

**CONTACT GROUP ON ASSET PRICES**

**Turbulence in Asset Markets:**

**The Role of Micro Policies**

September 2002

## Foreword

The point of departure for this study is a very practical policy issue: what can be done in terms of policy measures to reduce the risks of excessive and potentially destabilising asset price movements? The question arises because asset prices constitute a critical link between macroeconomic and financial stability. If asset prices diverge substantially from long-run equilibrium levels, history shows that there is a risk of turbulence or even serious financial distress. This in turn may have adverse effects: on real economic developments via various channels or mechanisms; on financial stability, in particular in the banking system; on household wealth and consumption; and on Tobin's  $q$ , which affects investment.

In recent years, a vast amount of literature has emerged on the relationship between monetary policy and asset price misalignments. On the other hand, comparatively little has been done to understand the connections between microeconomic policy measures, asset prices and financial or real stability. Against this background, the G10 Deputies decided, in the spring of 2001, to initiate work on this issue. The subject was a topic of lively discussion by the G10 Ministers and Governors at their meeting in April 2001 and they welcomed the effort to understand how structural factors affect asset prices.

From the start, it was recognised that the study had to be explorative in kind, drawing primarily on case studies of episodes where the links between asset prices and microeconomic policy were assumed to have been important. The study has benefited from contributions (Country Notes) from several G10 countries (Belgium, Canada, Germany, Japan, the Netherlands, Sweden, Switzerland and the United Kingdom) as well as Australia, Hong Kong SAR (hereinafter Hong Kong), Ireland and Spain. In addition, use has been made of the results of a survey conducted in the summer of 2001 of all G10 countries and of Australia, Hong Kong, Ireland and Spain.

Staff members of the Bank of England, the Netherlands Bank, the Central Bank of Ireland, the IMF and the BIS took an active part in the writing of the report. In particular, Martin Andersson, Frank Browne, Lars Frisell, Gerbert Hebbink, Ritha Khemani, Philip Lowe, Ian Marsh, Johan Molin and Pontus Åberg made substantive contributions. The final work of consolidating the report was done primarily within Sveriges Riksbank under the chairmanship and responsibility of Lars Heikensten.

The report was discussed by G10 Deputies and forwarded to the G10 Ministers and Governors as background for their discussion of the topic in September 2002. However, the report was not submitted for approval, and the analysis and conclusions do not purport to reflect the views of the G10 as a whole. The report is being released by the contact group as its own product.

## **Executive summary**

### *1. Introduction*

Several factors suggest that asset markets affect economies more today than they did two decades ago. Financial liberalisation has led to a steady increase in the stock of financial assets, and the ownership of financial instruments has widened immensely. Continued economic integration has increased the correlation between asset markets and has reduced individual countries' scope to avoid market shocks. Financial liberalisation also appears to have led to larger credit cycles and to credit growth becoming more procyclical. Somewhat paradoxically, this development has taken place alongside the achievement of macroeconomic stability in many western countries. Hence, price stability has not automatically brought about financial stability. This insight, plus the fact that there already exists a vast body of literature on the linkages between asset prices and monetary policy, has spurred the current study to focus on the role of micro policies. The report wants to draw policymakers' attention to the fact that changes in taxes, regulations and disclosure policies can contribute to asset price fluctuations, and stimulate further work and discussion on these topics.

### *2. Micro policies and turbulence in asset markets: empirical evidence*

Although asset price fluctuations are an inherent part of the present world economy, the empirical evidence presented in the study shows that they are also sometimes caused by policy failures or are unintended side effects, not least in the microeconomic sphere. Crashes in property markets have had more severe consequences than those in equity markets, which affects both financial and real stability. The reason is the important role real estate has as collateral in many economies. It is thus important for policymakers to pay particular attention to significant price swings in markets where assets are highly leveraged.

Prominent examples of poorly timed policies can be found in the wake of financial market deregulation among developed countries in the 1980s. Although deregulation itself was important, in conjunction with high inflation and strong fiscal incentives for asset purchasing it led to the build-up of price bubbles. In many cases, measures to cap the inflating bubble came too late, were too abrupt, and were implemented at a time when economic conditions were deteriorating anyway. The asset price drops were often followed by a wave of defaults and bankruptcies, and, in some cases, a major financial crisis. These lessons may be important as "dress rehearsals" for policymakers in countries that have yet to complete their deregulation.

Evidence suggests that unsound incentive structures within the financial sector have contributed to excessive risk-taking, both by individual loan managers and by entire financial institutions. In addition, the current Capital Accord has been mentioned as a source of procyclicality and financial vulnerability. The report briefly reviews three measures to counter

these effects: dynamic provisioning, fair value accounting and loan-to-value ratios. Another distortion, brought about by taxation systems, is the tax deductibility of debt financing. The income effects can be dramatic as countries go from a high-inflation to a low-inflation environment, and may exacerbate the initial asset price drop generated by the rise in real interest rates.

### *3. Policy discussion*

The main conclusion of the report is that the use of discretionary policies to directly influence a particular asset price development is fraught with difficulties. Though necessary in some cases, such measures are hard to fine-tune and also create moral hazard problems. Rather, countries should commit to building a robust financial and regulatory system, where on the one hand incentives to participate in the build-up of price bubbles are small, and on the other booms and busts in asset markets have limited consequences for the financial system. When it comes to taxes, it is important that present structures do not unintentionally amplify asset price fluctuations. In this respect, the removal of tax incentives such as deductions for loans on housing can be effective. In addition, for asset classes that are highly integrated internationally, such as equity, there is very little room for policy initiatives on the national level. Transaction taxes are not likely to be a preferred policy tool under any circumstances, particularly at the national level.

The growth and internationalisation of asset markets have increased the need for transparency and information disclosure, both from individual firms and from public authorities. In principle, greater transparency should lead market participants to make more informed assessments and reduce the incidence of phenomena like disaster myopia and herd behaviour. Authorities should work to increase risk awareness and reduce moral hazard problems within the financial sector.

The report concludes by pointing out the risk of these issues not being given sufficient priority on the policy agenda. One reason for this is that financial crises are low-frequency events, another that the responsibility is shared between different institutions. Moreover, continued economic integration makes national policy intervention difficult and increases the need for international coordination of financial regulation and supervision.

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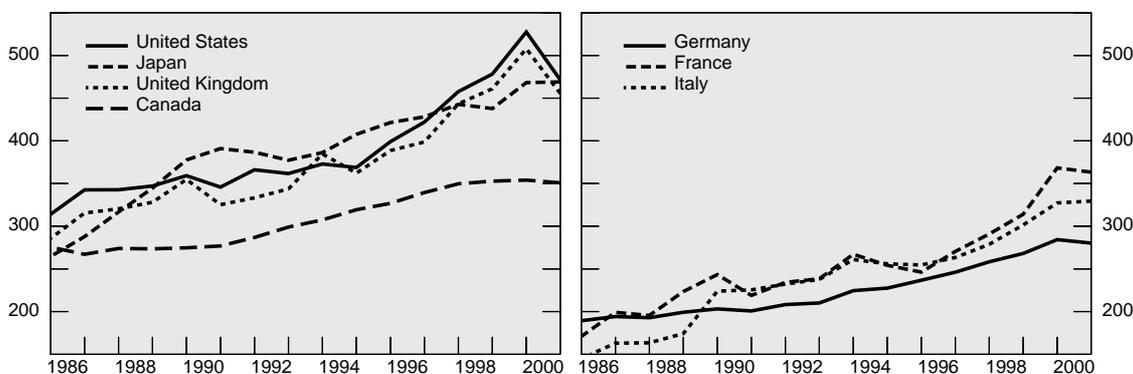
## 1. Introduction

Fluctuations in asset prices tend to affect economies much more now than they did some 20-30 years ago. They do this directly via the balance sheets of households and firms, thus affecting spending and investment decisions. They also do this via the payment system and banks in particular. Obviously, this is a cause for concern for policymakers. In order to avoid costly mistakes in the future, it would be valuable to develop a better understanding of the interactions between various policies and asset price developments. This would also provide a basis for assessing the usefulness of available public policy measures to reduce the risk of excessive and destabilising asset price movements. Several stylised facts underscore the increasing importance of a better understanding of the link between asset price developments and public policy.

### *Stocks of financial assets have grown relative to GDP*

Financial balance sheets have deepened considerably over recent decades. In many countries, this deepening has been characterised by both an increase in financial assets and liabilities relative to income and an increase in the holdings of assets whose returns are directly linked to the market. This latter change has been prompted by a general move to private pension schemes and the growth of the mutual fund industry. The deepening of financial balance sheets is important for at least three interrelated reasons. First, a given percentage change in asset prices leads to a change in wealth that is larger in terms of current income than was the case in earlier decades. This is likely to increase the sensitivity of private spending decisions to movements in asset prices. Second, the tendency for a greater share of wealth to be held in market-linked assets is also likely to increase the sensitivity of spending decisions. By virtue of the price transparency of these products and the opportunities they afford to people to monitor changes in wealth, price movements in these assets may lead more directly to changes in consumption than was the case in earlier decades. Third, the greater depth of financial balance sheets, all else constant, means that the potential for financial disturbances to seriously affect the macroeconomy has increased. Figure 1.1 below illustrates the growth of financial assets relative to income in the G7 countries.

Figure 1.1: Households gross financial assets <sup>1</sup>



<sup>1</sup> Amounts outstanding (at end-year) as a percentage of nominal disposable income.

Source: OECD, Economic Outlook.

*Asset price movements are closely correlated with movements in credit*

Periods of strongly rising asset prices tend to be associated with an increase in the ratio of credit to GDP, and falling asset prices with a decline in this ratio. While this relationship existed when financial systems were highly regulated, the sensitivity of credit growth to movements in asset prices (and vice versa) has increased with liberalisation. Financial liberalisation also appears to have led to credit growth becoming more procyclical and to larger credit cycles. These developments make understanding the interactions between asset prices, credit and the macroeconomy particularly important for policymakers. Figure 1.2 shows the evolution of credit and asset prices in selected countries since the 1970s.

