

# VIII

## FINANCIAL STABILITY

8.1 The significant decline in global inflation in the 1990s can be regarded as a distinctive feature of macroeconomic developments in this period. The lowering of inflation is attributed in large part to anti-inflationary monetary policy practised worldwide in the 1990s, supported by a mutually reinforcing mix of freer trade, globalisation, deregulation and productivity gains. The decline in inflation has generally been accompanied with reduced output volatility (see Chapter V). Even as macroeconomic stability - low and stable inflation with reduced output volatility - has been achieved during the 1990s, the same period has also been witness to an increase in frequency of episodes of banking and currency crises. The expected 'peace dividend' of war against inflation has been, to some extent, neutralised by such crises episodes. Issues related to financial stability and the role of the central banks in contributing to financial stability have, therefore, come to the forefront in the latter half of the 1990s. Financial stability, apart from price stability, has thus become a major focus of most central banks. At a number of central banks, the growing emphasis given to financial stability has led to significant changes, such as the establishment of departments dedicated to financial stability. Reports on financial stability published by a large number of central banks also bear testimony to these changes.

8.2 Concerns related to financial stability have attracted renewed focus during the 1990s, mainly on account of the forces of financial liberalisation and globalisation. Financial liberalisation has led to the emergence of financial conglomerates. These financial conglomerates cut across not only various financial sectors such as banking and insurance, but also a number of countries. Moreover, the progressive opening up of the economies to external flows since 1990s has led to massive cross-border capital flows. As discussed in Chapter IV, such flows display a boom-bust pattern. During periods of excessive capital inflows, such flows are often intermediated to speculative activities such as real estate and stock markets. This can lead to asset price bubbles. As these bubbles burst over a period of time, they pose serious risks to the balance sheets of financial institutions as well as non-financial corporations. Finally, the volatility in capital flows is reflected in sharp movements in exchange rates. Large

devaluations also have an adverse impact upon the balance sheets of residents. This is especially true for emerging economies as they are usually forced to borrow in foreign currencies. Large devaluations can create serious currency mismatches and, as the Asian financial crisis showed, even banking crises. Such crises have large costs in terms of output and employment losses. In addition, governments are forced to bear the large costs entailed in restructuring of the financial institutions. For all these reasons, maintenance of financial stability has emerged as a key objective for a number of central banks.

8.3 As noted before, the concerns with financial stability have arisen in a decade that has been characterised by price stability. Traditionally, it has been believed that monetary stability leads to financial stability. However, as the events of the 1990s show, it need not necessarily be the case. On the contrary, it has been argued that the achievement of price stability itself may sow seeds of financial imbalances (Borio and White, 2003). In a low inflation environment, imbalances do not get reflected in inflationary pressures. Rather, they exhibit themselves in asset price bubbles, which over time, can turn into financial crises. This weakens the financial system and, in turn, the efficacy of the monetary transmission mechanism. If the health of the financial sector is weak, an increase in interest rates can aggravate the fragility of the financial sector. Accordingly, the monetary authority may be constrained in its efforts to raise interest rates in order to fight inflationary pressures. A sound financial system is thus an important pre-condition for effective implementation of monetary policy. Concomitantly, a debate has emerged on the role of monetary policy in responding to asset price bubbles. More or less, it is agreed that monetary policy measures, by themselves, may not be effective in correcting misalignments. Given the limitations of monetary policy *per se*, central banks can still contribute to financial stability by making the financial system resilient to various shocks. Central banks can do so through effective regulation and supervision of the financial system, encouraging corporate governance, promoting accounting standards and maintaining integrity of payments and settlement systems.

8.4 As in the rest of the world, in India too, issues related to financial stability have come to the forefront since the 1990s. This development is largely on account of the structural reforms initiated in the early 1990s. The process of financial liberalisation and deregulation has led to emergence of some financial conglomerates in the Indian economy. In view of the possibility of contagion arising from such conglomerates and their systemic implications, regulation of such systemically important financial intermediaries necessitates a focused attention from the perspective of financial stability. Furthermore, with interest rates emerging as the key channel of monetary policy signals, the efficacy of monetary transmission depends upon the health of the financial sector. Finally, with the gradual opening up of the external sector, developments in India are increasingly influenced by developments abroad. Capital flows have increased substantially since 1993-94. Although these flows have, by and large, been stable reflecting the cautious approach to liberalisation, there have nonetheless been episodes of volatility in these flows. These vicissitudes of capital movements show up in volatility in exchange rate movements (Mohan, 2004a). Large swings in exchange rates affect not only demand and inflation, but also, more importantly, given the foreign-currency denominated liabilities, affect balance sheets of a range of financial as well as non-financial borrowers. This can induce large scale financial instability, as was evidenced during the Asian financial crisis. Often emerging market economies do not have adequate self-correcting mechanisms in respect of cross border capital flows. This would suggest the need to institute special defences for ensuring financial stability in the case of countries like India that are faced with the prospect of volatile capital flows.

8.5 Like other central banks, financial stability has, therefore, emerged as a key consideration in the conduct of monetary policy in India, apart from price stability and provision of adequate credit for growth. While there are complementarities between the objectives, especially in the long run, it cannot be denied that there are certain trade-offs, particularly in the short run. The overall approach of the Reserve Bank to maintain financial stability is three-pronged: maintenance of overall macroeconomic balance; improvement in the macro-prudential functioning of institutions and markets; and, strengthening micro-prudential institutional soundness through regulation and supervision (Jadhav, 2003).

8.6 In light of the aforesaid discussion, Section I of this Chapter provides an international perspective

on the key issues relating to financial stability. It discusses the concepts of monetary and financial stability followed by various theories of financial stability. A critical assessment of the appropriate response of monetary policy to asset price misalignments is undertaken. This is followed by a cross-country survey of the role of central banks in contributing to financial stability in critical areas such as regulation and supervision, payments and settlement systems, accounting standards and governance norms. Section II of the Chapter focuses on the Indian approach to financial stability. Accordingly, it provides an overview of the financial system, highlighting the measures initiated to nurture stability of financial institutions and markets and their performance. Concluding observations are contained in the final section.

## I. FINANCIAL STABILITY: INTERNATIONAL EXPERIENCE

### Monetary and Financial Stability - Definitions and Concepts

8.7 Monetary stability commonly refers to stability of the price level (or its rate of change, inflation), the inverse of the value of money in terms of a basket of current goods. Price stability is often thought of as an environment where inflation does not materially affect economic decisions. Such an environment promotes efficient allocation of resources and has led to stable macroeconomic conditions in many countries. Price stability refers not to individual prices, but prices of an aggregate 'basket' of consumer goods and services that can be summarised into a single index. In this respect, price stability - whether formalised in terms of an explicit inflation target or otherwise - is considered to be relatively well understood, transparent and measurable.

8.8 Financial stability, on the other hand, is not tractable to any commonly agreed definition. Indeed, financial stability is often thought of as the absence of financial instability - such as a banking crisis or even extreme financial market volatility - which can have severe macroeconomic consequences for countries experiencing such episodes. Officials, central banks and academics have proposed a myriad of definitions of financial stability (Box VIII.1).

