frac{\dot{espe}_{it}}{C_{it}} \right) C_{it} = \sum_{i=1}^6 \alpha_i \Delta C_{it} + \left(\sum_{i=1}^6 \beta_i C_{it} - \dot{espe}_t \right)$$

- There is no need to know which is the exact position in the cycle. That is endogenously provided by current specific provisions which by definition are closely tied to non-performing loans, a variable closely linked to the lending and the business cycle
- It is easy to look backwards and establish the length of the last lending cycle and, therefore, the average of the cycle specific provision (the β)

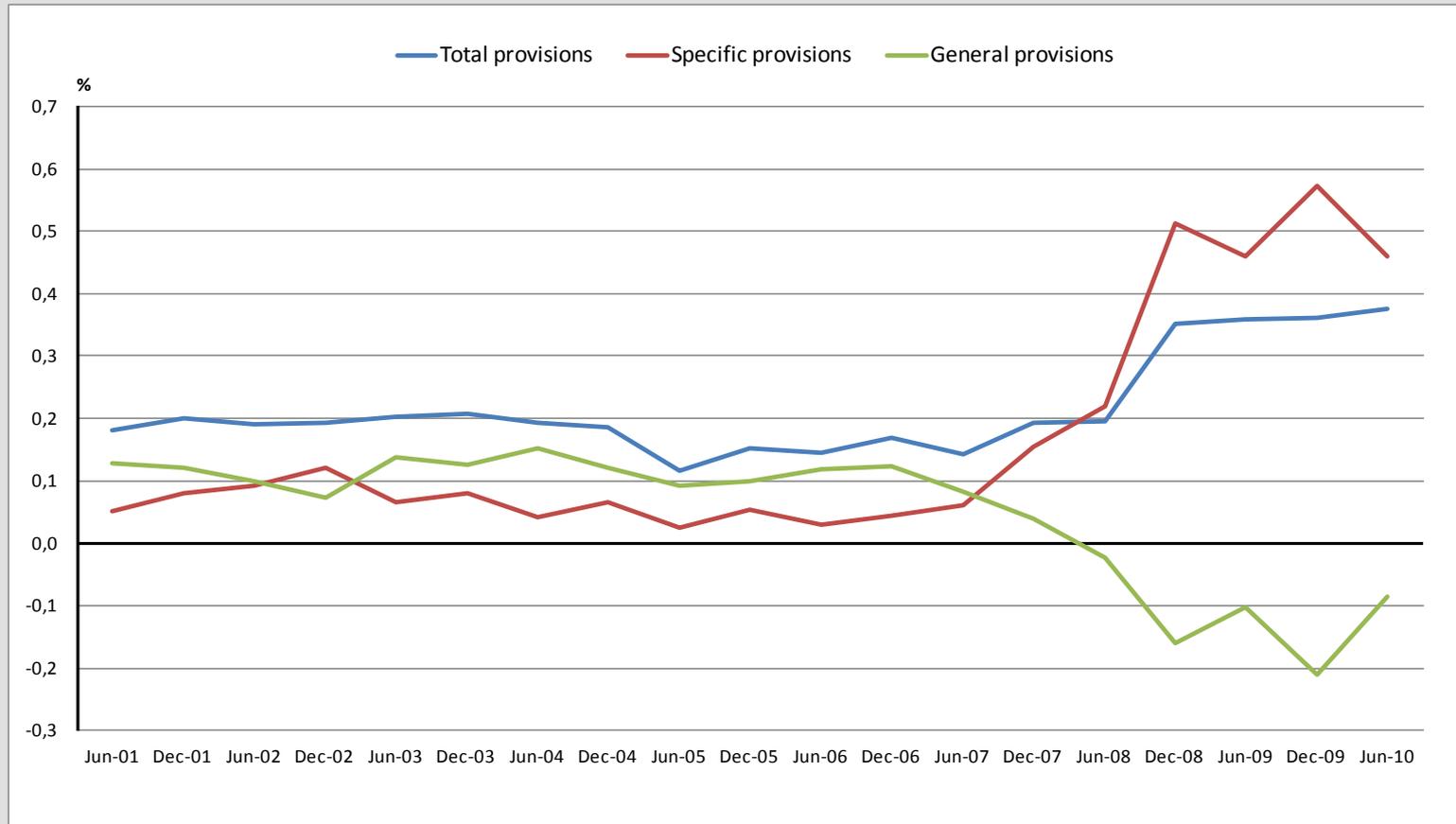
Transparency

- Banks are required to disclose the amount of the dynamic provision, apart from the specific provision
- Thus, users of accounting statements can “undo” the impact of the dynamic provision on the P&L
- Our aim is that financial statements (balance sheet and, in particular, the P&L) properly reflect the true financial situation on the bank
 - To recognize the credit risk/losses when they appear
 - Avoid biases in profits, dividends, and bonuses
 - To deliver the proper incentives to investors
 - As well as to bank managers

