BANK FOR INTERNATIONAL SETTLEMENTS

Capital Conservation and Countercyclical Capital Buffers

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[1] The views presented are those of the author and do not necessarily represent those of the BIS or the Basel Committee.

What is procyclicality?

What is procyclicality?

- Self-reinforcing mechanisms:
  - within the financial system and
  - between financial system and the real economy that can exacerbate boom and bust cycles
- Most prominent in downward phase
- Most critical (but hidden) in expansion phase

Main drivers of procyclicality

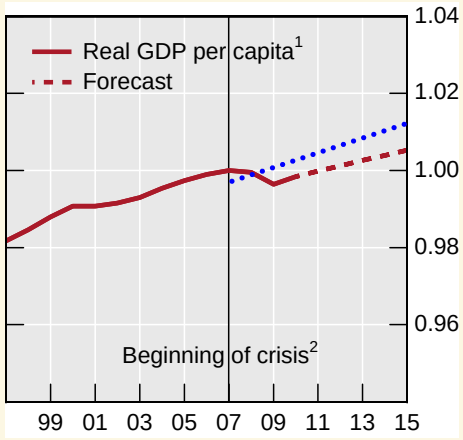
- Limitations in measuring risk and values:
  - perceptions
  - Expectations

- Limitations in incentives
  - wedge between individually rational and socially desirable actions

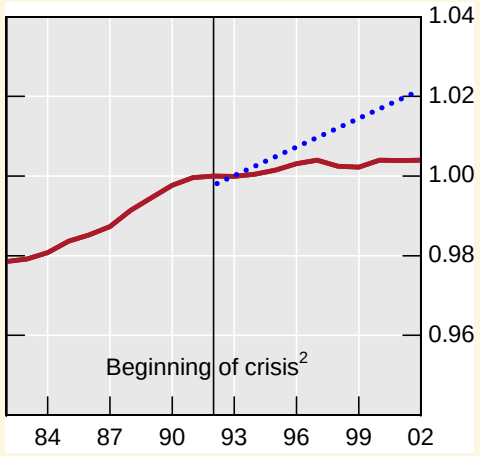
Graph 1: Procyclical assessment of credit risk1

Costs of financial instability

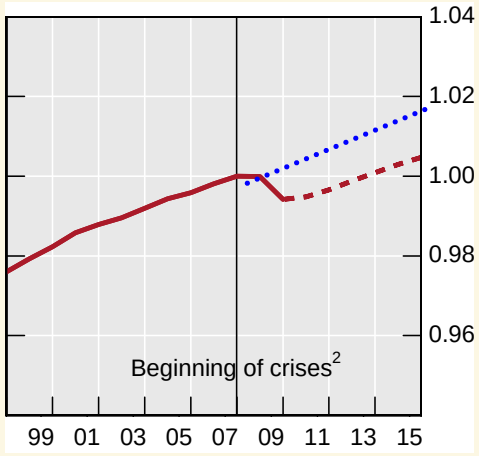
- Crises have large output costs associated with:
  - Misallocation of resources
  - Disrupted intermediation
  - Fiscal costs
- On average, costs of a financial crises are around 60% of GDP, but can be much higher
  - (see LEI report, Basel Committee, 2010)



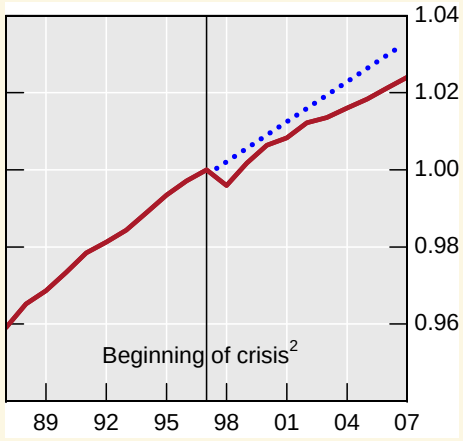
US



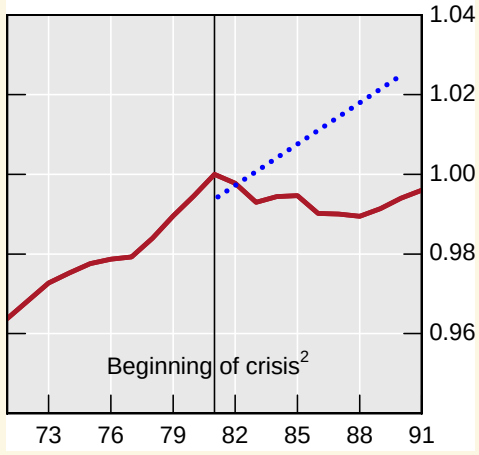
Japan



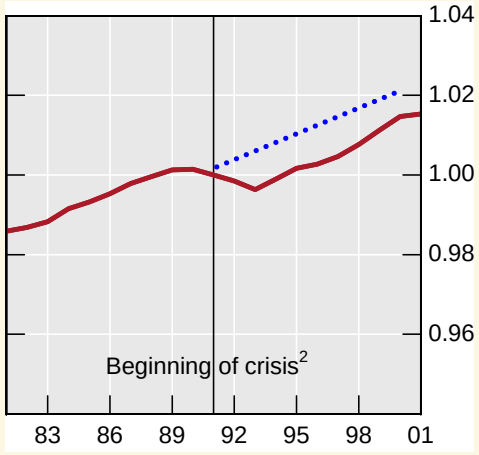
UK



Korea



Mexico



Sweden

Can turning points be predicted?

