Countercyclical Capital Buffers

A Critical Assessment of the Basel Proposal

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The mandate of the G-20

"The IMF, the expanded FSF, and other regulators and bodies should develop **recommendations to mitigate procyclicality**, including the review of how valuation and leverage, bank capital, executive compensation, and provisioning practices may exacerbate cyclical trends."

G-20 Washington Summit

November 2008

The proposal of the Basel Committee (i)

→ *Strengthening the Resilience of the Banking Sector*

Basel Committee Consultative Document, December 2009

- Measures to address procyclicality
  - → Dampen excess cyclicality of minimum requirement
  - → Promote forward looking provisions
  - → Capital conservation buffer
  - → **Countercyclical capital buffer**

The proposal of the Basel Committee (ii)

→ *Countercyclical Capital Buffer Proposal*

Basel Committee Consultative Document, July 2010

- Objective: Dampen excessive credit growth
- Response: Add-on to capital conservation buffer

  → Based on deviations of credit-to-GDP ratio from trend

Overview of presentation

- Describe countercyclical capital buffer

  → Review main shortcomings

  → Conclusion: Bad proposal that should be abandoned

- Main issue that is not being properly addressed

  → Excess cyclicality of the minimum requirement

  → Basel Committee favors through-the-cycle approach

  → Conclusion: Bad approach that should be abandoned

Part 1

Countercyclical capital buffer

Objective

"The primary aim of the proposal is to use a buffer of capital to achieve the broader macroprudential goal of protecting the banking sector from periods of **excess credit growth** that have often being associated with the **build up of system-wide risk**."

Countercyclical Capital Buffer Proposal, p. 2

Proposal (i)

Notation

x_t = aggregate private sector credit-to-GDP ratio

$\overline{x}_t$ = Hodrick-Prescott trend of x_t

$z_t = x_t - \overline{x}_t$ = credit-to-GDP gap

Proposal (ii)

