

# The **EEAG** Report

## on the European Economy

# 2009



ECONOMIC OUTLOOK  
THE FINANCIAL CRISIS  
PRIVATE EQUITY  
FRANCE

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### **2009**

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## FOREWORD

This edition marks the eighth annual report of the European Economic Advisory Group (EEAG) at CESifo. The past year was a shock to all of us, recalling events of 1929. The development was worse than expected even though in last year's report we projected a very bleak economic outlook after discussing the subprime crisis in detail. This year we know more about the events and have more to say. The report contains a long and extensive chapter on the financial crisis and a chapter on the macroeconomic outlook showing the uniqueness of what has happened and what is yet to come. We do not subscribe to doomsday scenarios concerning capitalism as such, but do recommend tougher minimum equity constraints and substantial measures to create a common regulatory framework for the financial system of Europe, similar to the one we had proposed in our 2003 EEAG report. To bring more objectivity into a heated debate, the report also analyses the role of private equity funds, coming down with a basically positive view of these institutions. An innovation of this year is our in-depth study of the economic situation in one European country. We have chosen to start with France, which is undergoing major economic reforms and is therefore particularly interesting. Non-partisan as the Group is, it can offer fresh and unconventional views – all firmly based on sound economic reasoning – for policymakers and academics.

The EEAG, which is collectively responsible for this report, consists of a team of nine economists from eight European countries. This year, the Group is chaired by Gilles Saint-Paul (University of Toulouse) and includes Giancarlo Corsetti (European University Institute, Florence), Michael Devereux (University of Oxford), John Hassler (Stockholm University), Tim Jenkinson (Oxford University), Jan-Egbert Sturm (KOF Swiss Economic Institute, ETH Zurich, vice-chairman), Xavier Vives (IESE Business School) and myself. Additionally, we thank Pentti Kouri, who will join the Group as an active member this year, for helpful comments. The members of the Group as a whole are responsible for all chapters. They all participate on a personal basis and do not represent the views of the organisations they are affiliated with.

As always, the report benefited greatly from the support of the Ifo Institute, which provided the European economic forecast, as well as from help provided by the Center for Economic Studies of the Economics Faculty of the University of Munich. I wish to thank the members of the group for investing their time in a challenging project and I gratefully acknowledge valuable assistance provided by Maximilian von Ehrlich (research co-ordinator), Darko Jus (research assistant), Atharv Tillu (research assistant, chapter 3), Oliver Hülsewig (economic forecast), Paul Kremmel (editing), Christoph Zeiner (statistics and graphics) and Elisabeth Will (typesetting and layout). Moreover, I wish to thank Swiss Re for hosting our spring meeting.

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President, CESifo Group  
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Munich, 20 February 2009

## SUMMARY

This is the eighth report of the European Economic Advisory Group. Like the previous ones, it starts with an assessment of the macroeconomic outlook. In preceding reports this first chapter was usually followed by topical chapters that dealt with medium and long run issues relevant to the European economy as a whole. This year, the report is structured differently. A sense of mayhem struck the world economy in autumn 2008 as the financial crisis suddenly gathered momentum and started spreading to the real economy, which slid into recession. Chapter 2 provides a detailed account of the crisis and the various stages of its development, and highlights key policy recommendations regarding regulation of financial institutions and international financial architecture. We argue that regulations such as minimal equity requirements should be extended to all bank-like institutions rather than be confined to the commercial banking sector, that a more sophisticated definition of value-at-risk should be introduced to take into account the possibility of high liquidity premia and of asset bubbles, and that there is a need for a common system of financial regulation and supervision at the European level.

The crisis has fuelled an ongoing debate about the virtues of financial capitalism and none of its components have been spared. In particular, among the many innovations that have appeared in the last two decades are private equity firms that are under close scrutiny and criticism in some circles. Chapter 3 analyses how these firms work and how they contribute to the allocation of resources. Overall, we are sceptical of the critiques and think there is no systemic risk associated with these firms. (Their liabilities have little leverage and while they do leverage their investments, this is associated with little covenants and hence low risks of bankruptcy.)

From now on, each edition of the EEAG report will include one chapter that focuses on one EU member country. This year that chapter is devoted to France, which elected a new president in 2007 with promises

of bold economic reform. We provide a mixed assessment of those reforms; having a large number of reforms does not necessarily mean large economic effects if those reforms run in different directions and may well be reversed in the future. We find more promise in the broad reform of the government than in the areas of taxation, the welfare state or product and labour market regulation, where there appear to be many inconsistencies.

### Chapter 1: Macroeconomic outlook and policy

The worldwide financial crisis reached a critical stage in autumn 2008. While for a long time the problems were limited to providing liquidity to the banking sector, the situation escalated when some of the big financial institutions turned insolvent. To prevent a breakdown of the global financial system, governments had to intervene on a large scale in nearly all industrial countries. This was nevertheless not able to avert a worldwide drop in economic sentiment and subsequently large parts of the world economy fell into recession last year. After four years of rapid expansion, average world GDP growth only reached 3.4 percent in 2008 when using PPP weights or 2.3 percent when using market rates. For this year we only expect a world GDP growth rate of 1.4 and 0.3 percent, respectively.

During the first half of last year, the US economy still experienced positive growth. Although employment already started to fall in January, production increased and most of the available business cycle indicators pointed towards a continuation of moderate growth. From a demand-side perspective, a fiscal stimulus plan initiated in early 2008 was able to keep private consumption growth positive during the first half of the year. The situation changed dramatically, however, at the end of the summer. Industrial production and capacity utilisation plummeted in August. Furthermore, in September the US government decided against a bail out of the investment bank Lehman Brothers, triggering a severe drop in sentiment indicators and investment activities. From June onwards, personal consumption expenditures declined as well.

Consequently, in last year's third quarter, GDP growth turned negative in the US.

The fiscal budget deficit in the fiscal year 2008 increased to 3.3 percent of GDP. The increase in expenditures by 9 percent was the highest increase since 1990. For fiscal 2009 and as a reaction to the persistent crisis in the banking and financial systems, the US government decided to implement a sizeable rescue package. Furthermore, the Federal Reserve cut their target rate from 5.25 percent in September 2007 to only 0.25 percent at the end of last year.

Despite expansive fiscal and accommodative monetary policy, the recession in the United States will continue throughout the year. GDP will decline by 1.0 percent this year. Only at the end of 2010 is a slow recovery expected. This downturn will be so persistent mainly because US consumers have been living beyond their means for too long. To allow for a way back to a sustainable growth path, this behaviour must now be corrected. Only net exports will be able to contribute positively to economic growth in the US.

In general Asian markets have so far been able to play a stabilising role in the current crisis. Although their savings enabled the huge US current account deficit and consequently the US consumer boom in the first place, the reserves they have built up this way are now helping to stabilise the global economy. Since 2005 the growth differential between Asia and the US has increased. Still, economic growth in Asia remains dependent upon developments in the US, and the trade surpluses and the growth contributions of net exports decreased substantially.

As all of the major developed economies are in recession, export- and investment-driven expansion in many Asian countries will be affected more strongly in 2009 and 2010. Although domestic demand will be able to continue to grow in most economies for some time and the global financial crisis has already triggered a complete reversal of monetary policy in the region, growth will further slow down.

#### *The European economy*

After a still relatively positive outlook at the beginning of last year, the economic climate deteriorated markedly as the year progressed. The turbulences on international financial markets as well as the collapse in sentiment seen within the industrial sector

and amongst consumers throughout Europe in the second half of the year have increasingly been reflected by data on real economic output. Accordingly, most European countries are or will soon be in recession. This means that, unlike in the past, national demand shortfalls will not be offset by growth in other countries and growth in final domestic demand in the European Union will reach an all-time low. Against this backdrop, GDP will decline by 1.2 percent this year.

Overall, the consolidation of public finances stopped and both actual and cyclically-adjusted fiscal balances deteriorated; fiscal consolidation no longer is on the top of the agenda. Especially since the autumn, member states continue to announce rescue packages, first of all for the banking sector, and more recently for the other parts of the economy.

After an additional tightening at the beginning of last year due to a further appreciation of the euro, the monetary conditions in the euro area stayed at restricted levels until summer last year. Since then, the ECB has gradually been lowering interest rates, but the still strong euro prevents monetary conditions from being called loose at present.

Especially in those countries facing a sharp downturn in the property market, in particular Ireland, Spain and the United Kingdom, there were large falls in residential investment spending throughout the year. Overall, low investment will put a burden on growth in Europe this year. A combination of falling profits, tougher financing conditions and lower growth prospects has sharply reduced the willingness of firms to invest.

Whereas private consumption was still an important pillar for economic growth in Europe in 2007, it basically stagnated in 2008. Increased inflation rates during the first quarters and slowly deteriorating labour market conditions together with sharply deteriorating financial prospects thereafter have all had a negative impact on consumer behaviour. However, rapidly falling inflation rates at the end of last year allowed consumption to slowly pick up again. Of the demand components only private and public consumption will be able to positively contribute to economic growth this year. Those countries suffering a real estate crisis will face substantially lower consumption growth.

Despite the strength of the euro, net exports contributed positively to GDP growth in the European

Union last year. The slowdown in export growth was met by a comparable fall in import growth rates. Only at the end of the year did the trade surplus start to fall as imports picked up. Much weaker demand from the rest of the world will lead to a further slowdown of export growth.

The unemployment rate has been increasing since the first quarter of last year. Weak business cycle developments will lead to an increase in the unemployment rate to an average of 8.1 percent in the European Union this year, and it will continue to rise throughout the rest of our forecasting horizon.

## Chapter 2: The financial crisis

Chapter 2 reconsiders the micro and macroeconomic roots of the financial crisis.

### *The process of securitisation*

The chapter starts from the analysis of the process of securitisation of subprime mortgages in US mortgage market, where all the evil originated. Through this process, cash flows from heterogeneous mortgage contracts between borrowers and banks were transformed into homogenous asset backed securities (ABSs), with distinct ratings, traded in global markets. Per se, securitisation is a good idea: by favouring diversification of mortgage risk, it can allow intermediaries to increase lending, to the benefits of households and firms. However, because of a combination of macroeconomic factors, bad/insufficient regulation and agency problems, in the last few years this process was fundamentally flawed. First, massive undervaluation of fundamental risk and market liquidity risk caused both the origination of subprime mortgages, and the issuance of ABSs with AAA ratings derived from the underlying pool of mortgages to be excessive by any reasonable standards. Second, several layers of securitisation, each involving some form of credit enhancement and insurance, translated into high opacity of ABSs, which hampered the ability of an intermediary to assess the amount and the location of risk in its portfolio. Finally, risk diversification was only apparent, in the sense that the high-rating ABSs sold to end-investors (pension funds, mutual funds, etc) were guaranteed by intermediaries – when the crisis erupted, in large part ABSs were absorbed back by highly leveraged financial institutions. With a high level of opacity, diversification of ABSs among intermediaries actually created systemic risk by generating

dangerous network externalities, which eventually undermined market liquidity for many classes of assets and financial markets.

### *Two phases of the crisis: from soft- to hard-landing*

The chapter analyses two distinct phases of the crisis. During the first phase, from 2007 to the summer of 2008, policy-makers believed in a smooth exit from the crisis (the “soft-landing” scenario). The prevailing view was that the fundamental problems at the root of the admittedly dangerous pathology in money markets were relatively manageable, in the sense that they could be absorbed over time by adopting a two-armed policy approach. On the one hand, central banks would make up for the lack of liquidity in the inter-bank markets by providing financial intermediaries with enough cash to operate without relying on each other for credit. Liquidity provision would then buy time for banks to restructure, namely, to raise new equity capital, and write-down bad debt – while containing the need for sharp de-leveraging, with the associated negative effects on real activity. On the other hand, treasuries and central banks would intervene on a case-by-case basis to support banks under threat of failure – either as a result of a run or because of fundamental losses (the main principle driving interventions being the need to preserve the functioning of large intermediaries with many market interconnections, whose failure would have strong systemic effects).

The second phase (hard-landing) erupted when co-ordination of expectations on the soft landing hypothesis ended in July-August 2008. The assessment and perception of the magnitude of the financial crisis rose with new figures on mortgage delinquency rates and the Federal Deposit Insurance Corporation took over the California-based Indymac Bank, then hit by a run on deposits. In response to spreading financial turmoil, the Treasury stepped up its commitment to support Fannie Mae and Freddie Mac in July, making the government guarantee explicit at first, before placing them under federal conservatorship at the beginning of September. Most crucially, the view that the real economic sector would be spared no longer held up against the evidence.

The difficulties of the government to present a coherent and possibly co-ordinated plan to address the crisis almost cause a run on deposit in mid-October, when nervous investors started to withdraw cash from banks (many newspaper reported an unusual rise in

the demand for home safes), and many switched banks in pursuit of intermediaries backed by the strongest government guarantees.

An important element in our interpretation of the soft landing phase is the fact that, initially, the effect of the crisis on deleveraging was quite contained. In the hard-landing scenario after autumn 2008, it is quite likely that the world will experience a deleveraging cycle, possibly with an impact on the level of activity by firms and the spending plans of households. Since September 2008, global rebalancing has been proceeding in the form of substantial write-downs by financial intermediaries. Against estimates of total losses by financial intermediaries ranging from \$1.4 trillion (IMF 2008) and \$3 trillion, at the end of 2008 total reported write-downs amounted already to around \$1 trillion.

#### *Lessons from the crisis and proposals for reform*

In the wake of the crisis, proposals of reforms abound. In this report, we focus on deriving a small set of lessons from the crisis towards the definition of broad-based principles to follow in correcting the flaws in the system. The merits of different proposals do not necessarily lie on their being radical but on their consistency with the ultimate goals of public governance of financial system.

Some of these lessons are shared by many other institutions and scholars. Intermediaries that, like banks, engage in maturity transformation and are exposed to liquidity runs should be subject to the same principles of regulation and supervision as banks. Regulation and supervision is motivated by the implicit government commitment to bail out the intermediaries when their default has systemic effects and negative externalities on the payment system. Bankruptcy of commercial banks threatens the payment system directly, via its implications for depositors. For other intermediaries, one argument is that such threat is rooted in the network externality, via the systemic implications of their bankruptcy for market liquidity and the balance sheets of other intermediaries. Indeed, with the subprime crisis, trust among banks evaporated: the interbank market virtually collapsed. A different view is that the activities of these intermediaries grew into a threat to financial stability *because* bailout guarantees according to the too-big-to-fail doctrine provide an incentive for them to grow excessively, take on excessive risk, and become too leveraged. Unless these guarantees can be eliminated completely – which is

not credible in light of past and recent experiences – it is rational to associate the provision of contingent public resources to regulation and supervision.

Thus, investment banks, as well as any other institution that performs bank functions must be subjected to the same rules that apply to commercial banks. The regulatory constraints should be dependent on the type of business rather than the legal status of the bank that pursues this business. This applies in particular to capital requirements.

First of all, broad international agreements must be finally reached on the harmonisation of banking supervision. These agreements can be based on a reformed Basel-II system, which encompasses all institutions performing banking functions and takes into account systemic and cyclical factors. Minimum equity requirements in Basel II should be reconsidered, so as to increase the incentive for shareholders to pursue more prudent business models and choose more conservative incentive schemes for bank managers. In any case, failures of corporate governance controls and pitfalls in executive compensation should be addressed.

The apparent failure of the current system to elicit the use of proper models of risk assessment by intermediaries and guarantee transparency is perhaps the main sticky point for rebuilding trust in the financial system. Simply increasing a coefficient of equity requirement will not do. What matters is instead a standard of asset valuation that (eventually) addresses the main problems in prudential regulation: the possibility of mispricing due to bubbles and market illiquidity, generating non-fundamental volatility of asset prices; procyclicality of lending; and transparency and information to investors.

Second, whenever possible, derivative products, such as CDS, should be traded in transparent, organised markets and not in opaque OTC markets. A common argument is that, while centralised trade may be feasible for some derivative products, many others are specialised and designed specifically for an investor/company, so that no organised market would be economical. However, following the recent problems of marking to market when no market exists, those buying such products probably now realise a major benefit from having centralised, transparent and liquid markets for derivatives. The specific needs of customers, in many cases, can probably be addressed by forming appropriate portfolios of existing contracts traded on

liquid markets. By the same token, short sales should not be prohibited; instead vigilance of potential market manipulation should be enhanced.

Fourth, Europe needs a common system of financial regulation and supervision. The European System of Central Banks should assume an explicit role of guarantor of the system, acquire supervisory powers over European groups, and coordinate with national central banks the national financial intermediaries. We propose a two-tier system. For pan-European financial groups, supervision should be allocated to the European Central Bank. These groups should then be required to subscribe to a European Deposit Insurance Fund, to complement national deposit insurance schemes. Otherwise countries should individually have the responsibility for bearing losses created by their own intermediaries.

Fifth, the specificity of the banking sector in competition policy should be recognised explicitly and formally. This would ensure coherence between competition policy and financial stability policy, and help stem the political pressure to extend financial bailouts to other sectors of the economy.

Furthermore, it is highly advisable to reconsider limited personal liability limitations for mortgages and other real-estate loans where they exist (such as in the United States). The promotion of home ownership should be examined carefully from a financial point of view, given the potential systemic implications of incentives raising the risk profile of borrowers against public guarantees.

### Chapter 3: Private equity

Private equity plays an important role in the financial system. The few years before the credit crunch were probably the most favourable that had ever existed for private equity – with abundant capital, low interest rates, increasing stock market values, and a truly amazing willingness amongst banks and other investors to provide debt financing on a scale and on terms never previously observed. This led to a huge expansion in the amount of capital allocated to private equity funds, and an associated broadening of their sights: private equity funds acquired some multi-billion euro companies, and concluded deals in virtually all sectors of the economy. Consequently, private equity funds currently control a significant fraction of the businesses in many European countries.

With this increased scale of activity has, inevitably, come increased public interest, particularly regarding one type of private equity: leveraged buyouts. Concerns have been expressed regarding the extent and sources of value creation, transparency, and taxation issues. However, much of the debate in the media and amongst politicians has been characterized by misunderstandings about the workings of private equity. This is not entirely surprising given the secretive nature of many private equity funds. The first contribution of this chapter is to provide a brief primer on private equity, which documents its growth within Europe and shines some light into the workings of the sector.

#### *Does private equity create value?*

The economic impact of private equity can be measured in various ways. Financial returns are clearly the key objective for the funds and their investors. Here the evidence within Europe is mixed: early stage venture capital has produced very poor returns on average, whereas the returns on leveraged buyouts, in recent years, appear to be impressive. However, it is difficult to benchmark these returns – for instance against those earned by publicly quoted companies – without adjusting for risk. And adjusting for risk – particularly financial risk – is critical, since the investments are highly leveraged. Indeed, in the period before the credit markets closed in summer 2007, private equity funds used record amounts of leverage, and therefore increased the risk of their portfolio companies. But little research has been produced to analyse risk-adjusted returns, given the need for information on the capital structure of the portfolio companies, which is difficult to obtain. But in the same way that leverage amplified the returns earned by private equity funds when the economy was growing, the impact of this leverage on risk will undoubtedly result in some large losses during the recession, and some significant negative returns for some funds. However, there may be fewer bankruptcies than might be expected due to the loose covenants attached to much of the lending. On the other hand, private equity funds are likely to have to retain their investments in their portfolio companies for longer.

#### *The impact of private equity ownership on employment*

Politicians and the media are often more intrigued by the impact of private equity on employment rather than value creation. The evidence here is much more difficult to interpret, as there is always the counter-

factual issue: what would employment have been in the absence of private equity? This is particularly problematic given that many targets for private equity are in need of major restructuring. In general, the evidence on the impact on employment is complex to interpret. If anything, the evidence seems to suggest that employment grows at somewhat lower rates than in comparable publicly traded companies. Whether this is a good or bad thing is another matter. But the claims of some unions and politicians that private equity funds always sack workers are based more on anecdote than systematic evidence.

#### *The transparency debate*

A major issue facing private equity funds is that there is little understanding of how they add value or their impact on the companies in which they invest. This is in part due to the culture of privacy within the industry, which is a major impediment to public understanding of the role of private equity in the economy. Whilst some analysis has been published, it is often selective and partial, and frequently funded and vetted by industry associations. For many of the successful funds there is good story to tell, but to date only the large institutional investors have heard it. As a result, the claims of private equity funds are often greeted with scepticism.

One outcome of the veil of secrecy has been the push to increase transparency in many countries. Whilst no bad thing, this is likely to have limited impact. The investors in private equity funds already had access to regular, detailed reporting. There is no information asymmetry for those providing the capital, and, if there was, then as some of the largest and most sophisticated global investors they could obtain any information they desired. It is not clear that private companies should have to comply with different standards of reporting according to who the owners are. In general, the Walker review, and similar initiatives in other countries, may have some effect at the margin in terms of information flow to employees and other interested parties, but is unlikely to satisfy the critics.

#### *Tax policies towards private equity*

Another issue that has excited interest in the private equity funds has been taxation. At the corporate level, tax policies to make leveraged buyouts more difficult or costly have questionable justification and uncertain impact. The optimal capital structure will

differ between companies, and restricting the tax-deductibility of debt will either raise the post-tax cost of capital or encourage tax avoidance by companies that find themselves constrained by the policy. In many cases the main impact of such policies is likely to be felt by the existing owners of companies that might be acquired by private equity funds, rather than in the returns earned by private equity funds themselves. At the personal level the taxation of private equity executives is an area that warrants careful consideration, as it is debatable whether their profit shares should be taxed as capital gains as opposed to income, or some hybrid of the two. But given the international nature of the industry, it is questionable how much money would be raised – especially in the next few years when profit shares may become a distant memory – and poorly thought-out policy might result in significant changes in the location of the funds.

#### *The likely impact of the financial crisis on private equity*

Finally, although the future returns earned by private equity funds that invested heavily in the period prior to the leverage bubble bursting in August 2007 are likely to be poor, the extent of financial distress and bankruptcy of the portfolio companies may be lower than might be expected. In large part this is due to the fact that private equity funds took full advantage of the unprecedentedly generous terms associated with debt financing during the leverage bubble. Whilst the investment banks, hedge funds and CLO (collateralised loan obligations) funds that provided the debt have witnessed spectacular losses, many of the portfolio companies themselves now enjoy long-term fixed rate, cheap debt financing with few covenants. Of course, leverage increases the susceptibility to financial distress and bankruptcy, and there is no doubt that some high-profile bankruptcies will occur. But the financial structure employed by many private equity funds may enable many of their portfolio companies to continue operating without defaulting long enough to see through the recession. What is in no doubt, is that holding periods will lengthen, investment rates will slow, the terms of future lending will return to historical norms, and that most existing funds will witness significantly reduced returns.

However, history informs us that some of the best periods to invest in private equity are at the start of a recession, when asset prices are low and the need for

rapid corporate transformations is at a premium. Private equity fundraising continues, constrained mainly by over-allocation of some institutional investors who have committed future funds assuming that realizations would continue at similar rates as in recent years. The private equity model provides an alternative form of governance, with ownership no longer separated from control. At its best, this can result in a rapid transformation of companies and the creation of significant value. Economies need a diversity of sources of capital, and public policy should let the market decide which source is most appropriate for a given company, without imposing tax or other regulatory restrictions to favour one source over another.

#### Chapter 4: France

In 2007 a new president, Nicolas Sarkozy, was elected in France after having promised radical change in many areas, including that of economic policy. In this EEAG report we take stock of his first year and half in office, and try to assess the country's economic performance as well as the reforms that have been undertaken.

At face value the results look positive overall, at least if one ignores the financial crisis. Unemployment had been falling until the summer of 2008, and a vast reform programme has been launched.

Closer inspection, though, suggests that one should be more cautious. The fall in unemployment is largely a cyclical factor, shared with many other European countries. The unemployment rate remains above the eurozone average and closely follows its movements. The room of manoeuvre for fiscal policy is small, because structural deficits have been the norm for the past two decades. As a result public debt tends to rise very quickly in slumps and is only stabilized in upturns, thus the margin of stabilisation is small and shrinks after each downturn. The current one is no exception and we expect France to emerge from it with a worrying fiscal position. Also, the growth performance remains modest. Finally, France has one of the largest government sectors and the welfare state and the government is faced with the dilemma between fulfilling its commitment at an increasing tax cost or downsizing at considerable political costs.

As for the numerous reforms that have been undertaken, we have some concerns about the lack of quan-

titative significance of many of them as well as the existence of contradictions and the absence of a clear direction.

Traditionally, French reforms have suffered from three flaws. First, they typically are incremental. Rather than aiming at a deep change of the existing system, most often reform intervenes at its margin, often by adding new limited schemes. The Sarkozy measures are no exception. Second, the regulatory environment is complex. The more complex the system, the more difficult it is to operate. This means that policies do not have their intended effect, either because their interaction with the pre-existing system is neglected, or because lower levels of authority have considerable discretion in applying the law, as it is practically impossible to apply it entirely. Instead of tackling that complexity, the current reforms mostly increase it through incremental add-ons. Third, reforms have often been reversed. If reforms are highly reversible, economic agents will ignore them when setting their strategy but be happy to cash-in whatever benefits are available. The end result is that policy is ineffective.

The lack of a clear direction is due to the diversity of inspirations underlying the reforms. This reflects various strands of the public debate and ideological stances; we identify four competing paradigms.

Some reforms are motivated by the will to liberalise markets and foster competition, which is traditionally part of the Right's ideological stance. Some are motivated by economic nationalism ("France Inc."), i.e., the desire to boost employment and activity for French businesses with little regard for whether the policies are efficient or pro-competitive. Some are motivated by a corporatist paradigm that tends to ascribe a high institutional weight to so-called "social partners" (employees and employer's representative), ignoring the anti-outsider bias which is inherent in such a process, as well as the fact that it can deliver modest reforms at best. Finally some policies are motivated by the view that there should constantly be "social progress", implying that any redistributive measure is irreversible. This explains the secular rise in government size, or in the number of workers paid the minimum wage, which now stands at a staggering 16 percent of total employment.

These competing motivations explain why some of the Sarkozy reforms offset each other. For example, reductions in taxes granted by the first wave of

reforms were then nullified by new taxes that were meant to finance some new social expenditures.

So do we conclude that the government's policy is essentially hot air and that we expect France to remain a land of low growth, few jobs and little economic opportunity? Not quite, for we find two reasons for more optimism. First, while reforms are small, equally small ones have failed in the past because of organised protests. The catch-all reform strategy of the Sarkozy administration has made it more difficult to coordinate such protests. As a result many reforms have succeeded that were initially thought to be candidates for failure, and reforms in general have gained legitimacy. Second, a quiet revolution (called the general revision of public policy, RGPP) is underway in the public sector in the form of a plan to merge and rationalise public services and increase the scope for economic incentives, competition and autonomy. While it is the textbook case of a project where "the devil is in the details", if conducted properly this reform will eventually reduce the size of the public sector to the level of a normal OECD country rather than that of a Scandinavian country. This will make possible a reduction in taxes by say 3 to 6 percentage points of GDP, which in turn will ignite a virtuous circle between greater private employment and lower social expenses. Furthermore, by reducing the number of attractive top-level positions in the public sector, the reform may also cure a long debated French "disease", which is that the most talented individuals work for the bureaucracy rather than more innovative sectors; this is likely to be reversed when the public sector becomes less attractive, and it is expected that it will have positive effects on innovation and growth.

Our main recommendation is that the administration should use its freshly acquired political capital to focus on a few key reforms. One of them is underway, the RGPP, and we think it could go faster and be given more care if one dispensed with a host of other marginal reforms. Another, which is far more taboo, would be a reduction of the minimum wage. We argue that an important opportunity has been lost with the introduction of an earned income tax credit (RSA), a supplementary welfare scheme that eliminates a poverty trap for welfare recipients. While RSA increases the supply of labour for low-skilled workers, it does nothing on the demand side. Many of the corresponding jobs are not going to be created because it is not profitable for firms to do so. Instead, RSA should have been packaged with a reduction in the

minimum wage. This would have set the stage for the progressive replacement of that distortionary scheme by a far less distortionary earned income tax credit system; it would have reduced the excessive proportion of workers at the minimum wage; and it would have stimulated labour demand as a counterpart to the labour supply stimulus of the RSA.

## THE EUROPEAN ECONOMY: MACROECONOMIC OUTLOOK AND POLICY

### 1. Introduction

The financial crisis triggered by the bursting of the US real-estate bubble has spread over the entire world to different degrees and markedly slowed down world economic growth in 2008. This year, all major regions in the world will be in recession.

In the second half of 2008, economic growth in the United States became persistently negative. The economic slowdown which started to emerge already in 2004 turned into a full-blown recession. For the first time since 1991, private consumption growth turned negative on both a quarterly and annual basis. The crisis in the US banking sector reached a new level in September when the US government decided not to bail out Lehman Brothers. Although authorities were able to prevent a bank run, they could not stop the sharp deterioration in business and consumer sentiment.

Combining the severity of the financial crisis with the structurally too low national saving rate and the associated too high current account deficits, it is most likely that the US economy will continue to underperform relative to other parts of the world and its own history in the years to come.

As in many parts of the world, the sharp hike in commodity prices pushed inflation in the European Union higher than expected. Along with the continuing international financial market crisis, this led to a significantly worse economic situation in Europe. This situation was compounded by the strength of the euro and the sharp downturn in property markets in Ireland, Spain and the United Kingdom.

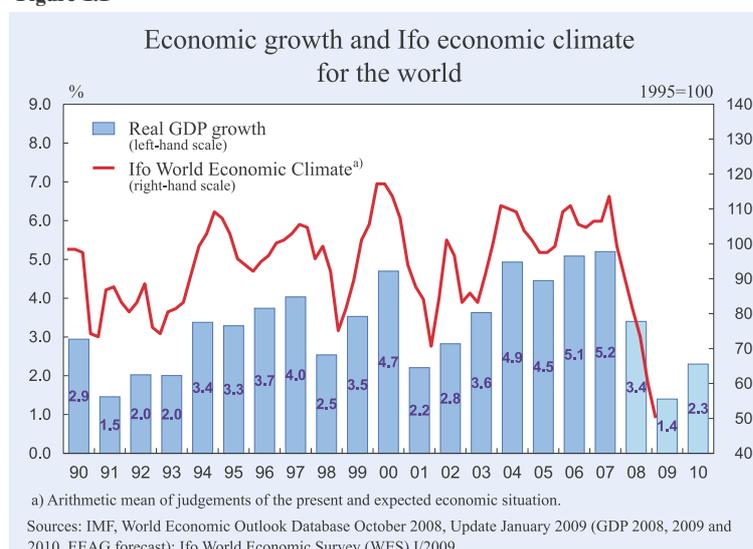
The downturn during the second half of 2008 started to become quite pronounced especially in the large European economies. Quarterly GDP growth in Germany, Italy and Spain all declined during the third quarter of 2008 and basically stagnated in France. Both orders and production in manufacturing sectors fell dramatically during recent months. Also future business outlook and consumer confidence plummeted during this time. The faltering expansion of the world economy, the continuing fall of property prices in some European economies and the financial market problems will continue to have negative effects on all European countries. Both the euro area and the European Union will go through a deep recession this year. Not until 2010 do we expect quarterly growth rates to turn positive again.

### 2. The current situation

#### 2.1 The global economy

After four years of extraordinarily strong growth, the expansion of the world economy clearly slowed down in 2008. World GDP increased at an average rate of 3.4 percent last year (see Figure 1.1). Especially during the second half of 2008, the slowdown accelerated more than expected in our previous EEAG report. The severe crisis on the international financial markets, which

Figure 1.1



started in the United States with the breakdown of the subprime mortgage market in 2007, has spread to almost all parts of the global economy. The speed and the magnitude at which this took place – especially since autumn of last year – is unprecedented. The sharp fall in asset prices caused negative wealth effects and at the same time indicated a drop in growth expectations. On top of that, balance sheet problems within the banking sector have meanwhile created severe credit constraints for firms and households in several countries.

The economic climate indicator of the Ifo World Economic Survey, conducted among over 1,000 economic experts in about 90 countries, continued its fall in the most recent survey. The indicator shows that the world economy passed its peak in autumn 2007 and decelerated throughout 2008.

In sharp contrast to the early 1990s, when the world economy also went through a recession, this time all major regions in the world seem to be moving in parallel. The judgements of the current economic situation in North America, Western Europe, Asia and Latin America were all still at a neutral or above neutral level at the beginning of 2008 (see Figure 1.2) and have almost synchronously deteriorated since then.

Since 1993, i.e., for more than a decade, the inflation rate for industrial countries has steadily fluctuated at

comfortable levels between 1 and 3 percent. This markedly changed last year: a rapid increase occurred during the first half of the year pushing consumer price inflation levels to above 4 percent during the summer. After this stronger than expected upsurge, inflation rates are coming down again. Besides the turn in the economic cycle, mainly oil and other raw material prices have caused these relatively strong fluctuations in inflation rates. Especially the oil price surged to unprecedented levels, reaching a peak in July. At the end of the year, it was back again at levels last seen in 2005 (see Figure 1.3).

### 2.2 United States

Up until the second quarter of last year, the US economy still experienced positive – albeit somewhat lower – growth than it had between 2004 and 2006. Although employment already started to fall in January, production did increase and most of the available business cycle indicators pointed towards a continuation of moderate growth. From a demand-side perspective, a fiscal stimulus plan of about 170 billion US dollars was able to keep private consumption growth positive during the first half of 2008.

The situation, however, changed dramatically at the end of the summer. At least partly due to strikes at General Motors and Boeing and hurricane Gustav,

Figure 1.3

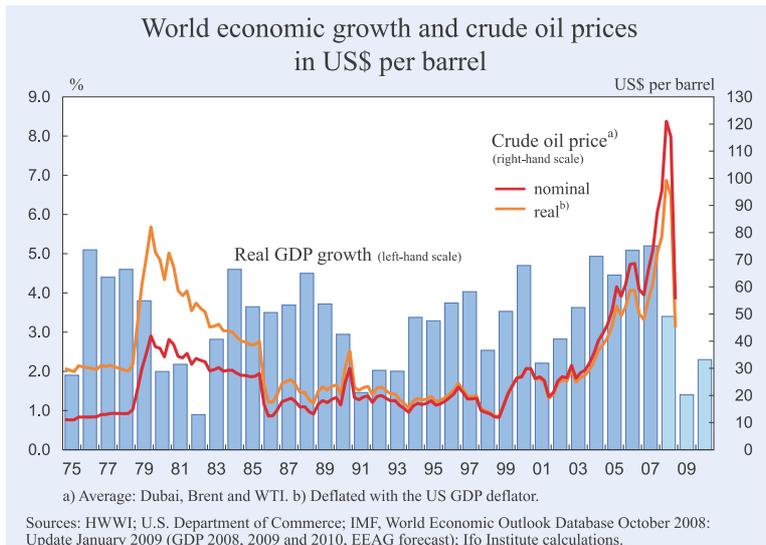
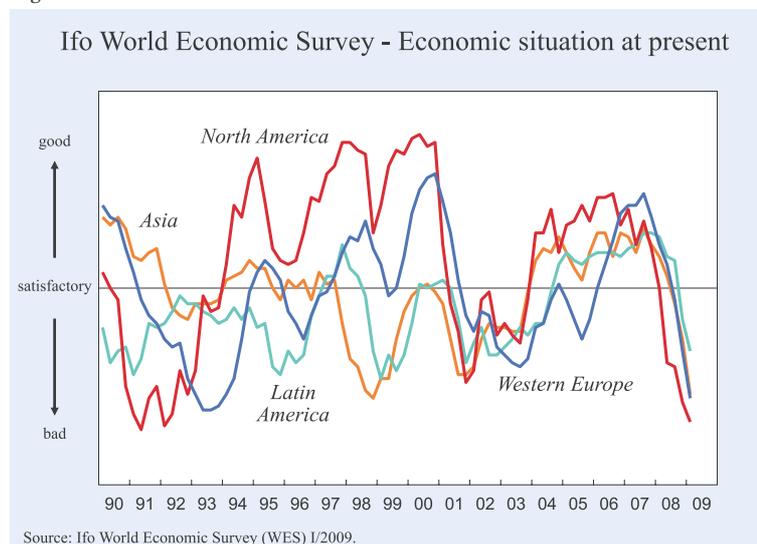


Figure 1.2



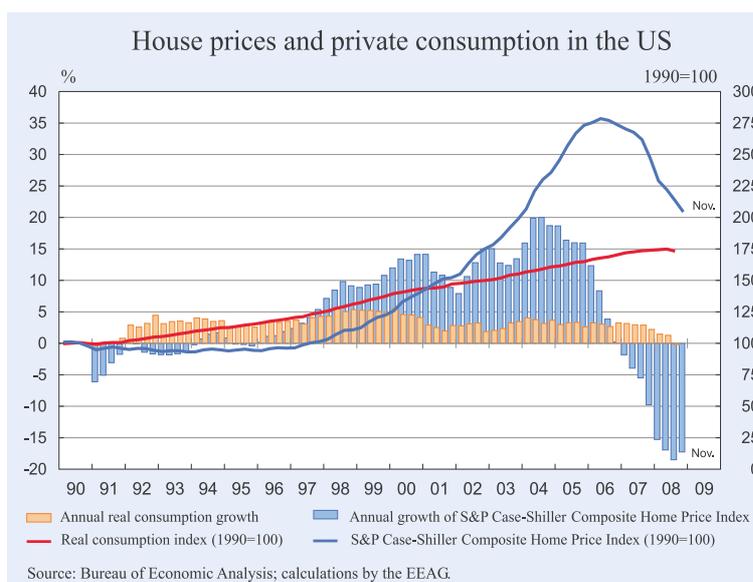
industrial production and capacity utilisation plummeted in August. Also the oil price surge in the summer began to dampen demand and production in the car and airplane industries. Finally, and probably most noteworthy, in September the US government decided against a bailout of the investment bank Lehman Brothers. In hindsight, this decision brought the world financial system to a near collapse. Subsequently, purchasing manager indexes and other sentiment indicators dropped, which pointed to a further drop in investment activities. The fall in real-estate prices, which by that time appeared to have slowed, accelerated once more; residential construction activities plummeted again from already historically low levels. While residential fixed investment has been falling since the beginning of 2006, equipment and software investments also started to decrease early last year.

Most importantly for US growth performance, however, was the fact that the above-mentioned fiscal stimulus programme proved unable to stimulate private consumption for more than one or two months (April and May 2008). From June onwards, personal consumption expenditures declined. In the third quarter, private consumption decreased for the first time since 1991, and consumption continued to decline for the rest of the year. Especially consumption of durable goods faced a sharp drop.

Consequently, last year's quarterly GDP growth turned negative by an annualised 0.5 and 3.8 percent in the third and fourth quarter, respectively.

<sup>1</sup> According to the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER), the US economy has been in recession since the beginning of 2008. In their view "a recession is a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in production, employment, real income, and other indicators." Especially labour market indicators are the reason why they decided on January 2008 as the start of the recession, the last peak month having been December 2007.

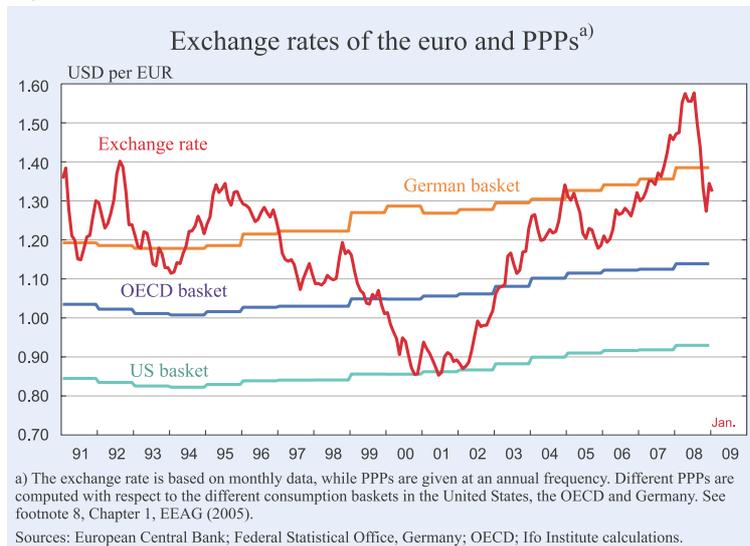
Figure 1.4



Using the common definition of a recession to be a situation in which GDP growth turns negative for at least two quarters in a row, the United States has been in a recession ever since.<sup>1</sup>

The deflating of the housing price bubble continued throughout the year (see Figure 1.4). National house price indexes decreased by close to 25 percent since their highest levels in summer 2006. Furthermore, other indicators for the real estate market in the United States, like house sales and new privately owned home construction, are at historical lows. As a consequence, residential investment continued to fall at double-digit rates throughout the year. Thus far, only non-residential construction investment has continued to grow.

Figure 1.5



At the same time mortgage default rates have risen, and banks have tightened their lending rules for households and firms. As a result, growth in mortgage debt has now slowed down to levels last seen at the beginning of the 1970s.

The depreciation of the US dollar during the first half of 2008 improved the external trade situation in the United States (see Figure 1.5). Export growth surged at 12.3 percent in the second quarter and exports managed to keep on growing in the second half of the year – albeit at a slower pace. On the other hand, imports have been shrinking for five consecutive quarters now. Net exports were thus the most important growth engine for the US economy last year.

The slowdown in economic activity also became visible on the labour market. Since the beginning of last year, the number of employed persons has dropped by more than 2.6 million. This decline in employment ranges over most sectors but in particular the construction, manufacturing and transport sectors. As a result, the rate of unemployment rose to 7.2 percent in December last year, the highest level in 14 years.

Despite the strong deterioration of labour market conditions, nominal wages continued to develop quite robustly. Average nominal hourly wage rates for the non-agricultural part of the economy were 2.6 percent higher than the year before. Correcting for the tax rebates in the second quarter, this implies that real disposable income, which is by far the most important determinant of private consumption expenditures, is still rising, albeit moderately.

Primarily due to temporary tax relief, the savings rate (personal saving as percentage of disposable personal income) increased from basically zero percent in the previous quarters to 2.5 percent in the second quarter. At a rate of 1.1 percent in the third quarter, the saving rate was still above levels we have seen in previous years.

The budget deficit in fiscal 2008, which ended at the end of September last year, increased to 455 billion US dollars, i.e., 3.3 percent of GDP, as a result of both lower revenues as well as increased expenditures. The strongest decline on the income side was due to the fall in corporate taxation as a consequence of reduced firm profits. At the same time, the increase in expenditures by 9 percent was the highest since 1990. Besides increased military expenditures due to US engagement in Iraq and Afghanistan, in particular the

tax rebates intended to support private consumption and the involvement in eight large US banks have put their burden on the government budget.

For fiscal 2009 and as a reaction to the persistent crisis in the banking and financial systems, the US government decided to implement a sizeable rescue package and enacted on 3 October 2008 the Emergency Economic Stabilization Act of 2008. This created the Troubled Asset Relief Program (TARP), a 700 billion dollar fund aimed at resuscitating the US financial system. The funds are used to provide guarantees for banks and other financial institutes as well as to purchase nonliquid, difficult-to-value assets (“toxic assets”) from these institutions up to the end of 2009. Its purpose is to facilitate the restructuring of balance sheets and to strengthen confidence and trust in the banking system.

Strong increases in energy prices caused the inflation rate to reach its highest level since the early 1990s with 5.6 percent in July 2008. Since then, it has noticeably sunk and reached 0.1 percent in December. The core inflation rate – the rate preferred by the Federal Reserve for assessing monetary policy – did not show these large fluctuations and most of time remained slightly above 2 percent last year, the level the Federal Reserve considers to be acceptable.

The financial crisis led the Federal Reserve to cut their target rate from 5.25 percent in September 2007 to only 0.25 percent at the end of last year. The first six steps took place at the end of 2007 and early 2008. After a pause throughout spring and summer, three additional cuts followed at the end of last year.

### **2.3 Japan, China, India and other Asian countries**

Since the second quarter of last year the *Japanese* economy has been shrinking. GDP fell by 1.8 percent in the third quarter after it already sank by 3.7 percent the quarter before. Private consumption growth weakened but remained quite resilient throughout the year. However, the main reason for the fall in GDP was the negative growth contribution of net exports. As a consequence, export-oriented firms facing the gloomy worldwide outlook drastically cut their fixed capital investments for four consecutive quarters.

Whereas the direct consequences of the financial crisis on Japan have so far been relatively moderate, the deterioration of the world economic outlook appears to be more dramatic for the largest economy in Asia.

The upswing during the last few years has been largely based upon foreign trade. Exports to China have been stagnating for most of the second half of 2008 and eventually started to fall towards the end of the year. They could thus no longer compensate the falling exports to Europe and especially the United States as still was the case during the first half of last year. The sharp appreciation of the yen and the fall in import prices caused by the worldwide reduction in raw material prices have stimulated imports in the third quarter. Consequently, the growth contribution of net exports turned negative.

Weak business cycle conditions induced the Bank of Japan to lower its target for the uncollateralized overnight call rate twice in the last months of 2008 by a total of 40 basis points to 0.1 percent now. These were the first interest rate cuts in Japan since 2001. The inflation rate slowed to 1.0 percent in November amid falling energy prices. On average it will reach 1.4 percent for the year 2008.

The labour market situation has started to deteriorate somewhat since the beginning of 2008. The number of employed persons fell and the unemployment rate edged up to 4.1 percent in 2008 (as compared to 3.9 percent the year before). Nominal wages hardly increased while in real terms they actually decreased somewhat, reflecting the price increases since the beginning of 2008.

Also in *China* the economic expansion has cooled off. GDP increased by “only” about 9.4 percent last year as compared to 11.9 percent in 2007. This slowdown especially took place during the second half of 2008 with annual growth moderating from a peak of 12.6 percent mid 2007 to 9 percent in the third quarter.

In particular industrial production, which contributes about half of GDP, showed a perceptibly weaker expansion. In addition to production closures during the Olympic Games, primarily reduced growth in export orders caused by the world economic slowdown was responsible for this development. It was further intensified by the deteriorating price competitiveness of the Chinese economy. In real effective terms, the Chinese currency appreciated by about 15 percent since the start of 2008. Most segments of the domestic economy, notably consumption, seem to have held up reasonably well so far and thus managed to partly compensate for this decline in external demand.

The direct effects of the international financial crisis on the Chinese banking system have been quite limited up to now. Chinese banks have hardly been involved in the US mortgage market and face relatively strict financial controls. Nevertheless, stock market indexes have plummeted by about 50 percent since the beginning of last year.

Partly due to the still relatively restrictive monetary conditions during the first part of 2008, investment has started to become less dynamic. In particular, the real estate market, which already threatened to overheat, has begun to cool off noticeably. Thus, the rise in house prices has clearly started to slow and house sales are falling. A collapse of the real estate market could seriously affect the already staggering Chinese economy.

For that reason, monetary policy changed course during the second half of last year and the People’s Bank of China have reduced target rates and reserve-requirement ratios in several steps since autumn.

After four years of strong economic growth, the economy of *India* started to slow last year. In the spring of 2008, the country still had the lowest inflation rate of the big emerging economies. During the summer, however, consumer inflation rates doubled to about 9 percent, and growth in wholesale prices even tripled to more than 12 percent. Besides the high raw material prices on the world market, crop failures due to bad weather were the main cause of these price-propelling effects. Furthermore, the strong devaluation of the rupee induced a sharp increase in import prices. During the last months of last year and driven by sharply lower commodity prices, inflation started to slow down again.

On the other hand, during the first half of 2008 exports grew by 15 percent as compared to the first half of 2007, benefitting from the relatively lower prices of Indian products on world markets. Furthermore, strong wage increases and higher foreign remittances boosted private consumption.

Initially higher interest rates triggered by the upsurge in inflation already caused investment dynamics to slow down early in the year. On balance, industry, construction and the service sector already showed lower growth rates since the start of 2007. Only income in the agricultural sector – which amounts to 18 percent of GDP – benefited from the higher agricultural prices on the world market during the first half of last year.

Latest data show that economic activity slowed significantly during the second half of 2008. Corporate profits fell sharply, while a fall-off in spending on consumer durables, such as cars, augurs ill for private consumption growth. Furthermore, capital flows are reversing.

The weakening of the economy induced the Reserve Bank of India (RBI) to start easing monetary policy by reducing restrictions on lending to the property sector, raising the limit on export credit finance available to banks and cutting key interest rates. In an attempt to mitigate the impact of large capital outflows, the RBI is trying to encourage deposits from non-resident Indians and is considering liberalising restrictions on foreign direct investment.

Nevertheless, GDP growth will be reduced by 2 percentage points as compared to the last two years and will reach a level of 7 percent in 2008.

As in Japan and India, the economic growth in the rest of Asia (which includes *Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand*) is quite dependent upon developments in the United States. The correlation between the economic development in this region and that of the United States has been quite high and stable for several years. Despite this correlation, the growth differential between these two regions has clearly increased since 2005. Whereas Asia (excl. Japan and India) experienced about 3.5 percentage points higher growth than the United States in the period 1999–2004, this growth differential has increased to approximately 6 percentage points since then.<sup>2</sup> Improved fiscal budgets and net foreign exchange reserves have increased the likelihood that – despite the high correlation – the growth differential will prove to be persistent (see Figure 1.6).

This group of emerging economies in Asia initially continued their upswing during the first half of 2008 and have since experienced diverse developments. While most of the economies have only seen moderate

Figure 1.6



declines in their growth rates so far, others, most notably Singapore, has shown a more virulent slowdown or has already gone into recession.

Inflation tended to increase in most of these countries throughout most of 2008. One of the reasons was the reduction in energy subsidies, which previously dampened the domestic price increase. The overall decline in raw material prices has already started to reduce inflation to some degree. However, the sharp increase in the core inflation rate since the beginning of the year indicates that second-round effects cannot be completely ruled out yet. Nevertheless, monetary policies throughout most East Asian economies turned sharply over the final months of 2008, as the focus shifted from concerns about inflation to growth prospects.

Except for South Korea, consumption growth slowed down due to both higher inflation rates and increased import prices (both reducing real income). Meanwhile, exports have remained relatively robust for some time. The depreciation of some currencies and an intensification of trade within Asia have been able to soften the effects of reduced demand from western countries.

Largely driven by ongoing, strong import growth, the trade surpluses and the growth contributions of net exports decreased substantially. Especially imports of investment goods remained quite robust in most of these economies. Overall, GDP growth declined by 1 percentage point as compared to 2007 and reached 4.5 percent in 2008.

<sup>2</sup> Neither including India nor Japan alters this conclusion: the growth differential has increased by an average of about 2 percentage points after 2004.

In general emerging markets have so far been able to play a stabilising role in the current crisis. Although, their savings allowed the huge US current account deficit and consequently the US consumer boom to be possible in the first place, it is precisely the reserves they have built up that are now helping to stabilise the global economy. For example, they are preventing any renewed build-up in speculation against Asian currencies. The budget surpluses that have been accumulated over the years are now being used to prevent a sharp downturn in domestic demand. In addition, continued demand from emerging markets has helped dampen an even sharper downturn in exports from industrialised nations. The sovereign wealth funds of emerging countries have also been buying up financial stocks in Europe and the United States, which has helped to avert numerous bankruptcies.

#### 2.4 *The rest of the world*

Although growth weakened in the Latin American region (i.e. *Argentina, Brazil, Chile, Colombia, Mexico* and *Venezuela*) during the second half of last year, annual rates in general stayed well above 4 percent. As in the previous year, the only exception was Mexico: it suffered from its dependence upon the US economy. During the first part of the year most countries still benefited from the high raw material prices. However, in particular for the net exporters of energy, raw materials and food, the tide changed radically during the second half of 2008 when commodity prices tumbled from record highs and financing conditions worsened sharply.

The surge of inflation especially due to increased food prices led central banks in the region to tighten monetary policy. In the meantime, the financial crisis has put an end to this and interest rate cuts have already been implemented.

In most of the Latin American economies the fiscal situation has clearly improved in recent years. For instance, Brazil's primary fiscal surplus amounted to approximately 4 percent of GDP last year. This will give governments some leeway to soften the consequences of the global crisis, which is increasingly spreading to this region as well.

During the first half of the year total production in *Russia* continued to expand strongly. In particular, domestic demand was responsible for this. Whereas consumption was able to hold up reasonably well, investment was no longer able to reach double-digit

growth rates. The increased inflation rate was mainly responsible for this. Furthermore, the financial crisis made it more problematic to finance new projects.

During the past years it was mainly external capital that financed new firm activities, with an increasing share of loans denominated in foreign currencies. This financing form continued to grow during the first half-year of 2008. Beginning with the conflict in Georgia and the intensification of the credit crisis, investor sentiment changed and Russia had to cope with massive outflows of capital. In addition, reduced external demand, especially from Europe, worsening terms of trade conditions, and still growing imports caused net exports to fall considerably.

The consumer price level continued to rise by double-digit rates last year. The persistent inflation trend was not only caused by rising food prices but is also due to the strong expansion of the money supply. High foreign exchange receipts from oil exports have been used to finance the expansionary financial policy stance. During the first half of the year, the Russian central bank reacted to the inflationary environment by increasing base rates.

Monetary policy changed course in autumn when financial turbulence reached the Russian banking sector. The central bank intervened in the money market, was forced to cut the minimum reserve requirements and the stock exchange was temporarily closed down. Furthermore, the high volatility on foreign exchange markets caused the Russian central bank to widen the rouble trading corridor several times, while continuing to spend substantial amounts of foreign-exchange reserves to try to prevent a larger devaluation. During the second half of the year, foreign exchange reserves fell by over 150 billion US dollars.

#### 2.5 *The European economy*

After a still relatively positive outlook at the beginning of last year, the economic climate deteriorated markedly as the year progressed. The turbulence on international financial markets as well as the collapse in sentiment seen within the industrial sector and amongst consumers throughout Europe in the second half of the year have increasingly been reflected by data on real economic output.

Real GDP sank 0.8 percent in the third quarter within the European Union (EU27). A decline in production was also reported for the previous quarter. The

Figure 1.7

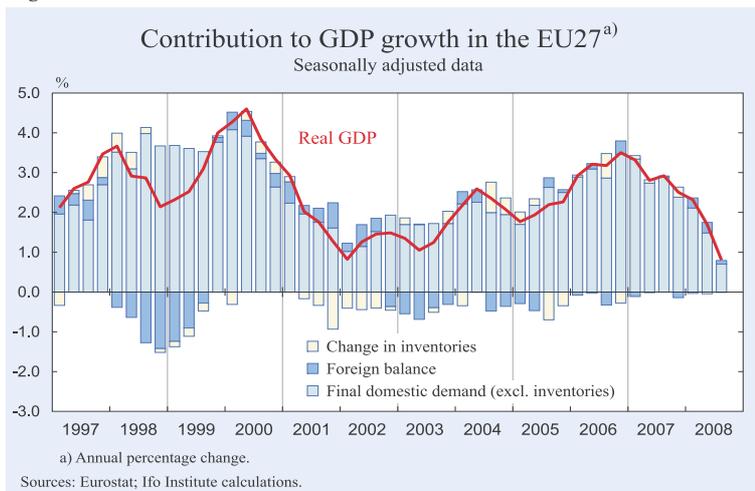
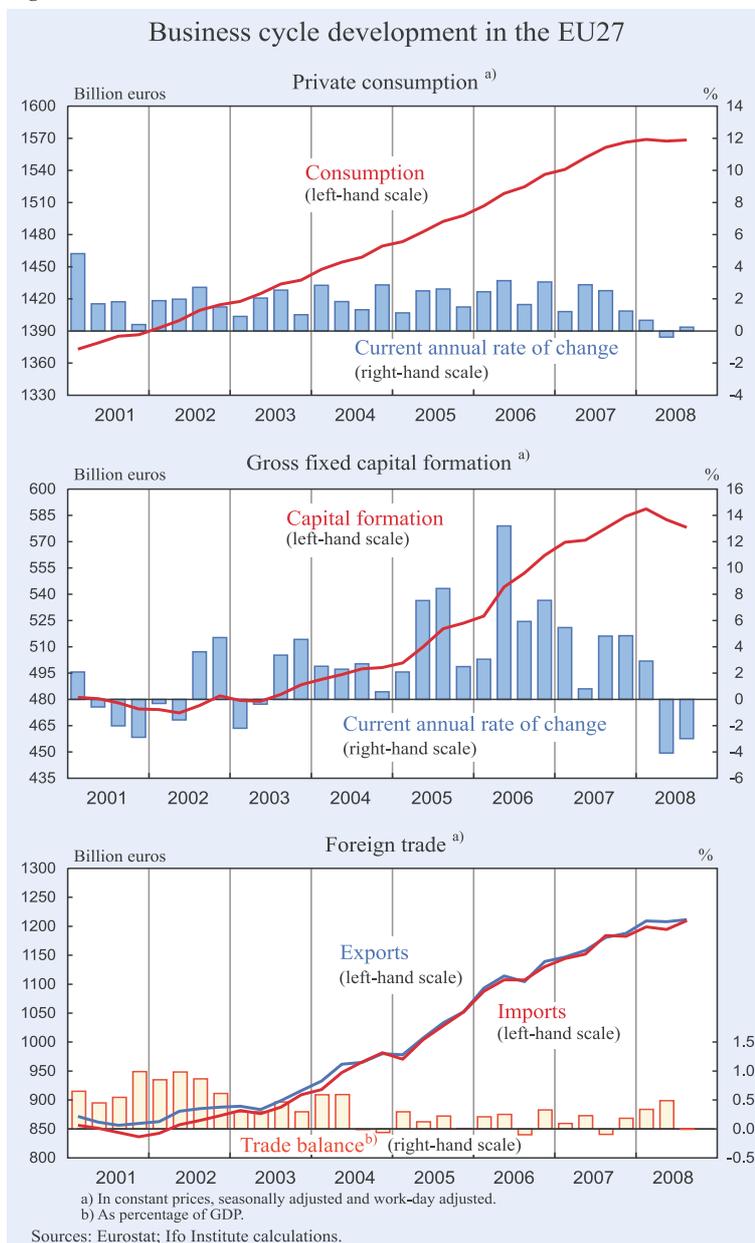


Figure 1.8



figures were the worst since the data was first recorded in 1995. Given that most available indicators report negative growth for the last quarter of 2008 and the first quarter of this year, the European economy has been in recession since the second quarter of last year. At present, most member countries face negative growth. This means that unlike in the past, national demand shortfalls will not be offset by growth in other countries and final domestic demand in the European Union has reached an all-time low (see Figure 1.7).

However, the downturn is not affecting all parts of the European economy to the same extent. Indeed, there is a distinction between individual industrial sectors and their respective operating conditions. Following the financial sector and the construction sector in some EU member countries, the automobile industry is also finding itself struggling to cope with a massive drop in global demand. Production of motor vehicles and motor vehicle components in Germany in October, for example, fell by 13.2 percent in year-on-year terms, and incoming orders shrank by a sizeable 32.8 percent in November. Further declines, which will also impact the supplier industry, appear unavoidable.

After a still positive growth in the first quarter, investment plummeted in the remainder of last year (see Figure 1.8). Especially in those countries facing a sharp downturn in the property market, in particular Ireland, Spain and the United Kingdom, there have been large falls in residential investment spending throughout the year. (The drop in sentiment indicators was followed by a rapid deterioration in non-resi-

dential investment spending, which deteriorated quickly during the second half of last year.) Given the high investment levels at the beginning of last year, the annual growth rate for 2008 for the EU27 nevertheless remained slightly positive.

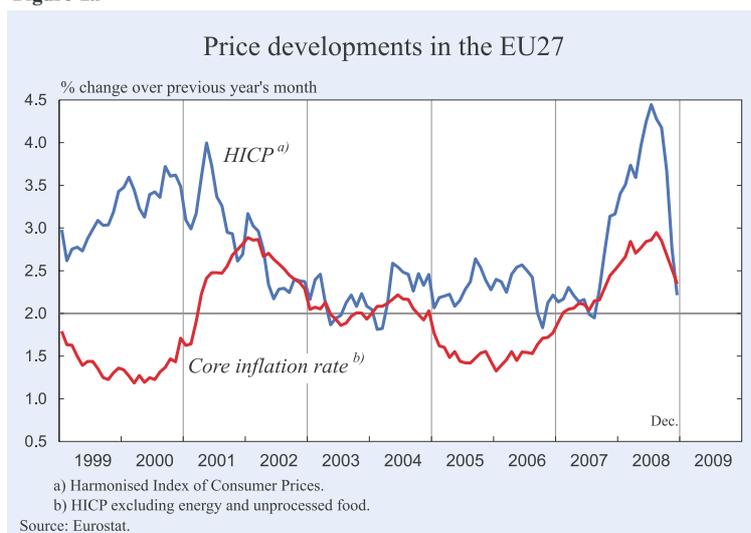
Whereas private consumption was still an important pillar for economic growth in Europe in 2007, it basically stagnated in 2008. Initially, this was especially due to a fall in consumer spending in Germany caused by increased inflation rates during the first quarters, slowly deteriorating labour market conditions and sharply deteriorating financial prospects. However, quickly falling inflation rates (positively affecting real income development) at the end of last year allowed consumption to pick up again slowly.

