



BANK FOR INTERNATIONAL SETTLEMENTS

The search for the elusive twin goals of monetary and financial stability

by

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* The views expressed are those of the author and not necessarily those of the BIS



Introduction

- Questions
 - What is the relationship between monetary (MS) and financial stability (FS)?
 - How can we achieve the two simultaneously in a lasting way?
 - Motivation
 - Simultaneous achievement has been elusive in modern history
 - Strengthening the financial infrastructure is key but not sufficient
- ⇒ Explore the “missing pillar” of the international financial architecture
- Conclusion
 - Closer than ever to achieving this goal...
 - ...but may need some refinements to current policy frameworks



Thesis

- Root cause of new policy challenges:
 - changes in financial and monetary regime
 - subtle change in dynamics of economy
 - Financial regime = financial liberalisation
 - financial factors and financial imbalances (FIs) play a larger role in business cycle
 - Monetary regime = credible anti-inflation commitment
 - unsustainable booms show up first in FIs
 - Unwinding of FIs
 - output weakness and disinflation
- ⇒ Higher “elasticity” of the economic system or potentially greater “procyclicality”



Policy implications

- Need closer co-operation between prudential and monetary authorities
- Prudential policy:
 - strengthen “macroprudential” orientation
 - ensure countercyclical cushions in financial system
- Monetary policy:
 - have longer horizons
 - pay more attention to balance of risks
 - lean against FIs as they occasionally build up even if near-term inflation seems under control
- Concern: problem may fall through the cracks!



Structure of presentation

- Expand on thesis
 - logic and mechanisms
- Empirical backing
 - a broad historical regime perspective
 - a closer look at the empirical record
- The case for policy adjustments
 - prudential policy
 - monetary policy



The thesis: the financial regime

- Financial system is naturally procyclical
 - reinforcing interaction between financial and real sides
 - physiology: oil that lubricates the system
 - Financial instability arises from “excessive procyclicality”
 - pathology: not sufficient cushions to act as shock absorber
 - why?
 - risk perceptions gap
 - incentives gap
 - Financial liberalisation increases procyclicality
 - greater ability to take on risk
 - greater incentive to take on risk
- ⇒ sufficient to generate bouts of instability



The thesis: the monetary regime

- Some monetary accommodation needed
 - credit expansion fuels the FI
 - Accommodation is transparent in an inflationary environment...
 - ...but is possible also if inflation is low and stable, underpinned by central bank credibility
 - positive supply-side development
 - “menu” costs and, above all, better anchored expectations
 - not expect a need to tighten
- ⇒ “credibility paradox” and inadvertent accommodation of FIs



The empirical record: the broad picture

	Regime		Stability	
	Financial	Monetary	Financial	Monetary
Gold standard	liberalised	credible	no	yes
Bretton Woods-70s	repressed	non-credible	yes	no
1980s-early 90s	liberalisation	non-credible (generally)	no	no (generally)
mid 1990s-present	liberalised	credible	no	yes



The empirical record: a closer look

- Larger booms and busts in credit-asset prices since 1980s ([Graph II.1](#))
 - link to liberalisation
- Good predictive content of FIs proxies for banking crises ([Tables II.2-4](#))
 - credit and equity gaps (industrial countries)
 - add exchange rate appreciation (EMCs)
- Good predictive content for output weakness and disinflation ([Tables II.5-6](#))
- Often FIs build up without obvious inflation pressures ([Graphs II.2-3](#))
 - several notable examples
 - more general patterns



Prudential policy: the options (Table III.1)

- The principle:
 - prudential cushions to behave countercyclically
- The mechanism
 - capital requirements
 - provisions
 - loan-to-value ratios
- The basis: measurement of system-wide vulnerabilities
 - proxies for FIs can help
- The issues
 - balance discretion and rules



Prudential policy: the limitations

- Hard to implement
 - Culturally
 - if problems seen as having a macro origin, not perceived in sphere of responsibility
 - Technically
 - how to build cushions in good times to run them down in bad times is not easy
 - Insufficient?
 - problems can occur in markets too
 - full-blown financial crisis need not occur (demand-side retrenchment)
 - no ultimate control on creation of liquidity
- ⇒ What anchors the liquidity/credit expansion process?