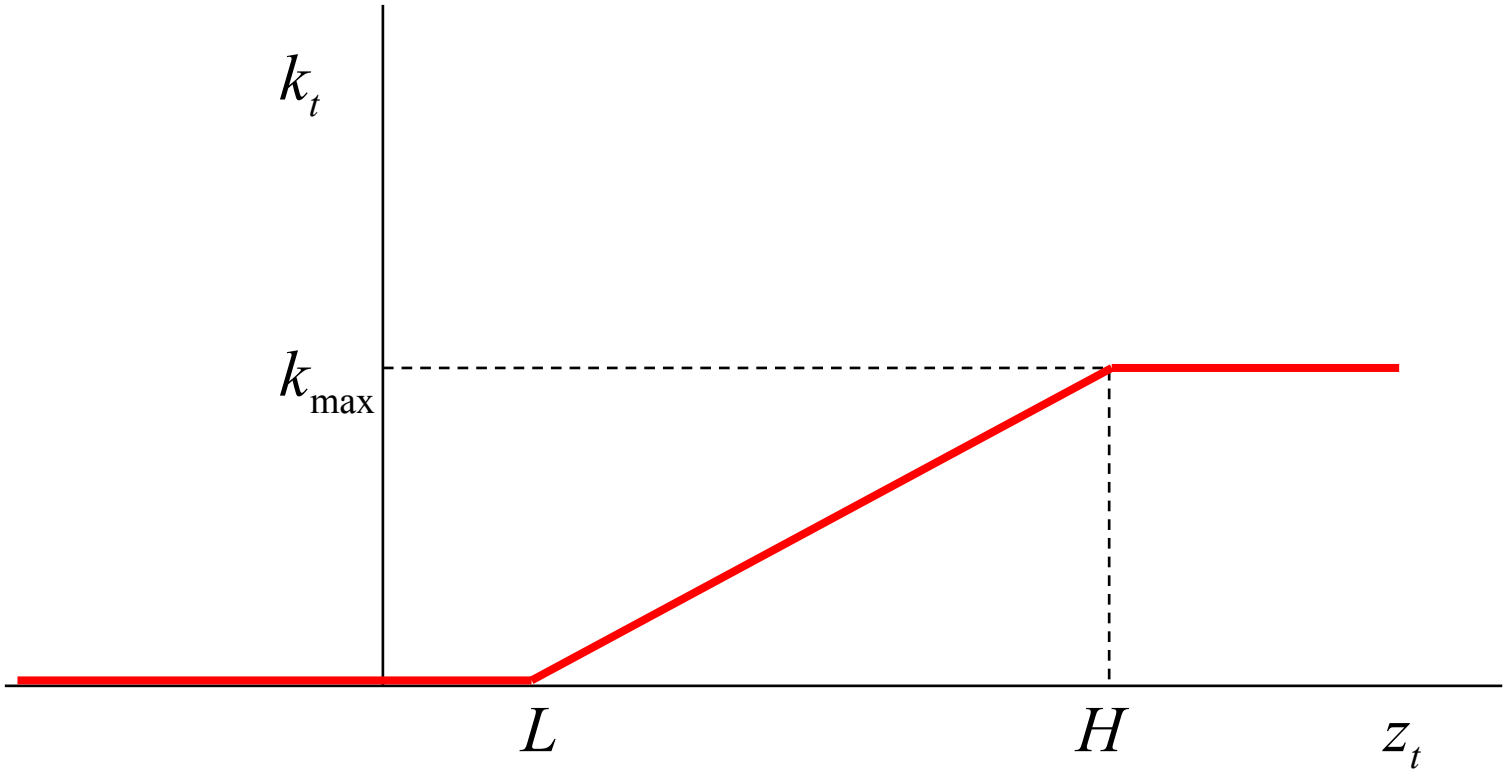
Countercyclical capital add-on

$$k_t = \begin{cases} 0 & \text{if } z_t < L \\ \dfrac{z_t - L}{H - L} k_{\max} & \text{if } L \le z_t \le H \\ k_{\max} & \text{if } H < z_t \end{cases}$$

→ where L, H, and $k_{\max}$ are fixed parameters

→ in the proposal $L = 2\%$, $H = 10\%$, and $k_{\max} = 2\%$

Proposal (iii)



Comment 1: Insufficient theory or evidence

- Insufficient theory or evidence to justify the proposal

  "Previous **academic work** has shown that the credit-to-GDP gap can be a **powerful predictor** for banking crises" (p. 26)

- What is this "academic" work?

  → Two papers in the *BIS Quarterly Review*

  → One *ECB Working Paper*

- Not much to base such strong assessment!

Comment 2: Insufficient justification

- Predictive power does not necessarily justify regulation
  - → Correlation does not imply causation
  - → Even if this could be established
    - – Need to argue that regulation would be effective
    - – Without undesirable side-effects

– The “academic” homework has not been done!

Comment 3: Possible negative effects (i)

- Look at data on correlations

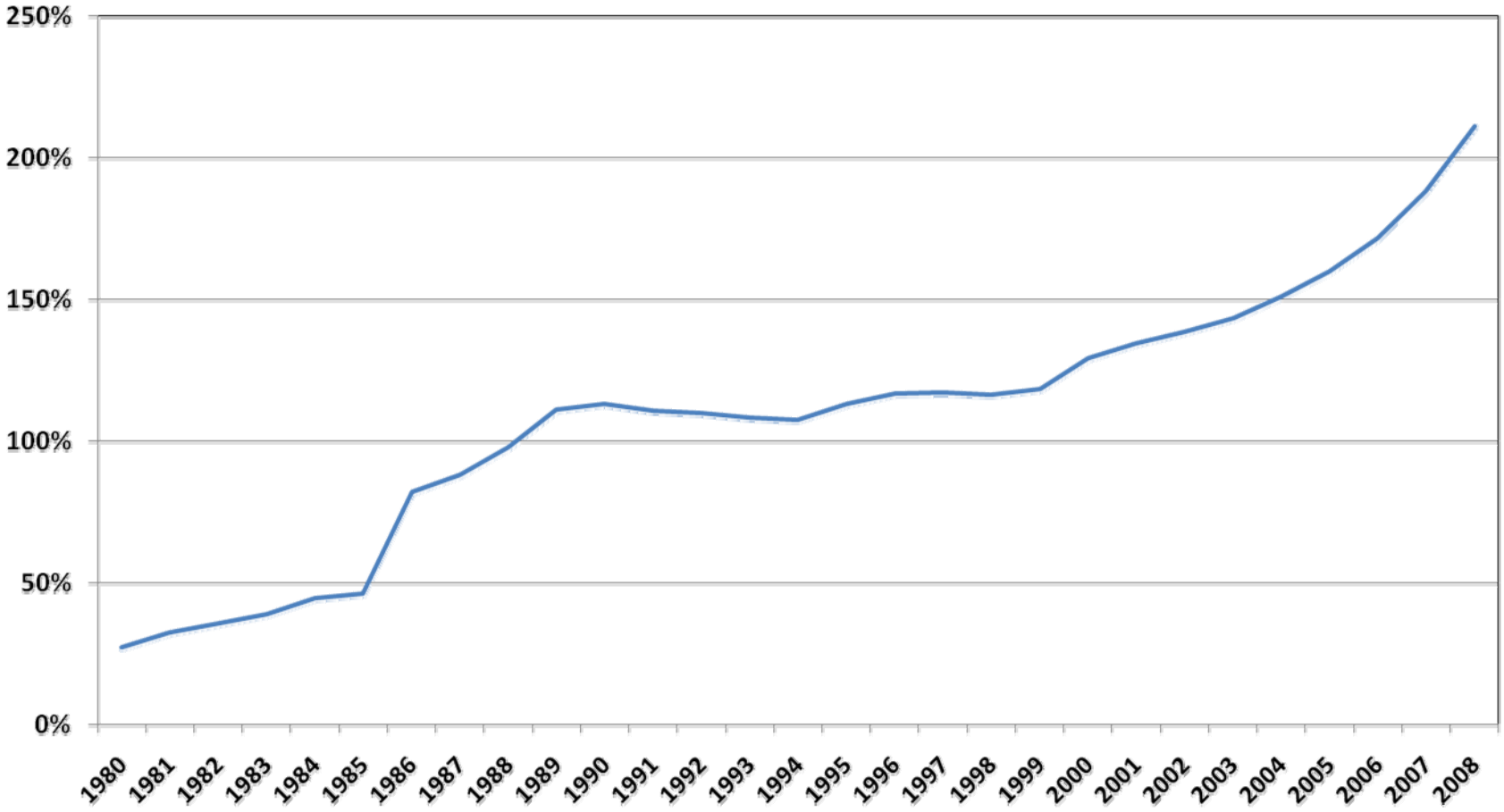
  → Between *z* (credit-to-GDP gap) and *y* (GDP growth)