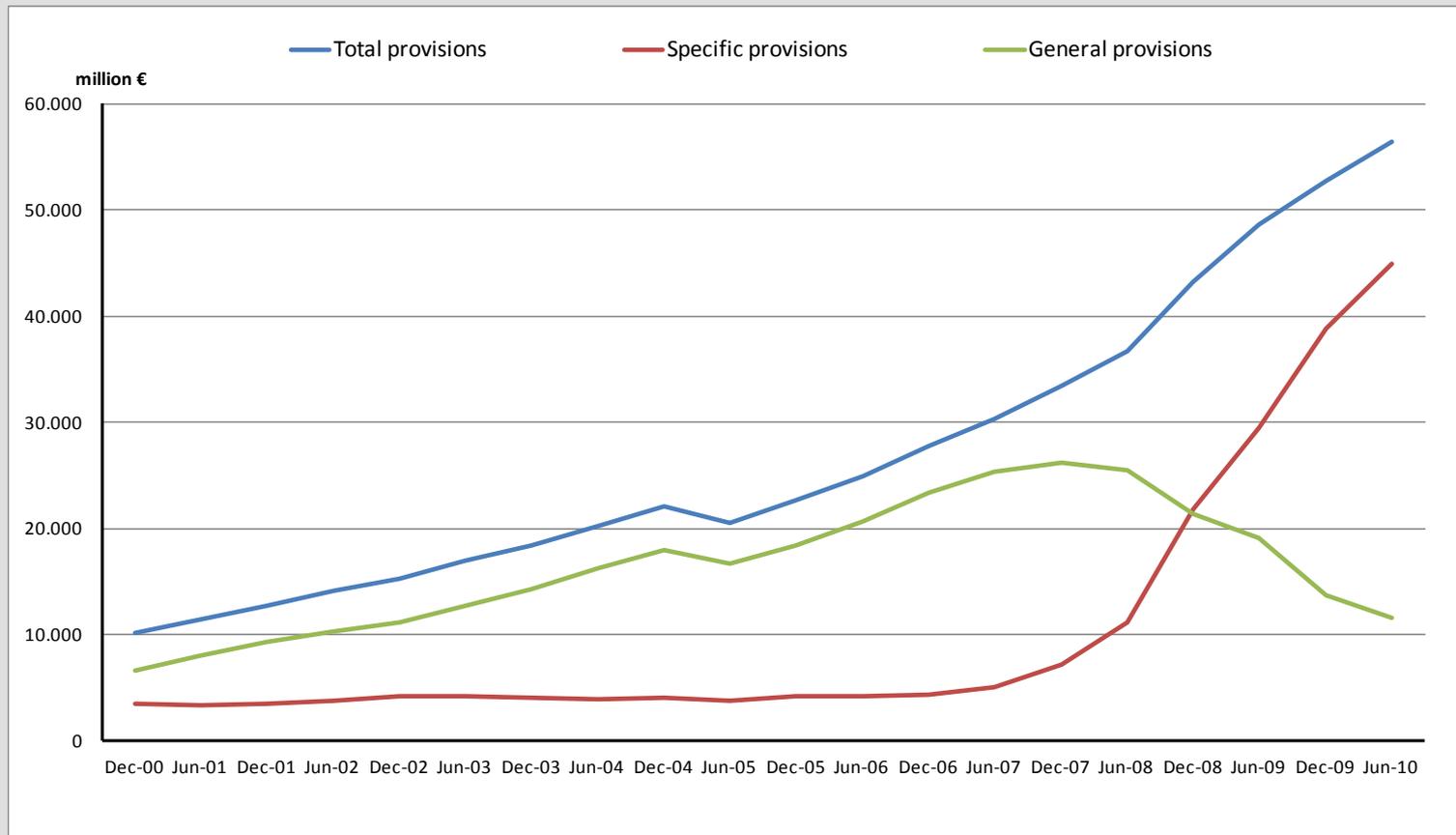
Lending cycle and NPL in Spain



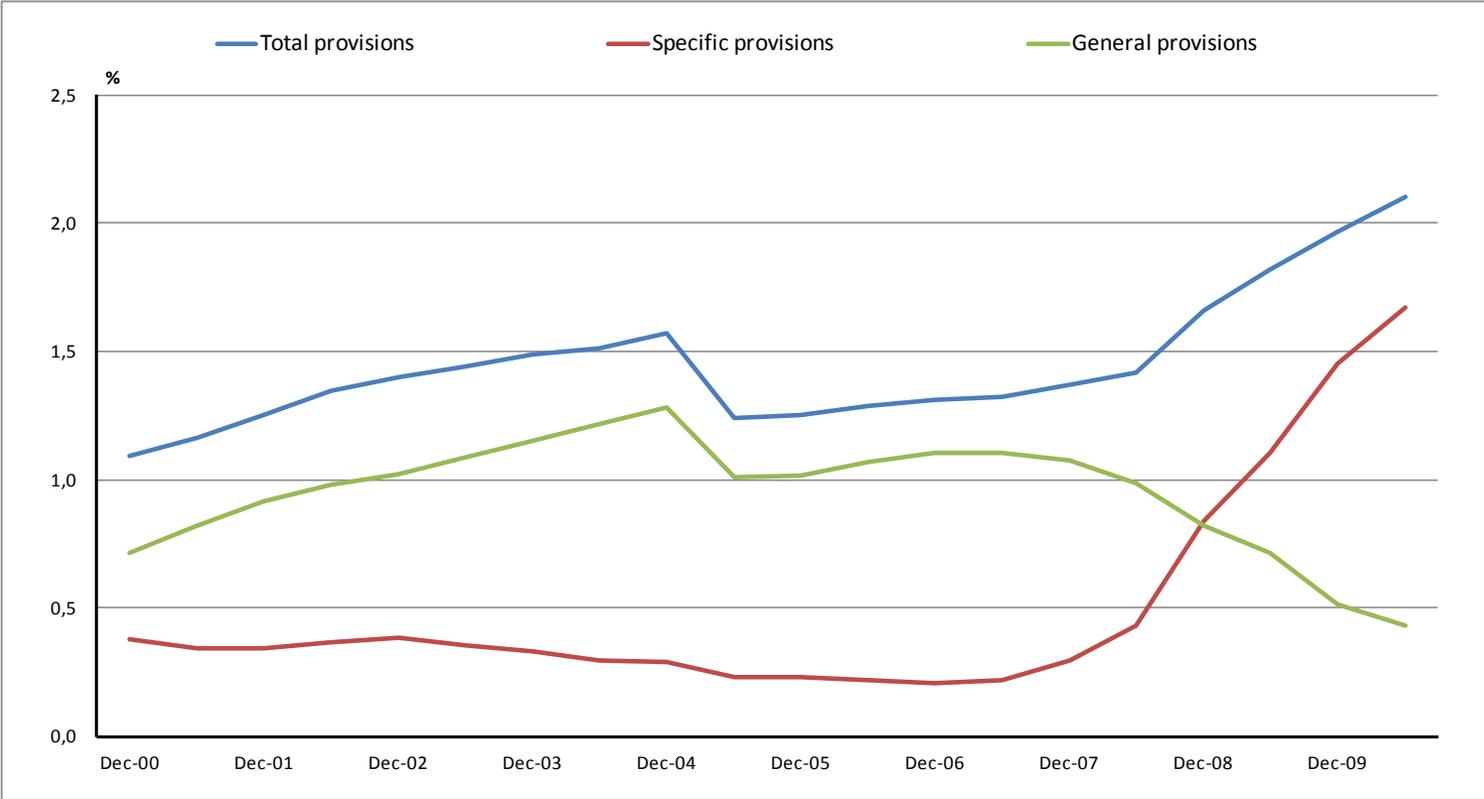