- Forecasting track record is not very good
- BUT:
  There is evidence of empirical regularities in the buildup of financial imbalances
- Crises are likely to follow after a coincidence of:
  1. Rapid credit growth
  2. Accelerated asset price growth
- Collapse may be abrupt…
- … but build-up of “imbalances” is gradual

Can we predict bank system stress?

- Borio and Lowe (2002, 2004) try to predict bank crises
  - Key: assume a longer term horizon
- Predictors:
  - Credit/GDP growth beyond historical trend
  - Asset price growth beyond historical trend
- Borio and Drehman (2009) update this method and show that it performs well out of sample for the recent crisis
- Drehmann, Borio and Tsatsaronis (2011) use this methodology to assess the performance of different indicator variables for the coutnercyclical capital buffer

Variable	TH	Pred.	NS
Macroeconomic variables			
GDP growth	3.5	**90**	**60**
GDP gap	3	**76**	**49**
Credit growth	12	**67**	**33**
Credit growth - GDP growth	8	**69**	**23**
Credit to GDP gap	10	**67**	**16**
M2 growth	14	**70**	**53**
Property growth	7	**68**	**30**
Property gap	10	**77**	**33**
Equity growth	23	**79**	**34**
Equity gap	10	**69**	**60**
Banking sector conditions			
Profits	0.70	**71**	**79**
Loss	0.40	**68**	**77**
Market indicators			
Bank CDS	15	**75**	**44**
LIBOR-OIS	10	**67**	**60**
Credit spreads	130	**75**	**79**

Source: Drehmann, Borio and Tsatsaronis (2011)

Bottom-line

- Predictability of major crises is not an impossible task
- Signs of cumulative financial imbalances hold the key
- Adopting a longer horizon is crucial

How to address procyclicality?

How to address procyclicality?

- General principle
  - Build-up buffers in good times so as to run them down in a in bad times
- Note
  - Buffers are difference between actual levels of capital and regulatory minima
  - Need to allow buffers to be run down in bad times
    - Otherwise regulatory minima act as shock amplifiers rather than shock absorbers

Basel III and procyclicality

- Basel III is introducing range of measures to address procyclicality and increase resilience of the banking sector in good times
- Key objectives
  - Dampen any excess cyclicality of the minimum capital requirement
  - Promote more forward looking provisions
  - Conserve capital to build buffers at individual banks and the banking sector that can be used in stress
  - Achieve the broader macroprudential goal of protecting the banking sector from periods of excess credit growth

The capital conservation buffer

Objective

- Build-up buffers that can be drawn down in periods of stress
  - Capital conservation buffer is not a hard constraint
- Promote the conservation of capital and provide mechanism to rebuild capital during recovery
  - Banks are unwilling to cut dividends as markets interpret this as signal of weakness → mechanism addresses common action problem

Framework

- 2.5% capital buffer above the regulatory minimum capital requirement
  - Common Equity Tier 1
- Banks can use capital buffer, but if they fall short there are
  - constraints on the distribution of earnings or banks have to raise capital in the market
  - no constraints on day-to-day business decisions

Conservation standards

Individual bank minimum capital conservation standards	
Common Equity Tier 1	Minimum Capital Conservation Ratios (expressed as a percentage of earnings)
Within first quartile of buffer	100%
Within second quartile of buffer	80%
Within Third quartile of buffer	60%
Within Fourth quartile of buffer	40%
Above top of buffer	0%

- Distribution restrictions: Dividends and share buybacks, discretionary payments on other Tier 1 capital instruments and discretionary bonus payments to staff.

The countercyclical capital buffer

The objective

- "The primary aim of the countercyclical capital buffer regime is to use a buffer of capital to achieve the broader macroprudential goal of protecting the banking sector from periods of excess aggregate credit growth that have often been associated with the build up of system-wide risk … The aim is to ensure that the banking sector in aggregate has the capital on hand to help maintain the flow of credit in the economy without its solvency being questioned, when the broader financial system experiences stress …. The potential moderating effect (of the buffer) on the build-up phase of the credit cycle should be viewed as a positive side benefit, rather than the primary aim of the countercyclical capital buffer regime."

  p.1, Guidance for national authorities operating the countercyclical capital buffer

The objective

- Buffer should be used in periods of stress to help maintain the flow of credit in the economy without solvency being questioned
  - Not about solvency → Minimum and capital conservation buffer
- Protect banks from periods of excessive credit growth
  - Not about managing the real business cycle
- Moderating the build-up phase should be viewed as positive side benefit
  - Not about managing the credit cycle or asset price booms
- Macroprudential aim
  - Buffer no set on a bank-by-bank or sectoral basis