Monetary policy: the options

- The principle:
 - anchor the credit/liquidity creation process
- The strategy
 - lean against the build-up of FIs even if near-term inflation seems under control



Objections to a monetary policy response

- Too hard to identify FIs in good time
 - typically put i.t.o. “bubbles”
- Too hard to calibrate a response
 - could create the problem it is designed to solve!
- Too hard to overcome political economy obstacles
 - not the central bank’s business



The response to the objections

- Identification hard but not impossible
 - 3-5 years ahead
 - i.t.o. implications for output and disinflation too
- Conditions for effectiveness broadly similar to traditional tightening
 - slow down expansion to avoid larger contraction later
- Costs of inaction can be larger than those of action
 - type I/type II error balance
 - asymmetric response can favour future FIs
 - being seen to respond can avoid their emergence
- Political economy constraints are endogenous
 - depend on way we think the economy works
 - analogy with inflation fighting
 - no change in objectives required!



The way forward?

- Need more analytical work
 - economic modelling
- Need more empirical work
 - broader assessments of vulnerabilities
 - links across asset classes: real estate prices are key!
 - costs of financial instability
- Need educational efforts
 - explain consistency with current mandates
 - communication is key
- Need to intensify dialogue between monetary and prudential authorities

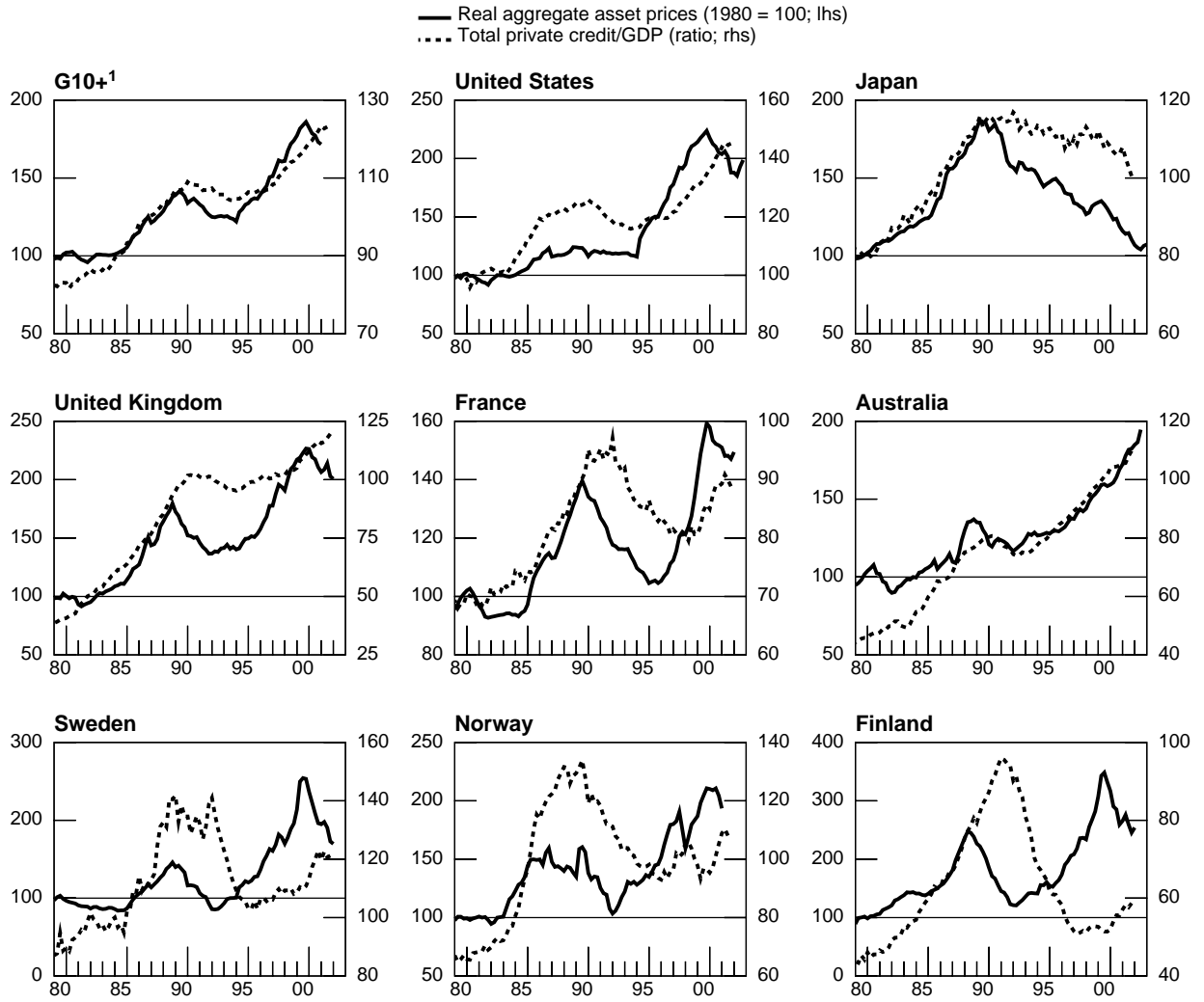


Differences in macroeconomic paradigms

	Orthodox	Unorthodox
Price stability → economic stability	sufficient	not sufficient
Role of financial factors	peripheral	core
Financial imbalances/instability	little importance	critical
Business cycle	exogenous shocks - rapid convergence to equilibrium	endogenous – self perpetuating cycles
Non-linearities	unimportant	critical
Changing risk tolerance	unimportant	critical
Rational expectations	standard	too constraining

Graph II.1

Large medium-term swings in asset prices and credit



¹ GDP-weighted average of the Group of Ten countries, plus Australia, Denmark, Finland, Norway and Spain; weights based on 2000 GDP and PPP exchange rates.

Sources: Private real estate associations; national data; BIS calculations.

Graph II.2

Low and stable inflation and financial instability: selected episodes

Upper panel (indices; log scales)¹ :