Flow of provisions as a % of total loans



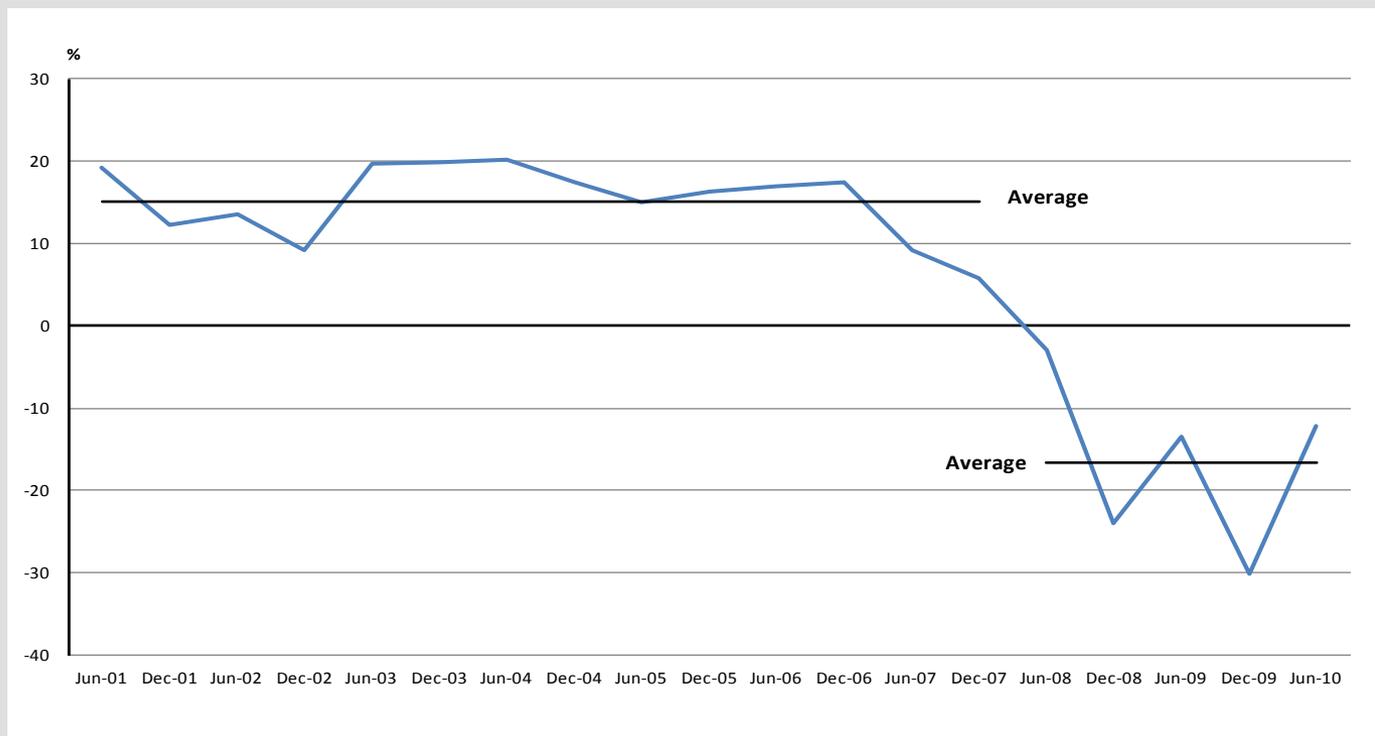
Provision funds: Specific, General and Total