8.9 As Box VIII.1 elucidates, the concept of financial stability is nebulous, with no commonly accepted definition (Fisher and Lund, 2002). Some have defined it in terms of what it is not: a situation in which financial instability impairs the real economy,

## Box VIII.1

## Financial Stability - Definitions

Financial stability refers to the conditions in financial markets that harm, or threaten to harm, an economy's performance through their impact on the working of the financial system. ...[Such instability] can also disrupt the operations of particular financial institutions so that they are less able to continue financing the rest of the economy (John Chant, Bank of Canada, 2003).

...define financial stability as an absence of instability...a situation in which economic performance is potentially impaired by fluctuations in the price of financial assets or by an inability of financial institutions to meet their contractual obligations (Andrew Crockett, Bank for International Settlements and Financial Stability Forum, 1997).

The term financial stability broadly describes a steady state in which the financial system efficiently performs its key economic functions, such as allocating resources and spreading risks as well as settling payments, and is able to do so even in the event of shocks, stress situations and periods of profound structural change (Deutsche Bundesbank, 2003).

Financial stability does not have as easy or universally accepted a definition. Nevertheless, there seems to be a broad consensus that financial stability refers to the smooth functioning of the key elements that make up the financial system (Wim Duisenberg, European Central Bank, 2001).

It seems useful to define financial stability by defining its opposite, financial instability. Financial instability [is defined] as a situation characterised by these three basic criteria (1) some important set of financial asset prices seem to have diverged sharply from fundamentals and/or (2) market functioning and credit availability, domestically and perhaps internationally, have been significantly distorted, with the result that (3) aggregate spending deviates (or is likely to deviate) significantly, either below or above, from the economy's ability to produce (Roger Ferguson, Board of Governors of the Federal Reserve, 2003).

Financial stability is the avoidance of financial crisis. A financial crisis is a more modern term for describing what used to be called 'banking panics', 'bank runs' and 'banking collapses'. We use the broader term *financial* because, with today's more sophisticated financial systems, the

source of the crisis could be the capital markets or a non-bank financial institution, although almost certainly banks would become involved (Ian Macfarlane, Reserve Bank of Australia, 1999).

In a broad sense...think of financial stability in terms of maintaining confidence in the financial system. Threats to that stability can come from shocks from one sort or another. These can spread through contagion, so that liquidity or the honouring of contracts becomes questioned. And symptoms of financial instability can include volatile and unpredictable changes in prices (Andrew Large, Bank of England, 2003).

Financial instability occurs when shocks to the financial system interfere with information flow so that the financial system can no longer do its job of channelling funds to those with productive investment opportunities (Fredrick Mishkin, Colombia University, 1999).

...[financial stability is] a condition where the financial system is able to withstand shocks without giving way to cumulative processes which impairs the allocation of savings to investment opportunities and the processing of payments in the economy (Tomasso Padoa-Schioppa, European Central Bank, 2003).

On the concept of financial stability...it goes without saying that I agree with the fact that financial stability means stability of financial institutions and stability of markets. I don't have a problem with defining stability of financial institutions as the institutions having the ability to meet all their commitments on a sustainable basis...But the stability of markets is a much more challenging concept...Illiquidity of markets is the ultimate crisis we have to prevent (Jean-Claude Trichet, Bank of France, 1997).

## Sources :

1. Houben, A., J.Kakes and S.Schinasi (2004), 'Towards a Framework for Safeguarding Financial Stability', IMF Working Paper 101, Washington DC.
2. Maintaining Financial Stability in a Global Economy (1997), Symposium sponsored by Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming.
3. McFarlane, I. (1999), 'The Stability of the Financial System', R.C.Mills Memorial Lecture, <available at [www.rba.gov.au](http://www.rba.gov.au)>

owing perhaps to informational asymmetries. Others adopt a macro prudential viewpoint and specify financial stability in terms of limiting risks of significant real output losses associated with episodes of system-wide financial distress (Borio, 2003).

8.10 The challenge of reaching a working definition is exacerbated by difficulties in measurement. Price

stability is easily quantifiable in terms of a measure. Financial stability, in contrast, cannot be summarised in a single measure: a financially stable system depends as much on the health of financial institutions as it does on the complex inter-linkages between those institutions and the interplay between the financial system, the real economy and financial markets.

8.11 Apart from definitional issues, there is the issue of instruments. While price stability can be achieved through modulations in short-term interest rates - an instrument under the central bank's control - central banks lack any such single instrument to achieve the objective of financial stability. As a consequence, the instruments and institutional arrangements employed to pursue the financial stability objective are much more varied than for price stability. In most countries, financial stability policy consists of a number of elements designed to improve the resilience of the financial sector to unexpected developments and to respond should they spill over into a financial crisis. These policies include: prudential regulation and supervision, promotion of sound payment and settlement architecture, appropriate corporate governance and accounting standards and a robust legal framework. The nature of these instruments means that they are often difficult to adjust in a timely fashion in response to a shock, an issue which is often complicated by these instruments being under the domain of different authorities. Before a discussion of these policy responses is undertaken, a review of various theories of financial crises would be useful.

8.12 Several strands of thinking have emerged towards the understanding of financial crises. Most of these explanations are, at best, partial; taken in totality, these explanations offer some clues of the causes of financial crises. The basic theories include:

- Debt and financial fragility: Financial crises follow a credit cycle with an initial positive shock provoking rising debt, mispricing of risk by lenders and an asset bubble, which is punctured by a negative shock, leading to a crisis (Kindleberger, 1977).
- Monetarist: Bank failures impact on the economy *via* a reduction in the supply of money. Crises tend to be frequently the consequence of policy errors by monetary authorities generating 'regime shifts' that, unlike the business cycle, are impossible to allow for in advance in risk-pricing (Friedman and Schwartz, 1963).
- Uncertainty: One cannot apply probability analysis to rare and uncertain events such as financial crises and policy regime shift and accordingly, price them correctly. Financial innovations are subject to similar problems when their behaviour in a downturn is not yet experienced. Uncertainty is closely linked to confidence, and helps to explain the frequently disproportionate responses of financial markets in times of stress.

- Disaster myopia: Competitive, incentive-based and psychological mechanisms in the presence of uncertainty lead financial institutions and regulators to underestimate the risk of financial instability, accepting concentrated risk at low capital ratios. This pattern leads to sharp increases in credit rationing when a shock occurs (Guttentag and Herring, 1984).
- Asymmetric information and agency costs: Aspects of the debt contract, which generate market failure due to moral hazard and adverse selection, help to explain the nature of financial instability, *e.g.*, credit tightening as interest rates rise and asset prices fall (Mishkin, 1997) or the tendency of lenders to make high risk loans owing to the shifting of risk linked to agency problems (Allen and Gale, 2000).

