

## VII. Cycles and the financial system

### Highlights

Over the past few decades, the liberalisation of financial systems has improved the provision of financial services and the allocation of resources. Nevertheless, liberalisation has arguably also increased the scope for pronounced financial cycles. In turn, these cycles can contribute to the amplification of cycles in the macroeconomy, and in the past have all too often ended in costly banking system crises. While both industrialised and emerging market economies have been affected, the damage caused by financial instability has been particularly serious for emerging market countries.

At the root of these cycles typically lies a wave of optimism generated by favourable developments in the real economy. This optimism contributes to the underestimation of risk, overextension of credit, excessive increases in asset prices, overinvestment in physical capital and, in some cases, overly buoyant consumer expenditures. Eventually, when more realistic expectations emerge, the imbalances built up in the boom need to be unwound, sometimes causing significant disruption to both the financial system and the real economy.

Addressing the problems created by financial cycles poses an exceedingly difficult, yet increasingly important challenge for supervisory authorities and central banks. In principle, policymakers can increase the resilience of the economy to these cycles and also respond directly to the build-up of financial imbalances. In practice, however, responding in this way is not straightforward and raises a number of conceptual and implementation issues. Looking forward, resolving these issues will be important to ensuring the ongoing stability and benefits of liberalised financial systems.

### Financial cycles

Financial factors have long played a role in shaping business cycles. However, as domestic financial systems and international capital flows have been liberalised, this role has grown. Developments in credit and asset markets are having a more profound effect on the dynamics of the typical business cycle than was the case a few decades ago, and have also contributed to the increased frequency of banking system crises.

Both industrialised and emerging market economies have been affected. Many industrialised countries experienced financial excesses in the late 1980s. These excesses helped propel economic expansions, but also sowed the seeds for the contractions and financial distress of the early 1990s. And again, since the mid-1990s, economic expansions have been underpinned by strong

Financial developments have affected economic cycles more ...

asset markets and solid credit growth. More recently, in some countries, the financial cycle appears to have turned once more (see Chapter VI), with developments in the financial sector contributing to a slowdown in growth.

In many emerging market economies, financial cycles have been particularly pronounced, typically being reinforced by large swings in the flow of international capital. The cost of these cycles has been high, with the direct costs of resolving banking crises often exceeding 10% of GDP, and the indirect costs in terms of lost output higher still. The turmoil in a number of Asian economies in the late 1990s is but one illustration.

When financial systems were heavily regulated and central banks focused on controlling the monetary or credit aggregates, the scope for damaging financial cycles was constrained. Typically, under these regimes, rapid monetary expansion was met with a tightening of direct controls on bank lending or an increase in interest rates. These responses restricted the increase in leverage and limited the exposure of regulated financial institutions to imbalances in asset markets. Although such regulated environments led to potentially severe credit misallocation, they were less prone to the large cyclical swings seen in today's more liberalised environment.

... since liberalisation ...

With financial liberalisation has come a significant deepening of private sector financial balance sheets, including a marked increase in debt levels relative to GDP and larger holdings of market-linked financial assets. Credit growth has also become more sensitive to both underlying economic conditions and perceptions of risk, and the links between asset markets and credit growth have been strengthened. Private sector spending, too, is increasingly sensitive to movements in asset prices. Overall, the picture is one in which the health of the macroeconomy and that of the financial system have become much more closely intertwined.

Ensuring the stability of the financial system is thus an important objective of many policymakers. Over recent decades, numerous episodes of instability have had their roots in poor macroeconomic policy, including high inflation, and inadequate risk management by financial institutions. However, experience also suggests that financial imbalances can develop in low-inflation environments. Indeed, notwithstanding recent improvements in risk management practices, it may be the case that sustained low inflation, particularly if accompanied by strong central bank credibility and robust economic growth, generates the very optimism that helps fuel credit booms and unsustainable increases in asset prices. In such an environment, the upswing of the business cycle may be accompanied by the overextension of credit markets and the excessive accumulation of capital, and the downswing by the subsequent unwinding of these imbalances. Dealing with such cycles can pose considerable challenges for both monetary and regulatory authorities.

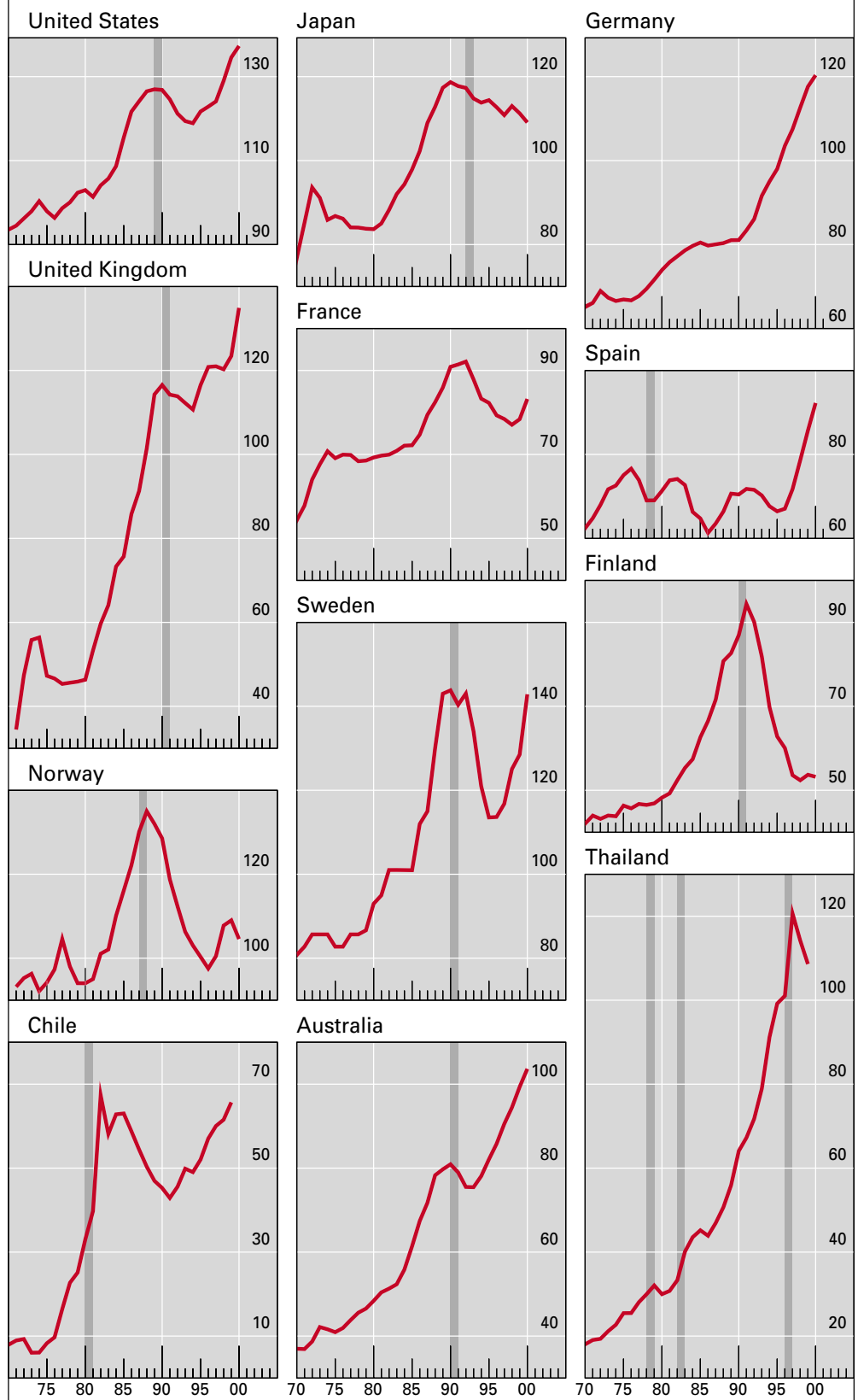
... presenting new challenges for policymakers

#### *Credit and asset prices*

Cycles in credit and asset prices typically occur in tandem and are often mutually reinforcing. Rising asset prices can stimulate economic activity and, by raising the value of collateral, reduce the cost of borrowing and increase

Booms and busts in asset markets ...