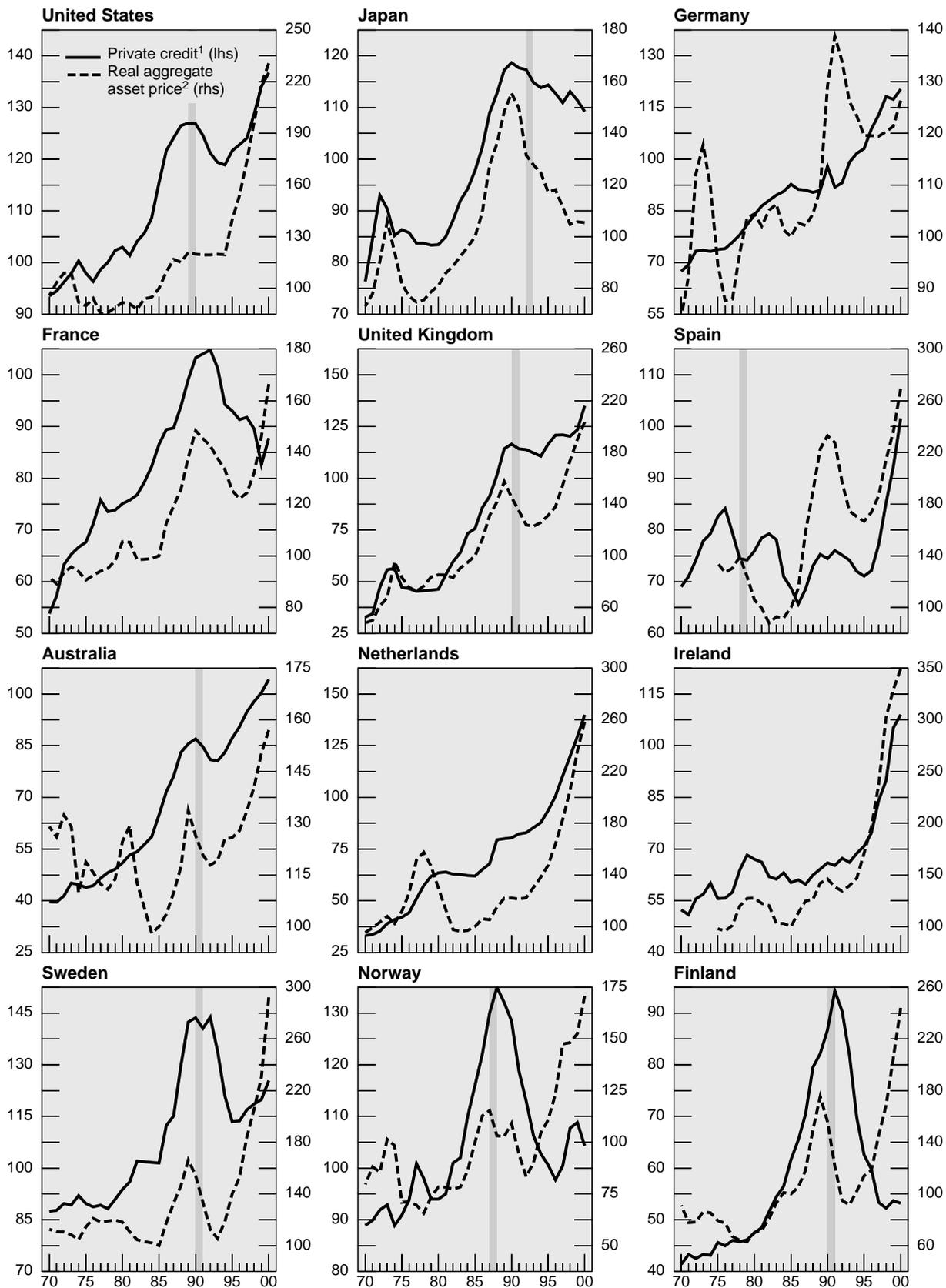
Further, rapid increases in credit and property prices have preceded periods of banking system stress in the industrialised countries over the past three decades. This reflects the central importance of property as a source of collateral for many bank loans. In addition, the commercial property market, in particular, seems vulnerable to large swings in both prices and construction activity. Developments in the property market have been part of the story 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/early 1990s.

*Correlation between asset markets has increased*

Since the late 1960s/early 1970s there have been two completed major cycles in asset prices in many countries and a third cycle may be mid-course. The first of these cycles runs from the late 1960s to the mid/late 1970s. The second runs from the mid-1980s to the early 1990s. And the third starts in the mid-1990s. These cycles can be seen, for example, in the BIS's aggregate asset price series. The existence of these global cycles, despite considerable cross-country differences, reflects capital mobility, which gives rise to a positive correlation in movements of asset prices across countries and across asset classes. While cross-country correlations are particularly prominent for equity prices, national factors seem more important for property prices. Nevertheless, overall asset price correlations appear to have increased through time.

The global cycles indicate that many of the factors that drive asset markets are global in nature. These factors include the health of the world economy, the degree of liquidity in the markets, the risk preferences of investors, changes in technology, and common changes in the structure of financial systems. While national factors are obviously also important, particularly for real estate and housing, the role of capital mobility and international forces is likely to increase further in the years ahead. Increasing political harmonisation, for example, within the European Union, adds to this effect. Figure 1.3 shows movements in equity and residential property prices over the last three decades.

Figure 1.2: Private credit and real aggregate asset prices



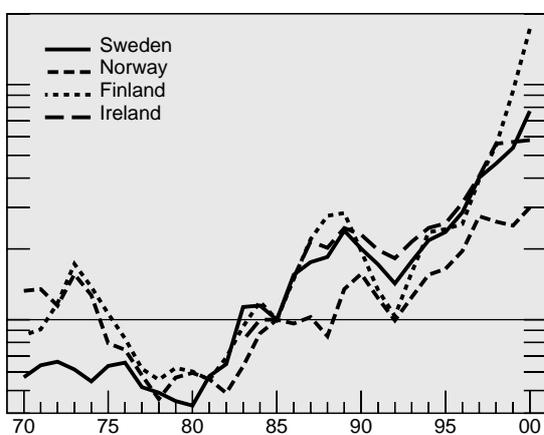
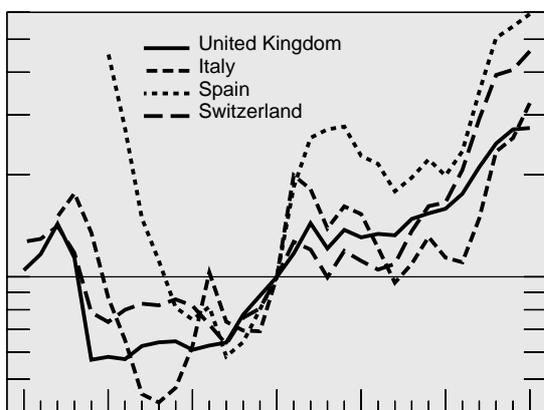
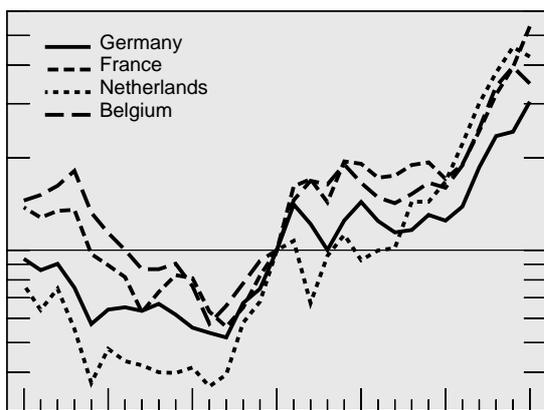
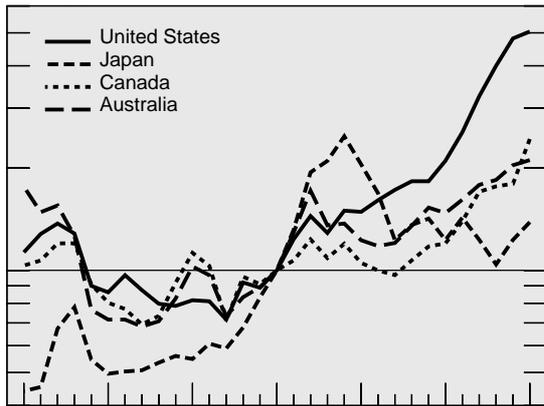
<sup>1</sup> As a percentage of GDP. The shaded areas mark the onset of stress in the financial system. <sup>2</sup> 1985 = 100.

Source: BIS (see also BIS 71st Annual Report, Graph VII.1, page 125).

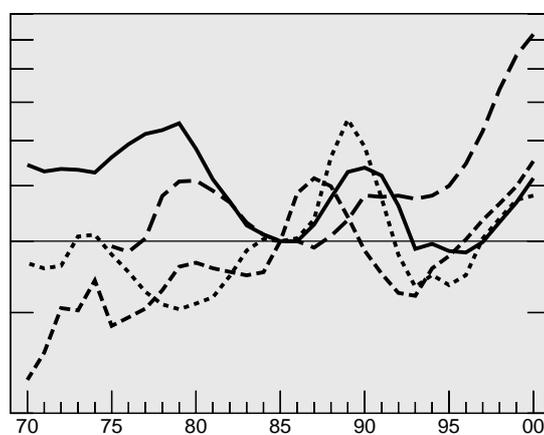
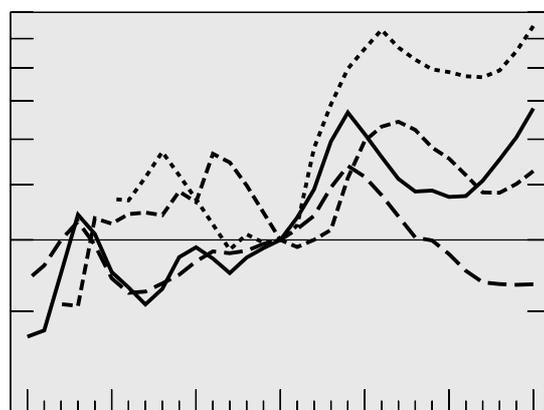
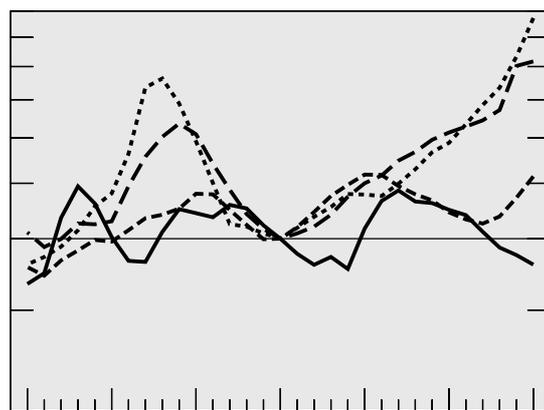
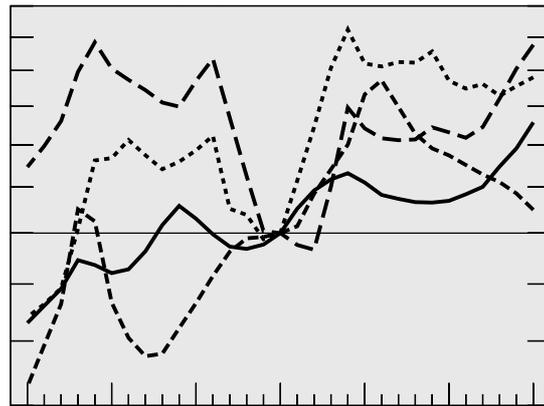
**Figure 1.3: Real equity and residential property prices**

1985 = 100; semi-logarithmic scales

**Equity prices**



**Residential property prices**



*Major movements in asset values seem weakly related to movements in the current value of the fundamental*

Periods of strongly rising asset prices tend to be associated with an increase in the ratio of the asset price to (some measure of) the current fundamental value. For example, the ratio of property prices to rents tends to increase when property prices are strong. Similarly, when equity prices are strong, price-earnings ratios tend to be high. This reflects the forward-looking nature of asset markets.

In many cases when asset values have been historically high relative to current fundamentals, the return to a more historical relationship has occurred mainly through a fall in prices, rather than through an increase in the value of the fundamental. That is, expectations have not been realised. Many periods in which price-earnings ratios have been high have been followed by relatively poor stock market performance. The same is true for the property market. An improvement in the current value of the fundamental sometimes seems to lead to overly optimistic expectations of the future value. These optimistic expectations, and their effects on asset prices, can be reinforced by herding behaviour and feedback effects. Eventually, when more realistic expectations take hold, a price correction takes place and historical pricing relationships are re-established. When this occurs, stresses in the financial system can develop. Indeed, a boom and bust in asset prices is perhaps the most common thread running through most financial crises.<sup>1</sup>

*Price stability limits the risk of excessive asset price movements, but problems with financial stability will still exist*

It is often taken for granted that a monetary regime that produces aggregate price stability is likely to limit the risk of excessive asset price fluctuations and to promote stability in the financial system. There are several reasons for this. In particular, volatility in the inflation rate can harm the stability of the financial system. Rapid unexpected declines in inflation could, for example, increase the value of outstanding debt, making defaults more likely. Furthermore, high inflation, even if it is stable, has the potential to distort asset prices, encouraging leveraged asset acquisitions and more generally leading to misallocation of resources.

During recent decades, price stability has been achieved in most industrialised countries. Nevertheless, as we have already seen, there have been several instances of dramatic changes in asset prices as part of processes leading to instability. While low and stable inflation is likely to promote financial stability, imbalances can obviously still build up. Recent experience has shown that improvements on the supply side of economies have resulted in lower inflation and lower interest rates. This has also been associated with overly optimistic decisions being made, resulting in setbacks once the supply side developments have changed.

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<sup>1</sup> See, for example, Borio et al (2001).

In this report we will also show how policy in the microeconomic sphere has contributed to excessive asset price fluctuations as well as severe cases of instability.