Complementing these explanations, it is also possible to include:

- Bank runs: The basic ingredient of crises is panic runs on leveraged institutions such as banks which undertake maturity transformation, generating liquidity crises (Diamond and Dybvig, 1983).
- Herding: Institutions imitate each other in strategies, regardless of the underlying fundamentals; among banks, there may be herding to lend at excessively low interest rates due to inadequate incentives to loan officers to assess credit risk; among institutional investors, herding is a potential cause for price volatility in asset markets driven, for instance, by peer-group performance comparisons (Scharfstein and Stein, 1990).
- Industrial: Effects of changes in entry conditions in financial markets can both encompass and provide a supplementary set of underlying factors and transmission mechanism. For example, entry of new intermediaries leads to deterioration of information for existing players and heightened uncertainty about market dynamics (Davis *et. al.*, 1999).
- Inadequacies in regulation: Such inadequacies may exacerbate the tendency to assume disproportionate risk. Mispriced 'safety nets' assistance generates moral hazard, which if not offset by enhanced prudential regulation may lead to heightened risk taking.

8.13 A list of recent episodes of systemic risk is illustrated in Table 8.1. Although these events seem to be disparate in genesis and manifestation, on a closer look, however, it is possible to discern certain



**Table 8.1: Selected Episodes of Financial Instability since 1970**

Year	Event	Main feature
1	2	3
1974	Herstatt (Germany)	Bank failure following trading losses
1979-89	US Savings & Loan crisis	Bank failure following loan losses
1987	Stock market crash	Price volatility after shift in expectations
1990-91	Norwegian banking crisis	Bank failure following loan losses
1991-92	Finnish and Swedish banking crises	Bank failure following loan losses
1992-96	Japanese banking crisis	Bank failure following loan losses
1992-93	ERM crises	Price volatility after shift in expectations
1995	Mexican crisis	Price volatility after shift in expectations
1997-98	Asian crises	Price volatility after shift in expectations and bank failure following loan losses
1998	Russian default and LTCM	Collapse of market liquidity and issuance
2000	Argentine banking crisis	Bank runs following collapse of currency board
2000	Turkish banking crisis	Bank failure following loan losses

**Source :** Davis *et al.* (1999).

common threads running through such crises. This would suggest that financial instability can be broadly categorised into three major categories (Davis, 2003).

8.14 One generic type of instability is centred on bank failures, typically following loan losses or trading losses. Examples include the US thrifts crisis as well as the banking crises in Japan, the Nordic countries and the Asian countries. Most developing/emerging countries have suffered such crises in recent decades (Caprio and Klingebiel, 2003). A second type of financial disorder involves extreme price volatility after a shift in expectations (Davis, 1995). Such crises are distinctive in that they often tend to involve institutional investors as principals and are focused mainly on the consequences for other financial institutions of sharp price changes which result from institutional 'herding' as groups of institutions imitate one another's strategies. Examples include the stock market crash of 1987, the ERM crisis and the Mexican crisis. A third type of turbulence, which is linked to the second, involves collapses of market liquidity and issuance. Again, often involving institutional lending, the distinction with the second type is often largely one whether markets are sufficiently resilient and that these tend to characterise debt and derivatives markets, rather than equity or foreign exchange. Examples include the Long Term Capital Management (LTCM) affair in 1998.

8.15 Whatsoever be the cause of the financial crises, financial instability can pose a severe threat

to important macroeconomic objectives such as sustainable output growth and price stability. According to Caprio and Klingebiel (2003), there have been 117 episodes of systemic crises and 51 cases of borderline or non-systemic crises in developed and emerging markets since the late 1970s. Output losses during banking crises have been, on average, over 10 per cent of annual GDP and bank lending is often subdued for years after the crisis (Hoggarth and Reidhill, 2003). Given such large costs, central banks have long had a keen interest in financial stability. Central banks' interest in financial stability also stems from their role in the operation or oversight of payment systems that, in turn, act as the critical 'plumbing' supporting activity in financial markets. Widespread financial instability undermines the role of the financial system in performing the primary functions such as intermediation between savers and borrowers with an efficient pricing of risks and the smooth operation of the payments system. When financial instability rises to a crisis proportion, it often brings in its wake a macroeconomic crisis or a currency crisis or both (Jadhav, 2003). Recognising the interdependence of macroeconomic performance and financial stability, several central bank charters reflect a concern for both macro objectives - price stability and satisfactory economic performance - and financial stability (Table 8.2). While some central banks have at least some implicit reference to financial stability, many have quite explicit references to financial stability.

**Table 8.2: Financial Stability as a Central Bank Objective**

Bank of Canada	Regulate credit and currency in the best interest of the economic life of the nation, to control and protect the external value of the national monetary unit and to mitigate by its influence fluctuations in the general level of production, trade, prices and employment so far as may be possible within the scope of monetary action, and generally to promote the economic and financial welfare of Canada.
Bank of England	Objectives of the Bank of England shall be (a) to maintain price stability, and (b) subject to that, to support the economic policy of Her Majesty's Government, including its goals for economic growth and employment. Note : A Financial Stability Board has been created under the Chairmanship of Deputy Governor to prioritise potential risks to UK financial stability, judging which warrant follow-up action and reviewing the progress made in mitigating the potential threats.
Bank of Japan	The objective of the Bank of Japan, as the central bank of Japan, is to issue bank notes and to carry out currency and monetary control. In addition...the Bank's objective is to ensure smooth settlement of funds among banks and other financial institutions, thereby contributing to the maintenance of an orderly financial system.
European Central Bank	The primary objective of the ESCB shall be to maintain price stability. Without prejudice to the objective of price stability, it shall support the general economic policies in the Community with a view to contributing to the achievement of the objectives of the Community. The ESCB shall contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system.
Reserve Bank of New Zealand	The primary functions of the Bank is to formulate and implement monetary policy directed to the economic objective of achieving and maintaining stability in the general level of prices. In formulating and implementing monetary policy the Bank shall...have regard to the efficiency and soundness of the financial system.
Riksbank (Bank of Sweden)	The objective of the Riksbank's operations shall be to maintain price stability. In addition, the Riksbank shall promote a safe and efficient payment system.
Danmarks Nationalbank (Denmark)	The overall objectives of Danmarks Nationalbank as an independent and credible institution [among others] are: (a) To ensure a stable krone; (b) to ensure efficient and secure production and distribution of banknotes and coins of high quality, (c) to contribute to efficiency and stability in the payment and clearing systems and in the financial markets, (d) to maintain its financial strength by means of consolidation and risk management
Magyar Nemzeti Bank (National Bank of Hungary)	The primary objective of the MNB shall be to achieve and maintain price stability. The MNB shall promote the stability of the financial system and the development and smooth conduct of policies related to the prudential supervision of the financial system.
De Nederlandsche Bank	The mission of the Nederlandsche Bank is to aim for stability in the financial system and the institutions that make up that system.
Banco de España	The Law of Autonomy stipulates the performance of the following functions [among others] by the Banco de España: (a) the holding and management of currency and precious metal reserves not transferred to the European Central Bank, (b) the promotion of the sound working and stability of the financial system and, without prejudice to the functions of the ECB, of national payment systems.

**Source :** Ferguson (2002) supplemented by central bank websites.

### **Asset Prices, Financial Stability and Monetary Policy**

8.16 In the context of the involvement of central banks with financial stability, a widely discussed issue has been the 'degree of activism' that central banks should adopt in pursuing this objective. The conventional view is that (i) monetary stability contributes to financial stability as high inflation is one of the main factors creating financial instability in the first place and (ii) monetary and financial stability reinforce each other. Nonetheless, as recent developments suggest, monetary stability need not

necessarily lead to financial stability in the short-run although, in the long-run, monetary and financial stability reinforce each other (Issing, 2003).