# Credit cycles and financial stress<sup>1</sup>



<sup>1</sup> Private credit as a percentage of GDP; comparability across countries is restricted by differences in the definition of private credit. The shaded areas mark the onset of stress in the financial system.

Sources: G Kaminsky and C Reinhart, "The twin crises: The causes of banking and balance-of-payments problems", *American Economic Review*, June 1999; national data; BIS estimates. Graph VII.1

the availability of finance for both firms and households. Faster growth and additional borrowing can then feed back into higher asset prices. The interaction between credit and asset markets can be even more powerful when asset prices are falling and economic conditions are deteriorating. In particular, falling prices reduce the value of existing collateral held by financial institutions, and can thus lead to substantial losses by these institutions and ultimately a significant contraction in the supply of credit.

Over recent decades, movements in property prices, in particular those of commercial property, have been central to the most pronounced financial cycles. In part, this reflects the important role that property plays as a source of collateral for bank loans. In addition, the commercial property market seems especially vulnerable to large swings in both prices and new construction activity. Substantial booms and busts in this market lie behind many of the problems experienced by banks in Australia, Finland, Japan, Norway, Sweden, the United Kingdom and the United States in the late 1980s and early 1990s, and more recently in a number of Asian countries.

Developments in residential property markets have also shaped financial cycles, although typically they have not been the major direct source of financial instability. Rather, declines in residential property prices have

... most notably those in the property market ...

... have historically generated financial instability

Credit and asset price cycles <sup>1</sup>									
	Credit/GDP ratio <sup>2</sup>			Residential property prices <sup>3</sup>			Commercial property prices <sup>3, 4</sup>		
	Trough to peak	Peak to trough	1995 Q4 to 2000 Q4	Trough to peak	Peak to trough	1995 Q4 to 2000 Q4	Trough to peak	Peak to trough	1995 Q4 to 2000 Q4
	early 1980s to late 1990s			early 1980s to late 1990s			early 1980s to late 1990s		
United States	25	- 7	16	.	.	30	39	-50	35
Japan <sup>5</sup>	36	-11 <sup>6</sup>	- 5	115	-22 <sup>6</sup>	-12	132	-51 <sup>6</sup>	-35
Germany	.	.	23	59	-17 <sup>6</sup>	-16	233	-43	51
France	22	-14	2	87	- 8	24	407	-52	88
Italy	18	- 8	11	102	-11	9	194	-54	70
United Kingdom	72	- 8	19	215	-12	68	125	-27	22
Canada	28	- 1	11	102	- 3	10	54	-53	33
Spain	11	- 5	26	230	- 6	43	601	-70	210
Australia	28	- 5	22	86	.	34	578	-49	25
Netherlands	.	.	46	.	.	88	113	-20	69
Belgium	22	- 4	2	.	.	22	136	-26	32
Sweden	53	-30	27	121	-16	49	1,027	-83	123
Switzerland	45	.	- 3	101	-25	- 6	131	-31	1
Denmark	12	-14	12	87	-19	46	277	-35	43
Norway	40	-37	4	175	-26	68	245	-44	12
Finland	48	-42	-10	286	-58	57	912	-49	24
Ireland	.	.	40	.	.	124	48	-17	153

<sup>1</sup> Cycles defined by peaks and troughs of the credit/GDP ratio and property prices respectively. <sup>2</sup> Changes over the relevant period in percentage points. <sup>3</sup> Percentage changes over the relevant period. <sup>4</sup> Data typically refer to major cities. <sup>5</sup> Property prices refer to land only. <sup>6</sup> No trough identifiable; calculated to end-2000.

Sources: Frank Russell Canada Limited; Investment Property Databank Ltd; Jones Lang LaSalle; Ministère de l'Équipement, des Transports et du Logement; National Council of Real Estate Investment Fiduciaries (NCREIF); Nomisma; OPAK; Ring Deutscher Makler; Sadolin & Albæk; Wüest & Partner; other private real estate associations; national data; BIS estimates. Table VII.1

tended to create financial headwinds, with dampened consumer spending retarding recovery from economic downturns. The upward trend in household indebtedness seen in many countries over recent years has probably increased the potential for similar headwinds in the future.

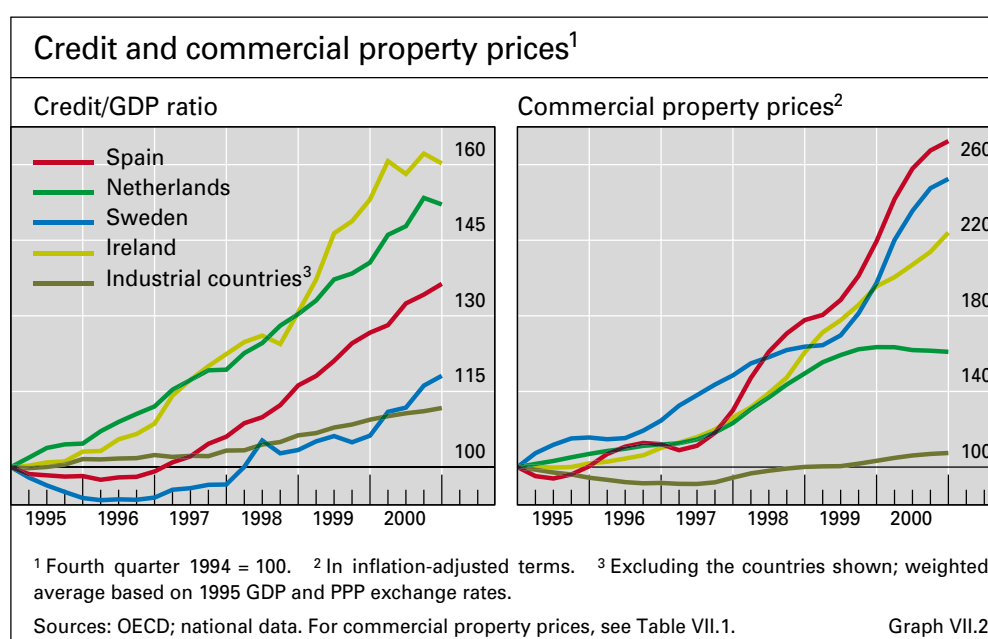
Since the mid-1990s, those industrialised countries experiencing the fastest rate of credit growth have also tended to record the largest gains in commercial property prices. For instance, credit has grown particularly rapidly in Ireland, the Netherlands, Spain and Sweden, and commercial property prices in the major cities of these countries have increased markedly. Globally, however, despite signs of overheating in some cities, the upswing of the current cycle has not translated into the same widespread boom in commercial property markets as witnessed in the 1980s. In most industrialised countries, including France, Germany, Italy, the United Kingdom and the United States, commercial property prices, in real terms, remain well below previous peaks despite recent increases. In Japan, which continues to suffer from the unwinding of the 1980s property price boom, prices have declined for the past 11 years.