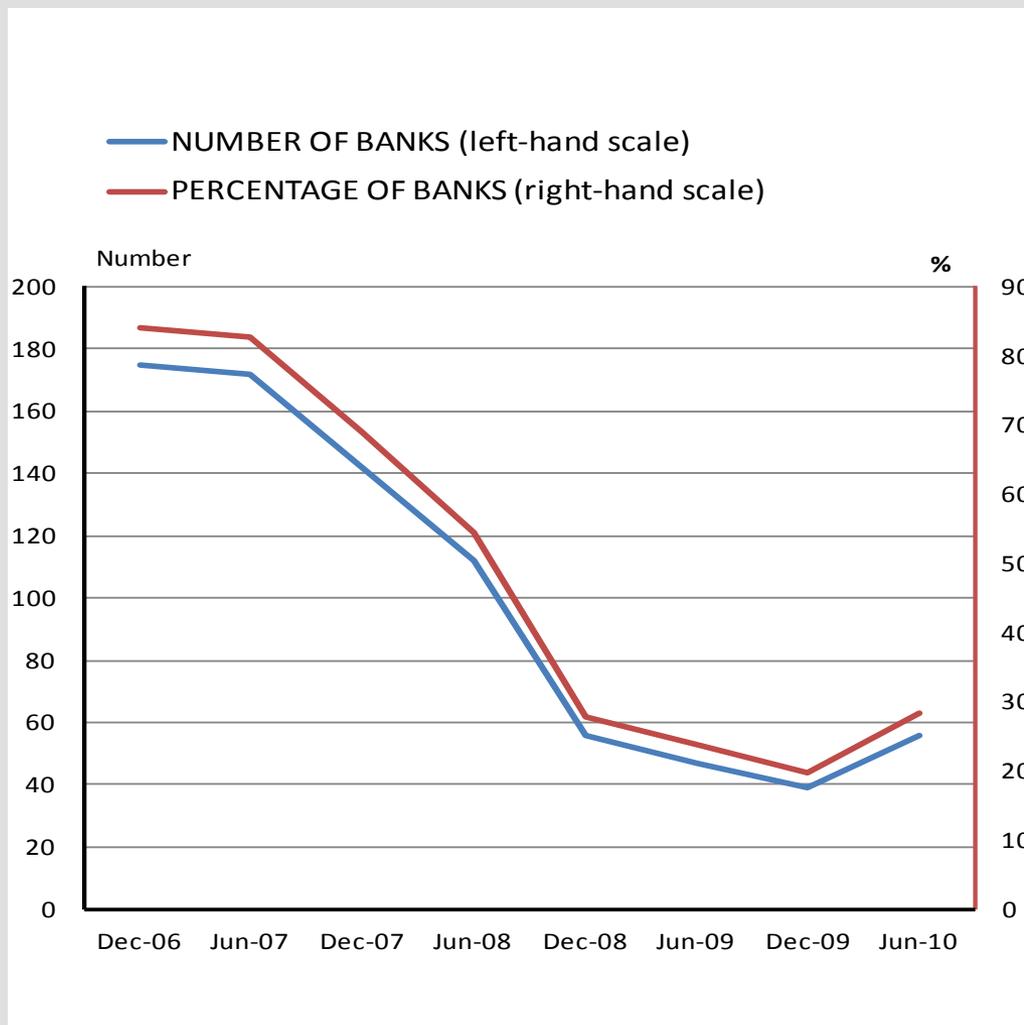
Provision funds over total loans



General Loan Loss Provisions over Net Operating Income



Number of banks (left) and % of them (right) that reach the limit of the statistical/general fund





- Total loan loss provisions at a consolidated level at the end of 2007 were 1.33% of total consolidated assets
- The ratio of bank capital and those total assets was 5.78%
- At the end of 2007, Spanish banks at a consolidated level had 1.20% of general provisions over total credit granted
- The ratio of general provisions to credit subject to **positive** dynamic provisioning requirements was 1.44% at the end of 2007 at a consolidated level
- The ratio of general provisions over total credit subject to the dynamic provision at the end of 2007 for **individual balance sheets** was 1.22%
- If we exclude those exposures with 0% weighting, the coverage ratio climbs to 1.59%
- For non-consolidated data in Spain, the generic provisions were 78.9% of total provisions at the end of 2007

Conclusions on dynamic provisions



- The Spanish system allows for an earlier detection of credit losses building up in the banks' loan portfolio
- It is a transparent system (rule-based, formula based, with disclosures) and provides information that is comparable across banks
- Early warning system for financial statement users
 - it signals the build up of credit risk and credit losses
 - It delivers the proper information to investors to gauge the true financial condition of the firm
- The proper recognition of the increase in credit risk/collective incurred losses since the inception of the dynamic provision, has been very useful for Spanish banks under the current crisis...
- ... although it is not a silver bullet