8.17 In an era of price stability and well-anchored inflation expectations, imbalances in the economy need not show up immediately in overt inflation. Increased central bank credibility is a double-edged sword as it makes it more likely that unsustainable booms could take longer to show up in overt inflation. For instance, unsustainable asset prices artificially boost accounting profits of corporates and thereby mitigate the need for price increases; similarly, large financial gains by

employees can partly substitute for higher wage claims. In an upturn of the business cycle, self-reinforcing processes develop, characterised by rising asset prices and loosening external financial constraints. 'Irrational exuberance' can drive asset prices to unrealistic levels, even as the prices of currently traded goods and services exhibit few signs of inflation (Crockett, 2001). These forces operate in reverse in the contraction phase. In the upswing of the business cycle, financial imbalances, therefore, get built-up. There is, thus, a 'paradox of credibility' (Borio and White, 2003). The role of financial imbalances was brought out strikingly by the recent global slowdown of 2000 which reflected the interplay of unwinding of such financial imbalances in contrast to earlier episodes of slowdowns which were induced by monetary tightening. Of course, financial crises during the 1990s were also partly a reflection of shortcomings of the reform agenda pursued by many developing economies. Issues such as institutional and governance reforms, and macroeconomic fragilities arising from the financial system and capital account of the balance of payments were not fully addressed (Montiel and Servén, 2004).

8.18 For all the above reasons, central banks are now simultaneously preoccupied with both monetary and financial stability. Historically, however, central banks have typically been concerned with one of the two objectives at a point of time but not both together (Crockett, 2004). Given the possibility that monetary stability itself can induce financial instability, a key question is: should monetary policy respond to asset price misalignments so as to contribute more directly to financial stability? While the debate on the issue is yet unresolved, an emerging consensus is that lengthening of monetary policy horizons beyond the usual two-year period, developing early warning indicators of financial imbalances and prudent regulation will be a more appropriate monetary policy response to tackle asset price bubbles and achieve financial stability (Box VIII.2).

8.19 In case of extreme misalignments in asset prices, the central bank could also consider communicating its views to the public which, in turn, could lead market participants to increase their own doubts about the sustainability of asset price bubbles (Issing, *op cit.*). Capital requirements on banks could be increased in line with credit extensions collateralised by assets whose prices have increased (Schwartz, 2002). Finally, a central bank, in case of need, should ensure the integrity of the financial infrastructure - the payments and settlements system - and provide adequate liquidity (Bernanke, 2002). Central banks, therefore, need to pursue a multi-

faceted approach towards ensuring financial stability. Illustratively, following the global financial turmoil set off by the Russian debt default in August 1998 and exacerbated by the failure of the hedge-fund LTCM, risk spreads widened sharply, stock prices fell, and liquidity conditions tightened. The US Fed responded by cutting policy interest rates by 75 basis points in three steps. In part, this response was necessitated by a change in economic forecasts but "part of this cautious behaviour reflected the FOMC's concerns about financial instabilities and associated downside risks to the economic forecast" (Ferguson, 2003). Similarly, in the aftermath of September 11, 2001, the U.S. Fed was concerned about maintaining stability in the financial system and it undertook a number of steps to provide adequate liquidity through discount window lending, open market operations (OMOs), waiving of normal overdraft fees on daylight overdrafts and a 50 basis points reduction in the Fed Funds rate.

8.20 At the same time, in view of the growing integration of financial markets around the world, the pursuit of financial stability requires structural changes in the world economic order, beyond national central bank policy-making. In particular, a need has been felt for refinements in international financial architecture (Jadhav, 2003). At the global level, crisis prevention initiatives have prominently centred around strengthened IMF surveillance and include a number of aspects: data dissemination, greater transparency, development of standards and codes, constructive involvement of the private sector, Sovereign Debt Restructuring Mechanism (SDRM) and introduction of facilities like Contingent Credit Line (CCL).

8.21 While the debate on the appropriate monetary policy response to asset prices is still evolving, a number of studies have attempted to examine as to whether central banks, in practice, display any systematic response to asset prices. The Bank of Canada reduces policy rates significantly in response to an appreciation of trade weighted exchange rate, whereas the Reserve Bank of Australia does not respond to changes in any of the asset prices (Smelt, 1997). Evidence for the US indicates that monetary policy responds significantly to stock market movements. A five per cent rise in the S&P 500 index, over a day, increases the likelihood of a 25 basis point tightening by about a half (Rigobon and Sack, 2001). The magnitude of this response is consistent with rough calculations of the impact of stock prices on aggregate demand. Therefore, it appears that the US Fed systematically responds to stock price movements to the extent warranted by their impact on the economy. Per contra, estimates for the US show that 25 basis

## Box VIII.2

## Monetary Policy and Asset Prices

Asset price misalignments that typically precede and accompany financial instability can profoundly affect consumption and investment decisions, misallocating resources across sectors and over time (Crockett, 2004). In the context of sharp movements in asset prices such as equity and property prices and exchange rates, a protracted debate has emerged on the appropriate response of monetary policy. A dominant view is that a central bank should not respond to changes in asset prices, except in so far as they signal changes in expected inflation (Bernanke and Gertler, 1999). According to Woodford (2003), monetary policy should target only goods prices and not asset prices. Woodford's argument is based on the fact that goods prices are sticky while asset prices are flexible. It is the stickiness in the goods prices as well as wages that leads to deviation of actual output from its natural (potential) level of output. Therefore, monetary policy should aim to stabilise those prices that are infrequently adjusted. Large movements in frequently adjusted prices - such as stock prices - can be allowed and may be even desirable if such large movements make possible greater stability of the sticky prices.

According to the other view, an inflation-targeting central bank might improve macroeconomic performance by adopting a lean-against-the-wind policy (Cecchetti, Genberg and Wadhvani, 2002; Bordo and Jeanne, 2002). Having a transparent reaction function consisting not only of the inflation forecast but also an adjustment to asset price misalignment could potentially make bubbles less likely to occur. Cecchetti *et al.* (*op cit.*) emphasise that they do not advocate that asset prices should be targets for monetary policy, but rather that central banks should react systematically to misalignment. Similarly, Borio and White (*op cit.*) favour a pre-emptive monetary policy response against a build-up of financial imbalances, supported by improved financial regulation and supervision.