In the current financial cycle, lending backed by residential mortgages has grown rapidly in a number of countries and large price gains have been recorded. In Australia, Norway, Sweden and the United Kingdom, for example, these gains have pushed the nominal and real prices of residential real estate beyond the peaks reached in the late 1980s.

Credit cycles are usually also associated with cycles in equity prices, although the links tend to be looser than those between credit and property prices. Nevertheless, a striking characteristic of the upswing of the financial cycle in the second half of the 1990s was an extraordinary rise in equity prices, particularly in the technology and communications sectors. For a time, these gains appeared to be self-reinforcing, with higher equity prices contributing to stronger economic growth, even higher levels of confidence about the

Commercial property prices in most industrialised countries remain below previous peaks

The 1990s upswing was characterised by extraordinary gains in equity prices



future and an increased willingness of banks to provide credit, particularly to firms in sectors with rapidly rising equity prices.

While part of the equity price gains of the late 1990s has been reversed over the past year or so, the health of most banking systems, to date, appears to have been largely unaffected. Notwithstanding this general resilience, the exposure of many banks to the equity market has increased over the past decade. This greater exposure arises from larger proprietary trading operations, an expansion in lending to households to finance the purchase of equities, and an increased reliance on fee-based income derived from asset management and broking businesses. Moreover, households are more exposed to equity price movements and these exposures are increasingly visible, particularly in defined contribution pension schemes. This suggests a more important wealth effect everywhere, but particularly in the United States.

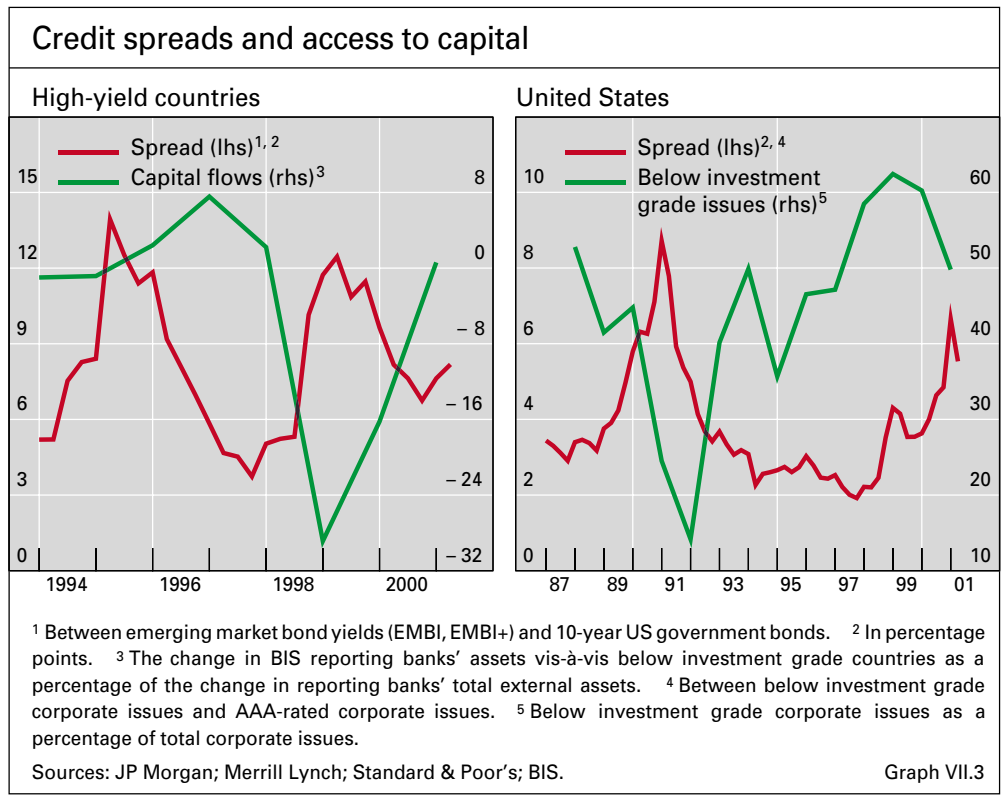
Banks and households are increasingly exposed to equity markets

*Cyclical behaviour of institutions and markets*

Financial cycles are also characterised by cycles in the appetite for risk, as well as cycles in the pricing and assessment of risk by both markets and financial institutions. In periods of strong economic growth, the appetite for risk appears to rise along with optimism about the future. One manifestation of this is a relaxation of lending standards, including less stringent covenants and collateral requirements. Relatively high-risk borrowers also gain easier access both to bank-intermediated finance and to the capital markets.

Economic booms are characterised by a relaxation of lending standards ...

These patterns have been evident over recent years. Strong growth in the Asian economies in the early and mid-1990s led to unprecedented inflows of foreign capital, ultimately financing highly risky investments. In the United



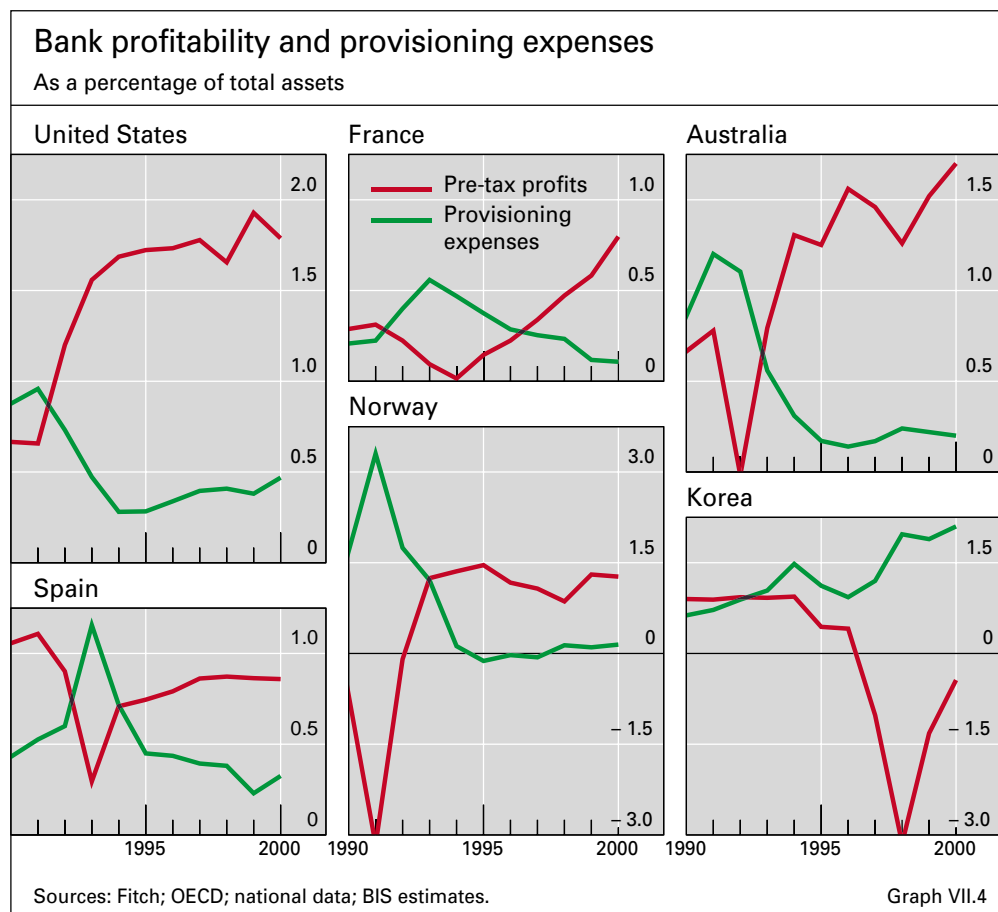
States too, a loosening of credit standards, particularly in the period 1996–98, contributed to rapid growth in syndicated loans to below investment grade firms and in sub-prime lending to households. Similarly, this period saw a significant increase in the issuance of relatively high-risk corporate bonds. In Europe, lending standards were also eased in the second half of the 1990s, as evidenced by an increase in loan-to-value ratios for residential mortgages in some countries.