OTHER TOOLS

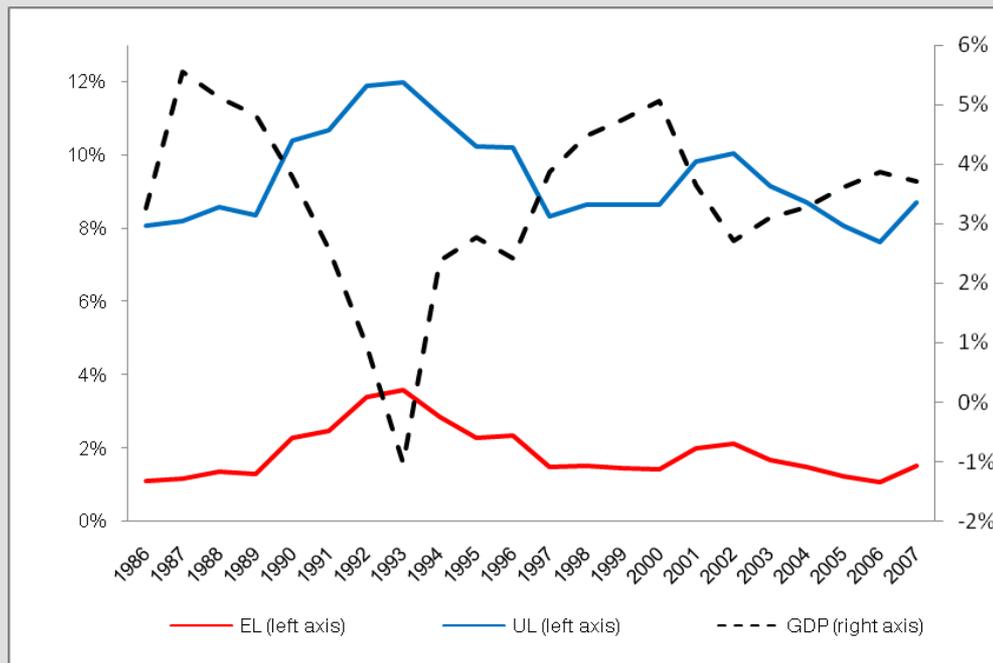
Other tools

- Since it is very difficult to win the World Cup, it is good to have other tools in the countercyclical toolbox



Other tools

- Not everybody is convinced about dynamic provisions, despite being a working macro-prudential tool (i.e. accountants)
- Expected losses only a fraction of unexpected losses



Procyclicality in capital requirements



- Concern: risk-sensitive bank capital regulation (i.e. Basel II) may amplify business cycles
- In particular, contraction in loan supply in downturns due to
 - Capital requirements under Basel II are an increasing function of PD, LGD and EAD, all likely to rise in a downturn
- Will capital buffers neutralize this effect?
 - Difficult to issue new equity or to increase earnings retention as well as to switch to other sources of funding
- Rationale for cyclical adjustment of capital requirements