A usual argument against monetary policy response to asset price misalignments is that it is difficult to identify bubbles. Although true, some difficulties are inherent in estimation of potential output - a key variable in monetary policy decision-making. Notwithstanding claims of difficulties in identification, it is debatable that extreme cases of stock market bubbles cannot be detected in real time - for instance, the NASDAQ in early 2000 (Cecchetti *et al.*, *op cit.*). Moreover, available empirical evidence suggests that bubbles can be identified in real time if a central bank widens its information base to include indicators such as credit aggregates. According to Borio and White (*op cit.*), excessive increases in just two

points increase in short-term interest rates leads to a decline of about two per cent in stock prices (Rigobon and Sack, 2003). Ehrmann and Fratzscher (2004) report qualitatively similar results: an unexpected 50

indicators - real asset prices and credit/GDP ratio - contain useful leading information about future systemic banking distress. Real asset prices (when 60 per cent or more above trend) and credit-GDP ratio (4 percentage points or more above trend) individually predict more than 70 per cent of episodes of banking distress. For emerging markets, real exchange rate appreciation is an additional leading indicator. In this context, the European Central Bank's two-pillar approach - where the second pillar is explicitly based on monetary and credit developments - takes into account build-up of financial imbalances. The two-pillar strategy provides warning signals in cases where inflation remains benign but monetary and credit aggregates rise strongly (Issing, *op cit.*).

A related issue of the debate is: whether 25 or 50 basis point hikes in policy rates - the usual size of policy response - are sufficient to counter the sharp increases in stock prices? As Fed Chairman Greenspan has recently noted, a moderate monetary tightening has often been associated with subsequent increases in the level of stock prices. Moreover, the notion that a well-timed incremental tightening could have been calibrated to prevent the late 1990s bubble while preserving economic stability is "almost surely an illusion" and, therefore, the strategy of addressing the bubble's consequences rather than the bubble itself is appropriate (Greenspan, 2004). The prevention of bubble can be arrested only by a sharp increase in interest rates, with adverse implications for the real economy. Nonetheless, central banks are not oblivious of the need of a pre-emptive policy response against future bubbles. Illustratively, the recent tightening of monetary policy by the Bank of England has been partly in response to the movement in housing prices.

In the presence of subdued inflation, another criticism of pre-emptive monetary tightening is that it would be seen as the central bank exceeding its remit. However, as Borio and White (*op cit.*) argue, it was the recognition of the absence of a long-run inflation-output trade-off that has led to clear-cut price stability mandates for central banks. Likewise, a view of economic processes that stresses the role of financial imbalances could promote the necessary intellectual consensus for action.

In brief, although there are arguments against a pre-emptive monetary policy strike to asset price misalignments, there are strong counterarguments when faced with a suspected bubble. There are, of course, difficulties in implementing acceptable solutions. Lengthening of monetary policy horizons, developing early warning indicators of financial imbalances and prudent regulation are considered as apposite central bank responses to asset price bubbles.

basis point increase in the policy rate reduces S&P index by about three per cent on the day of the monetary policy announcement. Individual stocks react in quite a heterogeneous manner. In particular, stocks of



financially constrained firms - those with low cash flows, poor credit ratings - show a higher order of decline, a result consistent with the credit channel of transmission. Overall, the response of equity prices to interest rates appears to be fairly modest and the estimates confirm the earlier observation that monetary policy response would have to be quite aggressive to have any significant effect on asset prices.

8.22 In sum, monetary stability is a necessary but not a sufficient condition for financial stability. Central banks are now therefore pursuing a more pro-active approach in maintaining financial stability. Two issues arise in this context: how does the financial stability objective affect central banks' other policy goals and how is the objective of financial stability perceived by the public? A financial stability objective that is accorded too much weight could, at the margin, impair the conduct of monetary policy (Ferguson, 2002). Monetary policy instruments are, therefore, required to be supplemented with other instruments as safeguarding financial stability is a multi-faceted task requiring action at micro as well as macro levels. For central banks, the macroeconomic levers are the instruments of monetary policy. The levers related to the micro area relate primarily to infrastructure and institutions. These include: the payment and

settlement systems, the provision of a safety net for depositors and procedures for resolving crisis, the regulation and supervision of institutions and the formulation of accounting conventions. However, the provision of a safety net for depositors and prudential controls over banks may also have macroeconomic implications, as well as constituting a part of the central bank's armoury of micro levers. A cross-country survey of practices in these areas is discussed in the following paragraphs.

### Payment and Settlement System

8.23 Credit and liquidity risks inherent in payment and settlement system have the potential to contribute to systemic problems if not properly managed and controlled. A robust payments and settlement system is essential to maintain integrity of the financial system. Accordingly, central banks tend to have a key role in the oversight of payment and settlement systems. Central bank involvement is greatest in the core inter-bank large value funds transfer systems, which central banks in many cases own or operate. While all central banks have an oversight role, the degree of operational involvement differs widely, largely reflecting the development of their financial systems (Table 8.3).

**Table 8.3: Central Bank Involvement in Payment System and Safety Net Provisions**

Country	PS	ELA- Market	ELA- Depositories	ESA- Depositories	ELA- Non depositories	ESA- Non depositories	Deposit Insurance
1	2	3	4	5	6	7	8
<b>Industrial Economies</b>							
Australia	Y	Y	Y	N	Y	N	N
Canada	Y	Y	Y	N	N	N	N
Netherlands	Y	Y	Y	N	N	N	Y
New Zealand	Y	Y	Y	N	Y	N	N
Norway	Y	Y	Y	N	Y	N	N
Singapore	Y	Y	Y	N	N	N	N
Sweden	Y	Y	Y	N	Y	N	N
United Kingdom	Y	Y	Y	N	N	N	N
<b>Emerging Economies</b>							
Bulgaria	Y	N	N	N	N	N	N
Czech Republic	Y	Y	Y	N	N	N	N
Hungary	Y	Y	Y	N	N	N	N
Poland	Y	Y	Y	N	N	N	N
Argentina	Y	Y	Y	N	N	N	N
Brazil	Y	Y	Y	N	N	N	N
Chile	Y	Y	Y	Y	N	N	Y
<b>India</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>N</b>	<b>Y</b>	<b>N</b>	<b>Y</b>
Mexico	Y	Y	Y	N	N	N	N
South Africa	Y	Y	Y	N	N	N	N

PS : Payment and settlement system; ELA : Emergency liquidity assistance; ESA - Emergency solvency assistance.

Y : Yes; N : No

Source : Sinclair (2000).

8.24 In industrial economies, central banks have increasingly withdrawn from operational involvement in payment and settlement systems in order to focus on ensuring the maintenance of an effective service and protection against systemic financial risk. For example, Fry *et al.* (1999) found that for industrial countries, operational involvement did not fully reflect strong formal oversight responsibilities, even in the large value funds transfer systems. On the other hand, the oversight responsibilities of central banks generally tend to be more formal in transition and developing economies than in industrial countries, either under the authority of the central bank law and/or banking laws. Not surprisingly, there is considerably more central bank ownership and operational involvement in transition and developing countries. Fry *et al.* (2000) documented that around 60 per cent of central banks in industrial countries own or part own their country's Real Time Gross Settlement (RTGS) system, compared with 100 per cent in transition and developing economies.

8.25 These differences are not surprising given the relative development of financial systems. In particular, transition economies have been faced with the challenge of building new payment systems and developing competitive market-based financial sectors. Although the starting point may be different in emerging economies, the challenges may be large if the financial sector is relatively closed and the commercial banking sector may not have the resources, skills or incentives to develop new payment and settlement system on their own. Given their concern to reduce risk and promote the efficiency of

a country's payment system, central banks in transition and emerging economies often play a prominent role in the development of these systems.