Despite the strength of the euro, net exports contributed positively to GDP growth in the European Union last year. The slowdown in export growth was met by a comparable fall in import growth rates. Only at the end of the year did the trade surplus start to fall as imports grew somewhat faster.

Employment kept growing in the European Union throughout last year – albeit at a continuously slower pace. With the increase in the labour force, however, the unemployment rate reached its lowest rate of 6.8 percent during the first quarter last year. Thereafter it steadily increased to 7.2 percent in November.

Temporarily, the increase in prices accelerated noticeably in the entire European Union during the first part of 2008 (see Figure 1.9). The inflation rate – measured by the harmonised index of consumer prices (HICP) – increased from 3.4 percent in January to 4.4 percent in July. Above all, this was induced by the strong increase in oil prices observed in the first half-year of the year. Oil prices started to fall in the middle of July. Subsequently, the official inflation rate decreased to 2.8 percent in November. Although less dynamically than in 2007, core inflation (the growth in the HICP excluding energy and crude food) continued to increase until reaching a peak of 2.9 percent in August. Since then it reversed and slowed down to 2.5 percent in November.

Figure 1.9



Against the backdrop of moderate wage growth and favourable economic conditions in the past years, nominal wage increase accelerated last year in the euro area. Average compensation per employee grew by 3 percent in the private sector (as compared to 2 percent on average during 2005–2007). As the economic situation started to deteriorate relatively early in the United Kingdom, one of the major economies in Europe, wage growth already lost some momentum last year. Given that consumer prices increased by 3.3 percent in the euro area and 3.7 percent in the United Kingdom, this implies that real wages declined last year. From a supply-side perspective, real wage compensation still increased somewhat in the euro area as the GDP deflator did not go up by as much as the consumer price index. Although growth in real wage compensation cost was kept below that of the United States and Japan, the lower productivity growth in the euro area also dominated when calculating unit labour costs (see Table 1.1).

After two years of high growth and an exceptionally high growth rate in the first quarter of last year, the *German* economy fell into recession. Whereas high inflation caused consumption to fall during the first half of the year, it managed to reach subdued growth levels again during the second half. Increased government spending and moderate investment growth allowed small but positive impulses to come from the domestic economy. The growth contribution of net exports, on the other hand, turned negative during the last two quarters. Although Germany managed to improve its competitiveness (as measured by the relative unit labour costs in dollar terms) for the fifth year in a row, exports started falling in the third quarter.

Table 1.1

## Labour costs

	Compensation per employee <sup>a)</sup>		Real compensation costs <sup>b)</sup>		Labour productivity <sup>c)</sup>		Unit labour costs <sup>d)</sup>		Relative unit labour costs <sup>(e)</sup>		Export performance <sup>f)</sup>	
	2005-07	2008	2005-07	2008	2005-07	2008	2005-07	2008	2005-07	2008	2005-07	2008
Germany	0.8	2.3	-0.2	0.7	1.5	0.1	-0.9	2.4	1.4	4.3	1.5	0.2
France	3.1	2.9	0.8	0.6	1.2	0.3	1.9	2.5	-3.2	-2.1	-3.3	-2.0
Italy	2.3	3.9	0.3	0.0	0.1	-1.0	3.0	5.6	-11.1	8.5	-4.0	-4.5
Spain	2.6	4.1	-1.2	0.8	0.0	1.2	3.5	3.5	1.0	na	-2.4	-0.7
Netherlands	2.2	3.4	0.3	1.7	1.4	0.8	0.7	2.8	3.0	-2.6	-0.8	0.1
Belgium	3.3	3.5	0.9	1.4	1.2	-0.1	2.0	3.5	0.5	-2.4	-3.7	-0.9
Austria	2.7	2.3	0.7	-0.3	1.9	0.3	1.0	2.4	-0.9	0.0	-1.3	-1.4
Greece	7.2	6.8	4.0	3.4	2.6	1.9	4.2	4.6	0.4	1.4	-4.0	-2.4
Finland	3.2	5.6	1.7	2.3	2.3	0.4	1.1	5.3	0.6	1.1	-1.0	-1.4
Ireland	5.9	5.6	3.6	6.5	1.8	-1.9	4.0	8.1	2.8	4.9	-0.3	-0.7
Portugal	3.6	3.6	0.8	1.4	1.1	-0.3	2.4	4.8	-2.9	0.2	-1.4	-1.4
Slovak Republic	9.6	7.9	7.5	3.0	6.4	4.9	1.7	2.8	2.2	4.3	7.1	1.1
Luxembourg	3.8	2.7	0.2	1.3	1.9	-1.6	2.0	4.4	-0.8	-5.5	1.4	-0.9
Euro area	2.0	3.0	0.0	0.5	0.9	0.0	1.4	3.4	-0.6	na	na	na
United Kingdom	3.8	2.5	1.2	-0.8	1.8	0.1	2.1	2.8	0.1	3.0	-2.5	-2.4
Sweden	3.4	3.5	1.7	-0.2	2.1	-0.2	1.3	4.1	3.9	2.1	-0.8	-1.0
Denmark	4.3	4.2	2.0	0.7	1.3	-0.9	2.5	5.4	1.8	3.1	-1.4	-1.3
Poland	2.8	9.4	0.2	6.0	2.1	1.7	2.8	6.7	0.2	-0.9	1.0	0.6
Czech Republic	6.3	7.5	4.9	5.1	5.0	3.1	1.3	5.0	0.5	10.7	4.8	4.7
Hungary	6.0	8.3	2.1	2.5	2.9	3.2	3.8	5.6	7.3	-22.1	5.6	2.1
United States	3.8	3.5	0.7	1.2	1.1	1.6	2.8	2.2	-3.3	na	-0.1	2.8
Japan	-0.3	0.7	0.7	1.7	1.7	0.8	-1.2	0.8	4.7	-24.7	0.0	0.5

<sup>a)</sup> Compensation per employee in the private sector. – <sup>b)</sup> Compensation per employee deflated by GDP Deflator. – <sup>c)</sup> Total Economy. – <sup>d)</sup> Manufacturing sector. – <sup>e)</sup> Competitiveness-weighted relative unit labour costs in dollar terms. – <sup>f)</sup> Ratio between export volumes and export markets for total goods and services. A positive number indicates gains in market shares and a negative number indicates a loss in market shares.

Source: OECD Economic Outlook 83 and 84 databases.

As an exporter of investment goods Germany was particularly hard hit by the decline in economic sentiment around the world. At the same time imports remained on an expansion path.

As the final quarter of 2008 was the second consecutive quarter-on-quarter contraction, the *United Kingdom* entered recession in the third quarter. Whereas consumers in the United Kingdom started to reduce their consumption in the second quarter, investment had already fallen since January. Expansionary fiscal policy and improved net exports – mainly due to a fall in imports – kept GDP from decreasing until the third quarter. Hence, in contrast to the situation in Germany, while domestic demand growth was strongly negative in the United Kingdom, net exports were positive during the second half of the year.

Inflation in the United Kingdom surged to a 16-year high of 4.4 percent in July. While rising energy and food prices were the main drivers, detailed inflation data also revealed a broad-based rise in prices of other goods and services. Wage inflation remained subdued and UK home prices continued to drop. Depending on the indicator that is used, the latter have dropped by close to 20 percent since their peak at the end of 2007.

Despite a slowdown, domestic demand in *France*, continued to increase and was able to compensate for the negative growth contributions of net exports. Since the second quarter of last year investment growth also turned negative leaving private and public consumption to keep GDP growth positive. Of the five largest European economies, France is thereby the only one which so far has not been in recession as defined by two consecutive quarters of negative GDP growth. It is not as dependent on foreign trade in manufacturing as Germany, is not as heavily involved in the banking crisis as the United Kingdom and is not confronted with large corrections on real estate markets like Spain.

The labour market situation in France remained stable throughout the year in spite of the menacing economic crisis. The unemployment rate only increased slightly.<sup>3</sup> It amounted to 7.9 percent in October, after it stood at a low of 7.7 percent in January 2008.

<sup>3</sup> However, as discussed in Chapter 4, this incipient increase in unemployment has triggered a pro-active response from the government in the form of a “jobs package” and further fiscal stimulus.

The *Italian* economy is in recession. GDP fell by an annualised 0.5 percent in the third quarter after it already decreased by 0.4 percent in the second quarter of last year. The Italian recession is broad-based. Private consumption has been stagnating for quite some time. Consumer confidence has fallen to a record-low level. Investment, which already turned negative in mid-2007, is constrained by more restrictive financing conditions as well as weak construction activities due to restrained house price developments. For the most part, however, it is the lull in foreign demand for Italian goods that is putting a burden on the Italian economy. This, in turn, is caused by strong competition on world markets (due to the unfavorable product composition of Italian exports), the continuously deteriorating international competitiveness of the Italian economy largely due to strongly increasing unit labour costs, as well as the general economic decline of the world economy.

GDP in *Spain* fell by about 0.2 percent in the third quarter of 2008, after it rose by a similar amount during the first half of the year. Private consumption also dropped in the third quarter. Investments started falling in the second quarter. The growth contribution from net exports remained stable – overall exports rose, while imports fell. As also the fourth quarter is expected to report negative growth, the economy of Spain has thus slipped into recession. Especially the bursting of the real estate bubble is putting a strain on the expansion of domestic demand. Starting in the second quarter of 2008, house prices began to decline after having basically doubled since 2001. This fall in real estate prices is negatively affecting private consumption due to a lasting increase in the implicit debt burden of mortgages. This increase has occurred, first, because the value of the provided securities has dropped. Secondly, due to variable interest rate conditions at which mortgage loans in Spain are normally granted and the increased risk premium set by banks, interest costs are likely to increase in the future. The willingness of Spanish banks to grant credit has already clearly decreased as a result of the increased probability of failure.

Although most of the large economies in Europe entered recession in 2008, most smaller EU member countries did not report negative growth rates at least until the fourth quarter of last year. The exceptions were *Denmark*, *Estonia*, *Ireland* and *Sweden*. In Denmark, Estonia and Ireland private consumption went into a slump. For Sweden, negative growth was mainly caused by a fall in net exports.

**Box 1.1****Monetary policy transmission and house prices in Europe**

According to theory, a contraction in monetary policy should have a negative effect on house prices. Given that home ownership determines to a large extent wealth positions of households, this in turn affects consumption decisions. The ongoing deregulation of mortgage markets in Europe will in principle increase the importance of this monetary transmission channel. However, there is no real consensus regarding the relevance of this theoretical channel in the empirical literature. Given the high degree of heterogeneity in mortgage markets across the European Union, these effects are bound to differ from one country to the next. Within Europe mortgage credit relative to GDP ranges between 15 in Italy to 111 percent in the Netherlands; the typical maturity varies between 15 to 30 years and typical loan-to-value ratios between 50 and 112 percent. Furthermore, the degree to which variable versus fixed interest rates are used varies greatly among countries.

In a recent study, Carstensen et al. (2008) empirically estimated the impact of monetary policy on house prices on a subset of 13 European countries for the period 1995–2006.<sup>1</sup> Besides real house prices and nominal short-term interest rates as an instrument for monetary policy, the variables included are both real GDP and its deflator.

They find that, in general, nominal house prices increase as a reaction to an expansionary monetary policy shock. Furthermore, nominal house prices are less sticky than average prices, since house prices adjust to their starting level within 5 years, whereas other prices do not. Initially 12 percent and after five years roughly a third of the volatility in real house prices can be explained by monetary policy.

Although in general house prices co-move with key macroeconomic variables after a monetary policy shock, the study found large heterogeneity amongst countries. For that reason, the authors endogenously divide the data set in two distinctive groups.<sup>2</sup>

It turns out that monetary policy, both in the long and short run, had stronger effects on house price developments in Denmark, Ireland, the Netherlands, Sweden, Spain and the United Kingdom than in Austria, Belgium, Finland, France, Germany, Italy and Portugal. Although the last two years have not been included in their sample, the three economies currently suffering from unwinding real estate prices – Ireland, Spain and the United Kingdom – all belong to the group that in the past has strongly responded to monetary policy action. As described in the 2007 EEAG report, at least Ireland and Spain have experienced a prolonged period in which interest rates were well below optimal levels, from their perspectives.

<sup>1</sup> The sample countries are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.

<sup>2</sup> There is no general agreement on how to separate countries into groups; usually the separation is based on subjective indicators. To be as objective as possible Carstensen et al. (2008) cluster countries into distinctive groups taking account of the reaction of real house prices to a monetary policy shock. The groups of countries – a strong reaction group and a weak reaction group – are endogenously identified by using a distance measure that is determined by the absolute value of the difference between cumulated impulse responses. The impulse responses across the two groups of countries are compared afterwards to assess the macroeconomic effects of movements in real house prices after a change in interest rates.

In the East European member countries of the European Union, the economic expansion in the first half-year slowed down during the rest of 2008. Over the year, real GDP of these new member countries that are not part of the euro area increased by about 4.8 percent (see Table A.2). In most countries, and especially in *the Czech Republic, Poland and Slovakia*, consumption continued to increase substantially. Investments also expanded robustly in these countries, whereas they fell in *Estonia, Hungary and Latvia*. Overall, the trade balance deteriorated somewhat.

### 3. Fiscal and monetary policy in Europe

#### 3.1 Fiscal policy

Despite the continuing increase in tax receipts, the public finance situation in general, in both the euro area as well as the whole EU27, no longer improved

last year. The fiscal deficit as a percentage of GDP increased from 0.6 to 1.3 percent of GDP for the euro area and from 0.9 to 1.6 percent in the EU27 (see Table 1.2). In contrast to the United States, the structural budget deficit in the euro area increased only slightly last year (see Figure 1.10).

Except for Portugal and Romania, the consolidation of public finances ceased, and both actual and cyclically-adjusted fiscal balances deteriorated. The countries that exhibited fiscal surpluses last year are Bulgaria, Denmark, Ireland, Luxembourg, the Netherlands and Sweden. Now that Europe is in recession, fiscal consolidation is no longer at the top of the agenda. Especially since the autumn, member states have continuously announced rescue packages, first of all for the banking sector and more recently also for the other parts of the economy.

Given the global nature of the crisis, co-ordination is important and the European Commission acted by

Table 1.2

## Public finances

	Gross debt <sup>a)</sup>				Fiscal balance <sup>a)</sup>			
	2001–2005	2006	2007	2008	2001–2005	2006	2007	2008
Germany	63.3	67.6	65.1	64.3	-3.5	-1.5	-0.2	0.0
France	61.7	63.6	63.9	65.4	-3.0	-2.4	-2.7	-3.0
Italy	105.7	106.9	104.1	104.1	-3.5	-3.4	-1.6	-2.5
Spain	49.2	39.6	36.2	37.5	-0.1	2.0	2.2	-1.6
Netherlands	51.5	47.4	45.7	48.2	-1.5	0.6	0.3	1.2
Belgium	99.0	87.8	83.9	86.5	-0.5	0.3	-0.3	-0.5
Austria	65.5	62.0	59.5	57.4	-1.6	-1.5	-0.4	-0.6
Greece	99.9	95.9	94.8	93.4	-5.5	-2.8	-3.5	-2.5
Ireland	42.7	39.2	35.1	31.6	3.4	4.1	5.3	5.1
Finland	31.1	24.7	24.8	31.6	0.8	3.0	0.2	-5.5
Portugal	57.4	64.7	63.6	64.3	-3.9	-3.9	-2.6	-2.2
Slovakia	42.1	30.4	29.4	28.8	-4.5	-3.5	-1.9	-2.3
Slovenia	27.4	26.7	23.4	21.8	-2.6	-1.2	0.5	-0.2
Luxembourg	6.3	6.6	7.0	14.1	1.5	1.3	3.2	2.7
Cyprus	66.7	64.6	59.5	48.2	-3.9	-1.2	3.5	1.0
Malta	66.7	63.9	62.2	63.1	-5.9	-2.3	-1.8	-3.8
<b>Euro Area</b>	<b>68.9</b>	<b>68.3</b>	<b>66.1</b>	<b>66.6</b>	<b>-2.6</b>	<b>-1.3</b>	<b>-0.6</b>	<b>-1.3</b>
United Kingdom	39.4	43.4	44.2	50.1	-2.3	-2.7	-2.8	-4.2
Sweden	52.3	45.9	40.2	34.7	0.5	2.3	3.6	2.6
Denmark	44.0	30.5	26.2	21.1	-5.3	5.2	4.5	3.1
Poland	43.9	47.7	44.9	43.7	-5.1	-3.8	-2.0	-2.3
Czech Republic	28.8	29.6	28.9	26.6	-1.9	-2.7	-1.0	-1.2
Hungary	21.4	12.4	12.9	13.4	-6.9	-2.2	-2.6	-3.4
Romania	57.4	65.6	65.8	65.4	-1.8	-9.3	-5.0	-3.4
Lithuania	20.9	18.0	17.0	17.5	0.6	-0.4	-1.2	-2.7
Bulgaria	46.8	22.7	18.2	13.8	-1.5	3.0	0.1	3.3
Latvia	13.9	10.7	9.5	12.3	1.0	-0.2	0.1	-2.3
Estonia	5.1	4.3	3.5	4.2	-2.0	2.9	2.7	-1.4
<b>EU27</b>	<b>61.5</b>	<b>61.3</b>	<b>58.7</b>	<b>59.8</b>	<b>-2.5</b>	<b>-1.4</b>	<b>-0.9</b>	<b>-1.6</b>

<sup>a)</sup> As a percentage of gross domestic product; definitions according to the Maastricht Treaty.

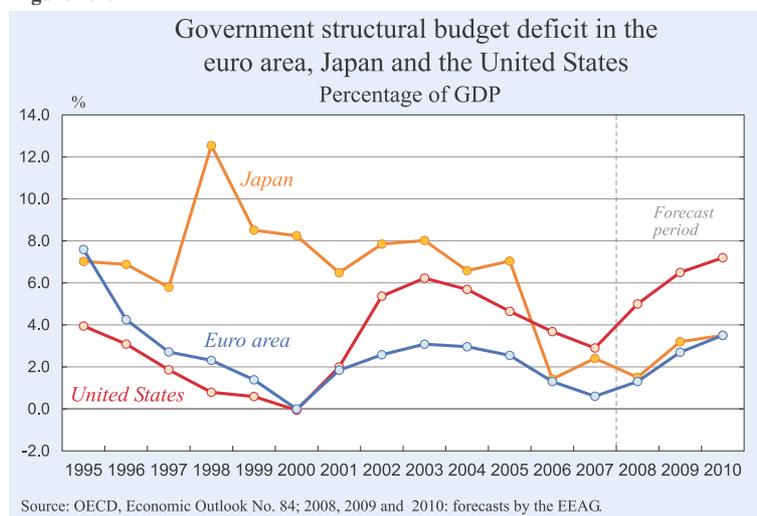
Source: Eurostat and European Commission

announcing the so-called European Economic Recovery Plan at the end of last year. Its immediate priority is to improve confidence in the financial system and subsequently mitigate the impact of the crisis on the real economy.

The Recovery Plan consists of two pillars. First on the list is a scheduled fiscal impulse of 200 billion euros, which is approximately 1.5 percent of EU GDP. The major part, 170 billion euros, consists of the national stimulus programmes which have partly already been

unveiled by member states. The remaining 30 billion will be directly funded by the EU. Its clear focus is on increasing government spending towards areas which are hit most by the crisis and from where the largest multiplier effects can be expected. Accordingly, transfers are directed towards the unemployed and low-income households, to guarantees and loan subsidies, and to temporarily reduce value-added taxes. The second pillar focuses on the continuation of structural reforms to promote potential growth and general resilience of the European economy. These

Figure 1.10



reforms include reducing administrative burdens for firms, increasing labour market flexibility, and investing in infrastructure, human capital and “green” technologies, all of which have their roots in the Lisbon Strategy.

Despite this attempt to coordinate fiscal action within Europe, countries have reacted quite differently to the economic downturn.

For instance, whereas the *German* banking sector was supported swiftly and with large sums of money, for a long time the central government appeared to be unwilling to act boldly in the area of fiscal policy. Thus far, 20 German banks are considering participating in the 500-billion-euro bank rescue package put in place by the government in mid-October.

Initially, the German government announced a stimulus package of about 6 billion euros for 2009 and 2010, which contained a tax rebate when buying a new car, more favourable depreciation allowances for firms and tax deductibility of bills from craftsmen for households. More recently, the Bundestag (the lower house of German parliament) passed a package of measures, supposedly worth approximately 30 billion euros, which would be roughly 1.2 percent of German GDP.

At the end of November the *UK* government announced a package which amounts to 22 billion euros, i.e., about 1 percent of GDP. Its main ingredient is a reduction of the value-added tax by 2.5 percentage point to 15 percent as of 1 December 2008 until the end of 2009. This alone reduces tax revenue by 14 billion euros. This temporary cut is indeed likely to boost the domestic retail sector. So far, retail sales in the United Kingdom have been relatively stable. However, as the country has been hit particularly hard by the financial and property crisis, a collapse in the retail sector should only be a matter of time. Infrastructure spending is to be increased by 3.3 billion euros. According to the pre-budget report the entire package will reduce the effect of the downturn by 0.5 percentage points.

*France* has unveiled a 26 billion euro stimulus package, which is equivalent to about 1.3 percent of GDP. Besides massive subsidies for medium-sized businesses, the plan earmarks 10.5 billion euros for infrastructure and R&D expenditure research, and the support of local authorities. The French economics minister said the plan should create 80,000 to 110,000 new

jobs, making up for the expected disappearance of some 90,000 jobs next year due to the crisis.

Prime Minister Silvio Berlusconi said that *Italy* will take measures that amount up to 80 billion euros to support the Italian economy. This would be about 5 percent of GDP. However, many economists have already pointed out that the vast majority of this money is no more than a recycling of existing funds. The measures include a temporary freeze on regulated energy prices and road tolls, 2.4 billion euros in tax breaks for poorer families and some marginal easing of the direct and indirect tax burden for companies.

During the second half of last year, *Spain* announced various measures to cushion the impact of the economic slowdown and soaring unemployment. Most recently, the government said it will spend an extra 11 billion euros on public works and other stimulus measures to create 300,000 jobs in 2009. The package includes 6 billion euros in tax cuts and 4 billion euros of liquidity to credit-strapped companies and households. The plan, equivalent to roughly 1 percent of Spanish GDP, furthermore includes 800 million euros in aid for the auto sector.

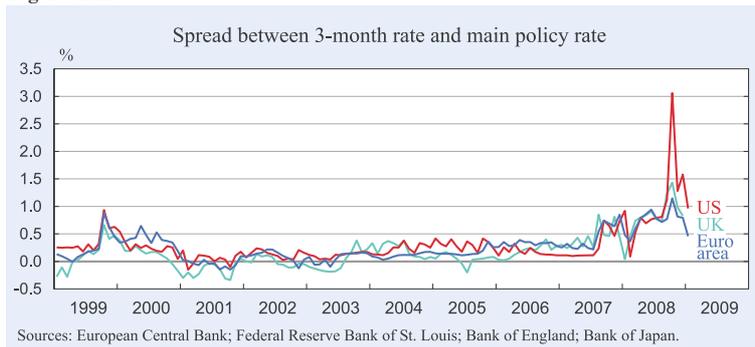
Other countries within the European Union have also announced programs of similar orders of magnitude. For instance, in *the Netherlands*, the government communicated a so-called “liquidity impulse” of 6 billion euros, which equals roughly 1 percent of GDP. It includes allowing companies to write down investments sooner than usual.

### 3.2 Monetary conditions and financial markets

#### *The financial crisis*

In summer 2007, the financial crisis was triggered by announcements that some banks around the world were in financial distress due to losses on investments in US mortgage-backed securities. Overly optimistic expectations about future growth and interest rates in combination with various subsidies and other policy interventions led to unsustainably high house prices in the United States. Ex post, it is obvious that a correction of this bubble, as it is often labelled in the public debate, had to occur. Its bursting has led to a sharp re-evaluation of associated mortgage-backed securities. Strong interlinkages between balance sheets of financial institutions have consequently triggered a severe loss in mutual confidence within the banking sector.

Figure 1.11



This in turn caused the need for further write-downs and losses, and a downward spiral set in.

In early 2008, the reduction in money market interest rate spreads, which with hindsight was only temporary, appeared to signal that perhaps the worst was over (see Figure 1.11). However, what started with the loan defaults in the US subprime sector affected a steadily widening variety of financial markets over the course of the past year. As it turned out, the subprime mortgage crisis did not actually reach a critical stage until September 2008. Then, liquidity contracted severely in the global credit markets, and several investment banks and insurers in the United States threatened to turn insolvent. The spread between the three-month interbank rates and the policy rates reached unprecedented levels in the United States and Europe. Whereas the spread peaked with an average of 306 basis points in the United States in November, it was still 115 basis points in the euro area that same month. In response, the US government announced a series of comprehensive steps to address the problems, following a series of stand-alone decisions whether to intervene or not. For instance, a liquidity facility for American International Group (AIG) was created on September 16. Furthermore, the Federal Reserve basically took over Fannie Mae and Freddie Mac – the government sponsored enterprises that are behind a vast majority of new mortgage lending in the United States. However, it did not intervene to prevent the bankruptcy of Lehman Brothers, which nowadays is considered to have triggered an unprecedented wave of mistrust and thereby an almost complete drain off on interbank markets. This near-collapse of world-wide financial systems was only prevented by decisive actions of central banks around the world – they basically turned into the main provider of liquidity on interbank markets.

Chapter 2 of this year's EEAG report is devoted entirely to the financial crisis. Here we highlight its

most importance consequences for economic developments. Most importantly, the loss in confidence amongst bankers has widened to a general drop in sentiment. Households started to fear a loss in their financial savings, and firms projected the situation of the financial markets onto the real economy. Prospects deteriorated more sharply than otherwise would have been the case, causing a withdrawal of

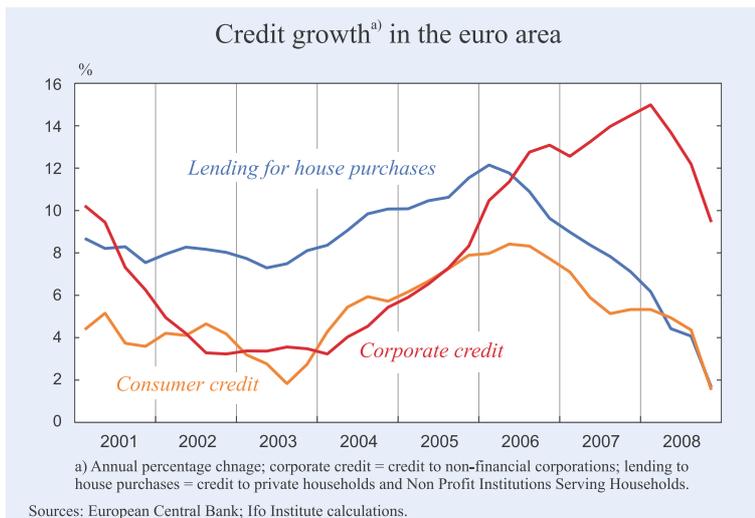
investment plans (including residential investments) and a cut-back in the consumption of durable goods (such as cars).

The other channel through which the banking crisis affects household and firm decisions is via the willingness of banks to supply credit. As already argued in last year's EEAG report, it is in general difficult to come up with statistical evidence that clearly refutes or proves the existence of a credit crunch scenario.<sup>4</sup> To do so, we would need to know the excess-demand for or the under-supply of credits instead of the actual quantity and price, i.e., interest rate. A credit crunch does not necessarily show up in higher risk premia enclosed in market interest rates – balance sheet problems on the side of the bank might simply lead them to become more selective without an increase in the price. Nor is a fall in credit volumes necessarily a result of the reduced credit supply – it might simply be demand which is falling. It would, however, be difficult to associate a credit crunch with increasing credit volumes.

After a short pause during the winter last year, interest rates for new loans to households and firms in the euro area continued to increase slowly until the summer. This process, which started in early 2006, seems to have come to a halt in more recent months. This pattern is most pronounced for loans with maturities of more than five years – constituting more than half of the total credit volume. With respect to credit volumes, the patterns have been clear since early last year (see Figure 1.12). Although credit to non-financial corporations remains, growing at reduced levels, annual growth rates fell from 15 percent in the first

<sup>4</sup> A situation in which banks constrain their credit supply to still profitable projects is usually labelled a credit crunch. This would in general be caused by balance sheet problems on the part of the bank. This does not include situations in which banks constrain the credit supply because formerly profitable investment projects are no longer considered profitable, for instance, due to a changing economic environment.

Figure 1.12



quarter of 2008 to 12.2 percent in the third. Especially the last few months have seen sharp falls in growth rates. The decline in growth of both consumer credits and mortgages – which started already in 2006 – continued throughout the year. Annual growth rates decreased to approximately 4 percent at the end of the third quarter of last year.

At least up until autumn, financial turbulence did not seem to have a great impact on credit data. Potential explanations might be that corporations made use of pre-committed credit lines and did not reduce their demand for bank credit as much because direct access to financial markets was even more restrained. More recently, however, the impact of the financial crisis has started to show up more clearly in credit data. This situation is likely to continue to worsen as especially survey data has pointed out. For Europe, we can fall back on the results of business tendency surveys, which ask firms about their financial constraints, and on the bank lending survey conducted by the ECB among the private banks within the euro area.

In the business tendency surveys published by the European Commission, firms in manufacturing, the services and construction are asked on a quarterly basis whether financial constraints are limiting their production capabilities. Figure 1.13 shows that indeed within the services sector the percentage of firms indicat-

ing they are financially constrained has increased to close to 16 percent in the last quarter. In manufacturing and construction, we also see an increase – albeit less pronounced.

In particular, the bank lending survey of the ECB indicates that banks have already tightened their lending conditions substantially and plan to continue to do so in the coming months. The net percentage of banks expecting a tightening of credit standards in the first quarter of this year increased to 66 percent. This figure stood at only 3 percent five quarters earlier. However, the most important reason mentioned by the banks for this tightening in credit standards is the expected deterioration of future economic activity.

Although more and more evidence is pointing towards a further lowering of credit growth in the near future, it is still too early to tell whether this is due to the balance sheet problems of banks, and thereby the start of a real credit crunch in the euro area, or due to the deterioration of the economic climate and thereby increased default risks of investment projects.

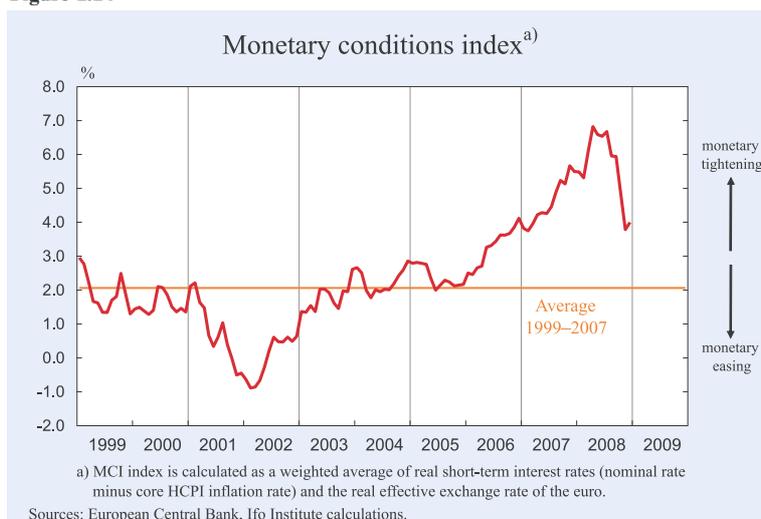
#### *Monetary conditions in Europe*

After an additional tightening at the beginning of last year due to a further appreciation of the euro, mone-

Figure 1.13

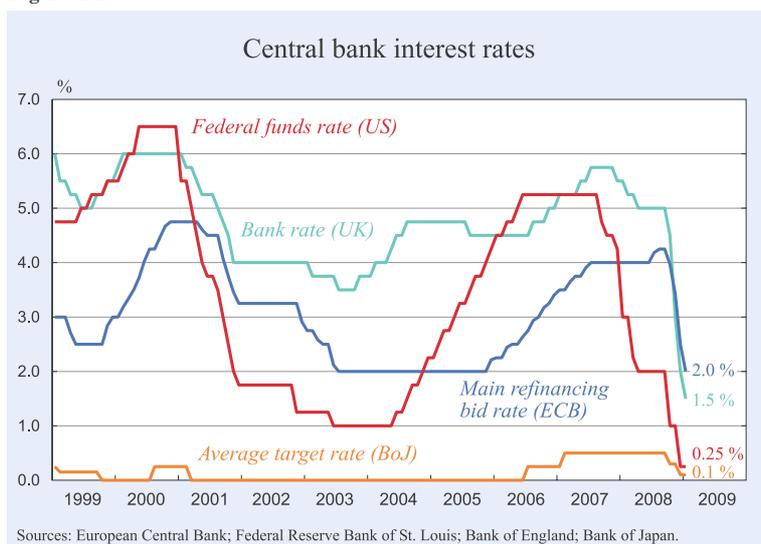


Figure 1.14



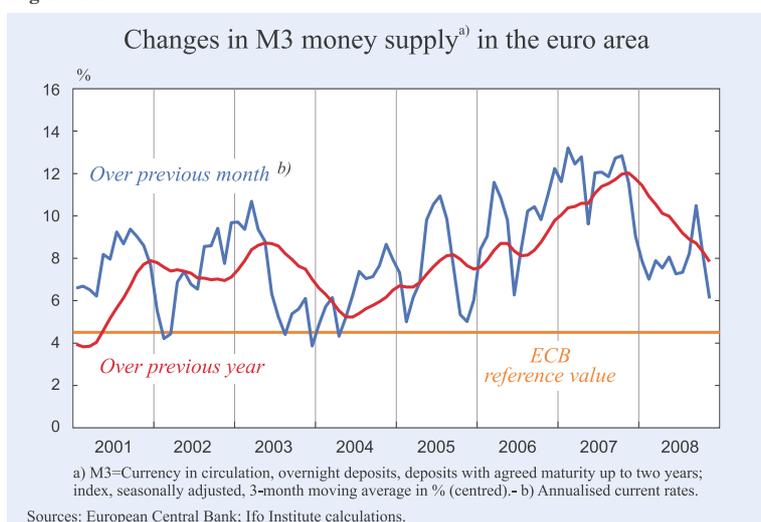
tary conditions remained tight until summer last year (see Figure 1.14). In early July, the ECB even increased its main refinancing rate by 25 basis points to a level of 4.25 percent (see Figure 1.15). Especially the interest rate cuts of the ECB starting from early October have loosened monetary conditions in the euro area. During the autumn, though, problems in the European interbank market kept money market interest rates well above the main refinancing rate. The reduction in the money market spreads loosened monetary conditions at an even faster pace at the end of last year. Nevertheless, the still strong euro prevents our monetary conditions indicator from falling below its long-run average.

Figure 1.15



Mirroring the developments on the credit market, the annual growth rate of money supply, as measured by M3, fell throughout the year (see Figure 1.16). At the end of 2007 it stood at about 12 percent; this has now fallen to close to 8 percent. Last year was thereby the eighth year in a row in which M3 growth exceeded the ECB reference value of 4.5 percent. The banking crisis, however, becomes evident when we look at the more narrowly defined measures of money. For instance, M1 has basically stagnated since last summer after having had a stable growth rate of around 6 percent throughout 2007.

Figure 1.16



Reduced growth forecasts caused the Bank of England to cut its bank rate from 5.75 percent to 5 percent in three steps during winter 2007/2008. After keeping it fixed until early October, the outbreak of the economic crisis induced a sharp fall of 350 basis points to a historically low level of 1.5 percent in January this year.

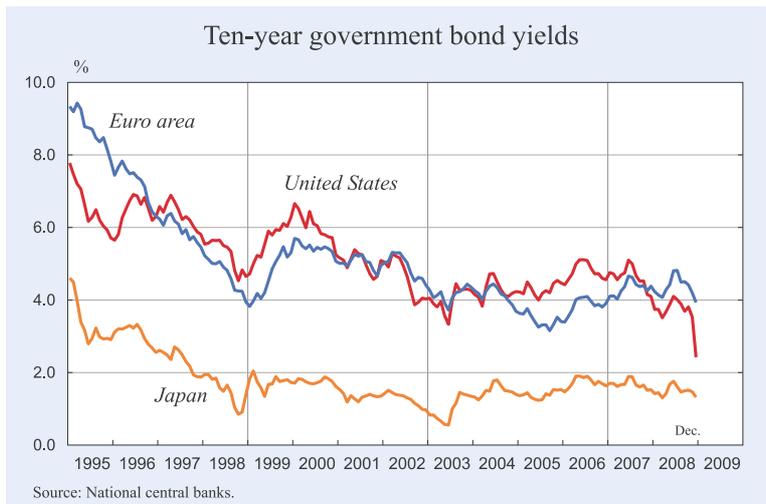
*Bonds, stocks and foreign exchange markets*

During the first half of 2008, government bond yields in euro area member states first increased by about 80 basis points and then subsequently fell by 130 basis points until the end of the year (see Figure 1.17). Whereas at the beginning of the year there were indications that problems on financial markets would stabilize, an increased surge towards safe assets not only led to the fall in government bond yields but also caused corporate bond yields to rise. This increased risk aversion is reflected in the rise in the interest differential between corporate and government bonds (see Figure 1.18). These spreads have now reached unprecedented levels.

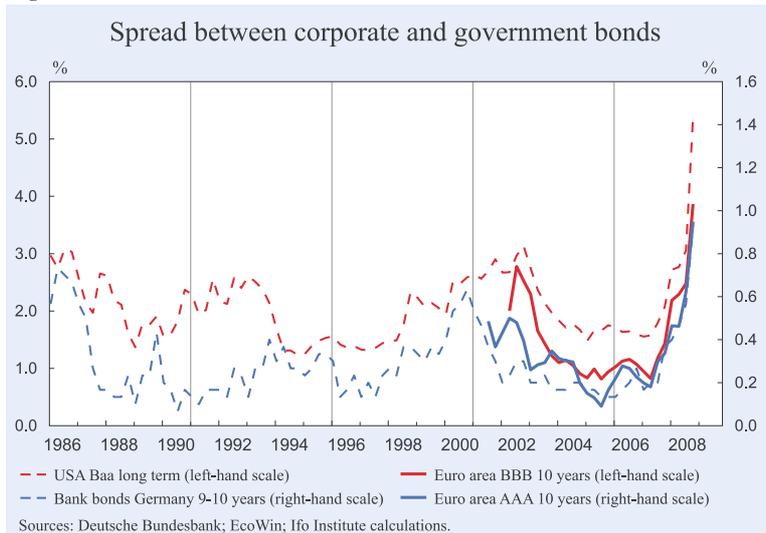
Although volatile, stock markets stagnated during the first half of 2008 (see Figure 1.19). The volatility increased further during the second half of the year and stock indexes plummeted everywhere around the world. Since its peak, the Euro STOXX 50 fell by about 45 percent; the US, UK and Japanese stock indexes faced similar declines. Overall, stock markets have now almost reached the lows reported in early 2003. The sharp interest rate cuts around the world were not able to prevent this.

Not only are stock markets in turmoil, also exchange rates have been fluctuating heavily since the start of the financial crisis. Until July 2008, the US dollar continued to drop steeply against the euro and reached its all time monthly low at a 1.58. Subsequently, it bounced back to 1.34 in December (after the low in November). In real effective

**Figure 1.17**



**Figure 1.18**



**Figure 1.19**

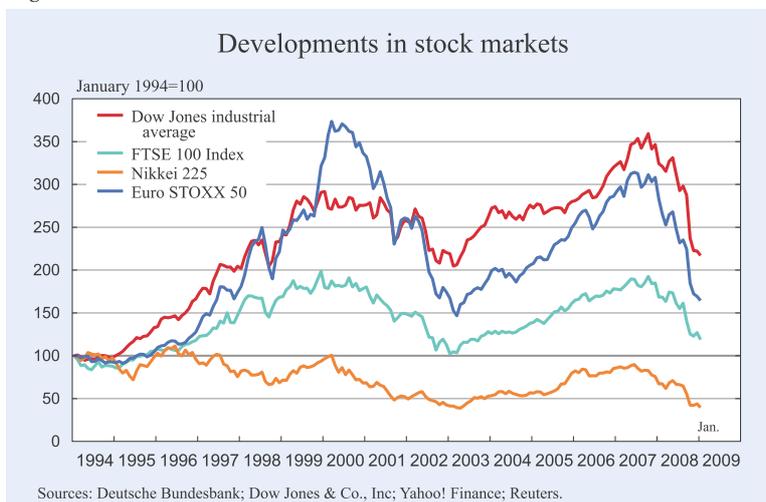
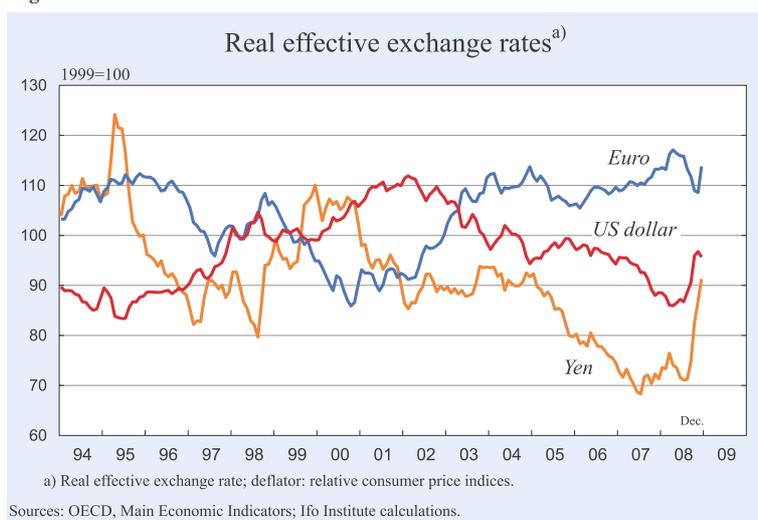


Figure 1.20



terms, the euro is now back at average levels of 2004–2006 (see Figure 1.20).

Unlike in Sweden and the United Kingdom, the central bank in Denmark is focusing on keeping its exchange rate vis-à-vis the euro stable. The turmoil on financial markets and the thereby induced flight towards quality, which is also associated with country size, has put pressure on currencies of smaller economies. The central bank of Denmark was therefore forced to raise interest rates on two separate occasions in October, thereby widening the spread between Danish and euro area rates. The increases were partially reversed in early November, following a cut in euro area rates. Partly triggered by these problems, the Danish government has again raised the possibility of holding a referendum on whether to join the euro area.

To keep the currency board arrangements in Estonia and Lithuania and the pegged exchange rate regime in Latvia alive while at the same time not having a complete withdrawal of foreign capital, money market interest rates have increased sharply in these countries during the past months. This is now putting a large burden on their domestic economies. The other new EU member states have seen clear depreciation of their local currencies. To stop this process, the central banks in many of these

countries have also increased interest rates.

#### 4. The economic outlook for 2009 and 2010

##### 4.1 The global economy

Most regions of the world economy are in recession. The expectations of the participants of the Ifo World Economic Survey indicate that this winter, growth is expected to fall further. Although expectations in North America seem to have reached a trough during last winter, the outlook

for Asia has never been as bleak since the start of the survey in 1990 (see Figure 1.21).

Whereas the Ifo World Economic Survey asks participants for their expectations for the upcoming 6 months, the survey of Consensus Economics amongst professional forecasters covers the entire year 2009. Figure 1.22 converts these monthly survey results into expectations for the upcoming 12 months. The initially expected moderate slowdown turned into a sharp fall in growth forecasts around the world in autumn last year. Many forecast institutes still appear to be in the process of adjusting their estimates downward.

The uncertainty concerning future business cycle developments has stayed at a historically high level.

Figure 1.21

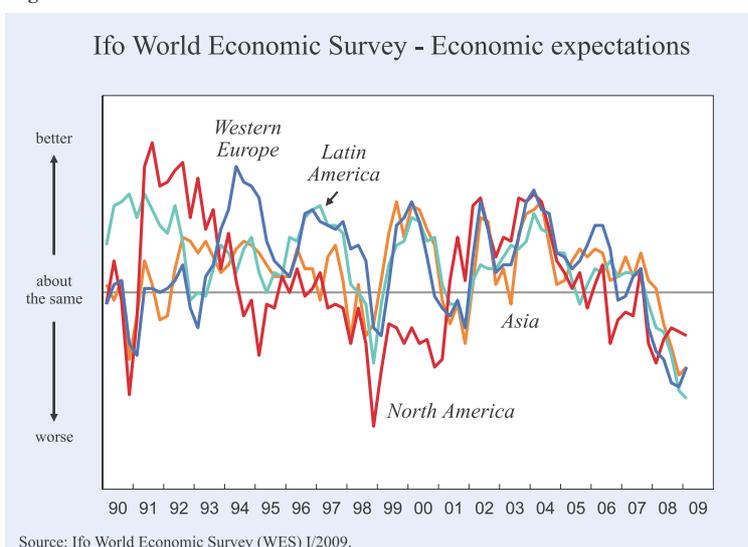
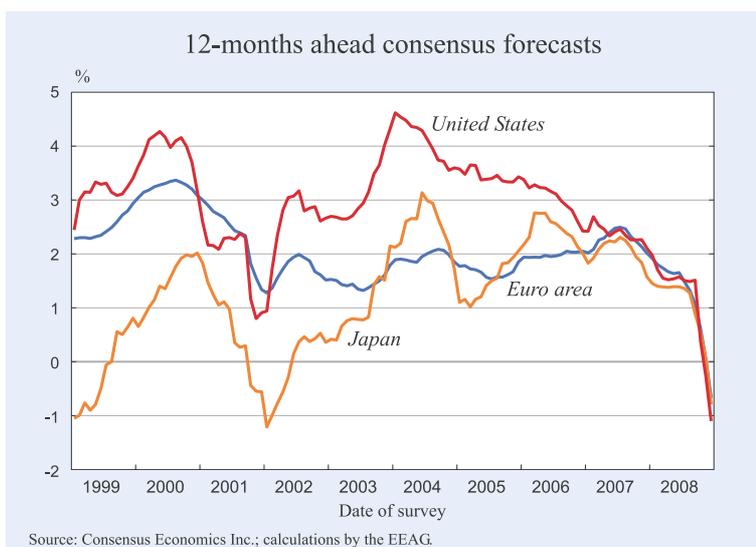


Figure 1.22



The underlying problems that have triggered the current world economic downswing remain virulent. The fall in US real estate prices continues and has even picked up speed again in recent months, and the situation on international financial markets remains critical. However, as compared to last year, it has become clear that it will not be possible to keep the problems isolated to the US real estate and international financial markets. Mainly via sharply falling sentiment around the world, the real economy has also fallen into a slump.

Currently, all economic indicators – regardless of which region or sector they refer to – point in the same downward direction. Moreover, the speed of the downturn as well as the levels already reached are truly unique. Most worrisome is that still no bottom seems to have formed.

In the current situation, which is characterised by a high degree of pessimism, it is difficult to identify factors that could, in the short run, brake the recession. A glimmer of hope stems from the stimulus packages initiated by many governments around the world. However, the continuously changing situation on this front and the general uncertainty felt by economic agents makes it difficult to estimate the magnitude of these programs and their effects.

Another positive aspect is the drop in the inflation rate, which above all is driven by the marked drop of the prices for food and raw materials. This should strengthen the purchasing power of consumers. Finally, it is still possible that the current mood is an exaggeration of the actual and future situation, in which case it could turn swiftly. The discrepancy between expectations and the appraisal of the present, actual situation is still exceptionally large in many countries.

Nevertheless, we expect world economic growth to stay well below potential during our forecasting horizon. For 2009, we expect the weighted average growth rate in our sample of 49 countries when using GDP at market prices as weights to be a mere 0.3 percent (see Table A.1). Considering an annual world population growth rate of 1.2 percent, world per capita GDP growth will even turn negative this year. Over the last 40 years, this only occurred twice (in the recession years 1982 and 1991). Measured by this, the recession is deep but not exceptional in the post-war period.

From a welfare perspective, it makes sense to correct these figures for the lower price levels in China and other emerging economies. Using such purchasing-power-parity adjusted data increases the annual

Figure 1.23

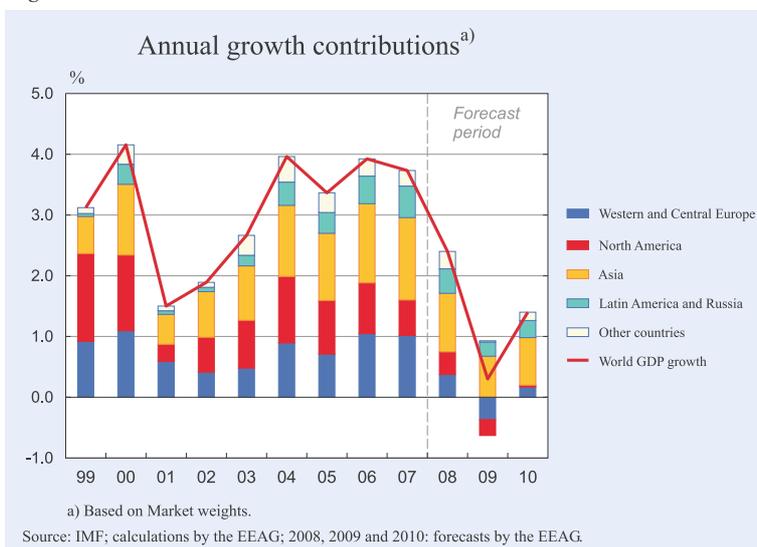
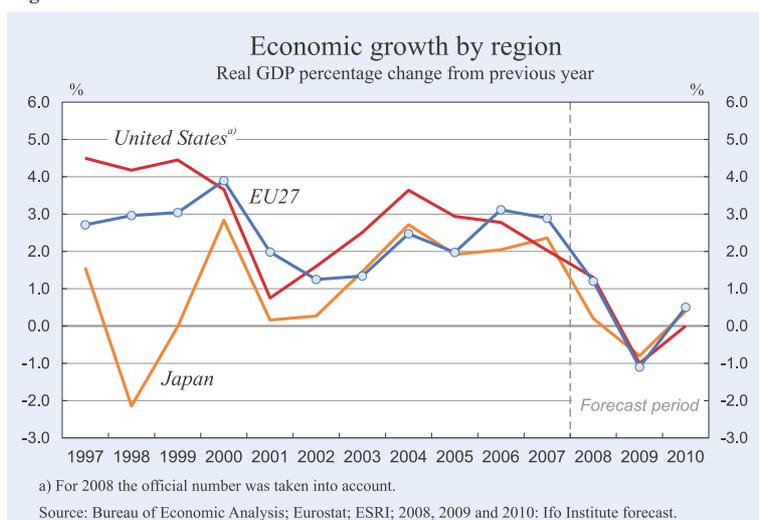


Figure 1.24



growth rate for the world economy to 1.4 percent in 2009 (see Figure 1.1).

The deteriorated firm expectations, the global banking crisis, the real estate problems in some countries and the general decline in wealth positions around the world have all put downward pressure on real economic activity. Given the severity of the crises, a quick turnaround does not appear likely.

Albeit much less than in the previous years, Asia, Latin America and Russia still continue to add positive contributions to world economic growth this year. These barely manage to compensate for the sharp negative growth contributions coming from both North America (in particular the United States) and Western Europe (see Figure 1.23). Looking at the three major industrialised regions in the world in isolation, Figure 1.24 highlights that they have become – and will stay – almost synchronised during this and the next year.

#### 4.2 United States

The recession in the United States will continue throughout the year. Only at the end of 2010 is a slow recovery expected. This downturn will be so persistent mainly because US consumers have been living beyond their means for too long. To allow for a way back to a sustainable growth path, this behaviour must now be corrected.

As described in previous EEAG reports, low interest rates, too loose credit allocation policies of banks as well as associated increases in house prices resulted in

consumption growth that exceeded income growth in past years. The bursting of the real estate bubble since mid-2007 has made it clear that this cannot be sustained. Real estate prices have been falling ever since and a landing is not to be expected soon. Futures contracts imply that market participants expect house prices to decline by another 15 percent before reaching a trough in the course of 2010.

The situation has been worsened by the subsequent crisis on the international financial markets that caused large depreciations and write-downs in bank balances. Although government intervention has prevented a collapse of the banking system, it could not circumvent a general fall in financial asset prices and to contamination of other sectors of the economy. Because of falling capital ratios and to insure adequate risk provisions, banks are increasingly reducing their willingness to supply credit to both households and firms.

The negative wealth effects and increased credit constraints together with the deteriorating labour market conditions will all put a heavy burden on private consumption in the years to come. Adaptation delays will force consumption growth to stay negative or at least below potential for a longer period of time. This will dampen import demand and thereby reduce the new indebtedness to the rest of the world. This adjustment process will not be completed quickly and will hence hinder the recovery of the world economy for quite some time. Nevertheless, the fall in consumption will not continue at the same pace that we have seen in the last two quarters. Both falling inflation rates and the business cycle programmes initiated by the new US administration will stimulate consumption demand to some degree.

Investment will decline. Forward-looking indicators for the real estate market in the United States, like building permits, still point towards a further slowdown. Consequently, residential investment will continue to put a burden on economic growth. Furthermore, firms face deteriorating sales and profit perspectives, and more restrictive credit conditions. The latter will hit particularly small- and medium-sized firms, which usually finance themselves through bank credits. This will restrain equipment and software

investment. Investment in non-residential structures, which has so far been an important pillar for growth in the United States, will tend to weaken as well. It will not be before mid-2010 that investment demand will pick up again and contribute to economic growth in the United States. By then, investment in equipment and software will reach its cyclical trough, and house prices are expected to bottom out.

From a demand side perspective, only net exports will be able to contribute positively to economic growth. Although export growth will slow down considerably due to the economic malaise in many of the trading partners of the United States, the fall in domestic demand will keep import growth lower. After five quarters of negative growth, the latter will nevertheless slowly turn positive again.

Overall, this will result in a contraction of the US economy of 1 percent in 2009 and stagnation in 2010 (see Table A.1). The deterioration of labour market conditions will continue. The unemployment rate will increase on average to 7.5 percent both this and next year.

The recession and the fall in energy prices will cause inflation to reduce further to 0.3 percent this year. In 2010, consumer prices will grow by 1.3 percent on average. Although inflation rates might turn negative for some months, medium- to long-run inflation expectations appear to be well anchored at a level of 2.5 percent for the United States. Furthermore, core inflation rates appear to be relatively stable as well. We therefore do not expect deflation problems to occur within our forecasting horizon.

#### 4.3 Japan, China, India and other Asian countries

Economic expectations remain bleak in *Japan*. Business expectations have deteriorated sharply due to the somber outlook for the world economy and consumer confidence also continues to fall, reaching its lowest level in 26 years in November. Although it is not yet clear how strongly the financial crisis will affect the Japanese economy, banks have started to become more risk averse and credit conditions show signs of worsening. Furthermore, the slowdown of world economic growth has reduced the willingness of the large export-oriented firms in Japan to invest. Accordingly, investment will continue to slump.

Due to the fall in raw material prices, inflation rates will temporarily turn negative in the middle of this

year leading to an overall fall of prices by 0.2 percent in 2009. However, it is not likely that this will turn into a persistent and broadly based decline in prices as Japan experienced in the 1990s. In contrast, the lower prices might actually support the purchasing power of households and thereby prevent a stronger fall in consumption. Nevertheless, the somewhat deteriorating labour market conditions together with fading consumer confidence will lead to a weakening of private consumption.

Overall, the recession in Japan will continue. Domestic demand will hardly expand over the next two years. Given the weak economic conditions of Japan's major trading partners, it can no longer be expected that foreign trade will deliver any growth impulses. GDP will decline by 0.8 percent this year to subsequently grow by a moderate 0.4 percent in 2010.

This recession will not be as severe as the one in the mid-1990s or those in the United States and Europe. Although stagnating demand from China will not bring any growth impulses, Japan's high export share to China will at same time assure some degree of stabilisation. Furthermore, as compared to the 1990s, firms have hardly accumulated debt. Hence they have much higher capital ratios and have not built up excess capacities. On top of that, credit conditions are much more favourable in Japan than in the United States or Europe, and signs of a real estate bubble have been very limited so far.

Because of the economic crisis it has become more and more difficult for the Japanese government to achieve its aim of achieving a primary budget surplus in the fiscal year 2011. Presently government debt is still substantial. At the same time the government approved several economic programmes last year. Credit guarantees are scheduled for small- and medium-sized enterprises, the transport industry is to be supported, public building projects will be financed, tax rebates for households are scheduled, new mortgages are to be subsidised and capital injections for regional banks are planned. The deficit ratio will clearly rise above 3 percent during the current and the upcoming year.

As all of the major developed economies are in recession (especially the United States), export- and investment-driven expansion in *China* (incl. *Hong Kong*) will be affected more strongly in 2009 and 2010. At the same time, inflation will slow down further. This

will allow the Chinese central bank to continue to reduce its key interest rate and the minimum reserve requirements of banks.

To support domestic demand, which is also fading, the central government has announced an economic stimulus package of 4 trillion yuan (450 billion euros) to be spent in 2009 and 2010. The funds are intended to finance programs in 10 major areas, such as low-income housing, rural infrastructure, water, electricity, transportation, the environment, technological innovation and rebuilding after disasters like the earthquake of 12 May 2008. The policies include a comprehensive reform in value-added taxes, which would cut industry costs by 120 billion yuan. Commercial banks' credit ceilings will be abolished to channel more lending to priority projects, rural areas, smaller enterprises, technical innovation and industrial rationalisation through mergers and acquisitions. Provincial governments have drawn up plans that will bring total spending to 10 trillion yuan (1.1 trillion euros), more than twice the original programme announced by the central government on 9 November. This amounts to about 16 percent of nominal GDP.

These extensive measures will, however, not be able to offset the reduced demand from abroad. Furthermore, weak labour market and wage developments will put a burden on private consumption and will therefore counter the positive impulses that come from the fiscal stimulus and lower inflation. GDP growth is expected to fall to 7.5 percent this and the next year (after 9.4 percent last year).

Despite the slowdown in export growth, it is not likely that China's current account surplus will start shrinking any time soon. A weakening of the domestic economy but especially falling raw material prices will cause (nominal) import growth to be reduced by at least the same rate.

As compared to other emerging economies, *India's* growth is based much more on its own savings. Its savings rate has gone up from about 25 percent since the first years of this century to more than 35 percent today. For that reason, India could turn out to be relatively insulated from global financial problems. Nevertheless, India has also become more and more integrated with the global economy. Exports plus imports are now 45 percent of GDP, so the global recession will certainly affect India as well although to a lesser extent than most other emerging market

economies, which are generally much more dependent upon international trade.

The upcoming general election scheduled for this spring has already created a relatively loose fiscal policy stance. It thereby will become difficult for the government to respond to the impact of the global financial crisis with supplementary fiscal measures. On the other hand, the global financial crisis has already triggered a complete reversal of monetary policy, which we expect to be followed by further interest rate cuts this year. Despite the reversal of the commodity price boom, India will – because of its loosened fiscal policy stance – remain highly vulnerable to upward inflationary pressures in 2009. GDP growth will decline overall to 6 percent this year and 6.2 percent in 2010.

In the remaining emerging economies of Asia, i.e. *Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand*, GDP growth will also slow down further. Although domestic demand will continue to grow in most economies for some time (as labour markets will remain tight for the coming months), the world economic situation will negatively affect their trading sectors. Countries like the Philippines, which have specialised in the production of electronic goods, will suffer the most. Consequently, the high current account surplus of the region will be substantially reduced this year. GDP of these East Asian countries will grow by only 3 percent this and 3.2 percent the upcoming year.

#### **4.4 The rest of the world**

The present cooling of the global economic climate not only affects the larger economic regions of North America, Western Europe and Asia, but also Central and Eastern Europe, Russia and Latin America.

We anticipate that central banks in the Latin American region, i.e. *Argentina, Brazil, Chile, Colombia, Mexico and Venezuela*, will relax their monetary policy stance as both inflation pressure and growth prospects are subdued. Furthermore, against this external backdrop many governments will curb public investment and engage in counter-cyclical policies. Prudent macroeconomic policies in the past will allow for this. Declining raw material prices, collapsing external demand and exchange rate depreciations will deteriorate current accounts of those Latin American economies that have based their recent upswing largely on commodity exports.