### *Focus of this study*

The stylised facts outlined above not only underscore the growing importance of asset price movements in individuals' and firms' economic decisions. The apparent relationship between asset prices, credit expansion and banking system strains gives rise to public concern as well. The observed tendencies towards overshooting in some asset markets are a cause for concern, as drastic price adjustments can involve substantial negative externalities in the form of financial or real economic crises. There is a need to better understand these relationships and tendencies and to explore what can and cannot be done in terms of public policy measures in order to reduce the risk of excessive and destabilising asset price movements.

Neither monetary policy nor broad-brush Keynesian fiscal policy appears well suited to addressing problems related to excessive asset price movements and risks for instability, although they should not be completely ruled out for these purposes. Monetary and fiscal policies do affect asset prices through consumption and investment. In addition, monetary policy has direct effects on nominal interest rates and exchange rates. While monetary policy has proven successful in containing overall goods price inflation, this has not eliminated large asset price movements.<sup>2</sup> Moreover, several European countries have formed a monetary union, thus leaving them without the option of a national monetary policy to deal with domestic asset price distortions. Fiscal policy measures seem even blunter, and thus less useful, as timing and calibration of such measures will be extremely difficult and may not necessarily affect aggregate demand in a desirable direction.

Against this background, the purpose of this study is to look more closely at policies affecting the *micro structure* of markets - such as specific taxes and regulations - rather than macro policies, which besides having the drawbacks noted above have also been discussed extensively in various policy-oriented documents as well as in academic literature. Hence, this study makes no attempt to estimate the relative importance of macro versus micro policies in influencing asset market behaviour (if indeed a precise distinction is possible), and we discuss the macroeconomic framework only summarily in Chapter 3.

The country notes and other material that have been gathered for this study have shaped especially the second chapter. In particular, two aspects of micro policy are addressed: (i) what we can learn from instances where policy changes have had a large impact on asset prices, and (ii) what can possibly be done to reduce the likelihood and effect of excessive or destabilising asset price movements. Though a more structured analysis of these topics would have been desirable, the limited literature in this area made it difficult, which is why an empirical focus was chosen.

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<sup>2</sup> A prominent example is Japan, where goods price inflation was kept at levels roughly consistent with price stability during the "asset bubble period" of the 1980s.

It is worth pointing out that we have not tried to define precisely what one should mean with “excessive fluctuations”, “bubbles” or for that matter “financial instability”. In the context of this report, we believe it is sufficient to note that there have been many cases when extreme fluctuations or turbulence in asset prices have been associated with disturbances both to the real economy and to financial stability. Since it seems likely that situations of this kind will build up again, it is constructive to discuss how they can be avoided and dealt with, even if one lacks a precise definition of them.

In the next chapter, we explore the linkages between various micro policies and asset price phenomena present in some fairly recent empirical cases.<sup>3</sup> The focus is limited to only two asset classes: equities and properties. On the basis of this exposition, we then turn to draw some preliminary policy conclusions and outline the scope for further study and possible G10 actions.

## **2. Micro policies and turbulence in asset markets: empirical evidence**

Through regulations and deregulations, taxes and subsidies, and almost all kinds of institutional design, policymakers affect relative and absolute prices in the economy. Micro policies may thus contribute to the start of price spirals, strengthen propagation mechanisms and initiate price collapses. In this chapter, we look at a number of links between micro policies and asset prices. The exposition has a clear empirical emphasis, building on material from country reports. Although the analysis is by no means exhaustive, the episodes we present forcefully demonstrate how policy intervention and poor regulatory structures may exacerbate imbalances in asset markets. The main message of this chapter is that policymakers, to a much larger extent than before, should consider the behaviour of asset markets when shaping micro policies.

The most important part of the corpus of existing regulation relates to the regulation of the banking system. The need for regulation originates from the fundamental dilemma of banking, the dual problems of liquidity and solvency. By transforming liquid liabilities into illiquid loans, loans that are collateralised by equity and property, bank solvency is by definition vulnerable to asset price shocks. History furnishes ample evidence of the strong interlinkages between asset prices and banking stability. In turn, the importance of banking stability for overall macroeconomic stability can hardly be overestimated. Hence, a significant part of the material in this report addresses the role of micro policies in affecting bank behaviour.

The chapter is divided into four main sections. In Section 2.1 we take up the danger of poorly sequenced or timed policies, prominent cases being the price bubbles that developed in the wake of financial deregulation. Though most of the deregulatory policy measures were desirable, the speed and order of their implementation/adoption, in interaction with the

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<sup>3</sup> There are several earlier episodes of turbulence in asset markets, some of which probably had more severe welfare consequences than those in the 1980s and 1990s. For an examination of some classic asset bubbles, see Garber (2000). The close relationship between asset price bubbles and financial crises is stressed in Kindleberger (1978).

reigning macroeconomic environment, gave rise to turbulence in asset markets.<sup>4</sup> Section 2.2 investigates how the regulatory framework pertaining to financial institutions contributes to credit expansion and asset price inflation. In Section 2.3 we look at various channels through which taxes affect asset prices. We cover a few of numerous potential mechanisms, such as the tax bias towards leverage and the problems with transaction taxes.<sup>5</sup> Finally, Section 2.4 addresses the more intricate question of how inadequate transparency and decentralised information may contribute to large asset price movements. Though the theoretical argument is straightforward, empirical evidence is lacking.

## **2.1 Price bubbles in the wake of financial deregulation: the interaction of policies**

In the financial collapse of the late 1920s, the loosely regulated banks in the United States were perceived as playing a central part. US authorities reacted to this episode by imposing tight regulations on banking, a response copied by many other countries. Since then, the structure of regulation has been a key factor governing the interaction between asset price turbulence and banking system instability. To take account of the two-way interaction between asset prices and the financial sector, two broad types of regulatory/prudential policies tend to be pursued: those that restrict banks to behaving in such a way that risks of financial instability do not emerge in the first place (preventative policies), and those that strengthen the banking system in the face of a major shock, for instance an asset price collapse (defensive policies).<sup>6</sup> Capital adequacy requirements, under which, in principle, banks are penalised according to the riskiness of their lending, would fall into the first category. Provisions for bad loans, deposit insurance and the safety net governing the banking system in general could be seen as falling into the second category. Table A.1 attempts to draw up a taxonomy of different types of regulation along these lines (although clearly many of these regulations have both preventive and defensive effects).

It was not until the 1970s that many of the regulations that had been in place for many decades were recognised as a source of considerable inefficiencies. The long period of tightly regulated markets was then followed by a period of rapid deregulation, accompanied, and in part inspired by, a wave of financial innovation. Albeit pursued at different paces in different countries, deregulation followed virtually the same pattern in the whole OECD area. A sample of deregulatory measures is provided in Figure 2.1.

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<sup>4</sup> The question of sequencing was analysed in a number of studies in the 1990s. The focus in this study is on how micro policies interacted with other developments in the context of deregulation.

<sup>5</sup> There is a large body of academic literature of a comparative static nature in the tax field, investigating the consequences of one-time changes. However, to our knowledge there is little work done on the interaction of taxes and asset price movements.

<sup>6</sup> The Japanese Country Note (2002) makes a similar distinction.

**Figure 2.1 Examples of deregulation**

<b>Deregulation</b>	<b>Instances of deregulation</b>
Removal of interest rate ceiling	Australia early 1980s Japan early 1980s Sweden early 1980s
Removal of lending limits	United Kingdom 1970s Sweden early 1980s
Ending of priority lending/sectoral guidelines	Sweden early 1980s France 1980s Ireland 1986
Removal of barriers to entry	Australia early 1980s United Kingdom 1983 Japan 1980s
Abolition of exchange controls	United Kingdom 1979 Ireland 1988 France 1989
Liquidity ratios	Ireland (both primary and secondary ratios gradually reduced between 1991 and 1999)

Source: Country notes (2002)

In the newly deregulated environment, banks competed fiercely to gain market share following the rescinding of many of the regulations governing their industry. This was particularly evident in, although not exclusive to, most of the Nordic countries and Australia. Previous quantitative restrictions on the overall level of loans supplied by the banking system, possibly exacerbated by restrictions on the direction of credit, led to a strong pent-up demand for loans from both the household and corporate sectors. The rapid relaxation of these restrictions led to a surge in the growth in credit, much of which was used to purchase assets in relatively fixed supply, inflating their values. This dynamic was frequently reinforced by favourable tax arrangements relating to these assets.<sup>7</sup> Real estate prices thus soared to unsustainable levels, as indicated, for example, by yields moving below market rates for risk-free investments.

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<sup>7</sup> Country notes from Australia, Ireland, Japan, the Netherlands and Sweden (2002).

It can be argued that some of the problems that followed financial deregulation were the result of poor timing. The most pertinent example is probably Sweden, where credit regulations were liberalised before other restrictions, for example those pertaining to foreign exchange and barriers to entry (see Box 2.1 below for a summary of deregulation in Sweden). This resulted in a “greenhouse effect”, where all credits were driven into the purchase of a limited supply of domestic assets, inflating asset prices well beyond their long-run equilibrium levels.<sup>8</sup>

It is easy to see how lax credit granting can feed into asset price inflation.<sup>9</sup> Once a loan is granted, the investor, who enjoys limited liability, has an incentive to invest the money in riskier projects than would the lender. From the investor’s point of view, the cost of funds for these projects is lower than their break-even levels, which will boost asset prices above their fundamental values. In addition, if investors expect credit expansion to continue in the future, the asset bubble will continue to inflate. Correspondingly, if a negative economic shock occurs so that many projects default at the same time, or if credit expansion is interrupted, a financial crisis may follow. This scenario is broadly consistent with events in the Nordic countries and Japan.

**Box 2.1 Sweden - an example of deregulation and bad sequencing**

The deregulation of the financial and credit markets resulted in a rapid rise in credit growth and an increase in risk-taking. Due to the previous constraints in obtaining credit there was a strong pent-up demand from both households and corporations. Demand was boosted by the unusually long macroeconomic boom period during the latter part of the 1980s. The incentives to borrow were enhanced by the high marginal tax rates, the full tax deductibility of interest payments and the relatively high inflation rate, as the real after-tax interest rate was low and sometimes negative. The ratio of bank lending to GDP increased from 43% in 1986 to 68% in 1990. The surge in credit contributed to a jump in asset prices, particularly real estate prices. Banks rapidly increased their exposure to real estate in a number of ways. Credit was advanced directly to purchasers of residential and commercial property, and for the construction of property. Banks were willing to accept real estate as collateral for other advances since it was perceived to be a safe form of collateral. Banks were also exposed to the real estate sector through their ownership of finance companies, which were also heavily involved in real estate lending. It must be noted that while the credit market was completely liberalised by 1985, controls were still in place governing foreign exchange flows. Complete deregulation of this market did not occur until 1989. This delay in liberalising foreign exchange flows had two consequences. First, as the supply of credit surged in Sweden, demand for assets in which to invest far outstripped supply, especially in the real estate sector. Real estate prices consequently soared. Had investment opportunities in foreign markets been opened earlier, the Swedish property bubble would probably have been less extreme. Second, when foreign exchange controls were eventually lifted, large amounts of investments were transferred outside Sweden and this contributed strongly to deflating the Swedish property price bubble, which had dramatic consequences for the banking sector. The Swedish case illustrates how different policy measures interact and underscores the need to sequence deregulation correctly.

Sources: Swedish country note (2002); Drees and Pazarbaşıoğlu (1998).

<sup>8</sup> Swedish country note (2002).

<sup>9</sup> Allen and Gale (1999).

Moreover, both in the Nordic countries and in Japan, measures to cap the inflating bubble in land prices were taken much too late, as severe imbalances had already built up in the financial sector. At the beginning of the 1990s, inflation expectations were changed abruptly in Sweden. This was a consequence of the country's decision to maintain a fixed exchange rate, which came at the cost of steeply rising interest rates.<sup>10</sup> Several regulations favouring investment in real estate were simultaneously removed or reduced, such as construction subsidies and deductions on mortgage interest. In combination, this brought about a sharp fall in property prices.