→ *Objective can be achieved*

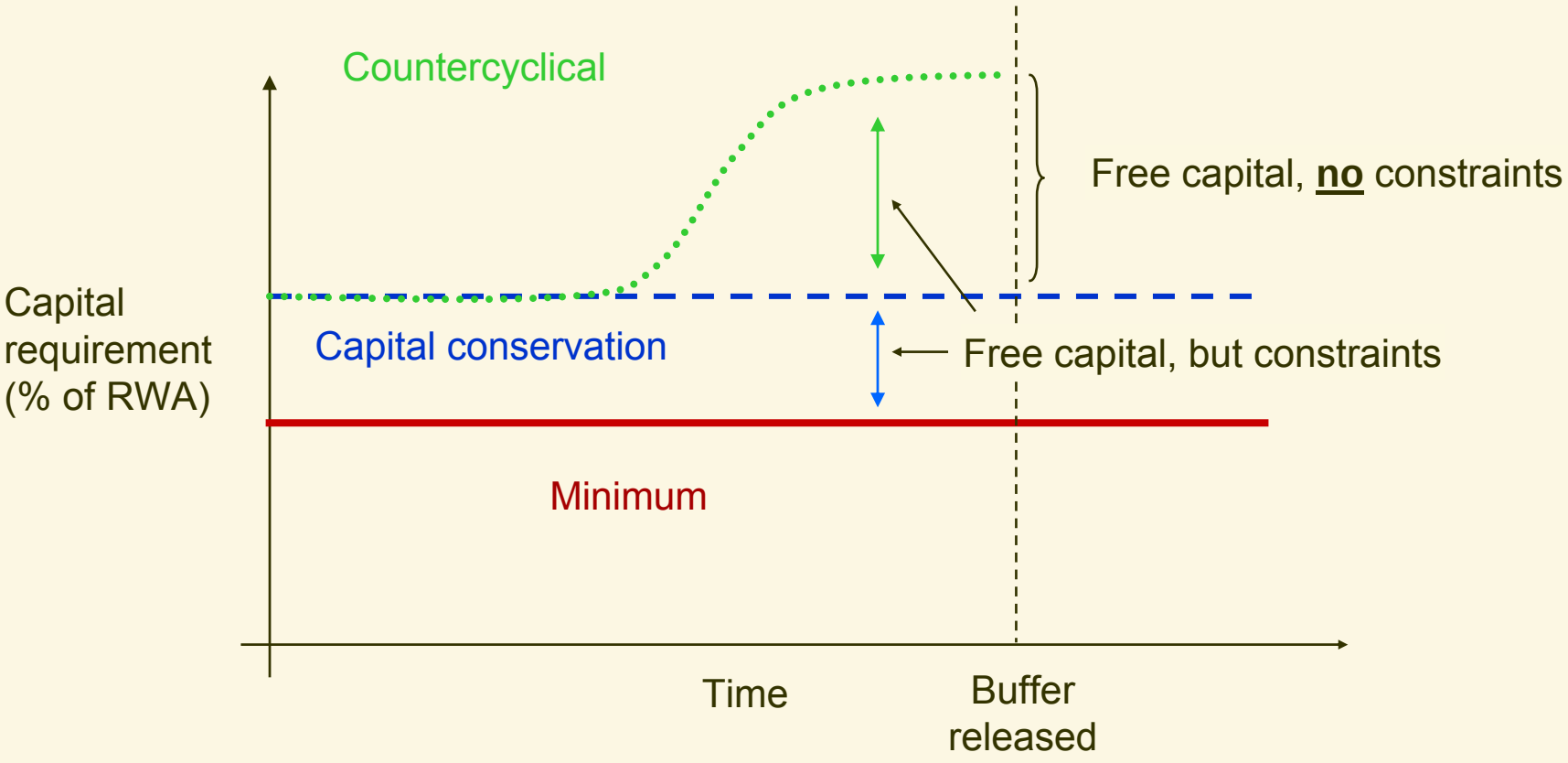
Framework: Overview

- Countercyclical capital requirements extend size of capital conservation buffer in times of excessive credit growth
- Buffer for exposures in jurisdiction set by national authorities
  - Guided discretion
  - Jurisdictional reciprocity
- Buffer for a particular bank is weighted average of the buffers deployed across all jurisdictions to which it has exposures
- Transparency: Authorities should explain buffer decisions

Extending the size of the capital conservation buffer

- Buffer
  - Ranges from 0%-2.5%
  - Common Equity Tier 1 (including other fully loss absorbing capital)
- Banks can use capital buffer
  - If buffer is on: Constraints on the distribution of earnings but no constraints on business decisions
  - If buffer is off: Capital surplus is unfettered