8.26 In the context of payment and settlement system, an emerging issue is the use of electronic money (e-money) and its implications for financial stability. E-money can facilitate the process of transactions for the parties involved (Box VIII.3). Implications of e-money for monetary transmission have been discussed in Chapter VII. This Section briefly touches upon the implications for financial stability. Notwithstanding the recent progress, the use of e-money as a means of payments remains fairly modest, with a notable exception of Singapore (Table 8.4).

8.27 At this point of time, it looks unlikely that demand for e-money will be widespread. Risks of e-money to financial stability could possibly arise from an e-money issuer becoming reckless in its issuances. Excessive issue of private e-money, apart from being inflationary, could lead to a run on the provider and introduce gridlocks into the payment system if private e-money payments are refused. Bailouts by a central bank to preserve financial stability could create moral hazards. Regulation of e-money would, therefore, need to be undertaken to minimise such systemic risks. One possibility is to impose prudential requirements such as capital adequacy, ratings and standards on e-money issuers, akin to the banking system. Another option could be to require e-money issuers to redeem their private e-money for government money in large quantities (Fullenkamp and Nsouli, 2004). At the organisational level,

### Box VIII.3 E-Money

E-money is defined as an 'electronic store of monetary value on a technical device that may be widely used for making payments to undertakings other than the issuer without necessarily involving bank accounts in the transactions, but acting as a prepaid bearer instrument' (European Central Bank, 1998). The main forms of e-money are e-money cash, network money and access products. e-cash includes reloadable electronic purses and multi-purpose stored value cards. Network money defines funds stored in software products that are used for making payments over communication networks like the internet. Access products enable the customers to access their bank accounts and transfer funds.

In most of the developed and developing countries, card-based e-money schemes have been introduced. E-money products are intended to be used as a general, multi-purpose means of payments. The Western European countries have the most mature market for e-money systems, with the largest

volume of purchases. In 2003, about 40 per cent of e-money systems in the world were located in Western Europe.

Card based e-money schemes have been successfully launched and gaining gradual acceptance in a number of countries including those in Asia (China, Japan, Korea, Malaysia), Europe (Austria, Denmark, France, Germany, Netherlands, Switzerland) and Australia and Russia. Even in India, progress in this regard is considerable. On the other hand, in highly advanced economies *viz.*, the US, the UK and Canada, some of the e-money schemes have been discontinued. In North America, popularity of traditional credit cards for small value payments kept the use of e-money limited. In Central and South America, the use of e-money systems had an early start, but did not have a successful impact. Since 2000, e-money systems in some countries including Mexico, Venezuela and Costa Rica have been discontinued. In contrast, new e-money systems were introduced in Brazil in 2002.

**Table 8.4: Relative Importance of Cashless Payment Instruments in Developed Economies**

(Per cent of total volume of cashless transactions)

Country	Cheques		Payment by credit/debit cards		Card-based e-money	
	2002	2003	2002	2003	2002	2003
1	2	3	4	5	6	7
Belgium	1.7	..	34.6	..	7.0	..
Canada	23.0	20.8	59.1	60.7	..	..
France	32.0	29.7	31.4	32.8	0.1	0.1
Germany	1.2	1.0	17.5	16.9	0.3	0.3
Hong Kong SAR	69.5	68.8	..	..	..	..
Italy	17.2	15.6	24.7	29.1	Negligible	Negligible
Japan	4.9	..	61.3	..	..	..
Netherlands	Negligible	Negligible	32.7	33.7	2.6	3.1
Singapore	9.6	4.9	11.2	6.3	74.1	85.3
Sweden	0.1	Negligible	51.4	57.6	0.1	..
Switzerland	0.5	0.4	33.5	33.9	2.2	2.0
UK	21.0	18.6	41.2	42.9	..	..
US	49.9	..	41.7	..	..	..

.. Not available.

Source : BIS (2004b).

institutional mechanisms can be designed in order to review policies, practices, measures, and procedures to review e-security regularly. There is also a need to understand threats and dangers and the steps that need to be taken to mitigate the vulnerabilities. In addition, understanding access control systems and methodology, telecommunication and network security, as well as security management practice assume importance (Mohan, 2004d).

### Safety Net Provisions

8.28 Almost all central banks accept the possibility of providing emergency liquidity assistance to the market or to individual institutions when failure would lead to systemic effects. Exceptions to this are countries like Bulgaria that operate under currency board arrangements which inhibit last-resort lending (Table 8.3). Some central banks recognise the possibility, at least in principle, of providing emergency liquidity assistance to non-depository institutions (Australia, Denmark, India, New Zealand, Norway, South Korea and Sweden). In practice, however, emergency liquidity support to non-banks is less likely than for banks because they are less likely to be systemic and/or illiquid (Healey, 2001).

8.29 There is also considerable variation in the provision of, and the involvement of central banks in, deposit insurance schemes. In nearly all the industrial countries, there is usually some form of deposit protection scheme operated either by a supervisory

agency or a separate body. Transition economies generally have separate entities that operate a deposit insurance scheme. The widest variation in practice is among emerging economies. Some have recently developed deposit insurance schemes (South Africa), or enacted revisions to the earlier scheme (Argentina and Brazil).

### Regulation and Supervision

8.30 According to a recent survey of over 150 countries, prudential banking supervision was the responsibility of the central bank in almost three-quarters of the countries (Central Banking Publications, 2004). Furthermore, the most common model of supervisory structure is for the central bank to supervise banks only. Although it is still most common to have separate supervisory agencies for banks, insurance and securities firms, there is an increasing interest in integrating the supervision of different financial sectors. Goodhart *et al.* (1998) have identified several reasons for this:

- The rapid structural change in financial markets spurred by the acceleration in financial innovation.
- The realisation that financial structure in the past has been the result of a series of *ad hoc* and pragmatic policy initiatives raising the question of whether, particularly in the wake of widespread banking crises, a more coherent structure should be instituted.

- The increasing complexity of financial business as evidenced by the emergence of financial conglomerates.
- The increasing demands being placed on regulation and its complexity, in particular, the development of a need for enhanced regulation of 'conduct of business' (covering financial products like pension schemes and insurance offered to consumers).
- The increasing internationalisation of banking, which has implications for the institutional structure of agencies, at both the national and international levels.

8.31 A majority of industrial economies do not have prudential regulation and supervision within the central bank (Table 8.5). An important exception to this is the United States, where the Federal Reserve has the responsibility for banking regulation and supervision, while that of non-banks is with the Office

**Table 8.5: Central Bank Involvement in Regulation and Supervision**

Country	Bank regulation	Bank supervision	Bank business code of conduct	Non-bank regulation	Non-bank supervision
1	2	3	4	5	6
<b>Industrial Economies</b>					
Australia	N	N	N	N	N
Canada	N	N	N	N	N
Netherlands	Y	Y	Y	Y	Y
New Zealand	Y	N	N	N	N
Norway	N	N	N	N	N
Singapore	Y	Y	Y	Y	Y
Sweden	N	N	N	N	N
United Kingdom	N	N	N	N	N
<b>Emerging Economies</b>					
Bulgaria	Y	Y	Y	N	N
Czech Republic	Y	Y	N	N	N
Hungary	N	N	N	N	N
Poland	Y	Y	N	N	N
Argentina	Y	Y	N	N	N
Brazil	Y	Y	Y	N	N
Chile	N	N	N	N	N
<b>India</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>
Mexico	N	N	N	N	N
South Africa	Y	Y	N	N	N

Y : Yes; N : No.