- Data source

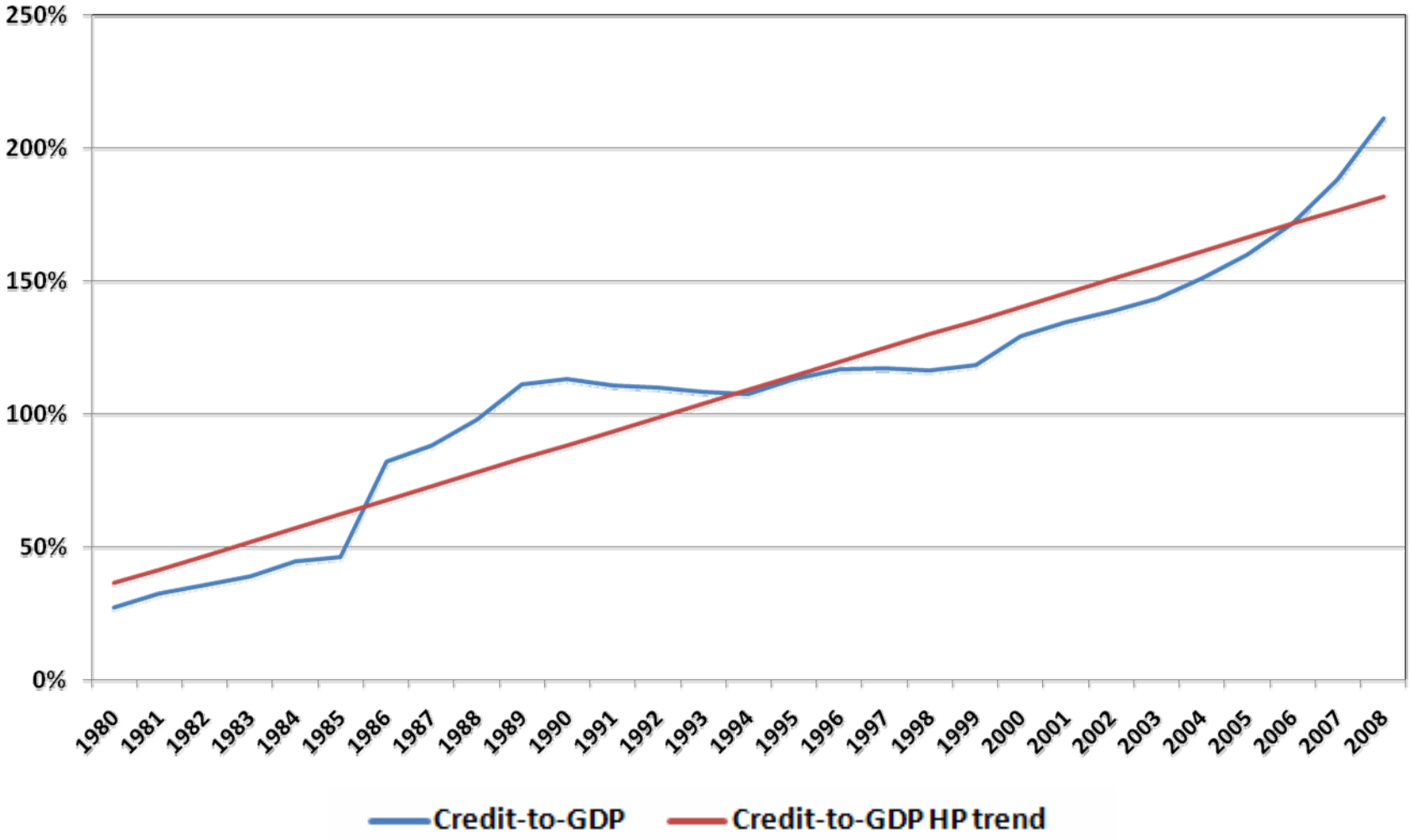
  → World Bank: http://data.worldbank.org/

  → Domestic credit to private sector (% of GDP)