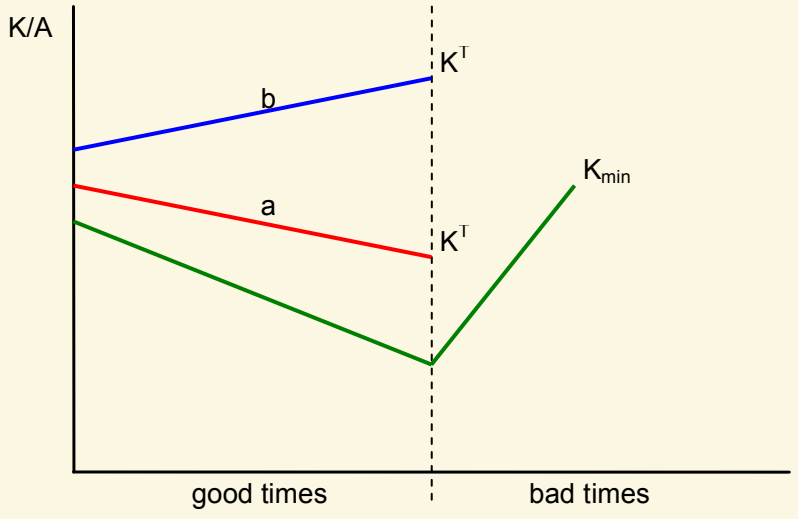
Relationship between the capital buffers



Risk-weighted versus unweighted assets

Risk-weighted assets relative to total assets

Capital relative to total assets



Note: A = unweighted assets; RWA = risk weighted assets; K_{min} = minimum capital requirement; K^T = minimum capital requirement + countercyclical buffer (capital conservation buffer for simplicity ignored); .a and b refer to two possible paths, depending on buffer developments.

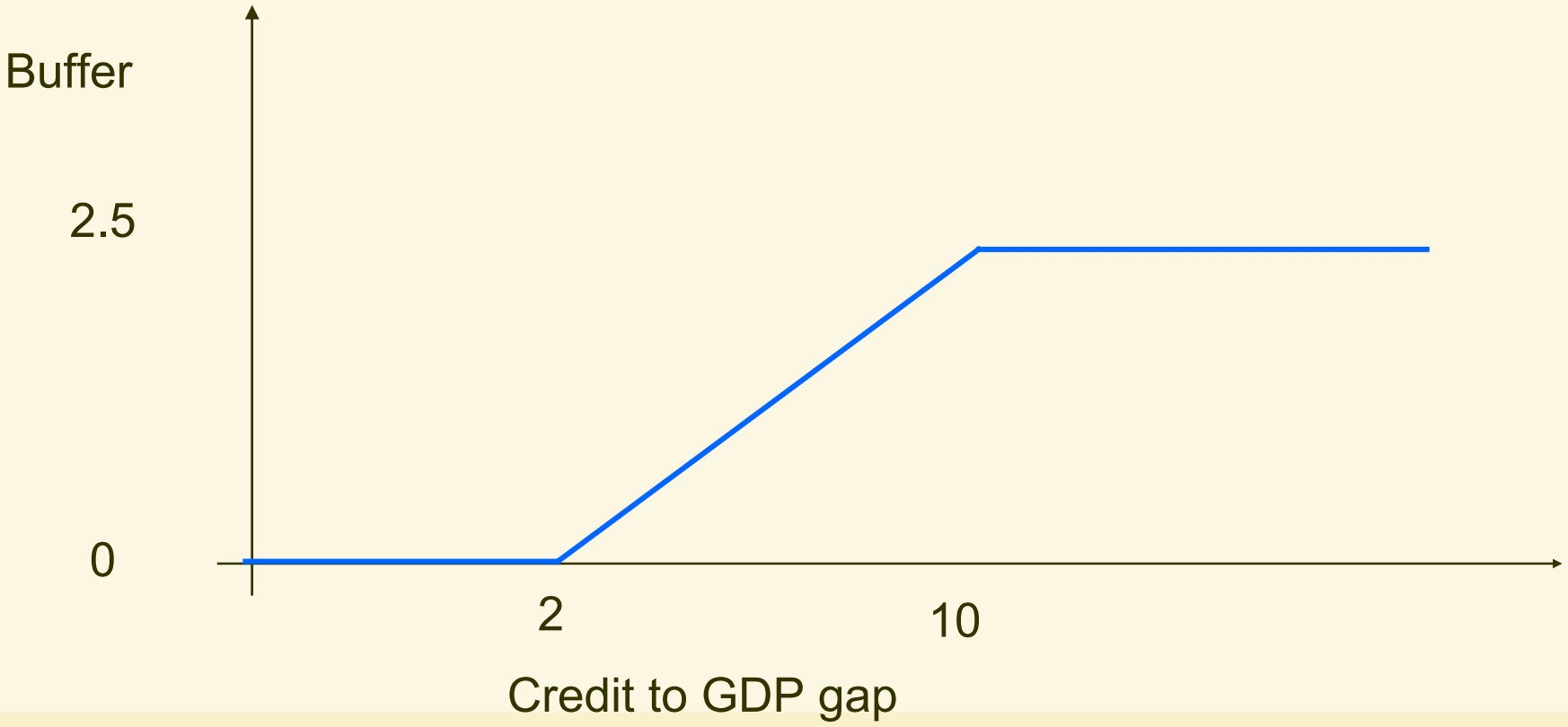
Determining the buffer: Guided discretion

- Authorities are expected to apply judgment using the best information available to gauge the build-up of system-wide risk
- Authorities are expected to calculate buffer guide serving as a common starting reference point