... narrowing credit spreads ...

The price of credit risk also moves procyclically, falling in economic booms and increasing in downturns. During periods of rapid credit growth, many banks are prepared to shave lending margins to sustain, and even build, market share. For example, in Japan in the late 1980s and across Asia in the mid-1990s, lending spreads were barely high enough to cover operating costs. In the United States, bank lending margins on commercial and industrial loans fell during much of the 1990s before increasing in 1998, particularly for the most risky borrowers. Lending margins have also been under downward pressure in a number of European countries, partly due to an intensification of competition. The cyclical movement in the price of credit risk is also evidenced in bond spreads, with credit spreads tending to narrow in periods of strong growth and widen in recessions.

... and higher bank profitability ...

An important factor underlying these general patterns is the tendency for bank profits to rise in economic booms and to fall, often sharply, in economic downturns. The decline in profitability in downturns often leads to a lower tolerance for risk, and in some cases to a noticeable reduction in the



Profitability of major banks in 1999 and 2000									
	Number of banks	Pre-tax profits		Provisioning expenses		Net interest margin		Operating costs	
		1999	2000	1999	2000	1999	2000	1999	2000
		as a percentage of total average assets							
United States	12	2.17	1.79	0.44	0.63	3.34	3.22	3.84	4.10
Japan <sup>1</sup>	16	0.42	0.37	0.90	0.52	1.14	1.07	0.89	1.01
Germany	4	0.43	0.55	0.28	0.18	0.95	0.82	1.65	1.74
France	4	0.69	0.83	0.20	0.18	1.14	0.94	1.85	1.91
United Kingdom	4	1.43	1.53	0.33	0.21	2.30	2.21	2.40	2.39
Canada	6	1.17	1.31	0.24	0.29	1.94	1.93	2.59	2.74
Spain	4	1.21	1.33	0.33	0.35	2.62	2.63	2.65	2.62
Australia	4	1.72	1.85	0.24	0.20	2.72	2.43	2.55	2.39
Sweden	3	0.84	1.09	0.01	0.07	1.27	1.39	1.50	1.66
Switzerland	2	0.82	0.96	0.12	0.04	0.70	0.73	2.55	2.90

<sup>1</sup> 1999 figures refer to the fiscal year ending 31 March 2000; figures for 2000 are annualised first half data for the fiscal year 2000.  
Source: Fitch. Table VII.2

supply of credit, with banks typically either reorienting their portfolios towards relatively safe assets or charging higher lending margins.

The main contributor to the cyclical pattern in bank profitability is the cyclical nature of aggregate loan losses, and in particular that of provisioning for these losses. For reasons discussed later, provisioning only increases after a significant deterioration in credit quality has materialised. This means that, typically, provisions only rise in economic downturns and often do so over a very short period of time.

The close relationship between profits and provisions is evident in the current cycle. Over the second half of the 1990s, the return on equity for commercial banks in the United States persistently exceeded returns earned over at least the previous 20 years. At the same time, the provisioning expense incurred by US banks declined significantly. Similarly, the rate of return on bank equity in the euro area, while substantially lower than in the United States, steadily increased during the 1990s with a simultaneous decline in provisioning expense. Recently, high levels of bank profitability have also been supported by low levels of provisioning expense in Australia, Sweden and the United Kingdom.

... explained, in part, by a decline in provisioning for bad loans

## Mechanisms behind financial amplification

To the extent that the financial system can be regarded as excessively procyclical, the main underlying explanations rely on inappropriate responses by financial market participants to changes in risk through time. These inappropriate responses can arise from a variety of sources, including the way in which risk is assessed, the incentives that individuals face in responding to a given assessment, and the nature of the regulatory framework. Of these three factors, the assessment of risk through time is probably the most important.



### *The assessment of risk through time*

Favourable  
economic  
developments ...

Financial cycles often have their origin in favourable supply side developments. History is replete with examples of economic liberalisation, the discovery of new resources or the development of new technologies spurring strong economic growth and generating a powerful wave of optimism. The optimism is often reinforced by the fact that these developments cause not only an acceleration in economic activity, but also a reduction in inflation and an increase in the share of national income going to profits.

... justify higher  
asset prices ...

In such favourable circumstances, substantial rises in asset prices are warranted. The difficulty is that the size of the increase is not well anchored, depending as it does on expectations of an uncertain future. In many business cycle expansions, expectations appear to become overly optimistic and, consequently, risk appears to be underestimated. The result is that asset prices can be bid up to unsustainable levels and credit growth can far outstrip growth in nominal GDP.

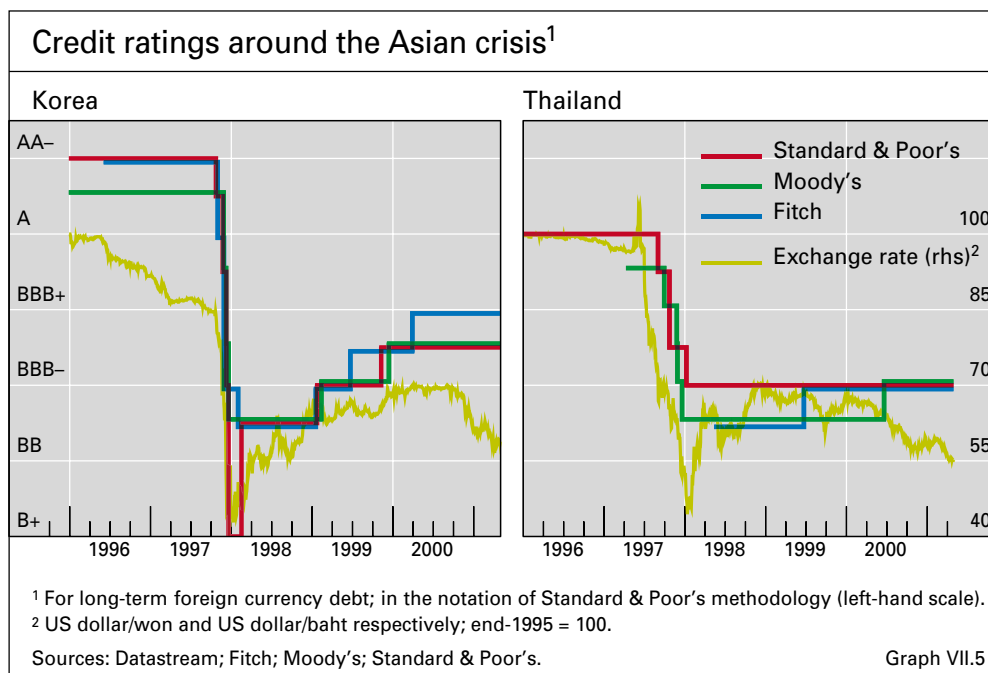
... but  
overoptimism ...