Overall the region will see a marked decline of growth from 4.2 percent last year to 3.1 and 3.3 percent this and the upcoming year.

Real GDP growth in *Russia* is expected to slow to an average of 2 percent this year and 3.5 percent in 2010. This reflects the impact of financial turmoil, lower commodity prices and weak energy sector production. Furthermore, domestic demand growth will also weaken. The impact of much lower oil prices on exports will outweigh this and the current-account surplus will be sharply reduced in the next two years. Almost entirely based on oil revenues, Russia has increased government spending excessively in the past few years. Despite lower oil prices and thereby more binding fiscal constraints, fiscal policy is bound to stay expansionary. After a fiscal tightening during the past few quarters, the government at the end of last year announced a package of measures to support the real economy amid the financial turmoil. The package includes cuts in corporate and other taxes, faster amortisation schedules and support for small business. The possibility of a further steep devaluation of the rouble and an increase in insolvencies of firms that have built up too many short-term foreign credits present the main risks to macroeconomic stability in Russia.

#### *4.5 Assumptions, risks and uncertainties*

When forecasting the economic development for the world economy, we have assumed that credit growth will clearly slow down as a result of the economic downturn and the associated deterioration of credit risks. More accommodative monetary policy will cause lending rates to continue to fall, although with considerable delays. The risk premiums on corporate bonds, which have strongly increased, will stay at high levels and aggravate financing via capital markets. In addition, no further negative shocks are assumed, and the oil price is expected to fluctuate in a range between 40 and 50 US dollars throughout the estimation period.

The likelihood of a broadly-based credit crunch has increased. It is still possible that other financial assets like credit card claims or credit default swaps will undergo write-downs. If associated with a further deterioration of trust amongst banks and, as a consequence, additional corrections in their balance sheets, this could well lead to a severe cut in credit lines around the world.

On the other hand, it is also possible that the monetary conditions will turn out to be less restrictive and that banks will be able to cut lending rates more quickly and by more than expected. The interest rate cuts by central banks around the world have been swift and substantial. Also, the newly created instruments by central banks and in particular the Federal Reserve, which have enabled a de facto unlimited provision of central bank money, could slowly show their impact and stimulate economic activity more than expected. Furthermore, the government guarantees on deposits could help defuse the liquidity problems faced by banks during our forecasting horizon. If mistrust amongst banks were successfully reduced, high risk premia on the interbank market would fall. That would reduce refinancing costs and end the costly behaviour of private banks to hoard central bank money.

The persistently high current account deficit makes the economic forecast for the United States especially risky. If foreign investors raise their risk assessments with regard to the US capital market, this could lead to a general withdrawal of foreign capital and a fall in the US dollar. Consequently, interest rates would mount and both private consumption and business investment would suffer even more.

#### *4.6 The European economy*

##### *The cyclical situation*

The credit crisis has turned into a recession in large parts of the world; consumer and producer confidence have crumbled, and the euro is still relatively strong. Accordingly, most member countries are or will soon be in recession. This means that, unlike in the past, national demand shortfalls will not be offset by growth in other countries, and growth in final domestic demand in the European Union will reach an all-time low. Against this backdrop, the situation is unlikely to stabilise soon. Whereas the European Union managed to grow by 1.1 percent last year, we expect GDP to shrink by 1.2 percent this year. Only in 2010 will economic growth turn positive again and reach a subdued level of 0.5 percent (see Figure 1.26).

Of the demand components, only private and public consumption will be able to contribute positively to economic growth this year (see Figure 1.27). Reduced inflation rates will support developments

## Box 1.2

## Deflation in Europe?

After having suffered from high inflation rates during the first half of 2008, we have observed a strong decline in inflation rates thereafter. With the slowdown in economic activity, a number of analysts now fear deflation. Deflation is a substantial threat for modern economies; it directly reallocates wealth from borrowers to lenders. It therefore appears to be especially worrisome for economies that carry a high burden of debt, like the United States. The more severe and indirect consequence is that if prices fall, people tend to postpone consumption, which reduces demand for goods and services and leads to a further fall in prices. A vicious cycle begins, which makes it even more worrisome as there is no easy way out. How pressing is the issue today?

To assess this we first decompose past inflation rates into its energy component and what is usually labelled “core inflation”, i.e., the inflation rate excluding price developments of energy and unprocessed food. While the aggregate inflation rate also moved up, core inflation has remained quite stable. Hence, price increases in the euro area were mainly due to the rise in energy prices. Energy prices have been rising sharply since the autumn of 2007 and falling since the summer of 2008. Already a stabilisation of energy prices will – via the so-called base effect – result in a correction of inflation levels one year later. Hence, due to the sharp oil price increases a year ago, we now see inflation rates falling; assuming the oil price stabilises, the fall in oil prices last autumn will lead to rising inflation rates this autumn.

To turn negative inflation rates into a fall in domestic spending, i.e. into what is usually meant with a real deflation scenario, inflation expectations need to be negative as well; spending is delayed if households and firm expect prices to fall in the future. Figure 1.25 shows the inflation expectations for the euro area at 12 and 24 month horizons as reported by the ECB survey of professional forecasters. Although both one and two year ahead forecasts are presently falling somewhat, they are coming from high levels and are still far from becoming negative. In fact, expectations appear to be remarkably anchored around a value of 2 percent, i.e. the target inflation rate of the ECB. Data from other sources, like Consensus Economics or the EU Consumer Survey, show rather similar developments, i.e. also point downwards in recent time but are not anywhere near historically low levels.

To sum up, given the current stance of the economy it is certainly more adequate to state that we are currently in a period of disinflation rather than at the gates of deflation. Core inflation has remained relatively and remarkably stable over the last one and half years and has hardly been affected by the current fall in energy prices. Considering survey data on inflation expectations, we observe some moderation but clearly not too worrisomely low or negative levels.

in real disposable income. Nevertheless, the generally increased job uncertainty will keep consumption growth at moderate levels over our forecasting horizon. Those countries suffering a real estate crisis will face substantially lower consumption growth. Not only do real estate prices affect the profitability of building houses and thus residential investment, they are also an important determinant

of household wealth and hence of private consumption.

Investment will put a major burden on growth in Europe this year. A combination of falling profits, tougher financing conditions and lower growth prospects has sharply reduced the willingness of firms to invest. However, when banking normalises

and cuts in central bank interest rates start to reach the firm level, the tide might start to turn in the second half of this year, notably for equipment investment. Corrections in housing markets normally take more time, and thus it will not be until 2010 before residential investment begins to normalise. We expect a moderate growth contribution from investment demand in 2010.

Much weaker demand from the rest of the world will lead to a slowdown of export growth. As import growth will not fade to the same extent, the growth con-

Figure 1.25

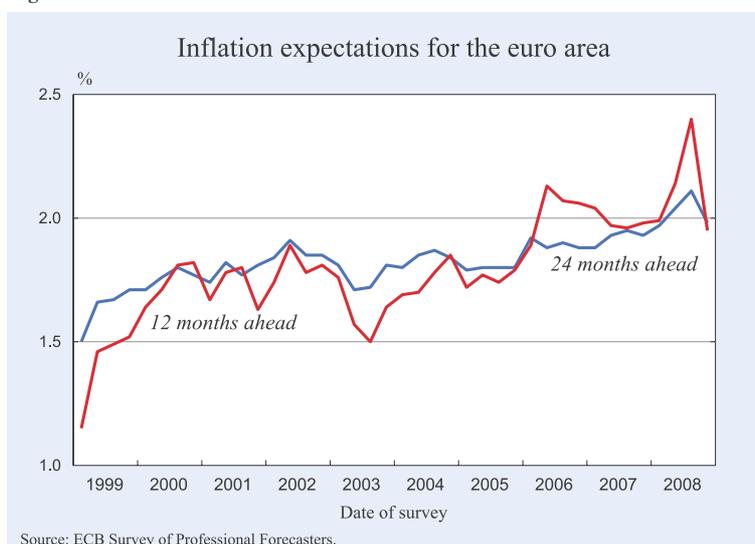
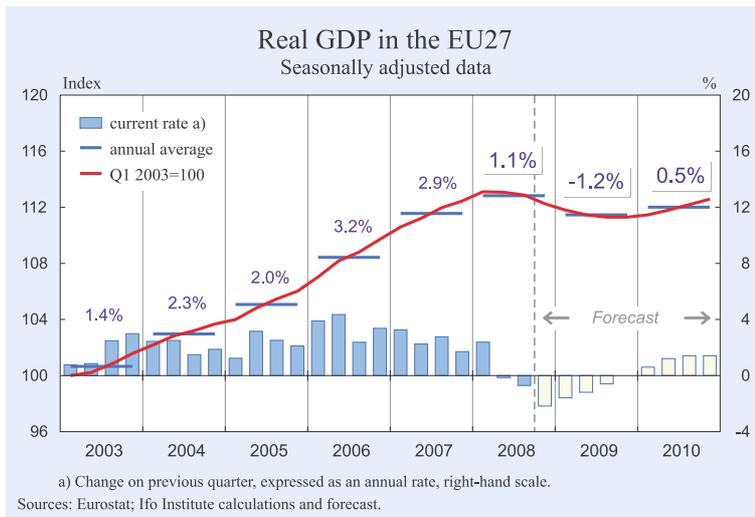


Figure 1.26

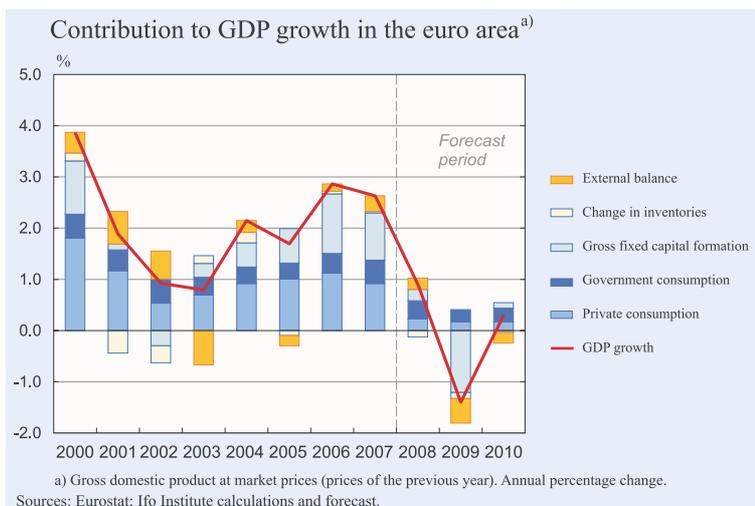


tribution from net exports will clearly turn negative this year.

*Employment, sectoral output and inflation*

Weak business cycle developments will lead to a fall in employment both this and next year (see Figure 1.28). After reaching a peak in the first half of 2008, the output gap in the European Union has now been closed. It will continue to widen throughout most of our forecasting horizon. As a consequence the unemployment rate will rise to 8.1 percent in 2009 and 8.6 percent next year (see Figure 1.29).

Figure 1.27



A number of factors need to be considered when estimating the potential risk of crises affecting individual sectors. First of all, it seems expedient to distinguish between sectors that focus on the domestic market and those that are export-oriented. In the case of companies that generate the majority of their sales abroad, it is important to distinguish between individual markets. While demand in the United States, the United Kingdom and Spain has indeed fallen sharply, economies in most emerging markets are continuing to develop, albeit at a more moderate pace. Although the outlook for almost all European companies is likely to worsen, consumer-focused sectors are likely to be less seriously affected. This is because they tend to benefit from the still-favourable – albeit deteriorating – state of the labour market and the growth in real incomes enjoyed by private households. The latter is a direct result of the continuing decline in the rate of inflation this year. The increase in consumer prices will be

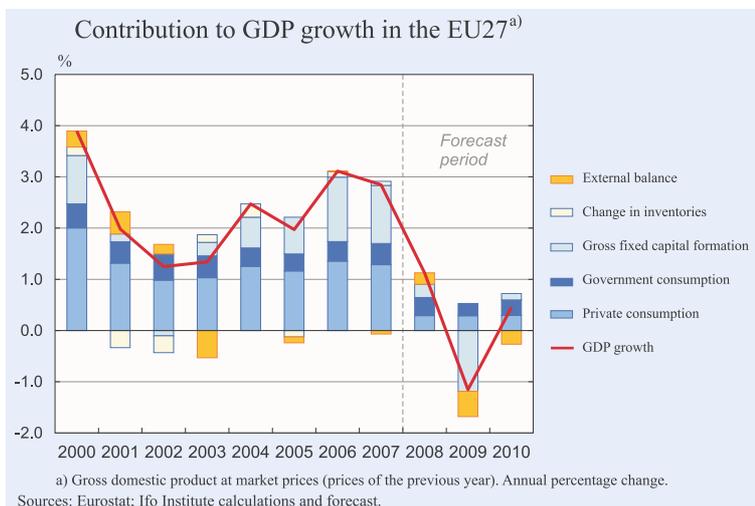
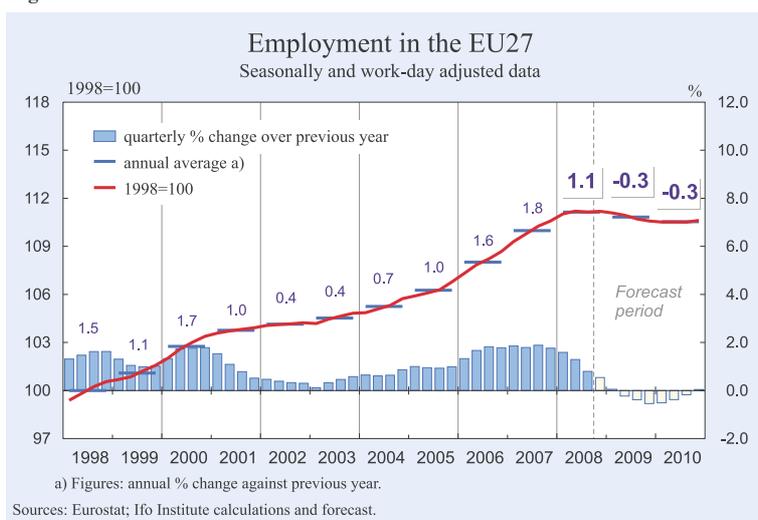


Figure 1.28



1.6 percent in 2009. In 2010, we will see some normalisation towards a level of 1.8 percent. Furthermore, factors such as the share of commodities in production (whose global market prices, denominated in dollars, have mostly seen sharp declines of late) as well as wage levels (a number of recent wage settlements were concluded when the outlook for certain sectors appeared upbeat) also have a role to play in the performance of the individual sector.

#### *Differences in output growth within Europe*

Given the weakness of the world economy, the economic development of single countries will largely depend upon domestic demand. On both fronts, *Germany* is expected to be hit relatively hard (see Figure 1.30). Large parts of the economy are very

much dependent upon international trade. The share of manufacturing involved in producing investment goods is relatively high. It is therefore no surprise that the growth contribution of net exports reached an average of 1.1 percentage points during the previous upswing period 2004–2007. As a comparison, it only amounted to 0.1 percentage point for the euro area as a whole. At the same time, private consumption in *Germany* has been weak for years now and a strong turnaround is not expected any time soon. Furthermore, the *German* government has

been relatively reluctant to stimulate domestic demand. Taken all together, this will keep annual real GDP growth negative throughout our forecasting horizon.

In the *United Kingdom*, the wide fallout from the financial crisis, falling house prices, sharply rising unemployment and weak foreign demand will all contribute to real GDP contraction in 2009. Weaker price pressure, lower interest rates, a more competitive currency, and a gradual improvement in external demand should support some recovery in activity from 2010, but the pace of growth will be sluggish, reflecting the huge scale of balance-sheet adjustment taking place in the private sector.

Albeit less pronounced, also *France* will go through a recessionary phase. The increase in private consumption will only be moderate. Mainly falling investments will turn GDP growth negative in 2009. Due to the economic situation in which major trading partners find themselves, net exports will hardly improve. Inflation will notably fall and the unemployment rate will increase this year.

For the second year in a row, GDP growth in *Italy* will be negative this year. Besides the world economic downturn, it is the lack of competitiveness of the *Italian* economy which has turned this into a rather deep recession.

Figure 1.29

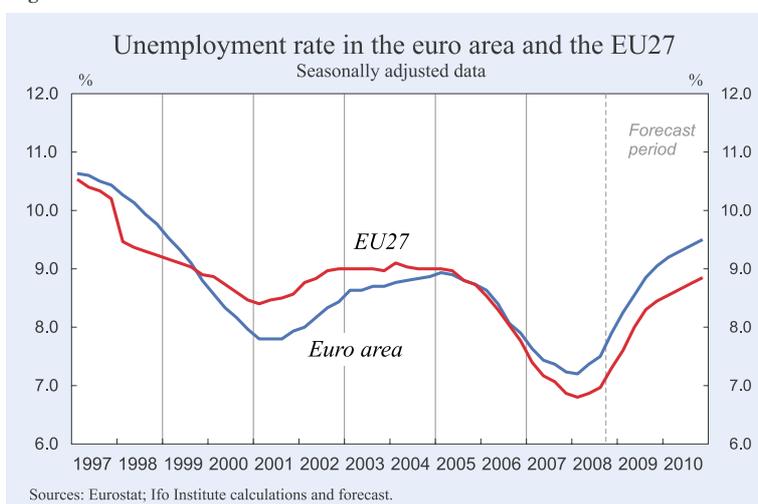
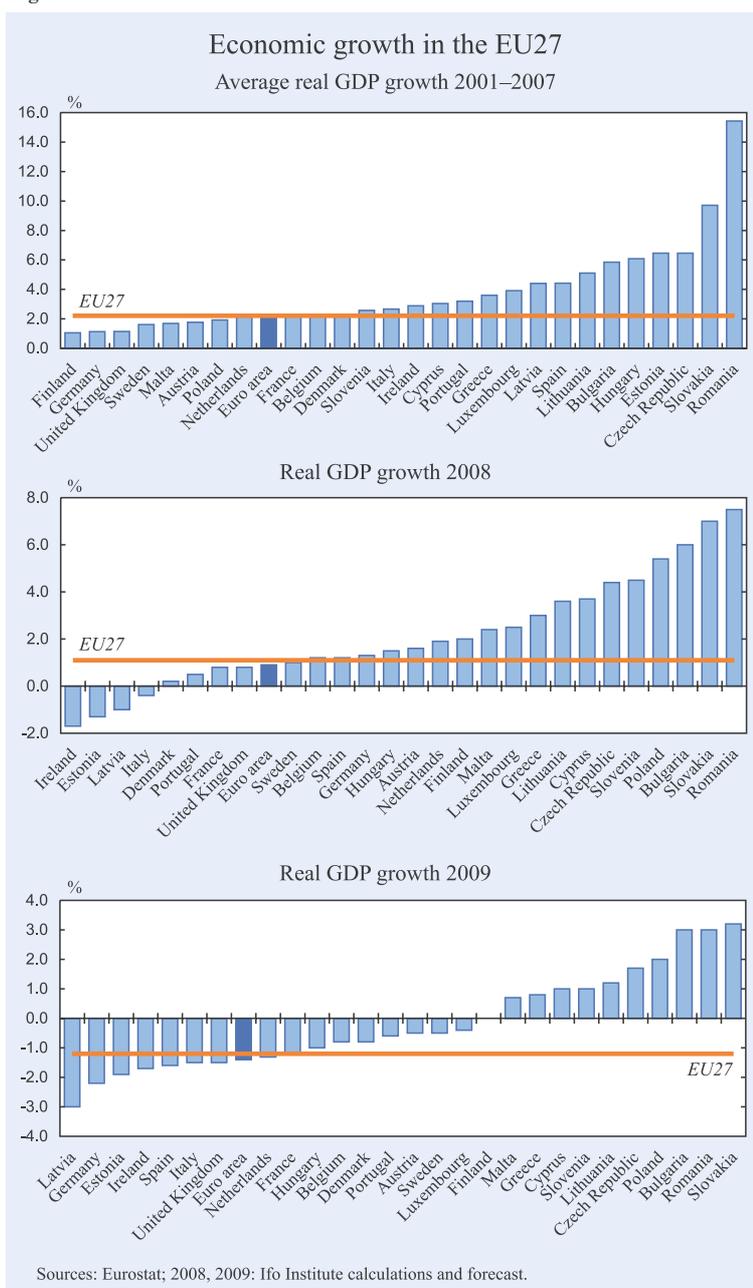


Figure 1.30



Since 1996, its export performance has been worsening – a process which does not appear to be ending any time soon.

As in the United Kingdom, the real estate sector is placing a drag on the *Spanish* economy. However, whereas house prices have already tumbled quite a bit in the United Kingdom, it appears that in Spain the real drop has still to occur. Negative consumption and investment growth will lead to a negative GDP growth rate of – 1.6 percent this year.

Most of the smaller economies in Europe are heavily dependent on external demand simply due to their

size. As a consequence, economic growth will fall in each of these countries as well.

At the start of this year, *Slovakia* joined the euro area. Although economically not very important for European developments, with a population close to 5.5 million and a share of 1.3 percent in the euro area's GDP, it is nevertheless the biggest East European member state after Poland. With the help of large foreign investments, Slovakia in recent years has turned into a modern market economy. All major sectors have been privatised; and, for instance, the banking sector is now almost completely in foreign hands. Sound fiscal and business friendly policies – like a 19 percent flat tax rate – have allowed growth to be high in recent years. The main advantages of the euro adoption for Slovakia will be the reduced currency risk for exporters and a more stable environment for foreign direct investment. Nevertheless, there is a danger that now that the euro has been adopted, the present government will turn to more state-interventionist policies, which will reduce its attractiveness for foreign investors.

Although it will clearly level off as well, economic growth in most new EU member states will remain positive. Real GDP of the region will increase by only 1.6 percent in the current year and 2.9 percent next year. Mainly domestic demand will keep growth from turning negative. Inflation will level off and the unemployment rates will increase.

The new member states that face negative annual growth during our forecast horizon are *Estonia*, *Hungary*, *Latvia* and *Lithuania*. The three Baltic states were in the group of front-runners when it comes to economic growth in past years. However, the financial turmoil has turned their large current account deficits into serious problems. Domestic demand will keep growth rates positive albeit lower in *Bulgaria*, the

*Czech Republic, Poland and Romania* this and next year.

## 5. Macroeconomic policy

### 5.1 Fiscal policy

Whereas the previous upswing reduced fiscal deficits and debt positions throughout Europe in the years before, the tide clearly changed last year. A large part of the previous consolidation was simply due to extraordinary economic growth. Although it should have been clear that any upswing is followed by a downswing, politicians were not able to use the past few years to cut government spending enough to be really prepared for subsequent budgetary pressures. However, now that many countries in the world are sliding into or are already in recession, policymakers around the world have nevertheless fully embraced traditional models of stabilization via demand management.

From a European perspective, it is troubling that certain countries such as France and Italy have been running large deficits even in the past few years. This in principle is tying their hands in the present situation. In the light of the acute nature of the financial market crisis, the European Commission is willing to accept a temporary overshoot of the 3 percent deficit limit as anchored in the Maastricht Treaty. Nevertheless, it implies that public borrowing and debt will sharply rise to dangerously high levels in the coming years. Future governments will face severe fiscal constraints, which will necessitate further increases in tax burdens and/or spending cuts to keep public finances sustainable in the long run. When such future taxes are recognized by private agents, this in turn might reduce the effectiveness of current fiscal stimuli, as people could decide to save their additional disposable income to provide for future taxes.

Whereas monetary policy is decisive when it comes to stabilising the financial system, it seems to have become less effective in stimulating the real economy. The general loss in confidence and the emergence of severe credit constraints in parts of the world have made the transmission of monetary policy weaker and more uncertain. With a drop in credit and the emergence of constraints, so the argument goes, increasing public spending and granting tax relief should sustain demand, hence production and employment. The global nature of the crisis and the

fact that most economies have become quite open to trade strongly motivate the implementation of co-ordinated fiscal intervention.

First of all this assumes that fiscal stimulus packages are temporary and effective. History shows that packages financed by additional state spending tend to be difficult to reverse. In its recent economic outlook, the International Monetary Fund (IMF, 2008) analysed the effectiveness of anti-cyclical fiscal policies. It reached the conclusion that while discretionary fiscal policy interventions could certainly help to dampen the impact of recessions, this was only the case if the economic situation was properly understood and the additional state spending was clawed back at a later date, which is certainly not guaranteed. Automatic stabilisers such as unemployment insurance (whose expenditure increases during a crisis, while rising revenues are recorded during the recovery phase) are generally more effective ways of stimulating the economy. The current crisis could consequently present an opportunity to structure automatic stabilisers more effectively, without this resulting in a permanent rise in the ratio of government expenditure to GDP. To make packages easily reverseable, governments can also focus on already planned growth-promoting investments in education, research and infrastructure and decide to implement them earlier rather than creating new projects.

The next presumption is that governments need to counteract quickly and vigorously the emergence of a dangerous market co-ordination failure in the economy, consisting in the running dry of credit markets. If the problem is to jump start an economy that is sliding into this coordination failure, the size and timing of the intervention is important. The package needs to be large and implementation rapid. Especially with investment projects, where normally considerable planning is required, this is not always easy to realise.

Depending on the constitutional set up, cutting taxes can be implemented on relatively short notice. However, the experience of the US economic stimulus package in the second quarter of last year is sobering with respect to its effectiveness. Only a small part of the rebate was used by households to increase consumption. The money mostly went into savings or to repay outstanding debts. Without the tax rebate, it is likely that consumption would have sunk moderately in the second quarter. Given the

large drop in the third quarter, it retrospectively looks like it would have been better to have had the rebates in that quarter instead – if at all. This again highlights one problem associated to discretionary fiscal policy: the timing.

Krugman (2008) strongly argues for a massive stimulus package in the United States, proposing the following back-of-the-envelope calculation: assume that the natural rate of unemployment in the United States is approximately 5 percent. By Okun's law, every point of unemployment above the natural rate corresponds to a 2 percent output gap (the difference between current and potential output). If unemployment were to rise to 8.5 percent, for instance, the output gap would be about 7 percent. How much fiscal stimulus is needed to close this gap? The answer to this question depends on the output multiplier effects of fiscal interventions.

Even with a multiplier close to 2, the required intervention should be as high as 4 percent of GDP, that is, about 600 billion dollars. However, a multiplier close to 2 is likely to be an exaggeration. General transfers to the public are not likely to translate into substantial increases in aggregate demand for domestic goods and services due to precautionary savings and import leakages. More in line with estimates in the literature would be a multiplier of around 1, thereby almost doubling the required size of the intervention.

Such an intervention may in principle turn out to be too large ex post. Krugman argues that this would not be a problem, as far as macroeconomic conditions are concerned: monetary policy can always tighten and correct the mistake. However, it should be recognized that by transferring resources to households, future taxes and therefore tax distortions will likely increase. Too large a fiscal stimulus in the form of transfers to households entails a social cost in terms of higher future distortions even if its stimulating effect on the economy is neutralized by monetary contraction. Unfortunately, what monetary policy cannot be expected to do in the present situation is to compensate for fiscal policy if this is too contractionary. "Fiscal policy should take risks in the direction of boldness."

While many are now focusing on size, it is important not to lose sight of basic conditions under which fiscal policy is most likely to succeed. In other words, there is a risk that an exclusive focus on size may be insufficient, or perhaps even counterproductive. How and where to intervene is going to be crucial. In what

follows, we spell out two conditions that are not receiving sufficient attention.

#### *Making fiscal expansions truly temporary*

The effect of a fiscal expansion depends on how the expansion is financed. This applies not only to the short-term debt-tax mix used to finance a current increase in government expenditure, but also – and perhaps even more importantly – to the long-term financing source, i.e., taxes versus spending cuts in the future. The impact of an increase in current expenditure can be strengthened in the latter case, that is, if complemented with a credible plan ensuring that its cost will be at least in part financed by a reduction in expenditure at some point in the future. This is the case for two reasons. The first is derived from an important lesson of both Keynesian and neoclassical models, that future spending cuts tend to reduce the long-term interest rate. This in turn will have positive effects on current consumption and investment decisions. The second reason is that a commitment to lower future spending reduces the overall tax burden of the expansion. For both reasons, future spending cuts will help contain the negative effects on spending plans by firms and households that are currently not credit-constrained and therefore immediately respond to long-term fiscal decisions.

Admittedly, a commitment to reduce spending in the future may lack credibility, especially in a situation like today, when the uncertainty about the length and the overall fiscal implications of the crisis is enormous. Even in countries with explicit fiscal rules (like the United Kingdom), one may doubt if these provide sufficient commitment devices.

It may nonetheless pay to identify measures that are inherently temporary, i.e., matched by future cuts in spending. An obvious example consists of measures that bring forward in time planned investment projects thereby raising current spending, while simultaneously reducing future spending. This is of course no perfect solution to the problem of commitment but matches the attributes of the temporary fiscal expansions we are arguing for.

The argument in favour of such policy applies with unusual force for some countries. The main issue is that while the cost of fiscal rescue is highly uncertain, it is likely to raise public liabilities in a substantial way. It is hard to expect that the impact of fiscal expansions will be the same across countries with

very different initial budgetary conditions – Italy versus France. Empirical work supports this view. Based on a sample of OECD countries, for instance, Corsetti et al. (2008b) clearly find that the response of consumption to increasing government spending is much lower and even negative in economies with high debt and deficits relative to economies with better initial conditions.

In countries that are currently burdened by high public debt and problematic fiscal conditions, the design of spending and tax interventions that are truly temporary is likely to be a prerequisite for their effectiveness.

An example of a type of fiscal policy that is more likely to be successful is transfers from the central government to local governments that are facing severe reductions in tax revenues. Local governments are often constrained in their abilities to borrow when the tax base falls cyclically. There is therefore a risk that local government consumption becomes procyclical, leading to lay-offs when the economy turns into recession. Even if some countries arguably should have a falling trend in government consumption, now is a bad time to lay off public-sector employees. Transfers to local governments in fiscal distress is therefore likely to be a quite cost effective way of stabilizing employment in the times ahead. A way of making sure that these transfers are temporary is to construct a system where the central government guarantees local tax revenues calculated on the potential (cyclically adjusted) tax base, rather than the actual.

#### *Accompanying fiscal expansion with accommodating monetary policy*

As argued by, for example, Corsetti et al. (2008a), fiscal policy is more effective if monetary policy is accommodative. In other words, for fiscal stimulus to work, central banks should not adhere too narrowly to their mandate of price stability – a criticism often raised against the Bank of Japan in the “lost decade”. This risk is hopefully small today, as there is widespread awareness about the severity of the crisis.

Nonetheless, one could envision a situation in which, even if policy interest rates were brought close to zero, it would still be possible that the overall monetary stance of the economy remains too tight. In this situation, the lower bound of zero for nominal interest rates – while providing a rationale for a fiscal expansion

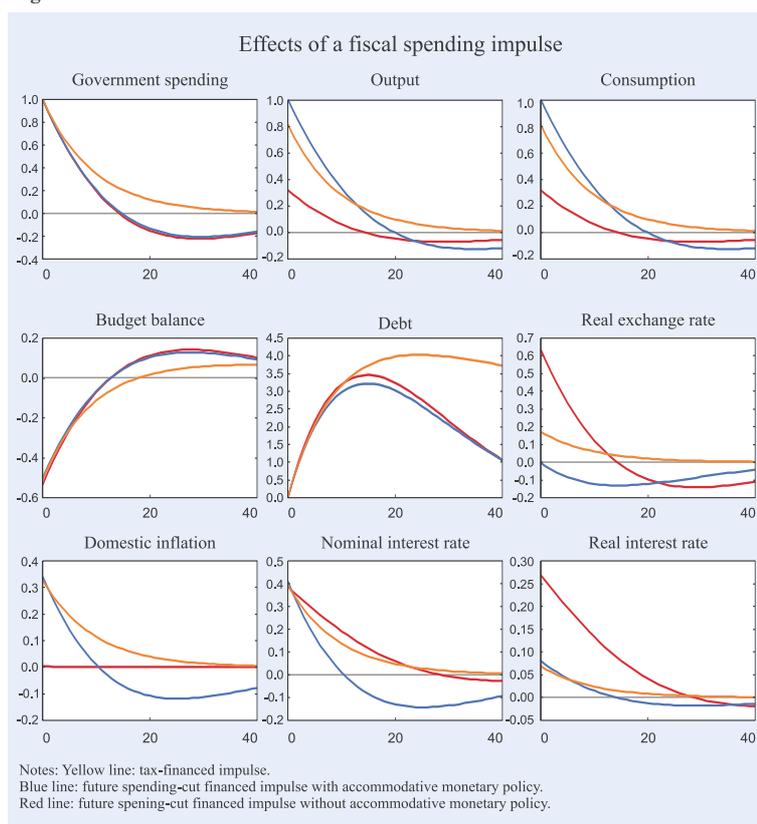
– may at the same time limit the effectiveness of fiscal intervention of a given size.

#### *A closer look at the mechanism*

In what follows, the argument in favour of future spending cuts and accommodating monetary stance is illustrated using the results of an exercise based on a standard new-Keynesian model. The goal is to track the macroeconomic consequences of an unexpected increase in government spending in an economy which is otherwise undisturbed (Corsetti et al. 2008a). Of course, government spending can mean a lot of different things (infrastructure investment, public employment, etc.) and governments are now discussing policy interventions in response to a strong deterioration of the overall macroeconomic conditions rather than an exogenous policy change which would be news to the economy. Yet the purpose of the exercise is to show to what extent the transmission of fiscal policy through the real economy depends on the financing mix and an accommodating monetary stance. The mechanism is illustrated for the case of an open economy which, for simplicity, is assumed to be small. Also the exercise assumes away credit-constrained agents, whose presence would increase the consumption multiplier above what is reported.

Figure 1.31 shows the evolution of government consumption, private consumption, output, the government budget balance and debt, the real exchange rate, inflation and interest rates over 40 quarters in response to an increase in government spending by one percent of (quarterly) GDP. All variables are expressed relative to their trend values (note that a negative value for the nominal interest rate means a fall relative to the initial value). Quantity variables are expressed as a percentage of quarterly GDP; the real exchange rate is measured in percentage deviation relative to its pre-intervention value; interest rates and inflation are measured in annualized percentage points. Each graph includes three lines. The yellow line refers to a spending shock that is entirely financed by taxes (such taxes may be levied today or in the future – this is irrelevant here given that taxes are non-distortionary and that households and firms are not credit-constrained). The blue and red lines refer to a spending shock that is partly financed by cuts in spending in the future: in the upper left panel this becomes apparent from government spending falling below trend about 3 to 4 years after the initial measures were taken. The red lines refer to the case of no monetary accommodation as the central bank pur-

Figure 1.31



sues complete price stability; the blue lines to the case of accommodative monetary policy – in the sense that central banks adopt a Taylor Rule with a relatively low coefficient on inflation.

The message from Figure 1.31 is unequivocal: the response of consumption is positive for the “right mix” of accommodative monetary policy and financing by spending cuts in the future, but negative either when spending is entirely financed through higher taxes (the yellow lines) or when the monetary reaction is non-accommodating (the red lines). Comparing the difference in the response of consumption and output across monetary stances (accommodating, not accommodating), one can observe a gap of about half a percentage point of GDP through many quarters.

Monetary accommodation is measured by the difference in the response of real interest rates depicted by the blue and the red lines in the lower right panel (ex ante real rates): under the accommodating stance (red lines) real rates are lower by about a quarter of a percentage point (annualized) relative to the tight monetary stance (blue lines). Importantly, under the “right” policy mix the path of real short-term interest rates implies a fall in the long-term real interest rate,

because future short rates fall below their long-term average value.

#### *A new item for international policy coordination?*

Looking at the results of the exercise above, one could express concern regarding real exchange rate depreciation that, in the exercise, accompanies fiscal expansion cum monetary accommodation. Depreciation may be seen as an unwelcomed beggar-thy-neighbour effect of domestic policies – by which domestic economic activity is sustained by “stealing” foreign demand.

Irrespective of whether spillovers from exchange rate movements are negative (a matter of considerable debate), we stress here that exchange rate depreciation will be contained, or eliminated altogether, when fiscal expansion is co-ordinated across borders. The main conclusions from the analysis can be in fact applied also at a global level: for the world as a whole, fiscal policy is most effective when implemented with the right financing and monetary policy mix.

As an independent item in an agenda for international policy co-operation, these considerations could actually contribute to the success of the joint fiscal initiative. Countries should be aware of the benefits from pursuing fiscal plans where current expansions are partly matched by offsetting correction of spending in the future.

As an independent item in an agenda for international policy co-operation, these considerations could actually contribute to the success of the joint fiscal initiative. Countries should be aware of the benefits from pursuing fiscal plans where current expansions are partly matched by offsetting correction of spending in the future.

#### **5.2 Monetary policy**

As compared to other major central banks in the world, the reaction of the European Central Bank has been relatively modest. As the problems in Europe associated with the banking crisis initially appeared to remain isolated within the banking sector itself, the ECB restricted its attention to the supply of liquidity on the money markets. Furthermore, the upsurge in inflation kept the ECB from cutting interest rates for a long time. Only until the banking crisis reached new levels in autumn and started to obviously infect other

parts of the economy as well, were interest rates cut by a total of 225 basis points up to January this year. Although this was only done in four steps and within a historically short period of time, the reaction of the ECB was clearly not as bold as that of the Swiss National Bank, the Bank of England or the Federal Reserve. Whereas it can be argued that the domestic situation in the United Kingdom and the United States required larger steps, this is certainly not the case for Switzerland.

Given that the ECB has a reputation of being more prudent, the question is whether or not additional steps can be expected. As in previous EEAG reports (2007; 2008), we use Taylor Rule estimates to put the most recent actions of the ECB in its own historical perspective and to analyse whether additional steps are to be expected, given its own past behaviour. The Taylor Rule assumes that central banks seek to keep expected output and inflation close to their target rates. To capture growth and inflation expectations, we use consensus forecasts as published monthly by Consensus Economics Inc. as employed by, for instance, Sturm and Wollmershäuser (2008).

Figure 1.32 shows the implied probabilities when using the estimated Taylor Rule to predict the likelihood of interest rate changes to be made at the next ECB governing council meeting. Given that since October last year, 12-months-ahead inflation expectations have been continuously falling and economic growth forecasts really plummeted, the implied target rate as estimated by the Taylor Rule has sharply decreased and at the end of the year stood close to zero, which is well below the level of the actual main

refinancing rate. Accordingly, the probability that we will see further interest cuts by the ECB is still at a historically high level and basically equals one.

Hence, we do not expect the interest rate cut of January 15 to have been the last. An interesting question is whether all euro area member countries prefer to see the same cuts. That would be the case if business cycles within the euro area were highly synchronised. Whether the introduction of the euro ten years ago has caused business cycles to synchronise overall is still strongly debated. At the time the move towards one currency was discussed, many argued that business cycles in Europe were not synchronised enough to label it an optimal currency area. If economic situations differ too much between member countries, a single monetary policy cannot be adequate for all countries at the same time. Frankel and Rose (1998), however, put forward the influential idea that business cycle convergence would almost automatically emerge once the common currency were in place. Over time, the euro area would become an optimal currency area. Now that the euro is celebrating its tenth anniversary, we have opted to use our Taylor Rule framework to shed light on the question whether the euro area is indeed a self-enforcing optimal currency area.

To do so, we need to compare actual interest rates as set by the ECB with what would have been optimal for each member country if it were still able to set its own interest rate. We assume that the counterfactual monetary policy rule of national central banks is similar to that of the ECB. That allows us to use the parameters found when estimating the Taylor Rule for the euro

area for each individual country.<sup>5</sup> Using country-specific growth and inflation expectations, we can create counterfactual country-specific policy rates and compare these with actual ECB rates.<sup>6</sup> Hence, for each member country we have hereby constructed a measure that summarizes the inflation and growth cycle situation relative to the euro

<sup>5</sup> For more details as to how this is done, we refer to the 2007 EEAG report and Sturm and Wollmershäuser (2008).

<sup>6</sup> To be sure that structural differences in growth and inflation have not driven our results, we subtract the average of each country policy rate differential first. Hence, by construction the country-specific cyclical policy rate differential is zero on average.

Figure 1.32

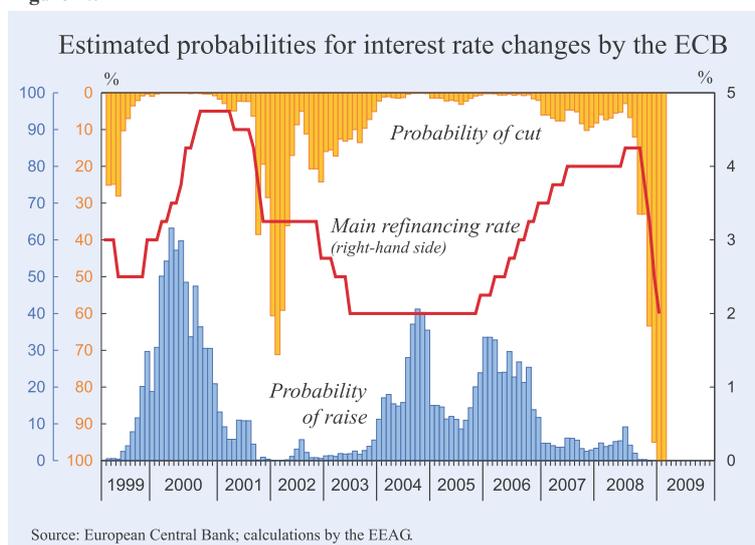
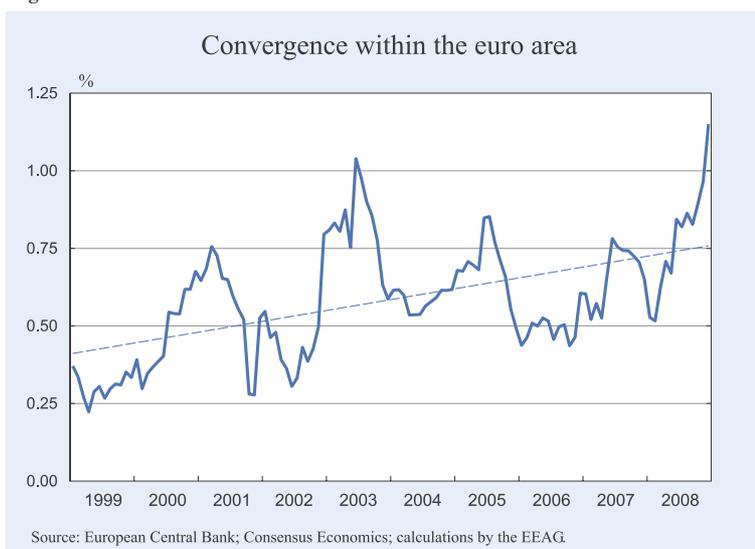


Figure 1.33



area aggregate. In a next step we aggregate this country-specific information to the euro area level and thereby create a single indicator for business and inflation cycle synchronisation as relevant for the monetary authorities.<sup>7</sup>

Figure 1.33 shows our convergence measure. A higher value implies that inflation and growth cycles differ more between euro area member states. Obviously, sometimes it is easier for the ECB to conduct a common policy suitable for all member countries than at other times. For instance after 9/11, all countries were hit to a similar extent as the shock was of a purely international and exogenous nature. However, that does not appear to be the case at present. Whereas relative to other countries, Ireland and Spain would presently prefer stronger cuts in interest rates, the opposite situation prevails in Austria, Belgium, Finland and Greece. Although all euro member countries have been hit by the economic crisis, the differences between implied target rates vary more widely at present than at any time during the past. This does

<sup>7</sup> This aggregation consists of two steps. In the first step, we for simplicity assume that misalignments in upswings are as bad as in downswings and hence take the absolute values of the implied policy rate differences. In the second step, we have to decide what weights we want to attach to each individual member country. From a positive point of view, the primary objective of the ECB is price stability. This has been defined by its Governing Council to imply a year-on-year increase of the HICP for the euro area that does not exceed 2 percent in the medium term. The euro area HICP is basically a GDP-weighted average of the country-specific harmonised consumer price indexes. Hence, if we assume that decision-making in the ECB Governing Council always results in policy decisions that maximise the welfare of the whole monetary union, i.e. the members of the council take a truly euro area perspective, we should use GDP shares to weigh the individual country policy rate differentials as well.

<sup>8</sup> This result is robust with respect to different weighting schemes. Whether we use equal weights or weights based upon the number of representatives in the ECB Governing Council does not affect these conclusions.

not appear to be an artifact of last year. There seems to be a more general upward trend in this divergence measure. Hence, growth and inflation cycles seem to diverge over time.<sup>8</sup>

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**Appendix 1:**  
**Forecasting tables**

Table A.1

**GDP growth, inflation and unemployment in various countries**

	Share of total GDP in%	GDP growth			CPI inflation			Unemployment rate <sup>d)</sup>		
		in %								
		2008	2009	2010	2008	2009	2010	2008	2009	2010
EU27	34.5	1.1	-1.2	0.5	3.6	1.6	1.8	7.0	8.1	8.6
Euro Area	25.0	0.9	-1.4	0.3	3.3	1.2	1.5	7.5	8.7	9.4
Switzerland	0.9	1.8	-0.5	0.6	2.4	0.6	1.4	3.5	3.7	4.2
Norway	0.8	2.6	1.0	1.2	3.6	2.2	2.2	2.6	2.9	2.8
Western and Central Europe	36.2	1.1	-1.1	0.5	3.6	1.6	1.8	6.9	8.0	8.5
US	28.2	1.3	-1.0	0.0	4.3	0.3	1.3	5.7	7.5	7.5
Japan	9.0	0.2	-0.8	0.4	1.4	-0.2	0.0	4.1	4.5	4.4
Canada	2.9	0.7	-0.3	1.1	2.5	1.3	1.6	6.1	7.0	6.8
Industrialised countries total	76.3	1.1	-1.0	0.3	3.6	0.9	1.4	6.1	7.3	7.5
Newly industrialised countries										
Russia	2.6	6.3	2.0	3.5						
China and Hongkong	7.1	9.4	7.5	7.5						
India	2.2	7.0	6.0	6.2						
East India <sup>a)</sup>	5.2	4.5	3.0	3.2						
Latin America <sup>b)</sup>	6.5	4.2	3.1	3.3						
Newly industrialised countries total	23.7	6.4	4.6	4.9						
Total <sup>c)</sup>	100.0	2.3	0.3	1.4						
World trade, volume		3.2	0.5	1.5						

<sup>a)</sup> Weighted average of Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand. Weighted with the 2006 GDP levels in US dollars. – <sup>b)</sup> Weighted average of Argentina, Brasil, Chile, Columbia, Mexico, Peru, Venezuela. Weighted with the 2006 GDP levels in US dollars. – <sup>c)</sup> Sum of the listed groups of countries. Weighted with the 2007 GDP levels in US dollars. – <sup>d)</sup> Standardised unemployment rate.

Source: EU; OECD; IMF; National Statistical Offices; 2008, 2009 and 2010: forecasts by the EEAG.

Table A.2

## GDP growth, inflation and unemployment in European countries

	Share of total GDP in%	GDP growth			Inflation <sup>a)</sup>			Unemployment rate <sup>b)</sup>		
		in %								
		2008	2009	2010	2008	2009	2010	2008	2009	2010
Germany	19.7	1.3	-2.2	-0.2	2.8	0.9	1.4	7.3	7.8	9.0
France	15.4	0.8	-1.2	0.3	3.2	1.0	1.5	7.8	8.4	9.3
Italy	12.5	-0.4	-1.5	0.2	3.5	1.3	1.3	6.8	7.8	8.2
Spain	8.5	1.2	-1.6	0.3	4.2	1.8	1.8	11.2	16.5	17.1
Netherlands	4.6	1.9	-0.7	1.0	2.2	1.5	1.7	2.8	3.2	3.4
Belgium	2.7	1.2	-0.8	0.7	4.5	1.6	1.7	7.1	7.2	7.5
Austria	2.2	1.6	-0.5	0.8	3.3	1.3	1.5	3.8	4.2	4.5
Greece	1.9	3.0	0.8	1.5	4.3	2.2	2.7	7.8	8.1	8.4
Finland	1.5	2.0	0.0	1.3	3.8	2.0	2.1	6.4	7.0	7.1
Ireland	1.5	-1.7	-1.7	1.5	3.2	1.1	1.8	6.3	7.8	7.8
Portugal	1.3	0.5	-0.6	0.5	2.7	1.2	1.5	7.7	8.6	8.9
Slovakia	1.3	7.0	3.2	4.5	3.9	2.8	3.7	9.6	11.1	10.8
Slovenia	0.3	4.5	1.0	1.8	5.8	2.0	2.8	4.5	5.0	5.2
Luxembourg	0.3	2.5	-0.4	1.7	4.2	1.8	2.1	4.4	4.7	4.9
Cyprus	0.1	3.7	1.0	1.8	4.4	2.1	2.5	3.8	3.9	4.0
Malta	0.0	2.4	0.7	1.6	4.6	2.0	2.6	5.8	6.2	6.4
<b>Euro area<sup>c)</sup></b>	<b>72.8</b>	<b>0.9</b>	<b>-1.4</b>	<b>0.3</b>	<b>3.3</b>	<b>1.2</b>	<b>1.5</b>	<b>7.5</b>	<b>8.7</b>	<b>9.4</b>
United Kingdom	16.6	0.8	-1.5	0.3	3.7	2.1	2.2	5.6	7.2	7.5
Sweden	2.7	1.0	-0.5	1.4	3.4	1.7	1.9	6.2	6.8	7.0
Denmark	1.8	0.2	-0.8	1.2	3.6	1.6	1.8	3.5	3.6	3.9
<b>EU 19<sup>c)</sup></b>	<b>94.0</b>	<b>0.9</b>	<b>-1.4</b>	<b>0.4</b>	<b>3.4</b>	<b>1.4</b>	<b>1.7</b>	<b>7.1</b>	<b>8.4</b>	<b>9.0</b>
Poland	2.5	5.4	2.0	3.0	4.2	3.1	3.6	7.1	7.7	7.5
Czech Republic	1.0	4.4	1.7	3.5	6.3	2.4	2.9	4.5	5.3	5.1
Romania	1.0	7.5	3.0	4.5	7.9	4.0	4.5	5.9	6.4	6.4
Hungary	0.8	1.5	-1.0	1.0	6.1	3.6	4.0	7.9	9.0	9.5
Lithuania	0.2	3.6	1.2	-1.0	11.1	8.5	7.7	5.6	5.9	6.7
Bulgaria	0.2	6.0	3.0	4.0	12.1	7.3	8.5	5.8	6.1	6.4
Latvia	0.1	-1.0	-3.0	1.0	15.4	12.4	11.9	7.1	9.2	9.6
Estonia	0.1	-1.3	-1.9	1.2	10.7	8.8	8.3	5.8	9.0	9.5
<b>EU 8</b>	<b>6.0</b>	<b>4.8</b>	<b>1.6</b>	<b>2.9</b>	<b>6.3</b>	<b>3.8</b>	<b>4.3</b>	<b>6.4</b>	<b>7.1</b>	<b>7.1</b>
<b>EU 27<sup>c)</sup></b>	<b>100.0</b>	<b>1.1</b>	<b>-1.2</b>	<b>0.5</b>	<b>3.6</b>	<b>1.6</b>	<b>1.8</b>	<b>7.0</b>	<b>8.1</b>	<b>8.6</b>

<sup>a)</sup> Harmonised consumer price index (HCPI). – <sup>b)</sup> Standardised unemployment rate. – <sup>c)</sup> Sum of the listed countries.

Source: EUROSTAT; OECD; IMF; 2008, 2009, 2010: forecasts by the EEAG.

Table A.3

## Key forecast figures for the euro area

	2007	2008	2009	2010
	Percentage change over previous year			
Real gross domestic product	2.6	0.9	-1.4	0.3
Private consumption	1.6	0.4	0.3	0.3
Government consumption	2.3	1.8	1.2	1.3
Gross fixed capital formation	4.2	1.0	-5.5	0.5
Net exports <sup>a)</sup>	0.3	0.2	-0.5	-0.2
Consumer prices <sup>b)</sup>	2.2	3.3	1.2	1.5
	Percentage of nominal gross domestic product			
Government fiscal balance	-0.6	-1.3	-2.7	-3.5
	Percentage of labour force			
Unemployment rate <sup>c)</sup>	7.4	7.5	8.7	9.4

<sup>a)</sup> Contributions to changes in real GDP (percentage of real GDP in previous year). – <sup>b)</sup> Harmonised consumer price index (HCPI). – <sup>c)</sup> Standardised unemployment rate.

Source: Eurostat; 2008, 2009 and 2010: forecasts by the EEAG.

**Appendix 2:****Ifo World Economic Survey (WES)**

The World Economic Survey (WES) assesses worldwide economic trends by polling transnational as well as national organisations on current economic developments in their respective countries. This allows for a rapid, up-to-date assessment of the economic situation prevailing around the world. In 2008, 1,001 economic experts in 92 countries were polled. The WES is conducted in co-operation with the International Chamber of Commerce (ICC) in Paris. The survey questionnaire focuses on qualitative information: assessments of a country's general economic situation and expectations regarding important economic indicators. It has proved to be a useful tool, since it reveals economic changes earlier than conventional business statistics.

The individual replies are combined for each country without weighting. The grading procedure consists in giving a grade of 9 to positive replies (+), a grade of 5 to indifferent replies (=) and a grade of 1 to negative (-) replies. Overall grades within the range of 5 to 9 indicate that positive answers prevail or that a majority expects trends to increase, whereas grades within the range of 1 to 5 reveal predominantly negative replies or expectations of decreasing trends. The survey results are published as aggregated data. The aggregation procedure is based on country classifications. Within each country group or region, the country results are weighted according to the share of the specific country's exports and imports in total world trade.

The Ifo World Economic Climate Index fell in October 2008 to the lowest level for more than 20 years (60.0; 1995=100). The decline is primarily the result of more unfavourable assessments of the current economic situation, but also the expectations for the coming six months have continued to worsen.

**World economy: Global downswing**

The world economic climate continued to deteriorate in October 2008. On a global average, the assessments of the present economic situation fell in October clearly below the satisfactory level. The economic expectations for the next six months have again been downgraded. The economic downturn has clearly become global. This time the cooling of the Ifo World Economic Climate has not only affect-

ed the major economic regions – North America, Western Europe and Asia – but also Central and Eastern Europe, Russia, Latin America and Australia. In October, the economic expectations in the US brightened somewhat for the third time in succession. However, the assessments of the present economic situation in the US have been strongly downgraded. In Western Europe the economic climate indicator has again declined in nearly all countries. In particular, the assessments of the current situation clearly worsened. The economic expectations remained pessimistic. In Asia, the assessments of the current situation deteriorated as well. The six-month outlook for the Asian economy remains on low level, too. Particularly unfavourable appraisals of the economic situation have been given in Japan, South Korea and Taiwan.

Overall, the data confirm a global recessionary trend. At present, it appears realistic, that the economic climate index will remain in a recessionary period for the first half of 2009. In many countries, the WES experts stated that insufficient demand has become the major economic problem at present. However, there are also supportive factors for the global economy, such as the falling oil and energy prices, easing inflation, declining interest rates and the multiple governmental economic stimulus programs in the US, Western Europe and Asia. The downward pressure for the global economy is still the weak consumption sector in the US and the unprecedented spread of the financial crisis with its unpredictable impact on the global economy.

**Western Europe: Strong economic decline**

The economic climate indicator for Western Europe further deteriorated in October. Particularly the assessments of the present economic situation have been strongly downgraded. The economic expectations remained negative.

For the euro area the overall economic climate index strongly declined. In almost all countries of the euro area the assessments of the present economic situation deteriorated in October, particularly strong in Italy, Belgium, France, Austria and Germany. In Ireland and Portugal the assessments of the present economic situation remain particularly low. The economic expectations have been seriously downgraded in both countries. In the other countries of the euro area, the economic expectations for the next

six months remained pessimistic. WES experts in all euro area countries expect a pronounced economic weakening in the beginning of 2009. They named “insufficient demand” as the most important economic problem at the present.

Outside the euro area the economic climate index also fell in October. In Sweden, Norway, Denmark, Switzerland and the UK the assessments of the present economic situation further deteriorated in October; the present economic situation in Switzerland and Norway was still regarded as good by the surveyed economists. In Sweden and Denmark the present economic performance declined after October, when it was still described as satisfactory. In the UK, in contrast, the present economic performance is described as very weak. Also here, WES experts emphasised that “insufficient demand” is aggravating the economic downturn as a consequence of the financial crisis. Further economic slow-down is expected in these countries in the next six months.

#### **North America: Economic climate index falls further**

The economic climate indicator in North America deteriorated in October. However, unlike the other regions, the economic expectations for the next six months have been up-graded somewhat in the US. But the assessments of the present economic situation deteriorated strongly, reaching the historically lowest level since the introduction of WES in 1983. Lack of confidence in the government’s economic policy was named by the surveyed economist as the most important economic problem at present. The October survey was launched before Barack Obama won the presidential election.

In Canada both the assessments of the present economic situation and economic expectations have been downgraded.

#### **Central and Eastern Europe: Economic cooling**

The economic climate cooled also in Central and Eastern Europe. The assessments of the present economic situation strongly deteriorated in October, although remaining close to the satisfactory level, on average. The economic expectations for the next six months have been downgraded again and are pointing to lower economic growth rates in the near-term.

The economic climate deteriorated in all EU countries of the region. However, the present economic situation is still assessed as satisfactory or favourable in most countries, except Hungary, Latvia and Estonia. The economic expectations have been downgraded in all new EU countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia and Slovakia) and point to economic cooling in the next six months.

The economic climate deteriorated somewhat also in the three countries surveyed outside the European Union – Albania, Croatia and Serbia – due to a downgrade of economic expectations for the next six months. However, in all three countries the assessments of the present economic situation were even up-graded somewhat in October compared to the July survey. The surveyed WES experts described the present economic performance as satisfactory in Albania, Croatia and Serbia. An economic deterioration has been forecasted for the next six months by the surveyed economists in Croatia. In Albania and Serbia the economy is expected to stabilise at the current level, according to WES experts.

#### **CIS: Economic climate index drops**

The overall economic climate index for CIS countries covered by WES (Russia, Ukraine, Kazakhstan, Kyrgyzstan and Uzbekistan) dropped sharply in October. Both components of the economic climate index – the assessment of the present economic situation and economic expectations – have been strongly downgraded.

The economic climate deteriorated particularly strongly in Russia. The assessments of the present economic situation have been sharply downgraded. However, the surveyed economists described the current economic performance as satisfactory, whereas the economic expectations for the next six months have become clearly pessimistic. Russia is expecting a decline in global demand for its primary exports of goods. Also credit-driven private consumption and business investments are expected to weaken in the coming months. As an important economic problem the surveyed economists named high inflation. For the Ukraine even higher inflation was reported. The present economic situation here has been described as weak by the surveyed economists. Further economic deterioration has been forecasted for the coming months. Lack of confidence in government’s eco-

conomic policy is, according to WES experts, the most important economic problem in the Ukraine at present. In contrast, a stable economic climate prevails in Kazakhstan. The present economic situation continues to be satisfactory here. The surveyed economists expect further moves to economic stabilisation in the next six months. Also in Uzbekistan a favourable economic climate prevails, according to WES experts, however, this is not the case in Kyrgyzstan, where the present economic performance remains weak.

### **Asia: Economic climate deteriorates**

Similarly, in Asia the economic climate strongly deteriorated and has fallen to the lowest level since 2001. Both the assessments of the present economic situation and economic expectations for the next six months have again been downgraded for the region, in October.

The economic climate index fell further in all major Asian economies except Pakistan, where the economic expectations have been up-graded somewhat. However, the present economic performance in Pakistan is judged by WES experts as being very weak, although it is not expected to deteriorate further in the course of the next six months. The present economic performance was assessed in Japan, South Korea and Taiwan far below the satisfactory level and much worse than in the preceding quarter. In Japan and South Korea further economic deterioration is expected by the WES experts, with pronounced weakening of the capital expenditures and private consumption. In Taiwan the surveyed economists expect the economy to stabilise at the current level, although exports have been forecasted to decline in the next six months. Lack of confidence in the government's economic policy was named as an important economic problem by the surveyed economists in Taiwan. The economic climate index deteriorated strongly also in China. Export growth is foreseen to weaken strongly in the next six months. The economists also emphasised that domestic demand is insufficient in China at present. Further economic deterioration is expected also in Indonesia, Thailand and Malaysia. However, the present economic situation in Malaysia is still assessed as "satisfactory" by the majority of surveyed economists. Satisfactory was also the assessment of the present economic performance in Hong Kong, Singapore and the Philippines by the WES

experts. However, also here the prospects appear to be rather clouded. Particularly in Hong Kong and the Philippines WES experts expect that capital expenditures, private consumption and the export sector will weaken strongly in the course of the next six months.