The buffer guide

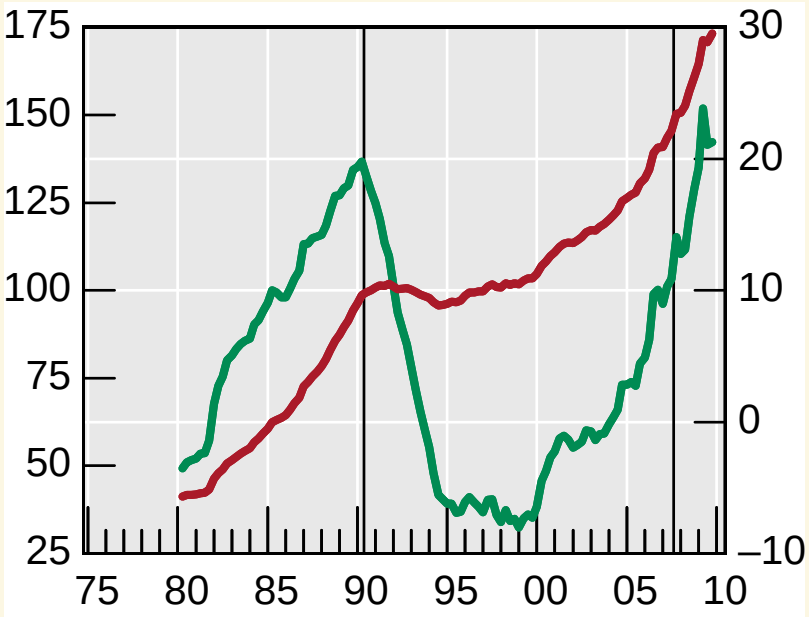
- Deviations of the credit to GDP ratio from long term trend
  - Measure of excessive credit growth in line with objective
- Mechanics:
  - (Broad) credit to GDP ratio minus rolling HP trend
  - Explained in Guidance document
- Reliable signal ahead of systemic crises
  - Drehmann , Borio and Tsatsaronis (2011)

Translating the credit to GDP gap into the buffer guide

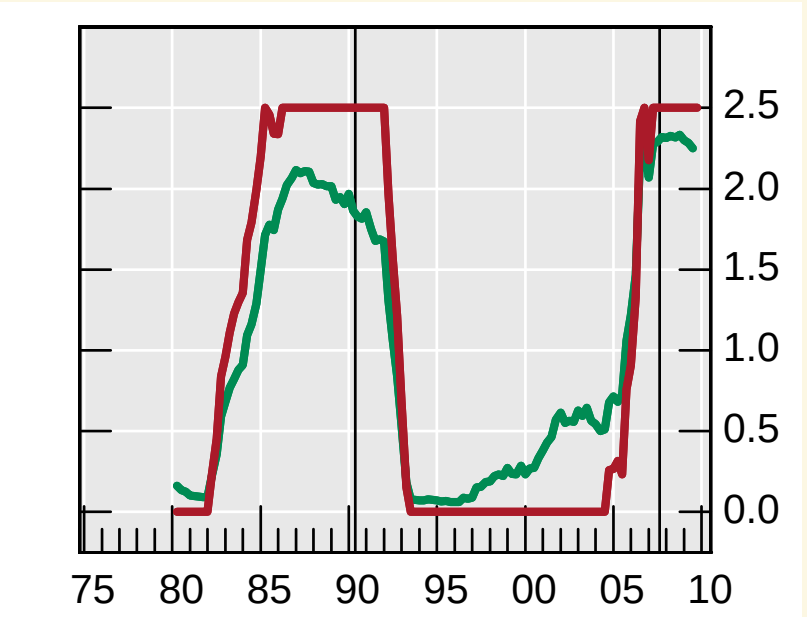


The historical performance of the guide for the UK

Credit-to-GDP ratio (red)
Credit-to-GDP gap[1] (green)



Domestic buffer[2] (red)
International buffer[3] (green)



Note: [1] Deviations of the credit-to-GDP ratio from its long term trend, calculated by a one-sided HP filter using a smoothing factor λ=400,000, in percentage points. [2] Buffer guide add-on for banks with purely domestic exposures, in percent of risk weighted assets. [3] Buffer guide add-on for a hypothetical bank whose share of domestic and cross boarder lending is based on aggregate exposures for the particular country, in percent of risk weighted assets.
Sources: National data; BIS calculation.