Although overall inflation was kept at levels consistent with price stability in Japan during the 1980s, monetary policy remained lax. This was partly due to the Plaza Accord in 1985, when the G5 countries had agreed that the US dollar was too strong.<sup>11</sup> In May 1989, Bank of Japan initiated a phase of sharply tightened monetary policy. This policy shift preceded the onset of an economic recession, and when macroeconomic expectations shifted asset prices fell rapidly.<sup>12</sup> Between January and October 1990, the Nikkei 225 fell by more than 60%.<sup>13</sup> The asset price drops were followed by a wave of defaults and bankruptcies, primarily in the property sector. The defaults quickly translated into credit losses and, as in Sweden, a major financial crisis.

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<sup>10</sup> The real interest rate in Sweden rose by more than 6 percentage points between January 1991 and June 1992.

<sup>11</sup> Monetary relaxation in the post-Plaza Accord period was aimed at stimulating domestic demand to offset the recessionary effect caused by the yen's rapid appreciation and rectify the current account imbalance.

<sup>12</sup> For a detailed account of the Bank of Japan's potential role in creating and deflating the asset bubble, see Okina et al (2001).

<sup>13</sup> Japanese country note and Ishiyama (1995).

### **Box 2.2 The Irish housing market in the 2000s: bubble or not?**

Many of the ingredients for a rapid escalation of house prices were in place by the mid-1990s in Ireland. Three major elements – the overall tax arrangements, the increasingly deregulated financial market environment and the macroeconomic situation (including demographic factors such as net immigration and increased household formation rates) – all favoured property purchase. Due to the slow expansion in supply, house price inflation increased from roughly zero in 1993 to around 15% per annum in 1996. In 1997, capital gains taxes on non-owner-occupied housing were halved and residential property taxes were abolished. These tax changes interacted with house price inflation and inelastic supply to make house purchases cheaper from a user cost perspective<sup>14</sup> by increasing expected net capital gains and reducing direct tax costs. In addition, credit rationing that had in the past acted as a brake on housing inflation was no longer present after years of financial market liberalisation. The dynamics arising from the interaction between tax changes, the user cost of housing capital, the effect of expected capital gains on the latter and subsequent house price inflation probably made a substantial contribution to the acceleration of house price increases that occurred. Between 1996 and 2000, new house prices rose by 92% and existing house prices by 126%. Nominal year-on-year growth rates for prices of existing houses peaked at over 35% in 1998. It should be noted that overall liquidity in the Irish economy (measured by either money supply growth rates or private sector credit) was highly correlated with property price increases. Unless the velocity of circulation is very elastic, additional liquidity is essential if an ongoing asset price increase as witnessed in Ireland is to be sustained.

Source: Central Bank of Ireland.

To conclude, unless correctly managed, deregulation can be a source of new distortions, inefficiencies and systemic threat. Much of the experience with deregulation in the 1970s and 1980s suggests that the banking system can be put at considerable risk when strong fiscal incentives for asset purchase and a macroeconomic environment of high and/or accelerating inflation accompany rapid liberalisation of the banking system. In the next section, we take a closer look at institutional features in the financial sector that may aggravate the link between bank credit and asset prices.

## **2.2 Deficient regulatory structures**

### ***2.2.1 Factors contributing to credit expansion***

As mentioned in the previous section, in many countries banks competed strongly to gain market share in the newly deregulated environment. After decades of strict regulation, banks suddenly found themselves in a situation where the volume of credit, and the terms on which it could be conferred, were virtually unrestrained. At the same time, the market had been opened to new competitors and banks were eager to keep their market positions. Against this background, it is hardly surprising that bank managers without experience of a deregulated financial market overestimated the value of collateral and allowed the quality of their credit portfolios to depreciate. Few banks undertook present value analysis of the projects they

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<sup>14</sup> The user cost of housing is made up of the weighted average post-tax cost of borrowed and own funds plus property taxes and depreciation costs minus expected capital gains.

financed; as long as the market value of the collateral was sufficiently high, the bank was considered safe against credit losses. The rapid expansion of credit made debt-financed investment cheap, which fuelled asset price inflation. In turn, higher asset prices raised the value of collateral and enabled even more lending, which further contributed to the price spiral. In the end, the difference between the fundamental value of the collateral (mainly properties) and the loans they corresponded to became enormous.

It is important to recognise that excessive credit expansion may have had additional explanations other than simply poor judgment on the part of bank managers.<sup>15</sup> Indeed, the incentive structure within the financial sector has often been mentioned as promoting risk-taking. For example, the Swedish country note refers to incorrect incentives being offered to bank staff where bonuses were primarily related to loan sale volume regardless of the risks attached to these loans. Another example is when loan managers only have a short-term interest in the bank's well-being. For the people directly responsible for granting the credit it may be enough that the project does not default within the next six or 12 months. Within this period, they may receive their bonus, be promoted, or change workplace.<sup>16</sup>

In the cases mentioned above, the bank itself will eventually suffer from its poorly designed incentives. However, a prudential safety net, including a lender of last resort, may help "myopic" banks to stay in existence. Implicit or explicit guarantees, such as "too-big-to-fail" policies, create a moral hazard problem as the bank management can exploit the fact that the authorities are reluctant to let the bank default. Hence, the regulatory structure safeguarding the banking system may have the inadvertent effect of permitting inefficient banks to continue in existence.<sup>17</sup> Accordingly, it may encourage credit expansions and asset price bubbles to occur.

### ***2.2.2 Capital requirements and procyclical lending***

The 1988 Basel Capital Accord has been mentioned as one source of asset price swings and financial vulnerability, although empirical results are mixed.<sup>18</sup> In brief, it has been argued that since capital requirements are risk-based, banks need to hold more capital exactly when capital is scarce, ie when the economy enters a recession and credit losses are rising. Moreover, if banks tend to change their credit policies over the business cycle, an additional adverse effect may be present. Overoptimistic lending in periods of economic expansion will, when capital requirements are based on ex post observations of loan defaults, lead to an

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<sup>15</sup> "Poor judgment" could include various psychological phenomena leading to an underestimation of low-frequency events, also known as disaster myopia. See Tversky and Kahneman (1982) and Simon (1978).

<sup>16</sup> This type of moral hazard is modelled in Allen and Gorton (1993).

<sup>17</sup> There is an extensive body of literature on this topic, see, for example, McKinnon and Pill (1997), Krugman (1998) or Furfine (2001).

<sup>18</sup> A survey of the real effects of the new capital requirements in G10 countries is found in BCBS (1999). More critical results are found for non-G10 countries in Chiuri et al (2001).

increased share of bad loans in the following period of contraction.<sup>19</sup> The Japanese experience illustrates an additional procyclical effect. A specific feature of the application of the 1988 Basel rule in Japan was the agreement to allow banks to count as tier 2 capital 45% of the latent (unrealised) capital gains from long-held stock. Given the extensive cross-shareholdings among Japanese banks, this arrangement meant that these banks benefited substantially from the boom in share prices that occurred in the late 1980s. The share price increases boosted eligible capital and, in the process, also raised the amount of loans that could be supported by that capital.<sup>20</sup>

As argued in the Japanese country note, when a sharp rise in an asset price occurs, banks should make some allowance for the increased likelihood of future price declines. This should lead to a curtailment in lending for the purchase of this asset. However, experience suggests that the opposite tends to happen and loan-to-value ratios, instead of declining, increase further. Hence, the higher asset price provides additional collateral for further loans, thereby feeding the price escalation. This problem existed in Sweden prior to its banking crisis in the early 1990s. Anecdotal evidence suggests that borrowers used the increasing value of their properties as collateral for gradually raising their loan amounts to invest in more property.

#### *Dynamic provisioning*

There are a variety of quantitative regulations that could be used to counter this inadvertent effect of capital requirements. We will briefly review three of these: dynamic provisioning, fair value accounting and loan-to-value ratios. The concept of dynamic provisioning has been discussed extensively in the last few years. In brief, such provisions take account of the cyclical component of credit losses, for example, in economic booms they incorporate the likelihood of increased credit losses in the following downturn, and are thus larger than traditional provisions. Spain has recently implemented a provisioning system with these elements, as described in Box 2.3 below.

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<sup>19</sup> That lending policies fluctuate in conjunction with economic conditions is suggested by, amongst others, Wojnilower (1980) and Rajan (1994).

<sup>20</sup> Japanese country note (2002).

### Box 2.3 Statistical provisioning for insolvency in Spain

A new regulation for loan loss provisioning in Spain came into effect on 1 July 2000. The old system of specific and general provisions was complemented by so-called statistical provisions, which are designed to counteract the procyclical element of provisioning and smooth bank results over the business cycle. Statistical provisioning works a very simple principle: when specific provisions are small, such as in economic booms, statistical provisions are high. This means that a reserve of funds is built up that can be drawn upon when credit losses are high. The fund of statistical provisions is charged quarterly to the bank's profit and loss account as the difference between 25% of the estimate of latent losses and the net charges for specific provisions that quarter. If the difference is positive, the amount enters as a loss in the profit statement and is deducted from the fund. If the difference is negative, which is likely in economic downturns, the amount enters as income and the fund is reduced. In this way, statistical provisioning will smooth the bank's results over the business cycle.

In order to control banks' accounting practices, Spain has put in place a detailed regulatory framework for asset classification and provisioning. Compliance with the system is enforced by regular on-site inspections by the Bank of Spain. The authorities allow two different methods of determining the amount of statistical provisions. In the first, the bank uses its internal models to determine the provisions. This is only feasible for banks that have developed internal models in line with the New Capital Accord. Banks that have not advanced this far can calculate their statistical provision using a standard method set by the authorities.

Source: Fernández de Lis et al (2000).

Despite these advantages, with the exception of Spain few countries apply the idea of dynamic provisioning. The reason is that tax systems rarely recognise such provisions as a tax-deductible expense. Consequently, banks have little incentive to employ them, since they reduce current capital in favour of future capital. By contrast, if such provisions were deductible at the time that they are made (rather than at the time they are drawn on), banks would have an incentive to make them in the upward part of the credit cycle (when profits are increasing) and to draw on them when profits are decreasing. The reason why tax authorities remain sceptical is the difficulty of defining and controlling the extent of such provisions, which give banks a valuable tool for tax planning. The current state of G10 provisioning is quite heterogeneous (see Figure 2.2 below), with regard to both the method of loan provisioning applied and the conformity on tax and regulatory treatment.

#### *Fair value accounting*<sup>21</sup>

With the evolution of complex financial instruments and the rapid increase in securities trading during the 1990s, there was a need to move away from historical cost accounting, particularly in the banking sector. One reason was that instruments such as options and guarantees, though potentially involving huge financial commitments, were often virtually invisible on banks' balance sheets. More fundamentally, since historical accounting has no forward-looking component it fails to reflect the effect of changing interest rates, credit

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<sup>21</sup> This section is based on Bank of England (2000). For some recent work on FVA, see *North American Actuarial Journal*, vol. 6, January 2002.

quality, etc. In particular, many believe that the savings and loan crisis in the United States, as well as the Japanese banking crisis, was exacerbated by the lack of information on embedded losses in banks' loan portfolios.

Amongst other things, these events led to calls for fair value accounting (FVA), an accounting approach where any change in the net present value of an asset or liability is immediately reflected in the balance sheet and profit and loss account. Basically, FVA, like dynamic provisioning, aims at embedding expected future losses into the accounts. However, at present international accounting standards only require fair value accounting for securities held for trading or available for sale, known as the bank's "trading book". Loans, deposits and securities intended to be held to maturity, the "banking book", are reported at book value. This mixed approach is unsatisfactory both because of its arbitrariness and because loans - often the most important bank asset - are still valued at historical cost.