In India the economic climate also cooled somewhat but not considerably. The present economic situation here was assessed as being satisfactory in October. The economic expectations for the next six months have been downgraded only slightly, pointing to a moderate economic cooling. Inflation poses the most important economic problem at present. The same applies to Vietnam, where the assessments of the present economic state have been even up-graded somewhat over the preceding July survey. The expectations point to an economic stabilisation in the next six months. Private consumption is even expected to pick up somewhat. Bangladesh was one of the few countries where the surveyed economists assessed the present economic state as above satisfactory. Although inflation is also here one of the main economic topics, the overall economic expectations are positive, pointing to a strengthening of capital expenditures and the export sector in the course of the next six months.

### **Oceania: Economic slowdown continues**

Economic slowdown continues in Australia. For the first time since 2001 the assessments of the present economic situation slipped below the satisfactory line. The economic expectations point to a further economic cooling in the next six months. Growth of capital expenditures and private consumption are expected to decline strongly. The export sector, however, remains buoyant, according to WES experts. Also inflation, which is generally easing on a global average, remains an important economic problem in Australia.

In New Zealand, the economic climate index improved somewhat in October over the July survey. However the present economic situation is still assessed as far below the satisfactory level. The economic expectations for the next six months have been up-graded somewhat but are still generally cautious. Lack of international competitiveness and inflation continue to be the country's most important economic problems at present, according to WES experts.

### Latin America: Economic weakening

The global economic weakening has also reached Latin America. The economic climate index fell in October in Latin America as a whole. However, diverging economic trends still predominate in the region.

The present economic situation continues to be favourable, according to the surveyed economists, in Brazil, Chile, Panama and Paraguay. However, the economic expectations for the next six months here have been strongly down-graded, as in Latin America in general, and point to a pronounced economic cooling. Private consumption, capital expenditures and the export sector are expected to weaken in the near-term. Also in Peru, Trinidad and Tobago and Uruguay the present economic performance received high marks on the WES scale. However, the economic expectations for the next six months have also become generally cautious. In Argentina and Colombia the economic expectations have also deteriorated, although the present economic state was assessed as satisfactory in October. In Argentina, inflation and lack of confidence in government's economic policy were named as the most important economic problems at present. Far below the satisfactory level is how the surveyed economists described the present economic state in Bolivia, Ecuador, El Salvador, Guatemala, Mexico and Venezuela. The economic expectations in all these countries point to an economic weakening in the next six months, particularly relating to capital expenditures and private consumption.

### Near East: Economic climate cools moderately

The economic climate has also cooled somewhat in countries surveyed in the Near East. However, in the majority of countries the present economic situation continues to be assessed similarly favourable, so in Jordan, Kuwait, Saudi Arabia and United Arab Emirates. The economic expectations point to a moderate cooling in the next six months and a generally stable economic performance. In contrast, a pronounced economic deterioration is expected by the surveyed economists in Israel; although, currently the economic performance is assessed as above the satisfactory level here as well. In Turkey, the assessments of the present economic situation have been strongly downgraded. The economic expectations for the next six months have remained cautious, although the

export sector is expected to rebound somewhat. Further economic deterioration is expected by the surveyed economists in Iran. Also in Lebanon economic recovery remains subdued, according to WES experts.

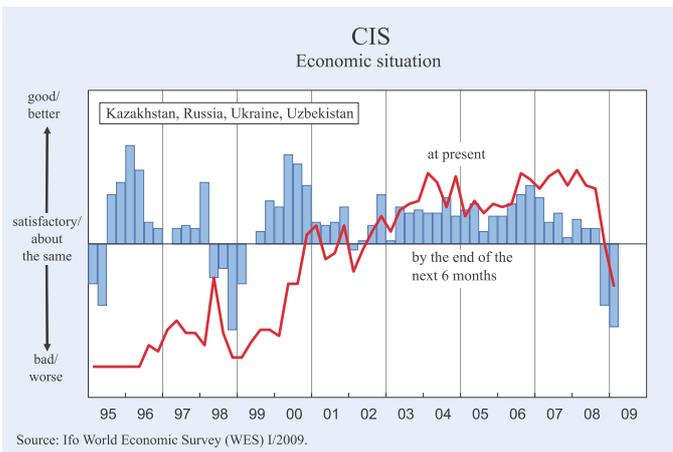
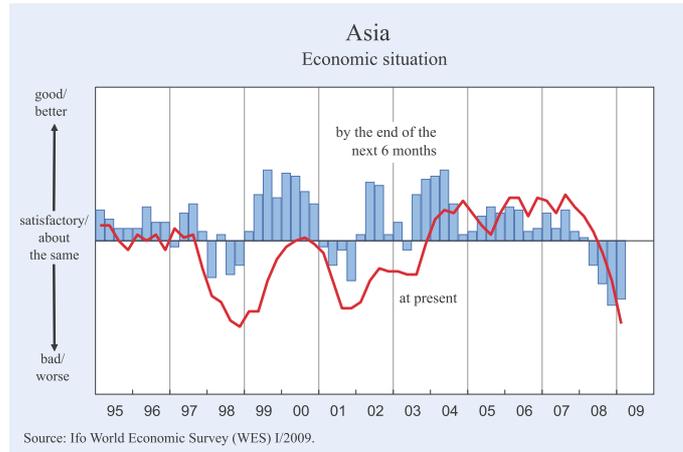
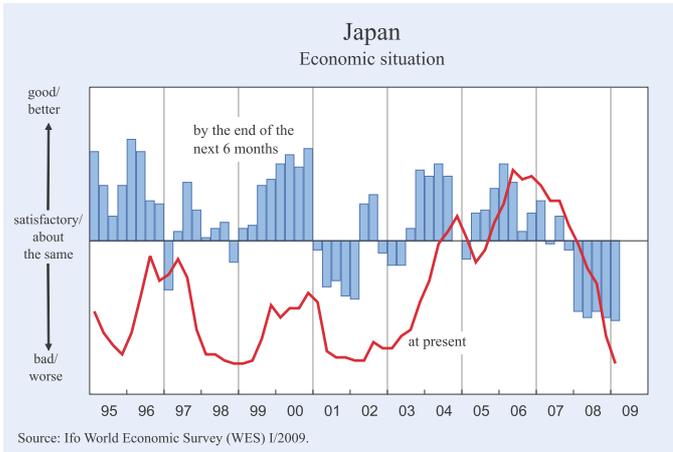
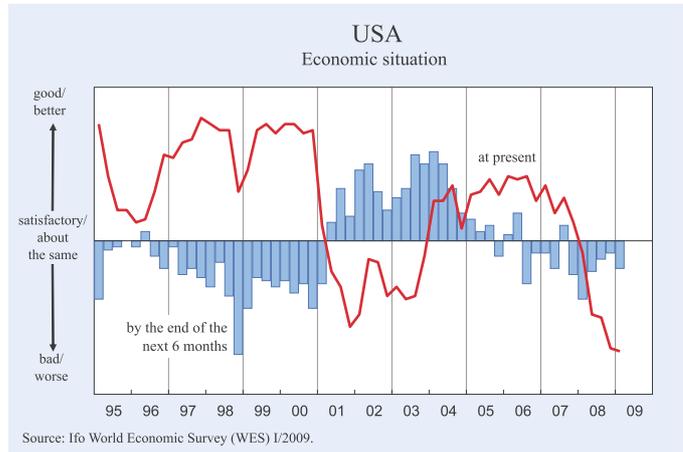
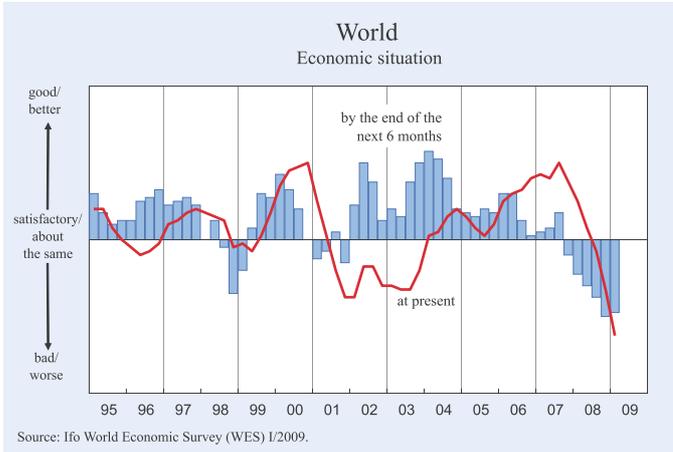
### Africa: Economic downturn in South Africa

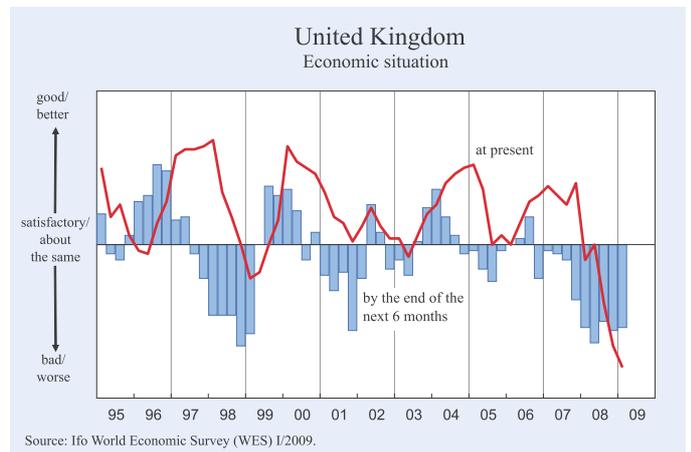
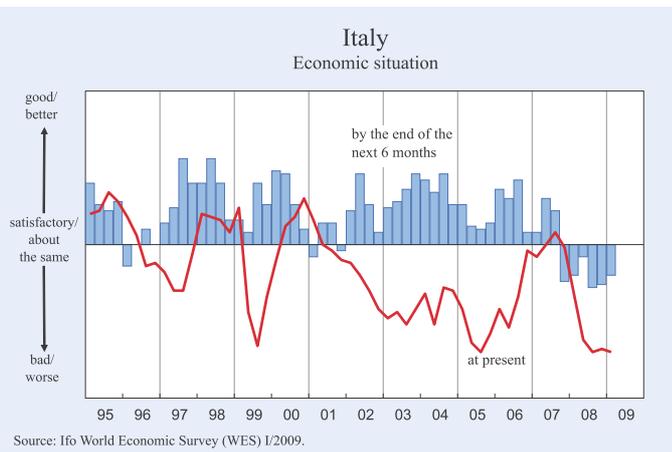
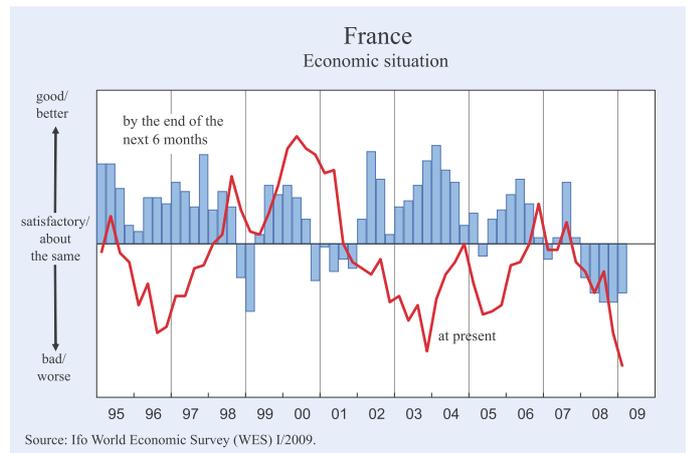
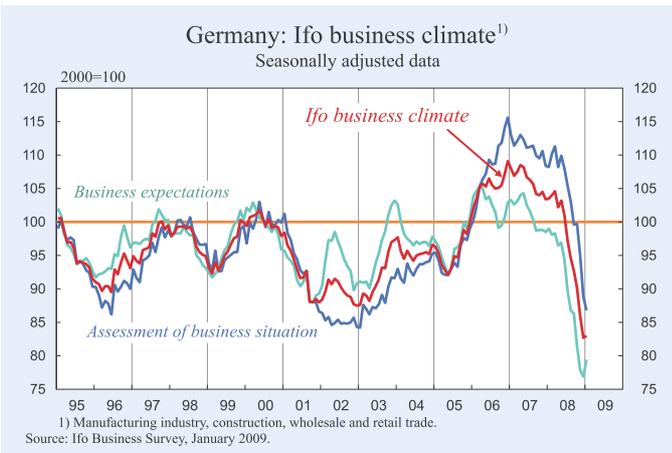
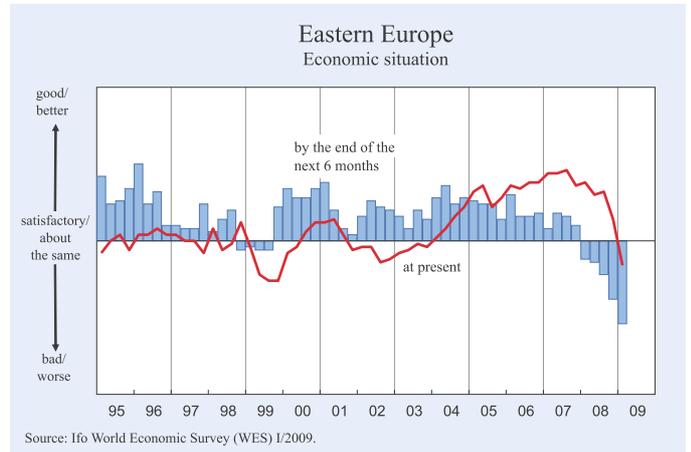
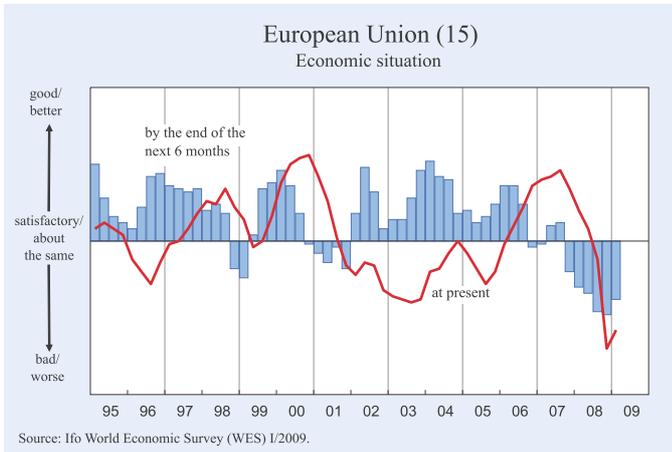
The economic climate index improved somewhat in South Africa in October over the July survey. Both the assessments of the current economic situation and economic expectations for the coming six months have been upgraded slightly. The present economic situation is now assessed close to the satisfactory level. However, the economic expectations, although less pessimistic than in the preceding surveys of 2008, are still pointing to further economic deterioration in the next six months. Capital expenditures, private consumption and the export sector are expected to weaken further in the coming months, according to WES experts. Unemployment, lack of skilled labour and inflation continue to be the country's most important economic problems, crime and AIDS are the country's most important social problems at present.

An economic deterioration is also expected by the WES experts surveyed in the North African countries, Morocco, Tunisia, Egypt and Algeria, as well as in Tanzania, Nigeria and Mauritius. In Kenya, however, the surveyed economists expect a strengthening of the economy in the next six months, with growing private consumption and exports.

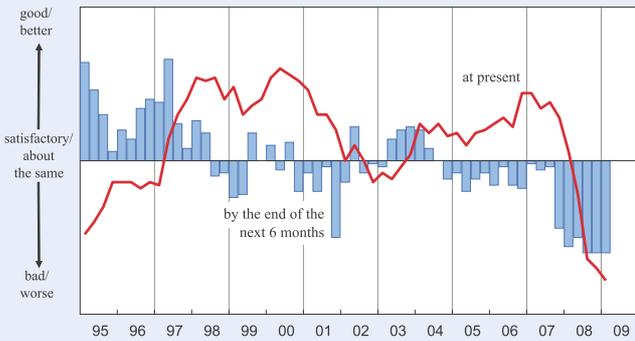
Fewer and fewer economists assess the economy for WES in Zimbabwe. Many of them have left the country or have no access to communication media. The information that reaches us reflects that the disastrous economic and political circumstances continue to prevail in the country and may even further aggravate in the near term.

# IFO WORLD ECONOMIC SURVEY (WES)



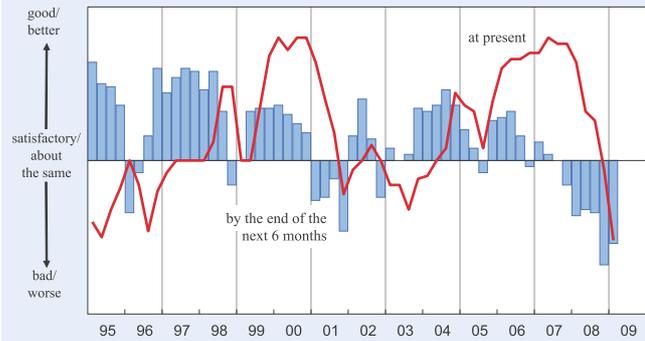


### Spain Economic situation



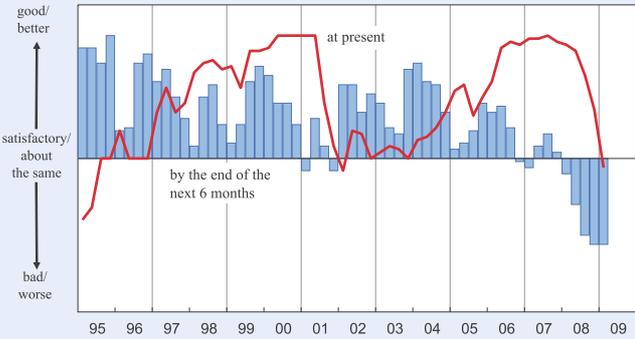
Source: Ifo World Economic Survey (WES) 1/2009.

### Sweden Economic situation



Source: Ifo World Economic Survey (WES) 1/2009.

### Finland Economic situation



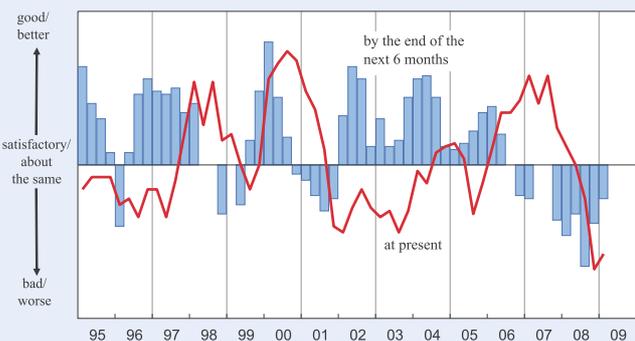
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### Austria Economic situation



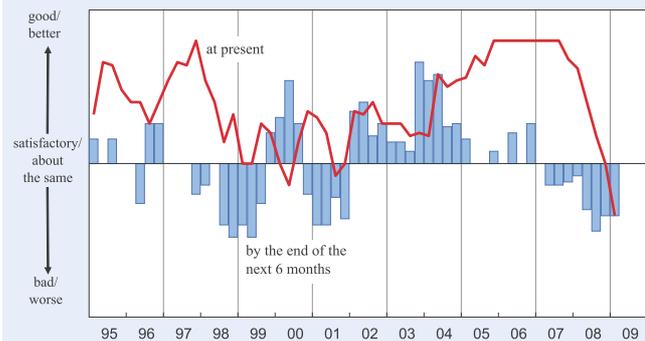
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### Belgium Economic situation

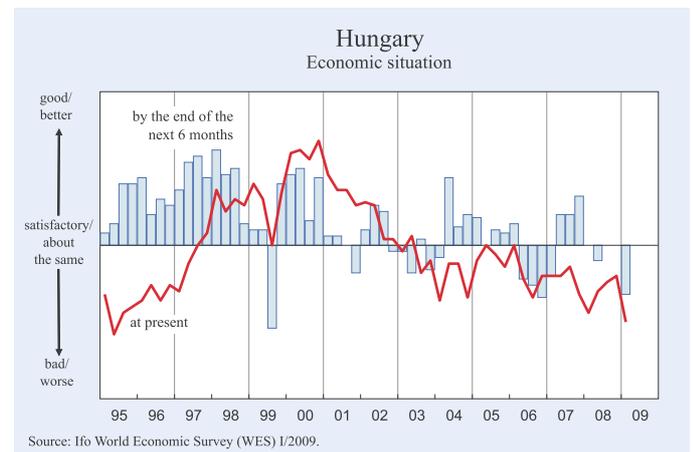
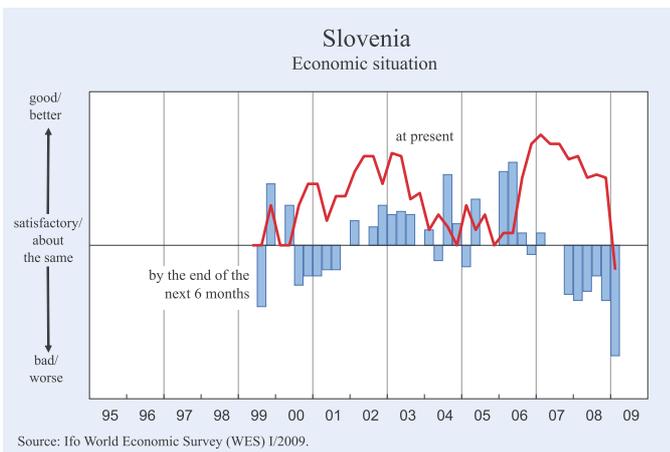
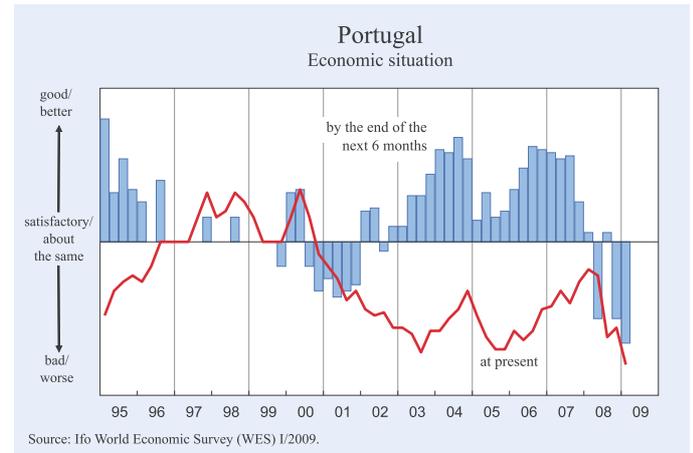
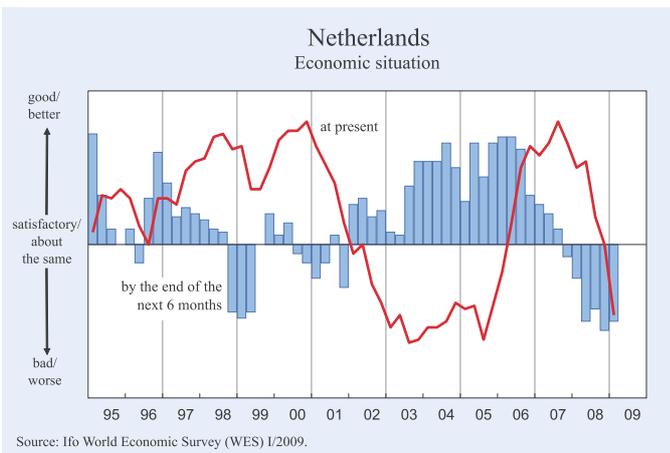
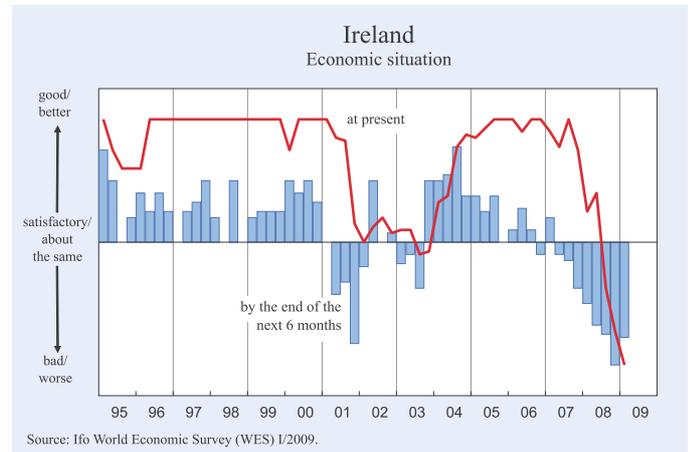
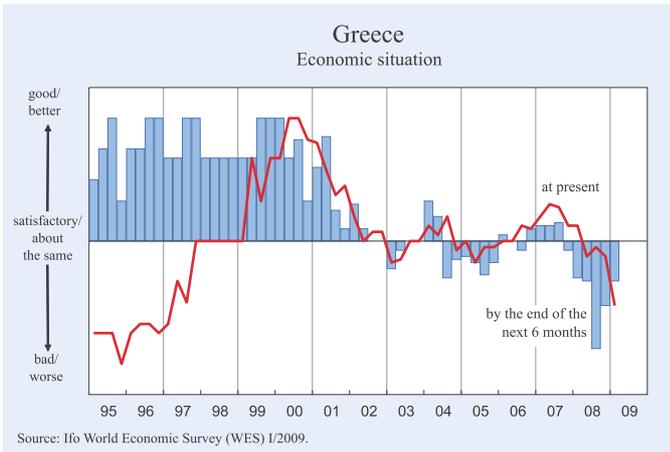


Source: Ifo World Economic Survey (WES) 1/2009.

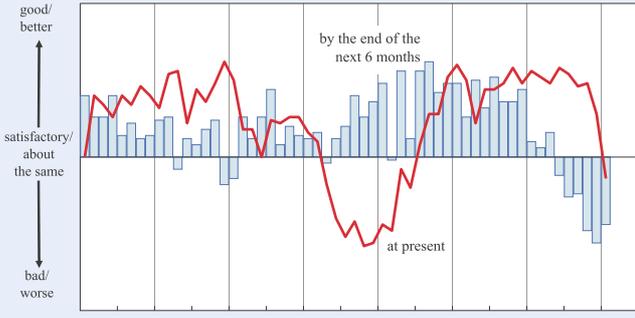
### Denmark Economic situation



Source: Ifo World Economic Survey (WES) 1/2009.

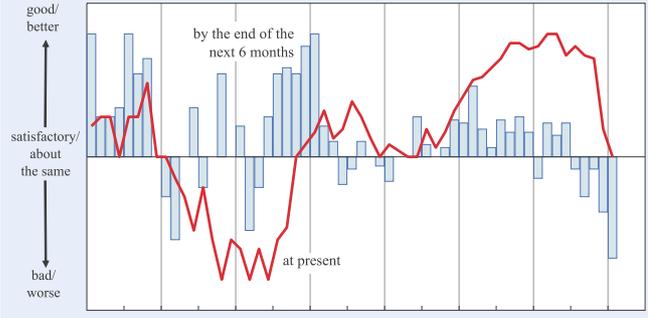


**Poland**  
Economic situation



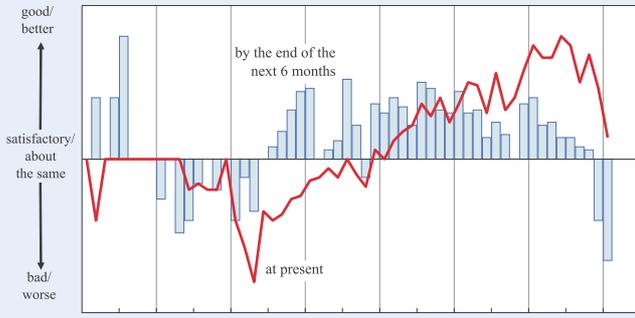
Source: Ifo World Economic Survey (WES) 1/2009.

**Czech Republic**  
Economic situation



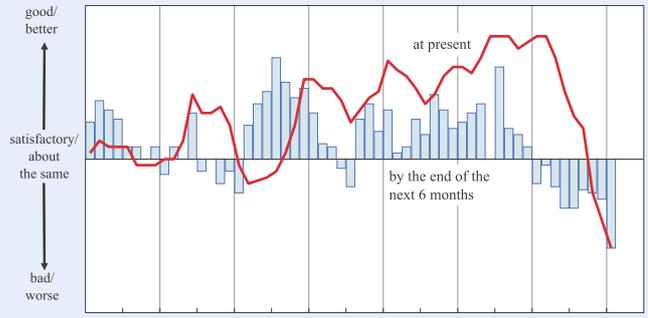
Source: Ifo World Economic Survey (WES) 1/2009.

**Slovak Republic**  
Economic situation



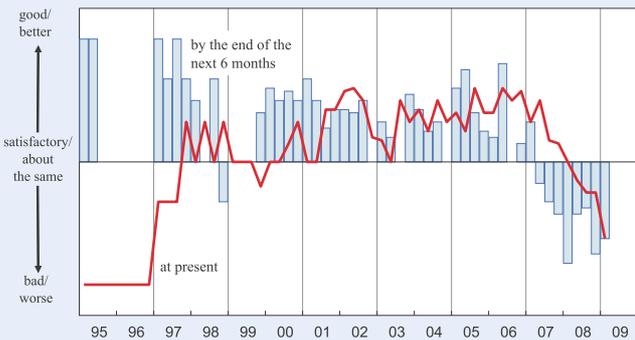
Source: Ifo World Economic Survey (WES) 1/2009.

**Estonia**  
Economic situation



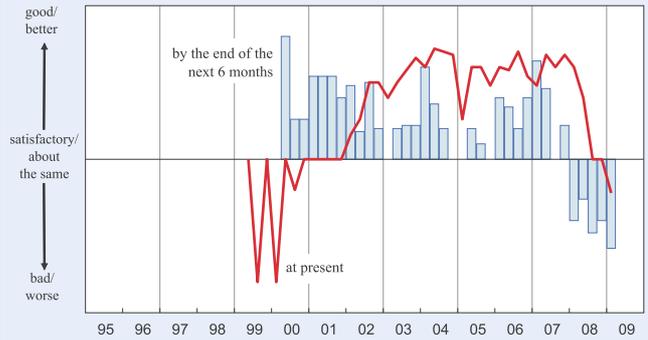
Source: Ifo World Economic Survey (WES) 1/2009.

**Latvia**  
Economic situation



Source: Ifo World Economic Survey (WES) 1/2009.

**Lithuania**  
Economic situation



Source: Ifo World Economic Survey (WES) 1/2009.

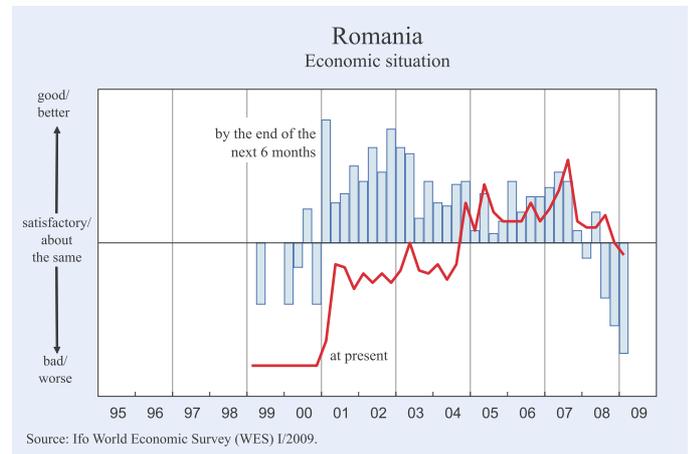
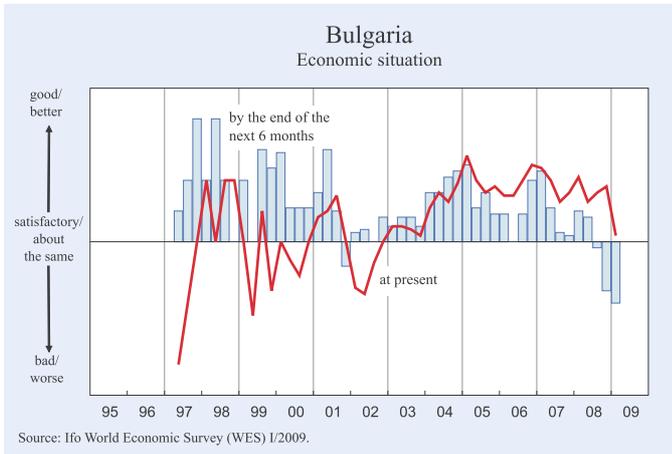


Table A.1

**GDP growth, inflation and unemployment in various countries**

	Share of total GDP in %	GDP growth			CPI inflation			Unemployment rate <sup>d)</sup>		
		in %						in %		
		2008	2009	2010	2008	2009	2010	2008	2009	2010
EU27	34.5	0.9	-1.8	0.3	3.5	1.5	1.8	7.0	8.5	9.1
Euro area	25.0	0.7	-2.0	0.2	3.3	1.2	1.5	7.5	9.1	9.7
Switzerland	0.9	1.8	-0.5	0.6	2.4	0.6	1.4	3.5	3.7	4.2
Norway	0.8	2.6	0.8	1.2	3.6	1.9	2.0	2.6	3.0	3.0
Western and Central Europe	36.2	1.0	-1.7	0.3	3.5	1.5	1.8	6.9	8.4	8.9
US	28.2	1.3	-1.5	0.0	4.3	0.3	1.3	5.7	7.5	7.5
Japan	9.0	-0.7	-3.0	0.2	1.4	-0.5	0.0	4.1	5.0	5.5
Canada	2.9	0.5	-1.2	0.7	2.5	1.3	1.6	6.1	7.0	6.8
Industrialised countries total	76.3	0.9	-1.8	0.2	3.5	0.8	1.4	6.1	7.6	7.9
Newly industrialised countries										
Russia	2.6	6.3	-1.0	1.5	.	.	.	.	.	.
China and Hongkong	7.1	9.4	6.3	7.0	.	.	.	.	.	.
India	2.2	7.0	5.0	6.2	.	.	.	.	.	.
East Asia <sup>a)</sup>	5.2	4.5	2.0	2.8	.	.	.	.	.	.
Latin America <sup>b)</sup>	6.5	4.2	2.1	3.0	.	.	.	.	.	.
Newly industrialised countries total	23.7	6.4	3.3	4.3	.	.	.	.	.	.
Total <sup>c)</sup>	100.0	2.2	-0.6	1.2	.	.	.	.	.	.
World trade, volume		3.2	-2.0	1.5	.	.	.	.	.	.

<sup>a)</sup> Weighted average of Indonesia, Korea, Malaysia, Taiwan, Philippines, Thailand, Singapore. Weighted with the 2007 GDP levels in US dollars. <sup>b)</sup> Weighted average of Argentina, Brasil, Chile, Columbia, Mexico, Peru, Venezuela. Weighted with the 2007 GDP levels in US dollars. <sup>c)</sup> Sum of the listed groups of countries. Weighted with the 2007 GDP levels in US dollars.. <sup>d)</sup> Standardised unemployment rate.

Source: EU; OECD; IMF; National Statistical Offices; 2008, 2009 and 2010: forecasts by the EEAG.

Table A.2

## GDP growth, inflation and unemployment in the European countries

	Share of total GDP in %	GDP growth			Inflation <sup>a)</sup>			Unemployment rate <sup>b)</sup>		
		in %						in %		
		2008	2009	2010	2008	2009	2010	2008	2009	2010
Germany	19.7	1.0	-2.4	-0.2	2.8	0.8	1.4	7.3	8.4	9.2
France	15.4	0.7	-2.0	0.3	3.2	1.0	1.5	7.8	8.7	9.5
Italy	12.5	-0.9	-2.2	0.0	3.5	1.3	1.3	6.9	8.0	8.5
Spain	8.5	1.1	-2.1	0.3	4.1	1.8	1.8	11.2	16.5	17.1
Netherlands	4.6	2.0	-1.2	0.7	2.2	1.5	1.7	2.8	3.5	4.0
Belgium	2.7	1.2	-1.9	0.3	4.5	1.6	1.7	7.1	7.5	8.0
Austria	2.2	1.6	-0.7	0.7	3.2	1.3	1.5	3.8	4.3	4.7
Greece	1.9	3.2	0.5	1.2	4.2	2.2	2.7	7.8	8.5	9.0
Finland	1.5	1.7	-0.5	1.1	3.9	2.0	2.1	6.4	7.0	7.5
Ireland	1.5	-1.9	-2.0	0.8	3.1	1.1	1.8	6.3	9.0	9.5
Portugal	1.3	0.0	-1.0	0.5	2.6	1.2	1.5	7.8	8.7	9.2
Slovakia	1.3	8.0	1.5	2.8	3.9	2.8	3.7	9.7	10.6	11.2
Slovenia	0.3	4.0	0.5	1.5	5.6	2.0	2.8	4.5	5.0	5.5
Luxembourg	0.3	2.0	-1.5	0.9	4.1	1.8	2.1	4.4	5.2	5.7
Cyprus	0.1	3.7	0.5	1.4	4.4	2.1	2.5	3.8	4.5	5.0
Malta	0.0	2.0	0.7	1.6	4.7	2.0	2.6	5.8	6.2	6.5
<b>Euro area<sup>c)</sup></b>	<b>72.8</b>	<b>0.7</b>	<b>-2.0</b>	<b>0.2</b>	<b>3.3</b>	<b>1.2</b>	<b>1.5</b>	<b>7.5</b>	<b>9.1</b>	<b>9.7</b>
United Kingdom	16.6	0.7	-2.5	0.3	3.7	2.1	2.2	5.6	7.7	8.5
Sweden	2.7	0.8	-1.0	0.6	3.3	1.7	1.9	6.2	7.5	8.0
Denmark	1.8	-0.3	-1.9	0.4	3.6	1.6	1.8	3.5	5.0	5.8
<b>EU19<sup>c)</sup></b>	<b>94.0</b>	<b>0.7</b>	<b>-2.0</b>	<b>0.2</b>	<b>3.4</b>	<b>1.4</b>	<b>1.7</b>	<b>7.1</b>	<b>8.7</b>	<b>9.4</b>
Poland	2.5	5.0	1.5	2.0	4.2	3.1	3.6	7.1	7.7	7.9
Czech Republic	1.0	4.0	1.3	1.9	6.3	2.4	2.9	4.4	5.5	5.8
Romania	1.0	7.0	2.5	3.3	7.9	4.0	4.5	5.9	6.5	6.3
Hungary	0.8	0.6	-1.5	0.8	6.1	3.6	4.0	7.9	9.0	9.5
Lithuania	0.2	3.3	1.0	-1.0	11.1	8.5	7.7	5.7	8.5	9.5
Bulgaria	0.2	5.2	2.2	3.5	12.0	7.3	8.5	5.7	6.5	6.5
Latvia	0.1	-2.3	-3.6	0.6	15.3	12.4	11.9	7.3	11.5	12.3
Estonia	0.1	-1.6	-2.8	0.9	10.6	8.8	8.3	6.0	10.2	11.4
<b>EU8</b>	<b>6.0</b>	<b>4.2</b>	<b>1.1</b>	<b>1.9</b>	<b>6.3</b>	<b>3.8</b>	<b>4.3</b>	<b>6.4</b>	<b>7.4</b>	<b>7.6</b>
<b>EU27<sup>c)</sup></b>	<b>100.0</b>	<b>0.9</b>	<b>-1.8</b>	<b>0.3</b>	<b>3.5</b>	<b>1.5</b>	<b>1.8</b>	<b>7.0</b>	<b>8.5</b>	<b>9.1</b>

<sup>a)</sup> Harmonised consumer price index (HCPI). - <sup>b)</sup> Standardised unemployment rate. - <sup>c)</sup> Sum of the listed countries.

Source: EUROSTAT; OECD; IMF; 2008, 2009 and 2010: forecasts by the EEAG.

Table A.3

## Key forecast figures for the euro area

	2007	2008	2009	2010
	Percentage change over previous year			
Real gross domestic product	2.6	0.7	-2.0	0.2
Private consumption	1.6	0.3	-1.3	0.2
Government consumption	2.3	1.8	2.4	1.7
Gross fixed capital formation	4.2	0.8	-5.5	0.3
Net exports <sup>a)</sup>	0.3	0.0	-0.5	-0.3
Consumer prices <sup>b)</sup>	2.2	3.3	1.2	1.5
	Percentage of nominal gross domestic product			
Government fiscal balance <sup>c)</sup>	-0.6	-1.5	-3.2	-2.7
	Percentage of labour force			
Unemployment rate <sup>d)</sup>	7.4	7.5	9.1	9.7

<sup>a)</sup> Contributions to changes in real GDP (percentage of real GDP in previous year). - <sup>b)</sup> Harmonised consumer price index (HCPI).

- <sup>c)</sup> 2008, 2009 and 2010: forecasts of the European Commission. <sup>d)</sup> Standardised unemployment rate.

Source: Eurostat; 2008, 2009 and 2010: forecasts by the EEAG.



## THE FINANCIAL CRISIS

The financial turmoil that originated in 2007 and developed into an unprecedented crisis battering financial and real markets is the latest manifestation, on a grand scale and with new attributes, of a well-defined pathology in the process of market liberalization and integration in the post-Bretton Woods era. At the root of the crisis lies a fundamental inconsistency between financial globalisation – the process of liberalization and deregulation driving the impressive growth of world financial markets – and existing public rules and policies at both domestic and international levels. This pathology underlies virtually all the episodes of instability that have affected the developing and the emerging economies since the constraints on capital mobility started to be removed during the 1970s: from the debt crisis in the early 1980s to the financial and currency crisis in South-East Asia in 1997–98 (see e.g., Corsetti, Pesenti and Roubini 1999). Globalisation of financial markets has systematically and vastly outpaced the development of their governance: governments have lagged behind in reshaping domestic and international institutions as well as in changing and adapting policy behaviour.

In a nutshell, three are three main features of the crisis. The first two consist of excessive risk-taking and excessive leverage by financial institutions. These reflected an inconsistency between globalisation and market governance that created the possibility of originating and trading assets under massive underestimation of their risk characteristics; financial institutions were willing to accept excessive risk in part because the same inconsistency created expectations of contingent public guarantees on financial and real assets, in part because, in the presence of widespread agency problems, markets operated consistently with puzzlingly exuberant beliefs about asset price dynamics. Governments may have identified but failed to neutralise these agency problems, i.e., widespread conflicts of interest between asset managers and their clients, and between rating agencies and sponsors of securitisation programmes. Government guarantees and subsidies, exuberant

expectations and agency problems reinforced each other, leading to snowballing effects on leverage and risk-taking.

It is the third feature however that sharply differentiates this from previous crises: the extreme level of opacity regarding the size and incidence of risks in the portfolios held by investors and intermediaries. Several layers of securitisation of loans and mortgages resulted in a loss of information and created network externalities across interconnected institutions, which made intermediaries and investors increasingly unable to assess how much risk was in their portfolio, eventually causing the illiquidity of markets directly or indirectly exposed to asset backed securities.

The cost of opacity vastly offset potential benefits from risk diversification – the motivation of securitisation in the first place – not only directly (by causing illiquidity of assets whose risk structure became impenetrable even to the owner) but also indirectly. This is because, at the onset of the crisis, banks and near banks felt obliged to buy back a large share of the “toxic” asset-backed securities they had previously sold to households and institutional investors with guarantees, and placed them in their balance sheets. As the crisis developed, losses from mortgage-related securities and market illiquidity eroded the viability of leveraged institutions, especially those relying on short-term financing. As losses caused depleted equity, intermediaries scrambled for new capital but over time started to reduce their target leverage, arguably implying less lending available for business and households (see Chapter 1 of this report). This is an important difference from other episodes of large market adjustment, which, while producing a dent in the stock of households’ wealth of similar if not larger proportions did not undermine the working of the global financial system.

A crucial casualty of the crisis is the confidence in the models that financial intermediaries and markets adopt to assess risk. Especially, but not only, in the US, agents operated persistently as if the risk of downward adjustment in asset prices was quite con-

tained (e.g., Shiller 2008), and most importantly, underestimated the risks of illiquidity and the problems of over-the-counter markets.

Because of opacity, excessive leverage and excessive risk-taking, a crisis that originated in a relatively small market segment (the subprime mortgage segment) grew out of proportion, causing a world-wide loss of confidence in private financial intermediation and markets – undermining the presumption that policy-makers had learnt enough from the past to be able to effectively manage financial turmoil and contain its effects on the real economy. It is the loss of confidence in markets, but also in policies, that have created the conditions for a severe slowdown. Interestingly, while many observers appeared to be aware of the risk of a severe implosion like the one experienced since September 2008, few would actually go as far as predicting it.

The loss of confidence in markets, but also on policies, have now sowed the poisonous seeds of a severe slowdown in the years to come but also, and worse, of a sharp regress in international economic integration and cooperation. While the full extent of the damage is unclear at the time of the writing, we are fully aware that containing it will take decisive action, and time.

What to do crucially depends on one's view of the causes and nature of the crisis. For this reason, this chapter will first address the question: what caused the global financial crisis of 2007–2008? In this part of the chapter, we will lay out the main theories and pieces of evidence to understand the deep as well as the proximate causes of the financial turmoil. First, we will analyse the subprime mortgage markets and the process of securitisation, and reconsider the macroeconomic imbalances underlying the crisis. Second, we will account for the dynamics of the crisis and public intervention, distinguishing different phases: the first from 2007 to the end of summer 2008, corresponding to hopes for a soft-landing; the second, from autumn 2008 on, where the crisis exacerbates (hard landing at last!), with global contagion to financial and real markets. Third, we look ahead, discussing the main challenges to policy-makers from the deepening of the banking crisis and address issues in the reform of the international financial architecture. In this section, we will specifically analyse problems and perspective of reforms in the European Union and the link between fiscal and financial aspects of the crisis.

## 1. What created overleveraging, excessive risk-taking and opacity of financial markets?

### 1.1 A close-up analysis of subprime mortgages and their securitisation

The first step in our analysis consists of clarifying the nature and the functioning of the subprime mortgage market, and the way in which intrinsically heterogeneous contracts were securitized, i.e., pooled together and turned into homogeneous assets to intermediaries and investors. This is because, while the losses from the crisis have far exceeded the dimension of the losses from subprime lending and now has spread to many other parts of the international financial system, the origin of all the evil is commonly placed in this particular segment of the mortgage market.

Subprime is lending to individuals with a high perceived level of default risk, either because they have low income, or because their records show a less than perfect credit history relative to the standards of “prime” borrowers. Subprime lending has been around for quite a while. But it is only in the last few years that it became one of the fastest growing segments in the US mortgage markets – its exceptional growth being driven by a number of factors discussed below.

As is well known, credit markets are plagued by information asymmetries: the borrower is generally better informed than the lender about the merit of the project he/she is asking funds for; the borrower can take actions that affect the value of the project but are unknown to the lender. Economists refer to the former as “adverse selection”, to the latter as “moral hazard”. Information asymmetries explain why prices are not and cannot be the only mechanisms that clear credit markets. In the adverse-selection model of credit rationing by Stiglitz and Weiss (1981), for instance, if the lender sets high interest rates for projects with a given high level of risk, these high rates end up attracting a pool of borrowers with even riskier profiles. In an attempt to clear the market, the lender could try to raise the interest rate even more, but this clearly would be to no avail. In fact, the only outcome of raising prices would be that of discouraging some of the relatively safe borrowers from applying for funds. In the standard moral hazard model, a party in a contract takes on excessive risk because he/she does not face the full consequences of his/her action, leaving other parties to

bear responsibility.<sup>1</sup> One example of moral hazard is between borrowers and lenders: borrowers are tempted to take risky actions that are inefficient to the extent that they reduce the value of the firm to the creditors in the likelihood of bankruptcy. Since the borrower does not get anything in that event, they do not factor in this kind of loss when making their decision. Another example is due to the prospect of a government bailout: financial intermediaries may then invest in projects that are too risky because they gain from the prospect of greater gains while the associated greater losses are expected to be borne by the taxpayer.

Adverse selection and moral hazard are two key market pathologies needed to understand the subprime mortgage markets. With adverse selection and moral hazard, financial intermediaries allocate funds resorting to a number of instruments and mechanisms other than pricing, namely, they use screening of customers and credit rationing, and they request collateral. In the subprime mortgage market, indeed, intermediaries lend against the house value as collateral, supposedly after screening borrowers, and charging a premium over the interest rate paid by most secure, prime borrowers.

In addition, financial intermediaries can reduce their exposure to mortgage-related risk by selling some of it to other agents in the economy, via the process of securitisation that will be described below in detail. By allowing banks to diversify mortgage risks among market participants, securitisation reduces the risk faced by each financial intermediary at each level of lending. As a result, more resources are in principle available for borrowers in the aggregate.

Lending against collateral, screening and securitisation thus result in easier and cheaper access to financial markets by households and firms which would otherwise be severely rationed. Their benefits are however less obvious in the presence of other types of distortions, e.g., when a bubble leads to mispricing of the collateral, agency problems exacerbate moral hazard, or opportunities for regulatory arbitrage raise the risk exposure of banks beyond prudential standards. The boom in subprime mortgage market was indeed driven by the interaction of strong pricing dynamics in the housing market, agency problems and inconsistencies in regulation and supervision, to become the engine of overlever-

aging and excessive risk-taking for the world financial system as a whole.

### *1.1.1 Subprime mortgage origination and refinancing in the US*

A brief overview of subprime lending and securitisation in the US is in order, to shed light on the main mechanisms that played a role in undermining financial stability in the US and worldwide. (For a detailed exposition of this mechanism, see e.g., Calomiris 2008, Gorton 2008, and IMF 2008a,b.)

In the period leading up to the crisis, subprime mortgages in the US were typically adjustable rate mortgages, with a “hybrid structure”. To see what this means, consider common labels such as “2/28” or “3/27”: these referred to 30 year mortgages incorporating a fixed rate for 2 and 3 years, respectively, then switching to a floating rate for the remaining period, 28 and 27 years. The initial monthly payments in the first part of the mortgage were based on “teaser rates”, adding a premium (e.g., 6 basis points) above the benchmark London Interbank Offered rate, Libor). After 2 or 3 years, the switch to floating rates was typically associated with a substantial increase in the dollar amounts of monthly instalments.

As further discussed below, these contracts flourished in a period of continuing house price appreciation. This is an important observation to understand their structure and practical implementation (see Gorton 2008). Namely, these contracts included very high prepayment fees – de facto, these fees discouraged borrowers from cashing in capital gains on the house by closing their debt in advance and walking away from the financial intermediary. On the contrary, they were designed in such a way that borrowers would have an opportunity/incentive to refinance their mortgage in the first few years, possibly before the switch from fixed to floating rates, when they would face substantially higher monthly payments. So, in an environment of increasing housing prices, poor households could avoid payment difficulties through refinancing. In fact, first subprime mortgages were typically rolled into second, or even a sequence of subprime loans. Gorton (2008) reports that for some types of mortgages, up to 80 percent were refinanced within five years from the start.

In this respect, it is worth stressing that financial advice was, to say the least, deficient. Adjustable rate

<sup>1</sup> See Sinn (1981, 2009) for the implications of limited liability on risk-taking in general and banking behaviour in particular.

mortgages with attractive teaser rates were overwhelmingly targeted to low-income and poorly uneducated households, who are the least informed about subtleties of contracts and market evolution (see Shiller 2008). In other words, complex financial products were sold to financially illiterate people.

Table 2.1 shows mortgage origination in the US between 2001 and 2007 by types of products: “conforming” and jumbo mortgages (the latter being larger, against more expensive houses), subprime and Alt-A mortgages,<sup>2</sup> home equity loans (HEL),

<sup>2</sup> In the US, **Alternative A-paper mortgages**, or Alt-A mortgages, are classified as riskier than A-paper ones (the “prime”) and less risky than the subprime ones. Alt-A interest rates, which are determined by credit risk, therefore tend to be between those of prime and subprime home loans.

as well as Federal Housing Administration (FHA) and Veteran Affairs (VA) mortgages. The total value of mortgages originated in the period fluctuates at around \$3 trillion per year. For our purpose, it is important to stress that the share of subprime in origination of all mortgages rose steadily between 2001 and 2006, from 7.2 to 20.1 percent. The share of subprime and Alt-A mortgages combined exceeded 30 percent at the end of the period. Also, the share of adjustable rate mortgages originated in each year quickly climbed to 50 percent between 2001 and 2004, remained above 45 percent in 2005 and 2006. Finally, refinancing activity was extremely high, always above 50 percent of originated mortgages, with a peak of 72 percent in 2003. Thus, a large share of “mortgage origination” actu-

**Table 2.1**

**Mortgage originations by product**

Mortgage originations by product (\$bn)									
Year	FHA/VA	Conforming	Jumbo	Subprime	Alt-A	HEL	Total	ARMs	Refinances
2001	175	1,265	445	160	55	115	2,215	355	1,298
2002	176	1,706	571	200	67	165	2,885	679	1,821
2003	220	2,460	650	310	85	220	3,945	1,034	2,839
2004	130	1,210	510	530	185	355	2,920	1,464	1,510
2005	90	1,090	570	625	380	365	3,120	1,490	1,572
2006	80	990	480	600	400	430	2,980	1,340	1,460
1Q06	19	236	103	140	105	102	705	297	348
2Q06	20	275	126	165	104	110	800	392	382
3Q06	22	241	128	160	91	113	755	332	368
4Q06	19	238	123	135	100	105	720	319	362
1Q07	19	273	100	93	98	97	680	40	388
2Q07	25	328	120	56	96	105	730	220	377
3Q07	26	286	83	28	54	93	570	166	263
4Q07	31	275	44	14	27	60	450	98	234
% of originations by product (except for total loans)									
Year	FHA/VA	Conforming	Jumbo	Subprime	Alt-A	HEL	ARMs	Refinances	Total Loans (\$Bn)
2001	7.9%	57.1%	20.1%	7.2%	2.5%	5.2%	16.0%	58.6%	1298
2002	6.1%	59.1%	19.8%	6.9%	2.3%	5.7%	23.5%	63.1%	1821
2003	5.6%	62.4%	16.5%	7.9%	2.2%	5.6%	26.2%	72.0%	2839
2004	4.5%	41.4%	17.5%	18.2%	6.3%	12.2%	50.1%	54.7%	1510
2005	2.9%	34.9%	18.3%	20.0%	12.2%	11.7%	47.8%	50.4%	1572
2006	2.7%	33.2%	16.1%	20.1%	13.4%	14.4%	45.0%	49.0%	1460
1Q06	2.7%	33.5%	19.9%	19.9%	14.9%	14.5%	42.1%	49.4%	348
2Q06	2.5%	34.4%	15.8%	20.6%	13.0%	13.8%	49.0%	47.8%	382
3Q06	2.9%	31.9%	17.0%	21.2%	12.1%	15.0%	44.0%	48.7%	368
4Q06	2.6%	33.1%	17.1%	18.8%	13.9%	14.6%	44.3%	50.3%	362
1Q07	2.8%	40.1%	14.7%	13.7%	14.4%	14.3%	35.3%	57.1%	388
2Q07	3.4%	44.9%	16.4%	7.7%	13.2%	14.4%	30.1%	51.6%	377
3Q07	4.5%	50.2%	14.6%	4.9%	9.5%	16.3%	29.1%	46.1%	263
4Q07	6.9%	61.0%	9.6%	3.0%	6.0%	13.3%	21.6%	52.0%	234

Source: Inside Mortgage Finance, Morgan Stanley based on Greenlaw et al. 2008.

ally consisted of the refinancing of outstanding mortgages.

The cumulative issuance of subprime mortgages between 2005 and 2007 should provide an approximate measure of the amount of these mortgages outstanding at the onset of the crisis (see Greenlaw et al. 2008). The outstanding stock amounted to 1.4 trillion dollars. Adjustable rates mortgages, accounting for 80 percent of the total, then reached 1 trillion dollars. Note that because of widespread refinancing with increasing housing prices, the performance of subprime mortgages in the years prior to the crisis provided little or no guide to risk and loss assessment. With adjustable-rate mortgages, default could be expected to climb quickly after the first two or three years in the life of each cohort of mortgages during which borrowers pay teaser rates. However, refinancing in 2004 through 2006 allowed many borrowers to postpone the passage to floating-rate instalments, which are usually more expensive than the initial ones.

Estimates of the direct losses on subprime mortgages at the start of the crisis varied widely (see e.g., Greenlaw et al. 2008). Initial estimates were in the range of \$50 to \$100 billion for subprime – figures proposed by Bernanke in July 2007 – plausibly corresponding to overall losses as high as \$150 billion for the US mortgage market as a whole. At the end of 2007, estimates of total losses in this market had already climbed to between \$250 to \$500 billion, according to Lehman Brothers (2007) and Goldman Sachs (2007). Prudential estimates pointed to losses of the order of 4 percent of US GDP.

These initial estimates were profoundly revised over time, in view of a sizeable drop in housing prices and a severe slowdown of the economy, which translated into higher rates of default also in the prime segment of the market (accounting for more than three fourths of all mortgages). The estimates by the International Monetary Fund were revised from 1 to 1.4 trillion dollars in the course of 2008 (IMF 2008a,b). As we write this chapter, cost estimates have been substantially increased.

To the extent that these losses – although not completely unexpected – caught the private sector unprepared, they amounted to a sizeable negative shock to the economy, which would cause concern even if it did not cause extended malfunctioning in global financial markets. However, their magnitude was by no means

unprecedented – the losses from the dot-com crash wiped out \$5 trillion in the market value of technology companies between March 2000 and October 2002.

### 1.1.2 Mortgage securitisation

By their very nature, mortgage contracts are very heterogeneous. Not only conditions and terms of these contracts typically vary over time, i.e., across vintages. They also display large differences within each vintage, depending on a variety of factors, ranging from the location of the house to be financed, to the economic profile of the borrower and the marketing strategy of the lender. What follows describes how financial intermediaries were able to transform vastly heterogeneous contracts into standardised securities to be traded in financial markets – while our discussion focuses on mortgages, what we write applies also to other types of banks' loans and credit.

It is useful to keep in mind that securitisation developed vis-à-vis a strong and growing demand for highly rated assets by individual and institutional investors, the latter often restricted in their portfolio choice by rules setting quality standards for the securities in their portfolios. Hence, the goal of the process was to satisfy this demand at the least cost, i.e., by creating the largest possible pool of standardised, high-rating (possibly AAA) securities from the underlying pool of mortgages.

To start with, it is useful to introduce some terms and definitions. By issuing a mortgage loan to a household or a firm, a bank or financial intermediary is the *originator* of an asset that generates a cash flow paid regularly over time (the monthly instalments). Securitisation occurs when the originator sells this cash flow to a *special purpose vehicle SPV* (or a *structured investment vehicle SIV*, or a *special purpose enterprise, SPE*, or other kinds of conduits/trusts<sup>3</sup>), administered by a financial institution called the *administrator* or the *sponsor* of the programme. Since mortgage holders may default on their loans, however, the (nominal) face value of the cash flow is not sure. To deal with default risk, the SPV (or SIV, SPE, conduits, trust) purchases a well-diversified portfolio of mortgages, pooling together the cash flows from many borrowers.

The key to securitisation is that the SPV finances its purchases of cash flows from mortgages by issuing securities, which are then called *residential mortgage*

<sup>3</sup> Differences among these are discussed e.g., by Brunnermeier (2009).

backed securities (RMBS), or commercial mortgage backed securities (CMBS) because they are backed by the payments by the holders of the mortgages in the SPV portfolio. Both RMBS and CMBS are forms of *mortgage backed securities* (MBS), which in the US account for most of the larger class of *asset backed securities* (ABSs). For simplicity, in what follows ABSs will be used as a generic term to refer to MBSs, RMBSs or CMBSs.

How can risky cash flows from heterogeneous mortgage contracts be turned into standardised ABSs? The trick consists of slicing the cash flow from a well-diversified pool of mortgages into *tranches* of increasing risk/return profiles. Namely, the cash accruing from the pool of assets is used first to pay interest and the principal to the *tranche* with the highest and most senior status; the remaining cash is then used to pay the holders of a second *tranche*, with lower status; what is left is paid to a third tranche, and so on. The basic architecture is shown in Figure 2.1a.