The tendency for investors, entrepreneurs and financial institutions to become overly optimistic in booms can be explained by a number of factors, some of which rely on cognitive biases. Psychological experiments indicate that when individuals evaluate possible outcomes they tend to exhibit “disaster myopia”, placing too little weight on low-probability adverse events. Moreover, there is a tendency for individuals to relieve “cognitive dissonance” by routinely interpreting information in a way that reinforces prevailing beliefs. A consequence of these biases is that in a period of strong growth, low inflation and high profitability, information is often interpreted as being consistent with a continuation of favourable conditions while accumulating evidence of possible future problems is heavily discounted. But if growth should slow under the weight of financial imbalances and overinvestment in physical capital, or if profitability declines due to increased competition and faster wage growth, such beliefs can suddenly shift, and subsequent information will be interpreted in a much more negative light. A wave of pessimism can then quickly follow.

... and the  
tendency to  
extrapolate present  
conditions ...

Another related explanation for the underestimation of risk in recent booms is the tendency for many of the risk measurement approaches currently in use to implicitly extrapolate present conditions into the future. For example, methodologies for measuring credit risk that rely on equity prices tend to show a lower risk of corporate defaults in booms, as equity prices are rising and volatility is falling. Similarly, the internal ratings systems used by banks to measure risk tend to indicate a decline in risk when current default rates are low. In part, this reflects the short horizons over which risk is often measured using such systems. Also, external credit ratings are often only adjusted after the materialisation of adverse events, rather than when risk is building up. As an illustration, during the Asian crisis ratings downgrades mostly occurred only after the large devaluations had taken place, with ratings rising once again as the crisis passed.

The extrapolation of current conditions may be appropriate if macro-economic conditions are very persistent. In this case, the current state of the economy provides the best, albeit imprecise, guide to the future. If this



view of the world is correct, an implication is that risk might not increase in an economic boom since there is no reason to expect that, simply because the economy has experienced a period of strong growth, a downturn in the near future is more likely. In contrast, if the forces that generate the boom sow the seeds of the downturn, as often appears to be the case, then, at some point during the boom, risk begins to build up. The subsequent rise in defaults in the downturn might therefore be better thought of as the materialisation of risk built up during the boom, rather than as an increase in risk in the downturn.

From a practical perspective, it is difficult to identify if and when risk actually begins to increase during a boom. There are no clear answers. However, history suggests that episodes of rapid credit growth, strong gains in asset prices, narrow lending spreads and high levels of investment tend to be followed by stresses in the financial system. Such periods are arguably characterised by higher than average levels of risk, even if current economic conditions are strong. The failure to recognise this risk can play an important role in amplifying the upswing of a financial cycle.

... can amplify an economic upswing

### *Incentives*

The incentives that lenders face in responding to a given assessment of risk can also affect the evolution of financial cycles. Perhaps the clearest example is the incentive for an individual bank to tighten lending standards in a downturn. While each bank might reasonably assume that the health of the economy is independent of its own actions, this leads to a fallacy of composition in that, if every bank behaved in the same way, the health of the economy would almost surely be affected. Even if an individual bank recognised this fallacy, it would still have an incentive to tighten lending standards in a downturn. This incentive might be overcome through some

The divergence of private and social incentives ...

form of coordination across institutions, but such an approach is problematic in competitive banking systems.

... can also exacerbate the procyclicality of the financial system

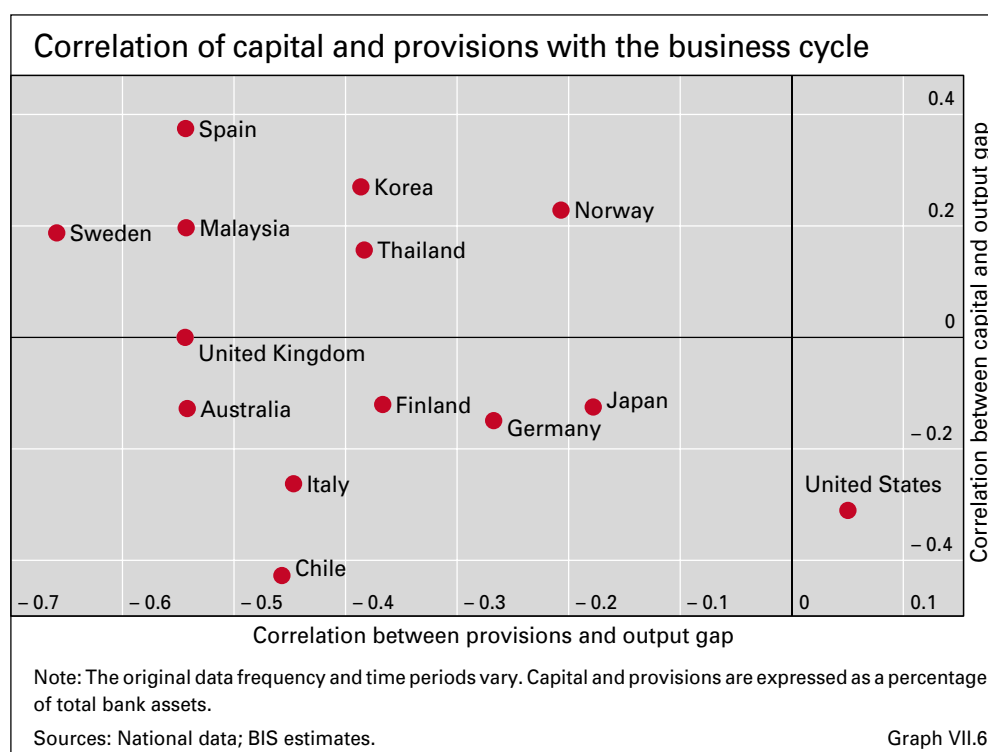
Incentives can also be distorted by the existence of improperly designed financial safety nets and various forms of limited liability. These arrangements can lead to lenders giving insufficient weight, from a social perspective, to downside scenarios, since some of the losses incurred in these scenarios are likely to be borne by others, including taxpayers. Finally, remuneration arrangements that focus on short-run outcomes and relative, rather than absolute, performance may discourage a long-term perspective and an assessment of aggregate risk.