The current debate revolves around how the mixed approach can be replaced by full fair value accounting. The banking industry opposes a move to full FVA on several grounds. There are substantial administrative as well as conceptual difficulties involved with establishing market values of loans, as there is no developed securitised market for loans (at least, not in Europe). Another issue is that of taxation: if unrealised gains are taxed as regular profits this could potentially force the liquidation of assets. The major concern, however, is that the volatility in net worth and profits may increase under full FVA since banks have a large asset/liability mismatch and the fair value is heavily influenced by current market conditions. Evidence from Denmark, which employs an accounting system akin to FVA, seems to confirm this.<sup>22</sup>

#### *Loan-to-value ratios*

Another way to protect the system against asset price falls is to try to make sure that loans are collateralised to a reasonable extent. This is often discussed in terms of loan-to-value (LTV) ratios, where the "value" is the current market value of the collateral. Though LTV ratios seem relatively simple to enforce, this is a rather blunt way of affecting lending behaviour. As shown in Table A.2, it is more common to have restrictions on the LTV ratios than not, and in some countries the valuation methods are also regulated. In countries where there are no LTV restrictions it is common to have some kind of industry-wide practice.

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<sup>22</sup> Bernard et al (1995).

**Figure 2.2 Loan provisioning methods**

		Conformity on tax and regulatory treatment of provisions	
		yes	no
Tax deductability of loan provisions	no		AU, NL, US
	only specific provisions	IE, SE	BE, CA, HK, UK
	yes	FR, DE, IT, JP, ES, CH	BE, CA, HK, UK

Source: *Asset prices - the role of micro policies*, G10, questionnaire (2002).

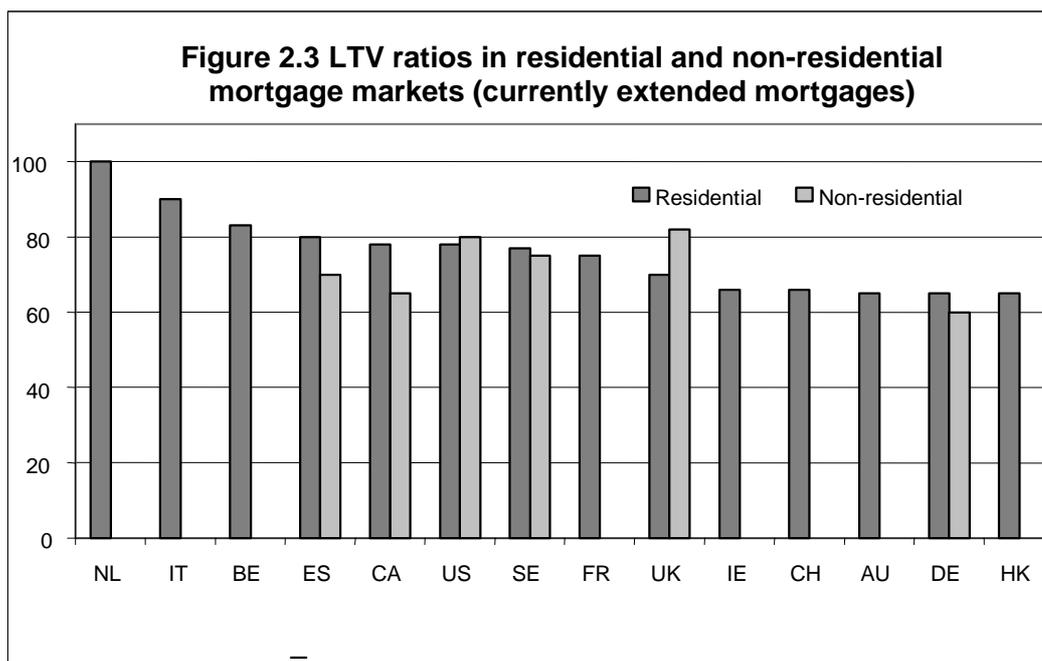
Hong Kong provides an example of how the active use of LTV ratios may have helped to safeguard the financial system and prevent increasing property prices from further fuelling price development. Asset prices started inflating in Hong Kong in the late 1980s and, with the exception of 1994-95, grew steadily until the eruption of the Asian crises, and the speculative attack against the Hong Kong dollar in 1997. In the wake of the crises, real property prices fell by more than 40% in less than four quarters,<sup>23</sup> a more severe price drop than those experienced during the Nordic crisis in the early 1990s. However, this had a surprisingly small impact on the Hong Kong banking system. In fact, hardly any banks recorded negative results, and financial stability was never threatened.<sup>24</sup> This is all the more remarkable since Hong Kong lacks non-bank mortgage institutions and virtually the entire supply of mortgage finance is channelled through the banking system.

The robustness of the Hong Kong banking system may be attributed to a broad awareness of the risks of rapid asset price inflation, an awareness possibly gained from the Japanese banking crisis. Already in 1991, the Hong Kong Monetary Authority (HKMA) changed its guideline LTV ratio from 90% to 70%. However, this had already been adopted by the banking industry on a voluntary basis, and actual LTV ratios were substantially lower than this (52% in September 1997).<sup>25</sup> As banks' exposure grew rapidly, the HKMA issued a guideline in 1994 that banks should limit their exposure to the property market to the industry average of 40%. This too seems to have been respected by the banking industry. The guideline was withdrawn in July 1998 after the market plunged.

<sup>23</sup> Hong Kong country note (2002).

<sup>24</sup> Yue (2001).

<sup>25</sup> Hong Kong country note (2002).



Source: *Asset prices - the role of micro policies*, G10, questionnaire (2002).

Figure 2.3 displays typical LTV ratios in the countries participating in the study. The extremely high ratio in the Netherlands is noteworthy, averaging about 100% in mid-2001. Obviously, the higher the LTV ratio, other things being equal, the more vulnerable the financial system is to asset price drops. The Dutch case is further explored in Box 2.4.

#### **Box 2.4 House price developments and LTV ratios in the Netherlands<sup>26</sup>**

During the 1990s, banks in the Netherlands started to take second and temporary incomes into account in their mortgage lending policies. As a result, maximum debt service-income ratios, and thus household borrowing capacity, increased substantially. In the view of the Netherlands Bank - the bank supervisor - this raised the risk of a self-reinforcing spiral, with rising house prices leading to higher loans and vice versa, and house prices becoming separated from their underlying intrinsic value. These dynamics were accommodated by increasing LTV ratios for new mortgages, whereby it had become common practice to finance all expenses related to buying a house - including transactions costs - through a mortgage loan. In terms of liquidation value (or mortgage value, about 85-90% of market value), typical LTV ratios increased to 125%, and in some cases even 135% (LTV ratios are not limited or regulated in the Netherlands; see Table A.3). From an individual lender's point of view, this could be justified by the expectation that collateral value will catch up soon. If all lenders base their lending policy on this view and easily grant loans higher than 100% LTV, however, it may become self-fulfilling through the spiral mentioned above. Despite concerns on this issue, the Netherlands Bank has been reluctant to impose direct LTV constraints on banks. First, it would create a level playing field problem, as a significant part of the mortgage market (about 20%) is in the hands of non-banks (mainly insurance companies and pension funds). Second, as the financial solidity of banks was beyond dispute, supervision measures were not considered appropriate instruments to address macroeconomic imbalances. Instead, it was proposed in late 1999 to discourage high LTV ratios by legislation, restricting the mortgage loan on a property to its market value at the time of registration, thereby effectively limiting the LTV ratio to 100%. In the event, the property market cooled in 2001 and indications of self-sustaining dynamics receded.

Source: Netherlands Bank.

### **2.2.3 Examples of market restrictions**

We shall briefly discuss two restraints pertaining to the equity market that may cause price distortions. The first is the restriction of share buybacks, the second is that of short selling. A company can affect its share price by buying its own shares in the open market. Though there are a number of reasons why this may be attractive, most studies support the idea of asymmetric information: if the company's management believes the company is undervalued it can use the buyback option to signal that the market price does not reflect fundamentals. Share buybacks have been widely regulated in the past, and still remain so in several countries. For example, in Australia buybacks were completely prohibited until 1989, and not fully liberalised until 1996. Restrictions on buybacks may add to an asset price drop, since those companies whose management has positive information vis-à-vis the market lacks this source of signalling. Table A.3 provides an overview of the regulations pertaining to share buybacks.

Similarly, if expectations among investors differ markedly, asset prices may be subject to an upward bias arising from an inability to engage in short selling. Short selling adds discipline to asset valuation because it allows the price to be determined by two groups of investors:

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<sup>26</sup> See also "The Nederlandsche Bank's analysis of bank lending", Netherlands Bank, *Quarterly Bulletin*, March 2000, pp 65-71.

those who expect the price of the asset to increase (long position in the stock) and those who expect the price to decrease (short position in the stock). In practice, however, short selling is often restricted by regulation, incompleteness or other market inefficiencies, thereby excluding investors with a pessimistic view of the future asset price from the market. If short sellers were enabled to participate fully in the market, this would increase the supply of the stock to the market and could also help to deflate the price, or prevent it from inflating excessively in the first place.<sup>27</sup> In the price rising market, on the other hand, the impact of short selling restrictions may be limited, since short selling is a small part of transaction in the optimistic market.

#### **Box 2.5 Short selling and asset prices**

The early literature relating to short sales constraints and their impact on asset prices is based on Lintner's (1969) model of asset prices. The model assumes heterogeneity of beliefs and short sales restrictions for pessimistic investors. The short sales restrictions are shown to force pessimistic investors out of the market, leaving only optimistic investors and thus inflated asset prices. Ofek and Richardson (2000), based on Lintner's model, argue that short sales constraints convey a reasonable story for the internet bubble in the United States in 1999-2000. Evidence is supportive of the fact that short sales were constrained, if not impossible, during the "bubble" phase of the cycle. Hence, investors with pessimistic views were unable to enter the market and drive prices down. The bubble then burst as a number of lock-ups expired in spring 2000 and pessimistic investors were suddenly able to short considerable amounts of stock. This overwhelmed the optimistic investors and stock prices began to fall. The proposition that asset price bubbles are moderated when investors are allowed to short sell is also investigated in the literature through the use of experimental asset markets. Ackert et al (2000) for example, perform such experiments and find evidence that the availability of short selling is crucial to dampening asset price bubbles. An alternative approach in the literature short sales constraints argues that if short sales are restricted, the speed with which prices adjust to new information is dampened (Diamond and Verrecchia (1987)). Figlewski and Webb (1993) show that this effect is reduced if investors can create synthetic short positions through the use of derivatives. There may, however, also be factors other than regulations affecting the amount of stocks shorted. D'Avolio (2001) investigates the US market for borrowing stock and the results indicate that while short sales costs may be quite low on average, they are systematically high exactly when they are most critical, ie when investors disagree most.

### **2.3 Taxes and asset prices**

Taxes are important determinants of asset prices. Almost any change in tax rules will, at least in the short run, have an impact on asset prices. An obvious example is the taxation of housing. Increased property taxes will act to reduce the demand for housing, and, since the supply of housing is temporarily fixed, house prices will have to fall in order to restore equilibrium between supply and demand. This will act as a signal to reduce the amount of new construction, and over time house prices will tend to revert back towards the long-run equilibrium level determined by the cost of new construction. From the viewpoint of resource allocation, these asset price changes are desirable - provided that the tax change is desirable - because they give the necessary signals for a reallocation of resources. However, they

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<sup>27</sup> In the United States, the "uptick" rule for short sales prevents investors from selling short unless the last trade of the stock is at the same or higher price. This prevents short selling in a declining market. The purpose is to avoid situations where continuous short selling exacerbates falling stock prices.

represent a challenge to the extent that they may trigger a cumulative process of decreased lending and depressed asset prices, and thus contribute to financial instability.

### ***2.3.1 Tax asymmetries and interest deductibility***

One of the most widespread and long-standing distortions brought about by taxation systems is the bias towards debt financing at the expense of equity. In most tax systems, the costs of servicing debt are tax-deductible for the firm whereas the costs of servicing equity are not. By increasing its leverage, a firm can make shareholders better off by reducing the government's tax-take of earnings. Obviously, the tax benefit and the optimal level of leverage become larger the higher the marginal tax rate. However, not only does this increase the probability of default, which itself increases share price volatility, but it also makes the share price vulnerable to tax regime shifts. For households, interest payments are often fully deductible whereas many forms of investment income are taxed at lower rates.