Source : Sinclair (2000).

of Thrift Supervision. However, central banks often retain a role, formal or informal, in the design of regulatory framework. Norway was the first country to establish an integrated agency outside the central bank in 1986, followed by Denmark in 1988 and Sweden in 1991. As Taylor and Fleming (1999) point out, there were strong similarities between these countries' economic and financial systems. This consequently produced many similarities in terms of the basic structure and organisation of their integrated regulatory agencies. There was also a common motivation for the move towards an integrated regulator, viz., (a) a desire for more effective supervision of financial conglomerates and (b) to obtain economies of scale in the use of scarce regulatory resources. As regards EMEs, the survey indicates that, in most cases, central banks are primarily responsible for the regulation and supervision of deposit-taking institutions and, in some cases, other financial intermediaries as well (India, Malaysia). Amongst the sample EMEs, two central banks, viz. Chile and Mexico do not perform the prudential regulator and supervisor role.

8.32 Given the broad range of financial stability functions with respect to regulation and supervision, two issues of interest are: first, should supervision be vested with the central banks and second, whether the supervision of the three major segments<sup>1</sup> of the financial system should be integrated? Perhaps the most strongly emphasised argument in favour of assigning supervisory responsibility to the central bank is that as a bank supervisor, the central bank will have first-hand knowledge of the condition and performance of banks. Illustratively, the Federal Reserve is able to exploit the synergies by retaining supervision with itself (Peek *et al.*, 1999). This, in turn, can help the central bank in identifying and responding to the emergence of systemic problems in a timely manner. Sceptics, however, point to the inherent conflict of interest between supervisory and monetary policy responsibilities. Table 8.6 compares the supervisory role of the central bank in 98 countries. More than three-fourths of the countries assign banking supervision to the central banks, including 66 per cent in which the central bank is the single supervisory authority. Like the United States, a few countries (13 per cent of the total) assign bank supervisory authority to the central bank and at least one other agency. About a fifth of the countries do not assign any bank supervisory responsibilities to the central bank.

<sup>1</sup> These are banking, insurance and securities.



**Table 8.6: Supervisory Responsibilities within and outside the Central Bank**

Region	Central bank only		Central bank among multiple supervisors	Central bank not a bank supervisor	
1	2		3	4	
Africa	Botswana Burundi Egypt Gambia Ghana Kenya	Lesotho Malawi Morocco Nigeria South Africa Zambia	Rwanda		
Americas	Brazil Guatemala Guyana	Jamaica Trinidad & Tobago	Argentina United States	Bolivia Canada Chile El Salvador	Mexico Panama Peru Puerto Rico
Asia/Pacific	Armenia Azerbaijan Bangladesh Bhutan Cambodia China <b>India</b> Indonesia Israel Jordan Kazakhstan Kuwait Kyrgyz Rep. Lebanon	Malaysia Maldives Nepal New Zealand Philippines Qatar Saudi Arabia Singapore Sri Lanka Tajikistan Tonga Turkmenistan Vietnam	Taiwan Thailand	Australia Japan Korea	Venezuela
Europe	Albania Bosnia-Herzegovina Bulgaria Croatia Estonia Georgia Greece Ireland Italy Lithuania	Macedonia Cyprus Moldova Netherlands Portugal Romania Slovakia Slovenia Spain	Belarus Czech Republic  Germany Hungary Latvia Poland Turkey Yugoslavia	Austria Belgium  Denmark Finland France Iceland Luxembourg Sweden Switzerland	
<b>Memo:</b>	66 per cent of countries		13 per cent of countries	21 per cent of countries	

Sample : 98 countries.

Source : Office of the Comptroller of Currency (2002) and Central Banking Publications (2004).

8.33 Table 8.7 presents a broader international comparison of the scope of supervision across 96 countries. In the majority of these countries (61 per cent), the authority responsible for bank supervision is confined solely to the banking industry. However, bank supervisory authorities also supervise securities firms in 11 per cent of the countries and insurance firms in 14 per cent of the countries. In 13 countries, the authority responsible for bank supervision also supervises both insurance and securities firms.

8.34 In the UK, a single agency, the Financial Services Authority (FSA) was created in 1997 by amalgamating ten different supervisory agencies. The move was motivated by a host of factors, salient among them being the growth of conglomerates and the blurring of distinctions between financial services carried out by different types of institutions and a desire for a less costly and more coordinated supervisory structure. Korea and Japan also adopted similar models to the UK by integrating the supervision of banks, insurance and securities into a single agency outside the central

**Table 8.7: Scope of Supervision of Central Banks – International Comparison**

Region	Banks only		Banks and securities	Banks and insurance	Banks, securities and insurance
1	2		3	4	5
Africa	Botswana Cambodia Kenya	South Africa Nigeria Tunisia		Gambia Malawi Sierra Leone	Zambia
Americas	Argentina Brazil Chile Panama	United States Jamaica Trinidad & Tobago	Guyana Mexico	Canada Ecuador El Salvador Guatemala Paraguay Peru Suriname	Bolivia Uruguay
Asia/Pacific	Armenia Bangladesh Cambodia <b>India</b> Indonesia Israel Jordan Kazakhstan Kuwait Lebanon Venezuela Turkey	Maldives Nepal New Zealand Philippines Sri Lanka Tajikistan Taiwan Thailand Tonga Turkmenistan Kyrgyz Rep. Vietnam	Saudi Arabia	Anguilla Malaysia	Australia China Japan Korea Singapore
Europe	Albania Belarus Bosnia- Herzegovina Bulgaria Croatia Czech Republic Estonia Georgia Germany Greece Italy Latvia Liechtenstein Lithuania	Macedonia Netherlands Portugal  Romania Russia Slovakia Slovenia Spain	Belgium Cyprus Finland  France Hungary Ireland Luxembourg Switzerland	Austria	Denmark Iceland Norway  Sweden United Kingdom
<b>Memo:</b>	61 per cent of countries		11 per cent of countries	14 per cent of countries	14 per cent of countries

Sample : 96 countries.

Source : Office of the Comptroller of Currency (2002) and Central Banking Publications (2004).

bank. Even if financial supervision is undertaken by an agency outside the central bank, the central bank cannot ignore financial stability issues. For instance, in the UK, although financial sector supervision has been entrusted to the FSA, the Bank of England remains responsible for the stability of the financial system as a whole. In this context, central banks can contribute to financial stability through: (1) payments system oversight, (2) contingency planning against market disruption, (3) lender of last resort (LOLR), (4) share in procedures for financial regulation and (5) analysis and

communication through reports such as Financial Stability Reviews (Goodhart, 2004).