— Consumer prices (lhs)²

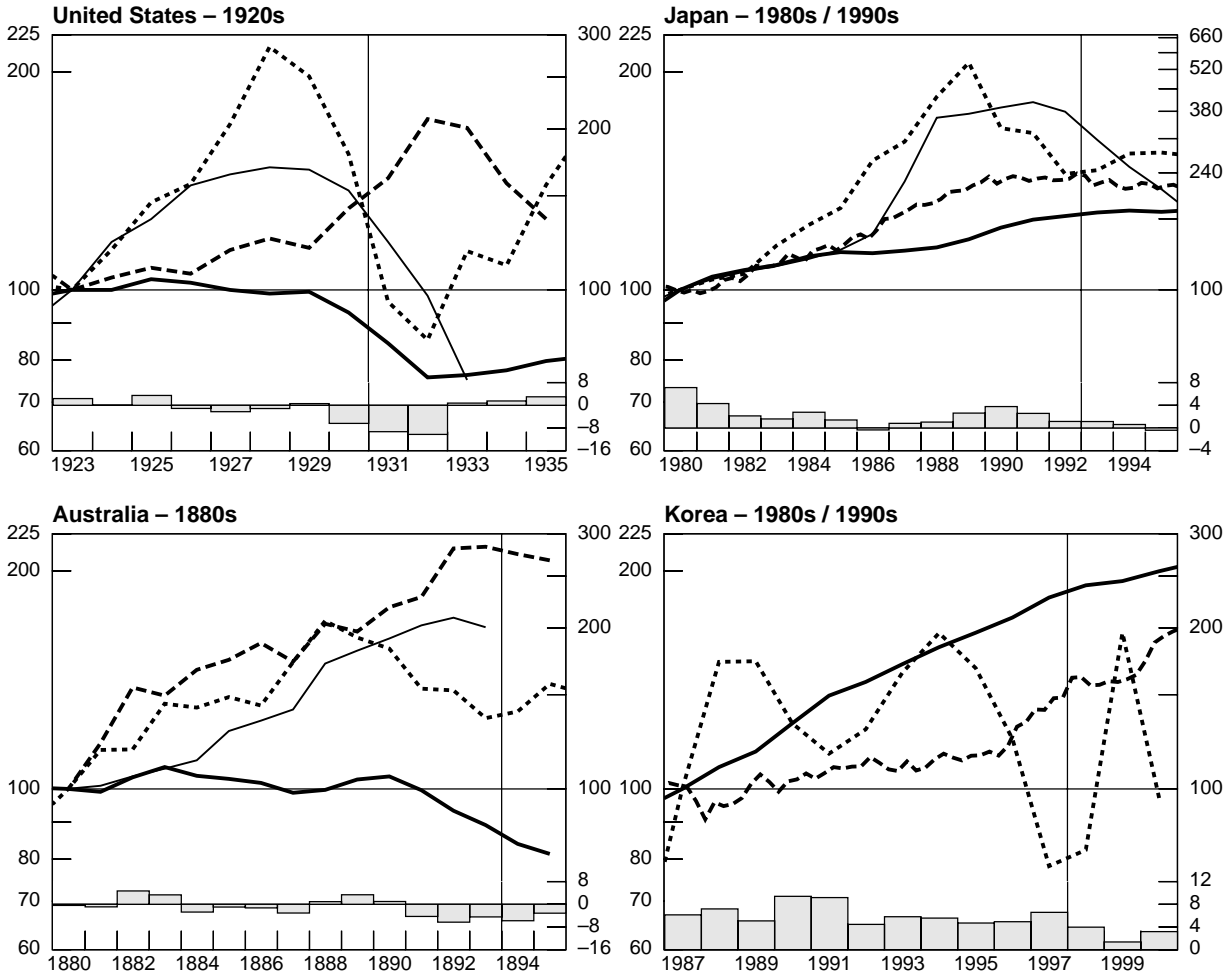
..... Share prices (rhs)³

- - - Credit/GDP (lhs)

— Property prices (rhs)⁴

Lower panel (in percentages; rhs):

□ Annual change in consumer prices



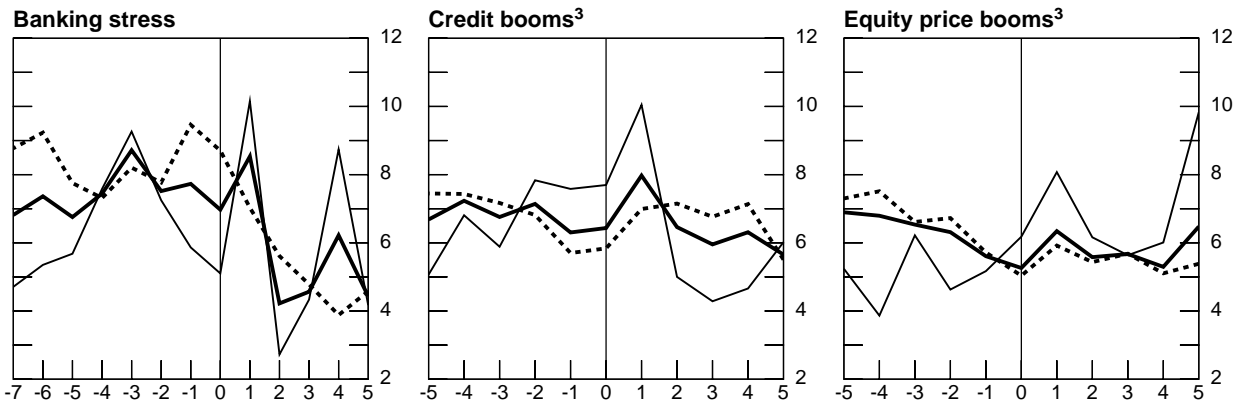
¹ Base year: for the United States, 1923; for Japan, 1980; for Australia, 1880; for Korea, 1987. ² For Australia, GDP deflator. ³ For the United States, S&P 500; for Japan, Nikkei 225; for Australia, All Ordinaries. ⁴ For the United States, Chicago land value; for Japan, Tokyo commercial land prices; for Australia, Melbourne capital value of rateable property.