Procyclicality in capital requirements

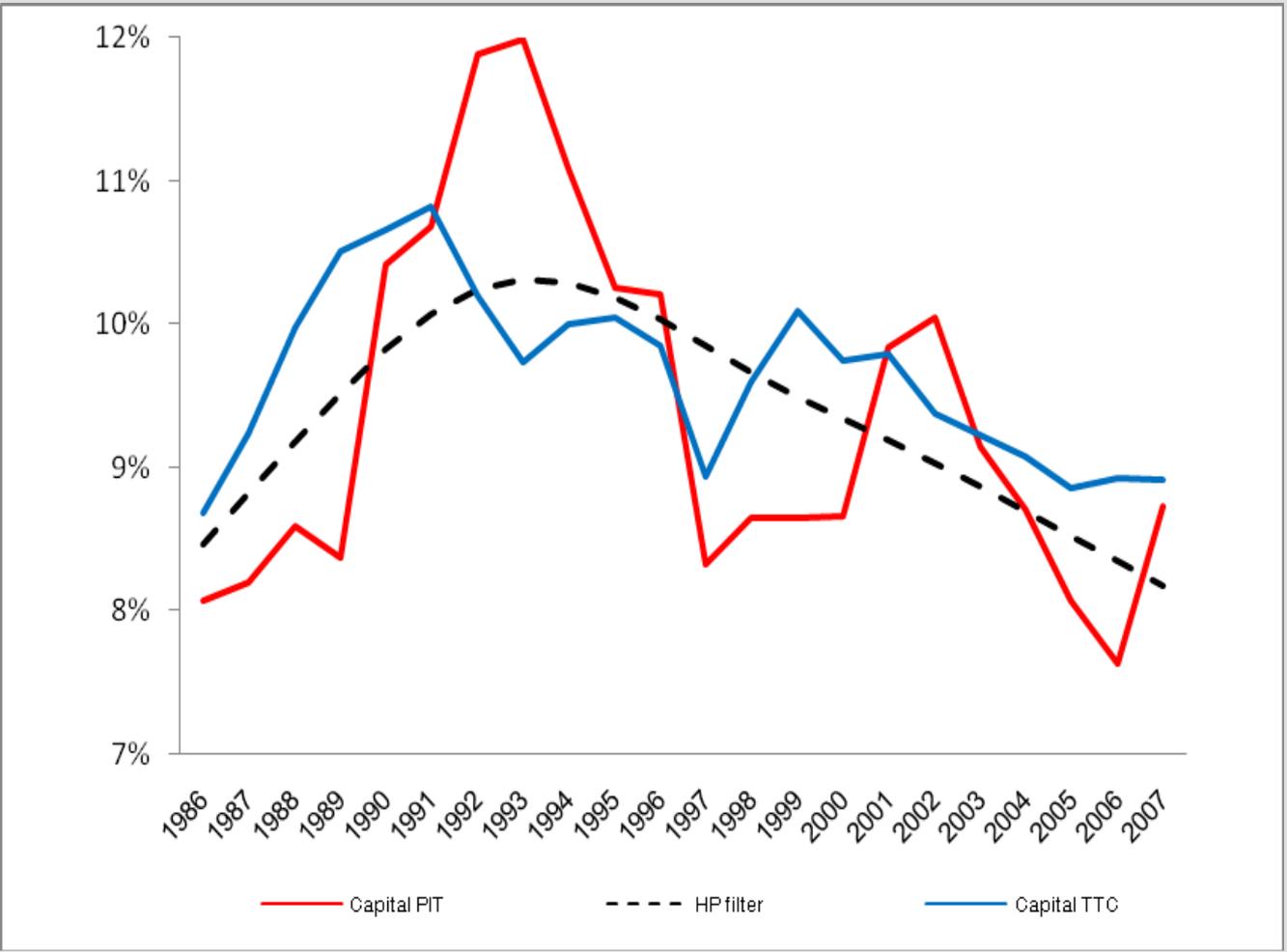


- How should the cyclical adjustment of Basel II be made?
 - The devil is in the details
- Two basic alternatives:
 - Smooth the inputs of the Basel II formula
 - Through-the-cycle (TTC) ratings/PDs
 - Smooth the output with point-in-time (PIT) ratings/PDs
 - Using aggregate (i.e. macro variables) or individual bank information



- Estimate a model of probabilities of default (PDs)
 - Data on Spanish firms' loans for the period 1984-2008
 - Credit Register of Banco de España (CIR)
- Compute corresponding Basel II capital requirements (PIT and TTC)
- Smooth cyclical behavior using as a benchmark the Hodrick-Prescott (HP) filter
 - Still risk sensitive capital requirements along time
- Compare different smoothing procedures
 - Minimization of Root Mean Square Deviations (RMSD) from HP benchmark

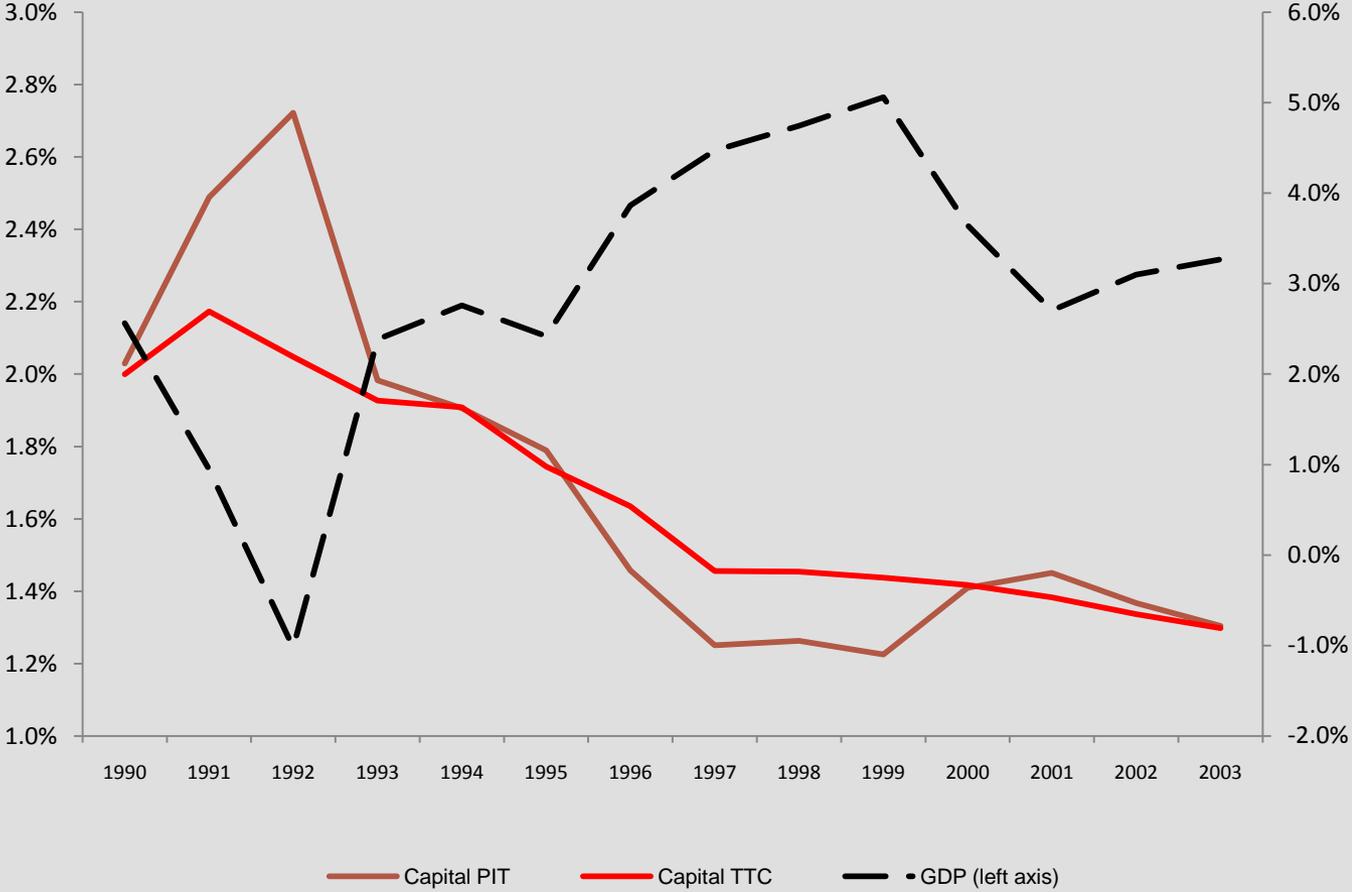
Capital PIT vs TTC



Mortgage portfolios; PIT vs TTC



- Saurina and Trucharte (2007, JFSR)