The annual average credit to GDP gap

Year	AR	AU	BE	BR	CA	CH	CN	DE	ES	FR	GB	HK	ID	IN	IT	JP	KR	LU [1]	MX	NL	RU	SA [2]	SE	SG	TR	US	ZA
1970			-2.43																							0.73	
1971			-3.03																	-0.69						-1.02	
1972			-3.81																	-0.48						-1.01	
1973			-3.65													5.59				1.42						-0.18	
1974		0.22	-5.51					-2.24		-0.54						0.50				2.96						1.25	
1975		-0.35	-5.18					-2.82		-2.32						-2.57				2.42						-1.50	0.55
1976		-0.80	-4.18					-2.65		-1.37	-7.31					-2.24				1.99						-4.14	-0.15
1977		0.04	-1.92					-2.21		-6.08	-6.84					-4.00				4.63						-3.08	-0.34
1978		1.17	-0.30					-1.18		-8.54	-5.53					-4.75				8.51						-2.11	
1979		1.26	0.87		5.95			0.58		-8.97	-3.56					-3.91				10.61						-0.16	
1980		1.63	-0.37		5.73	4.58		1.06	-1.39	-8.33	-3.08				-3.76	-3.08	10.39		-0.03	9.05			2.35			0.93	-4.15
1981		2.09	-1.54		5.05	4.07		2.83	-0.86	-7.29	-1.21				-2.35	-3.02	9.38		1.87	5.96			3.27			-1.60	0.68
1982		1.56	-4.43		4.72	-0.44		2.03	-0.21	-7.46	3.99				-2.49	0.07	10.05		2.29	1.89			6.03			1.51	2.86
1983		1.38	-6.01		-2.27	0.11		2.02	-0.44	-6.53	6.00				-0.94	2.88	8.73		1.37	-0.85			3.33			-0.14	3.85
1984		1.63	-7.68		-4.87	-1.36		1.76	-5.15	-5.45	8.13				1.70	5.16	4.80		4.27	-4.27			1.54			0.83	5.20
1985		5.27	-8.68		-4.05	-0.40		1.50	-6.77	-4.64	9.71				3.00	5.97	5.78		6.68	-5.86			0.09			5.49	4.79
1986		7.97	-7.61		0.03	-1.40		-0.08	-8.08	-3.26	11.50				2.90	7.12	2.58		6.71	-5.37			7.11	-5.25		9.07	1.45
1987		8.78	-3.79		1.52	2.90		-1.44	-4.99	0.53	13.95				4.49	10.98	1.02	-11.59	6.31	-3.57			6.07	-8.53		9.65	-2.01
1988		10.56	-0.73		3.50	3.63		-1.95	-0.47	2.21	16.34				6.18	11.88	-3.34	-0.02	6.75	-3.29			14.43	-13.93		8.29	0.79
1989		10.11	2.93		6.68	6.68		-2.18	3.14	3.76	18.57				9.55	12.07	0.04	-1.07	11.14	-2.59			18.88	-12.26			1.23
1990			3.58		11.16	5.20		-2.23	2.75	5.76	19.77				12.22	11.04	4.37	4.29	12.92	-3.49			17.57	-8.73			
1991			4.98		11.45	1.15		-2.46	3.70	5.81		7.79			12.97	5.90	2.75	5.57	14.81	-4.75			7.65	-7.87		0.79	
1992		-1.59	4.87		9.31	-1.20		-1.04	2.75	3.80	5.04	2.07			13.53	1.59	3.52	6.19	18.58	-5.26				-6.82		-5.12	-1.07
1993		-4.84	5.01		5.12	-4.42		1.59	2.88	-0.45	0.19	-1.10					5.64	-1.09	18.51	-4.27			-10.29	-6.85		-7.95	-2.75
1994		-4.28	1.24		2.10	-6.19		3.79			-5.38	0.19			7.83		8.27	-18.40	18.44	-2.43			-18.46	-6.85		-8.83	-2.60
1995		-2.42	-0.74		-0.46	-6.05		4.32			-6.51	2.28			4.90	-5.24	7.11	-14.53		-0.46			-24.10	-0.74		-6.02	0.01
1996		0.18	-0.11		0.02	-5.52		6.38	-0.43	-8.92	-6.28	5.06			0.72	-6.55	8.88	-12.58		2.68			-21.42	2.71		-4.64	1.94
1997		2.12	0.61		1.78	-8.65		8.10	2.68	-8.99	-6.61	14.46			0.51	-9.23	12.26	-5.68	1.71	6.20			-15.14	4.80		-4.10	2.91
1998		3.61	-0.13		5.34	-8.69		9.19	7.14	-8.82	-7.40	8.84			0.89	-7.00		3.49	1.22	9.84			-7.16	5.39	-3.29	-0.62	5.20
1999		5.37	4.14		0.41	-6.75		10.56	11.64	-7.20	-7.03	-1.85			3.65	-6.08	3.20	1.24	-2.19	14.11			-7.24	9.15	-3.23	2.14	5.15
2000		6.78	1.47		-4.27	-10.38		10.00	14.99	-2.98	-3.29	-9.82			6.82	-7.98	-9.83	1.21	-3.97	17.62		-2.20	-5.45	-1.13	-2.14	3.97	1.98
2001		5.64	-2.03		-2.82	-13.85	-0.19	6.34	15.23	0.12	-1.40	-14.08	-16.59		7.41	-10.55	-14.14	8.95	-4.46	14.70		-0.11	2.52	5.21		7.46	0.34
2002		5.70	-4.91		-2.65	-16.80	1.03	1.15	15.14	-0.16	-1.16	-15.25	-11.21		6.22	-12.44	-8.41	0.90	-4.87	12.03		0.75	0.53	1.85		8.73	-1.63
2003		8.67	-5.90		-4.44	-12.83	0.69	-1.98	15.48	-0.45	-0.84	-14.54	-3.82		5.64	-14.62	-9.69	-2.64	-4.72	10.86		-0.64	-1.25	-0.82	-2.68	8.82	1.15
2004	-7.34	10.89	-7.30	4.43	-4.07	-8.40	-2.59	-6.06	19.58	1.29	1.74	-12.31	3.35		4.23	-15.37	-18.90	-2.16	-4.46	12.40	3.54	2.87	-1.24	-5.81	0.32	7.61	0.04
2005	-4.17	12.78	-5.89	5.97	-2.38	-3.99	-4.57	-7.84	27.86	3.24	3.77	-8.64	6.93		5.48	-12.16	-18.08	6.71	-2.75	14.31	2.78	4.31	6.56	-13.04	3.27	8.25	4.19
2006	-1.41	14.46	1.82	7.89	-0.27	-0.66	-3.25	-8.60	36.17	5.95	8.74	-11.79	5.75		7.25	-8.77	-6.53	35.46	-0.59	9.74	4.21	1.66	13.17	-16.12	7.09	10.45	9.98
2007	0.53	17.00	7.20	10.50	1.99	1.51	-3.05	-12.50	42.04	9.93	10.57	-2.40	6.82	3.14	8.52	-7.15	3.05	32.22	1.66	14.17	8.06	4.08	18.71	-13.54	7.57	11.64	12.44
2008	1.23	11.88	11.34	13.91	3.32		-3.43		42.90	11.99		0.79	8.80	3.30	8.53	-5.95	14.67	65.91	1.32	22.05	8.06	3.63	25.58	-3.87	9.71		11.71
2009	1.88	3.84		14.63	8.57		4.07		49.66			-2.23	7.95	1.26	6.78		16.64	51.02	2.48				32.18	3.19	8.60		5.71