Many taxation regimes are biased towards investment in particular assets. For example, home ownership is widely promoted by making mortgage interest payments tax-deductible while not fully taxing capital gains and imputed rental incomes, which can have significant effects on property prices. Asymmetries in the tax code can also affect the way in which investors receive returns; for example, high income and low capital gains tax rates make the retention of earnings preferable to distribution via dividends or share buybacks. In such contexts, a tax reform that has the legitimate intention to bring about neutrality between the taxation of different assets may cause dramatic adjustments of asset prices. Prices on previously tax-favoured assets decrease since the net present value of these assets falls as the tax subsidy is reduced. One example is the March 1988 announcement by the UK government that the total mortgage interest tax relief on all new loans secured on a single property after August 1988 would be limited to the ceiling. Previously, single people with mortgages on the same property had *each* been able to claim relief up to the ceiling. This policy change led to a large increase in housing market activity, and a large price rise, as new mortgages were sought before the deadline. An overview of the taxation of owner-occupied housing is provided in Table A.4.

An extreme example of the effects of interest deductibility is Sweden in the 1980s. Before 1983, mortgage interest payments were fully deductible against the owner's marginal income tax. With Sweden's progressive tax system at the time, this could imply deductions of more than 80% of the interest. Since 1983, interest deductions have been successively reduced and in 1989 the value of mortgage interest deductions was limited to a maximum of 47%. As a result of tax reform in 1991, the value of mortgage interest deductions was further limited to 30%. According to Agell et al (1995) this tax reform alone may have caused an immediate decline in housing prices by between 10 and 15%.

The United Kingdom has a longer history of reducing mortgage interest deductibility that may help to quantify the likely effect of such policy changes. From unlimited deductibility at marginal rates in the early 1970s, mortgage interest relief in the United Kingdom was sequentially scaled down, both by imposing ceilings on deductibility and by restricting the tax

rate at which deductibility occurred. Finally, in tax year 2000/01, mortgage tax relief was fully phased out. The value of deductibility in terms of the difference between pre- and post-tax mortgage rates declined from a peak of around 4 percentage points in the 1970s and early 1980s to 3% in 1990 and finally zero when the deductibility was abolished. The Bank of England estimates the effect on house prices of a 1 percentage point reduction in the user cost of housing (of which the post-tax mortgage cost is a major component) to be around 3%. The 3 percentage point reduction in user cost resulting from the phasing-out of mortgage interest relief since 1990 might have reduced equilibrium house prices by some 9% in the short run.<sup>28</sup>

In the Netherlands, where residential property prices rose by 216% in the period 1990-99, the authorities have recently reduced the incentives to invest in the housing market by altering the scope for tax deductibility of mortgage interest payments. Until 2001, interest payments on mortgages were fully deductible at the marginal tax rate (although since 1998 deductibility has been limited to that part of the mortgage debt spent on the purchase of the house). Since 2001 deductibility has been limited to the first house and restricted to a period of 30 years. At the same time, marginal tax rates have fallen, with the maximum rate dropping from 60% to 52%, thereby reducing the benefits of interest payment deductibility.

#### **Box 2.6 Japanese inheritance tax**

Japanese inheritance tax, a variant of estate taxes, has been cited as a possible contributory factor to the Japanese real estate bubble. The tax has a progressive marginal rate structure. In calculating taxable wealth, mortgages are fully deductible from the assessed property value, which corresponds to 70% of the estimated market value. Further, during a time of house price appreciation, the estimated market values tend to lag actual transaction values. This creates the incentive to purchase additional real estate (usually properties to rent) with high leverage to create negative asset values for tax purposes against which other assets can be offset. As property values rose during the price bubble, more property would be bought at higher degrees of leverage to maintain tax losses, creating an upward price spiral.

Evidence that this bequest strategy had a significant impact on overall house price inflation is not clear, however. The strategy was well known and was employed in particular by wealthy individuals. Further, the Japanese government acted against this policy, for example raising the tax assessment rate to 80% in 1992, although this may have been on the basis of fairness rather than as a direct countermeasure to the price bubble. However, individuals were net sellers of property during the bubble, with net positive demand coming from unaffected corporations, indicating that this specific tax measure was not the sole reason for general house price inflation even though it may have contributed to demand.

Sources: Japanese country note (2002); Bank of England.

Finally, in interaction with taxes, high inflation also favours high leverage. Nominal mortgage interest payments are deductible against personal taxes while capital gains are taxed at realisation, if at all. Owners of rental properties typically gain less as depreciation allowances are usually limited to historical cost and capital gains are sometimes taxed, but a benefit remains. The Australian tax system during the 1980s - a period of high inflation in Australia -

<sup>28</sup> Bank of England.

allowed full deductibility of nominal interest on loans for investment but only taxed real gains. Further, the capital gains tax was only payable on realisation. This may have favoured a rise in indebtedness and equity prices.<sup>29</sup> The tax effects of inflation can have far-reaching implications as countries go from a high-inflation to a low-inflation environment, and exacerbate the asset price drop generated by the rise in real interest rates.

**2.3.2 Transaction taxes**

Financial transactions are sometimes thought of as attractive sources of tax revenue. In practice, however, tax rates have to be set with a view to the elasticity of the underlying tax base. This implies that the trade in financial securities, which are highly standardised and more or less independent of location, should be subject to no or very small transaction taxes. An episode that illustrates this point well is the transaction tax on various financial instruments that Sweden introduced in the late 1980s. The trade in monetary instruments and bonds in Sweden was reduced by about 80% during the time this transaction tax existed. Some of the trade in financial assets moved abroad, notably to London, and some of the trade ceased.

The evidence is overwhelming that transaction taxes have substantial effects on volume, as the Swedish case illustrates. The effects on price volatility are less clear-cut. Empirical studies, based on experience with stamp duties in the United Kingdom, transaction taxes in East Asia and commissions on stock exchanges in the United States, also suggest that volatility effects due to transaction taxes are absent.

**Box 2.7 Transaction taxes on equities and bonds in Sweden**

In 1989, the excise tax rate on equities was doubled to 1% for both buyers and sellers. At the same time an excise tax on money market instruments and bonds was introduced. This tax was 0.15% of the compensation for both buyers and sellers. These tax changes were already announced in 1987 and had an immediate impact on the money and bond markets. The average daily turnover on the money market dropped from SEK 50 billion to a low of SEK 2 billion. About half of the turnover in Swedish stocks moved to London. The excise tax on financial assets was abolished in 1990.

Source: Lybeck (2000).

When it comes to the property market, the Belgian experience suggests that transaction taxes (“stamp duties”) may reduce price volatility. First, all sales are subject to a 12.5% “registration tax” (reduced to 6% for “modest” houses), which is extremely high by international standards. Second, non-owner-occupied property sales made within five years of acquisition are deemed speculative and are taxed at 16.5%. Such a high tax is enough to influence decisions that will result in reduced turnover in the property market.<sup>30</sup> Indeed,

<sup>29</sup> Australian country note (2002).

<sup>30</sup> The lock-in effect will lead (some) property holders to maintain their investment when they would otherwise have sold. The lower level of market liquidity raises the resale price risk of housing which, since this is a component of the user cost

Belgian real house price inflation (ie adjusted for CPI) averaged a modest 4.3% over the period 1986-2000 and never exceeded 10% per year in the 1990s.<sup>31</sup> The Japanese example shows however that transaction taxes are not sufficient to suppress large asset price fluctuations. In Japan, transaction costs in the property market have been substantial, but land prices in Japan rose threefold between 1985 and 1990, before returning to their previous level by 2000. Transaction taxes have been cut since 1998 but prices have continued to fall.

## **2.4 Inadequate transparency and disclosure policies**

As deregulation has progressed, asset markets have become more competitive, more complex, and also more accessible. Companies that seek financing can now reach a much wider range of investors than they could two decades ago, both nationally and internationally. And, as mentioned in Chapter 1, many of these new investors constitute households, directly or indirectly. These developments, internationalisation and widening ownership, have increased the need for transparency and information disclosure, both from individual firms and from public authorities. Theoretically, greater transparency would allow market participants to make informed judgments about asset prices and this should lead asset prices to better reflect fundamentals. This would minimise the incidence of phenomena like “disaster myopia” and “herd behaviour”,<sup>32</sup> and therefore reduce the likelihood of asset price distortions. Table A.5 provides an overview of basic disclosure requirements.

The responses to our questionnaires on the availability of price information confirm that with respect to equities, transaction prices are easily available, with little delay and at low cost. Bid-ask prices, a gauge for assessing demand and supply conditions, are also reportedly available in all countries participating in this study.<sup>33</sup> With respect to property prices, country responses suggest that ease of access to transaction prices on residential property, particularly at the local level, is mixed. While ask prices are available through newspapers, agents and municipal offices in virtually all countries, there are lags in the information and difficulties related to comparability. Bid and ask price information is unavailable for residential property in almost all countries even with a time lag, although there is no regulation preventing the release of such information. According to the country responses, price information for non-

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of capital, serves to reduce demand further. Of course, this means that trade is reduced overall, which involves (potentially large) welfare costs.

<sup>31</sup> Belgian country note (2002).

<sup>32</sup> When investors lack information on prospective business projects, they may be keen to observe other investors' behaviour in order to infer knowledge from their actions. Though this may be rational from the individual investor's point of view, it creates the risk of informational cascades or herd behaviour, ie situations when all agents choose the same behaviour (eg “invest in new technology stocks”), regardless of what information was there at the outset.

<sup>33</sup> Countries report that various websites, stock exchanges and newspapers offer quotes on stock prices on a real-time or close to real-time basis, at zero or no cost. They report that information is also available with respect to bid-ask spreads on stocks, although the time lag could be longer (15 to 20 minutes) for free information (Australia, Netherlands, Sweden and the United Kingdom).

residential structures is even more difficult to obtain in all countries, and available in some countries only with considerable time lags at the national level.<sup>34</sup>

Though the argument in favour of increased transparency is straightforward, country reports at large have been sceptical about the role of information in influencing asset price movements. Indeed, no report has identified episodes where inadequate disclosure has caused asset market turbulence. For example, the German report looks at the recent development in two markets (Neuer and non-Neuer Markt) and the differential information disclosure in these two markets. In many respects, information requirements were stricter in the Neuer Markt, yet this did not prevent a price bubble in “new technology” stocks.<sup>35</sup> Similarly, the Swedish authorities note the difficulties related to using information as a means of influencing expectations and the avoidance of extrapolative expectations.<sup>36</sup> Information and pronouncements running counter to continued property price increases in the late 1980s were not taken seriously. Warnings about irrational exuberance in the IT sector in 1999 and 2000 also appear to have gone unheeded for a long period. The Swedish report goes on to point out that the credibility of information will also be an important factor in shaping investor sentiment. We return to this issue in the next chapter.

### **3. Policy discussion**

History is filled with episodes of boom and bust in asset prices, many of which have had severe consequences for the real economy. The objective of this study has been to focus on the role of micro policies in some recent cases of asset market turbulence. From the cases presented in the previous chapter, it is clear that excessive price movements have sometimes been exacerbated or even initiated by deficient regulation and abrupt policy changes. Typically, high marginal taxes, generous tax deductions and lax supervision of financial intermediaries, often in combination with strong economic growth and high inflation, have sparked credit expansion and asset price surges. When some or all of these conditions have changed over a short period of time, often as a result of policy intervention, subsequent asset price crashes have been unavoidable. In some cases the asset price drops have been temporary in nature, presumably with moderate effects on the real economy, in others they have led to widespread bankruptcies, financial crisis and setbacks in economic development.

Although major improvements have taken place in most industrialised countries, primarily in macroeconomic frameworks, there is little evidence that excessive asset price movements have become less frequent. Indeed, even where overall price stability has been achieved, asset markets frequently exhibit periods of turbulence. To the extent that excessive asset price movements exert a negative externality on the economy as a whole, particularly when they put the financial system at risk, the source of these movements is a concern for policymakers.