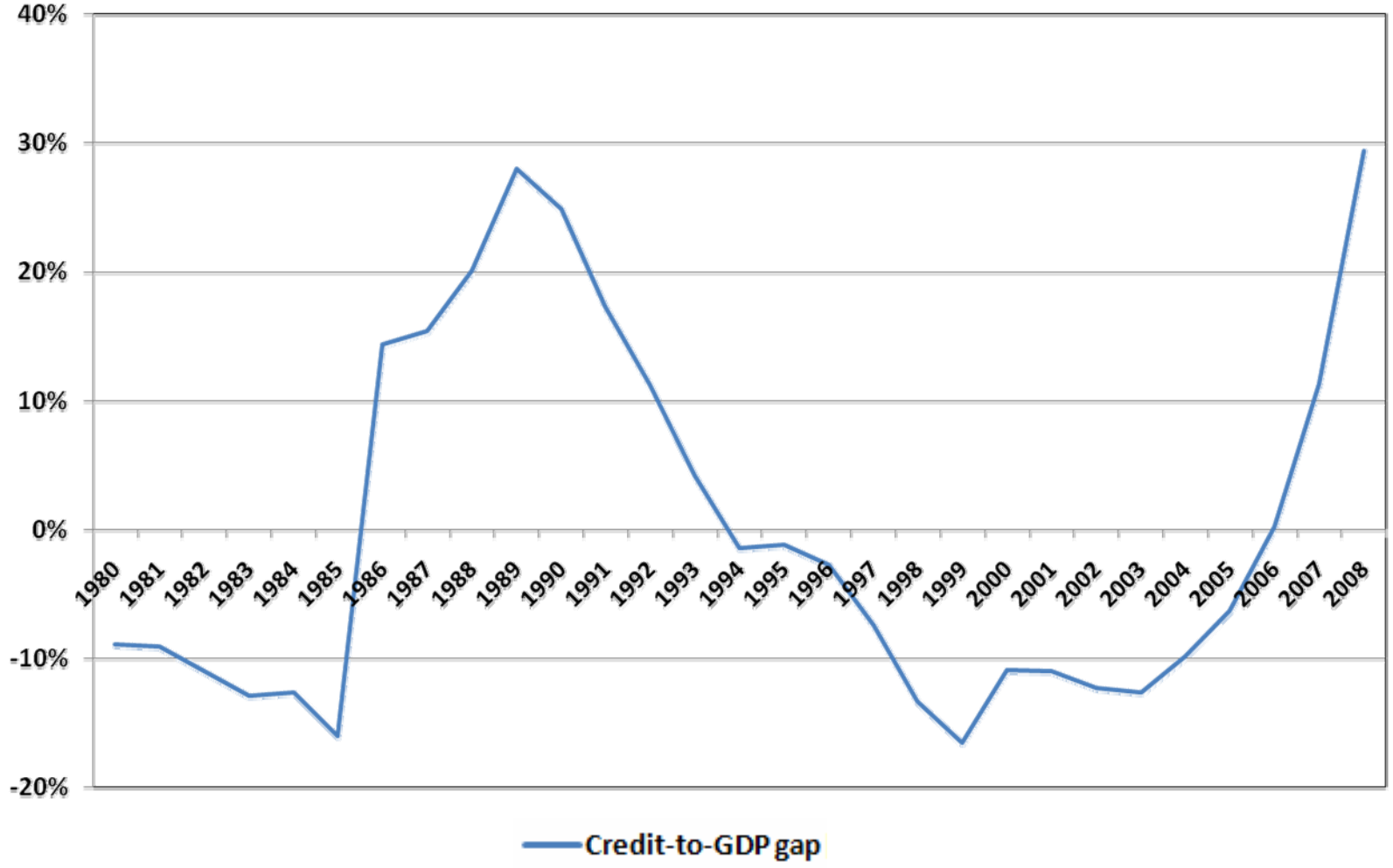
Credit-to-GDP ratio (UK)