An example after Gorton (2008) will help illustrate the mechanism. For simplicity, assume that the mortgage lasts one period only. Under these assumptions, consider an SPV that purchases a pool of mortgages generating a cash flow with a face value of \$100. This cash flow is obviously risky: it will in general pay less than \$100 ex post. To finance its purchase, the SPV issues RMBS in two *tranches*, a senior one with par value 100-N, and a subordinate one with par value equal to N. This means that while losses up to the first N dollars are borne by the second, riskier *tranche*;

Figure 2.1a

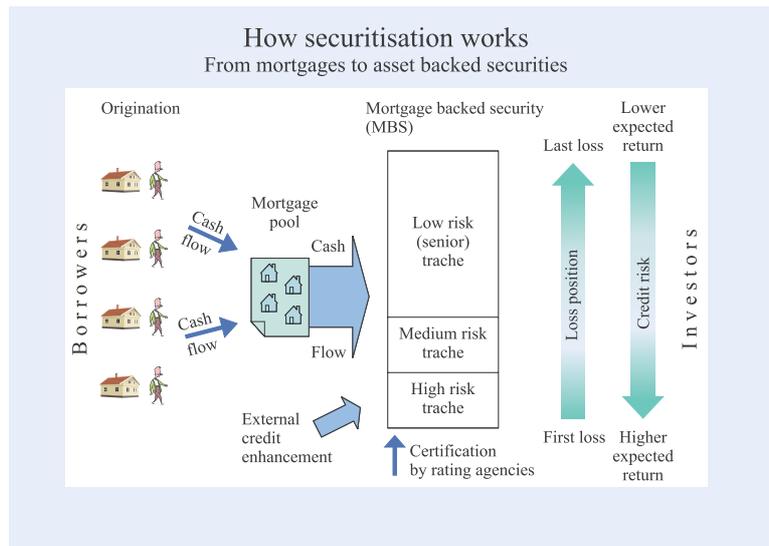


Figure 2.1b

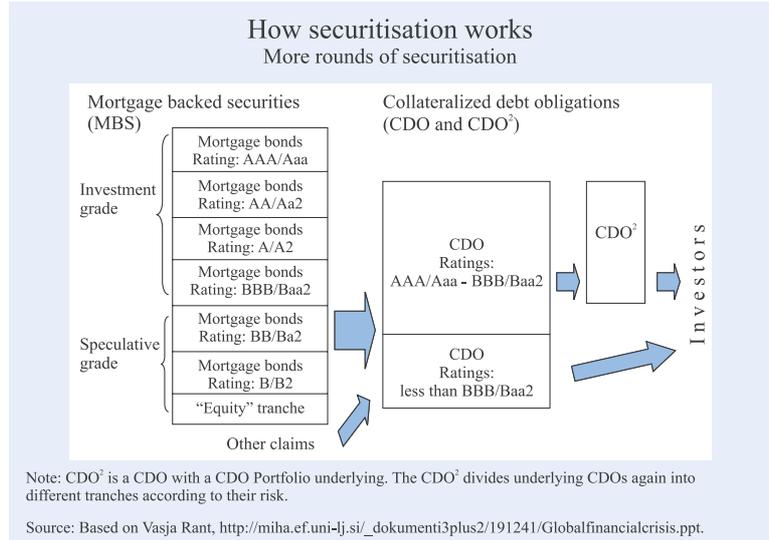
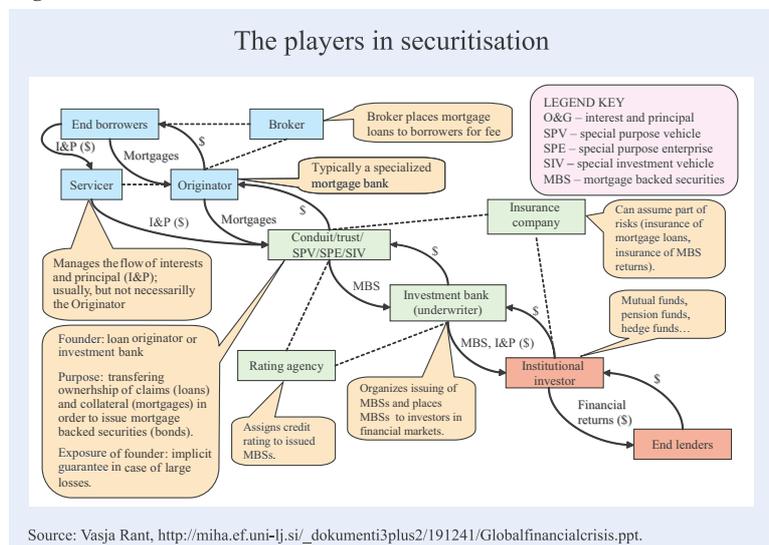


Figure 2.1c



larger losses also reduce the payoff of the first, senior one.

So, let  $C_B$  denote the cash flow from the riskier *tranche*. This will be  $N$ -loss if this amount is positive, or 0 otherwise, as losses in addition to  $N$  are borne by the owner of the senior *tranche*:

$$C_B = \text{Max}[N - \text{Loss}, 0].$$

Conversely, the cash flow from the senior *tranche*  $C_A$  will instead be either  $100 - N$  if losses are contained below  $N$ , or  $100 - \text{Loss}$ :

$$C_A = \text{Min}[100 - N, 100 - \text{Loss}].$$

The scheme easily generalises to the case of more than two *tranches*. Say, with three *tranches*, the SPV stipulates that the bottom one bears the first losses up to  $N_{FL}$  dollars (FL stands for First Loss). The second to the bottom *tranche* bears losses between  $N_{FL}$  and  $N$ . The payoff of the senior *tranche* will be the same as above. For the other two, we will have<sup>4</sup>

$$C_{FL} = \text{Max}[N_{FL} - \text{Loss}, 0]$$

$$C_B = \text{Max}[\text{Min}[N - N_{FL}, N - \text{Loss}], 0].$$

In this example, the choice of  $N$  and  $N_{FL}$  is based on the sponsor's best assessment of the risk of default in the pool of mortgages purchased by the SPV. Specifically, by setting a very high  $N$ , all else being equal, the sponsor reduces the risk that the owner of the senior *tranche* will suffer a loss. Vice versa, a low  $N$  raises the risk of losses on the senior *tranche*.

An important point here is that by appropriately choosing  $N$ , there will be at least one *tranche of first class AAA* securities against the portion of the cash flow which satisfy the requirements for AAA securities set by a rating agency. The SPV can then create additional, risky *tranches*, e.g., *AA mezzanine*, *BBB subordinated and first-loss position* ones (see Figure 2.1b). The size of these *tranches* will of course depend on the overall risk of the pool as well as on the requirements for the ratings set by the agency. Interestingly, the worse, i.e., riskier, securities were generally held by the originator.

Figure 2.1b also shows that the process of slicing the cash flows from original mortgages into bonds

of different risk class continues in successive rounds of securitisation – the figure includes collateralised debt obligations (CDOs) and so-called CDO squared. In each step, there are more and more contracts written on this cash flow, supposedly providing insurance.

As already mentioned, indeed, the objective of this process is to turn a pool of heterogeneous risky mortgages into the largest possible pool of standardised, high-rating ABS securities. In this respect, diversification of the underlying pool of mortgages is an important step but is not the only instruments that SPVs used to raise the “quality” of the ABS. Indeed, SPVs resorted to different kinds of so-called *internal and external credit enhancement*. The first depends on the way the programme is structured, the second on the availability of credit facilities (usually against maturity mismatches), letters of credit and credit insurance. Thus, the maps of financial intermediaries involved in the securitisation process include also insurance companies or other financial intermediaries that buy default risk from the SPVs (see Figure 2.1c). In this connection, Box 2.1 examines credit default swaps and Box 2.2 the special class of synthetic CDOs.

The quality of ABSs is certified by rating agencies, usually paid by the sponsor. Different rating agencies may set different criteria for securities to qualify as triple-A. For this reason, it was often the case that an SPV shopped around to find the agency whose rating criteria were the least expensive to satisfy, for any given quantitative target of issuance of high quality securities. In some cases, these practices created tension along the process of securitisation, especially when ABSs were further integrated into structured products promoted by sponsors employing different rating agencies. Conflicts in ratings of the same product among less and more conservative agencies are well documented (see Calomiris 2008). Further issues concerning ratings agencies are discussed in Box 2.3.

Market liquidity is an essential element in this process. Namely, the maturity of ABSs does not in general coincide with the maturity of the underlying mortgages: it is usually shorter. So over time the principal and interest on ABSs will be paid partly with the cash flow from the underlying mortgages, partly by issuing new securities, i.e., by rolling over debt. Namely, SIV, conduits and other vehicles issued asset-backed commercial paper (ABCP) or medium-term notes, the former with an average maturity of 90 days, the latter

<sup>4</sup> See Gorton (2008) for a generalisation for the case in which mortgages could be refinanced.

**Box 2.1****Credit default swaps (CDS)**

Credit default swaps (CDS) are tradable securities that allow investors to swap the risk of debt default. They were introduced as a financial instrument by JP Morgan in the end of the 1990s. Their development over the past seven years is remarkable: The International Swaps and Derivatives Association (ISDA) reports a notional amount outstanding of \$US 55 trillion in the first half of 2008 after reaching its peak of \$US 62 trillion in the second half of 2007. The annual growth rate was 103% over the period from 2001 to 2007.

Why are CDS so popular in modern credit markets? In principle they can be compared to an insurance contract where the buyer pays a periodic fee to the seller, who guarantees him a payoff if a well-specified credit event occurs. Usually, protection buyer and protection seller agree on one of the following events as the trigger for the compensation payment to come into effect: failure-to-pay, restructuring, bankruptcy or default of the reference entity. The reference entity might be a company, a bond (including mortgage-backed bonds) or a sovereign. In contrast to the single-name form of CDS, there are also so-called basket CDS, which normally include up to ten reference entities. Here a first-to-default principle is most commonly applied by which the protection seller compensates the protection buyer for the first entity that defaults and the contract thereby terminates. Finally, much of recent growth in the CDS market is attributed to CDS indices, of which the two biggest insure the investor against the default of 125 corporate entities each. Again, if one of these corporate entities defaults, the protection buyer receives a payment.

According to a survey of the British Banking Association, hedge funds in particular gained importance, accounting for 28% of total protection buyers and 32% of total protection sellers in 2006 compared to only 3% and 5%, respectively, in 2000. At first glance, CDS seem to provide an effective means of hedging broad sources of credit risk while increasing liquidity and ensuring price discovery. Proponents of the CDS industry also argue that CDS reflect the true condition of companies much better than ratings of rating agencies do. One reason might be that CDS are more sensitive to market news. However, there are some crucial differences to an insurance contract that create problematic incentive structures as well as systemic risk.

On the one hand, clarity about the relationship between the protection buyer and the reference entity is important. When buying an ordinary insurance, the protection buyer and the reference entity must coincide in order to prevent fraudulent manipulations. However, since the reference entity does not necessarily have to be related to the protection buyer himself, there is room for speculative investment as an investor seeking to maximise its profit might buy CDS protection for the default of a reference obligation whose collapse would otherwise not affect him. This behaviour is problematic insofar as it may feed doubts about the company's solvency, up to leading to its default – the inefficiency being apparent if such outcome reflects market power and manipulation by some participant. On the other hand, CDS have been accused of being traded in a very non-transparent manner. Although highly standardised, all contracts are privately negotiated and there is no clearing house for CDS. As CDS contracts are traded frequently, there is uncertainty about the property rights and whether the owner can fulfil his obligations in case of default. Lehman Brothers, for example, was an important counterparty of CDS contracts. After Lehman Brothers' bankruptcy the CDS issued by them provided no protection anymore and there was the threat that a complex interlinked chain of CDS contracts between financial institutions would unravel. As it was recognised that not only the reference obligation but also the protection seller might default, CDS are now also blamed for having amplified the financial crisis. Banks' exposure to risky CDS contracts is non-transparent, which may have contributed to the decrease in lending activity on the inter-banking market.

The figures on the size of the CDS market are impressive but the actual cash flows are obviously much lower since defaults and hence settlements have occurred only rarely. The net cash flow is mainly determined by the periodic payments (spreads) the buyers have to pay to the sellers of a CDS. The crucial question is how much of notional amount outstanding is at risk to default during the financial crisis and whether further defaults may initiate a fatal domino effect. Due to the uncertainties and the non-transparency CDS are still considered a risk to the stability of financial markets and regulation seems to be required.

**Box 2.2****Synthetic CDOs**

A special class of ABSs is *synthetic CDOs*. These do not buy assets from originators but only the risk underlying their loans. Risk is bought via credit default swaps (CDS), a form of credit derivative that provides debt insurance (see Box 1). Essentially, the originators periodically pay a premium to the administrator of the synthetic CDO in exchange for a compensatory payment if the mortgage holder fails to pay interest or the principal on its debt (i.e., its financial contract with a third party default). Through CDS, the originators could transfer risk to other parties, hence could relax the regulatory requirements on their equity even more.

Synthetic CDOs typically diversified their risk by pooling large number of CDS contracts and then investing in risk-free fixed income securities, so to collateralise the debt underlying the CDS in case of default. The entire operation is financed by issuing ABSs, once again in different tranches characterised by different risk-return profiles. The premia and interest payments on the fixed income securities generate a cash flow which accrues to ABS holders (after deducting compensatory payments for defaults under the CDS contracts).

If a synthetic CDO issue tranches up to covering the entire amount of debt that underlies the CDS in its portfolios, it is fully funded. Otherwise it is partially-funded. The rationale for partial funding for a synthetic CDO lies in the fact that some part of the securitised portfolio may be assigned an extremely low probability of default. In this case, the originator preferred to cover this risk by entering further CDSs (as these were quite cheap) with entities called super-senior protection sellers rather than by issuing (expensive) tranches.

**Box 2.3****Ratings agencies**

One of the most significant factors in the financial crisis has been that the returns of many financial products have turned out to be less secure than had been thought. The creditworthiness of many of these products was certified by credit ratings agencies. As such, these agencies have come under considerable criticism. One typical comment was: “The credit rating agencies occupy a special place in our financial markets. The ratings agencies failed this bond of trust.”<sup>1</sup>

Credit ratings agencies are independent companies that assess the risk of certain types of debt instruments and institutions. The highest ratings are AAA, and the lowest are C. Instruments rated at or above Baa or BBB are “investment-grade”, below that they are “junk”.

The three largest agencies are Standard and Poor’s, Fitch Ratings and Moody’s. The first two of these base their assessments of credit-worthiness entirely on default probabilities, while Moody’s attempts to incorporate the expected return in the event of default. As pointed out by Morrison (2008), one problem with both of these approaches is that they entirely ignore the correlation of outcomes with the rest of the market. A bond that performs well when the rest of the market enters a downturn is valuable; a bond that performs well when the rest of the market also performs well is much less valuable.

A more common criticism, however, has been that the ratings agencies are employed and paid by the issuers of financial products not by investors. This is understandable where there are many investors in each financial product. However, this creates an incentive for the ratings agency to overstate the creditworthiness of a particular product in order to build a good relationship with the issuer. On the other hand, a rating would have no value in the market if investors lost faith in the agency that issued it. An agency must therefore balance any short-term gain from satisfying the issuer with its long-run reputation in the market.

The fact that investors took ratings seriously suggests that the long-run reputation of the agencies was intact, at least until recently. However, there is increasing evidence that in assessing some financial products, the methods used by agencies have produced ratings that are too high. This point is discussed for example by Benmelech and Dlugosz (2008), who examined 4,000 structured bonds that were backed by loan portfolios. The average rating of the loans was B+, yet 70% of the bonds were rated AAA.

These considerations have led to calls for increased regulation of agencies. But it is not clear that regulation would improve the situation. In fact, Morrison (2008) argues persuasively that some aspects of existing regulation have exacerbated the difficulties surrounding ratings agencies. For example, many investors face a minimum ratings constraint on products they are permitted to purchase. Bank capital regulations also rely on ratings. But this gives significantly more power to the agencies, which effectively become gatekeepers for financial products. They do not just sell their opinion on creditworthiness, but they also sell admission to markets for some financial products.

An issuer can combine assets of different risk into a single product with low average risk. Agencies can charge fees to advise issuers on how to structure products to achieve the rating required for it to be purchased by regulated investors who otherwise would not be able to purchase the more risky asset. Benmelech and Dlugosz (2008) explain their results by the fact “that most issuers were using the rating agencies’ model to target the highest possible credit rating at the lowest cost”.

Since regulators require that agencies play this role, the agencies themselves are also regulated. Seven agencies are approved by regulators in the US – and the three largest account for over 90% of the market. This creates a barrier to entry, which makes it more difficult for new methodologies to be introduced and makes it harder for existing agencies to lose out to newcomers.

What is crucial in the market for ratings is for the reputations of agencies to depend on their judgements. When ratings are poor, as they have been, then future ratings by the same agencies should be treated with more caution. Further regulation, with the possibility of greater barriers to entry, may undermine this as incumbents face less competition.

<sup>1</sup> Henry Waxman, chair of US House of Representatives’ Oversight Committee, quoted in the *Financial Times*, 22 October 2008.

with an average maturity of one year. The drying up of liquidity in these markets could clearly compromise the activity of these intermediaries.

Investment banks acquired ABSs, serving as underwriters, and placed them in the market, where they could undergo another round of securitisation or ended up in the portfolios of institutional investors (mutual funds, pension funds, hedge funds) on behalf of end lenders (households and non-financial firms) or directly in the portfolio of end lenders.

On the demand side, the new securities found eager investors who were attracted by the interest spread between these products over equally-rated triple-A standard bonds. Recall that many institutional investors are restricted in their portfolio choice to securities with high ratings: at a time of low interest rates, the spread on triple-A ABSs provides a means to improve a funds’ performance. For sponsors and administrators, there was an opportunity to earn large fees as a percentage of the overall volume of transaction.<sup>5</sup>

Table 2.2 reports calculations by Moody’s, mapping subprime mortgages originated in 2005 through 2007 into tranches of MBS with different rating

<sup>5</sup> The income for the SPV derived from the spread in interest rates between their assets and liabilities due to both the maturity mismatch and the credit spread between the original mortgages and the securities issued.

Table 2.2

## Estimates of subprime mortgage origination by tranche (Sbn)

	All subprime 100%	AAA 80.80%	AA 9.60%	A 5.00%	BBB 3.50%	BB/other 1.10%
Year						
2005	625		60	31	22	7
1Q06	140	113	13	7	5	2
2Q06	165	133	16	8	6	2
3Q06	160	129	15	8	6	2
4Q06	135	109	13	7	5	1
1Q07	95	77	9	5	3	1
2Q07	56	45	5	3	2	1
3Q07	28	23	3	1	1	0
4Q07	14	11	1	1	1	0
Total	1418	1145	135	71	51	16

Source: Inside Mortgage Finance, Morgan Stanley based on Greenlaw et al. 2008.

(see again Greenlaw et al. 2008). The most striking piece of information from the table is that about 80 percent of subprime mortgages' origination was converted into triple-A pools. This percentage remained stable even into the crisis period – the last quarters of 2007 – although origination activity contracted. Conversely, less than 5 percent of these mortgages were converted into triple-B or lower rate assets. These percentages obviously contained the seed of the crisis, as securitisation flooded the market with triple-A products whose risk and prices were obviously quite sensitive to housing market conditions.

The evidence in the table raises the key issue concerning the extent to which a risky cash flow from mortgages could back triple-A securities. Even after accounting for credit enhancement, a percentage as high as 80 percent may hardly survive proper stress-testing of the market conditions underlying securitisation. In this dimension (with the benefit of hindsight) the models adopted by financial intermediaries to assess risk appeared to be far from adequate.

It may be useful to point out that the share of MBS varied widely across the portfolios held by SIV, conduits and other intermediaries and is not necessarily large. In many cases, the exposure to subprime mortgage risk was very contained. So, when looking at the securitisation process, the main idea is clearly consistent with a straightforward diversification principle and should have resulted in a better pricing of risk to improve efficiency. What went wrong?

### 1.1.3 Regulatory Arbitrage, Diversification and Opacity

Non-bank financial intermediaries involved in the securitisation process (SIV, SPV, conduits etc.) borrow short and in liquid form, and just as commercial banks invest in less liquid long assets – thus they form a “shadow banking system”. However, in contrast to commercial banks, they are able to operate outside normal banking supervision and regulation. This observation suggests a key motivation for financial houses to promote securitisation, that is, regulatory arbitrage.

The Basel Capital Accord requires commercial banks to satisfy risk-based capital standards, i.e., to maintain a minimum percentage of equity against their portfolio of loans, weighted according to their risk class. Under Basel I, by selling mortgages to SPVs/SIVs, banks were able to remove their mortgages from their balance sheets, hence they could subtract them from the computation of the Basel I equity requirements. By the same token, the capital requirement would not change when the bank extended some type of credit lines, like reputational credit lines, providing contingent liquidity assistance to their SIVs. Indeed, many originators were owned/controlled by financial groups and institutions that provided “warehouse” lines for their lending. Many banks owned/controlled SPVs/SIVs where they parked ABSs, financing them by issuing short-term, asset backed commercial paper (ABCP).

Basel II, which came into effect in 2007, ruled out the above opportunities for regulatory arbitrage but cre-

ated others. For instance, by transferring mortgages to an SIV and providing liquidity enhancement, a bank could turn its lending into a large amount of triple-A rated securities, without suffering a downgrade of its rating to the same extent. By buying back some of the triple-A securities and placing them back in its balance sheet, the bank could save on capital charges (see e.g., Brunnermeier 2009).

The economic rationale of securitisation is that of improving risk diversification. Was it so? The answer would be positive in a world in which securitisation had led to an irreversible transfer of risk from the originator/sponsor to end-lenders who were not only distinct from the groups in the chain of securitisation but also non-leveraged entities. Note that in this case most of the losses from the subprime crisis would have been ultimately borne by end-lenders (households, firms, pension funds, etc.). However, sponsors only sold a fraction of the securities issued by their conduits. As mentioned above, banks actually bought part of the triple-A *tranches* of ABSs, as these had a favourable risk weight towards the satisfaction of capital requirements. Most importantly, ABSs were typically marketed to end-users with clear (if only implicit) guarantees by the financial groups sponsoring and/or distributing them. Indeed, when the crisis showed that the risk profile of ABSs was quite different than originally believed, banks/sponsors readily “accepted responsibility”: commercial banks provided liquidity lines to off-balance-sheet vehicles. SIVs and banks bought these assets back at guaranteed prices from their (best) clients and placed them back on the consolidated balance sheet. De facto, securitisation resulted in an unregulated increase of leverage for any given bank equity.

Now, let’s conjecture a world in which ABSs remain quite “close” to the underlying assets in the sense that (a) there is a single securitisation layer between originators of ABS and end-lenders and (b) there are no external intermediaries providing insurance and credit enhancement. In such a world, the risk of these assets would still be relatively transparent and manageable. In principle, even the discovery that most of the assumptions used to price ABSs were overoptimistic would not be too consequential. Surely, it would create losses either for the ultimate holders of ABSs, and/or for the originator, the sponsor and the investment bank doing the securitisation. But in our example “closeness” between the originator and the SPV translates into transparency and quality of information about assets, and, accordingly, there would be

no “network externality”, by which the rating of the securities would depend directly or indirectly on the rating of different institutions providing insurance. In this case, there would be relatively little uncertainty about prices. This uncertainty would mainly relate to the fundamental components of risk: the percentage of mortgage holders defaulting, the expected loss given default and interest rates. One can imagine that the risk of market illiquidity would be relatively contained. The actual world, however, was far removed from this model.

A key problem contributing to the implosion of the market in fact consisted in the opacity and loss of information inherent in (badly regulated) multiple securitisation layers, with strong interconnection among intermediaries. Typically, SPVs pooled together ABSs from previous programmes over and over again, in many successive rounds. In each round, there would be different forms of credit enhancement, involving different institutions. Some conduits built up asset pools exclusively with existing ABSs and CDOs. In each round, the administrator could only check the previous programme structure, and had to trust the assessment by rating agencies employed by other administrators.<sup>6</sup> A rating mistake in the chain was clearly bound to affect all the *tranches* issued in each subsequent step, biasing the risk assessment in proportion of the exposure of each ABS to the over-rated securities (see the examples in Stucke and Tsomocos 2008). Correcting a mistake, or adjusting a rating in response to a shock along the chain was clearly a daunting problem, as it required a cascade of revisions of rating by different agencies, each having to trust the work of their predecessor. Note that this makes ABSs particularly sensitive to changing market conditions or sentiments, as any correction in prices would be accompanied by a simultaneous increase in the pure uncertainty about the market value of these products.

Because of the complexity of these chains, not only assessing the value of these products against possible shocks could easily become nearly impossible for a single intermediary. It is also apparent that these assets generated strong interconnection among the balance sheets of all the intermediaries in the market. Uncertainty about the price of these products in one intermediary’s balance sheet had a systemic compo-

<sup>6</sup> Lack of transparency may have also facilitated under-reporting of information. Indeed there is evidence that bankers purposely placed inferior subprime mortgages into securitisation portfolios thus hiding risk from buyers, including sponsors (see Keys et al. 2008 and Calomiris 2008).

ment, as it depended on price assessment by many other intermediaries, as well as on their financial standing.

The lesson to draw from the analysis is straightforward. First, ABSs, including MBSs, were ultimately held to a large extent by (highly) leveraged institutions (such as off-balance sheet vehicles that banks had set up for the purpose of receiving these assets, or hedge funds) rather than by non-leveraged investors (this became apparent after the onset and per effect of the crisis). Second, because of the complications in the layers of securitisation, markets faced an unprecedented level of uncertainty and confusion about the incidence of the losses, i.e., which institutions and portfolios were most exposed to them. Thus, diversification of ABSs among intermediaries created network externalities, which actually magnified market liquidity risks. Securitisation thus resulted in a trade off between fundamental risk diversification and exposure to market liquidity risk, in which the second term quickly became predominant.

The puzzling question raised by these considerations is then why, exactly, market participants and intermediaries let this happen without taking sufficient prudential steps to protect their investment.<sup>7</sup>

#### *1.1.4 Public subsidies*

The boom of mortgage lending and ABSs occurred in an environment where different policies and market dynamics created distortions affecting both origination and securitisation. Many of the policies playing a role in the crisis were actually motivated by equity and efficiency considerations, in part reflecting a long-standing stance of the US government in favour of helping low income and disadvantaged groups to acquire homes. What turned these policies into destabilising factors was a macroeconomic environment that magnified the mutual inconsistencies among them.

In the US, home ownership is subsidized via a number of policy measures (see Calomiris 2008 for detail). As an important example, mortgage interest payments on one's home are deductible from taxes, as opposed to rent, which is not deductible. If interest rates are low and buying a house requires a small or no down payment,<sup>8</sup> other things being equal, there is an obvious

tax advantage in buying rather than renting a house or an apartment. The tax benefits are actually even more pervasive. Since interest payments on a loan against a car or other durables are not tax deductible, there are tax advantages in refinancing housing mortgages against general household expenditure – as many commentators put it: US households could use their houses as ATM machines.

The mortgage market is also heavily influenced by the large government sponsored enterprises (or GSEs, including Fannie Mae, Freddie Mac and the 12 Federal Home Loan Banks), which were created with the explicit goal of enhancing access to credit by some targeted sectors of the economy as well as efficiency and transparency of capital markets. In the scheme of securitisation presented above, these institutions purchase mortgages from originators and package them into securities which are sold, after adding guarantees, to the secondary markets. They also buy and hold mortgage-related securities – in 2008 together Fannie Mae and Freddie Mac held up to \$5.3 trillion in mortgage risk. Due to public guarantees, these institutions became simultaneously a direct and indirect source of market distortions and a fiscal risk. By virtue of public guarantees on their portfolios, they provided a large buffer for the excessive mortgage risk created by private institutions, and indirectly fed the demand for housing. Their ambiguous nature – not completely public but benefiting from public guarantees – is now recognised as unsustainable. After multiple initiatives to make them viable before and after the start of the crisis in 2007, they were finally placed under conservatorship in 2008, de facto nationalised, under the direction of a newly created agency, the Federal Housing Finance Agency, with ample access to special funds. This is still not a permanent solution; their fate will have to be resolved in the future.

Subsidies to low income households to enter the housing market may well be part of desirable redistributive policies. They could even be seen as a component of a strategy for the democratisation of finance that Yale economist Robert Shiller has been promoting in recent years (see Shiller 2008). In the presence of market distortions, however, they clearly became yet another factor feeding the disequilibrium dynamics of prices and facilitating excessive risk-taking.

<sup>7</sup> For an analysis of securitisation and an in-depth analysis of the financial crisis focused on Europe, see European Central Bank (2008a,b), and Bank of England 2007.

<sup>8</sup> The “American Dream Downpayment Initiative” (signed into law on 16 December 2003) effectively targeted low-income first buyers with funds to eliminate the cost of initial disbursement.

## 1.2 Macroeconomic factors

### 1.2.1 Housing prices

Between 2000 and 2006, US housing prices appreciated by 80 percent in nominal terms. To many, this strong appreciation, shown in Figure 2.2, is evidence of a bubble. It should be stressed, however, that estimates of the overvaluation in the stock of housing in the US (in terms of the deviation from long-term trend) remain in the range of 20–30 percent (see Shiller 2008). This overvaluation is relative small when compared to other famous episodes of strong real-estate appreciation. Namely, in Japan property prices kept falling for 15 years after their peak in 1991, ending up around 70–75 percent below their maximum values. Similarly, the Nikkei Index reached almost 40,000 in 1991, four times the level in the mid-1980s and five times the level that still prevailed in 2008.

Yet one of most striking dimensions of the crisis is the puzzling evidence on beliefs of continuing US housing price appreciation, apparently shared by many market participants in the US and elsewhere in the world economy. For many years, market participants appeared to operate *as if* prices in the US housing markets would either not fall at all or fall only moderately. For instance, Shiller (2008) reports that as late as October 2006, stress tests of the impact of a possible housing price decline on the portfolio held by Freddie Mac assumed that prices would drop at most by 13.4 percent (Shiller 2008, p. 52).

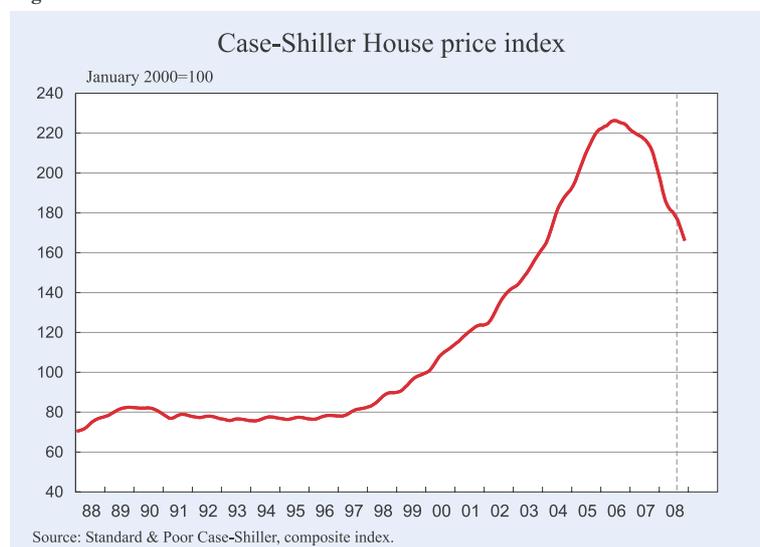
In our interpretation, beliefs of continuing housing appreciation were the result of “social contagion of

boom thinking”, an insufficiently understood mechanism underlying social and economic dynamics in the presence of asset pricing bubbles. For instance, an argument often quoted during the years preceding the crisis was that housing prices had never fallen in the US in the post-war period; as mentioned by Shiller (2008), ads along US highways stated that “on average home values double[d] every ten years.” This argument clearly fails to appreciate the distinction between real and nominal prices. Correcting for inflation, the real price of housing fell somewhat during the 1980s and remained stagnant for many years, even though its nominal counterpart kept rising, driven by inflation. Yet, the wording of the ads was obviously designed to appeal to people by providing an argument that reinforced their beliefs.

From the point of view of a financial intermediary, what matters for assessing expected losses from mortgage are both the probability of default by the borrower and the expected loss given default.<sup>9</sup> Now, we have seen above that whether or not borrowers had income or assets in addition to the houses they were purchasing, contracts were designed in such a way that they had an incentive to refinance the mortgage systematically vis-à-vis the appreciating equity value of their property. In the event of default, banks expected to be able to limit their losses by capturing the capital gains on the repossessed houses.

In spite of the fact that subprime mortgages were relatively new products, these expectations appeared to be backed by some hard evidence. As stressed by Calomiris (2008), the market had already experienced a crisis in the wake of the 2001 recession. Estimates of total losses from mortgage defaults during this episode were in the range of 4.5 and 6 percent of the outstanding stock – figures that appeared to corroborate fully the relatively benign view of the magnitude of possible crises. Unfortunately, the recession at the beginning of the decade was special in one crucial dimension: the contraction in output was not accompanied by any drop in housing prices. With rising prices, both the probability of default and the expected losses

Figure 2.2



<sup>9</sup> According to basic principles of finance, one should also observe that the value of such losses generally depends on their correlation with the performance of the market as a whole.

given default had clearly remained contained. This was, however, in striking contrast with most historical records, which suggest that, in general, fluctuations in economic activity are positively (not negatively) correlated with real estate values.

While estimated losses from the 2001 recession were widely fed as parameters in exercises of subprime mortgage risk assessment, the presumption of a persistent appreciation of housing prices was not without challenge. It clearly came into question in 2006, when the markets experienced a rapid increase in the number of sub-prime downgrades and were provided forecasts of sharp increases in delinquency rates (see Gorton 2008). Puzzlingly, however, mortgage origination and distribution did not slow down immediately, and for some time it kept developing at the same high rates as in the previous years.

For the contributions in the literature that attribute the US housing market dynamics to a bubble, the beliefs that reinforced the vast underestimation of risk during this period were possibly shaped by “social contagion” (Shiller 2008) or “plausible deniability” (Calomiris 2008). In this view, the ever-growing securitisation of mortgages was ultimately fed by different pieces of distorted information, making investors progressively blind to any signals that did not agree with their beliefs. According to anecdotal evidence, for instance, much of the origination and securitisation process occurred under the pressure of institutional investors that were eager to purchase triple-A ABSs. Sponsors chose rating agencies to maximise the amount of high quality *tranches* they could issue from any given pool of mortgages.

Yet it is hard to believe that such behaviour and beliefs could have been sustained without generalised agency problems and conflict of interests between originators, sponsors and rating agencies, severely distorting the securitisation process. As limited liability contained the size of the maximum losses that different agents faced along the chain of securitisation, the system obviously created strong incentives to expand leverage and take on risk. Supervisory and regulatory bodies may have been aware of these conflicts and distortions but failed to act effectively on them.

### 1.2.2 Low interest rates

For the US, nominal interest rates were quite low for many years after 2001. Short-term real interest rates, calculated by subtracting current inflation from the

short-term nominal rates, were actually negative for almost three years, from autumn 2002 to spring 2005. Similarly, over the same period, the long-term rates remained persistently low and became insensitive to policy rates – a phenomenon referred to as a conundrum by former Fed chairman Greenspan. Long-term yields are depicted in Figure (1.17) of Chapter 1.

Low interest rates clearly contributed to keeping housing prices high. If we formulate the market price of an asset ( $q$ ) as the expected discounted value of the cash flow generated by the asset (CF):

$$q = E((1/R)*CF).$$

Here, the discount rate is the inverse of the interest rate  $R$ , and  $E$  denotes expectations. For a given cash flow  $CF$ , the lower the interest rate  $R$ , the higher the current price of the asset. Moreover, to the extent that low interest rates support economic activity in the short and medium run, they can feed expectations of higher cash flows. This is true for bonds, equities as well as for houses.

Less clear, however, is the role of low interest rates in favouring the expansion of subprime mortgages, i.e., the participation of individuals with relatively low income and credit rating in the mortgage markets. The available evidence indeed points to apparent changes in the composition of demand for houses in favour of the lower segments of the market (see Shiller 2008, chapter 2). The sustained expansion of the subprime segment of the mortgage markets accompanies a widening differential in the price dynamics of houses – the strongest price increase prior to the crisis was indeed recorded by the lowest-value segment, i.e., by the smallest and cheapest houses.

One could argue that low interest rates make it possible for poor people to buy a house, taking advantage of favourable financing conditions. However, while low interest rates obviously make mortgages cheaper, they also make houses more expensive. It is far from clear that low interest rates per se would cause a disproportionate expansion in the subprime mortgage segment of the market. A plausible explanation is that low rates were accompanied by mispricing of credit risk, more so and with a stronger impact at the low end of the market. The erosion of lending standards was apparent. Brokers conceded mortgages against no documentation, allowed the combination of two mortgages to finance down payments (the called pig-

gyback mortgages), lend to “NINJAs” – No Income, No Job or Assets).

A crucial question concerns the extent to which monetary policy-makers have a responsibility in connection with the strong housing price dynamics – a question implying that a stricter monetary policy could have contained the size of the imbalances leading to the crisis. The observation that the Fed pursued low or even negative interest rates after 2001 does not automatically imply that the increase in housing prices should be attributed to the Fed policy. First, these prices kept increasing through different phases of the Fed monetary stance, even when policy rates were raised in 2006. Second, and most importantly, there is the Greenspan conundrum: long-term interest rates, which are arguably more relevant for mortgages, remained low irrespective of (and insensitive to) policy rates.

Low long-term rates actually call attention to a second issue: the global implications of large external imbalances. According to the so-called “savings glut” hypothesis put forward by Fed chairman Bernanke, the large current account deficits run by the US essentially accommodated the strong inflow of resources from the rest of the world (this thesis is discussed in detail by the 2006 EEAG report). Not only global imbalances contributed to keeping long-term rates low; they generated a substantial flow of resources in pursuit of financial assets, arguably influencing, directly or indirectly, US housing demand. We discuss this issue further in Box 2.4.

### 1.2.3 Leverage cycles

Before delving into an analysis of the crisis, it is appropriate to clarify how asset prices are linked to leverage by financial intermediaries. This is an essential element to understand not only how continuing housing appreciation has led to excessive risk-taking by financial intermediaries, but also how limited losses in a particular market translate into a recessionary impulse for the economy as a whole.

Drawing upon Greenlaw et al. (2008), we let  $A$  denote the total (dollar) value of the assets managed by a financial intermediary (a bank). Let  $E$  denote the value of the bank’s capital. Then the ratio  $V=E/A$  measures the “value at risk” per dollar of assets held by the bank. Obviously, the larger  $E$ , the larger the total losses that a bank can absorb. By the same token, define the leverage ratio  $l$  as the ratio  $A/E$ :

clearly this is just the inverse of the unit value at risk  $V$ , that is,  $l=A/E=1/V$ . By targeting some given level of leverage, the bank implicitly set a given level of “value at risk”.

Three general features of leverage  $l$  are worth stressing. First, leverage varies across type of financial intermediaries. Commercial banks, which finance their assets through deposits and operate under relative strict regulation and supervision, typically maintain a leverage ratio close to 10 or 12. Investment banks maintain much higher ratios, of the order of 20–25. So, to the extent that securitisation raises the share of business going to investment banks and other near-banking institution, overall leverage in the system increases. Also, these institutions finance their assets in the market for short-term debt: the maturity structure of their liabilities tends to be quite short. On the asset side, commercial banks have a large proportion of loans that are usually carried at face value. Investment banks instead tend to have a large proportion of short-term claims (e.g., repurchase agreements), so that their balance sheet values closely approximate the market-to-market values of the securities they hold. The same applies to the other near-banking institutions described above.

Second, historical records show that  $l$  moves procyclically: when macroeconomic conditions are perceived to be good (for instance, in a boom or in a bubble economy), demand for loans is buoyant, and the balance sheets of banks/financial intermediaries expand. During a downturn the opposite is true.

Third, leverage amplifies financial cycles. To see this, consider the following simple example, featuring a financial intermediary with securities valued \$100 at market prices, against liabilities consisting of debt for \$90, and equity for \$10.

Assets		Liabilities	
Securities	100	Debt	90
		Equity	10

The initial leverage ratio is  $100/10=10$ . Suppose now that the price of securities rises by 1 percent, bringing the total value of assets to 101. If debt value remains constant (this is tantamount to assuming that debt does not respond appreciably to small changes in market values), the value of equity increases by 1:

**Box 2.4****The crisis and global imbalances**

In recent years, the EEAG reports have devoted chapters and comments to the root causes of global imbalances, corresponding to the emergence of large and persistent US current account deficits associated with financial globalisation, reviewing work on the causes and consequences of them and suggesting possible policy corrections. In this box we address a specific question: whether some of the models in the literature can offer a consistent framework to interpret not only the rise of the imbalances but also their role in the current crisis.

The main argument often quoted by the press is that the critical behaviour of the shadow banking system in the US was fed by the pressure of money flowing from abroad, chasing investment opportunities. By and large this is a popular version of the idea attributed to Ben Bernanke that the US external imbalance has been driven by a global “savings glut”, due to the financial integration of the US with economies with a much lower level of development and governance of financial markets, especially the Asian economies.

This vision has been modelled by at least two contributions. A model of a savings glut was proposed by Caballero, Fahri and Gourinchas (2008a,b), henceforth CFG, who build a comprehensive framework to explain, simultaneously, US current account deficits, low interest rates at global level, and the emergence and bursting of bubbles (including bubbles in the commodities market). At the root of this model is “excess demand for assets” by residents in growing emerging-market economies. Excess demand is due to the fact that weak financial systems in their countries prevent these agents from appropriating fully the income generated by assets supplied in domestic markets. When capital liberalisation allows these agents to invest abroad, they look for investment opportunities in countries with better financial systems. As a result, the US (but not Europe) becomes a global intermediary: loosely, the US supplies (the services from) assets to the financially less-developed world in exchange for goods and services. In this interpretation, the US is pushed into a structural equilibrium with low savings and large current account deficits, with the world real interest rates at historical lows.

Now, when global growth is high (reflecting the dynamics of China and India in the last decade), the world is “dynamically inefficient”: the equilibrium real interest rate falls below the world growth rate. Economic theory has long made it clear that in an economy with this characteristic, speculative bubbles actually perform a desirable role, i.e., they redress issues raised by a global shortage of assets. In other words, they create the financial means to satisfy the demand for assets from emerging market economies. Which bubble performs this role does not matter. In economies with these characteristics, the collapse of one bubble (internet) is not necessarily bad for the world economy, as long as growth remains high and another emerging bubble (say, in housing), which still provides the financial means to meet the excess demand for assets. In this sense, the CFG model provides a rationalisation of the soft-landing phase of the crisis, discussed in the text. In the first part of the crisis period, the collapse of the housing bubble (which had replaced the previous internet bubble) coexists with a strong rise in the price of commodities, driven by “financial speculation”.

What is instead devastating for the world economy is a negative shock to growth prospects. To the extent that lower growth means that the economy is no longer dynamically inefficient, the fall in the demand of assets forces bubbles to burst and thus causes a damaging contraction in asset supply – which can be seen as a deleveraging scenario.

One problem in the analysis by Caballero et al. (2008b) is that as a first approximation, the negative shock to growth is exogenously given rather than modelled as an implication of the financial crisis. Interestingly, under this maintained assumption, Caballero et al. show that a hard landing will not necessarily reduce the US external deficit: as long as the world remains financially integrated, the US will keep its role of world financial intermediary. In other words, the crisis will not influence the root problem of global imbalances – excess demand for assets. For the CGF analysis to become a comprehensive model of global imbalances and a hard landing, however, it must provide an explanation of the link between a financial crisis (associated with a collapse of a bubble) and a persistent (permanent) revision of growth expectations.

A second view of the savings glut hypothesis is proposed by Mendoza et al. (2007) and Corneli (2008) among others, who stress the role of precautionary saving. In this approach, agents in financially less-developed countries have fewer opportunities for smoothing income and production risk (the latter is stressed by Corneli 2008 drawing on early work by Angeletos and Calvet 2006). Hence, residents in the least advanced countries are in need of a larger financial buffer – they save more because of a precautionary motive and invest less because of undiversifiable production risk. Given asymmetric financial structures and/or asymmetric income and production risks across countries, other things being equal, globalization creates a flow of savings from the countries where agents have fewer opportunities to diversify risk to countries where agents have more opportunities to do so.

If, as in Angeletos and Calvet 2006, one envisions production uncertainty as a by-product of financial market frictions, the model can actually account for a strong contraction in production and consumption at the global level following a crisis in financial intermediation, as this naturally translates into a rise in uninsurable production risk. The challenge for modellers in this case is to clarify the link between financial crisis and idiosyncratic production and income uncertainty. This link will also be crucial for understanding the effects of the crisis on global imbalances. Whether US deficits persist after a hard landing will depend on the relative magnitude of production and income risks in various regions of the world.

As an alternative to the savings glut view of global imbalances, many contributions focus on the role of policies pursued in the US and abroad, especially from the 2001 recession on. According to many commentators, these policies translated into a postponement of the required adjustment in savings in the US via the combination of low interest rates, expansionary fiscal policies and a variety of measures with direct or indirect spillovers in the financial markets. An extreme version of this view interprets dysfunctional aspects in the supervision/regulation of financial markets as a by-product of the goal of maintaining macroeconomic growth in the US after 2001, even at the cost of excessive macroeconomic risk. In contrast to the analyses reviewed above, this view establishes a more direct link between global imbalances and the crisis, via lenient monetary, fiscal and financial policies in the face of extraordinary housing appreciation.

Independently of what generated global imbalances, the link between financial frictions and growth slowdown is explored by a variety of business cycle models that stress fluctuations in confidence and risk premia. An interesting example is provided by Karel Mertens’ (2007) analysis of the deep recession in Korea during the crisis in South East Asia in 1997-98. In his analysis, financial inputs are essential to production plans before these can be implemented. In this case, events signalling the possibility of a sharp slowdown in the future can actually create the premise for an expectations-driven, deep slowdown in the short run even if fundamentals remain sound. Note that according to the model, credit shrinks in conjunction with the crisis, but this is no indicator of a credit crunch on the supply side of financial intermediation.

Assets		Liabilities	
Securities	101	Debt	90
		Equity	11

If the bank did not react to the change in prices, the leverage ratio would fall from 10 percent to  $11/101=9.18$  percent. This would be inefficient. Maintaining the same target level of value-at-risk profits can, in fact, be increased by raising the volume of business up to the point where leverage is brought back to 10. This would imply an expansion in both debt and securities by 9 dollars

Assets		Liabilities	
Securities	110	Debt	99
		Equity	11

In this example, for a given  $V$ , one dollar of capital gains in securities raises the level of financing provided by the financial intermediary to the economy by 9 dollars. If the positive capital gains occur in an economic expansion, the growth of financing is actually likely to be larger, for two reasons. First, to the extent that the economic boom generates optimism, the bank may be willing to take more risk: a higher  $V$  translates into a lower  $l$ . Were the leverage ratio raised to 11, for instance, the securities on the balance sheet would be further increased from 110 to  $A=E*l=11*11=122$ . Second, as the additional demand for securities by the bank raises the demand for assets, this may further increase their price: the leverage cycle feeds price appreciation. The graph in Figure 2.3a below illustrates these considerations:

Figure 2.3a

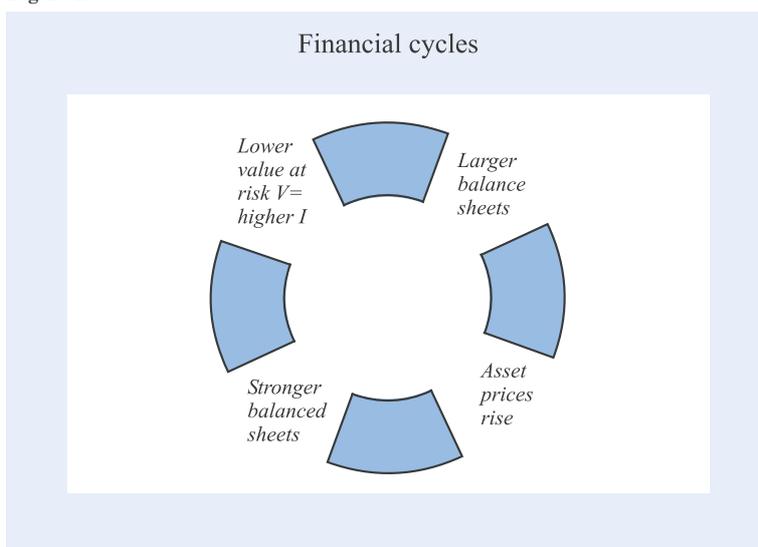
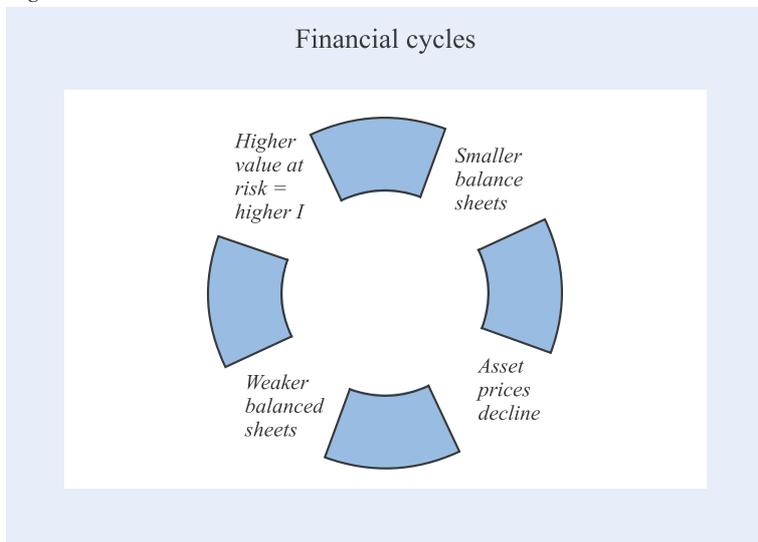


Figure 2.3b



The argument however works symmetrically in the case of capital losses: a drop in the value of securities translates into a contraction of credit which is a multiple of it, see Figure 2.3b. The contraction will be crucially sensitive both to the decision by banks about their target level of value at risk and to possible feedback effects of the credit contraction on asset values and the level of economic activity, which generates the demand for loans. Experience suggests that the interactions of these elements can contribute significantly to economic downturns.

This scheme is quite useful in analyzing the dynamics of the recent crisis, which is apparently characterised by two distinct phases. The first phase starts in 2007, with a run on the so called shadow-banking system, generating extreme stress in some markets but leaving other markets substantially unscathed. Despite the turmoil, somewhat surprisingly, deleveraging is limited in this first phase. The second one begins in summer 2008, when, apparently in response to some policy developments, the crisis

generalises to all markets, generates threats of runs on commercial banks and spills over to the real economy. At the time of writing, an important question concerns the extent to which deleveraging will contract the activity of financial intermediaries, and how much of this will translate into a constraint on economic growth.

## **2. From the panic of August 2007 to the system-wide crisis in autumn 2008: partial recapitalisation, limited deleveraging and liquidity injection**

### **2.1 The onset of the crisis**

The crisis erupted at the end of July 2007, after a gestation of a few months. In fact, between autumn 2006 and summer 2007, the macroeconomic context recorded two important changes, possibly interconnected: the first was a moderate slowdown in housing price dynamics; the second was the switch by major central banks toward a more conservative monetary stance, aimed at stemming high inflation rates, in large part fuelled by strong appreciation in commodities. Details about market events and policy initiatives can be found in the chronology appended to this chapter.<sup>10</sup>

Doubts about the sustainability of the mechanism of refinancing and growth in the subprime mortgage markets, and about the real magnitude of risks in ABSs were clearly spreading. A synthetic indicator of these doubts was provided by the asset-based securities index, ABX.HE, launched in January 2006 to track the evolution of RMBSs, based on an equally weighted index of 20 RMBSs, and sub-indexes of tranches with different rating, for different vintages of mortgages. Gorton (2008) stresses two important functions performed by this index. First, its creation provided the market participants with transparent information about aggregate market valuation of subprime risk, although pricing in these markets may have already reflected some liquidity problems. Second, it provided investors with an instrument to cover their positions in ABSs, by shortening the index itself.

At the start of the trading in ABX, sub-indexes for triple-B securities initially traded at par then moved slightly downward at the end of 2006. They then dropped dramatically in 2007: the subindex for the 2007–Q1 vintage started nose-diving upon issuance; the 2007–Q2 vintage opened far from par, at 60. Most importantly, a similar behaviour was displayed by the CMBX, a synthetic index corresponding to the ABX including 25 credit default swaps on commercial mortgages. In 2007, the strong doubts by investors were clearly systemic rather than concentrated on the subprime RMBS segment.

The high visibility of these indexes obviously had a strong influence on markets: problems in pricing and trading ABSs became common knowledge. Anecdotal evidence points to increasing liquidity problems in placing portfolios including AAA-rated ABSs ultimately backed by mortgages. Indeed, the period from January to August 2007 recorded a series of negative news on late and missing payments on mortgages, especially in the subprime segment, bankruptcies and earning warnings for originators, downgrading of ratings for various RMBSs bonds and CDOs, and large losses for hedge funds, some of which were closed down.

The panic started at the beginning of August 2007, with a run on financial institutions, associated with skyrocketing risk premia and drying up of liquidity – the economics of panics is briefly discussed in Box 2.5. However, in contrast to many historical examples, the panic did not spread among depositors of commercial banks, with the exception of the case of Northern Rock in September 2007: instead depositors lining up in front of banks, investors simply stopped extending credit to financial intermediaries, and these stopped extending credit to each other, in fear that direct and indirect contamination of balance sheets with subprime loans would create solvency issues. Also unlike other crisis episodes, many markets were left almost unscathed for many months into the crisis. What follows analyses what happened and discuss the reasons for this differential impact of the panic in different parts of the economy.

### **2.2 How the financial turmoil has jeopardised the functioning of the money and financial markets**

As explained above, when the adverse news on the performance of subprime hit the markets, information about the size and incidence of losses was scarce among market participants. The panic spread when

<sup>10</sup> Important collections of opinions and analysis provided in real time during the development of the crisis are included in Felton and Reinhardt (2008) and Eichengreen and Baldwin (2008). Real time news and analysis are available through many blogs, e.g., “Maverecon,” by Willem Buiter, and web services, e.g., the Global Economic Monitor by Nouriel Roubini, or Vox.

**Box 2.5****Panics and information**

To explain the logic of “runs”, it is useful to draw on the seminal work by Diamond and Dybvig (1983) to build the following simple analytical scheme. Consider a three period horizon, 0,1 and 2. In period 0, a financial intermediary, a bank, finances a project (or an asset) maturing in period 2, by borrowing short from investors in period 0 and 1. In addition to financing this project the bank also keeps liquid assets in anticipation that some fraction of the investors will have a need for liquidity in period 1, thus they will not roll over their debt. To these investors, the bank promises a short-term return  $r$ . To investors who keep rolling over their debt for two periods, the bank promises  $R$ , equal to the long-run returns on the projects, unless the bank is forced to close down by a “run” in the first period. In the event of a run, the fact that many investors withdraw their credit forces the bank to liquidate projects in advance at a cost, and pay all investors pro rata using the liquid assets and the proceedings of the fire-sale of projects.

A fundamental solvency problem for a bank arises when the return on the projects in period 2 is below what it has promised to investors. Due to the maturity mismatch between the banks’ assets and liabilities, however, insolvency may also arise because of the risk of illiquidity, independently of fundamental solvency. The key reason is liquidation costs, which in the event of a run reduce the value of the banks projects below their fundamental value, say  $R-k$ . Because of liquidation costs, financial fragility arises because of what economists call “strategic complementarities” among investors.

For given fundamentals, in fact, there are two possible equilibria, vastly different, on which markets can coordinate their expectations: one with, the other without runs. First, suppose that the bank benefits from a good reputation, and markets are calm. In this case, there is little incentive for a single investor to withdraw his/her credit to the bank in the first period, unless he/she really needs the cash – by assumption, this will be true only for a fraction of investors. Waiting until the second period yields a much better return. As everybody follows the same reasoning, everybody ends up following the same strategy: roll over the credit to the bank unless in need of liquidity in the first period. This is the first, good equilibrium. However, suppose now that rumours spread, hinting that people have lost confidence in the bank and a run is likely. Every investor knows that if a sufficiently high number of investors decide to withdraw their credit, the bank will be forced to liquidate all projects and fail. Anticipating a run, he/she will have a good reason to act pre-emptively, and try to withdraw his/her credit as soon as possible. Following this line of reasoning, all will run, confirming in equilibrium the initial rumours, even if these were completely unjustified based on fundamental analysis.

Information and beliefs are key to runs. Asymmetric information of course matters in shaping investors’ beliefs about the fundamental value of projects that banks finance, i.e., of their portfolios. The argument above, however, also stresses the importance of beliefs about the behaviour of other investors. Some pieces of information are common knowledge among market participants (public signals), some are owned by specific investors (private signals). As information is costly to produce, the amount and structure of information is in large part endogenous.

In the scheme above we have referred to rumours, which may be interpreted as a public signal reaching all market participants. The literature after Diamond and Dybvig has provided many more insights on the role of information in a run (see e.g., Jacklin and Battacharya (1988), Postlewaite and Vives (1987), Morris and Shin (2001,2003) and Rochet and Vives (2004)). A relevant point for our chapter is that the amount of information in the market will depend, to large extent, on the efforts by investors and intermediaries to process data. A recent contribution by Zwart (2008) will help us understand how, starting with a situation of imperfect, noisy information, this could contribute to generate a run, and in turn the run will coincide with further loss of information.

In the first few months of 2007, we saw that public signals (common to all market participants) about the quality and value of ABSs were unequivocally negative. In principle, investors could have improved their judgement by acquiring or producing “private signals”, i.e., private research on portfolios. However, given the uncertainty surrounding the chain of securitisation, getting accurate estimates of values was clearly a daunting and costly task. Under the circumstances, the costs of acquiring or producing private signals with sufficient precision were unusually high.

As shown by Sanne Zwart (2008), if agents expect fundamentals to be relatively bad, they will choose to run and give up investment in private information altogether, as, in equilibrium, the expected benefits (in terms of profits) from acquiring an extra piece of private information is low relative to its cost. In light of this analysis, one could conjecture that the recent panics in 2007 and 2008 actually exacerbated opacity in the market, as during the run investors had little or no incentive to spend resources in figuring out the size and location of subprime risk in different market segments and portfolios. Opacity was at the same time a cause and a result of the crisis.

markets fully realised the scale and scope of information asymmetries engrained in the financial system. During the previous years, expectations of sustained and generalised increases in the prices of housing somewhat reduced the incentive to look carefully into the fundamental components of different ABSs, while collateralised and uncollateralised short-term financing was abundant for the most disparate classes of securities. In 2007, these two conditions failed to persist. Investors clearly realised that they needed to know more about the ABSs in their portfolios:

extreme opacity meant that the cost of getting information had become very high; at the same time, growing market illiquidity reduced the benefits from better fundamental knowledge, as all ABSs were dumped together in the same class of “toxic assets”. In the absence of a market mechanism valuing transparency, investors simply chose to withdraw from any portfolio exposed directly or indirectly to ABSs.

The main chapter of the panic included runs and illiquidity, rising default risk and flight to quality (a

detailed description can also be found in many texts, including IMF 2008a,b, Gorton 2008, and Calomiris 2008).

**The run on structured investment vehicles (SIVs).** A classical run on intermediaries hit vehicles such as SIVs and ABCP conduits, which (a) contained some percentage of securities ultimately backed by subprime mortgages, however small and (b) were funded with short maturity papers. Because of the latter feature, investors could run quite simply, that is, by ceasing to roll over their credit and no longer buying the ABCPs issued by these vehicle (see below). As financing dried up, sponsors intervened and absorbed many of these portfolios back onto their balance sheets: in practice, the SIVs disappeared as a result of the crisis.

The ill-fate of SIVs is revealing with regard to the main features of the crisis. These vehicles did not have a large direct exposure to subprime risk: only a minor portion of their portfolios were invested in CDOs of ABSs, although one could argue that they were exposed indirectly because they held a large share of assets issued by the financial sector. As information problems prevented in-depth scrutiny of their portfolios, the fear of losses of undefined entity and location made investors walk away from them.

**Illiquidity of structured products.** As investors retreated from any institution and portfolio exposed, if only to a small extent, to mortgage risk, liquidity dried up. The most apparent victim of market illiquidity was the market for repurchase agreements, “repos”. Repos are secured loans, i.e., lending against collateral. They constitute the basis for inter-bank borrowing and lending, and are one of the largest financial markets in the world.

Starting in August 2007, dealer banks would no longer accept any structured product as collateral, because they anticipated that there would be no market to sell it in case they had to seize it. Once again, there is a clear element of self-fulfilling prophecy: since there was no market to evaluate the price of assets offered as collateral, these assets could not be employed in repos; on the other hand, as these assets were not employed in repos, no

one wanted to trade them in the marketplace. Not only subprime RMBS were rejected as collateral but virtually all types of asset backed securities. A key source of bank financing essentially disappeared.