Sources: For property prices: Tokyo National Land Agency and local governments; Chicago, Hoyt (1933); Melbourne, Kent and D'Arcy (2001); otherwise, B Taylor "Global Financial Data" (database) and national data.

Graph II.3

Inflation around financial imbalances and banking stress¹

— All countries² Industrial countries — Emerging markets²



¹ Simple arithmetic means of annual percentage changes of consumer prices across all countries in the individual country groups. Based on annual data for all the series. ² Except Latin America. ³ Defined as the year in which the credit/GDP gap (equity price gap) first exceeds 4 (40) percentage points.

Table III.1
The macro- and microprudential perspectives compared

	Macroprudential	Microprudential
Proximate objective	limit financial system-wide distress	limit distress of individual institutions
Ultimate objective	avoid output (GDP) costs	consumer (investor/depositor) protection
Model of risk	(in part) endogenous	exogenous
Correlations and common exposures across institutions	important	irrelevant
Calibration of prudential controls	in terms of system-wide distress; top-down	in terms of risks of individual institutions; bottom-up

Table II.2
Composite indicators of banking distress, industrial countries

Horizon (years)	Credit (4) and asset price (40)		Credit (4) and exchange rate (4)		Credit (4) and (asset price (40) or exchange rate (20) ¹)	
	Noise/signal	% crises predicted	Noise/signal	% crises predicted	Noise/signal	% crises predicted
1	0.09	50	0.11	44	0.09	50
2	0.06	56	0.10	44	0.06	56
3	0.04	63	0.10	44	0.04	63

¹ Or higher.

Source: Borio and Lowe (2002b).

Table II.3
Composite indicators of banking distress, emerging market countries

Horizon (years)	Credit (4) and asset price (40)		Credit (4) and exchange rate (5)		Credit (4) and (asset price (40) or exchange rate (13))	
	Noise/signal	% crises predicted	Noise/signal	% crises predicted	Noise/signal	% crises predicted
1	0.23	38	0.15	58	0.16	67
2	0.12	54	0.11	58	0.12	71
3	0.08	58	0.10	58	0.09	75

Source: Borio and Lowe (2002b).

Table II.4
Composite indicators of banking distress, industrial countries

Horizon (years) ²	Combined gaps ¹											
	Money ³ (2) and credit ⁴ (4)		Money (2) and output ⁵ (2)		Money (2) and asset price ⁶ (60)		Credit (4) and output (2)		Credit (4) and asset price (60)		Credit (4), asset price (40) and output (1.5)	
	Noise/signal	% crises predicted	Noise/signal	% crises predicted	Noise/signal	% crises predicted	Noise/signal	% crises predicted	Noise/signal	% crises predicted	Noise/signal	% crises predicted
3	.21	60	.21	47	.09	47	.13	53	.06	47	.05	27
3,4	.20	60	.17	53	.07	53	.07	73	.02	73	.02	47
3,4,5	.19	60	.16	53	.06	53	.06	73	.02	73	.01	60

¹ A gap is measured as percentage points from an ex ante, recursively calculated Hodrick-Prescott trend; the size of the threshold is shown in brackets. ² A signal is correct if a crisis takes place in any one of the years included in the horizon ahead. Year 3 means the year starting 12 quarters ahead; "year 3,4" means either year 3 or year 4; etc. Noise is identified as mistaken predictions within the same horizon. Given the data frequency and difficulties in assigning crises to a specific date, banking stress is arbitrarily assigned to the last quarter in any given year. ³ Money is measured as the ratio of money to GDP (lambda = 400000). The monetary aggregate used is roughly equivalent to M2 or M3 depending on the country. ⁴ Credit is measured as the ratio of private sector credit to GDP (and lambda = 400000). ⁵ GDP (and lambda = 1600). ⁶ Real equity price index (and lambda = 400000).

Source: Borio and Lowe (2003).