### Accounting Standards

8.35 In industrial economies, the role of the central bank in the process of establishing accounting standards is limited. Exceptions to the rule include the Netherlands, New Zealand and Singapore. On the other hand, for most transition economies and several developing countries, central banks play an active role in establishing uniform accounting standards (Table 8.8).

**Table 8.8: Central Bank Involvement in Accounting Standards**

Country	Establishes/participates in establishing uniform accounting standards
1	2
<b>Industrial Economies</b>	
Australia	N
Canada	N
Netherlands	Y
New Zealand	Y
Norway	N
Singapore	Y
Sweden	N
United Kingdom	N
<b>Emerging Economies</b>	
Bulgaria	Y
Czech Republic	Y
Hungary	N
Poland	Y
Argentina	Y
Brazil	Y
Chile	N
<b>India</b>	<b>Y</b>
Mexico	N
South Africa	Y

Y : Yes; N : No.  
**Source** : Sinclair (2000).

8.36 The increased concern of central banks with financial stability in recent years is clearly reflected in the publication of reports dedicated to financial stability. In addition, several central banks prepare such information which is published as a part of regular reports (Table 8.9). Central banks publish such financial stability reviews (FSRs) to create public understanding and awareness of what financial stability is and the role that they can play in the process. Such reports also serve as a means of sharing knowledge and information across various departments of central banks that have a bearing on the financial stability function. Notwithstanding these positive aspects, FSRs have their own limitations. A key drawback is that these FSRs are only qualitative in nature and, in contrast to the Inflation Reports, lack robust models. As such, the FSRs lack the quantitative discipline and rigour associated with the Inflation Reports. In part, the absence of suitable models to analyse financial stability issues is the consequence of the usual assumptions made in economic models - complete financial markets, inter-temporal budget constraints and representative agent models. These assumptions rule out default and contagion which are key characteristics of financial instability. Recent

**Table 8.9: Financial Stability Reports published by Select Central Banks**

Central Bank	Name of Document
1	2
<b>Developed Economies</b>	
Australia	Financial Stability Review
European Central Bank	Financial Stability and Supervision (section in Annual Report)
Finland	Financial Stability
France	Financial Stability Review
Germany	Report on the Stability of the German Financial System (section in Monthly Report)
Netherlands	Financial Stability (section in Quarterly Bulletin)
New Zealand	Recent developments in New Zealand's financial stability (section in Quarterly Bulletin)
Norway	Financial Stability Report
Sweden	Financial Stability Report
United Kingdom	Financial Stability Review
<b>Emerging Economies</b>	
Argentina	Financial Stability Bulletin
Brazil	Financial Stability Review
Hungary	Report on Financial Stability
South Africa	Financial Stability Review

**Source** : Central bank websites.

theoretical work has, therefore, made efforts to build models that encompass incomplete financial markets, default probability, and heterogeneous agents (Goodhart, 2004).

### Regulation and Surveillance of Markets

8.37 There are several aspects of the involvement of central banks in the regulation and surveillance of markets. For instance, the central bank might be involved only in collection and monitoring of information relevant to these markets. Alternatively, the central bank might be consulted in the design of the regulatory framework or even actively involved in the design of the regulatory framework. As another possibility, the central bank might be formally responsible for the implementation of regulation and supervision or it might have no role at all. A cross-country survey of the central involvement in regulation and supervision of financial markets is presented in Table 8.10. Notwithstanding the varied roles the central bank might have, unless there is no role at all, it is presumed that central bank would have some role and accordingly marked as Y (Yes) in Table 8.10. The three markets that are generally the focus of

**Table 8.10: Central Bank Involvement in Regulation and Surveillance of Markets**

Country	Market				
	Money	Forex	Bond	Equity	Derivatives
1	2	3	4	5	6
Australia	Y	Y	Y	N	Y
Canada	Y	Y	Y	Y	Y
Finland	Y	Y	Y	Y	Y
France	Y	Y	Y	Y	Y
<b>India</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>N</b>	<b>Y</b>
Italy	Y	Y	Y	N	Y
Netherlands	Y	Y	Y	N	N
Norway	Y	Y	Y	Y	Y
Sweden	Y	Y	Y	N	Y
Switzerland	Y	Y	Y	Y	Y
UK	Y	Y	Y	Y	Y
USA	Y	Y	Y	Y	Y

Y : Yes; N : No.  
**Source:** Central bank websites.

surveillance by central banks are the money, bond and foreign exchange markets. The money market is the focal point of the implementation of monetary policy and therefore, central banks often exert influence on its development and functioning through the choice of operating procedures, which determines the mechanisms for the provision of liquidity to the system. Central banks are active participants, and overseers of, the foreign exchange market. In case of bond markets, central bank involvement in their surveillance is sometimes underpinned by a fiscal agent role. The role of central banks in the regulation and surveillance of equity market is generally less significant.

8.38 In sum, monetary stability is a necessary but not a sufficient condition for financial stability. While in the long-run, monetary and financial stability reinforce each other, the same need not be the case in the short-run. Several central banks are, therefore, pursuing financial stability as an explicit objective in addition to their price stability objective. Although financial innovations have enabled an improved risk management, their success so far is mainly in dispersing risks at a point in time; their ability to manage risks inter-temporally is still not clear. While pursuing their objective of price stability, central banks can contribute to financial stability through appropriate regulation and supervision, enhancing risk management practices in the financial sector, encouraging improved governance practices and by

raising the level of transparency in the financial sector.

## II. FINANCIAL STABILITY: THE INDIAN APPROACH

8.39 The Indian economy has witnessed a gradual opening up since the 1990s. Significant and far-reaching reforms were effected in the various sectors of the Indian economy. Consequent to these reforms, the financial system has been transformed from a planned and administered regime to a market-oriented financial system. The external sector has been progressively opened up. Reflecting the policy framework with stress upon attracting non-debt creating stable flows, capital flows to India have been largely stable. At the same time, episodes of volatility have been witnessed with attendant consequences for exchange rate movements. Moreover, the financial sector liberalisation and deregulation has led to emergence of financial conglomerates in the Indian economy with implications for contagion and systemic risks. Finally, in the context of the shift to a system whereby monetary impulses are transmitted through modulations in short-term interest rates, it is important that policy signals are quickly passed onto the market rates of interest such as lending interest rates. The efficacy of this transmission channel depends upon the strength of the balance sheet of financial sector. Consequently, for all these reasons, the issue of financial stability has become much more important than in the erstwhile administered regime.

8.40 Before the onset of reforms in the early 1990s, the Indian financial sector was a Government-dominated system with limited efficiency and too much stability through rigidity. This would suggest that financial stability in India has to be viewed contextually, more so when the sector is graduating towards a market-oriented one, with focus on efficiency and avoiding instabilities. Accordingly, financial stability in India would mean (a) ensuring uninterrupted financial transactions, (b) maintenance of a level of confidence in the financial system amongst all the participants and stakeholders and (c) absence of excess volatility that unduly and adversely affects real economic activity (Reddy, 2004a). Such financial stability has to be particularly ensured when the financial system is undergoing structural changes to promote efficiency.

8.41 Thus, at present, the Reserve Bank simultaneously pursues the objectives of price stability and provision of adequate credit for growth. In addition, financial stability has gradually emerged as