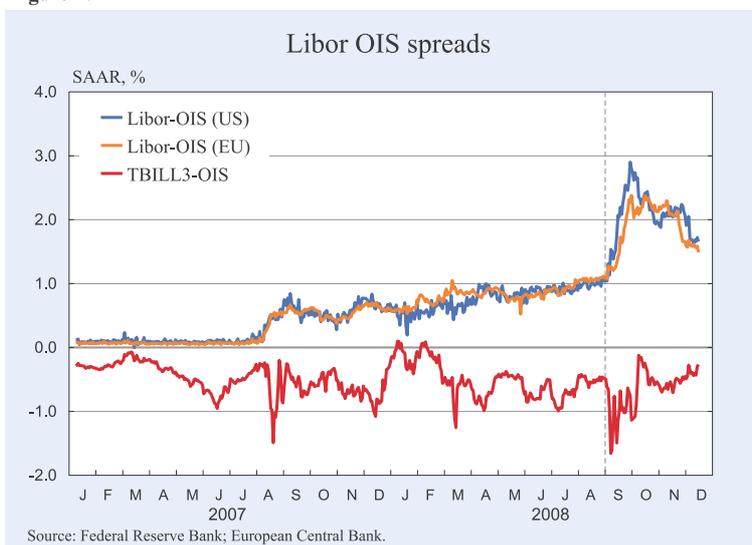
**Spreads and illiquidity of money market instruments.**

The drying up of liquidity caused a sharp increase in the cost of borrowing in key short-term funding markets for financial intermediaries. This can be measured by the spreads between interest rates that intermediaries charge each other and interest rates paid on instruments which are not exposed to the default risk of intermediaries.

A good example to illustrate this pathology is provided by the spread between the London Interbank Offered Rate, Libor, and the Overnight Indexed Swap, OIS, of the same maturity, both in dollars and in euros. This spread is an indicator of the markets evaluation of credit and liquidity risk of banks. The Libor is an index of interest rates at which banks borrow unsecured funds from each other – the market of reference being the London wholesale money market; it results from the sum of the interest rate on a “sure” loan with a certain maturity and a premium due to the possibility of counterparty default over the terms of the contract. The overnight interest swaps instead track daily (floating) overnight rates – it is a geometric average of them and is referred to as the Fed Funds Rate in the US, or Euro Overnight Index Average (EONIA) in the euro area.

Before the crisis, regardless of the currency denomination, the Libor–OIS spread averaged slightly above 10 basis points. As shown by Figure 2.4, there

Figure 2.4



are two apparent discontinuities in the series. One occurred in 10 August 2008, when the spread shot up to 50 basis points, after which date it kept fluctuating widely and far above its pre-crisis average. The other occurred in September 2008, when the spread more than doubled relative to the previous months – this date is marked by a vertical line in the graph.

Since the inception of the turmoil, interbank markets became essentially illiquid for maturities longer than a few days: the maturity structure of the interbank market collapsed. Banks only agreed to trade Libor deposits over a few days. Markets for one or three-month deposits became one sided, raising issues over the meaning of quoted prices used to construct the interest rate indexes. To date, these markets are still not functioning.

**Cross-border and cross-market contagion.** The crisis spread rapidly among European banks with large holdings of dollar assets, thus in need of cross-border dollar financing. When the crisis hit the wholesale market in the US, these banks faced higher rates and a lack of liquidity in an important source of their short-term financing need. Their initial response consisted in raising funds in other currencies (euro, yen, sterling) and then turning them into dollars by means of foreign exchange and cross-currency swaps. Through this channel, the crisis rapidly infected currency swap markets, driving up spreads and causing illiquidity.

**Marking-to-market and collateral calls.** The demand for cash was also fuelled by collateral calls from credit derivative markets. In these markets, collateral calls rise when the spread increases: a rise in the spread means that, in the markets assessment, the sellers of protection are more likely to pay. Hence, these are requested to put down some cash.<sup>11</sup>

As the new Financial Accounting Standard Board Rule 157 became effective, many new positions by financial intermediaries were required to be marked-to-market. For the banking and the near-banking system as a whole, a much larger fraction of assets in their balance sheets were thus linked to market prices. While such practice has many merits, a problem arises during illiquidity crises, when asset prices

arguably move away from fundamental, fair values. Once again, this can generate a self-fulfilling mechanism; as banks try to sell assets and clean up their balance sheets, this depressed asset prices even further.

**The spread of the crisis across mortgage markets.** We have seen above that the whole ABS sector was fully infected by the crisis. It is worth stressing once again that doubts about the sustainability of the mortgage market clearly spread well beyond the subprime segment. Clear evidence is provided by the spread between jumbo mortgages and conforming mortgage rates. The first are mortgages exceeding the cap defining the “conforming” status, that is, they are large. They are originated in relatively wealthy areas or in locations where the housing price bubble was stronger: roughly 50 percent of them are originated in California. The spread picked up in August 2007, clearly showing that markets were wary about housing prices and anticipated bigger problems exactly where capital gains had been large in the past and values at stake were substantial.

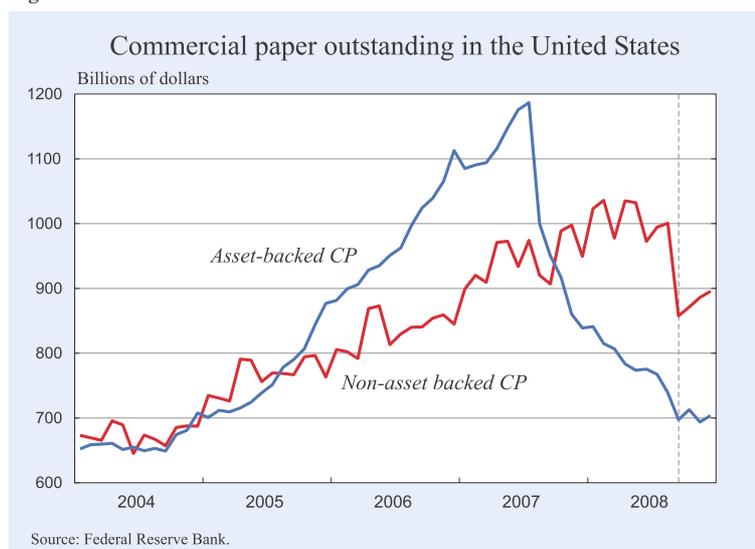
**Flight to quality and the price of government debt.** In the first phase of the crisis, the loss of confidence in the system of private intermediaries generated a “flight to quality”, with a corresponding increase in the demand for government assets. The effect of this flight in the US can be fully appreciated looking at the spread between Treasury Bills and the Libor, the so-called TED (Treasury–Eurodollar Deposit) spread. This spread can be seen in Figure 2.4. This shows the T-Bill–OIS spread together with the Libor–OIS spread: the TED spread is the (negative) difference between the two.

Mirroring the Libor–OIS spread, the absolute size of the TED spread also jumped at the onset of the crisis and fluctuated widely afterwards, vastly exceeding any previous records, e.g., during the 1998 Long Term Capital Management (LTCM) hedge fund crisis. The sign of the spread is negative, however: government assets were perceived as much safer than private assets. Also the TED spread shows two apparent discontinuities: one in August 1997, the other in September 2008.

Interestingly, however, for many months into the crisis the flight to quality did not hit sovereign debt from emerging market economies, which maintained their access to international markets at relatively favourable conditions.

<sup>11</sup> An interesting observation is that in a situation of market illiquidity, there is a specific funding advantage for the buyer of protection to make a collateral call. Funds received as collateral are paid the Libor. As market rates were well above Libor, collateral usage in derivative markets became an attractive means of financing.

Figure 2.5



**Contraction in the market for commercial paper.** The stock of asset backed commercial paper (ABCP) also dropped dramatically with the crisis, by more than 30 percent in the first few months of the crisis. This is shown in Figure 2.5, where the outstanding stock of ABCP is plotted together with the stock of non-asset backed commercial paper.

The figure illustrates two important and crucial features of the crisis. First, the contraction in the size of the market for asset-backed commercial paper after August 2007 was abrupt and enormous – reflecting the above mentioned speculative run, with investors walking away from financial ABCPs. The crisis completely eroded the extraordinary growth experience by that market since 2004, hitting the shadow banking system the most. Second, for a number of months after its eruption, while illiquidity affected money and interbank markets, together with the market for structured products, many important classes of assets and markets remained largely unaffected. Indeed, as shown by the figure, the market for non-asset backed commercial paper, unrelated to financial firms, remained on trend until summer 2008.

Similar considerations could be made for US equities, high-yield bonds and emerging market debt. For instance, the Dow Jones Industrial Average reached an all-time high on 9 October 2007. A clear divide between financial and non financial assets emerged – while the market for financial commercial papers contracted immediately, non-financial commercial papers kept being traded for many months into the crisis.

Virtually no market was spared, however, when the crisis generalised in September 2008, corresponding to the second widening of the spreads in Figure 2.4.

### 2.3 Liquidity or solvency crisis?

Especially during the first months into the crisis, a view that informed much of the debate was that the crisis was essentially due to illiquidity, not to insolvency, of financial intermediaries. Using again the simple balance-sheet example at the end of the previous section, it is worth exploring the differences in these views in

some detail. The premise of the liquidity view of the crisis is that fundamental losses from the subprime segment of US mortgages – the segment where the crisis was perceived to be originated – were not too large relative to the capital of financial intermediaries. In other words, consolidating the balance sheets of all intermediaries in the market (netting out their bilateral credit and debit position), one should have obtained according to this view an aggregate balance sheet like the following:

Assets		Liabilities	
Securities	100-2	Equity	10-2
		Debt	90

In this example, losses are arbitrarily set equal to \$2, out of \$100 of original securities (this example is actually far more pessimistic than the initial estimates of losses from subprime mortgages). Losses on assets obviously reduce equity, in the example from \$10 to \$8. As a result of the crisis, the value at risk, measured by the ratio of equity to assets, falls from 10/100 to 8/98, which is from 10 percent to 8.16 percent. Leverage (the inverse of value at risk) increases from 10 to 12.25. Note that if financial firms wished to restore the initial (pre-losses) target of value at risk, in the aggregate the reaction to the loss of 2 would consist in either an increase in equity by the same amount or a contraction in debt and securities by 10, according to the logic of de-leveraging cycles described above.

However, even if the consolidated aggregate losses were indeed small relative to equity, at the onset of the

2007–2008 crisis the balance sheet of each single intermediary looked more like the following

Assets	Liabilities
Securities 100-?	Equity $\text{Max}[10-?,0]$
	Debt $90-\text{Max}[0,?-10]$

where the estimate for aggregate losses (2) is replaced by question marks, reflecting the inability to locate risk with any precision. Specifically, neither the managers nor the investors and creditors were able to produce a precise assessment of losses on the balance sheet of an intermediary – although, obviously, the amount and quality of information would typically differ across creditors, equity holders and managers.

In our example, equity will remain positive as long as the losses specific to an intermediary (bank or near-bank) remain below 10, at which point the value of equity would be completely wiped out. Because of limited liability, the value of equity can be written as the maximum between “10-losses” and 0. Correspondingly, debt is safe for losses up to 10. For larger losses, the value of debt will decrease by the size of losses minus equity. Hence, the value of debt will be 90 less the maximum between 0 and “losses minus 10”.

If the consolidated financial sector’s aggregate losses were indeed below aggregate equity, a number of financial intermediaries should have been in relatively good shape. Yet, the high level of uncertainty apparently prevented investors from telling insolvent institutions apart from sound ones. This uncertainty was clearly conducive to financial fragility, as investors were weary of the quality of the intermediary’s assets. Since August 2007, this has been enough to create generalised illiquidity in money markets, notoriously characterised by zero risk tolerance.

Opacity also blurred the assessment of the amount of resources required to intervene in support of the banks. This amount should be measured up to their net liabilities: if two banks insure each other against different events, ex post only one will be paying the other, thus at most one will be in trouble, of course to the extent that it had not priced risks appropriately – including the risk of being unable to raise cash from the market when this becomes illiquid. However, a high level of opacity about magnitude and incidence of risk and generalised market illiquidity

considerably complicates the picture. Given the strong interconnection among intermediaries via opaque securitisation, it is ex ante unclear which bank will be in trouble under which contingency. Hence, the perceived need for ex-ante public support to banks tends to be measured up to their gross liabilities – i.e., the sum of liabilities of all intermediaries (see the discussion in Buiter 2008 and Caballero and Krishnamurthy 2008).

Consistent with the liquidity view of the crisis, the discovery of the aggregate magnitude of losses would be facilitated by some institutional arrangement resulting in a de facto large, economy-wide clearing house for all structured products – an institution which would stand ready to purchase all outstanding assets at their fundamental value, financing these purchases by issuing clearinghouse securities to the market. Some of the initial plans were indeed inspired by this view.

Over time, the confidence in the liquidity view of the crisis was shaken not only by adverse news about fundamentals but also by protracted illiquidity of markets. Consider the event of a run on a financial intermediary which is forced to sell its assets in an illiquid market at a loss (see the box on panics). As the total value of the assets on its balance sheet is not necessarily in line with their fundamental values (whatever this is), the expectations that drive the run in the first place are validated ex post. For the representative intermediary, asset and liabilities look as follows:

Assets	Liabilities
Securities $100-2-k$	Equity $\text{Max}[10-2-k,0]$
	Debt $900-\text{Max}[0,50+k-100]$

The illiquidity-related cost  $k$  can be high, up to wiping out equity and eroding substantially the value of debt. By the very nature of illiquid markets, the exact amount of  $k$  is uncertain and volatile: even small sales may move prices substantially. Any ex ante estimate of asset sale prices may turn out to be far removed from what is effectively realised in a fire sale (see e.g., Allen and Carletti 2008).

In principle, since asset backed securities (ABSs) in the portfolios of intermediation are collateralised, one may expect that losses are bounded from below by the market price of the collateral, e.g., ultimately the price of houses for residential mortgage-backed securities (RMBSs). However, first, a run on financial institu-

tions may exacerbate the decline in house prices that undermine financial stability in the first place. Second, the (illiquid) market price of houses, which is relevant for the owner, is above what accrues to the intermediary in case of repossession.

These considerations suggest that during a crisis concerns about fundamental solvency and illiquidity become strictly interwoven: it is quite hard to disentangle their role in market assessments of bank-specific risk. Indeed, studies addressing this issue by looking at the determinants of the Libor–OIS spread reach contrasting conclusions (see e.g., ECB 2008a,b, IMF 2008a,b and Michaud and Upper 2008). These empirical exercises are nonetheless valuable as they tend to show the overwhelming weight of systemic aspects of the distress, for instance, by detecting an “epicentre” for the turmoil consisting of a relatively small group of intermediaries playing a major role in the interbank market.

Whether because of fundamental considerations or as a result of the erosion of values due to persistent illiquidity, the view of the crisis switched to “insolvency” in summer 2008.

#### **2.4 The dynamics of the crisis and public interventions: the hopes for a “soft landing”**

A crucial feature of the turmoil is that for a number of months after the eruption, many markets remained untouched by the crisis. Most importantly, there was little evidence of spillovers on to the real economy, of the gravity that the ongoing financial turmoil could be expected to generate. What exactly can account for the relatively benign transmission in the early phase?

In the literature on global imbalances, a soft-landing is generally envisioned as a dynamic equilibrium in which the US reduces the current account deficit with contained dollar depreciation and no deep recession (see e.g., Obstfeld and Rogoff 2007, Krugman 2007, Faruqee et al. 2007).<sup>12</sup> In many dimensions, this soft-

<sup>12</sup> The recent literature on global imbalances has often referred to “soft landing” and “hard landing” to build scenarios for the rebalancing of international portfolios, i.e., capital and trade flows, associated with a reduction in the US current account deficit (a distinction reconsidered by Bilbiie and Corsetti 2008 in relation to the crisis). In the policy debate on the “excessive US current account”, a hard landing refers to an abrupt crisis of the dollar, with the US being forced to close its external deficit in a short time span (see for instance the analysis of Roubini and Setser 2004, stressing the financial dimension of the crisis). The EEAG 2008 emphasised that the function of dollar movements envisioned in these different scenarios of global adjustment is more that of rebalancing relative national wealth across regions of the world rather than enhancing narrowly-defined competitiveness of the US goods market (see also Corsetti 2007, Corsetti, Martin and Pesenti 2008).

landing scenario appears to describe well the first phase of the crisis, from early 2007 to summer 2008. This was so despite the fact that the illiquidity of structured products persistently jeopardised the normal functioning of money markets and progressively undermined the viability of highly leveraged financial intermediaries relying on short-term financing, most notably investment banks.

Over this first phase, the prevailing view among policy circles was that the fundamental problems at the root of the admittedly dangerous pathology in money markets were relatively manageable, in the sense that they could be absorbed over time by adopting a two-armed policy approach. On the one hand, central banks would make up for the lack of liquidity in the interbank markets by providing financial intermediaries with enough cash to operate without relying on each other for credit. Liquidity provision would then buy time for banks to restructure, namely, to raise new equity capital and write-down bad debt – while containing the need for sharp de-leveraging with the associated negative effects on real activity. On the other hand, treasuries and central banks would intervene on a case-by-case basis to support banks under threat of failure – either as a result of a run or because of fundamental losses. (The main principle driving interventions being the need to preserve the functioning of large intermediaries with many market interconnections, whose failure would have strong systemic effects.)

In this respect, a first important piece of evidence is that in the months after September 2007, the financial sector was able to raise new capital of more than \$430 billion (calculated up to September 2008). The ability to raise capital under crisis conditions (i.e., illiquidity and falling bank security prices) was clearly remarkable relative to previous crisis episodes (see Calomiris 2008). In 2007, the new capital came in large part from institutional investors and sovereign wealth funds – the presence of the latter raising an issue in the control of large corporations in the US and Europe by foreign states; in 2008 most of the new capital came from public investors. Banks raised new capital by issuing hybrid securities, i.e., combining features of both bonds and equities, especially in the US, whereas banks relied more on stocks in European countries (see IMF 2008b).<sup>13</sup>

<sup>13</sup> Over the same period, banking institutions undertook an estimated \$580 billion in write-downs. Write-downs were mostly concentrated in the US and in Europe (see IMF 2008a,b).

Figure 2.6a

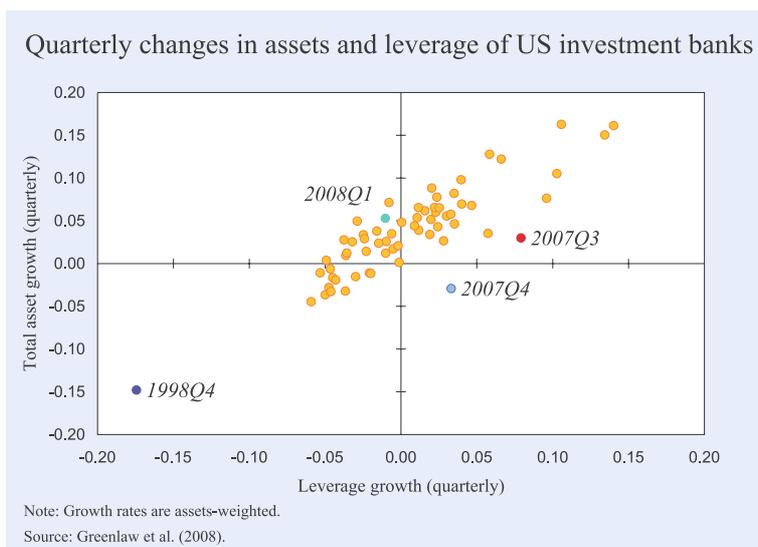
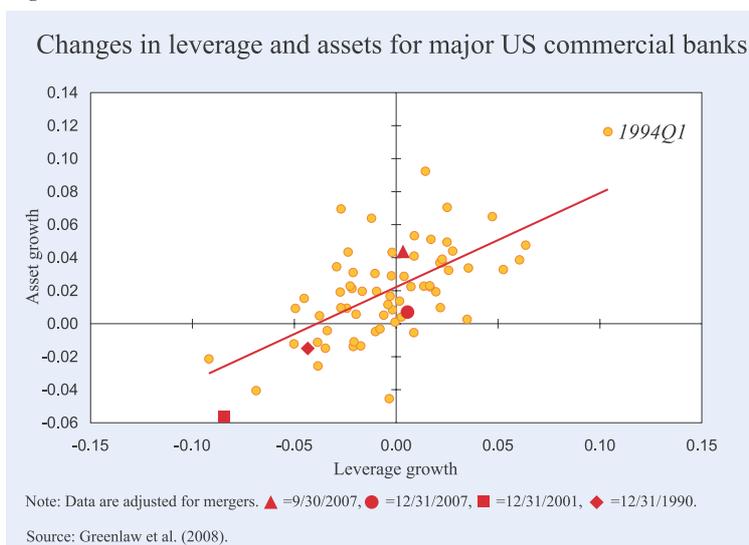


Figure 2.6b



What did this equity injection imply for the intermediaries' balance sheets? To address this question, we reproduce two figures from Greenlaw et al. (2008). For US investment banks and major US commercial banks, Figures 2.6a,b plot total assets growth against leverage growth (data are adjusted for mergers) at a quarterly frequency between 1998 and the first quarter of 2008. The two figures confirm two well-known stylized facts: typically, (a) the correlation between the two growth rates is strongly positive, and (b) periods of slowdown and asset market crisis are associated with a contraction of both leverage and asset growth, while periods of real and asset market booms are associated with an expansion in the same variables.

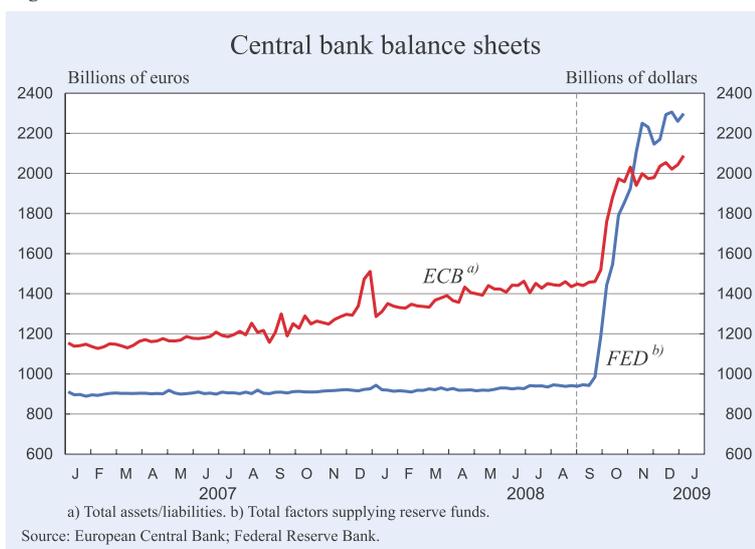
Coming to the crisis period, the graphs suggest that the first quarters into the crisis were special in two

respects. First, in contrast to the other critical episodes for financial intermediaries, such as the LTCM crisis in 1998 and the 2001 stock market turmoil, there was little evidence of a “deleveraging cycle”, which should have placed the observations corresponding to 2007-Q4 and 2008-Q1 in the lower left-corner of the graph. Second, especially for US investment banks, leverage growth was actually unusually high, given total asset growth.

To a large extent, the expansion in leverage of investment banks reflected the fact that these intermediaries provided liquidity and credit support of SIVs and other ABS conduits – as a consequence of explicit and implicit contracts between intermediaries and their clients, to whom structured products were sold with guarantees. Whatever the reason, however, the message from the graphs is that balance sheets of financial intermediaries did not shrink in the early months of the crisis. While this is no evidence that credit conditions remained easy – conditions for lending could have been tighter – this behaviour, anomalous relative to the typical cycle, arguably contributed to delaying the effect of the crisis on the real economy.

On the policy side, the strategy of recapitalisation and write-downs was supported by liquidity interventions on a progressively larger scale. Over time, central banks intervened more frequently, with larger amounts, providing longer term funds, broadening the collateral and counterparty list and opening lending facilities for non-commercial banks. Central banks also reinforced cross-border cooperation in liquidity management and provision by establishing cross-border dollar swap lines. They made it clear that they could (and did) adopt non-conventional intervention measures whenever deemed necessary (see e.g., Bank of International Settlement 2008, and Borio and Nelson 2008). Indeed, the balance sheets of central banks changed in composition and size after 2007, and sharply so in autumn 2008 – the compara-

Figure 2.7



tive evolution of the size of the balance sheet of the Fed and the ECB is shown by Figure 2.7.

The strategy appeared to work, at least initially. As shown in our chronology of the crisis, autumn 2007 was characterised by a series of important write-downs by major international banks worldwide. It was clear that the crisis would spare virtually no corner of the global market, from German banks, which were particularly exposed to ABSs, to the Bank of China, which revealed \$9 billion losses as early as 4 September 2007. The UK authorities were not able to avoid a run on the deposits of Northern Rock, the first bank run after more than a century. Arguably, the picture of depositors standing in line before the bank doors became a powerful image, reinforcing awareness of the fragility of the financial system, despite the fact that no one lost money. The event made it painfully clear that monetary, fiscal and supervisory authorities should have quickly verified the consistency of their framework and action. Coordination across borders also emerged as a priority but has remained an unsolved issue – see e.g., the lack of communication among authorities when Société Générale announced huge losses due to unauthorised activity by one of its traders in January 2008.

Central banks intensified liquidity injection and refined their intervention to make sure they could reach commercial banks in need of funds. One important issue faced by the monetary authorities was in fact the reluctance of banks to ask for assistance, because of the implied “stigma effect”. Banks wanted to avoid the negative feedback from letting the market know about their need for emergency

funds – a piece of information which could have clearly triggered a revision of market assessment of the bank solvency for the worse. Monetary authorities moved to guarantee the anonymity of banks asking for funds. For instance, complementing new rules governing the discount window already in place for some years, on 12 December 2007 the Fed set up a Term Auction Facility (TAF), allowing banks to bid anonymously for 28-day loans against a set of collateral broadened as to include MBSs. While some of these measures turned out to be effective, at different stages of

the crisis the stigma effect remained a key constraint on the effectiveness of policy intervention.

As the magnitude of losses mounted in size and cross-border contagion became more pervasive, on 12 December 2007 the Fed, the European Central Bank and the Swiss National Bank established a swap line, an important milestone in international monetary coordination. However, a clear divide emerged regarding interest rate policy. The Fed had already cut rates in three steps of 25 points in autumn 2007 and in an emergency move, it cut them by 75 basis points on January 22, and by 50 basis points at the end of the same month; it continued to lower rates in March and April. Fed officers during this period defended their choice on the ground that while commodity prices were rising, headline inflation and core inflation remained quite subdued. On the other hand, the Bank of England remained focused on inflation risks and did not cut rates in the first months of the crisis, despite the Northern Rock episode; it then cut them three times between the beginning of the crisis and October 2008, however keeping rates at 5 percent throughout the spring and summer of the year. The ECB also remained focused on inflation risks, explicitly pursuing the strategy of separating liquidity support from the cyclical monetary stance. In the euro area, rates remained untouched at 4 percent until summer 2008, when they were actually raised by 25 basis points.

In addition to continuing announcements of losses and write-downs by major international financial institutions, the beginning of 2008 saw the emergence

of the crisis among monoline insurers, traditionally active as insurers of municipal bonds – because of the guarantees by monoliners, these bonds could benefit from a AAA rating. The markets became aware that monolines had progressively extended their business to ABSs and different types of structured products. Because of their small capitalisation, there was the risk of a generalised downgrade of monoliners, with important systemic effects. In fact, a downgrade of monoliners would have had a cascade effect on the rating of municipal bonds and other private bonds, as well as structured products, markets with an estimated face value of \$2.4 trillion. In turn, a downgrade of these securities would have forced many institutional investors (such as money market funds) to sell them off, with an obvious dramatic effect on their prices and the liquidity of these markets (see Brunnermeier 2009). Not surprisingly, the downgrade of the monoliner insurer Ambac by Fitch triggered a large drop in stock market values world-wide. Markets for municipal bonds as well as a number of other markets (e.g., student loans) suffered a sudden drying up of liquidity.

The bailout of Bear Stearns in mid-March 2007 was interpreted as a successful intervention against the risk of systemic shocks from the failure of a relatively large, interconnected intermediary. The bailout was justified on the grounds that the collapse of Bear Stearns appeared to be driven by marked illiquidity rather than insolvency. The reliance on short-term financing by investment banks created a heavy exposure to liquidity risk, pointing to a problem that eventually led to the end of the model of investment banking as highly leveraged institutions financing their asset positions by rolling over short-term debt instruments. Yet, it has been noted (Vives 2008a) that the Fed did not have first-hand information on Bear Stearns, as this was outside its supervision. How can a central bank with no supervisory power over investment banks tell whether one such institution is or is not insolvent?

The extension of the lender of last resort facility outside the commercial banks de facto started on 11 March, 2007, when the Fed created the Term Securities Lending Facility (TSLF), which essentially granted investment banks the same terms of the TAF. With an endowment of \$200 billion, the TSLF enabled investment banks to swap different mortgage-related bonds for Treasury Bills for a period of up to 28 days in secrecy. But liquidity support was not enough to save Bear Stearns, which had suffered from

the collapse of the Carlyle Capital Corp. early on in the month, and was hit by widespread rumours of insolvency.<sup>14</sup> Over the weekend of March 14–16, the New York Fed engineered its rescue by granting a loan of \$30 billion to JPMorgan, which in turn agreed to buy Bear Stearns initially for \$2 per share (these shares were valued \$150 one year before).

At the same time, the Fed announced the Primary Dealer Credit Facility (PDCF). Since primary dealers are mostly investment banks, this facility in effect is a discount window for such intermediaries. This was regarded an important step, as the bailout of Bear Stearns was in part justified as a way to prevent others institutions, such as Lehman Brothers, from collapsing. The new facility eased liquidity concerns in the market.

While the stock market reacted positively to the Bear Stearns deal, markets and commentators noted that equity holders were severely hit, while bond holders completely spared in the rescue. Under some pressure, JPMorgan agreed to raise its initial bid from \$2 to \$10 per share. Moreover, emerging political opposition to the Fed loan to JPMorgan created tension among the customers of Bear Stearns. To stem political opposition, JPMorgan agreed to assume the first billion of losses in the \$30 billion loan by the Fed.

In the same period, the US treasury eased the capital requirements on Fannie Mae and Freddie Mac to prevent the negative spillovers from a contraction of liquidity in the ABS markets (and the housing markets). At the end of May, the crisis seemed under control, although illiquidity in the money markets remained somewhat critical.

The essential prerequisite for placing confidence in the intervention strategy described above was its macroeconomic counterpart, that is, confidence in the fact that growth would remain relatively strong in many emerging markets and to a lesser extent in Europe, even if the US were to experience a slowdown. Obviously, without sustained global growth, the financial side of the soft-landing strategy would be much more demanding.

From a macro perspective, real-financial decoupling corresponded to a growth decoupling: according to many observers, some trimming of growth expecta-

<sup>14</sup> The crisis was apparently triggered by miscommunication by e-mail between a hedge fund and Goldman Sachs on March 11 and 12, see e.g., Brunnermeier (2009).

tions in the developed world would have had little impact on activity in emerging markets. This view had three important implications. First, the financial crisis in the US and elsewhere could have been addressed in a context where the US current account deficit would remain on a declining path, thus redressing global imbalances. Figure 2.8 shows the US current account together with the multilateral exchange rate of the dollar since the year 2000. Indeed, there is a mild sign of a turnaround in the US deficit after 2006, which persisted in 2007, despite the fact that the hike in oil prices (see below) clearly slowed down adjustment in this period.

A strong external sector would have helped sustain the level of activity in the US. Figure 2.9 shows calculations by the Fed on the net export contribution to real GDP in the US, showing that during the crisis period, external demand was indeed a strong engine of growth.

Second, a positive growth differential between the rest of the world and the US could be expected to keep the dollar weak in real terms. Indeed, the dollar kept depreciating well into the crisis until summer 2008. Figure 2.10 reports the dollar exchange rates over the same period. On a multilateral basis, the dollar remained weak in the soft-landing period. It depreciated against the euro sharply in March, at the time of the Bear Stearns bailout and of the 75 basis point cut in the target Federal funds rate. An interesting question is whether the progressively expansionary stance of US monetary policy at the time and the associated debate on the need to rebalance growth and inflation

Figure 2.8

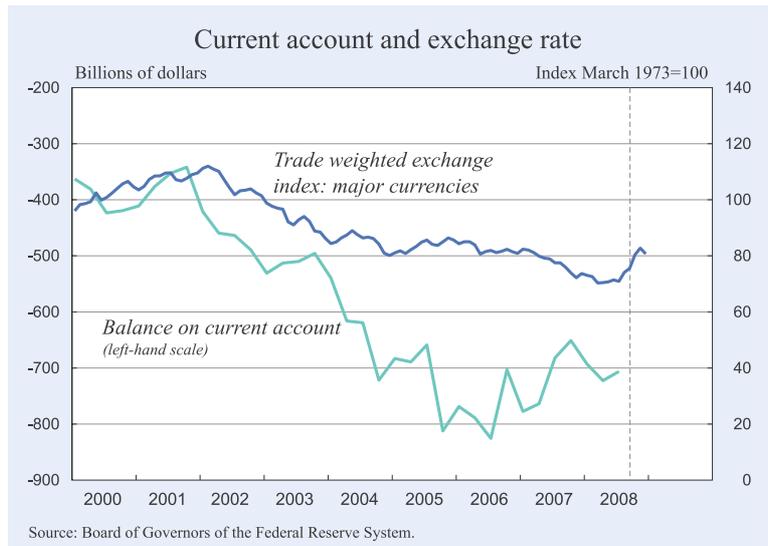


Figure 2.9

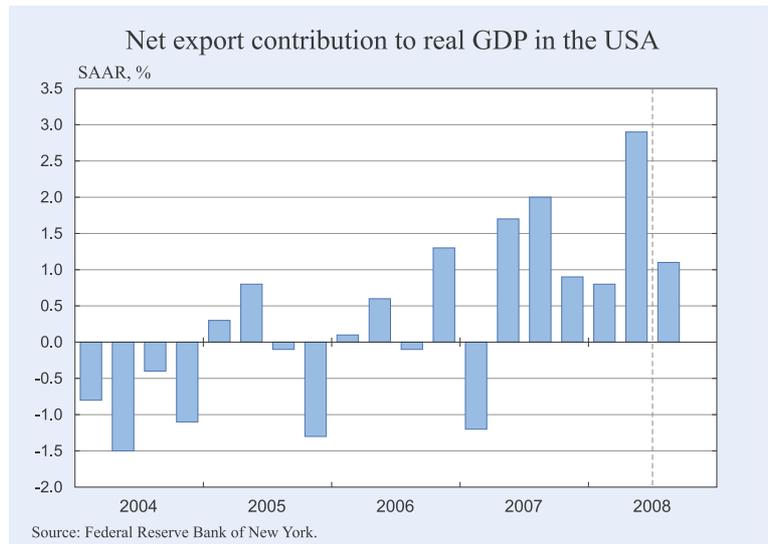


Figure 2.10

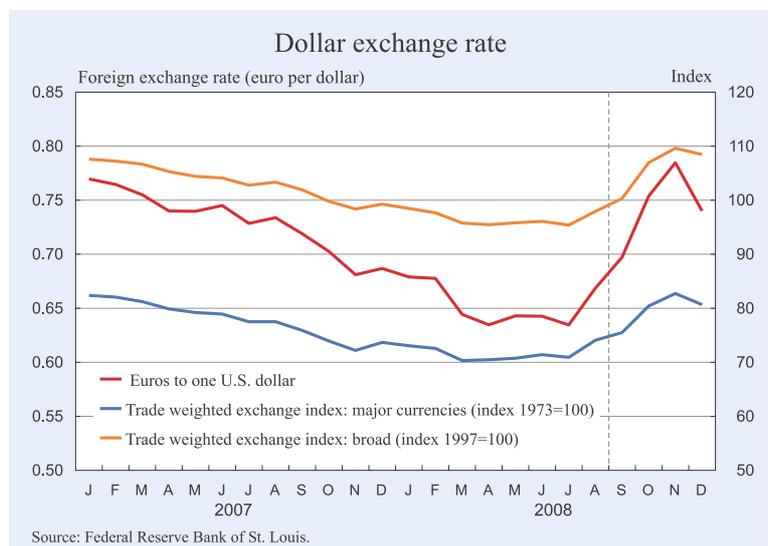
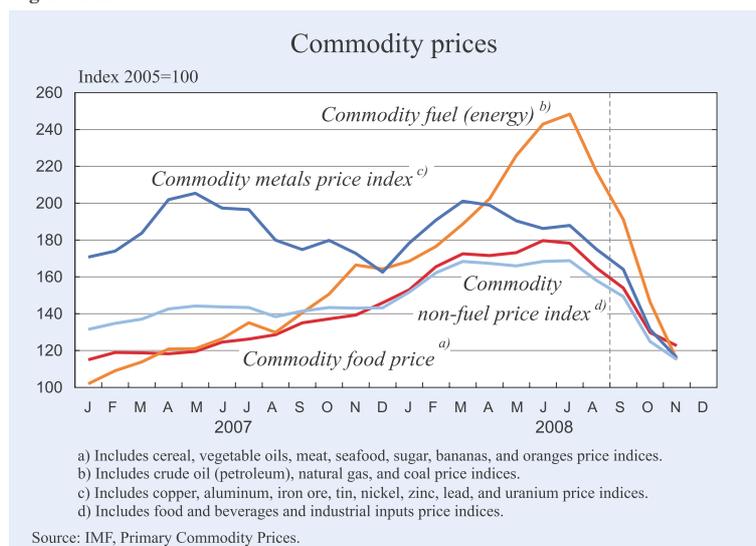


Figure 2.11



risk, could have induced market expectations of a widening in the inflation differential between the US and Europe over the medium term.

Third, the increase in the price of commodities, especially energy, experienced already in the previous year, was not expected to abate. Even observers who attributed it to speculative forces would recognize that as a result of world growth and some other intervening factors (e.g., the expansion of bio-fuel), the world had entered a new era characterised by higher relative prices for food and oil. Figure 2.11 shows the development of selected indices of commodity prices from January 2007 on.

Not surprisingly, the soft landing period was dominated by the policy debate on global inflation and stagflation. As mentioned above, while there was little evidence that core and wage inflation had accelerated significantly, the European Central Bank (and other monetary authorities) preferred to maintain rates at a constant level, even increasing them at the beginning of the summer. Thus strong liquidity support to the market was not matched by a looser stance of interest rate policy.

To sum up, the financial and macro policy in a soft-landing scenario through summer 2008 rested on a double decoupling hypothesis. Real-financial decoupling meant that the problems of the financial sectors could be addressed so as to minimize the negative implications for the real

economy. Growth decoupling meant that possible difficulties of the US would not compromise economic activity in the rest of the world. Notable by-products of these two decoupling hypotheses were buoyant commodity prices, global inflation and a weak dollar. In 2007 and 2008, the weak dollar helped the US in sustaining employment and output, with net exports becoming the most dynamic component of demand. The dollar steadily weakened over the first months of the crisis, accelerating its decline during the bailout of Bear Stearns.

A descriptive summary of the features of soft-landing phase is provided by Table 2.3 below.

### 2.5. The near collapse of September-October 2008 and the onset of the deleveraging cycle

Coordination of expectations on the soft landing hypothesis ended in July-August 2008. The assessment and perception of the magnitude of the financial crisis rose with new figures on mortgage delinquency rates and also as the Federal Deposit Insurance Corporation took over the California-based Indymac Bank, then hit by a run on deposits. In response to spreading financial turmoil, the Treasury stepped up its commitment to support Fannie Mae and Freddie Mac in July, making the government guarantee explicit at first, before placing them under federal conservatorship at the beginning of September.

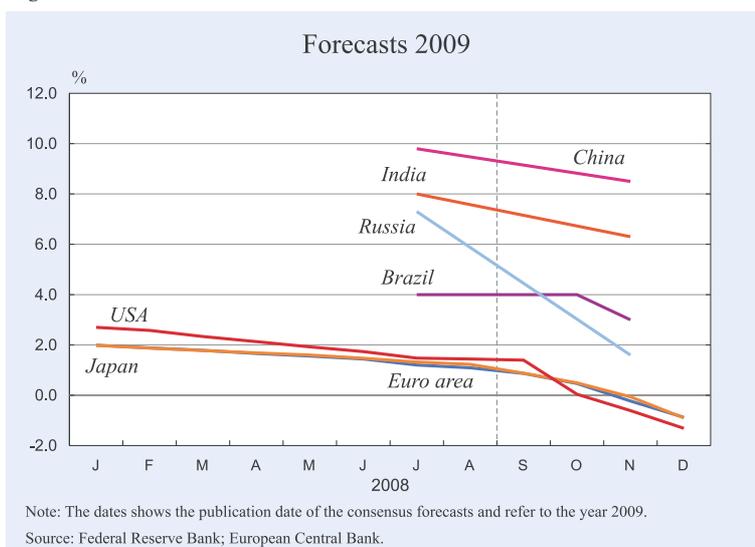
Most crucially, the real-financial and growth decoupling hypotheses no longer held up against the evi-

Table 2.3

#### Soft-landing

Beliefs:	It is a liquidity crisis (contained losses)
	Financial-real decoupling (contained deleveraging)
	Growth (US-EU-Emerging markets) decoupling
Financial	Recapitalization
	Write-downs
Monetary Authorities:	Liquidity provision
Government:	Case-by-case approach to bailout intermediaries

Figure 2.12



dence. Figure 2.12 reports the consensus forecast for the US, euro area and Japan, together with the IMF forecasts for Brazil, China, India and Russia. As shown by this figure, and discussed in Chapter 1, they all started to fall in summer 2008.

With the revision in global growth rates, not only the price of commodities started to fall synchronically and dramatically (see Figure 2.11). Most strikingly, the dollar started to appreciate substantially, despite the US clearly remaining the epicentre of the crisis (see Figure 2.10).

In September, the large and generalised run on financial intermediaries in the aftermath of the decision to let Lehman Brothers fail – almost turning into a run on deposits by the public in mid-October

– shattered hopes for a soft-landing. Lehman Brothers had narrowly escaped a collapse in March, thanks to the positive effects on market confidence of the rescue of Bear Stearns in March as well as by virtue of the access to the new facilities set up by the Fed. It was however unable to raise new equity, as its management apparently perceived to be in a Catch-22 situation: new equity was needed to restore the economic viability of the bank; however, trying to raise new equity would have signalled to markets severe balance sheet problems. Lehman conditions sharply deteriorated when

the Korea Development Bank, which had expressed an interest in buying the firm, decided not to do so. In mid-September, the NY Fed started a process to rescue the bank, involving Barclays and Bank of America. However, unlike in March, the US government made clear that no government guarantee involving taxpayers' money would be provided. When Barclays withdrew and the Bank of America bid for Merrill Lynch, Lehman was forced to file for bankruptcy.

While Lehman was as interconnected as Bear Stearns, according to many commentators the US Fed and the Treasury believed that possible systemic effects from a collapse would have been contained, as market participants had time to prepare for it. This presumption was clearly wrong. The bankruptcy of Lehman jeop-

#### Box 2.6

##### Risk assessment of CDSs and CDOs at AIG

AIG sold insurance on debt securities backed by financial assets such as subprime mortgages, and corporate and personal loans. The insurance sold took the form of a credit default swap (CDS). AIG promised the buyers of the CDS that if the underlying securities defaulted, AIG would cover the losses. This obviously exposed AIG to default risks of the underlying securities (say the subprime mortgages). According to models based on historical data, this type of risk was assessed as being very small. However selling CDS involved other types of risks that were not contemplated by AIG. Namely, the contracts stipulate that the buyers of the CDS can demand collateral from AIG if the underlying securities decline in value (it is like a margin call in a futures market) or if the very rating of the debt of AIG is downgraded. AIG did not consider this type of risk until the second half of 2007. As a result, AIG was exposed to very large collateral calls (for example from Goldman Sachs) without being adequately protected.<sup>1</sup>

AIG had started in 2004 to provide insurance on complex securities such as collateralised debt obligations (CDOs) based in turn on securities like mortgage bonds. Some of these CDOs were extremely complex, covering many securities backed by different types of financial products (from mortgages to auto loans to credit cards receivables). In early 2006 AIG decided to stop exposure to such complex CDOs. In any case from mid-2007 on mortgage securities started to be downgraded and the buyers of insurance from AIG grew worried. The demands for collateral by these insurance purchasers started a dispute with AIG – How much collateral should AIG post? – which was settled with Goldman at some point. Meanwhile in late 2007 and 2008 AIG undertook major write-downs of the value of the swaps. The failure of Lehman Brothers in September 2008 induced a downgrade of the credit rating of AIG, which would have required AIG to post more than \$18 billion in additional collateral to the purchasers of insurance. At this point the US government bailed out AIG. The loan commitment of the government to AIG, up to \$123 billion, seems to have been eaten up to a good portion by further collateral calls from AIG's counterparties.

ardised counterparties of its contracts around the world, with far reaching effects. For instance, the bankruptcy had a strong impact on the industry of money market funds, many of which “broke the buck”, i.e., their share prices went below \$1, because the underwriters of their (AAA) assets – then under severe distress – could no longer buy these assets back. The price of default risk skyrocketed.

Nonetheless, contemporaneously, the US authorities decided to intervene in defence of the US insurance giant AIG, which, operating world-wide, had become increasingly exposed to the crisis through business in the credit default swap market – the case is discussed in Box 2.6. After providing a \$20 billion lifeline on September 14 (when Lehman Brothers filed for bankruptcy), the US authorities took control of AIG and injected \$85 billion in the firm on September 16.

The decision to let Lehman Brothers fail while supporting AIG was clearly seen by the markets as the outcome of a piecemeal policy lacking coherence and vision. Both markets and policy-makers understood that confidence in financial intermediaries (hence money market standards) could not be restored without a systemic and comprehensive strategy, addressing both current market illiquidity and medium and long-run solvency. With the switch of market expectations towards a situation of global systemic crisis, market illiquidity became widespread. Investors ran from both financial and real private assets, marking the end of some classes of intermediaries, such as investment banks – forced by market illiquidity and turmoil, Morgan Stanley and Goldman Sachs gave up their status and became commercial banks on 22 September 2008. Following the familiar patterns of flight to quality, investors raised the demand for government debt which was perceived to be relatively less risky than private assets. However, risk assessment worsened for largest and more advanced countries such as Germany, and risk premia widened interest differentials across government debt by different countries, a salient example being the spectacular in the risk assessment of the UK. Investors ran on fragile economies, causing currency and financial crises especially in small countries which were perceived as lacking the tax base and tax capacity to offer credible guarantees on gross liabilities by their intermediaries (such as Iceland). Many emerging market economies which had remained (surprisingly) unscathed for many months fell victim to the waves of speculation that jeopardised any hope for continuing financial and fiscal stability.

The difficulties of the government to present a coherent and possibly co-ordinated plan to address the crisis almost caused a run on deposits in mid-October, when nervous investors started to withdraw cash from banks (many newspapers reported an unusual rise in the demand for home safe-boxes), and many switched banks, looking for intermediaries backed by the strongest government guarantees.

Most interestingly, the dollar appreciated sharply with the exacerbation of the crisis, raising issues in the perception of risk by the markets. The response of the dollar is quite intriguing in light of the vast literature envisioning the resolution of the global imbalances as a large and sustained fall in the value of this currency.<sup>15</sup> Envisioning an international run on the US, many commentators in the past would indeed have predicted a crisis in terms of large dollar devaluation possibly associated with a US recession (perhaps undermining the role of this currency as an international vehicle currency). That is obviously quite different from what we experienced in 2008, with the cross-border run on financial institutions spreading throughout the largest (and most financially advanced) countries.

An important element in our interpretation of the phase of soft landing is the fact that, initially, the effect of the crisis on deleveraging was quite contained. In the hard landing scenario after autumn 2008, it is quite likely that the world experiences a deleveraging cycle, possibly with an impact on the level of activity by firms and the spending plans of households. Since September 2008, global rebalancing has been proceeding in the form of substantial write-downs by financial intermediaries. At the end of 2008 total reported write-downs amounted to around \$1 trillion, as shown in Table 2.4. How much more is to be expected, crucially depends on the total size of losses by financial intermediaries. The \$1.4 trillion estimated by the IMF (2008b) at the end of 2008 appeared utterly unrealistic at the beginning of the new year.

A caveat is in order. Looking at banks' activity it may be quite difficult to ascertain a strong delever-

<sup>15</sup> This argument essentially draws on the tradition of the “transfer problem” (popularised after the debate between Keynes and Ohlin regarding German reparations after World War I), whereas a hard landing consists in the “double punishment” from falling terms of trade when a country pays back what it owns: intuitively, because of relative price movements, the economic cost of adjustment raises the debt. There are variants of this double punishment – most people stressing the need for quantity adjustment via a US recession (see EEAG 2008); Corsetti, Martin and Pesenti (2008) work out the economics of transfer with product differentiation and sectoral re-allocation of production, showing that high welfare costs may occur independently of terms of trade movements.

**Table 2.4**  
**Writedowns and credit losses**

Banks	Company	Total writedowns and credit losses since Jan 2007 (\$bn)
1	Wachovia	95.5
2	Citigroup	67.2
3	Merrill Lynch	55.9
4	UBS	48.6
5	Washington Mutual	45.6
6	HSBC	33.1
7	Bank of America	27.4
8	National City	26.2
9	JPMorgan Chase	20.5
10	Lehman Brothers	16.2
11	Royal Bank of Scotland	15.8
12	Morgan Stanley	15.7
13	Bayerische Landesbank	14.8
14	Wells Fargo	14.6
15	IKB	14.4
16	Credit Suisse	14.2
	Worldwide	741.2
Insurers	Company	Total writedowns and credit losses since Jan 2007 (\$bn)
1	AIG	60.9
2	Ambac	10.6
3	Hartford Financial	7.9
4	Metlife	7.2
5	Allianz	4.5
6	Prudential Financial	4.4
7	Allstate Corp	4.4
8	MBIA	4.3
9	Swiss Re	4.2
10	Aegon	3.8
	Worldwide	146
GSEs	Company	Total writedowns and credit losses since Jan 2007 (\$bn)
1	Freddie Mac	58.4
2	Fannie Mae	56
	Total	114.4

Source: Bloomberg.

aging cycle in the 2008 data – a strong position in this respect has been taken by Chari et al. (2008) in a provoking piece showing evidence that credit has in fact not collapsed with the crisis. However, as stressed by Adrian and Shin (2008a), in judging the extent of the contraction in credit, it is crucial to disentangle the role of commercial banks from other market-based institutions. Market-based credit (including credit cards, auto loans and student loans) has shrunk dramatically with the crisis; bank lending may have held its own or even correspondingly increased, arguably because of the role of banking in providing a financial buffer when market conditions deteriorate.

Equally difficult is the assessment of the potential impact of a credit crunch on real economic activity (see early calculations by Greenlaw et al. 2008). Yet, it should be stressed that even in the absence of any crunch, a simple assessment of the wealth effects from portfolio losses (stocks and financial instruments) and declining housing prices (with the caveats stressed e.g., by Buiter 2008), suggests that private spending will contract by several percentage points, dragging output many points below potential.

Indeed, stock values around the world fell sharply in 2008 – the most well-known indexes lost between 30 and 50 percent in domestic currencies, in many cases setting disturbing historical records. In the context of the crisis, this global contraction in financial wealth can be expected to have far-reaching implications, well beyond the immediate impact in demand. Combined with the loss of confidence in the ability of financial intermediaries to price, manage and diversify risk, the market downturn is likely to translate into widespread changes in the modalities of households' participation in financial markets as well as strong pressure on governments

to intervene beyond normal standards of regulation and supervision.

As in the previous subsection, we can conclude our analysis with a descriptive account of the hard landing as we experienced it by the end of 2008 in terms of the following scheme, where most entries are the negative of the soft-landing scenario, but there are also additional important new entries, listed last, which refer to the willingness by governments to counteract the crisis with high doses of fiscal policies, and possibly pursue some form of coordination (see Table 2.5).

Table 2.5

**Hard-landing**

Beliefs:	It is no longer a liquidity crisis
	No financial-real decoupling
	No growth decoupling
Financial	Write-downs
	Deleveraging
Monetary	Liquidity provision
Government:	Search for a comprehensive approach
	Fiscal expansions and deficits
	International policy coordination in fiscal, monetary and exchange rate?

Comparing this with the previous scheme raises the question of whether the soft-landing phase was driven by misleading expectations of a relatively benign solution to the crisis, or whether such prospect was in fact jeopardised by policy mistakes – ranging from the reluctance by central banks and treasuries to intervene more directly at the root of market illiquidity at global level already in 2007, up to the decision to let Lehman fail, which apparently coincided with a vast shift in market expectations.

Perhaps, had expectations of growth and real financial decoupling been less optimistic, policy makers would have intervened more swiftly and comprehensively early on, preventing market illiquidity from eroding progressively the value of banks' assets well beyond the toxic ABSs.

### 3. The deepening of the banking crisis: challenges to policy-makers

The sudden worsening of the financial and economic outlook in autumn 2008 radically changed the policy landscape. The mix of market pathologies underlying the crisis posed formidable challenges to public intervention. In the very short run, policy-makers had to stop the liquidity crisis from escalating, up to turning into a run on commercial banks. At the same time, it became clear that restoring conditions for the normal functioning of markets and financial intermediaries would not be possible unless toxic assets were removed from the intermediaries' balance sheets and governments found a way to deal effectively with widespread bankruptcy of major global players. All this while the extraordinary slowdown of the economy created enormous demand on fiscal resources to support growth via public spending and tax cuts.

**Stemming liquidity runs.** In the weeks after the bankruptcy of Lehman Brothers, the first issue governments world-wide had to address the generalised liquidity run that stormed intermediaries, and at some point (in mid-October) threatened to affect commercial banks. Political failures and weaknesses in the response to the crisis (with the uncertainty created in the process of approval of the Paulson plan by the US congress, and the un-

coordinated and weak response by Europeans governments) apparently raised the risk of a global financial meltdown. Eventually reacting to this threat, governments extended public guarantees to creditors and depositors. Public funds were committed to this end in most countries to complement deposit insurance funds. These measures were indeed effective in stemming the incipient run on commercial banks. However, they added to the stock of contingent public sector liabilities, i.e., implicit government debt which may become explicit in the event of a financial turmoil jeopardising people's trust in banks.

Notably, the initial reaction in Europe revealed the lack of political will and/or capacity to coordinate in a timely manner: some countries (notably Ireland) moved first to raise substantially the ceiling for deposit guarantees, as to gain first-mover advantages in the global competition for savers' deposits, and thus relax the financing constraint on domestic intermediaries. This early move forced other countries to react swiftly in the same direction. Ironically, agreements at the European level could only be reached on the floor, rather than the ceiling, for deposit guarantees.

**Restarting the interbank market.** Throughout the crisis period, massive collateral lending by the central banks and governments virtually came to replace interbank markets. This is clearly a problem for central banks and governments. While potentially affecting the transmission of monetary policy in unknown ways, it adds to the stock of contingent public liabilities by exposing monetary authorities to massive default risk.

The extension of government guarantees also to transactions among intermediaries to revive the interbank market did not appear to be equally effec-

tive, let alone desirable. With the development of the crisis, it had become clear that the lack of confidence among banks is rooted in doubts about one another's solvency. A bank contemplating invoking guarantees on its transactions would be significantly discouraged by the stigma effect associated with them. On the other hand, while extending public guarantees on *all* transactions would eliminate the stigma effect, it would also create severe moral hazard distortions, somewhat defeating the ultimate goal of restarting these markets.

In the current equilibrium, the commitment of central banks to provide ample liquidity against broad collateral clearly crowds out private collateralised lending, if anything by exacerbating adverse selection problems. The magnitude of central bank lending is boosted by the effect of the crisis on banks' preference for liquidity. Essentially, banks hoard liquid assets as self insurance against their own liquidity needs and losses, and perhaps as a means to profit from future opportunities to acquire assets at minimum fire-sale prices.

**Cleaning up financial intermediaries' balance sheets.** Consistent with the view that the crisis mostly reflected a large component of market illiquidity, in the US the initial proposals for a comprehensive approach to cleaning up the balance sheet of financial intermediaries focused on the idea that the government should buy illiquid toxic assets from banks at a price closer to their fundamental value, than to the (fire-)sale price in illiquid markets. At the root of the Troubled Assets Relief Programme (TARP) was the notion that the main distortion jeopardising the economic viability of financial intermediaries was market mispricing.

The simple balance-sheet example adopted above helps illustrate how this strategy could work (see also Kaplan 2008). Suppose that a bank owns toxic assets for a face value of \$10, which are however valued by (illiquid) markets at only \$5. Accounting for fundamental losses, the value of holding them to maturity at the current interest rates could instead be set at \$8. Through a program like TARP, the government could buy these assets from the bank for \$8, insulating the

overall balance sheet of the intermediary from the cost of illiquidity. The effect of such purchases is shown at the bottom of the page.

Note that the intervention does not prevent the bank from remaining undercapitalised (although not to the same extent as before intervention), hence in need of either expanding equity, or reduce assets (loans).

This strategy would pursue two interrelated goals. The first is to address the distortions due to market illiquidity. By valuing assets at some notion of their "fundamental value", the government can improve the value at risk of banks, therefore relaxing an important constraint on bank lending. To the extent that the difference between the market and the purchase price is only due to illiquidity, there is not a cost for the taxpayers: over time the cash flow from the asset will compensate for the initial disbursement.

The second, crucial goal is to reduce the opacity on assets and liabilities on the balance sheets of intermediaries, which has been feeding the mistrust at the root of market illiquidity. Cleaning up the banks from toxic assets could re-create the conditions for intermediaries to trade among each other according to normal competitive standards. Note that this benefit could materialise even if the purchase price of assets were relatively low, i.e., closer to their evaluation by illiquid markets than to their fundamental value.

This strategy runs into at least two issues. The first is how to set the purchase price. To pursue the first goal (addressing pricing distortions due to illiquidity), the purchase price cannot be set too low, close to the (illiquid) market valuation of \$5. If so, the intervention would not improve intermediaries' balance sheets. Not only there would be an unnecessary transfer from bank creditors to taxpayers, but the intervention would do nothing to improve leverage in the banking system, with the risk of causing a large reduction in loans and credit. In principle, the price should be set as close as possible to the "fundamental value" of an asset: in this case the intervention would come at no cost to the taxpayers and would contain the risk of unnecessary deleveraging. But toxic assets

are quite heterogeneous, and information on them is limited and strongly asymmetric: the scheme exposes the government to severe adverse-selection distortions. At any given price, intermediaries would be willing to sell only assets for which their subjective

Assets		Liabilities	
Securities (face value 100)		Debt: short	10
a. Value in illiquid markets	95	Debt: long	80
b. Value after intervention	98	Equity	
		a. before intervention	5
		b. after intervention	8

evaluation is lower than the cash offered by the government. The government could then end up paying systematically too much, implying a transfer of taxpayers' resources in favour of bank owners and managers, and raising the cost of the desired clean up of the financial system.

The issues related to taxpayers protection can however be addressed by entitling the government to some of the capital gains accruing to banks from the intervention. Among the possible measures, banks can be required to issue to the Treasury equity warrants (which entitle the Treasury to buy a certain amount of equities at a pre-specified price) or senior debt securities – in either case, the Treasury would acquire no voting rights, thus there would be no public interference on the intermediaries' decision process. By the same token, banks benefiting from public funds should be required to adopt high standards of disclosure and transparency.

Consistent with the logic of this approach is the use of funds to help marginal mortgage holders to avoid default, for instance, supporting families whose house price has fallen marginally below the value of the mortgage (Feldstein 2008a,b, Geanakoplos and Koniak 2008). Some public help would not only spare banks the cost of repossession – it could substantially reduce the risk of a fire-sale of a large stock of houses, which could feed a negative spiral on market prices. Once again, the taxpayer could be protected by requiring families or firms benefiting from the programme to entitle the public sector with a claim on future capital gains on their houses. A well-designed intervention avoiding the spread of default on mortgage could clearly limit the magnitude of fundamental losses undermining the price of ABSs.

The toxic assets bought by the government should be placed in a large intermediary, which would possibly act as a clearinghouse and therefore net out the complex web of debt and credit positions created by the securitisation process. Once again, to the extent that toxic assets are bought at their fundamental value, there is no loss for the taxpayers. This large intermediary should be in charge of liquidating the bad assets slowly over time, or holding these assets to maturity. In either case, it can be expected to remain in operations for decades.

Note that the purchase of bad assets can be “leveraged”, as the

funds initially provided by governments could be complemented by the issuance of “clearinghouse” bonds. If so, the intervention scheme would not necessarily place an undue demand on the current government budget. It would however raise the supply of bonds with some implicit public guarantees, hence indirectly subject to the scrutiny of markets as regards public sector solvency.