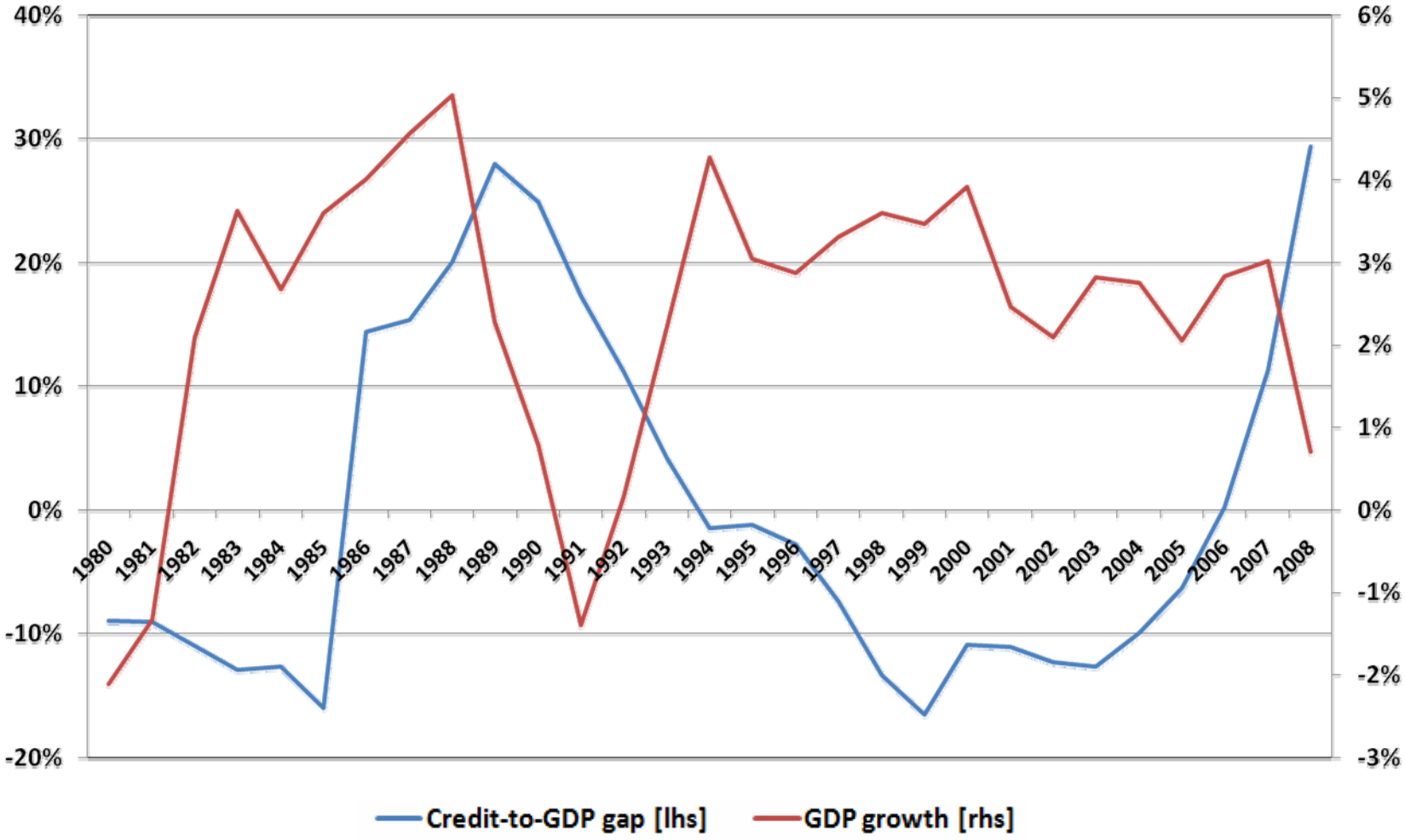
Credit-to-GDP ratio (UK)



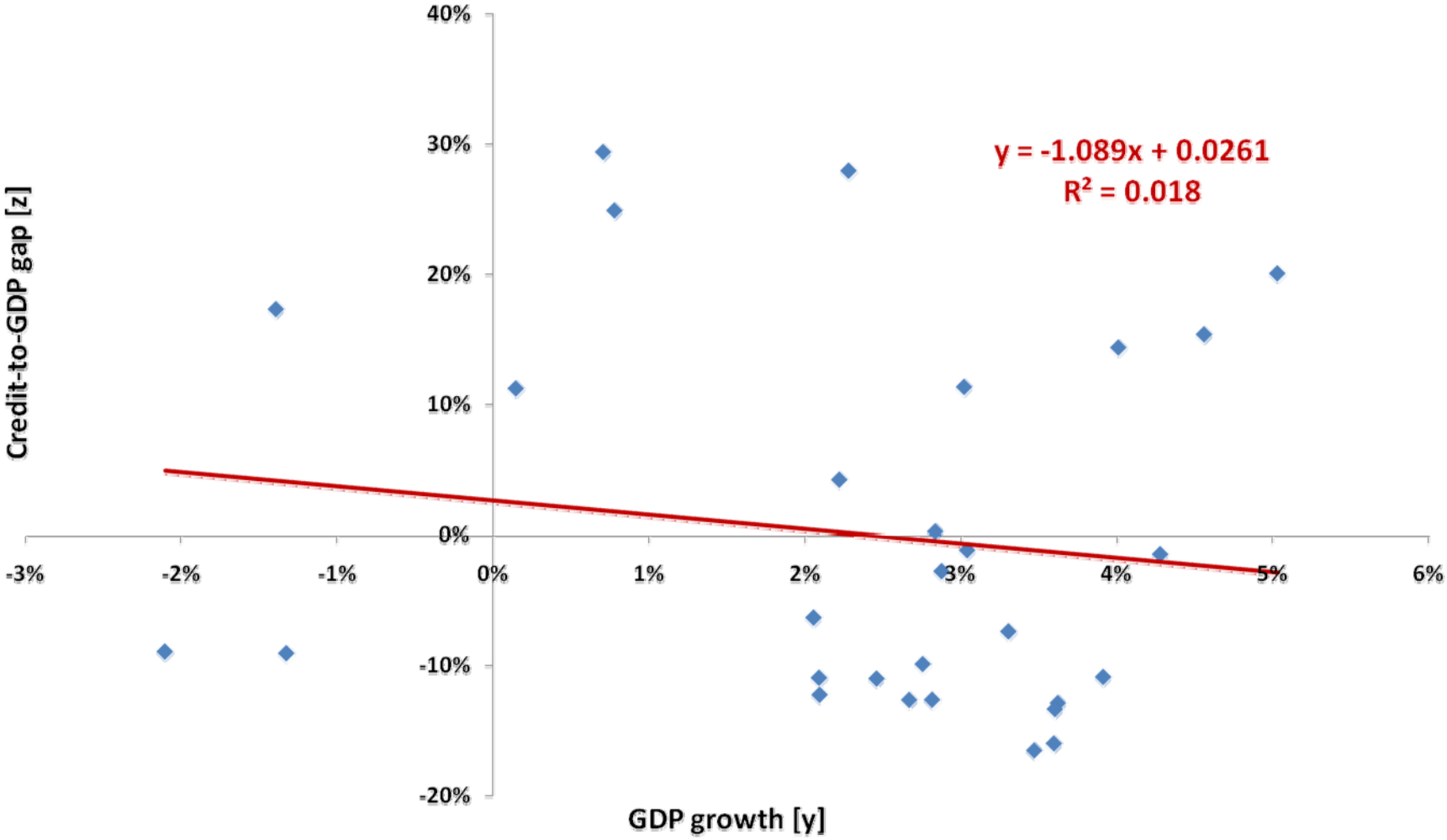
Credit-to-GDP gap (UK)