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<sup>34</sup> Country notes from France and Germany (2002) suggest that prices for non-residential structures are not available even at the national level in these countries.

<sup>35</sup> German country note (2002).

<sup>36</sup> Swedish country note (2002).

With the experiences in the previous chapter in mind, we will discuss two related questions. First, how should authorities reduce the risk of destabilising asset prices in the first place? Second, in situations where asset price distortions are already under way, which micro policies, if any, seem appropriate to reduce the damage? These questions feed into a broader discussion of how to coordinate micro policies internationally.

*Creating the playing field: transparency, neutrality and robustness*

The most powerful insight we gain from the previous chapter is that abrupt changes in the micropolitical structure may have undesirable effects on asset prices. This is equally true if the policy measure was aimed at counteracting an undesirable asset price development in the first place. The experiences in the Nordic countries and Japan show how difficult it is to time such policy measures, and demonstrate that policy interventions might increase fluctuations instead of dampening them. Repeated policy failures point to the importance of creating a level economic playing field. Such a playing field could be characterised in terms of transparency, neutrality and robustness.

First, fiscal and monetary policy transparency has a bearing on shaping long-term expectations of inflation and on risk-adjusted rates of return. For this reason, several central banks have enhanced the transparency of monetary policy decisions. Moreover, fiscal policies in several countries include medium-term budget ceilings and restrictions on borrowing by governments. Macroeconomic information disclosure could help guide expectations by counterbalancing “disaster myopia” and “cognitive dissonance” in financial markets, whereby private markets tend to put greater weight on recent developments and dismiss future downswings and upswings.<sup>37</sup> In addition, easily available microeconomic information is important to keep expectations about potential earnings and the riskiness of specific industries, firms and financial intermediaries at realistic levels. As argued above, this should reduce the risk of herd behaviour in financial markets. Financial regulation has been geared towards greater reliance on market discipline through stricter disclosure rules and increased transparency. The G30 has presented far-reaching recommendations on information disclosure.<sup>38</sup>

Second, the examples presented in this paper indicate that a system that distorts incentives as little as possible should be a favourable starting point, ie a system of fairly neutral taxes and regulations. In many countries, this suggests measures such as reducing the tax bias towards leverage, limiting deduction possibilities, lowering marginal tax rates, and committing to a low-inflation policy. Nonetheless, the experiences from the 1980s show that such reforms must be implemented with prudence so as not to cause large asset price movements. When it comes to regulation, greater consistency of financial regulation, improved supervision of

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<sup>37</sup> Publications of expectations surveys and surveys on lending criteria (eg those undertaken by the Federal Reserve Board) could provide a useful basis for investors and creditors to compare their own assessments of risk, portfolio composition and lending terms with those of the market. This point has been developed in Chapter VII of the BIS 71st Annual Report, June 2001.

<sup>38</sup> Herring and Wachter (1999).

banks and a stricter stance as regards the financial safety net could increase market discipline and reduce moral hazard. Ridding the market of restrictions such as those on short selling and share buybacks should provide fewer opportunities for regulatory arbitrage.

Third, past experiences point to the virtues of a robust fiscal environment. After all, the problem is not asset price fluctuations themselves but the real effects they have on the economy. With a strong fiscal position, authorities can let society's automatic stabilisers absorb asset price shocks. In principle, the better the debt position, the smaller the probability that discretionary measures will be necessary. If investors and households are confident in the system's sustainability, there is also less risk that market manias or bank runs will come about in the first place. In this context, it is also important to think of stabilisers outside the realms of the central budget. For example, stable social security systems and pension systems should also reduce uncertainty and raise investor confidence.

#### *Regulating bank lending*

Obviously, in this context it is of the utmost importance to make the financial system less prone to excessive behaviour and more resilient to negative shocks. The current Basel Accord does not incorporate any potential increase in risk stemming from a rise in the price of the underlying bank asset or collateral. The capital requirements measured in absolute amounts are fixed at 8% (or 4% for loans based on residential housing), independent of the business cycle. Only very few countries' supervisory authorities possess the legal power to request individual banks to increase their capital above the minimum level should they find that the bank's risk exposure is too high.

One of the primary objectives of the proposed revised Accord is to forge a better link between risks and capital requirements. This includes capital requirements that change over time as the risks pertaining to the related asset increase or decrease. However, this approach may have some undesirable procyclical effects on the economy. It will lead to higher borrowing costs in an economic decline, and possibly to a reduced willingness by banks to extend loans. This will further weaken borrowers, who have already been hit by the decline. As discussed in the previous chapter, one promising policy tool to address the problem of procyclicality is dynamic provisioning. Such provisioning implies that banks incorporate the cyclical component of credit losses into their provisions, which would smooth credit losses over the business cycle.

The Basel Committee has also made efforts to alleviate these problems while maintaining the objective of financial stability. Probably the most efficient means to reduce the side effects of the quantitative capital rules is to use the supervisory review process, "Pillar 2", under the revised Accord. In this process, supervisors are given wide powers to use their discretion within a defined framework, for example to require individual banks to increase their capital ratios and to strengthen their risk management. Such supervisory requirements could be introduced when a loan is based on an asset whose value has increased to a level that is deemed unsustainable.

Furthermore, the proposed capital requirements encourage banks to take a proactive stance in their risk assessments, ie by applying “over-the-cycle” rather than “point-in-time” risk evaluations. In addition, the new rules request that banks use stress tests. In the event of unusually high asset prices, a stress test would presumably indicate high downside risks in terms of both default probability and the “loss given default”. Such results should imply that the bank sets aside more capital or takes other steps to reduce its risk.

*What if the worst comes to the worst?*

Even if the overall environment is reasonably sound to begin with, one cannot rule out the occurrence of troublesome asset market developments, which may threaten financial and macroeconomic stability. In recent years, a broad body of literature has emerged on the possibilities of using monetary policy to counteract asset price misalignments. Though it is too early to draw a final conclusion on that discussion, the difficulties of this approach are clear. First, the lags by which interest rate changes affect economic agents are substantial. This requires monetary policy to be implemented a relatively long time before the problems are manifest, which increases the risk of amplifying fluctuations rather than the opposite. Second, when particular asset prices set off in the opposite direction to aggregate demand and overall inflation, monetary policy cannot simultaneously target price stability and financial stability. Third, and this proviso applies more generally, the authorities would have to decide at exactly what point prices should be considered “misaligned”. Nevertheless, it would be wrong to rule out the use of monetary policy for counteracting certain asset price movements. Often, safeguarding the financial system and promoting long-term growth are well matched objectives.

In any case, since the use of monetary policy does have these drawbacks, it would be valuable if policy tools of a microeconomic nature could be applied. It should be noted that authorities historically seem to have tackled this question in an asymmetric way: when the use of regulation is mentioned as a policy option to dampen asset price rallies, it is often met with considerable hesitation. However, following negative shocks, such as the events of 11 September 2001, there was a quick response to prevent a collapse in asset prices. In addition to providing necessary liquidity to the market, a number of formal and informal “behind the scenes” measures as regards prudential policy and procedures were taken by the authorities.<sup>39</sup> Similar steps were taken after the stock market crash in 1987. It is clear that this sort of asymmetric behaviour may give rise to moral hazard problems.<sup>40</sup> If investors believe that the authorities will activate a “safety net” whenever the market experiences a negative

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<sup>39</sup> First, restrictions with respect to company stock buybacks were relaxed. Second, some securities trading firms strongly discouraged their analysts from announcing negative stock calls. The decision by some of these firms to avoid downgrades was intended to help militate against tendencies towards panic on the part of ordinary investors. Third, many investment firms discouraged their clients from short selling vulnerable stock. The Federal Reserve also indicated that it would take an “accommodating” stance with respect to a law from the 1930s preventing banks from using customer deposits to fund their risky broker-dealer business.

<sup>40</sup> For example, J-C Trichet stressed this point in his keynote address at the Asset Price Bubbles Conference at the Federal Reserve Bank of Chicago in April 2002.

shock, they have less incentive to limit their own risks. On the other hand, if this kind of intervention is deemed necessary, it is not clear why prudential action should not also be taken in upturns.

We can conclude that there are some measures that are largely inappropriate, in that they have little or no effect on the problem at hand while at the same time having undesirable side effects. A striking example was the “Tobin tax” on equity and derivatives introduced in Sweden in the 1980s, which effectively moved all trading activity from the Stockholm Stock Exchange to London. Though other instruments may be better suited to decrease the risk of excessive price movements, side effects in the form of losses in allocative efficiency will always be present. A more promising avenue is probably to use measures directly aimed at financial sector participants. Examples of this are raising the capital requirement for certain loans (Norway in the late 1990s), gradually reducing LTV ratios as asset prices rise (Hong Kong), or strengthening financial supervision. Such measures are not without costs, but appear feasible if the situation is considered pressing. In general, property price distortions have tended to have harsher effects on banking systems, and thus greater real effects. At the same time, property markets are less standardised and integrated than equity markets. This means that local micro policy measures are more likely to have an effect on property markets than on equity markets.

Probably the least harmful way for policymakers to influence a development in asset markets that threatens to lead to price turbulence is by providing information. Several central banks feel that they have positively influenced market stability by exercising greater transparency regarding the analyses and intellectual frameworks on which they base their monetary policy. Similarly, a number of central banks have chosen to publish regular reports on how they view the situation in the financial sector. It may be that these stability reports have not yet been tested in situations where financial turbulence has been imminent. Still, thorough analyses of the risks of excessive asset prices movements and their effects on the financial system should have a stabilising impact on the behaviour of financial players.

#### *The way forward*

This paper has focused on equity and property markets. This is a natural starting point, since developments in these markets have played a significant role in many financial crises. However, other markets, for example the derivatives and fixed income securities markets, are becoming increasingly important, not least for risk management purposes. In fact, most of the models on which modern financial technology builds presuppose access to well functioning securities markets. With disruptions in these markets, the foundations of high-tech financial constructions could easily give way. A drastic case that illustrates this danger is the sudden collapse of portfolio insurance as a result of the 1987 stock market crash.<sup>41</sup> As long as the stock market behaved normally, everything worked well. But when the market broke down,

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<sup>41</sup> Portfolio insurance is basically a Black-Scholes option hedging strategy. It had been introduced to the market in the early 1980s and was aimed at offering clients cheap insurance against stock market breakdown.

panicking players failed to do their job of market-makers, and the portfolio insurance scheme became untenable.

Clearly, there is still much to learn about the interactions between asset prices, macroeconomic fluctuations and micro policy. For countries within monetary unions, there is a further dimension to these issues as monetary policy can no longer be tailored to national needs. This is likely to increase the importance of other policies to deal with the issues of national asset price shocks and national financial stability. More generally, increased economic integration makes national policy intervention difficult and increases the need for international coordination of financial regulation and supervision. This institutional challenge undoubtedly deserves continued attention from regulators and policymakers.