As an alternative to outright purchase of toxic assets, the same goals could be pursued with the injection of new equity in distressed banks, with the government acquiring a participation in the capital of troubled institutions. The government would then have a more direct role in the process of restructuring, and could scrutinize more closely the assets in the balance sheet. To be consistent with its ultimate objective, however, this form of intervention should be strictly temporary, with well-defined goals shaping the mandate of the government participation in a bank decision.

Direct public participation in banks' equity would not *per se* offer an alternative solution to setting up a centralised clearinghouse for toxic assets in some form. Rather, public acquisition of equities in banks should be seen as a different strategy for selecting toxic assets in the process of restructuring, possibly reducing information asymmetries and increasing the public control on bank resources, accompanying the removal of those assets from the balance sheet of banks.

Cleaning up toxic assets would obviously be insufficient and ineffective, however, when fundamental losses are large enough to jeopardise the solvency of the financial intermediary, that is, when a bank's balance sheet before and after intervention would look like the one shown below.

Regardless of the purchase of assets, the equity of the bank would be zeroed. All the revenues from the public intervention would go to repay existing debt. Unfortunately, the same would be true for new equity: any injection of new capital would in part go to bond holders. In this condition, a debt overhang problem jeopardizes attempts to raise new capital. Note that, in principle, restructuring could take the form of

Assets		Liabilities	
Securities (face value 100)		Debt: short	10
a. Value in illiquid markets	80	Debt: long (face value 80)	
b. Value after intervention	85	a. before intervention	70
		a. after intervention	75
		Equity	0

debt-to-equity swap, by which bond holders would recognize part of the losses. The advantage of some form of debt-to-equity swap consists of providing an instrument to rebalance equity ratios directly, and therefore restructure bank balance sheets without the need to raise new capital or to decrease credit (see Zingales 2008).

There are a number of policy trade-offs in the alternative between buying assets from banks and financial intermediaries, and acquiring some form of control over these institutions. The second alternative is more effective if fundamental losses are large, since market-based restructuring of intermediaries may turn out to be a slow and costly process and if the distressed bank is a major player in the markets, so that

its bankruptcy could create systemic distress. In the short and medium run, with a direct stake of the government in banks, it may be possible to ensure the adoption of competitive lending standards (reducing the risk of a credit crunch, if any) and a faster return of financial intermediaries to the interbank market. However, the government will also be tempted to direct banks' behaviour towards specific policy objectives and delay its withdrawal from the participation for an indefinite period of time. How to design a time-consistent plan of temporary public participation in the banking system is an open issue.

In the current crisis, many banks are turning out to be essentially in the situation illustrated by our second balance sheet above, including both small (regional)

### Box 2.7

#### The Savings and Loans Crisis

The savings and loans industry in the United States, made up of several hundred savings and loans associations (S&Ls), originally undertook the straightforward business of accepting retail deposits and using the funds to provide residential mortgages. It had its own regulator and had its own insurance fund to protect depositors, which was funded by the industry but backed by the US government. Despite this, it was the subject of a major financial collapse which between 1985 and 1995 cost US taxpayers more than \$120 billion.

Problems in the industry first arose in the 1970s as a result of high inflation, and deregulation of US interest rate markets. These factors led to high and volatile nominal market interest rates which created problems for S&Ls as a result of their structure. That structure was essentially that funds were raised from short-term deposits subject to an interest rate ceiling and used to fund long-term mortgages, mainly on a fixed rate basis.

Higher market interest rates made deposits in S&Ls unattractive compared with that available elsewhere in less regulated institutions. But in trying to compete for new funds by paying higher rates on deposits, S&Ls found themselves paying rates above those that they were charging on fixed rate mortgages. By the end of the 1970s, hundreds of S&Ls were close to insolvency. And the insurance fund (the Federal Savings and Loan Insurance Company, FSLIC) did not have the funds to meet the insured deposits.

In the early 1980s, the response of the US government and regulators was to loosen restrictions on S&Ls. Regulatory rules were changed to allow them to diversify away from mortgages into more lucrative, but more risky, assets. Accounting rules were changed in ways that made it seem that their "net worth" positions were stronger. The level of deposits insured per depositor was raised from \$40,000 to \$100,000, which made S&Ls appear to be a safe haven for depositors. The interest rate ceiling was phased out. And regulations on ownership were also abandoned, allowing smaller groups to take control of S&Ls.

As a result of these reforms, S&Ls changed their nature, in particular their investments became much riskier. For example, many S&Ls became closely involved with risky real-estate development that paid upfront fees and high interest rate margins but that were particularly susceptible to a downturn in a cyclical market.

It seems clear that just as in the events leading up to the current crisis, S&Ls greatly underestimated the risk of the new ventures into which they entered. In addition, the easing of regulation meant that bad management practices were allowed to develop, and some accounting practices were at best dubious, and at worst fraudulent.

Developments in the oil, property and farming sectors in the US in the second half of the 1980s effectively revealed the risks that were by then in S&L investment portfolios. By 1986, the FSLIC was itself insolvent in the face of huge losses. The government attempted to recapitalize it, and for 3 further years it continued to operate and restructure S&Ls mostly through mergers and acquisitions.

However, in 1989, Congress finally passed a new law (the Financial Institutions Reform, Recovery and Enforcement Act) which abolished the regulator and the FSLIC, created a new Office of Thrift Supervision, and set up the Resolution Trust Corporation (RTC) to oversee the liquidation of hundreds of S&Ls. The RTC effectively took ownership of the failed S&Ls and sold off their assets. In 1989 and 1990 alone, it liquidated over 500 S&Ls with total assets of over \$260 billion. By 1996, when it was wound up, the RTC had overseen the liquidation of 747 S&Ls, with a total value of nearly \$400 billion.

The model of the RTC has been advocated as a sensible policy in dealing with the current financial crisis. However, the situation now is different. While scale of failures during the S&L crisis was huge, the current crisis is bound to be several times larger. Moreover, individual S&L institutions under distress were relatively small, and none of them posed systemic threat (although the sector as a whole did). The RTC in effect could take ownership of toxic financial assets as part of a process of liquidation, in effect taking ownership of the failed S&L. In the current crisis, many distressed institutions are actually large (global) and interconnected. As discussed in the text, the liquidation strategy pursued by the RTC is less appropriate in this case.

and large (leading global) institutions. Small intermediaries can and should be simply liquidated – as happened during the Savings and Loan crisis (see Box 2.7). For major lenders, however, liquidation may not be desirable or politically feasible – for some variant of the too-big-to-fail doctrine. Governments have indeed been increasingly involved in taking over and recapitalizing major banking institutions, acquiring majority stakes. It may not be impossible to envision a financial system with many banks ending up being completely nationalised.

As suggested by the case of Citibank at the end of 2008, we may expect governments to follow a model in which, after taking control of a major bank with zero equity, these are split into a good and viable intermediary, and a residual “bad bank”. The bad bank or some part of it could still be liquidated,

merged with or taken over by another institution. The toxic assets extracted from the bank could be placed in some vehicles like the one described before. The equity stake of the government is in exchange for taking care of the bad assets. The experience of Sweden in this respect is discussed in Box 2.8.

From September 2008 on, different countries have pursued variants of the above strategies, with the US struggling to design an effective version of the TARP, and the UK acquiring direct control over troubled intermediaries. However, while virtually all governments have so far struggled to commit resources to the rescue of banks, details are often vague and contradictory. The process of disclosure of losses is expected to bring more negative news to light, hampering banks’ attempts to raise new equity

### Box 2.8

#### The Swedish banking crisis

The background to the Swedish banking crisis can be traced to 1985, when Sweden decided to lift the regulation on banks’ lending volume. This in combination with generous rules for tax deductions of interest payments led to a very large credit expansion and high growth rates of prices on houses and commercial property. Fiscal policy was not sufficiently contractive and wage inflation was high. When the international business cycle turned down in 1990, banks and other credit institutions started to encounter problems. Many investments in Swedish commercial property had been financed with loans denominated in foreign currency. The Swedish central bank feared that a devaluation of the Swedish currency would cause credit losses of a scale endangering the whole financial system. In the end the futile attempt to defend the Swedish fixed exchange rate led to very high interest rates – the discount rate hiked to 1.5% per day. The high real interest rate together with bleak forecasts for Swedish economic growth and a reduction in the possibility to deduct interest payments against tax liabilities led to a collapse of the inflated real estate market, in particular for commercial property, in 1991–92.

The major Swedish banks were hit by massive credit losses totalling around 12% of Swedish GDP. These losses threatened to quickly put all but one of the seven major Swedish banks, controlling most of the Swedish market, below the capital requirements of 8%. The Swedish recession developed into the worst since the 1930’s. Swedish GDP fell by almost 5% between 1990 and 1993, unemployment rose from 3% to 12%, the output gap fell to -8% and the government budget surplus changed into a deficit of 11% of GDP.

In September 1992, the conservative Swedish government decided to guarantee all Swedish banks. All debt of the banks should be honoured and repaid in a “timely fashion”. It was, however, clear that a) shareholders of the banks should not be bailed out, and b) the government should not be a permanent majority owner of banks that needed support. The guarantee was formulated in an explicit and transparent way.

The guarantee received wide support in the parliament, also from the social democratic opposition. The broad political consensus around the unlimited mandate to the government to safeguard the financial system was arguably of key importance for the credibility of the support programme.

The bank support was administered by a newly created agency under the finance ministry, the Bank Support Authority. It required a full disclosure of the best estimates of the true value of the asset side of each troubled bank’s balance sheet. As a consequence of the crisis, the government took control over Nordbanken (now Nordea) that took over the failing Gotabanken. Non-performing assets, largely in the form of commercial real estate, were lifted from the two banks and put in separate companies (Securum and Retriva) leaving a bank that soon became profitable.

Föreningsparbanken (now Swedbank), giving shares as collateral, received a guarantee from the Bank Support Authority that its capital requirements should be safeguarded. Also the SE-bank started discussion with the Authority regarding support. However, neither of the banks in the end needed any direct support but was recapitalized by their owners.

The support programme succeeded in its major goal – to prevent a collapse of the financial system. No bank runs occurred and the financial system continued to function during the whole crises. The budgetary cost of the bank support between 1992 and 1994 totalled 63 billion krona, corresponding to about 4% of GDP. In 1997, it was estimated that the net cost, including the value of shares and dividends from Nordea, Securum and Retriva, was around 35 billion krona, i.e., approximately half the gross cost.<sup>1</sup> By 1997, both Securum and Retriva had been dismantled, but the Swedish government still holds a minority position of 20% in Nordea.

<sup>1</sup> Jennergren & Näslund, (1998), Ekonomisk Debatt 26:1 (in Swedish).

capital – as recapitalisation could be seen as an indicator of bank distress and need for funds – and creating uncertainty about the size of fiscal costs of the crisis. Perhaps for this reason, the emphasis of the policy debate is currently on its quantitative dimension, i.e., on the required size of public intervention. The truth is that the protracted period of market illiquidity and the sudden spread of the crisis to the

real side of the economy have profoundly dented the value of intermediary's assets, producing losses that are a multiple of those that could directly be attributed to the "toxic assets" produced by securitisation. Yet it is hard to envision the end of the crisis without linking banks bailouts to some coherent and possibly concerted framework to reform the international financial system.

**Box 2.9****Banks bailout and competition policy**

Competition policy enforcement in banking is under attack worldwide.

Vives (2008b) issues a strong warning that the ongoing massive bank bailouts are distorting competition in financial services, both in the US and in the European Union. Instances are provided by the British government, which blocked a referral of the HBOS-Lloyds TSB merger to the national competition commission on the grounds that the stability of the U.K. financial system was an overriding concern. By the same token, potential threats to competition policy are implicit in harsh complaints by the French, German and other governments that the European Commission is too slow in approving bank-recapitalisation packages, on the ground that the process is delaying the much needed resume of credit to firms and consumers.

In other words, the bailout is doing much more than recapitalising failing institutions. Public help is reaching even relatively sound institutions, which are therefore gaining a competitive advantage in terms of a lower cost of capital and probability of failure. This race to recapitalize national banking systems has the flavour of a national champion contest. Not surprisingly, its positive effects on getting credit to the private sector are not really apparent, as banks will resume their credit policy only if and when they find it profitable.

Moreover, political spillovers from the systemic banking bailout to other sector also pose severe fundamental risks for competition policy in general. With the automotive industry at the forefront, many sectors are now calling for help on the grounds of "horizontal" equity across industries. A key issue is how to prevent the present distortions in banking not only from becoming permanent but also from spilling over to other sectors.

It was not long ago that competition was considered detrimental to financial stability, an idea that often made central banks and regulators quite complacent about monopoly practices and collusion agreements among banks. This has changed over time, as it became progressively clear that lack of competition meant costly inefficiency. Competition policy is now taken seriously also in the banking sector. For instance, the European Commission has intervened against national protectionism, cartels and anticompetitive mergers. The new thinking shaping this intervention is that competition per se cannot be responsible for the fragility of the banking system: even a monopoly bank may be subject to a run.

Yet, the question remains. Should competition authorities treat banks as if they were exactly like any other sector? One issue is that excessive competition may erode the charter value of a bank – that is, its value as a going concern – and create incentives to take excessive risks: when there is not much to lose, there is a tendency to gamble. This tendency is accentuated in the presence of limited liability, which restricts the losses but not the gains. As is well understood, zombie institutions, distressed and barely alive, may awake to gamble for resurrection, using very risky strategies with scant chance of success.

Another, obvious, problem is that systemic failure of banking may create large real costs, or even grind an economy to a halt. Arguably, this is what happened during the Great Depression, and it is a concrete threat nowadays. No sensible government will allow this to happen if it can prevent it. In recognition of the risks of a systemic crisis, banks are strictly regulated and supervised to a larger extent than other sectors in the economy. Policy-makers should also recognise the uniqueness of the banking sector as regards to competition policy. In other words, we should reconsider whether some degree of market power could be tolerated, and define conditions under which some limits to competition could be established. Regarding mergers, one should consider whether the standard concentration thresholds – which, roughly speaking, proscribe unions that would create a company with market share above a certain level – should be modified in banking. More market power may make a merged entity more prudent but if the bank becomes systemic and "too big to fail" then the outcome may be excessive risk taking. State aid rules should account for the need for swift intervention when there is a systemic problem, and should be adapted to the specific restructuring needs of banks. By the same token, rules should strictly limit activities of severely distressed institutions, as these have the stronger incentives to gamble for resurrection. The same should apply to institutions that are de facto fully insured, because they are "too big to fail".

The view that banking is like any other sector in the economy and should be treated as such in all circumstances is naïve. In addition to what we have already discussed, moving somewhat away from it would have the following important benefit: it would contain the risk that adding ex post some flexibility to competition policy for banking would automatically relax the standards for other sectors. Partial exceptions to the competition policy regime for the banking sector would be founded in its systemic position in the economy.

As stressed by Vives (2008b), recognising the singularity of the banking sector would allow Europe's competition policy to retain its fundamental role of keeping markets open and protecting the single market: these goals are today under threat because of the uneven playing field generated by banking bailouts that have activated lobbies from other sectors to seek help based on horizontal equity considerations. There is a danger in the alternative of remaining or becoming pragmatic and flexible – today with banking, tomorrow with another sector, that is, making competition policy progressively weaker and weaker. Arguably, the Great Depression was aggravated by the protectionist, anticompetitive spiral that ensued. This mistake can and should be avoided.

A massive bailout will not provide a solution for all the problems raised by the crisis. First, it would not necessarily prevent a credit crunch. We have stressed above that the contraction of credit is mostly driven by the collapse of trade in market-based instruments, not by bank lending. A bailout can hopefully avoid a financial meltdown, but could be effective against a possible credit crunch only to the extent that restoring market liquidity helps halt the turmoil in market-based credit, thus recreating conditions for markets to provide financing.

Second, for a variety of (politico-economic) reasons, a massive bailout could create zombie banks, i.e., it could result in the survival of insolvent banks that would use massive liquidity injection to maintain non-performing assets on their balance sheets. Arguably, the experience of Japan shows that this could ultimately jeopardise a speedy resolution of the crisis. Banks without a large enough probability of survival should simply not be recapitalised but closed down or, if too large to disappear, taken over by the government, split, restructured and merged with others.

Third, a massive bailout could raise the temptation to protect national champions and restore state aid as a normal instrument of “industrial policy”.<sup>16</sup> In the European Union, this risk has potentially important negative implications for the single market. But the political call for extending the bailouts to industries other than the financial one (e.g., cars) is a global phenomenon. In Box 2.9, we discuss reasons why the specific feature of the financial industry should be emphasised as the foundations of a differential treatment in the case of crisis, consistent with competition policy principles.

## 4. Restoring stability and reforming the international financial architecture

### 4.1 General lessons from the crisis

What are the main lessons to be drawn from the crisis? In this section we single out a few lessons from our analysis, and relate them to broad-based principles for strengthening the stability of the international financial system after the current crisis. Our considerations refer to the following four points: central bank policy, banking regulation, market regulation, corporate governance/incentive systems.

**Central banks’ policy and mandate.** Monetary authorities have been criticised for keeping interest rates too low for too long in the years preceding the onset of the crisis, thus either feeding asset market bubbles, or failing to act to stem them. Yet, there is little or no consensus in monetary theory and policy analysis on whether and how central banks should react to strong asset price dynamics, and the extent to which interest rate policy is an efficient way to address the issue. It would be difficult to draw any conclusion regarding specifically the monetary policy reaction function.

However, it seems clear that central banks should have a mandate for maintaining financial stability. In some cases this mandate is formally already in place. But the current crisis clearly requires a reconsideration of past strategies and experiences, especially as regards the role of the analysis of balance sheet quantities in shaping monetary decisions. The explicit recognition of the importance of monetary analysis in the strategy of the European Central Bank has been seen as a potential advantage of this institution relative to others, which have sharply focused on inflation targeting. Nonetheless, the analysis of the evolution of monetary aggregates in relation to the risk for inflation may not be effective or sufficient for identifying threats to financial stability – on which the ECB has limited or no jurisdiction. It is reasonable to expect some important development in the direction of restructuring central banking so as to address these issues (see e.g., Adrian and Shin 2008a,b, Buiters 2008).

For a year and a half, the too-big-to-fail argument has driven massive government support to private institutions, confirming the expectations of bailouts *ex post*. Central banks found it necessary to extend their lender of last resort facilities outside the realm of traditional commercial banks to entities like Bear Stearns that they do not supervise and, therefore, over which they have no first-hand information (see e.g., Buiters 2008, Buiters and Sibert 2008a, and Vives 2008a). In this respect, early Fed interventions in support of the investment bank and other similar institutions are not consistent with Bagehot’s doctrine of helping illiquid but solvent institutions (see Vives 2008a).

The basic lesson emphasised by the crisis is that any institution that does maturity transformation is subject to runs and needs the coverage of a lender of last resort and, therefore, cannot escape supervision.

<sup>16</sup> See Chapter 4 in our 2008 EEAG report.

**Banking regulation.** In the years preceding the onset of the crisis, the shadow banking system grew at extraordinary rates within and across borders, linking different markets in a global network of intermediaries. Many of these perform the basic functions of a bank – maturity transformation and monitoring of opaque loans – without being regulated as such.

The second lesson from the crisis is that any institution that performs the function of a bank needs to be regulated and needs a safety net because of the systemic concerns from its failure. This is particularly so for large institutions that occupy a central place in the financial system, for which the TBTF doctrine applies more forcefully. Because of the presence of these institutions in global markets, global regulatory standards should be set with internationally coordinated supervision.

A third lesson is that a piecemeal approach to financial regulation will not work: what is needed is a clear alignment of incentives covering the overall system and in particular every step from the board room to the customer going through executives, analysts, salespeople and rating agencies.

With Basel II, the foundations of banking regulation rest on three pillars: risk-based capital requirements, supervision and market discipline (disclosure). Relative to Basel I, the new framework has disciplined the treatment of some types of off-balance sheet activities, and has included an attempt to weight different risks towards the satisfaction of the capital requirement. Still, this framework did not prevent the accumulation of large risks in offshore conduits not included in the balance sheets, which turned out to be a major problem for German banks. The new framework neither tackles systemic risk (whose underestimation has arguably played an important role in generating the crisis), nor prevents adverse pro-cyclical lending effects of regulation (effects that are currently generating concerns about a possible credit crunch). Some countries, such as Spain, regulated banks more strictly and forced them to accumulate reserves in excess of the Basel requirement, but this was on their own initiative.

The core problem remains risk assessment. We have already discussed the potential failure and limits of internal models. The crisis also made clear that agency problems can severely distort the performance and effectiveness of rating agencies. Rating agencies are bound to underprovide “transparency”

when paid by issuers of assets rather than investors. Their role should thus be redesigned so to make sure that no conflicts of interest interfere with their activities.

Transparency in the form of risk disclosure and information to investors is enhanced by accounting rules that require intermediaries to mark-to-market their asset. The crisis has nonetheless confirmed ex post early concerns that asset price distortions in periods of market illiquidity would misrepresent risk in the balance sheet of the intermediary. Note that, by symmetry, one should recognize that similarly dangerous distortions arise in periods of “irrational exuberance” and bubbles causing asset overvaluation: possible solutions to the problem should tackle both cases.

Modifying the accounting rules going back to less transparent standards would hardly help. Regardless of accounting rules, agents are well informed about the current market conditions, i.e., about the extent of illiquidity, or exuberance. Reducing the information on a bank’s assets only raises uncertainty and speculation. What instead can make a difference is to make sure that banks pursue prudential standards, with rules that reverse adverse cyclical patterns in banks’ behaviour. An instance of these rules consists of prescribing higher accumulation of reserves in periods of strong price dynamics – as was the case for Spanish banks in the years of booming housing prices, thanks to the wisdom of the Bank of Spain.

Despite the effort placed in designing good rules, the effectiveness of prudential regulation and supervision can be expected to be systematically impaired by financial innovation. New instruments can create loopholes and opportunities for regulatory arbitrage. In view of this consideration, many observers recently have increasingly focused on limited liability as the root of moral hazard. Limited liability raises the temptation for equity holders of a bank to engage in large risky bets, as they are able to appropriate the full extent of the profits in case of success, while shifting the cost of failure onto other stakeholders (including society at large). As is well known, this problem is exacerbated in crisis periods, when equity holders may hope to restore the economic viability of the bank with some ultimate stroke of luck.

There is widespread consensus that new rules should guarantee higher capitalisation of financial intermediaries and avoid the combination of high leverage

and dependence on short-term financing that jeopardised the viability of the international financial system in 2007 and 2008. A possible approach in principle consists of directly raising the minimum equity-asset ratios. The argument is that with more equity capital at stake, shareholders will require their boards to adopt more prudent business models, as they would suffer higher losses in the case of failure, containing the inefficiency resulting from the ability to impose part of the losses on creditors or tax payers would be. However, in light of Basel II and the crisis, it is clear that the main issue is not so much a numerical requirement for the equity ratio, but how the value at risk of a bank is assessed.

**Market regulation.** Transparency is the key concern in reforming the regulation of financial markets. With the extraordinary development of market-based credit, an over-the-counter (OTC) organisation of trade resulted into generalised opacity. To wit, in our account of the crisis, markets appeared to react strongly to the introduction of the ABX derivative market for mortgage backed securities, which for the first time provided aggregate information about market evaluation. Market regulation can be expected to (and should) foster a shift from OTC to organized exchanges, with clearing houses assuming counterparty risk.

More controversial is the adoption of rules limiting alleged destabilising practices, such as short sales. Should short-sales restrictions be part of market rules, if only to be invoked contingent on some well-defined market conditions? An important concern motivating such rules consists of market manipulation, since when there is no ability to manipulate the market the possibility to short sell should be efficiency enhancing. Furthermore, in those circumstances short-selling *reduces* volatility by bringing today's prices more in line with tomorrow's prices, whenever the latter are expected to fall.

**Corporate governance.** The “new attitude” towards corporate governance is summed up well by the famous quote of Alan Greenspan:

“I made a mistake in presuming that the self-interest of organisations, specifically banks and others, was such that they were best capable of protecting their own shareholders” (A. Greenspan, 23 Oct. 2008).

This late confession is bound to have an impact on the current debate among academics and practitioners.

Namely, should we consider the crisis to be the result of a paradigm failure (shareholder value), or rather should we see it as the consequence of failure in the current system of corporate governance? We tend to side with the latter interpretation.

The moral hazard distortions already discussed in relation to limited liabilities of equity holders can clearly be referred to executive compensation schemes, rewarding generously good performances in the short run without punishing losses at any horizon. These distortions can be corrected by realigning managers' incentive with the interests of the shareholders and a firm's stakeholders at large. Proposals discussed in this respect include the reduction or elimination of cash bonuses and resorting to compensation in the form of restricted shares, to be held for years after leaving the firm.<sup>17</sup> Whether these proposed corrections to past and current practices are efficient, however, is an open question.

#### 4.2 Problems and perspective of reforms of the European financial architecture

The crisis created the first true stress-test of the European financial and monetary architecture. In this architecture, the European Central Bank occupies a unique position to address liquidity issues at the euro-area level and preventing gridlocks in the payment system. However, it is up to the national central banks to provide emergency liquidity to individual institutions. Furthermore, as discussed in the 2003 EEAG report, banking supervision in the euro area is in the hands of member states, according to the home country principle. The same home country principle applies to deposit insurance. Corresponding to the fragmentation of supervision and deposit insurance, there is fragmentation of market regulation.

The response to crises is de facto left to “improvised cooperation”. In May 2005, the European Union agreed on a financial crisis plan, through a memorandum of understanding between central banks, regulators and finance ministries. In light of this agreement, but only as late as May 2008, ECOFIN invited the EFC to organize an EU-wide crisis simulation exercise for spring 2009 to report in September 2009.

This architecture suffers from at least four well-known problems. *First*, the line of command in a crisis situa-

<sup>17</sup> The chapter on private equity in this report discusses the benefits of compensation schemes rewarding performances in the medium run.

tion is left unspecified. Who is responsible for which action if a large pan-European bank with systemic interconnection is threatened by a liquidity run? The large number of institutions with a direct or indirect role in a rescue is so large that even communication among them could in principle translate into a waste of valuable time, hampering speedy reactions to incipient crises. *Second*, trans-national crises are likely to create conflicts among national agencies and treasuries, which will require a (possibly time-consuming) political arrangement. Not only could this delay initiatives whose success crucially depend on their timing, but these conflicts could also generate dangerous setbacks in other areas of cooperation, indirectly relevant to the financial turmoil as indicators of cohesion. *Third*, such architecture is bound to lead to excessive help at the country level and insufficient help at the EU level, hampering the development of a single market and cross-border institutions. Namely, and this is a *fourth* problem, the current framework provides no effective guideline for how to provide liquidity support and address solvency problems of pan-European institutions.

How could the framework be improved in light of recent experience? It seems apparent that crisis resolution cannot be left to a memorandum of understanding, i.e., de facto improvised cooperation, but it requires a more explicit framework. In this framework, the European System of Central Banks should assume an explicit role of guarantor of the system. In particular, it makes sense that the European Central Bank should acquire supervisory powers over European groups, and coordinate with national central banks the national financial intermediaries.

A readily possible reform could pursue the construction of a two-tier system. For pan-European financial groups, supervision should be attributed to the European Central Bank. These groups should then be required to subscribe to a European Deposit Insurance Fund, to complement national deposit insurance schemes. This does not solve all possible conflicts about commitment of public resources by member states to rescue a European bank. But it could definitely help address solvency problems and provide centralised resources and information to be used in the restructuring of distressed banks. All other institutions could be left to decentralised supervision and support, although it would be natural to foster some form of coordination and information sharing within the ESCB. However, the extension of the power of the ECB would of course

not address issues raised by the internationalisation of banks outside the euro area – experienced for example by banks operating in the UK and some of the countries adopting the euro.

As discussed in Box 2.8 it would also be important to recognise explicitly and formally the specificity of the banking sector in competition policy. This would ensure coherence between competition policy and financial stability policy, and help stem the political pressure to extend financial bailouts to other sectors of the economy.

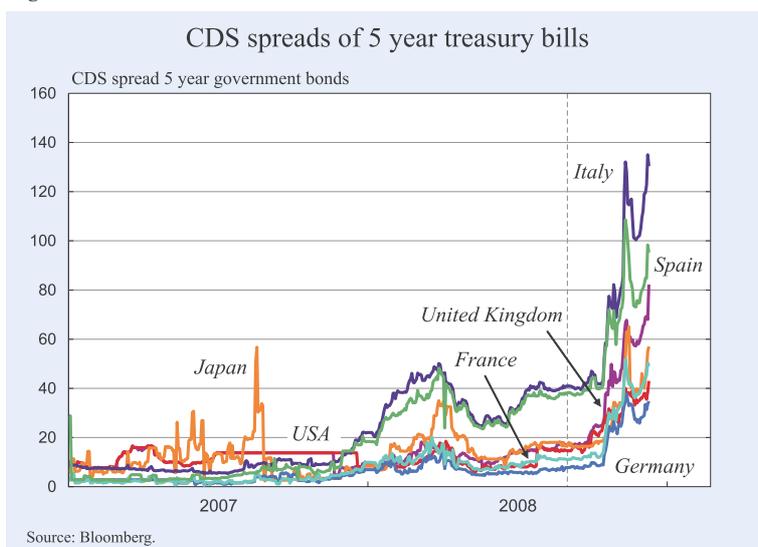
Ten years into the introduction of the euro, the global turmoil has challenged our thinking on optimal currency areas, stressing the need to understand financial stability preconditions for adopting a common currency without political union. Not only inefficient provision of the public good of financial stability appears to be a threat to the balance of benefits from a common currency; it may also create and magnify political divides. In fact, the main issues at stake are only in part technical. The resolution of the crisis will require political initiatives that address international policy cooperation and institution building. In this sense, the future of Europe is at the cross-roads.

### 4.3 Fiscal policy and the financial crisis

Before this crisis, scepticism on fiscal policy as a stabilisation tool dominated the intellectual and policy debate. Quantitative fiscal interventions were considered irrelevant if not counterproductive. Monetary policy was instead praised as the main stabilisation tool, effective and flexible. With the crisis, this climate has completely turned around, with a spectacular “rediscovery” of fiscal policy (see our discussion in chapter 1). The call for commitment of public resources is almost universal. Governments are supposed to spend to restore the health of the financial system and sustain growth. The Keynesian multiplier in its simplest form is shaping the political debate, with parametric exercises assuming a value in the range between 1 and 2 – extremely high given the empirical evidence – but nonetheless deemed acceptable on the grounds that the current situation is unprecedented. This commitment of public resources is mirrored by market assessment of default risk.

Figure 2.13 shows the spreads for the credit default swaps for 5 year bonds issued by 7 governments – US,

Figure 2.13



the UK, Japan, Germany, France, Italy and Spain. The spike in the market perception of sovereign risk is apparent in autumn 2008. Note that the premium on Italy and Spanish euro-denominated debt, very low at the onset of the crisis, already rises at the end of 2007 – in the case of Italy, arguably because of the high public debt; in the case of Spain, because of the contraction in the housing sector after the recent large boom. Most striking is the case of the UK, whose premium moves much closer to that of Spain and Italy, in October 2008 – this move is accompanied by a sharp depreciation of the pound. Within the euro area, interest differentials among sovereign borrowers have risen to levels unseen for more than a decade.

The high level of the premia shown in the graph clearly reflects market apprehension about the state of public finances in the face of the rapidity in the deterioration of all economic indicators in autumn 2008, motivating a generalised flight to quality.

The state of government budgets is in fact emerging as the key dimension to understanding the dynamics of the crisis at a global as well as at a country level. As an important instance, the implications of the flight to quality are actually strongest for small countries with independent currencies, whose intermediaries are highly leveraged in international markets, hence potentially exposed to the crisis but without a large tax base and/or the fiscal capacity to back their external liabilities – as is the case of Iceland (see Buiter and Sibert 2008b and Portes 2008). Arguably for a similar reason, the effects of the flight to quality are apparent for countries exporting commodities that suffer from a strong

negative terms of trade shock, due to the sharp fall in commodity prices triggered by the crisis which in most cases erodes the core sources of their public revenues.

Interestingly, in the euro area, large international banks in crisis have eventually been broken up into independent national institutions, arguably as a function of the bailout resources and guarantees that each independent state in the area is able to provide. In this sense, the effect of the crisis on banking size and competition has been quite different in the euro area relative to the US. In

the euro area, the crisis has reversed the movements towards the development of pan-European financial intermediaries. In the US, mergers and bailouts have created larger intermediaries, while at the same time shifting the weight in favour of universal banking (Angeloni 2008).

What if the size of the bailout of financial intermediaries, and the fiscal support to the economy, ends up deteriorating the balance sheet of governments beyond their political ability to engineer a correction via higher tax revenues and spending cuts? Could this lead to a reconsideration of the trade-off between fiscal distortions and inflation in favour of the latter? We first reconsider how inflation can help correct budget imbalances.

In their celebrated model of “unpleasant monetarist arithmetic”, Sargent and Wallace (1981) stress the link between a permanent deterioration of fiscal deficit, and the role of inflation in generating real resources for the public sector – seigniorage. A steady monetisation of the public debt raises inflation and nominal interest rates: unless the economy operates on the “wrong side” of the Laffer curve, rising inflation increases seigniorage revenue. While the intellectual merit of this model cannot be overemphasised, however, there are empirical and theoretical arguments that cast doubts on seigniorage revenue as a meaningful source of public revenues. Nobody can seriously consider the option of pursuing an increase in long-run inflation to this end, simply because there would be very little gains from it.

Recent literature has indeed shifted attention to other possible fiscal gains from temporary and possibly moderate inflation, which operate via devaluation of nominal liabilities of the government. A striking example of an assessment of these gains is provided by Persson, Persson and Svensson (1998), with a case study of the potential benefits of moderate inflation on the Swedish budget. The same idea is at the core of the models by Burnside, Eichenbaum and Rebelo (2001) and Corsetti and Mackowiak (2006) in their study of the link between (prospective) deficits and currency crises. In these contributions, a currency crisis cum temporary inflation occurs when agents anticipate large future deficits that will not be adjusted by explicit taxes or cuts in spending – in the first study the information used by agents to predict the large future deficits is precisely the state of the financial sector, in particular of the banking system (see also Corsetti Pesenti and Roubini 1999). A crisis depreciating the currency and raising the price level lowers the real value of outstanding nominal liabilities and spending commitments in nominal terms, so as to balance the intertemporal budget of the public sector. Key to this argument is the recognition that most of government liabilities, both in the form of debt and in the form of commitments to future spending, are only partially indexed, if at all, to inflation. Then, an *unexpected* change in the price level, achieved with temporary inflation, amounts to a cut in real spending and a reduction in the real burden of debt.

Based on these considerations, many contributions have suggested that, in response to a large negative fiscal shock, countries face a trade-off between adjusting (distortionary) tax rates and (useful) spending, and a temporary increase in inflation.<sup>18</sup> Yet we should note here that the efficiency of moderate inflation in redressing fiscal issue is heavily dependent on the ability of the central bank to maintain credibility. If this is lost in the process, the balance of costs and benefits from the policy may well tilt in favour of the former. Obviously, deteriorating inflation expectations usually generate a premium raising the costs of borrowing.

These trade-offs in raising resources through moderate inflation has an interesting institutional counterpart. On the one hand, this option is more readily available in countries where the fiscal and monetary authorities are not entirely independent, for it is trivially easier to coordinate monetary and fiscal policies

<sup>18</sup> See e.g., chapter 24 in the macro textbook by Ljungqvist and Sargent (2004).

when both are ultimately handled by the same institution. Marimon (2008) recently argued that China is in this position, and Sims (2008) provides some evidence to the extent of interdependence between US public finances and Fed's balance sheet. For exactly these reasons, however, inflation expectations may deteriorate more quickly in a crisis situation. On the other hand, regions in which the central bank is truly independent and has a clear mandate for price stability, as is the case in the euro area, have much less flexibility of the type reviewed above for using inflation to address public sector budgetary concerns. Yet this may anchor market expectations better, leaving more room for such policies.

From a macro perspective, the foregoing arguments suggest that, at least in some countries in which central banks are not fully independent, it may be possible to witness some inflationary pressures resulting from balance sheet interactions, were public budgets to deteriorate sharply. In a severe fiscal crisis situation, however, even central bank independence would be sufficient to counteract inflationary pressure from fiscal instability. If prospective deficits are perceived by the public as too large relative to the current value of outstanding debt, either government debt will experience credit rationing, facing the alternative between retrenchment and default, or the price level will carry the adjustment via depreciation of nominal debt. Were the crisis to require a large financial sector bailout, it would not be unreasonable to expect some adjustment in the price level, taxing the holders of the government's nominal liabilities. These fiscal benefits would of course be counterbalanced by whatever distortionary costs, including fiscal costs, inflation may generate.

Once again, one obvious danger is that inflationary financing, whether pursued as an explicit policy or implied by fiscal instability, would undermine the credibility of monetary policy for years to come. Another danger is that any explicit choice for inflationary financing would also motivate some form of financial repression (such as caps on interest rate), which would enhance the fiscal benefits from the choice, at least in the short run.

## Conclusions

This chapter has conducted a broad analysis of the current financial crisis. To begin with, we have analysed the process of securitisation of subprime mort-

gages in the US. Through this process, cash flows from heterogeneous mortgage contracts between borrowers and banks were transformed into homogenous asset backed securities (ABSs), with distinct rating, traded in global markets. Per se, securitisation is a good idea: by favouring diversification of mortgage risk, it can allow intermediaries to increase lending, to the benefits of households and firms. However, because of a combination of macroeconomic factors, bad/insufficient regulation and agency problems, in the last few years this process was fundamentally flawed. First, massive undervaluation of fundamental risk and market liquidity risk caused the amount of ABSs with AAA rating derived from the underlying pool of mortgages to be too large by any reasonable standards; second, several layers of securitisation, each involving some form of credit enhancement and insurance, translated into high opacity of ABSs, which hampered the ability of an intermediary to assess the amount and the location of risk in its portfolio; finally, risk diversification was only apparent, in the sense that the high-rating ABSs sold to end-investors (pension funds, mutual funds, etc) were guaranteed by intermediaries – when the crisis erupted, in large part ABSs were absorbed back by highly leveraged financial institutions. With a high level of opacity, diversification of ABSs among intermediaries actually created systemic risk, by generating dangerous network externalities which eventually undermined market liquidity for many classes of assets and financial markets.

Looking at the development of the crisis, we distinguish two distinct phases. The initial phase, from 2007 to the summer of 2008, is consistent with a model/expectations of a soft-landing. Over many months into the crisis, markets and policymakers tended to attribute the crisis to liquidity, rather than solvency problems: estimates of fundamental losses were relatively small. On the macro side, there were expectations of a financial-real decoupling as well as growth decoupling – initially, the crisis left many market unscathed, and emerging market economies and to some extent the EU were expected to continue to grow independently of cyclical development in the US. Monetary authorities granted unlimited liquidity provision to financial intermediaries, while governments adopted a case-by-case approach to bailout (Bear Stearns being the primary example). The main idea, or hope, was that over time the financial system would find ways to digest and eliminate the “toxic assets” in the balance sheets of the intermediaries, matching write-downs with re-capitalisation.

Perhaps unfortunately, this approach appeared to work for some time. While banks were indeed able to raise new equity, the US kept growing, in part driven by a weak dollar and global demand, correcting the external deficit despite the peak in oil prices. Global growth remained high. But the scenario completely changed in the summer of 2008, when it became clear that fundamental losses were much larger than suggested by early estimates, and hopes for financial/real decoupling and growth decoupling vanished. The market response to the US decision to let Lehman Brothers go bankrupt, while saving AIG, dramatically showed the inadequacy of a case-by-case approach to the crisis. A generalised run on financial intermediaries and a large fall in asset prices marked the beginning of the deleveraging cycle and a large contraction in global economic activity.

The soft-landing scenario in the first months of the crisis was arguably an illusion. Had expectations of growth and real financial decoupling been less optimistic, perhaps policymakers would have intervened more swiftly and comprehensively early on, preventing market illiquidity from eroding progressively the value of banks’ assets well beyond the toxic ABSs.

At the end of 2008, governments worldwide had to adopt emerging measure to stem incipient runs on commercial banks; commit the largest resources to bank bailout and the cleaning up of the balanced sheets of financial intermediaries; and attempt to design effective plans to resurrect market activity and guarantee market liquidity.

With the deepening of the crisis, the strain on government budgets is apparent. Large quantitative fiscal stimulus is called for in the hope that it will have a strong multiplier effect on output. Combined with the cost of bailouts, the next few years will record a sharp increase in public debt and deficits. There are reasons to be cautious in assessing the effect of the stimulus on the real economy. The multiplier effects of government spending and tax cuts may be quite contained, especially in light of uncertainty about economic conditions that may induce precautionary saving by households. Large interventions do increase uncertainty about the tax burden, and the associated distortions in the economy (as it may have been the case in Japan since 1995). There is even the possibility that large interventions paradoxically exacerbate the fall in consumer and business confidence, by conveying the message that the crisis is far worse than expected.

While one may argue that even a small multiplier makes spending valuable when output is in free fall, the ongoing massive transfer of risk from the private to the public sector may in fact destabilise the trust of markets in sovereign debt. Not only would this raise the cost of the interventions; it could also create the temptation to return to forms of financial repression and/or public control of financial intermediation. Possible short-run benefits from such moves would, however, run into the cost of inefficiency over the medium and long run, as is vastly documented by the literature.

It is hard to see a way out of the current crisis without creating the conditions for a new, stronger and more stable, international financial system. While the temptation to go back to the golden days of plain over-regulated commercial banking may seem attractive, it is doubtful that this model would be feasible and desirable in a globalised economy. Rather, the crisis has planted the seed for a deep reform, addressing the gap between markets on the one hand and institutions and rules on the other.

Proposals of reforms abound. In this chapter, we have focused on deriving a small set of lessons from the crisis towards the definition of broad-based principles to follow in correcting the flaws in the system. The merits of different proposals do not necessarily lie in their being radical but in their consistency with the ultimate goals of public governance of financial system.

Some of these lessons are shared by many other institutions and scholars. Intermediaries that, like banks, engage in maturity transformation and are exposed to liquidity runs should be subject to the same principles of regulation and supervision as banks. Regulation and supervision is motivated by the implicit government commitment to bail out the intermediaries when their default would have systemic effects and negative externalities on the payment system. Bankruptcy of commercial banks threatens the payment system directly, via its implications for depositors. For other intermediaries, one argument is that such threat is rooted in the network externality, via the systemic implications of their bankruptcy for market liquidity and the balanced sheets of other intermediaries. Indeed, with the subprime crisis, trust among banks evaporated: the interbank market virtually disappeared. A different view is that the activities of these intermediaries grew into a threat to financial stability *because* bailout guarantees according to the too-big-

to-fail doctrine provide an incentive for them to grow excessively, take on excessive risk and become too leveraged. However, unless these guarantees can be eliminated completely – which is not credible in light of past and recent experiences – it is rational to associate the provision of contingent public resources to regulation and supervision.

Thus, a first lesson is that investment banks, as well as any other institution that perform bank functions must be subjected to the same rules that apply to commercial banks. The regulatory constraints should be dependent on the type of business rather than the legal status of the bank that pursues this business. This applies in particular to capital requirements.

Second, broad international agreements must be finally reached on the harmonisation of banking supervision. These agreements can be based on a reformed Basel-II system, which encompasses all institutions performing banking functions and takes into account systemic and cyclical factors. Minimum equity requirements in Basel II should be reconsidered, so as to increase the incentive for shareholders to pursue more prudent business models and choose more conservative incentive schemes for bank managers. In any case, failures of corporate governance controls and pitfalls in executive compensation should be addressed.

The apparent failure of the current system to elicit the use of proper models of risk assessment by intermediaries and guarantee transparency is perhaps the main sticky point for rebuilding trust in the financial system. Simply increasing a coefficient of equity requirement will not do. What matters is instead a standard of asset valuation that (eventually) addresses the main problems in prudential regulation: the possibility of mispricing due to bubbles and market illiquidity, generating non-fundamental volatility of asset prices; procyclicality of lending; and transparency and information to investors.

Third, whenever possible, derivative products, such as CDS, should be traded in transparent organized markets and not in opaque OTC markets. A common argument is that, while centralised trade may be feasible for some derivative products, many others are specialised and designed specifically for an investor/company, so that no organised market would be economical. However, following the recent problems of marking to market when no market exists, those buying such products probably now realise a major benefit

from having centralised, transparent and liquid markets for derivatives. The specific needs of customers, in many cases, can probably be addressed by forming appropriate portfolios of existing contracts traded on liquid markets. By the same token, short sales should not be prohibited; instead vigilance of potential market manipulation should be enhanced.

Fourth, Europe needs a common system of financial regulation and supervision. The European System of Central Banks should assume an explicit role of guarantor of the system, acquire supervisory powers over European groups and coordinate with national central banks the national financial intermediaries. We propose a two-tier system. For pan-European financial groups, supervision should be allocated to the European Central Bank. These groups should then be required to subscribe to a European Deposit Insurance Fund to complement national deposit insurance schemes. Otherwise countries should individually have the responsibility for bearing losses created by their own intermediaries.

Fifth, the specificity of the banking sector in competition policy should be recognised explicitly and formally. This would ensure coherence between competition policy and financial stability policy and help stem the political pressure to extend financial bailouts to other sectors of the economy.

Furthermore, it is highly advisable to reconsider limited personal liability limitations for mortgages and other real-estate loans where they exist (such as in the United States). The promotion of house ownership should be examined carefully from a financial point of view, given the potential systemic implications of incentives raising the risk profile of borrowers against public guarantees.

#### List of abbreviations:

AAA	Triple-A credit rating
ABCP	Asset backed commercial paper
ABS	Asset-backed security
ABX.HE	An index of asset-backed securities
AIG	American International Group
Alt-A	Alternative A-paper
ARM	Adjustable rate mortgage
CDO	Collateralised debt obligation
CDS	Credit default swap
CFG	Caballero, Fahri and Gourinchas
CMBS	Commercial mortgage backed security
CMBX	An index of commercial mortgage-backed securities
ECB	European Central Bank
FDIC	Federal Deposit Insurance Corporation
FHA	Federal Housing Administration
FSLIC	Federal Savings and Loan Insurance Company
GSE	Government sponsored enterprise
HEL	Home equity loan
ISDA	International Swaps and Derivatives Association
LIBOR	London Interbank Offered Rate
LTCM	Long-Term Capital Management
MBS	Mortgage backed security
M-LEC	Master-Liquidity Enhancement Conduit
OTC	Over the counter
PDFC	Primary Dealer Credit Facility
RTC	Resolution Trust Corporation
RMBS	Residential mortgage backed security
SEC	Securities and Exchange Commission
SIV	Structured investment vehicle
SPE	Special purpose enterprise
SPV	Special purpose vehicle
TAF	Term Auction Facility
TED	Treasury–Eurodollar Deposit
TBTF	Too big to fail
TSLF	Term Securities Lending Facility

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## Appendix:

## The chronology of the financial crisis

Market events	Date	Policy actions
	February 7, 2007	US Senate Banking Committee holds hearing on predatory lending in subprime sector.
HSBC losses top \$10.5 billion. Head of HSBC US mortgage-lending business is fired.	February 22, 2007	
	March 7, 2007	The Federal Deposit Insurance Corporation issues a cease-and-desist order against subprime lender Fremont Investment & Loan, which had been "operating without adequate subprime mortgage loan underwriting criteria".
Donald Tomnitz, the CEO of D. R. Horton, the largest US homebuilder, tells investors: "I don't want to be too sophisticated here, but 2007 is going to suck, all 12 months of the calendar year."	March 8, 2007	
Lenders to New Century Financial, a large subprime lender, cut off its credit lines. Trading in its shares is suspended by the New York Stock Exchange.	March 12, 2007	
Subprime lender Accredited Home Lenders to sell, at a heavy discount, \$2.7 billion of loans.	March 16, 2007	The New York Attorney General announces an investigation of subprime lending.
New Century Financial files for bankruptcy.	April 2, 2007	
The National Association of Realtors announces that existing home sales fell 8.4% during March, the greatest drop in 18 years.	April 24, 2007	
GMAC, the finance arm of General Motors, reports losses of \$1 billion. UBS closes its US subprime business.	May 3, 2007	First comprehensive plan to help homeowners avoid foreclosures presented in US Senate.
	June 6, 2007	The Bank of England reduces the overnight bank rate by 25 basis points to 5.5%.
Bear Stearns injects \$3.2 billion into two of its hedge funds hurt by falling CDO prices.	June 22, 2007	
	July 4, 2007	UK authorities take action against five brokers selling subprime mortgages.
All three major credit-ratings agencies announce review of subprime bonds.	July 10, 2007	
General Electric to sell WMC Mortgage, its subprime lending business.	July 13, 2007	
US housing starts down 20% from the previous year.	July 18, 2007	
	July 20, 2007	Federal Reserve chairman Ben Bernanke gives a warning that the US subprime crisis could cost up to \$100 billion.
The two Bear Stearns hedge funds that were under stress file for bankruptcy protection.	July 31, 2007	
American Home Mortgage, one of the largest US home-loan providers, files for bankruptcy.	August 6, 2007	
BNP Paribas suspends three investment funds hit by subprime crisis.  AIG warns that mortgage defaults are spreading beyond subprime sector.	August 9, 2007	
The interest rate on 15-day triple-A asset-backed commercial paper hits 6.14% for a historic high.	August 10, 2007	The ECB provides €61 billion of funds for banks. The Federal Reserve says it will provide as much overnight money.
Goldman Sachs to pump \$3 billion to rescue a hedge fund.	August 13, 2007	The ECB and central banks in the United States and Japan continue supplying liquidity to markets.
Countrywide draws down its \$11.5 billion credit line.	August 16, 2007	
	August 17, 2007	The Federal Reserve cuts the primary discount rate to 5.75%, warning the credit crunch could be a risk to economic growth.
Four large US banks announce coordinated borrowing of \$2 billion from the Federal Reserve's discount window.  Bank of America purchases 16% of Countrywide Financial for \$2 billion.	August 23, 2007	

Market events	Date	Policy actions
German regional bank Sachsen Landesbank faces collapse after investing in the subprime market; it is sold to larger rival Landesbank Baden-Wuerttemberg.  The S&P/Case-Shiller Home Price Index for the second quarter 2007 is down 3.2% from a year earlier, the greatest drop in the 17-year history of the index.	August 28, 2007	
Subprime lender Ameriquest files for bankruptcy.	August 31, 2007	
IKB, a German regional lender, records \$1 billion loss due to US subprime market exposure.	September 3, 2007	
The rate at which banks lend to each other rises to its highest level since December 1998; banks either worry whether other banks will survive or urgently need the money themselves.  Bank of China reveals \$9 billion in subprime losses.	September 4, 2007	
The delinquency rate on FHA mortgages on one- to four-family houses reaches 5.1% in the US, according to the Mortgage Bankers Association.	September 6, 2007	
Global Alpha, a hedge fund managed by Goldman Sachs, reveals that it lost 22% during August.	September 13, 2007	British mortgage lender Northern Rock has asked for and been granted emergency financial support from the Bank of England.
A run on the deposits of Northern Rock begins: Depositors withdraw £1 billion in what is the biggest run on a British bank in more than a century.	September 14, 2007	British government steps in to guarantee depositor savings of Northern Rock to stop bank run.
	September 18, 2007	The Federal Reserve cuts the federal funds rate by 50 basis points to 4.75%. This is the first cut since 2003.
	September 19, 2007	After previously refusing to inject any funding into the markets, the Bank of England announces that it will auction £10 billion.
UBS and Citigroup announce losses of \$3.4 billion and \$3.1 billion, respectively.	October 1, 2007	
The Dow Jones Industrial Average closes at 14,164, its all-time high.	October 9, 2007	
	October 10, 2007	The US government teams up with mortgage servicers and investors to launch the HOPE NOW alliance, to encourage the voluntary modification of adjustable-rate mortgages to fixed rates.
Citigroup, JPMorgan Chase and Bank of America, with the support of the Treasury Department, announce a plan to form a Master-Liquidity Enhancement Conduit (M-LEC) that would purchase asset-backed commercial paper from liquidation SIVs.	October 14, 2007	
Citigroup and the Japanese bank Nomura announce subprime losses of \$5.9 billion and \$621 million, respectively.	October 15, 2007	
The National Association of Home Builders confidence index hits 19, the lowest since the series began in 1985.	October 16, 2007	
Countrywide Financial reports a loss of \$1.2 billion for third-quarter 2007. This is its first loss in 25 years.	October 26, 2007	
Merrill Lynch announces losses of \$7.9 billion and the resignation of the CEO, Stan O'Neal.	October 30, 2007	
Deutsche Bank reveals a \$2.2 billion loss.	October 31, 2007	The Federal Reserve cuts the federal funds rate by 25 basis points to 4.5%.
Credit Suisse discloses a \$1 billion loss. Fed injects \$41 billion.	November 1, 2007	
Citigroup announces that its \$55 billion portfolio of subprime-related investments has declined in value between \$8 billion and \$11 billion. The CEO, Charles Prince, resigns.	November 5, 2007	

Market events	Date	Policy actions
Morgan Stanley and BNP Paribas disclose mortgage losses of \$3.7 billion and €197 million, respectively.  AIG writes down \$2 billion of mortgage investments.	November 8, 2007	
Wachovia announces \$1.7 billion loss.	November 9, 2007	
Bank of America announces \$3 billion subprime loss.	November 13, 2007	
Japan's second largest banking group, Mizuho, reports full-year operating profit fell 13%.  HSBC reports losses of \$3.4 billion.	November 14, 2007	
Barclays reveals \$2.7 billion loss.	November 15, 2007	The US House of Representatives passes the Predatory Lending and Mortgage Protection Act.
Goldman Sachs forecasts financial losses due to subprime crises at \$400 billion.	November 16, 2007	
The reinsurance company, Swiss Re, to lose \$1 billion on insurance of clients hit by subprime crises.	November 19, 2007	
Freddie Mac reports a \$2 billion loss.	November 20, 2007	
Freddie Mac and Citigroup raise \$6 billion and \$7.5 billion of capital respectively.  US house prices record biggest quarterly drop in 21 years.	November 27, 2007	
The Bank of England reveals the number of mortgage approvals has fallen to a near three-year low.	November 29, 2007	
	December 5, 2007	The New York Attorney General sends subpoenas to major investment banks to investigate subprime mortgage securitization.
UBS and Lloyds TSB report \$10 billion and £200m losses due to bad debts in the US housing market.	December 6, 2007	US President George W. Bush outlines plans to help more than a million homeowners facing foreclosure.  The Bank of England cuts interest rates by a quarter of one percentage point to 5.5%.
Washington Mutual subprime losses to reach \$1.6 billion.	December 11, 2007	The Federal Reserve lowers the federal funds rate by 25 basis points to 4.25%.
	December 12, 2007	The Bank of Canada, the Bank of England, the European Central Bank, the Federal Reserve and the Swiss National Bank announce measures designed to address elevated pressures in short-term funding markets. Actions taken by the Federal Reserve include the establishment of a temporary Term Auction Facility and the establishment of foreign exchange swap lines with the European Central Bank and the Swiss National Bank.
	December 13, 2007	The US Federal Reserve co-ordinates an unprecedented action by five leading central banks around the world to offer billions of dollars in loans to banks. The move succeeds in temporarily lowering the rate at which banks lend to each other.
Citigroup takes \$49 billion worth of SIV assets back on its balance sheet.	December 14, 2007	
	December 17, 2007	Federal Reserve makes \$20 billion available to commercial banks.
	December 18, 2007	The Federal Reserve Bank tightens rules on subprime lending.  The ECB lends European commercial banks \$500 billion.  The Bank of England makes £10 billion available to UK banks.

Market events	Date	Policy actions
As subprime losses reach \$9.4 billion, Morgan Stanley sells 9.9% stake in the company.  Ratings agency Standard and Poor's downgrades its investment rating of a number of monoline insurers. There is concern that insurers will not be able to pay out, forcing banks to announce another big round of losses.	December 19, 2007	
The spread of 15-day AAA asset-backed commercial paper over equivalent duration AAA non-financial commercial paper hits 173 basis points as banks scramble for funding through the end of the year. The spread is usually less than 10 basis points.	December 21, 2007	
The M-LEC plan to rescue struggling SIVs is abandoned by the sponsoring banks.	December 22, 2007	
US job losses in residential construction and mortgage lending for 2007 estimated at \$35,000.	January 4, 2008	
Bear Stearns reveals subprime losses of \$1.9 billion. The CEO, James Cayne, steps down.  The World Bank says that world economic growth will slow in 2008 due to subprime crisis credit crunch.	January 9, 2008	
Bank of America buys Countrywide for \$4 billion after its shares plunge 48%.  Merrill Lynch doubles projection of subprime losses to \$15 billion.	January 11, 2008	
Citigroup reports a \$9.8 billion loss for the fourth quarter, including \$18 billion loss in mortgage portfolio.	January 15, 2008	
Lehman Brothers withdraws from wholesale mortgage lending and will cut 1,300 jobs.	January 17, 2008	
Crisis of monoline insurers: Fitch Ratings downgrades Ambac Financial Group's insurance financial strength rating to AA, Credit Watch Negative. Standard and Poor's place Ambac's AAA rating on CreditWatch Negative.	January 18, 2008	
Global stock markets suffer their biggest falls since 11 September 2001.	January 21, 2008	
Stock markets around the world recover the previous day's heavy losses.	January 22, 2008	The Federal Reserve cuts rates by three quarters of a percentage point to 3.5% – its biggest cut in 25 years – to try and prevent the economy from slumping into recession. It is the first emergency cut in rates since 2001.
The French bank Société Générale announces that it lost €4.9 billion due to the unauthorized activity of one of its traders. While the bank closed out the trades of this trader during a holiday weekend in the United States, stock markets plunged round the world.	January 24, 2008	
Regularly scheduled auctions for municipal debt of the state of Nevada and Georgetown University fail due to lack of bidders and uncertainty about monoline insurers. The debt issuers are forced to pay a penalty rate.	January 30, 2008	The Federal Reserve cuts the federal funds rate by 50 basis points to 3.00%.
A major bond insurer MBIA, announces a loss of \$2.3 billion – its biggest to date for a three-month period – blaming its exposure to the US subprime mortgage crisis.	January 31, 2008	
	February 7, 2008	US Federal Reserve boss Ben Bernanke adds his voice to concerns about monoline insurers, saying he is closely monitoring developments “given the adverse effects that problems of financial guarantors can have on financial markets and the economy”.  The Bank of England cuts interest rates by a quarter of one percent to 5.25%.

Market events	Date	Policy actions
	February 10, 2008	Leaders from the G7 group of industrialised nations say worldwide losses stemming from the collapse of the US subprime mortgage market could reach \$400 billion.
	February 13, 2008	President Bush signs the Economic Stimulus Act of 2008. The Act provides approximately \$100 billion of tax rebates to be distributed during summer 2008 and \$50 billion of investment incentives.
UBS announces fourth-quarter 2007 loss of CHF12.4 billion (\$12 billion).	February 14, 2008	
Problems in the auction-rate securities market continue to spread; over 1,000 auctions fail this week. Investment banks do not allow investors to withdraw funds invested in those securities.	February 15, 2008	
	February 17, 2008	British government announces that struggling Northern Rock is to be nationalised for a temporary period.
AIG announces fourth-quarter 2007 losses of \$5.3 billion due to more than \$11 billion of losses on its credit-default swap portfolio.	February 28, 2008	
The delinquency rate on family mortgages was 5.82% during the fourth quarter of 2007, up 87 basis points from a year earlier, according to MBA's National Delinquency Survey.	March 6, 2008	
	March 7, 2008	In its biggest intervention yet, the Federal Reserve makes \$200 billion of funds available to banks and other institutions to try to improve liquidity in the markets.
	March 11, 2008	The Federal Reserve Bank of New York announces the creation of the term securities lending facility (TSLF), which lets primary dealers swap AAA-rated securities for Treasury securities.  The Federal Reserve, the ECB and SNB increase the size of their dollar swap lines to \$30 billion and \$6 billion respectively
The investment firm, Carlyle Capital, defaults on \$17 billion of debt. The fund is leveraged more than 30:1 and invests mostly in agency-backed residential mortgage-backed securities (RMBS).	March 14, 2008	
	March 16, 2008	The Federal Reserve Bank of New York announces the creation of the primary dealer credit facility (PDCF), which essentially opens the discount window to primary dealers, including non-depository institutions.
Wall Street's fifth-largest bank, Bear Stearns, is acquired by larger rival JPMorgan Chase for \$240 million in a deal backed by \$30 billion of central bank loans. A year earlier, Bear Stearns had been worth £18 billion.	March 17, 2008	The Federal Reserve Bank of New York agrees to guarantee \$30 billion of Bear Stearns assets, mostly mortgage-related.
	March 18, 2008	The Federal Reserve cuts the federal funds rate by 75 basis points to 2.25%.
	March 24, 2008	The Fed announces that it will provide term financing to facilitate JPMorgan Chase&Co's acquisition of the Bear Sterns Companies, Inc.
Washington Mutual, one of the largest US mortgage originators, raises \$7 billion from TPG, a private equity firm.  The IMF's Global Financial Stability estimates that the total credit losses will be \$1 trillion.	April 8, 2008	
	April 10, 2008	The Bank of England cuts interest rates by a quarter of one percent to 5%.