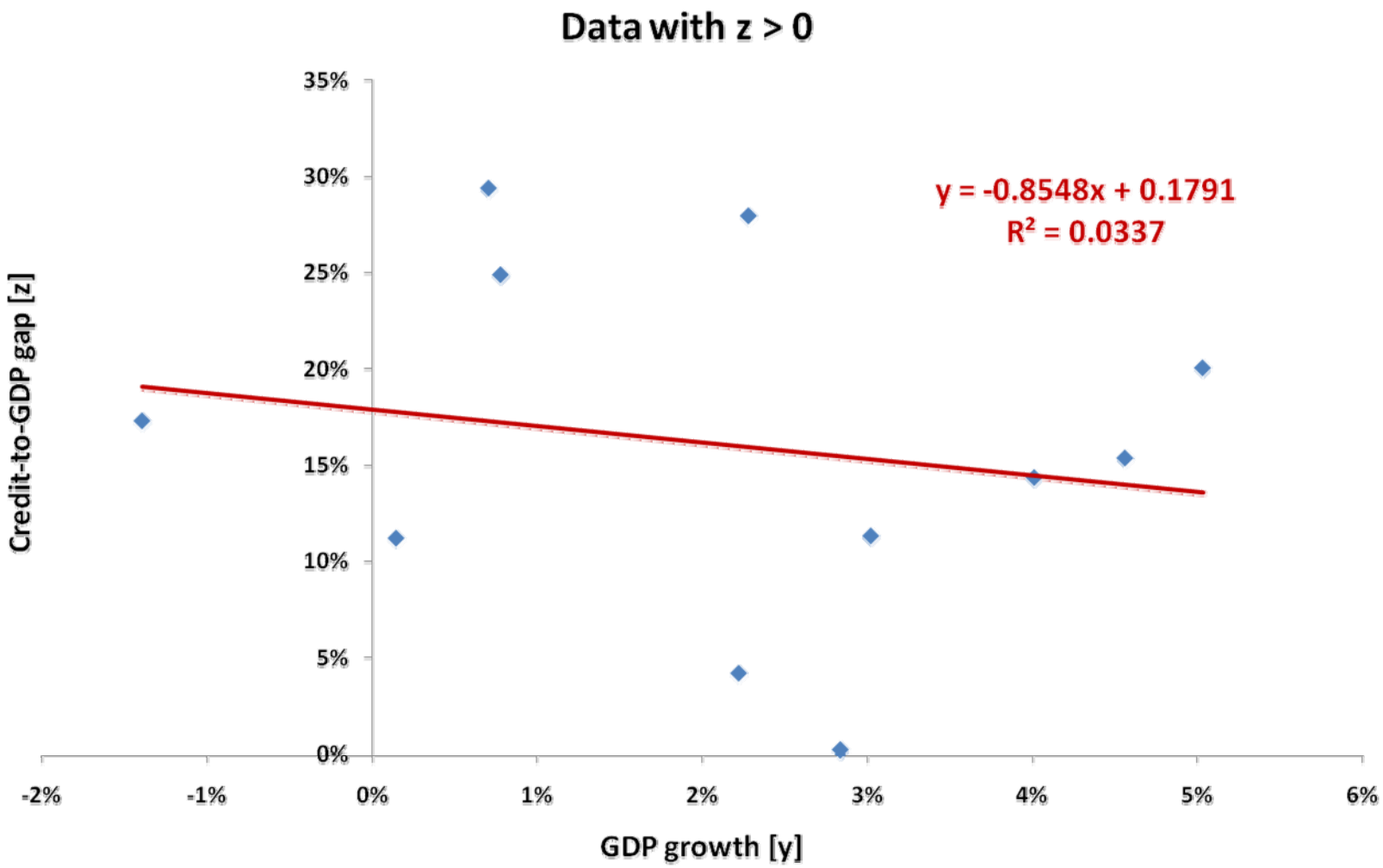
Credit-to-GDP gap & GDP growth (UK)