Smoothing the output: multiplier approach

- Smooth PIT capital requirements series by multiplier

$$\hat{k}_t = \mu_t k_t$$

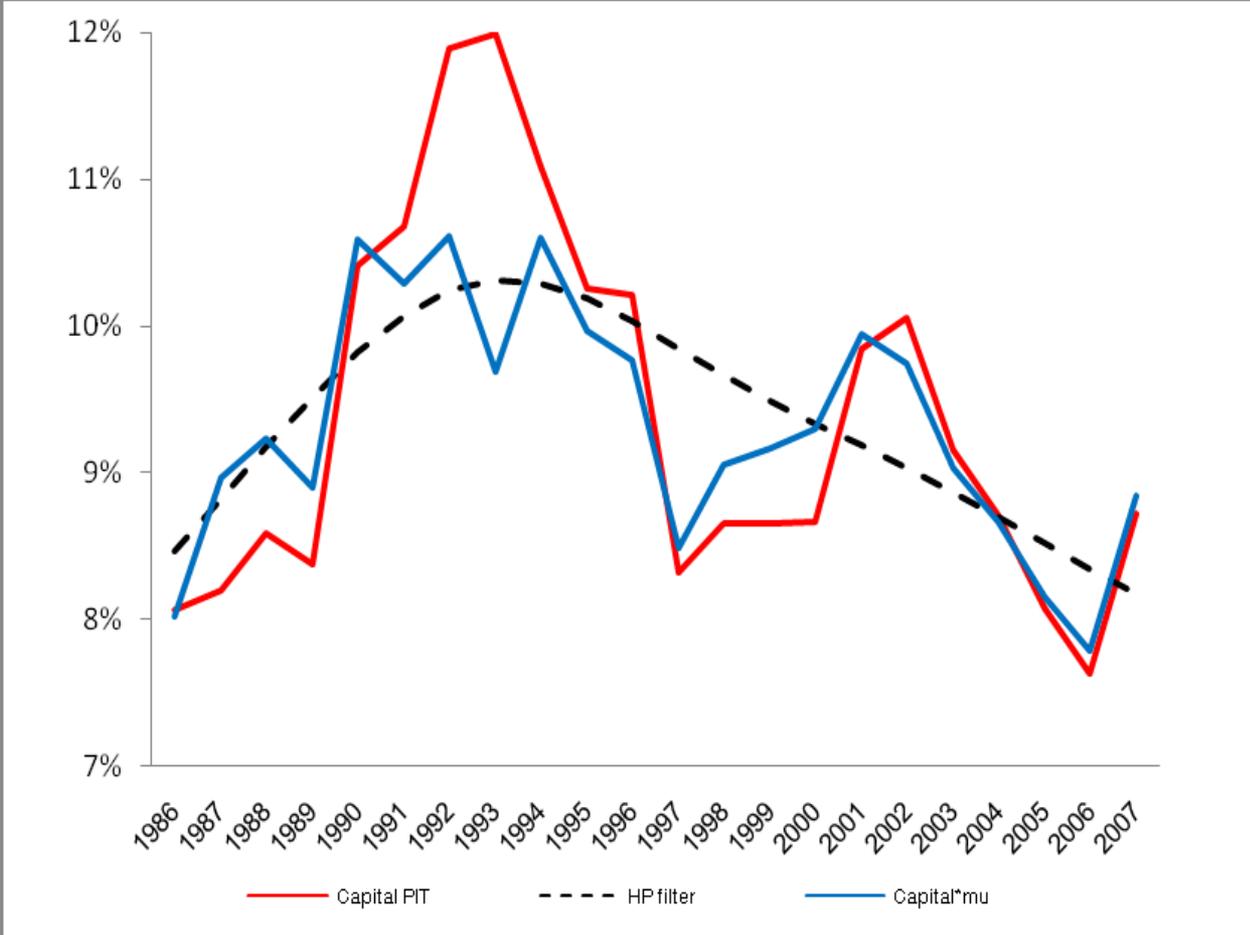
- where k_t is the PIT capital series and \hat{k}_t is the smoothed one
- Proposed business cycle multiplier

$$\mu_t = \mu(g_t, \alpha) = 2\Phi\left(\frac{\alpha(g_t - \bar{g})}{\sigma_g}\right)$$