### Accounting and regulatory policies

The design of accounting and regulatory rules can also affect the way in which financial institutions respond to changes in perceived risk. Nevertheless, the recurrence of financial cycles throughout history suggests that the structure of regulation is not the primary factor causing these cycles.

Provisioning rules are currently backward-looking ...

As noted earlier, provisioning practices are an important factor influencing the cyclicity of bank profitability. In many countries, accounting rules only allow a provision to be created after a clearly verifiable deterioration in credit quality has occurred. Moreover, there are often restrictions on the tax deductibility of provisioning expenses. The result is that it can be difficult for a bank to increase provisions in an economic boom even if it correctly judges that the future ability of its borrowers to repay has deteriorated. While the additional profits that arise from underprovisioning could be retained on the bank's balance sheet, rather than paid out as dividends or used to finance share buybacks, this is not always possible given the pressures on bank management to maximise the return on equity.

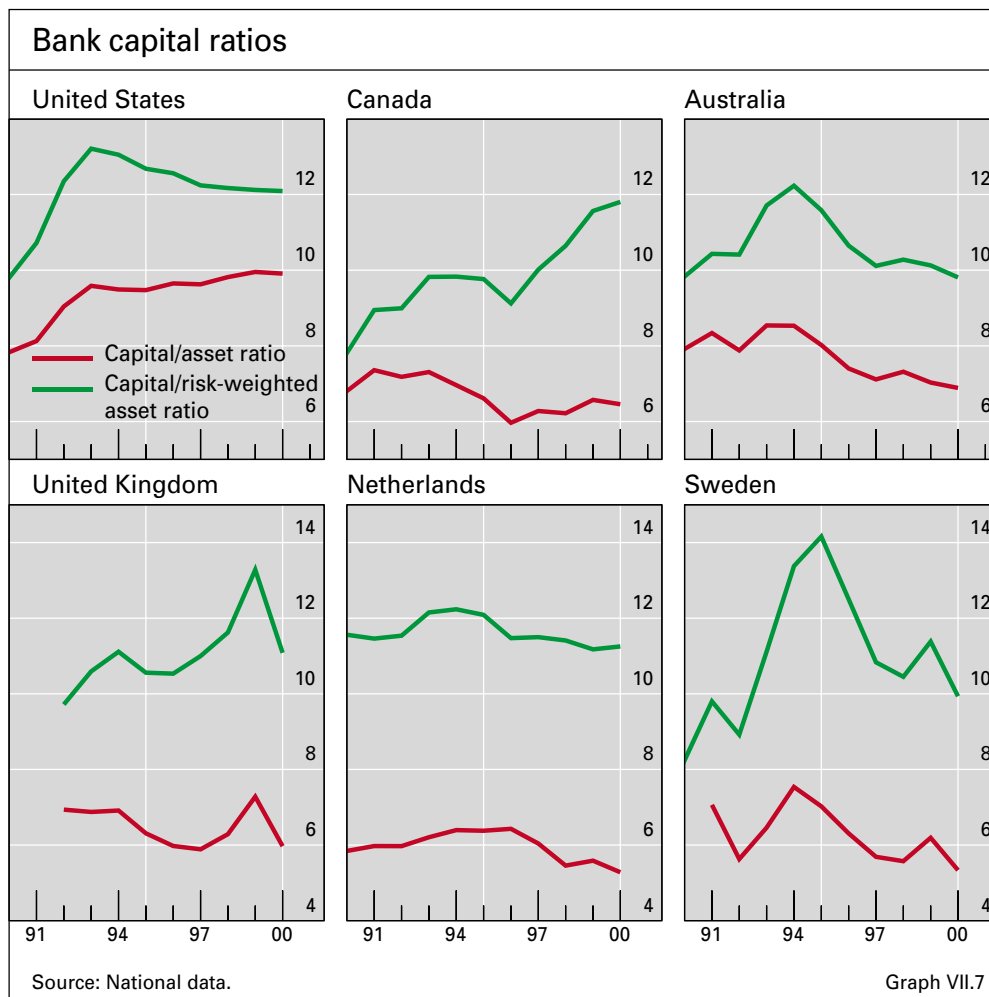


The structure of bank capital regulation can also potentially affect the dynamics of financial cycles. While a regulatory system built around minimum capital ratios might contribute to the overall stability of the financial system, it might also, under certain circumstances, exacerbate economic downturns. The reason is that widespread losses might cause a number of banks to significantly cut back lending, in particular to avoid the substantial reputational and other costs that can arise if minimum capital ratios are breached. Any tightening of controls or lending standards in response to the losses might also amplify the downturn.

While the evidence on the importance of these regulatory channels is mixed, it seems reasonable to suggest that the contraction of bank lending that typically accompanies an economic downturn would be mitigated if capital ratios rose during the preceding upswing. Current capital rules require an increase in the *level* of capital in a boom if lending is expanding, but they do not require an increase in the *ratio* of capital to assets. In fact, under current rules, the capital requirement for a given portfolio does not change through time as the riskiness of the portfolio changes. Moreover, given the potential for underprovisioning in economic booms, the banking system's overall cushion to offset losses may even fall during such periods.

... and current minimum capital requirements are not very risk-sensitive

Looking across countries, there does not appear to be a robust relationship between banks' actual capital *ratios* and the business cycle. Since



Capital ratios do not move systematically with the business cycle

the mid-1990s, some banking systems have recorded an increase in the aggregate capital ratio, while in others this ratio has declined. Perhaps the clearest observation to emerge from cross-country comparisons is that in those countries that experienced banking system problems in the late 1980s and early 1990s, capital ratios rose substantially only after the problems surfaced. They then declined gradually as economic expansions became firmly entrenched. To some extent, the rise in capital ratios in the early 1990s may have reflected regulatory pressures, but another important factor was the need for the troubled banks to demonstrate their renewed strength to the market. Once this had been done and economic growth had recovered, the higher capital ratios came to be seen as an impediment to shareholder value and, as a result, subsequently declined.

### Possible policy responses

Policymakers can respond to financial cycles ...

In principle, supervisory, regulatory and monetary policies could be used to respond to the problems created by the recurrence of financial cycles. An important issue for policymakers, however, is whether they should respond in this way and, if they were to do so, what form the policy response should take.

One common view is that the best contribution policymakers can make to financial and macroeconomic stability is to ensure that inflation is low and stable, that the financial infrastructure meets widely accepted international standards, and that adverse financial events are addressed in a timely fashion. Proponents of this view point to the fact that many of the cycles that ended in severe financial stress have occurred in countries where inflation was high or bank supervision was weak and market disclosure inadequate. They also highlight the practical problems (discussed later) of framing a more activist policy response.

... but opinions differ ...

An alternative view is that while the above conditions are necessary for the maintenance of financial stability, they are not sufficient. In particular, it is clear that even low-inflation countries remain susceptible to costly financial cycles arising from waves of excessive optimism. Accordingly, it could be argued that financial and macroeconomic stability would be enhanced by the authorities giving more serious consideration to policies that reduce the sensitivity of the economy to these cycles or, more ambitiously, contain their development through discretionary changes in regulatory and supervisory instruments or in policy interest rates.