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## Appendix

**Table A.1 Generic types of regulation and instances**

<b>Regulation</b>	<b>Instances of regulation</b>	<b>Reason for the regulation</b>	<b>Preventative/ defensive</b>	<b>Potential adverse consequences</b>
Interest rate restrictions	United States - Regulation Q		–	In the event of high inflation, this regulation reduces real interest rates and encourages excess investment
	Sweden - prior to deregulation measures in the 1980s.	To prevent high interest rates from crowding out investment in housing and long-term capital	–	Prevents price competition among financial institutions
	Ireland - prior to deregulation measures in 1988		–	
Capital adequacy ratios	Basel Capital Accord - international arrangement	To strengthen the soundness and stability of the international banking system	Preventative	Led to particular problems in Japan with relation to Tier 2 capital
Bad loan provisions	Sweden - rule for provisioning for non-performing loans became more stringent	To strengthen regulation, subsequent to falling asset prices and the banking crisis	Defensive	Procyclical timing had negative impact on banks
Liquidity ratios	Ireland - introduced in 1972.	To meet requests for withdrawal of	–	

**Table A.1 Generic types of regulation and instances**

<b>Regulation</b>	<b>Instances of regulation</b>	<b>Reason for the regulation</b>	<b>Preventative/ defensive</b>	<b>Potential adverse consequences</b>
		deposits		
Statutory redeemability	Universal	To enhance the liquidity of deposits	Defensive	Bank vulnerable to runs May contribute to asset price volatility by conferring par value status on deposits
Statutory deposit insurance	Universal	To protect depositors	Defensive	Undermines the incentive of depositors to monitor banks' loan and portfolio decisions
Quantitative restrictions on overall credit	Hong Kong SAR - guidelines issued in 1994 under which the ratio of property lending to total lending was to be kept below 40%	To prevent excess lending to the property market  This guideline was subsequently withdrawn in 1998 when the property market was no longer overheated	Preventative	
	Sweden - prior to deregulation in the 1980s, banks were subject to credit limits		Preventative	
Sectoral restrictions on loans	Japan - in April 1990, banks' lending to the real estate sector was capped	To combat the bubble in land prices	Preventative	Introduced too late? - may have caused the land price bubble to burst
	Sweden - prior to deregulation in the 1980s	Priority lending to housing and the government budget was required	-	May stifle growth of other private sector enterprises, which require funds

**Table A.1 Generic types of regulation and instances**

<b>Regulation</b>	<b>Instances of regulation</b>	<b>Reason for the regulation</b>	<b>Preventative/ defensive</b>	<b>Potential adverse consequences</b>
	Ireland - prior to deregulation in 1986	To direct lending to productive enterprises. The property market was not perceived as being productive	–	May result in pent-up demand for credit
Valuation rules for collateral	Sweden - 1990s, valuation method changed to mark-to-market valuation	To strengthen regulation, subsequent to falling asset prices and the banking crisis	Preventative	Procyclical timing had negative impact on banks
	Hong Kong SAR - maximum loan value, based on lower of valuation or purchase price		Preventative	
LTV ratios	Sweden - cap of 75% existed for banks in 1980s, but not for finance companies	To help limit exposure to individual properties	Preventative	Inequality of regulation can cause perverse incentives
	Hong Kong SAR - guideline of 70%	To help limit exposure to individual properties	Preventative	
Caps on loans/loans to one borrower	Sweden - cap of 25% of banks' own funds was the maximum exposure allowed to one agent	To strengthen regulation, subsequent to falling asset prices and the banking crisis	Preventative	

**Table A.2 Restrictions on LTV ratios**

	Residential mortgage market		Non-residential mortgage market	
	Type of restrictions	Limitations on LTV ratios	Type of restrictions	Limitations on LTV ratios
AU	Regulatory	80%, or 100% if insured	None	None
BE	None	None	None	None
CA	Legislative	75%; or 95% if insured	None	None
FR	Legislative	(na)	Legislative	60%
DE	Regulatory	Mortgage banks: 60%	Regulatory	Mortgage banks: 60%
HK	Regulatory	70%	Regulatory	Prudent criteria required
IE	Legislative	Only for MBSs <sup>1</sup> : 80%	(na)	(na)
IT	Regulatory	80%; or 100% if guaranteed	Regulatory	80%; or 100% if guaranteed
JP	None	None	None	None
NL	None	None	None	None
ES	Legislative	(na)	(na)	(na)
SE	None	None	None	None
CH	None	None	None	None
UK	Regulatory	Building societies only	Regulatory	Indirect
US	Regulatory	90% if not guaranteed	Regulatory	Indirect

*Specific points:*

United Kingdom Loans to the value of 75% of building societies' assets must be fully secured on residential property (LTV<100%). The remaining 25% can be made up of commercial property loans; this lending can be secured or unsecured.

United States Supervisory limit of 85%. Institutions involved in higher LTV lending should implement risk management programmes that identify, measure, monitor and control the inherent risks.

Source: *Asset prices - the role of micro policies*, G10 questionnaire (2002)

<sup>1</sup> Eligibility of mortgages for use in mortgage-backed securities is limited to loans with an LTV no greater than 80%.

**Table A.3 Regulation, tax treatment, disclosure requirements on share buybacks** (Source: replies to G10 Questionnaire (20 July 2001), supplementary questions A8, B1, and C8)

	<b>Regulations with respect to share buybacks</b>	<b>Tax treatment with respect to share buybacks</b>	<b>Disclosure requirement on share buybacks</b>
AU	Authorised Deposit-Taking Institutions: prior approval is required in specific cases. General insurers and life insurers: no restrictions, provided capital adequacy requirements are met.	Generally no income tax or CGT consequences. Expenses are non-deductible	A statement setting out all information known to the company. Before a buyback can be passed by shareholders, the company must lodge all offer documents with the regulator.
BE	Own shares are deducted from capital for capital adequacy purposes.	Deductibility is partial. Difference between price paid for the shares and paid-up capital is a dividend payment (and taxed).	na
CA	Federally regulated financial institutions should receive the consent of the Superintendent (Bank Act, Trust and Loan Companies Act and Insurance Companies Act).	Expenses are non-deductible.	Companies must disclose at least once a year that they are undertaking a bid for a maximum number of shares. There are detailed requirements.
FR	Authorisation of the general meeting of shareholders is required. See Regulation 90-04 of the French Securities Commission (COB) and Act DDOEF no 98-546 of 2 July 1998.	Buybacks are generally treated as standard income distribution, and in some specific cases as capital gains. Expenses are generally non-deductible (98-548 Act of 2 July 2000).	The share buyback programme has to be publicly announced. For quoted firms, the French stock exchange regulation applies for public information disclosure.
DE	Allowed since 1998. Section 71 ff Companies Act. Authorisation of the general meeting of shareholders is required. Limited to 5% of capital.	Only shares which may be capitalised after buyback can give rise to tax deductions.	Disclosure within one week of buyback to the Bundesaufsichtsamt für den Wertpapierhandel (BAWe) only if 5% or 10% threshold of voting rights is passed.
HK	Requirements in Companies Ordinance, Listing Rules and Code on Share Repurchases. Listed companies: limit of 25% of last month's volume. For shares purchased other than on the stock exchange, the company must seek prior approval of independent shareholders.	It depends on whether the share buybacks constitute a trade. If they do, gains are taxable while expenses are deductible.	Buyback must be reported to the stock exchange within 1 day. Buybacks must be reported in annual report and accounts. The disclosure is similar to a general offer document as required by the Hong Kong Code on Share Repurchases.
IE	A company cannot acquire its own shares unless it fall into one of the specified exemptions as outlined in section 41 of the Companies Act. Prior approval of the central bank is required for credit institutions, to ensure capital adequacy.	Expenses are non-deductible.	If a company buys its own shares back, the financial statements of the company must provide a variety of information in relation to the shares it purchased during the year.
IT	Cost must not exceed distributable profits and available reserves. Authorisation by shareholders' meeting. Limited to 10% of capital. Banks: own shares are deducted from core capital.	No special tax treatment. Costs of own shares are not deductible; realised and unrealised capital losses are deductible from taxable income.	The assets side of the balance sheet must show the repurchase. A special unavailable reserve equal to the amount of the repurchase must be shown on the liabilities side.
JP	Certain conditions must be satisfied.	Expenses are non-deductible.	na
NL	Amount should be deducted from "other reserves". Only a maximum of own shares may be held; 10% for NV companies (Plc) and 50% for BV companies (Limited).	The excess of the purchase price over the average capital attributable to shares is considered as a distribution of profits, on which firms should in principle levy a 25% withholding dividend tax. Expenses are non-deductible.	The amount of the share buyback has to be deducted from equity, which has to be disclosed. The reasons for the buyback, as well as the number of shares, nominal value and the purchase price, have to be disclosed too.
ES	Non-financials: authorisation by shareholders' meeting is required. Limited to 10% of share capital (5% for listed companies). Credit institutions: authorisation by supervisory authorities is required.	Capital gains from sale and purchase of own shares are subject to usual corporate income tax. Buyback expenses are effectively deductible, as they are added to the purchase value.	Quoted companies should report to the stock market any change in own stocks held exceeding 1% of their total capital and publicly report holdings of own stocks in annual reports.
SE	Authorisation by general meeting of shareholders is required. Holding is limited to 10% of share capital.	No deduction for expenses, and gains/losses on acquired shares taxed as ordinary income.	Buying and selling of own shares must be disclosed before start of trading. The disclosure must comprise, among other things, volume and price of the transactions.
CH	Freely disposable equity must be available and total par value of these shares must not exceed 10% of share capital.	The difference between purchase price and nominal value of these holdings will be taxed at the rate of 35%.	No information available.
UK	See Chapter 15 of the Listing Rules. In the case of equities, shareholder authorisation must be obtained and regulations govern the method of purchase.	In general, the part of the sale price exceeding repayment of capital is treated as a distribution. For the shareholder company, this is taxed as a chargeable gain. Expenses are non-deductible.	In certain cases, a tender offer with notice in national newspapers is required. All purchases must be notified to the Company Announcements Office (15.9).
US	Considered on a case by case basis.	No	No specific disclosure requirements. SEC has guidelines on when and at what price a company can buy back own stocks.

**Table A.4 Treatment of owner-occupied housing**

	Acquisition cost payable out of tax income or deductible	Interest on loan for acquisition payable out of taxed income or deductible	Capital gain taxable or exempt	Imputed rental income taxable or exempt	Income tax rates	Wealth tax on housing	Inheritance tax on housing
AU	T	T	E	E	(na)	no	no
BE	PD	PD	E	T	25 to 55	no	yes
CA	T	T	E	E	22 to 53	no	no
FR	T	T	E (occupied > 5 years)	E	8 to 53	no	yes
DE	T	T	E	E	20 to 49	no	yes
HK	(na)	PD	E	E	2 to 17	no	yes
IE	T	PD	E	E	20 to 42	no	no
IT	T	C	E (occupied > 5 years)	E	18 to 45	no	yes
JP	T	D	E	E	10 to 37	no	yes
NL	T	D	E	T	32 to 52	no	yes
ES	D	PD	E (reinvested < 2 years)	E	18 to 48	yes	(na)
SE	T	PD	T	T	30	yes	no
CH	T	D	T and E	T	(na)	yes	(na)
UK	T	T	E	E	(na)	no	yes
US	T	D	E	E	(na)	no	yes

(D = deductible, E = exempt, T = taxed, C = credit and PD = partly deductible)

Source: *Asset prices - the role of micro policies*, G10 questionnaire (2002).

**Table A.5 Information disclosure: some basic elements**

Providers	Nature of information	Objectives of disclosure
<p>Firms, stock exchange</p> <p>Real estate agencies, real estate and other associations, statistical agencies</p> <p>Firms</p> <ul style="list-style-type: none"> <li>• Earnings-related</li> <li>• Risk-related</li> </ul>	<ul style="list-style-type: none"> <li>• Accurate, timely, comparable transactions prices, bid-ask prices on assets</li> <li>• Inventory level for assets in fixed short-term supply</li> <li>• Timely financial statements providing accurate and clear profit/loss reports; balance sheets with clear explanation of off-budget liabilities; clarity and adequate explanation of accounting practices that impinge on profits eg treatment of employee stock options; stock buybacks</li> <li>• Credit ratings, use of derivatives, loan/asset concentration; value at risk by sector; loan provisioning</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of current market value of assets, assessment of demand and supply conditions for specific asset</li> <li>• For investor assessment of expected earnings</li> <li>• For investor assessment of risk</li> </ul>
<p>Monetary and fiscal authorities</p> <p>Statistical agencies, central banks, international agencies</p>	<ul style="list-style-type: none"> <li>• Monetary and fiscal policy frameworks and objectives; government borrowing plans</li> <li>• Economic information (aggregated): prices of goods and assets, production; indebtedness; country assessments</li> </ul>	<ul style="list-style-type: none"> <li>• For investor assessments of credit and macroeconomic conditions</li> <li>• For investor assessments of risk and economic conditions</li> </ul>