Credit-to-GDP gap & GDP growth (UK)



Credit-to-GDP gap & GDP growth (UK)



Credit-to-GDP gap & GDP growth

	Correlation	Correlation for $z > 0$
UK	– 0.13	– 0.18
USA	– 0.03	– 0.25
Canada	– 0.18	– 0.21
Germany	– 0.25	0.46
Japan	– 0.09	– 0.25
Spain	– 0.25	– 0.37

Comment 3: Possible negative effects (ii)

- Credit-to-GDP gap is negatively correlated with business cycle

  → Proposal fails Hippocratic dictum: “First, do no harm”

  – Gap would signal to reduce capital in good times

  – Gap would signal to increase capital in bad times

Comment 4: Dealing with downturns (i)

- What happens in downturns?

  → Credit-to-GDP indicator continues to grow

    – Greater credit demand by firms and households

    – Slower (sometimes even negative) GDP growth

- Basel Committee is aware of this shortcoming

  "Credit growth can be a lagging indicator of stress" (p. 9)

  → Proposes to use supervisory "judgment" to release buffer

Comment 4: Dealing with downturns (ii)

- What is wrong with supervisory "judgment" to release buffer?

  → Undesirable mixture of Pillar 1 and Pillar 2

  → Markets might react negatively to such decision

  → Supervisors would probably do too little too late

Summing up (i)

- Insufficient work to justify proposal

  → Basel Committee should have higher standards

- Not clear that will do very much in good times

  → when capital is abundant

- Potential negative effects in bad times

  → additional reduction in credit supply

Summing up (ii)

- What would I recommend?

  → Abandon the proposal

  → Deal with excessive credit growth (if identified) via

    – Pillar 2 capital surcharges

    – Other macroprudential tools (e.g. LTV ratios)

  → Focus on the really important problem

    – Cyclicality of the minimum capital requirements

Part 2

Cyclicality of capital requirements

The proposal of the Basel Committee

→ *Strengthening the Resilience of the Banking Sector*

Basel Committee Consultative Document, December 2009

- Issue: Risk-sensitivity of capital requirements

  → Possible amplification of business cycle fluctuations

- Response: Smooth inputs of Basel II formula

  → Downturn losses given default (LGDs)

  → Through-the-cycle probabilities of default (PDs)

Comment 1: Significance of effects (i)

- Basel Committee should not downplay amplification effects

> "It is not possible to achieve greater risk sensitivity without introducing **a certain degree of cyclicality** in minimum requirements over time" (BCBS, 2009, p. 66)

- Academic literature shows effects could be very significant
  - → Gordy and Howells (JFI 2006)
  - → Repullo and Suarez (CEMFI Working Paper 2009)

Comment 1: Significance of effects (ii)

- Summary of results in Repullo and Suarez (2009)

  → Basel II leads banks to hold more capital above minimum

    – Precautionary capital buffers

  → Basel II is significantly more procyclical than Basel I

    – Risk of credit crunch when entering recession

  → Proposal: Cyclical adjustment in capital requirements

Comment 2: TTC approach (i)

- What is wrong with through-the-cycle (TTC) approach?

  → No consensus on what TTC exactly means

  – Applied differently for different banks and jurisdictions

  – Opens door to excessive supervisory discretion

  – Risk of unlevel playing field

Comment 2: TTC approach (ii)

- What is wrong with TTC approach?

  → Violate the "usage test" requirement of Basel II

  "Internal ratings and default and loss estimates must play an essential role in the credit approval, risk management, internal capital allocations, and corporate governance functions of banks using the IRB approach." (BCBS, 2006, par. 444)

  → TTC ratings not useful for pricing and risk management

  → Banks would have two risk measurement systems

Comment 2: TTC approach (iii)

- What is wrong with TTC approach?

  → Complicate implementation of Basel II

    – Based on delegating to banks measurement of risk

  → How do we ensure truth-telling behavior?

    – Use measures of risk that are verifiable

    – TTC is not well-defined and hence not verifiable

    – Point-in-time (PIT) is well-defined and hence verifiable

Comment 2: TTC approach (iv)

- Basel II and III rest on correct computation of risk-weights

  → TTC guarantees that risk-weights are wrong at all times

  → Risk of throwing out Basel baby with bath water

What should be done?