... on whether and how this should be done

In part, these different views, at least with respect to the feasibility and desirability of discretionary changes in policy instruments, reflect different assessments of whether financial imbalances can be identified by policy-makers. While unsustainable credit booms and asset price misalignments are easily identifiable *ex post*, they are much more difficult to spot *ex ante*. One line of argument is that policymakers are unlikely to make consistently better judgments about the sustainability of current trends than are private institutions. As a result, they should refrain from interventions designed specifically to contain the upswing of a financial cycle. A counterargument

is that the case for a policy response need not depend upon the ability of policymakers to make better judgments than the private sector. Rather, the fact that policymakers have different responsibilities and incentives may well mean that they respond quite differently to the same assessment of current trends. For instance, policymakers are likely to be more concerned than the private sector with potential downside scenarios, particularly if there are common exposures across financial institutions. They might also be expected to have longer time horizons and to have incentives that are not distorted by the existence of a financial safety net.

### *Supervisory and regulatory policies*

If policymakers are to respond to the recurrence of financial cycles, an obvious starting point is to do so using prudential supervision and regulation. Here the authorities have three broad options: improving the public's understanding of aggregate risk; establishing rules that make the financial system and the macroeconomy less vulnerable to financial imbalances; and responding directly to imbalances by making discretionary changes in prudential requirements.

The first of these options addresses the central issue of the measurement of risk through time. The supervisory authorities might be able to improve the public's assessments of aggregate risk by, for example, the publication of reports and speeches by senior officials. Supervisors could also ask financial institutions to carry out stress tests directed at highlighting and assessing exposures to particular vulnerabilities, and require additional reporting or disclosure of risks. Steps in this direction have recently been taken by some supervisors in countries experiencing rapid credit growth and large increases in property prices.

Policymakers can highlight changes in risk through time

The second option is to design regulatory arrangements that might act as a kind of built-in stabiliser, limiting the procyclical nature of the financial system. In this regard, the rules governing bank capital and provisioning are particularly important. Together, capital and provisions provide a bank's main protection against adverse events, with, in principle, capital protecting against unexpected losses and provisions covering embedded or expected losses.

Regulatory arrangements such as ...

Changes recently proposed by the Basel Committee on Banking Supervision to the rules regarding bank capital will align *relative* capital requirements much more closely with measures of *relative* risk. This will by itself significantly lessen many of the distortions that have arisen under the current Capital Accord and strengthen the soundness of financial institutions. Moreover, refinements to relative capital requirements and an increased emphasis on supervisory review and disclosure (Pillars 2 and 3) are likely to contribute to earlier recognition of problems by supervisors, banks and markets. To the extent that this leads to less regulatory forbearance and to earlier corrective action, many of the worst excesses associated with the financial cycle might be avoided.

... minimum capital requirements ...

The proposed changes also mean that the regulatory capital requirement on a given portfolio will change through time in line with the evolution of *measured* risk. This has the potential to further increase banks' soundness and

reduce the procyclicality of the financial system. The degree to which this potential is realised, however, depends in part on how closely measured risk tracks underlying risk. If risk is underestimated in an upswing, then regulatory capital requirements in a boom may well be too low, leaving the banking system unduly exposed to an economic downturn. On the other hand, the stability of the financial system is likely to be enhanced if the emergence of financial imbalances leads to the recognition of increased risk and hence to higher levels of capital in the banking system.

In measuring risk an important issue is the time horizon over which the assessment is made. The proposed changes to the Capital Accord do not specify a particular assessment horizon; banks are expected to evaluate risk over the future based on current conditions and their experience with the borrower. The proposals note, however, that given the difficulties in forecasting *distant* events, a bank must take a conservative view of the projected information. At the same time, in quantifying risk for the calculation of capital requirements, the proposals rely on the one-year probability of default associated with a given risk category, as is common practice. An open issue is whether this quantification method will lead banks to also assess risk over a one-year horizon. If so, then risk assessment may arguably become too short-sighted. Assessment horizons longer than one year might be appropriate if the time taken by a troubled bank to raise capital or restructure its balance sheet is usually longer than one year. This is more likely to be the situation if the troubles are shared by a number of banks. Moreover, there may be a case for longer assessment horizons if the one-year horizon leads to frequent shifting of loans between risk categories, generating undesirably large swings in required minimum capital ratios over the course of a business cycle.

... forward-looking provisions ...

Provisioning rules can also be designed to act as a form of built-in stabiliser. A step in this direction has been taken in Spain. Under recently introduced rules, banks are required to create a provision against future losses at the time a loan is originated, with the size of the provision being determined by the long-term historical loss experience for the particular type of loan. This approach is likely to reduce the cyclicity of bank profitability by increasing provisioning expense in good times, with the additional provisions providing a cushion against loan defaults in bad times.

Such rules, however, have been criticised on conceptual grounds. The creation of a provision leads to a writedown of the net assets of a bank. From an accounting perspective, such a writedown at origination is generally considered inappropriate, since the fair value of a correctly priced loan should not be less than its face value. While supervisors might take comfort from the additional cushion that the writedown provides, accounting authorities often argue that this type of rule-based provisioning can lead to a distorted picture of the true health of an institution.

Another approach to provisioning is to require a provision to be created whenever the interest margin on a loan does not cover the expected losses arising from a possible default. Under this approach, provisions would generally not be required at origination, assuming that the risk has been fairly

priced, but might be required subsequently if the bank assessed that a borrower's credit quality had deteriorated and the loan rate remained unchanged. An extension of this approach would be to do away with provisions for bad loans and to move to full fair value accounting for all financial assets and liabilities.

Whatever the merits of forward-looking provisioning and, ultimately, full fair value accounting, there are a number of important difficulties. First, given that loans typically do not trade in markets, their valuation is inevitably subjective, depending on the bank's own assessment of the likelihood of repayment. Some accounting authorities worry that this subjectivity opens up the possibility for bank management to artificially smooth profits. Second, the impact of forward-looking provisioning and fair value accounting on the cyclical nature of the financial system depends very much on whether risk is assessed correctly through time. If risk is systematically underestimated in economic booms, loans will tend to be overvalued during periods of strong growth, either indirectly through underprovisioning or directly in the case of fair value accounting. In such circumstances, extending fair value accounting to all financial instruments would contribute to the procyclicality of the financial system. On the other hand, if risk is correctly assessed to increase in long-running expansions, then cyclical nature is likely to be reduced, with banks recognising that some of the income earned in good times effectively represents the payment of a premium to cover expected defaults in a downturn.

If the misassessment of risk is a significant problem, the case for some form of enforced provisioning at origination is stronger. Given the objections of accounting authorities, one option would be for supervisors to require financial institutions to hold capital not only as cover for unexpected losses, but also to cover some form of "prudential provision", calculated on the basis of long-run average loss experience. The effect of this would be to increase the amount of capital in the system during periods of low loan defaults.

The rules regarding collateral valuation and loan-to-value ratios could also act as a form of built-in stabiliser. Countries that have used long-term valuation concepts in valuing collateral, and that have enforced strict loan-to-value ratios for mortgage lending, appear to have had less procyclical financial systems, although the exact role of these factors is difficult to disentangle from other factors. Within the framework of the proposed changes to the Capital Accord, one option would be an explicit recognition that, through time, collateral values tend to be correlated with the probability of default, so that in periods in which loan losses are likely to be high, collateral values are likely to be low.