Table II.5
Financial imbalances as indicators of the output gap¹

Conditional probabilities of an output gap of less than minus 1% ² (unconditional = 39)							
Single indicators				Composite indicators			
Gaps	Year 2	Year 3	Year 4	Gaps	Year 2	Year 3	Year 4
Output (2)	37 (-.53)	42 (.94)	49** (2.92)	Credit (4) and equity (60)	41 (.50)	66** (5.54)	75** (7.00)
Credit (4)	54** (6.43)	47** (3.36)	37 (-.63)	Credit (4) and output (2)	56* (2.34)	60** (2.74)	53 (1.78)
Equity (60)	35 (-1.25)	53** (4.61)	59** (6.68)	Equity (60) and output (2)	34 (-.69)	63** (3.19)	77** (4.71)
Money (2)	42 (1.42)	42 (1.52)	40 (.53)	Credit (4), equity (60) and output (2)	55 (1.06)	99** (2.91)	1.00 ³ -
				Money (2) and credit (4)	50** (4.11)	44 (1.78)	37 (-.64)
				Money (2) and output (2)	31 (-1.44)	39 (.11)	40 (.19)
				Money (2) and equity (60)	37 (-.41)	61** (4.39)	65** (5.46)

¹ Results of probit regressions in which the variable predicted and the predictors are treated as zero/one dummies depending on whether the corresponding conditions defining the event are met; z-statistics in brackets. The sample is 1974 Q1-1999 Q4. Two and one asteriks correspond to statistical significance at the 1% and 5% levels respectively. ² Ex ante output ($\lambda = 1600$, throughout the table). The prediction relates to the ex ante output gap satisfying the condition (here, less than minus 1) in any one of four successive quarters (year). Thus, if the prediction is made in Q1 of, say, 1980, in the case of year 2 ahead the negative output gap of minus 1 relates to any one of 1982 Q1, Q2, Q3 and Q4, ie any one of 8, 9, 10 or 11 quarters ahead. Thus, the two-year horizon is only approximate. The same applies to the other horizons. ³ Conditional probability calculated by counting the frequency of events; the econometric routine does not converge.

Source: Borio and Lowe (2003).

Table II.6
Financial imbalances as indicators of inflation¹

Conditional probabilities of a decline ² (unconditional = 50)							
Single indicators				Composite indicators			
Gaps	Year 2	Year 3	Year 4	Gaps	Year 2	Year 3	Year 4
Output (2)	47 (-.71)	60** (2.64)	58* (2.11)	Credit (4) and equity (60)	41* (-2.08)	53 (.58)	63** (2.69)
Credit (4)	50 (.17)	51 (.27)	54 (1.70)	Credit (4) and output (2)	29** (-2.84)	68* (2.46)	62 (1.53)
Equity (60)	41** (-2.99)	52 (.68)	56* (2.11)	Equity (60) and output (2)	41 (-1.35)	56 (.87)	71** (2.79)
Money (2)	45* (-2.16)	52 (1.02)	54 (1.92)	Credit (4), equity (60) and output (2)	36 (-1.07)	55 (.31)	92* (2.38)
				Money (2) and credit (4)	49 (-.20)	52 (.63)	52 (.92)
				Money (2) and output (2)	46 (-.75)	62* (2.28)	59 (1.56)
				Money (2) and equity (60)	42 (-1.73)	54 (.99)	63** (2.85)
				Money (2), equity (60) and output (2)	47 (-.23)	56 (.50)	74 (1.80)

¹ Results of probit regressions in which the variable predicted and the predictors are treated as zero/one dummies depending on whether the corresponding conditions defining the event are met; z-statistics for the underlying regression coefficients in brackets. The sample is 1974 Q1-1999 Q4. Two and one asteriks correspond to statistical significance at the 1% and 5% levels respectively. ² Inflation is defined as an average year-on-year change over four quarters. Thus, if the prediction is made in Q1 of, say, 1980, in the case of year 2 ahead the decline in inflation relates to the average year-on-year change between 1982 and 1981.

Source: Borio and Lowe (2003).