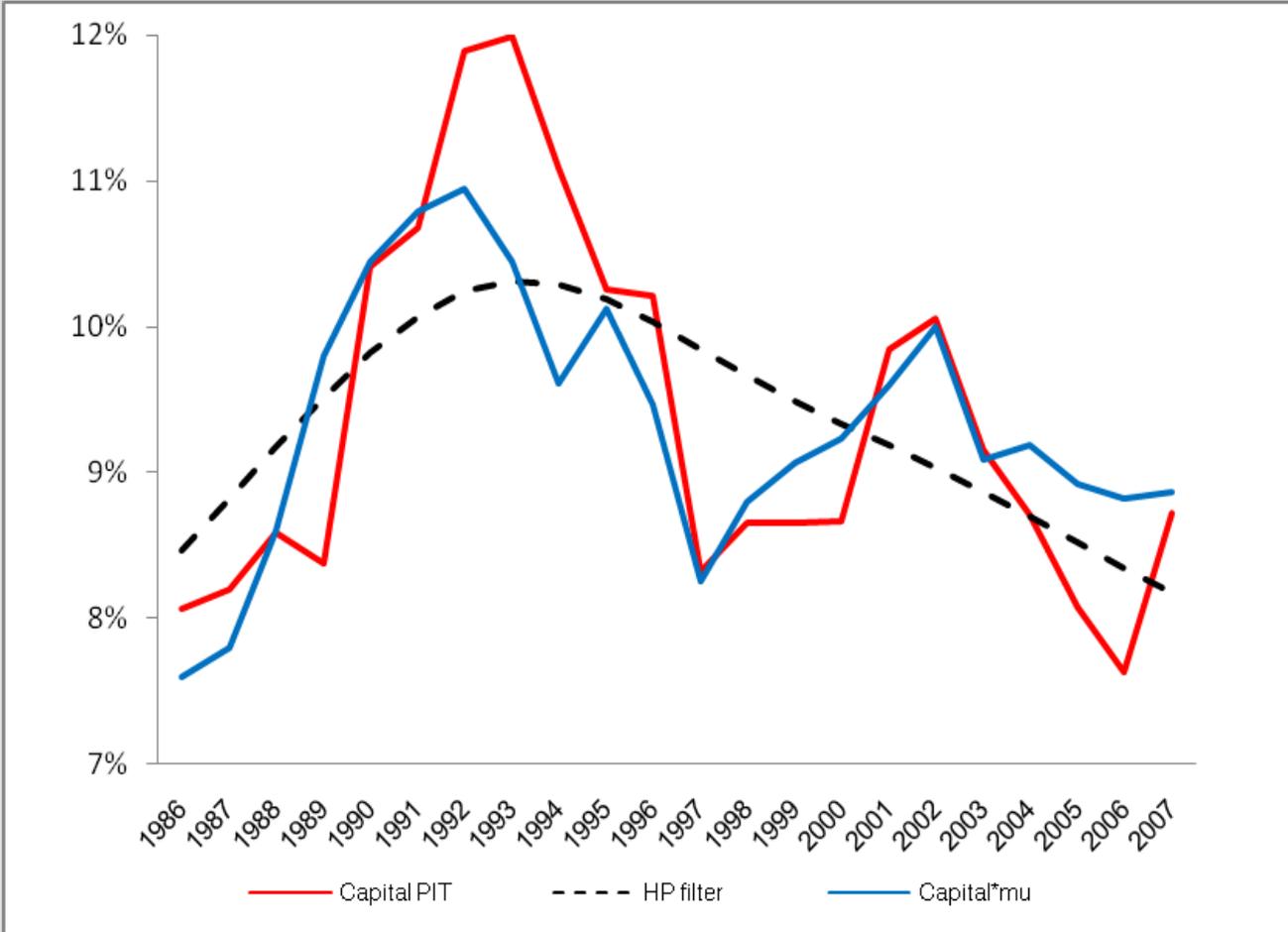
- Properties

- If $g_t = \bar{g}$ then $\mu_t = 2\Phi(0) = 1$
- If $g_t \rightarrow +\infty$ then $\mu_t \rightarrow 2$ and if $g_t \rightarrow -\infty$ then $\mu_t \rightarrow 0$

Smoothing the outputs: GDP adjustment



Smoothing the outputs: Credit adjustment



Conclusions on countercyclical capital buffers

- Question: How should cyclical adjustment of Basel II be made?
 - Benchmark for comparing different procedures
 - Introduce some discipline in the discussion
- Result: Use a simple multiplier that depends on GDP growth
 - Adjustment is fairly small (but effective)
 - 6.5% surcharge for each standard deviation
- Using GDP growth is better than other variables, in particular
 - Market variables (e.g. stock indexes)
 - Accounting variables (e.g. ROA)
 - Leverage indicators (e.g. bank credit over GDP)

Macroprudential tools

- Dynamic provisions are part of the toolbox for macroprudential supervision
- The buffer banks build up through dynamic provisions in the upturn proves very useful when losses arrive in the recession
- Thus, dynamic provisions increase the resilience of each individual bank and that of the whole system
- However, it is not possible to ask dynamic provisions to play the role of other instruments
- A tool like dynamic provisions has not been able, apparently, to tame the lending cycle
 - Counterfactuals are not possible in economics
 - We do not know what credit growth Spain would have had without them...but credit growth was strong
 - It is difficult, even *ex post* to argue for more stringent parameters (already 15% of net operating income was provisioned)

Macroprudential tools

- Dynamic provisions are basically a tool to enhance the solvency of banks through the proper coverage of inherent losses
- The management of the lending cycle should be done using other instruments
 - the mixture of monetary and fiscal policies
- You cannot ask too much to dynamic provisions
- If monetary policy leans more against the wind...
 - taking into account developments in asset prices and credit
- ...lending cycles may be better tamed...
- ...complementing any measure that could be taken from the regulatory or supervisory side
 - control over lending standards, countercyclical provisions and smoother capital requirements

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THANK YOU FOR YOUR ATTENTION

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