The third supervisory option, relying not on rules but on discretion, is to vary regulatory capital and provisioning ratios through time in response to changes in aggregate risk. This could be done by explicitly changing the minimum capital requirements that apply to all banks or by implementing changes on a bank by bank basis through the process of supervisory review. Either approach might be justified if supervisors thought changes in aggregate risk were not being adequately factored into individual banks'

... and valuation principles can serve as built-in stabilisers

Prudential requirements might also be changed through time ...



decisions. In a boom, higher levels of capital and provisions might help retard the development of financial imbalances by making lending more expensive and would increase the banking system's protection against a possible downturn. Such a response could be viewed as consistent with a strengthening of the macroprudential focus on financial regulation.

... but this presents particular problems for policymakers ...

Varying capital and provisions in a discretionary way through time, however, poses a number of challenges. Foremost amongst these is the identification of the relevant cycle. Another is the potential for such adjustments to create moral hazard. If the private sector came to believe that the authorities had adopted a regime in which policy instruments were systematically adjusted to contain overall financial system risk, then less attention might be devoted to the assessment of aggregate risk. Furthermore, if an episode of financial instability did occur, the authorities might feel partly to blame for not having adjusted their policy instruments earlier. As a result they might be less likely to take the required corrective action and more likely to engage in public sector bailouts. Moreover, the authorities' reputation could be damaged, ultimately undermining their ability to carry out their responsibilities.

... although infrequent changes need not be ruled out

At a more practical level, there are also many difficult implementation issues. For example, should any changes apply to all banks or should they be made on a bank by bank basis through the process of supervisory review? If they are to be made on a bank by bank basis, should they apply only to those banks with the greatest exposures to the cycle, or just to those that are the most systemically important? How would supervisors make the necessary judgments, and how would they defend their judgments publicly? Finally, would such supervisory action simply push financing into the unregulated sector? The difficulty of resolving these issues means that it is problematic for supervisors to vary capital and provisions frequently with the goal of reducing the amplitude of financial cycles. However, they need not rule out changes on an infrequent basis.

### *Monetary policy*

Monetary policy can also be used to address financial cycles ...

Monetary policy can also, in principle, be used to address financial cycles. The basic rationale is simple. The expansion of credit is an essential ingredient in the build-up of imbalances in the financial system and in any concomitant excessive accumulation or misallocation of real capital. As already noted, the stability of the general price level of goods and services may not provide a sufficient safeguard against such excesses and hence against the risk of financial instability. In present-day fiat monetary regimes, as opposed to commodity-based regimes, such as existed under the gold standard, the main exogenous constraint on the creation of credit in the monetary sphere is the reaction function of the authorities, typically in the form of adjustments to policy interest rates. Unless that reaction function includes a response to the build-up of financial imbalances, these imbalances could be unwittingly accommodated.

... but this raises difficult issues, including ...

This argument, however, also raises a number of thorny issues. They include the identification of potential imbalances, the reconciliation of

financial stability with the objective of stabilising prices and the efficacy of interest rate adjustments in dealing with financial imbalances.

From the perspective of the identification of financial imbalances, the situation of the monetary authorities is fundamentally similar to that of their prudential counterparts. Both are confronted with significant challenges in identifying financial imbalances *ex ante*. Nevertheless, one difference is that, if the central bank does not perform supervisory functions, it might lack adequate access to supervisory information. It is not, however, entirely clear how detailed the information about individual institutions needs to be to identify the more generalised imbalances that typically lie at the root of system-wide instability. To the extent that this information is important, appropriate mechanisms for its provision to the central bank could be developed. Another possible difference is that, by virtue of its broad responsibility for macroeconomic stability, the central bank may actually be more keenly aware of the general interactions between the financial system and the macroeconomy.

... identifying  
financial  
imbalances ...

A second issue is whether the use of interest rates to address financial imbalances is potentially inconsistent with a central bank's price stability objective. Over recent years, many central banks have adopted regimes in which the policy interest rate is set to ensure that the expected inflation rate at the forecast horizon is at, or close to, the target rate. Under a narrow interpretation of these regimes, a central bank should only respond to developments in the financial sector if those developments affect the inflation forecast. Under a broader interpretation, however, there could be circumstances in which financial imbalances are developing and where it would be appropriate to set interest rates at a higher level than warranted by the immediate inflation outlook. The rationale for doing so would be that, by containing the financial imbalances, the central bank might help avoid future financial instability, and perhaps even a related undershoot of its inflation objective. While the higher interest rates might be at the "cost" of some deviation of inflation from the target in the short run, such a policy could be viewed as consistent with ensuring price stability over some longer horizon.

... resolving  
potential conflicts  
with other goals ...

The potential tension between financial stability and a narrow interpretation of inflation targeting is perhaps clearest in periods in which favourable supply side developments have resulted in strong growth, a reduction in inflation and overly optimistic expectations about the future. In such an environment, the real return on capital, and thus the "natural" (or Wicksellian) rate of interest, is likely to have risen. Yet an inflation targeting framework might actually call for lower interest rates (see Chapter IV). Such a reduction in rates, however, might simply reinforce the wave of optimism, particularly if the central bank is seen as highly credible, ultimately contributing to even larger financial imbalances.

While higher interest rates may be appropriate in these circumstances, such a policy can create significant political economy problems. Given the current understanding of how monetary policy is set, it may be difficult for the central bank to explain convincingly to the public why interest rates are being increased for financial stability reasons if there are no obvious inflation

pressures. Moreover, if the central bank is successful in containing financial excesses, it may come under criticism for undermining what to many people appeared to be a strong and sustainable boom.

Conversely, lowering interest rates for financial stability reasons does not appear to present the same type of political economy problems. This raises the potential for asymmetric responses, with central banks cutting official rates rapidly after a financial disturbance, but being reluctant to increase them when financial imbalances are building up. This may encourage risk-taking, with the public expecting that monetary policy will be used to “bail out” the financial system whenever a disturbance occurs.

A third issue is the effectiveness of higher interest rates in containing financial imbalances. On the one hand, the use of monetary policy might be preferred to supervisory policies on the grounds that higher interest rates would affect regulated and unregulated entities alike. On the other hand, a relatively small increase in rates might actually be counterproductive if it led to greater confidence in the central bank’s anti-inflation commitment and hence even more optimistic expectations about the future. As a result, large increases in interest rates might be required to make an appreciable difference. The effect of such increases would, however, be difficult to predict. Moreover, unless the increase in rates were reversed quickly when the financial imbalances began to unwind, a severe recession might follow, with the economy labouring under the combined effect of falling asset prices and high real interest rates.

These difficulties mean that, as is the case with supervisory policies, considerable caution needs to be exercised in using monetary policy specifically to contain financial imbalances. However, these difficulties need not rule out the very occasional use of monetary policy in this way.

In framing any response, the need for coordination amongst authorities with different responsibilities is particularly important. In most countries, the various instruments discussed above are not under the control of a single institution. Prudential supervision is often undertaken outside the monetary authority, and tax, accounting and disclosure rules are set by still other policymakers. Further, not all these policymakers have financial stability as a core objective. Without the requisite coordination between central banks and supervisory, taxation and accounting authorities, there is a risk that appropriate policy responses might not be forthcoming.

... and ensuring the policy’s effectiveness

In framing any policy response, coordination is important