- Smooth output not inputs of Basel II formula

  → Adopt idea of "automatic stabilizers"

- Proposal in Repullo, Saurina and Trucharte (EP 2010)

  → Compute capital requirements with PIT ratings

  → Use multiplier (scaling factor) based on GDP growth

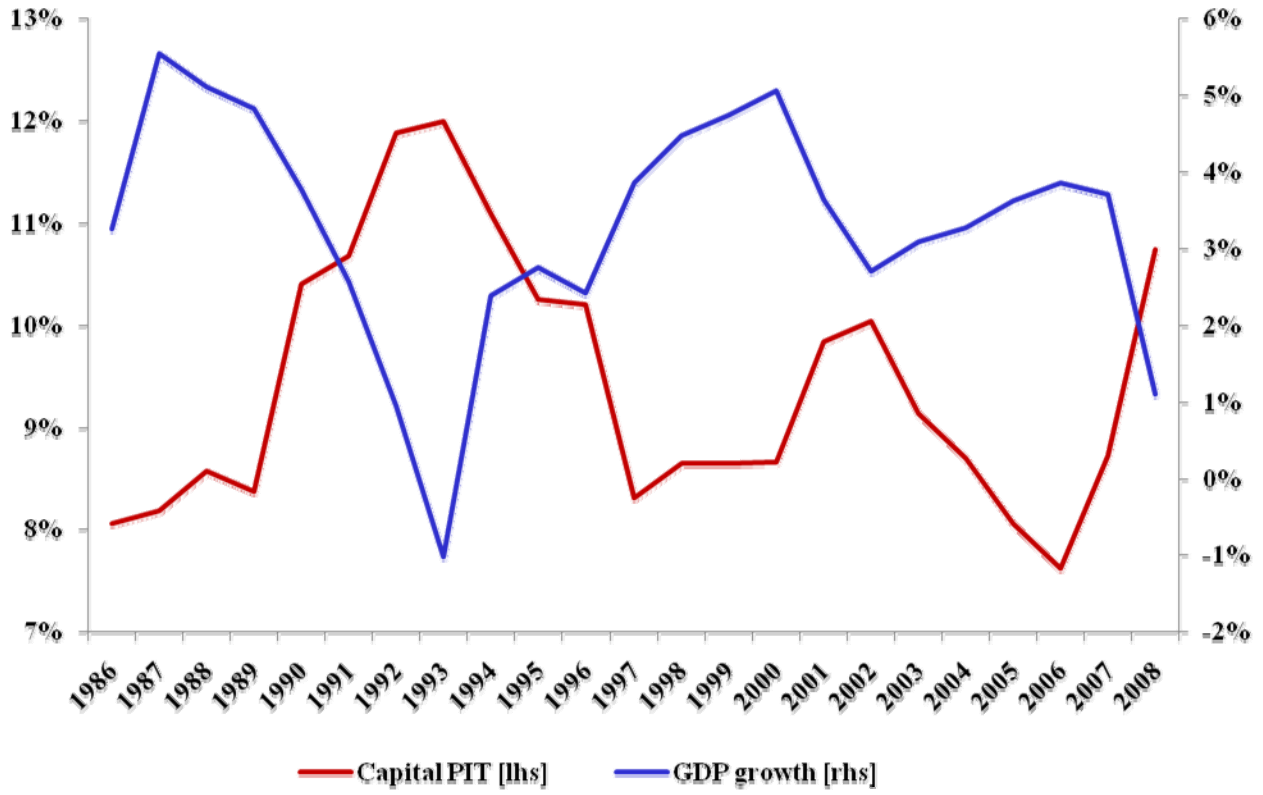
    – Multiplier greater than 1 in expansions

    – Multiplier smaller than 1 in recessions

How is it justified?

- Estimate model of probabilities of default (PDs) for Spain
  - → Data on firms' loans for the period 1984-2008
  - → Credit Register of Bank of Spain
- Compute corresponding PIT Basel II capital requirements
- Smooth cyclical behavior using Hodrick-Prescott (HP) filter
- Compare different smoothing procedures
  - → Using root mean square deviations from HP trend
- Best procedure: smooth output with GDP growth multiplier
  - → Very high correlation with GDP growth (–0.81)

Capital requirements and GDP growth (Spain)



How would it work? (i)

- Proposed business cycle multiplier

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

g_t = GDP growth in year t

$\bar{g}$ = average GDP growth

σ_g = standard deviation of GDP growth

N = cdf of normal random variable

α = free parameter to be estimated

How would it work? (ii)

- Proposed business cycle multiplier

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

- Properties

  → Increasing in g_t

  → If $g_t = \bar{g}$ then $\mu(\bar{g}) = 2N(0) = 1$

  → Bounded above and below: $0 < \mu(g_t) < 2$

How would it work? (iii)

- How do we choose parameter α?

  → Minimize root mean square deviation from HP trend

  → Benchmark result: $\alpha = 0.081$

- Size of the multiplier: for $g_t = \bar{g} + \sigma_g$ we have

$$\mu(g_t) = 2N\left(\frac{\alpha(g_t - \bar{g})}{\sigma_g}\right) = 2N(\alpha) = 2N(0.081) = 1.065$$

  → 6.5% surcharge for each standard deviation of GDP growth

Concluding remarks

- Countercyclical capital buffer

  → No clear benefits and potential negative effects

  → Basel Committee should abandon proposal

- Cyclicality of capital requirements

  → Big problem especially in downturns

  → TTC approach has major shortcomings

  → Basel Committee should go for multiplier approach

  → Treat the disease without killing the patient (M. Gordy)