See Table 2C.2 in the Guidance Document

The role of judgement

- Buffer guide can issue wrong signals
  - Should not be applied mechanically
- Authorities need to take account of a broad set of information
  - State of business cycle, e.g. GDP growth
  - Market based indicators, e.g. credit spreads
  - State of the banking sector, e.g. profitability
  - …

→ Macroprudential monitoring capacity needs to be enhanced

Determining the buffer: the release phase

- Crises may require prompt release of buffer
  - No single variable can be used as reliable indicator
  - Buffer guide not useful for release phase as it tends to remain elevated for some time after crises
  - see Drehmann et al (2010)
- Buffer can be released gradually when credit growth returns to normal conditions

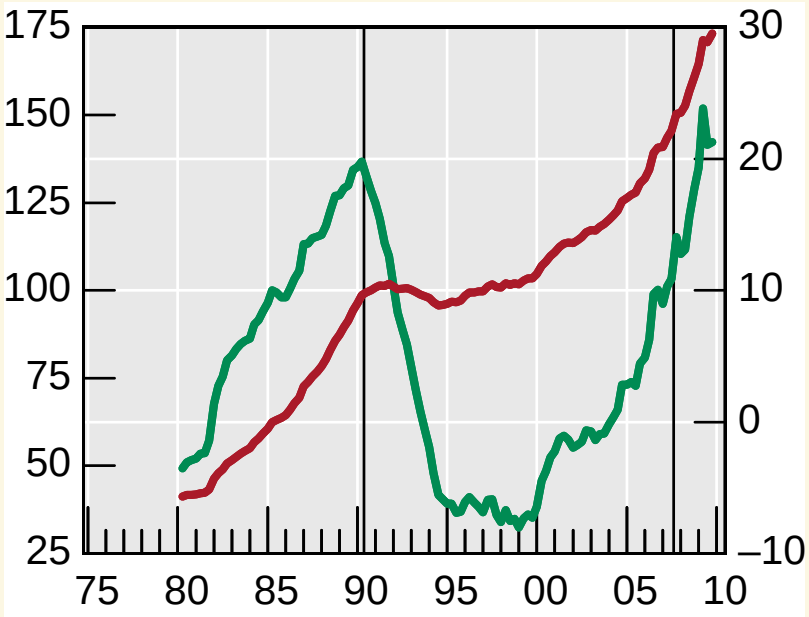
Jurisdictional reciprocity

- National authorities determine buffer requirements for credit exposures in their jurisdiction
- Home supervisors for internationally active banks will require appropriate capital adjustments

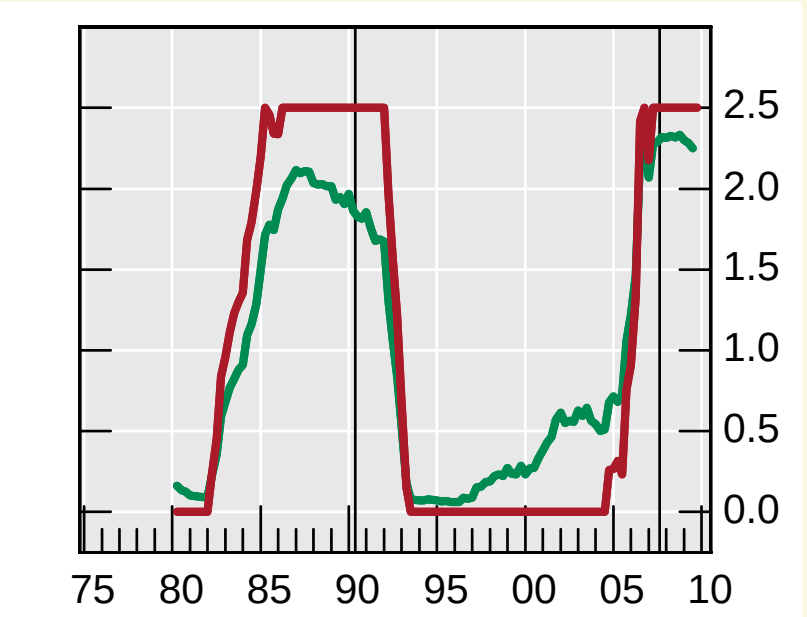
→ Ensures level playing field between domestic and foreign banks

The historical performance of the guide for the UK

Credit-to-GDP ratio (red)
Credit-to-GDP gap[1] (green)



Domestic buffer[2] (red)
International buffer[3] (green)



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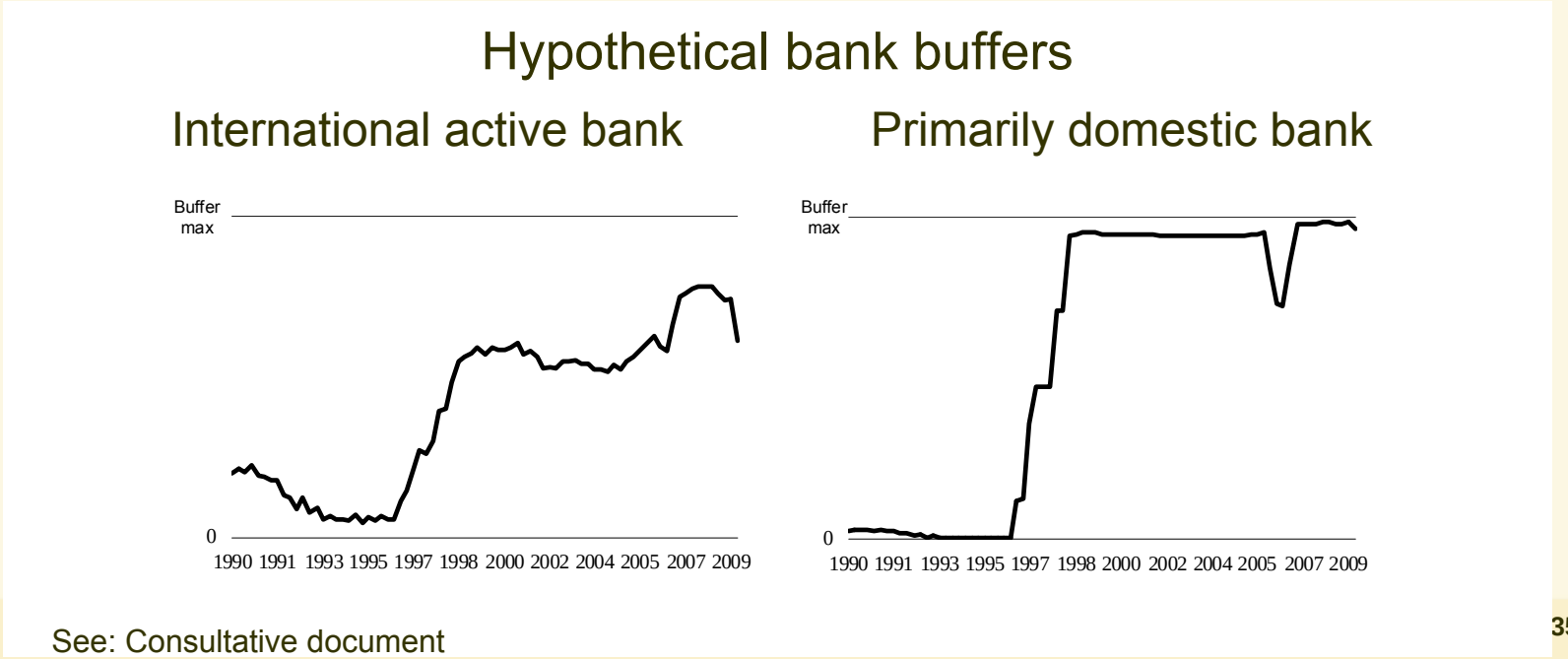
Sources: National data; BIS calculation.

Bank specific buffers

- Build-up: banks have 12 months to comply with buffer increases
- Release: Immediately
- The buffer will reflect the geographic composition of the bank's portfolio of credit exposures.



See: Consultative document

Transparency

- Authorities should communicate
  - Buffer decisions
  - Regular assessment of the macro financial situation
- Communication ensures
  - Accountability
  - Credibility of the buffer
  - Prepare banks for buffer decisions

Summary

- Capital conservation buffer
  - Introduces capital buffers into regulatory framework
  - Enforces capital conservation in bad times
- Countercyclical capital buffer
  - Introduces macroprudential objectives into regulatory framework
  - Guided discretion
  - Jurisdictional reciprocity
  - Transparency

Thanks

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Literature

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