Market events	Date	Policy actions
Alpha magazine reports that hedge-fund owner John Paulson was the highest-paid trader in 2007. His fund, Paulson & Co., rose more than \$20 billion in value during the year by shorting the mortgage market.  Confidence in the UK housing market falls to its lowest point in 30 years.	April 15, 2008	
Citigroup announces another \$12 billion of losses related to subprime mortgages, leveraged loans, exposure to monoline insurers, auction-rate securities and consumer credit.	April 18, 2008	
National City Corporation, a large regional US bank, announces a \$7 billion capital infusion from Corsair Capital, a private-equity firm.	April 21, 2008	The Bank of England announces details of an ambitious £50 billion plan designed to help credit-squeezed banks by allowing them to swap potentially risky mortgage debts for secure government bonds.
Royal Bank of Scotland announces that it will raise about £16 billion from investors by selling assets.	April 22, 2008	
In UK, the first annual fall in house prices in 12 years is recorded by Nationwide.	April 30, 2008	The Federal Reserve lowers the federal funds rate by 25 basis points to 2.0%.
	May 2, 2008	The Fed expands Term Auction Facility (TAF) auctions from \$50 billion to \$75 billion.
UBS announces CHF11.5 billion (\$11.1 billion) loss during first-quarter 2008.	May 6, 2008	
Monoline insurer MBIA announces a \$2.4 billion loss during first-quarter 2008.	May 12, 2008	
UBS, one of the worst affected by the credit crunch, launches a \$15.5 billion rights issue to cover some of the \$37 billion it lost on assets linked to US mortgage debt.	May 22, 2008	The Federal Reserve has auctioned \$75 billion in loans to squeezed banks to help them overcome credit problems.
Standard and Poor's downgrades monoline bond insurers AMBAC and MBIA from AAA to AA.	June 5, 2008	
	June 17, 2008	The FBI arrests 406 people, including brokers and housing developers, as part of a crackdown on alleged mortgage frauds worth \$1 billion.  Separately, two former Bear Stearns workers face criminal charges related to the collapse of two hedge funds linked to subprime mortgages.
	June 19, 2008	
Barclays announces plans to raise £4.5 billion in a share issue to bolster its balance sheet. The Qatar Investment Authority, the state-owned investment arm of the Gulf state, will invest £1.7 billion in the British bank, giving it a 7.7% share in the business.	June 25, 2008	
US mortgage lender IndyMac collapses – the second-biggest bank in US history to fail.	July 13, 2008	Financial authorities step in to assist America's two largest lenders, Fannie Mae and Freddie Mac. As owners or guarantors of \$5 trillion worth of home loans, they are crucial to the US housing market and authorities agree they could not be allowed to fail.
	July 15, 2008	The Securities Exchange Commission (SEC) issues an emergency order temporarily prohibiting naked short selling in the securities of Fannie Mae, Freddie Mac and primary dealers at commercial and investment banks.
	July 30, 2008	President Bush signs into law the Housing and Economic Recovery Act of 2008, which, among other provisions, authorises the Treasury to purchase GSE obligations and reforms the regulatory supervision of the GSE under a new Federal Housing Finance Agency.

Market events	Date	Policy actions
UK house prices show their biggest annual fall since Nationwide began its housing survey in 1991, a decline of 8.1%.  Britain's biggest mortgage lender HBOS reveals that profits for the first half of the year sank 72% to £848m, while bad debt rose 36% to £1.31 billion as customers failed to repay loans.	July 31, 2008	
HSBC profits fall 28% as bad debt rises £10billion.  US inflation hits 27-year high.	August 4, 2008	
Freddie Mac reports \$821 million loss.	August 6 2008	
RBS reports a pre-tax loss of £692 million in the first half, after writing down £5.9 billion on investments hit by the credit crunch	August 8, 2008	European Central Bank cuts growth forecast 2009 to 1.2% from 1.5%
	August 17, 2008	Following an intermeeting conference call, the Fed's Federal Open Market Committee (FOMC) releases a statement about the current financial market turmoil, and notes that the "downside risks to growth have increased appreciably".
US unemployment rate rises to 6.1%	September 5, 2008	US government decides to take control of Fannie Mae and Freddie Mac
Fannie Mae and Freddie Mac announce outstanding liabilities of about \$5,400 billion.	September 7, 2008	The Federal Reserve has auctioned another \$25 billion in loans to squeezed banks to help them overcome credit problems.
Lehman Brothers shares fall by more than 40 percent because of worries about its ability to raise capital.	September 9, 2008	
Lehman Brothers posts a loss of \$3.9 billion for the three months to August.	September 10, 2008	Treasury Secretary Paulson claims that there will be no public funds involved in a possible rescue of Lehman Brothers.
Lehman Brothers seek rescue. Bank of America is a candidate for taking it over.	September 12, 2008	
Bank of America and Barclays head list of potential purchasers of Lehman Brothers.	September 13, 2008	
Lehman Brothers battles to avoid bankruptcy. Barclays pulls out of the bidding.  Bank of America bids for Merrill Lynch.  AIG seeks help for \$10-20 billion.	September 14, 2008	US authorities trying to put a rescue package together for insurance giant AIG agree a \$20 billion lifeline.
US bank Merrill Lynch, also stung by the credit crunch, agrees to be taken over by Bank of America for \$50 billion.  Lehman files for bankruptcy.  Shares in HBOS, Britain's biggest mortgage lender, crash 34% in early trading.  On Wall Street the Dow Jones industrial average plunges 504 points to close at 10,917.51	September 15, 2008	US government takes control of AIG, after an injection of \$85 billion.
Goldman Sachs reports 70% drop in profits.	September 16, 2008	The Federal Reserve Board authorizes the Federal Reserve Bank of New York to lend up to \$85 billion to the American International Group (AIG) under Section 13(3) of the Federal Reserve Act.
Lloyds TSB announces it is to take over Britain's biggest mortgage lender HBOS in a £12 billion deal creating a banking giant holding close to one-third of the UK's savings and mortgage market. The deal follows a run on HBOS shares.  Panic grips credit markets, causing huge flight to safety. US treasury yield at a minimum since 1941.	September 17, 2008	Central banks around the world pump \$180 billion into the system in a concerted effort to end the crisis.  The SEC announces a temporary emergency ban on short selling in the stocks of all companies in the financial sector.
Russian stock markets remain closed for a second day.  Nikkei drops 260 points to 11,489.  Wall Street closes 410 points higher as the US Federal Reserve starts briefing on an ambitious plan to create a federal "bad bank".	September 18, 2008	US plan is announced. US government pledges \$50 billion to guarantee money market mutual funds.  British government rushes through increase in guarantees for bank deposits to £50,000.

Market events	Date	Policy actions
<p>Asia starts the recovery, with the Nikkei closing up 431 points at 11,920.</p> <p>FTSE roars back, up 315 points in early trading to 5,195 thanks to the short-selling ban and the US “bad bank” plan.</p> <p>Russian stock markets bounce back after the government pledges 500 billion roubles to fight the crisis.</p>	September 19, 2008	<p>The US treasury secretary, Henry Paulson, spends the weekend trying to thrash out his \$700 billion “bad bank” plan.</p> <p>The Federal Reserve Board announces the creation of the Asset Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) to extend non recourse loans at the primary credit rate to U.S. depository institutions and bank holding companies to finance their purchase of high quality asset backed commercial paper from money market mutual funds.</p> <p>The US Treasury Department announces a temporary guaranty program that will make available up to \$50 billion from the Exchange Stabilization Fund to guarantee investments in participating money market mutual funds.</p>
Morgan Stanley and Goldman Sachs give up their status as investment banks and become traditional commercial banks	September 22, 2008	Political opposition to the \$700 billion bail-out plan grows in Washington.
New figures show UK mortgage approvals hit a record low in August.	September 23, 2008	Henry Paulson bows to intense pressure to include limits on what Wall Street bankers can be paid in his \$700 billion bail-out plan.
Warren Buffett invests \$5 billion (£2.7 billion) in Goldman Sachs and warns that failure to agree a \$700 billion bailout could result in an “economic Pearl Harbour”.	September 24, 2008	Overnight the \$700 billion bail-out plan in the US appears to have stalled.
<p>Ireland becomes the first state in the eurozone to fall into recession.</p> <p>Jobless figures are up and orders are down in the US, signalling the dire state of the economy.</p> <p>In the largest bank failure yet in the United States, Washington Mutual, the giant mortgage lender, which had assets valued at \$307 billion, is closed down by regulators and sold to JPMorgan Chase.</p>	September 25, 2008	Traders are worried about the possible failure of the \$700 billion bail-out plan. The plan appears to be coming apart despite Paulson actually begging before congress on one knee for the deal to be passed.
	September 26, 2008	<p>The government of Belgium, the Netherlands and Luxembourg rescue insurance giant Fortis.</p> <p>In the US, lawmakers announce they have reached a bipartisan agreement on a rescue plan for the American financial system. The package, to be approved by Congress, allows the Treasury to spend up to \$700 billion buying bad debts from ailing banks. It will be the biggest intervention in the markets since the Great Depression of the 1930s.</p>
Spain’s Santander buys Bradford & Bingley’s 200 branches and £22 billion savings book and the UK taxpayer gets lumbered with the mortgages.	September 28, 2008	<p>Congress rejects \$700 billion plan: George Bush takes the podium to urge the House of Representatives to pass the \$700 billion bail-out plan. His short speech falls on deaf ears and a few hours later the House of Representatives votes down the bail-out.</p> <p>Nationalisation of Bradford and Bingley in the UK.</p> <p>Iceland takes control of Glitnir (country’s third largest bank).</p> <p>Germany underwrites 35 billion bailout of Hypo Real Estate.</p> <p>Citigroup saves Wachovia, with a \$12 billion stake by the government.</p>

Market events	Date	Policy actions
<p>Markets plunge around the world.</p> <p>Wall Street is in turmoil. The Dow Jones plunges 777 points, its biggest ever fall in points terms.</p> <p>As news of the Bradford &amp; Bingley rescue sinks in, the London Stock Market plummets in what will end up being one of the FTSE 100 index's worst ever trading days.</p> <p>As a result of the intense fear among bankers about which institution will be next to fold, the interbank lending rate goes through the roof despite desperate attempts by central banks to pump cash into the system</p> <p>The FDIC announces that Citigroup will purchase the banking operations of Wachovia Corporation</p>	September 29, 2008	<p>Ireland extends bank guarantee, covering an estimated 400 billion bank liabilities including deposits, covered bond, senior debt and dated subordinated debt for two years, de facto putting other countries at a disadvantage.</p> <p>Rescue of Dexia (€6.4 billion) by France Belgium and Luxembourg.</p> <p>Dominique Strauss-Kahn, the managing director of the IMF, believes a bail-out is the only option for the US economy.</p> <p>The Fed expands Term Auction Facility (TAF) auctions to a total of \$150 billion.</p>
<p>Problems in money market intensify.</p> <p>Asian stock markets react to the shock news that the \$700 billion Wall Street bailout has failed.</p> <p>In the US, July recorded the biggest ever fall in house prices.</p> <p>The banks themselves are finding it increasingly difficult to raise financing, with the cost of interbank borrowing experiencing its biggest ever one-day rise.</p>	September 30, 2008	European leaders do not agree on a common fund (€300 billion estimate).
<p>New data shows British manufacturing shrinking at the fastest rate since records began nearly 17 years ago.</p> <p>Share traders are praying that a rescue package can still be put together in the US.</p> <p>Warren Buffett decides to snap up \$3 billion worth of General Electric as part of a \$15 billion fundraising by the industrial conglomerate.</p>	October 1, 2008	<p>The US Senate votes in favour of the Wall Street bail-out.</p> <p>EU focus shifts from common fund, to tighten regulation of rating agencies, improve coordination among supervisors, review accounting rule and, common standards for deposit insurance.</p> <p>Greece extends guarantees on bank deposits.</p> <p>European leaders are considering their own bail-out, which could cost up to €300 billion. The French president, Nicolas Sarkozy, leads the push.</p>
	October 2, 2008	<p>US Congress finally passes the \$700 billion financial rescue package.</p> <p>Sarkozy urges EU government to "play by the rules" and form a common front.</p> <p>UK raises deposit protection cap to £50,000.</p> <p>Dutch government announces that it will take up full control of Fortis; this is an effective nationalization of ABN Amro.</p> <p>Iceland takes step to avoid bank meltdown (repatriation of pension funds).</p>
<p>Reaction in financial markets is subdued.</p> <p>Wells Fargo announces a competing proposal to purchase Wachovia Corporation that does not require assistance from the FDIC.</p> <p>The State of California is in need of \$7 billion.</p> <p>US jobs data are worse than expected.</p>	October 3, 2008	<p>Emergency summit in Paris to discuss the crisis with French, German, British and Italian leaders.</p> <p>Congress passes and President Bush signs into law the Emergency Economic Stabilization Act of 2008, which establishes the \$700 billion Troubled Asset Relief Program (TARP).</p>
	October 4, 2008	<p>Germany guarantees all private German bank accounts (up from €20,000).</p> <p>US Treasury working on details of the plan.</p>

Market events	Date	Policy actions
Italian Unicredit raises capital by 6 billion.	October 5, 2008	<p>EU leaders vow to use any measure necessary.</p> <p>Germany announces a €50 billion plan to save Hypo Real Estate.</p> <p>Iceland announces part of a plan to shore up its troubled banking sector. The country's largest banks agree to sell some of their foreign assets.</p> <p>Germany is criticized for its deposit guarantee policy. Danish government extend its own.</p> <p>Fed ready to move into unsecured loans.</p>
<p>Currency and financial crises around the world. Very strong in Iceland, but also Korea, Pakistan etc.</p> <p>The FTSE sees its largest one-day fall in points.</p>	October 6, 2008	<p>UK unveils rescue plan for £35–50 billion, with the government injecting capital into the country's largest lenders. Recapitalisation as a step towards restoring confidence: but by how much?</p> <p>The Icelandic government takes control of Landsbanki, the country's second largest bank, which owns Icesave in the UK.</p> <p>FED announces intervention in commercial paper markets – with little effect on markets.</p> <p>Spain follows US lead, offering to buy assets from banks.</p> <p>EU leaders agree on set of “principles” but not on detailed guidelines. Coordination was achieved only on “minimum deposit insurance”, not on cap.</p>
<p>Bank shares fall sharply.</p> <p>The Icelandic internet bank Icesave blocks savers from withdrawing money.</p>	October 7, 2008	<p>Historic coordinated rate cut by central banks around the world (FED, ECB, BoE, BoC, SwissNB, Swedish Riskbank). People's Bank of China joins without formal coordination. ECB changes its procedure, making unlimited funding available at the current interest rate (banks no longer have to bid for funds), and reduce the penalty to its lending rate to 50 basis point (down from 100 basis points).</p> <p>Iceland: State ownership of the three largest banks.</p> <p>Ireland extends guarantees to foreign owned banks.</p> <p>The UK government announces details of a rescue package for the banking system worth at least £50 billion. The government is also offering up to £200 billion in short-term lending support.</p> <p>The FDIC announces an increase in deposit insurance coverage to \$250,000 per depositor.</p>
<p>Large fall in commodities prices.</p> <p>Russia, Ukraine and Romania close down stock exchanges.</p> <p>Iceland suspends all trading on stock exchanges.</p>	October 8, 2008	<p>Resistance to adopt UK approach around the world. Disagreement among G7.</p> <p>ECB sharply focuses on growth risk, signalling rates cut.</p> <p>The International Monetary Fund announces emergency plans to bail out governments affected by the financial crisis, after warning that no country would be immune from the ripple effects of the credit crunch.</p>
<p>House prices fall at record rate during the year to the end of September, losing 13.3% of their value, Halifax reports.</p> <p>The Dow falls to a five-year low, ending the day 7.3% lower at 8579 points.</p>	October 9, 2008	<p>President Bush urges confidence in the US government's ability to manage the worsening financial crisis, but his words have little effect.</p>

Market events	Date	Policy actions
<p>The end of a week of panic: stock markets plunge by 20 percent around the world.</p> <p>A global rout starts in Asia as recession fears deepen, with Japan's Nikkei index falling almost 10%, its biggest drop for 20 years.</p> <p>The Dow plunges nearly 700 points to 7882 in the first few minutes of trading, a fall of 8%.</p> <p>The FTSE 100 plunges more than 10% to 3847 points, falling under the 4,000 mark for the first time in five years. The sell-off wipes more than £100 billion off the value of Britain's biggest companies.</p> <p>Signs that panic is spreading to retail banking, pointing to the possibility of a run on deposits.</p> <p>Oil prices slump as the International Energy Agency revises its demand forecast downwards.</p>	October 10, 2008	<p>Meetings of the G7 finance ministers and the IMF in Washington: The G7 comes up with a five-point plan, which includes spending billions of taxpayers' money to rebuild the global banking system and reopen the flow of credit.</p>
	October 11, 2008	<p>European governments present a €1.8 trillion bail-out plan.</p> <p>FED makes available unlimited dollar funds offshore, facing intense demand for dollars in Europe. ECB SNB and BoE announces unlimited funds at current rates.</p> <p>ECB switches to a regular weekly injection of funds.</p> <p>The British government announces it will pump £37 billion of emergency recapitalisation into the Royal Bank of Scotland, HBOS and Lloyds TSB.</p>
<p>Global stocks rebound. Small positive effects in money markets.</p> <p>The Dow Jones rockets by 936 points to 9387, its biggest one-day gain by points. It closes up 11%, the largest daily jump in percentage terms since 1933.</p>	October 13, 2008	<p>Historic bank rescue plan by the US. \$250 billion for recapitalisation. \$125 billion to be injected into 9 banks (Bank of America, JP Morgan Chase, Wells Fargo, Citigroup, Merrill Lynch, Goldman Sachs, Morgan Stanley, Bank of New York Mellon and State Street), in exchange for non-voting preference shares paying 5 percent for five years, then 9 percent, plus warrants for common stock equal to 15 percent of the preference share investment.</p>
<p>Cost of insurance against big US bank default drops sharply. However, interbank loan rates ease only modestly.</p> <p>Shares in Asia, and Europe rally for a second day.</p> <p>The Icelandic Stock Exchange resumes trading for the first time since last Wednesday, but six financial stocks remain suspended. The stock market plummeted 76% after the opening.</p>	October 14, 2008	<p>European Leaders back call for a "New Bretton Woods".</p> <p>ECB announces plan to boost funding for commercial banks, extending the range of collateral and currency denomination.</p> <p>Non-eurozone EU states back bail-out plan. EU regulators accept emergency changes by the International Accounting Standard Board regarding reclassification of assets from trading to banking books.</p> <p>Iceland rushes to stave off economic ruin by slashing interest rates by 3.5% and pursuing talks with Russia over the possibility of a multibillion euro loan.</p> <p>US Treasury Department announces that TARP will purchase capital in financial institutions (\$250 billion).</p>

Market events	Date	Policy actions
<p>Recession fears drive down stocks around the world. The foreign exchange market “almost ceases to function” amid row with UK over assets.</p> <p>The Hungarian forint falls by 7 percent, as the stock market plunges by 12 percent.</p> <p>Run on Russian banks intensifies.</p> <p>Dow Jones industrial average drops by 7.8% – its biggest percentage fall since 26 October 1987.</p> <p>Unemployment figures in the UK showed the biggest rise since the country’s last recession 17 years ago, up to 5.7% – 1.79 million people.</p> <p>US banks JPMorgan and Wells Fargo report big falls in profits</p> <p>Figures for US retail sales in September show a fall of 1.2%, the biggest monthly decline in more than three years, with the drop in car sales hitting 3.8%.</p>	October 15, 2008	<p>European Central Bank sets €5 billion facilities to help Hungary. This is the first time support is extended outside the eurozone: the ECB signals its willingness to do more.</p> <p>Swiss National Bank provides \$60 billion to take on most of the US toxic debt held by UBS (third capital raising by UBS in the year), after UBS suffered \$50 billion capital outflows in the third quarter of the year.</p> <p>An EU summit ends in Brussels with a clear message that there is no time to lose in coming up with concerted action to tackle the financial emergency.</p> <p>OPEC calls an emergency meeting in Vienna as the oil price falls to less than half the \$147 it traded at in July.</p>
<p>Japan’s Nikkei Index suffers its worst fall since 1987.</p> <p>In the US, Citigroup suffered its fourth consecutive quarterly loss after taking hits of more than \$13 billion to cover liabilities arising from the credit crunch.</p>	October 16, 2008	
<p>Sharp fall in US consumer confidence (sharpest monthly fall since 1978).</p> <p>French savings bank Caisse d’Epargne announces a loss of 600 million euros in a “trading incident”, which the bank says was triggered by what it called “extreme market volatility” amid the market crash during the week of 6 October.</p>	October 17, 2008	<p>Korea launches a \$130 billion loan and liquidity rescue; tax cuts and spending increases announced.</p> <p>Dutch savings bank ING accepts €10 billion capital injection (granting no voting right to government but 2 out of 12 supervisory board seats), to bring Tier 1 capital up to 8 percent. Debt to equity falls from 15 to 10 percent.</p>
	October 19, 2008	<p>Federal Reserve backs plan for second US stimulus package.</p> <p>Iceland to announce a \$6 billion IMF rescue package.</p> <p>Sweden’s government sets out its own bank rescue plan, with credit guarantees to banks and mortgage lenders up to a level of 1.5 trillion krona (\$205 billion). The government says it will also set aside 15 billion krona as a bank stabilisation fund.</p> <p>India’s central bank unexpectedly cuts its short-term lending rates in response to continued pressure from the global financial crisis. The Reserve Bank of India cuts the repo rate by a full percentage point to 8%.</p>
<p>Small signs of relief in the money markets.</p> <p>UK: Mortgage lending slumped by 10% in September to its lowest level for more than three-and-a-half years.</p> <p>China revises growth down to 9 percent.</p>	October 20, 2008	<p>Fed ready to finance up to \$540 billion to purchase short term debt from money market mutual funds through 5 special purpose vehicles managed by JPMorgan, complementing previously set vehicles to purchase potentially unlimited three month debt from banks and non-financial companies. The size of Fed balance sheet has nearly doubled. Each of the five vehicles purchase paper from 10 financial institutions. The size of the programme is \$60 billion.</p> <p>IMF forecasts sharp squeeze in business credit. For the EU, growth forecasts are down from 1.7 to 0.6 percent.</p>

Market events	Date	Policy actions
Anticipation of Argentina's pension funds nationalization plan drives down Argentina's markets.	October 21, 2008	Hungary lifts rates 300 basis point to support currency.  Pakistan seeks emergency bail-out funds from the IMF.
The stricken US bank Wachovia reports the biggest quarterly loss of any bank since the onset of the credit crunch, with a deficit of \$24 billion.	October 22, 2008	Former Fed chief Alan Greenspan admits he had been "partially wrong" in his hands-off approach towards the banking industry. The credit crunch had left him in a state of "shocked disbelief", he admitted before a congressional committee.
Daimler, maker of Mercedes cars, issues its second profits warning this year after third-quarter earnings plunge by two-thirds.	October 23, 2008	In Denmark, the central bank raises its key interest rate by 0.5 percentage points to 5.5%.
Large fall in share prices worldwide. Yen and dollar strengthen. Yen appreciation, attributed to a reversal of the "yen carry trade", creates global concern.  The UK is on the brink of a recession according to figures released by the Office for National Statistics. The economy shrank for the first time in 16 years between July and September, as economic growth fell by 0.5%.	October 24, 2008	IMF unveils a plan for \$16.5 billion to support the Ukraine
The spectre of a cascade of failing economies from the Baltic to Turkey is raised as a \$16.5 billion IMF bailout for Ukraine is mired in political infighting and Hungary seeks its own \$10 billion rescue package.	October 25–26, 2008	
Swedish banks, relatively immune to the crisis, move to recapitalise	October 27, 2008	Iceland raises interest rates to 18 percent, in negotiations for a loan by the IMF (\$2 billion) and other countries.
Autumn's market mayhem has left the world's financial institutions nursing losses of \$2.8 trillion, according to the Bank of England.	October 28, 2008	The US Treasury Department purchases a total of \$125 billion in preferred stock in nine US banks under the Capital Purchase Program.  The International Monetary Fund, the European Union and the World Bank announce a massive rescue package for Hungary.
The prospect of fresh cuts in interest rates on both sides of the Atlantic helped propel Wall Street stocks to a dramatic rebound, with the Dow scoring its second-biggest points gain ever, just short of 900.	October 29, 2008	The Federal Reserve cuts its key interest rate from 1.5% to 1%.
Deutsche Bank reports steep falls in pre-tax and net profits and a further series of write-downs in the third quarter.  The Commerce Department issues figures showing the US economy shrank at an annualised rate of 0.3% between July and September.	October 30, 2008	The Bank of Japan cuts interest rates for the first time in seven years in response to the global financial crisis. The bank cuts the key interest rate from 0.5% to 0.3%, a move some criticise as half-hearted.
Barclays said it will raise up to £7.3 billion, mainly from Middle East investors who could end up owning nearly a third of the UK's second largest bank.	October 31, 2008	The International Monetary Fund (IMF) approves a \$16.4 billion loan to the Ukraine to bolster its economy, shaken by global financial turmoil.  The Bank of England slashes interest rates from 4.5% to 3% – the lowest level since 1955.  The European Central Bank lowers eurozone rates to 3.25% from 3.75%.
	November 6, 2008	China sets out a two-year \$586 billion economic stimulus package to help boost the economy by investing in infrastructure and social projects, and by cutting corporate taxes.
	November 9, 2008	US Treasury Secretary Henry Paulson says the government has abandoned plans to use some of the \$700 billion bail-out money to buy up banks' bad debts and has decided instead to concentrate on improving the flow of credit for the US consumer.

Market events	Date	Policy actions
	November 12, 2008	Leaders of the G20 and emerging economies gather in Washington to discuss ways to contain the financial crisis and agree on longer-term reforms.
The eurozone officially slips into recession after EU figures show that the economy shrank by 0.2% in the third quarter.	November 14, 2008	The International Monetary Fund (IMF) approves a \$2.1 billion loan for Iceland, after the country's banking system collapsed in October. It is the first IMF loan for a Western European nation since 1976.
	November 20, 2008	The US government announces a \$20 billion rescue plan for troubled banking giant Citigroup after its shares plunge by more than 60 percent in a week.
	November 23, 2008	The UK government announces a temporary cut in the rate of VAT – to 15% from 17.5%.
	November 24, 2008	The International Monetary Fund (IMF) approves a \$7.6 billion loan for Pakistan to shore up the country's economy. Pakistan needs the money in order to avoid defaulting on international debt.  The US Federal Reserve announces it will inject another \$800 billion into the economy in a further effort to stabilise the financial system and encourage lending. About \$600 billion will be used to buy up mortgage-backed securities while \$200 billion is being targeted at unfreezing the consumer credit market.
	November, 25 2008	The European Commission unveils an economic recovery plan worth €200 billion euros which it hopes will save millions of European jobs. The scheme aims to stimulate spending and boost consumer confidence.
	November 26, 2008	The UK government becomes the majority owner of Royal Bank of Scotland with a stake of almost 60 per cent after the bank revealed that just 0.24 per cent of its capital raising had been taken up by investors.
The Labor Department reports that the US lost 533,000 jobs in November, the biggest monthly loss since 1974. This raises the unemployment rate from 6.5% to 6.7%.  The US recession is confirmed by the NBER; the US economy started to contract in January 2008.	December 1, 2008	
US carmakers appeal to Congress for \$34 billion in emergency loans	December 3, 2008	The European Central Bank announces a three-quarters of a percentage point cut in its main policy interest rate to 2.5 per cent – its largest cut ever – just hours after Sweden's central bank surprised markets by reducing the country's official borrowing costs by a record 175 basis points. The Bank of England slashes its rates by another 1 percentage point to 2 per cent, equal to the lowest rate since the central bank was founded in 1694.  French President Nicolas Sarkozy unveils a €26 billion stimulus plan to help France fend off financial crisis, with money to be spent on public sector investments and loans for the country's troubled carmakers.
	December 4, 2008	Bank of Canada lowers its key interest rate by 0.75% to 1.5%, the lowest it has been since 1958; at the same time the Bank officially announces that Canada's economy is in recession.
Canada lost 70,600 jobs in the month of November, the most since 1982.	December 9, 2008	The European Central Bank as well as central banks in England, Sweden and Denmark, slash interest rates again in an effort to prevent a deep recession.  Bernard Madoff, former Nasdaq chairman, is arrested after confessing to running a 50 billion dollar Ponzi scheme.

Market events	Date	Policy actions
Bank of America announces up to 35,000 job losses over three years following its takeover of Merrill Lynch in the New Year.	December 11, 2008	
The dollar slides to its lowest in 13 years against the yen as the Senate fails to agree on a bailout for the three US automakers. The number of new workers filing claims for unemployment benefits jumps to a 26-year high.	December 12, 2008	
	December 16, 2008	<p>President Bush says the US government will use up to \$17.4 billion of the \$700 billion meant for the banking sector to help the Big Three US carmakers, General Motors, Ford and Chrysler.</p> <p>Japan's central bank and cuts rates from 0.3% to 0.1%. The government says the world's second largest economy will not grow in 2009.</p> <p>The US Federal Reserve slashes its key interest rate from 1% to a range of zero to 0.25% – the lowest since records began.</p>
	December 19, 2008	The US Treasury unveils a \$6 billion bail-out for GMAC, the car-loan arm of General Motors.
<p>The FTSE 100 closes the year down by 31.3%, which is the biggest annual fall in the 24 years since the index was started.</p> <p>The Dax in Frankfurt loses 40.4% for the year, while the Cac 40 in Paris drops 42.7%.</p>	December 31, 2008	The Federal Reserve Bank of New York begins purchasing fixed-rate mortgage-backed securities guaranteed by Fannie Mae, Freddie Mac and Ginnie Mae under a programme first announced on November 25, 2008.
	January 5, 2009	<p>German Commerzbank partly nationalised as the government buys 25% of shares to rescue one of the biggest German banks.</p> <p>The Bank of England cuts interest rates to a 300 year low.</p>

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## PRIVATE EQUITY

### 1. Introduction

The credit crunch was most likely viewed as a mixed blessing by many private equity executives. On the one hand, it signalled the end of the most favourable set of economic conditions the private equity industry had ever witnessed: abundant capital, low interest rates, increasing stock market values and a truly amazing willingness amongst banks and other investors to provide debt financing on a scale and on terms never previously observed. But the clouds that have descended since August 2007 have at least one silver lining: the intense public scrutiny of the private equity industry has been, to some extent, diverted into other areas of the financial system, in particular the investment banks, rating agencies, imploding hedge funds and structured vehicles etc. During this crisis, private equity funds have attracted little attention, except for their activities in taking advantage of banks' desire to sell debt backing private equity deals. But the private equity industry remains active, having attracted large amounts of committed capital, and is continuing to invest – albeit not in the headline grabbing purchases of large public companies. And public scrutiny is re-developing.

In this chapter we explore the current state of the academic and policy debate regarding private equity. Why has the private equity industry grown so strongly? Was this growth fuelled mainly by cheap and abundant debt? How does private equity create value, and is this done at the expense of workers or other stakeholders? Does private equity contribute to systemic risks in the financial system? Should private equity be regulated more vigorously, and, if so, in what ways? How will the credit crunch impact on existing private equity-owned companies? What impact will the expansion of private equity have on national tax revenues, and is the tax-treatment of private equity companies, or the executives who work in private equity, unfair? We will address these questions in the context of the recent European experience and policy debates.

But before addressing these questions the chapter starts by providing a brief primer on private equity. Despite the recent media and public attention, the workings of the private equity industry are opaque and often misunderstood. Section 2 defines terms, explains the simple economics of the private equity industry, and how it draws on other parts of the financial system, and presents some key statistics about the private equity sector.

The attention that private equity has recently attracted – particularly leveraged buy-outs (LBOs), which constitute a large proportion of the money invested – comes in three main forms.

First, the critics of private equity often claim that private equity creates little enduring value but rather makes returns for investors by imposing excessive levels of debt on the companies they buy, cutting jobs and investment, and reducing the taxes they pay to governments. We discuss the evidence regarding the impact of private equity on the companies they invest in and on the extent of value creation in section 3.

Indicative of the concerns regarding private equity, Poul Nyrup Rasmussen – the President of the Party of European Socialists in the European Parliament, and a leading critic of the private equity industry – recently claimed, “These ‘leveraged buyouts’ leave the company saddled with debt and interest payments, its workers are laid off, and its assets are sold. A once profitable and healthy company is milked for short-term profits, benefiting neither workers nor the real economy” (Rasmussen, 2008). This represents the latest in a series of critical opinions of private equity, which started in earnest with the “locusts” badge that was pinned on the industry by German politician Franz Muntefering in 2004. He claimed that private equity funds act as “irresponsible locust swarms, who measure success in quarterly intervals, suck off substance and let companies die once they have eaten them away”. This badge has largely stuck with the industry. As general statements, these are gross misrepresentations of the workings of private equity, as shall be explained in the course of the chapter. However, some of the blame for such misunderstand-

ing arguably lies with the private equity sector itself, which has provided relatively little systematic and convincing evidence to rebut these claims. It is only recently that independent academic research has started to shine a light into the workings of private equity.

This leads into the second main area of concern: the appropriate level of transparency and reporting by private equity funds and the companies they invest in. This has been the subject of considerable attention within Europe in the last two years. The Walker Review in the UK examined these issues in depth and has been followed by similar reviews in other European countries. We discuss these issues in section 4.

The third main area of concern is taxation. The leverage in LBOs creates tax shields which can mean significant reductions in the amount of corporate tax paid by the companies that are acquired by private equity. On the one hand, this may simply be a more efficient way of financing companies, resulting in a lower cost of capital, which might be good for investment levels and equity valuation. On the other hand, tax authorities lose corporate tax receipts. In addition to these questions of corporate taxation, there is also a set of highly political issues relating to the personal taxation of private equity executives. To a large extent these derive from the unusual structure of private equity funds, whereby the private equity executives share in the profits of the fund, but these profit shares are frequently taxed as capital gains rather than income. Since many countries set capital gains taxes at lower rates than income taxes, a major political issue has arisen in both Europe and the US. This set of taxation issues is discussed in section 5. Conclusions are drawn in section 6.

## 2. A primer on private equity

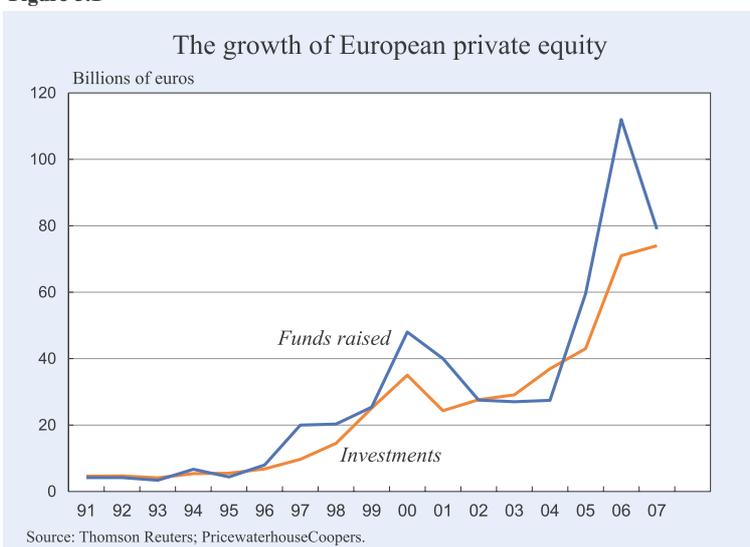
Private equity refers to the entire asset class of equity investments that are not quoted on stock markets. So private equity stretches from venture capital – working with really early stage companies that in many cases will have no revenues but potentially good ideas or technology – right through to large buy-outs, where the private equity firm buys the whole company. In some cases these companies might themselves be quoted on

the stock market, and the private equity fund performs a so-called public-to-private transaction, thereby removing the entire company from the stock market. But in the majority of cases buy-out transactions will involve privately owned companies, such as family-owned companies or a particular division of an existing (public or private) company.

In between these two extremes are other forms of later-stage financing, such as providing expansion capital to develop existing businesses. However, the two main forms of private equity are venture capital (VC) and buyouts. As will be explained, one of the contentious aspects of buyouts is that they typically employ significant amounts of debt, and hence are referred to as *leveraged* buy-outs (LBO).

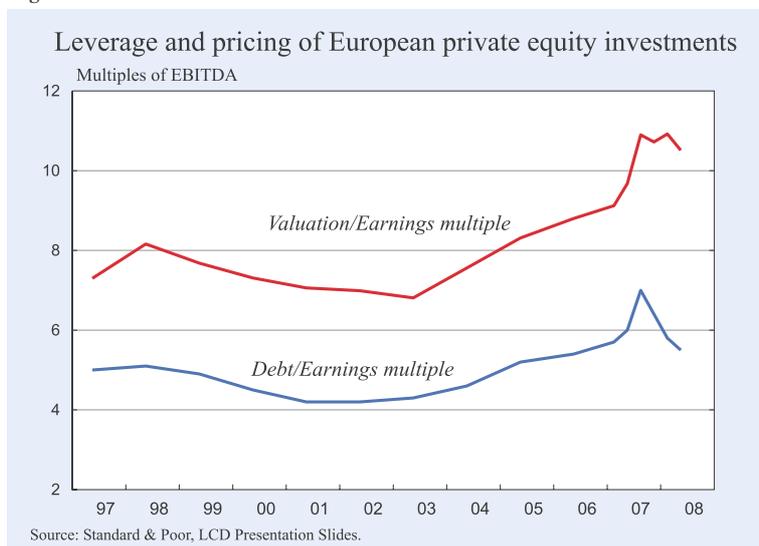
The European private equity industry has grown strongly in recent years. Figure 3.1 shows the recent data for both funds raised and invested, where the funds have European companies as their targets. The way private equity funds work is that investors make commitments of capital, but the money is only drawn down when the fund finds a company to invest in, or to purchase outright. Hence there is a distinction between money raised and invested, as demonstrated in Figure 3.1. Investors have been allocating increasing amounts to private equity funds targeting European companies, with over €70bn of equity being invested in both 2006 and 2007. What Figure 3.1 also shows is that there is currently a significant overhang of unspent commitments, as fundraising has raced ahead of investment. Therefore, even without any further fundraising there exists a large amount of capital currently looking for investment within Europe.

Figure 3.1



It is also worth noting that these figures only refer to the equity invested – LBOs, by definition, employ significant amounts of debt. As a result, the scale of transactions involving private equity are usually 2 to 3 times larger than the equity invested. The recent trends in leverage, and pricing, for European private equity buyouts can be seen in Figure 3.2. Given the importance of cash-flow in LBOs – since cash is required to service the interest on debt – capital structure and pricing of transactions is typically expressed in terms of multiples of earnings before interest, taxes, depreciation and amortisation (EBITDA), which gives an estimate of cash flow (before considering capital expenditures). Through the economic cycle, and across all transactions, the average level of debt has been about 5 times EBITDA, relative to a total transaction value of about 7 times EBITDA, implying an equity contribution of about 30 percent. However, the impact of the credit boom can be seen clearly in the figures, with average debt levels and purchase prices rising to multiples, at the peak of the market, of over 7 and 10 respectively. The proportionate equity contribution did not, on average, change too much, but clearly the portfolio companies had a significantly larger amount of debt to service.

Figure 3.2



### Box 3.1

#### What is a private equity fund?

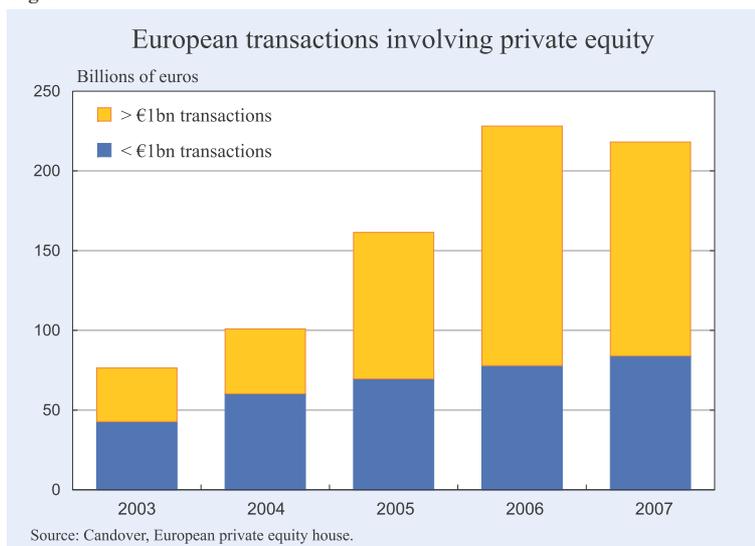
As their name implies, private equity (PE) funds invest in the equity of private companies – that is, companies that are not listed on stock exchanges, or, in the case of public-to-private transactions, cease to be listed once taken over by a private equity fund. In the case of public companies there is normally a separation between ownership and control, but PE funds often take controlling stakes or, in the case of buyouts, purchase the whole company. PE funds therefore both provide capital and control the strategy of the firm. Private equity has become an established asset class deriving most of their funds from institutional investors such as pension funds, endowments, insurance companies and sovereign wealth funds. PE funds generally focus on buying equity in companies, although in 2007 some funds started buying the deeply discounted debt of existing buyouts. However, in the case of more mature companies with predictable cash flow, they purchase their targets using a significant amount of debt. Unlike their hedge fund cousins, this debt is put into the acquired company rather than being retained in the fund itself. Hedge funds and PE funds share the same “two and twenty” fee and incentive structure. The two refers to a 2% annual management fee, and the twenty to a 20% share in any profits. In practice, although the twenty is more or less ubiquitous, the two has been shrinking as PE funds have become larger. Two key differences between hedge funds and PE funds are (i) investors commit capital for the strictly-limited 10-year life of the fund; the PE fund invests in companies and then returns the proceeds to investors; and (ii) the executives in PE funds receive their profit share on the basis of the ultimate performance of the entire portfolio once all the cash has been returned to investors, not, as in hedge funds, as an annual profit share payment. These differences make PE funds more stable in terms of their financing and personnel, and more long-term in focus, in comparison with hedge funds.

Critically, the debt in private equity transactions is taken on by the companies that are acquired, *not* by the fund itself. Furthermore, there is no recourse for debt investors either to the assets of the fund or other portfolio companies. Therefore, unlike hedge funds, which often take on significant leverage within the fund, private equity funds themselves are not leveraged; the portfolio companies are. Consequently, private equity funds will not suffer the sort of meltdowns

observed in the hedge fund sector, although some of the companies acquired by private equity funds are likely to default on their debts. We return later to the issue of whether large-scale defaults should be expected for companies acquired during the credit boom.

Since buyouts employ a large amount of debt financing, the total value of transactions involving private equity funds is much larger than the (equity) funds that are raised. This can be seen in Figure 3.3, which shows that total European transactions

Figure 3.3



involving private equity funds exceeded €200bn in both 2006 and 2007. Buyouts by private equity funds are really just a particular type of merger and acquisition (M&A) activity: private equity funds' involvement in global M&A has been growing strongly in recent years, peaking at 27 percent of total transactions (by value) in 2006. However, as long as the current conditions in the debt markets persist, the share of private equity will fall significantly, to the benefit of traditional corporate acquirors who will face less competition.

While the European private equity industry has been growing strongly, all the growth has been focused on buy-outs rather than venture capital. As recently as 2002 around 30 percent of European funds were raised for VC investments, with the remainder allocated to buyouts. However, in recent years, despite the various efforts of governments to boost the VC industry, funds raised have stagnated as the private equity industry as a whole has grown strongly. This has resulted in a significant fall in VC as a proportion of total funds raised: within Europe only 15 percent of total funds raised over the period 2005–07 were targeted at VC. The corresponding growth in the share, and absolute value, of buyout funds has been mainly associated with the growth of very large buyout funds that are capable of taking over companies worth several billion euros. This trend can be seen in Figure 3.3, which shows the growth in the scale and nature of private equity transactions in Europe in recent years, in particular the growth of the billion euro plus deals. But as the deals have got larger, the targets have become familiar companies, often household names, which helps to explain the growth in media, political

and trade union attention that private equity funds have “enjoyed”.

Where does the money come from and who runs the private equity funds? Most of the money comes from institutional investors, such as pension funds, endowments and insurance companies, although high-net-worth individuals also invest directly or through fund of funds intermediaries – who provide them with a more diversified portfolio of investments. It is interesting to note, in the context of the current policy debates, which, as we discuss later, often cast private equity as operating against the interests of workers, that pension funds are probably the most significant beneficiaries from any successes that private equity may achieve. This irony was noted by Phillip Jennings, General Secretary of the UNI Global Union who remarked: “Unions need to be aware that the money they are paying into pension funds is feeding the beast that may devour them.”

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In terms of asset allocation, at present the proportion of investment portfolios that are allocated to private equity is considerably higher in the US than in Europe – although all surveys of European investors tend to find that the fund managers are aiming to increase their allocation to private equity. For instance, at the most macro level, it is estimated that global investment in private equity funds currently totals less than 1 percent of assets under management. But the Russell Survey on Alternative Investing (2007) found that target allocations by European investors into private equity averaged 6.1 percent of total portfolios, slightly behind the target for US investors (7.6 percent) and somewhat above Japanese investors' target (4.5 percent). Even a very conservative interpretation of these figures would imply a significant growth in the flow of money into private equity in years to come.

What about the funds themselves? There are all sorts of different players in this market. Most of the pure private equity funds are structured as limited partnerships. These are essentially tax-efficient investment vehicles that have a limited duration – almost always with a 10-year life. This limited life structure means

that private equity funds are not investors who buy to own the companies for the long term – they are buy-to-sell investors. They want to make their investments, create value and then exit. In usual market conditions, the target holding-period would be 3–5 years, perhaps longer for early-stage venture capital investments. During the credit boom, however, holding periods fell significantly as abundant debt and equity capital provided quick exit opportunities.

Although a common perception of private equity funds is that they are “short-termist” investors, this does not really stand up to scrutiny. Of course, it depends on what is meant by short-termist. If the focus is on holding periods, the average period that private equity funds invest in companies is considerably longer than the average holding period for fund managers who invest in public equity markets (usual estimates are around 3 months on average). If the claim is that constantly having to report quarterly earnings to investors shortens the time-horizons of managers, then this can hardly be true of private equity, where the investors have committed capital for up to 10 years and are simply seeking the highest possible returns on their investment.

There is, however, an interesting tension between the ways that private equity performance is measured that can give incentives for funds to seek an exit earlier than might be optimal. The returns achieved by private equity funds are judged according to two measures of performance – the main one is the absolute return earned, or money multiple. For whatever cash they commit, the investors care about how much cash they get out, net of all the payments to the fund. A good investment might earn 3, 4 or even higher multiples of the original sum invested. Alternatively, the investment may disappoint and return a fraction of the original sum after a few years. Focusing on absolute returns creates no incentives to exit an investment before value has been maximized.

On the other hand, the second performance measure is the internal rate of return (IRR) that investors achieve, which depends on how long it takes for the investors to get their money back. Performance of alternative assets, such as private equity and hedge funds, is often measured by IRRs. These capture the precise timings of cash flows of funds from, and back to, investors. This is important in the case of PE as investors commit funds at a point in time but only actually send the money to the fund when investment opportunities arise. By focusing on IRRs, PE funds

have an incentive to return cash to investors quickly, as the IRR measures both the extent of the returns and how quickly they are achieved. So a profit achieved in two years will have a higher IRR than if the same profit took four years to achieve.

Clearly these performance measures can conflict – an early exit might be good for the IRR but deliver a poor money multiple. In recent years, when credit was abundant and banks were prepared to lend ever-increasing amounts of debt, many funds re-capitalized their portfolio companies by taking on additional debt and paying out a dividend to investors. Such financial restructuring will significantly boost the IRR but will (in itself) have no impact on the absolute returns earned by investors (since the value of the equity in the firm has reduced in line with the increased debt). Of course, there might be tax or incentive advantages from such action (which are discussed more generally later) but there are also significant transaction costs associated with debt issues. On the whole, such recapitalizations are relatively benign from the viewpoint of the investor, so long as the portfolio company can operate comfortably with the debt levels imposed on it. However, they demonstrate the different incentives that funds face according to the performance metric used, and why investors should focus on both IRR *and* money multiples.

Given these performance measures, the private equity firm has sharp incentives to create value, to exit the investments and return the money to the investors. It is worth stressing that the funds have to find a willing buyer for their investments. Therefore, if private equity investors really did “sell off the assets”, or if the companies they invested in were “milked for short-term profits” and if they ultimately “let companies die” (to précis the quotes from the introduction) they would be acting against their own interests. The buy-to-sell nature of private equity is only complete once the sale has been agreed, and a healthy, efficient company is worth more than a ravaged shell.

Furthermore, reputation and performance are particularly critical to private equity organizations. Partnership agreements do not let the funds reinvest the proceeds in the next available opportunity – these are not like mutual funds or hedge funds which shuffle their holdings and only return the money if investors ask for it. Funds can only be invested once, and then must be returned to investors. This means that private equity organizations regularly have to go out and raise capital by launching a new fund. This

creates a dynamic industry where poor performance results in rapid erosion of funds under management, and in which the best performing private equity houses can grow in size very rapidly, as new funds are marketed to eager investors.

For instance, the first European \$1bn fund was raised as recently as 1997, but funds of the successful firms have grown hugely, with several \$15bn funds being raised in the last few years. In the US this growth of the successful private equity organizations has gone even further, with several leading firms diversifying into various forms of debt funds, hedge funds, corporate finance advisory, and even securities underwriting. There has been a notable convergence between the activities of investment banks and organizations such as Blackstone and Texas Pacific Group, and it remains to be seen how far this convergence goes, especially with the changing business models being forced on investment banks.

The final aspect that is worth highlighting is the way that the private equity firm, which is the so-called general partner (GP) of the partnership, is remunerated. There are two components to the remuneration – a fee for managing the fund, which is often 2 percent per annum. It could be higher for successful venture capital firms (reflecting the generally smaller size of VC funds) and will usually be lower – perhaps around 1.5 percent – for the much larger buy-out funds. This fee is typically paid on the capital *committed*, not the amount invested at any one time. So over the ten-year life of a \$10 billion fund a 1.5 percent management fee would sum up to \$1.5bn. Of course, there are many different contractual variations that can lead to lower or higher total fees. But the fact remains that these are extraordinary sums of money, which, for the larger funds, are many times the costs of running the fund. And these fees are guaranteed, whatever the performance of the fund. The general partner also shares in the profits of the fund.

This profit share is the second part of the remuneration and is referred to in the private equity world as “carried interest”. The carried interest is almost always set at 20 percent of the net profits earned by investors and is only payable when the investment is realized and the cash has flowed back to investors. Usually the GPs only start to earn carried interest once the LPs have received all their money back, plus all the fees they have paid, plus a “hurdle rate” of return, typically an 8 percent IRR. So if a \$10bn fund returns \$20bn to its investors, the profits (after fees of,

say, \$1.5bn, as above) would be \$8.5 billion, and the lucky few in the private equity fund who enjoy a share of the carried interest would share 20 percent of this – that is, \$1.7bn.

The remuneration enjoyed by partners in private equity funds are not, in general, reported, except to the investors in the fund. However, the scale of the personal returns that can be earned by successful private equity executives can be inferred from sources such as the prospectuses of those private equity firms who have chosen to conduct an IPO of their management company (such as Blackstone and Apollo), from the acquisition of trophy assets (such as Premiership football clubs) and the entertainers who are engaged for significant anniversary parties (such as Rod Stewart). Furthermore, as will be discussed below, carried interest is typically taxed at capital gains tax rates, which in most countries are significantly below marginal income tax rates. This led to the powerful image, widely reported in the media, of private equity executives paying lower tax rates than their cleaners.

So private equity has become much less private in recent years. Large public companies are now within the grasp of private equity funds, unions have launched an effective campaign which has managed to make the badge of “asset strippers” stick, the remuneration and taxation of private equity executives has hit the headlines and the sector has become the subject of intense public scrutiny. As private equity has grown in economic significance, and spread into new countries, a number of concerns have been raised. These can be classified into three main areas: the impact of private equity ownership on portfolio companies, the appropriate level of transparency and regulation, and taxation. The next sections consider each of these in turn.

### 3. The economic impact of private equity

The case for private equity ultimately depends on whether private equity creates value. For investors, the *extent* of value creation – in terms of superior returns – probably matters more than its *source*. But from a public policy perspective, the source of investor returns matters: if private equity creates value by enhancing efficiency and creating stronger companies, then a vibrant private equity sector should enhance economic growth. On the other hand, if private equity returns derived mainly from increasing debt levels and thereby reducing corporate taxes, then the impact

on the overall economy would be minimal: investor returns would be largely matched by taxpayer losses.<sup>1</sup>

These are the sorts of issues that are driving public policy towards private equity within Europe. We discuss the tax issues in more detail later, but some countries have responded to the growth of private equity funds by restricting the interest deductibility of debt. Whether such policy is sensible depends in large part on the economic impact of private equity. In this section we start by reviewing the evidence on performance, viewed from the perspective of investors. Then we consider the evidence on the ways private equity funds create, or destroy, value. Clearly, although value creation is the main focus of private equity funds, public policy in many countries has paid rather more attention to whether private equity ownership creates employment, and we investigate the evidence on this in section 3.3. Finally in this section we consider whether the often highly-leveraged structures employed in LBOs contribute to potential systemic financial instability through increased default risk.

### 3.1 Returns

Evidence on private equity returns is partial at best. This is in large part because the private equity structure – a limited partnership – is a private contract between investors and the fund. The investors in the fund obtain detailed, regular updates on performance, but such information is not generally available to others, certainly not at the level of the performance of individual portfolio companies. Indeed, partnership agreements would often specifically prohibit the release of information to third parties. Some fund-level data is published by public pension funds in the US – such as the California Public Employees' Retirement System, one of the largest investors in private equity – but more systematic and balanced data on performance is simply not available at the present time.

<sup>1</sup> Even in such a case, the fact that private equity-backed companies benefitted from a lower post-tax cost of capital could have positive economic effects, such as increasing levels of investment.

**Table 3.1**  
**Cumulative pooled returns to European private equity**

	IRR (%)		Investment multiple		
	All funds	Top Quarter	Realised	Remaining	Total
Early Stage	-0.8	13.1	0.41	0.56	0.97
Development	7.8	17.3	0.77	0.69	1.46
Balanced	6.8	19.9	0.66	0.62	1.28
<b>All Venture Capital</b>	<b>4.5</b>	<b>14.9</b>	<b>0.59</b>	<b>0.61</b>	<b>1.20</b>
<b>Buyout</b>	<b>16.3</b>	<b>34.2</b>	<b>0.93</b>	<b>0.6</b>	<b>1.53</b>
Generalist	9.3	11.4	1.03	0.42	1.45
<b>All private equity</b>	<b>11.8</b>	<b>23.5</b>	<b>0.88</b>	<b>0.58</b>	<b>1.46</b>

This table pools all the funds raised within Europe since 1986 and measures the return on the entire portfolio as of December 2007, using both the internal rate of return (IRR) and the multiple of the original investment that the funds returned to investors.

Source: EVCA (2008).

This is not to say that data does not exist: various data vendors and industry associations survey both LPs and GPs to obtain evidence on return performance. However, as discussed in more detail in Jenkinson (2008), the existing data suffers from significant sample selection issues, most of which probably bias the reported returns in an upward direction.

In Table 3.1 we report the returns published by the European Private Equity and Venture Capital Association (EVCA). This takes the longest possible perspective on the performance of private equity within Europe, by estimating returns from the inception of the industry in the mid-1980s to the most recent funds for which performance data is available. The data measure the net return (after payment of management fees and carried interest) that the investors would have received from investing in all European private equity funds that are included in the survey.

As can be seen, the observed average private equity returns in Europe differ hugely from venture capital to buyouts. VC returns have been dreadful. Despite public policy often giving inducements and subsidies to VC, the net average returns – as measured by IRRs – have barely kept pace with inflation. Indeed, when looking at early-stage VC – investing in real start-ups – the average returns have been slightly negative, meaning that investors have not even received all their original investment back, as can be seen from the average investment multiple of 0.97. However, an important feature of PE returns is the variability

across funds: whereas mutual funds may differ in performance by a few percentage points over time, private equity funds have hugely differential performance. This can be seen in the European VC numbers: the average return of 4.5 percent is ten percentage points below the return obtained by the top quarter of the funds. Manager selection in private equity is therefore critical. Of course, the problem is in anticipating which managers will be the top-performers in the future. Although there is considerable variability, in general the performance of funds focused on European venture capital has been hugely disappointing and has resulted in an exodus by investors.

In contrast, buyout returns have, on average – and before risk-adjustment – been much more impressive. Average IRRs have been around 16 percent with investors receiving around €1.5 for every €1 invested. Again, however, there is huge variability, with the top quartile of buyout funds producing IRRs of around 34 percent. These rather impressive returns are what has attracted investors into European private equity, where most of the funds have been targeted at buyouts, and, in particular, large buyouts (as witnessed earlier in Figure 3.3).

However, one should not reach for the cheque-book too rapidly! These returns are not risk-adjusted, and this is potentially important given the extent of the financial leverage employed in buyouts. Simple finance theory tells us that increasing use of debt will increase expected equity returns to compensate for the higher level of risk borne by equity holders. This might have seemed an academic nicety through the boom period when asset prices, earnings, and leverage were all increasing. But since the summer of 2007, the relevance of such matters is now starting to become apparent. With European economies now in recession, the market value of the equity stakes of many private equity investments are collapsing, and in some cases will already be negative. This does not mean the private equity funds will abandon such companies, but it does point to some fund vintages producing very disappointing returns: investors with 2004 and 2005 vintage funds in their cellars will be watching developments with some trepidation.

Some hints as to the extent of the recent fall in the value of private equity portfolios can be seen from the public announcements of some of the funds, as well as the evidence from funds that are themselves publicly quoted. For instance, the LPX Europe Index, which measures the performance of 25 listed Euro-

pean private equity funds, fell by 64 percent during 2008. Of course, the public equity markets themselves fell considerably over this period, and it remains to be seen how public and private equity returns compare. However, understanding the true risk and return characteristics of private equity, and how performance compares with reasonable benchmarks, will be difficult until the required data – at the level of the portfolio company – is made available by the funds or the investors. The evidence available to date, notwithstanding all these caveats, does suggest that the top-performing funds can add significant value to their portfolio companies and produce some impressive returns for investors. This is much more apparent at the buyout end of the market, at least in Europe, than in venture capital. However, the recent precipitous falls in market valuations will undoubtedly tarnish many performance records, including those of some of the best-known funds.

### 3.2 Sources of value added

Whilst the overall returns earned by funds give some measure of the attractiveness of private equity as an asset class, from an economic policy perspective it matters how returns are derived. For instance, if the returns of the high-performing funds are derived from running business more efficiently, then public policy should be supportive. If all the gains are at the expense of taxpayers or employees, then different policies may apply.

A key issue, therefore, is an attribution analysis of the sources of returns to private equity. Broadly speaking there are three potential sources of value: increased operating efficiency, more efficient capital structure, and market timing or arbitrage.

Despite the clear importance of attribution analysis, little systematic evidence has been produced to date. In large part this is because the required company-level data is not generally available without the cooperation of the private equity funds. However, evidence to this effect is beginning to emerge.

For instance, an interesting new study of UK companies has been conducted by Acharya and Kehoe (2008). They study the performance of large transactions (> €100mn in enterprise value; the median EV in the sample is €470mn) conducted by “large and mature” private equity houses. This is not, therefore, a study based on a stratified sample of the whole sector, and should be viewed more as giving an insight

into how the successful funds – who are likely to be large and mature – have an impact on their portfolio companies.

The sample consists of 66 portfolio companies acquired between 1996 and 2004; however, of these 29 involved corporate restructuring in the form of acquisitions or divestments by the target firm. As we shall see later, when discussing the effect of private equity ownership on employment, a complication in analyzing the impact of private equity ownership is that significant corporate restructuring often occurs. This makes it very difficult to trace the impact on the original company, since restructuring often overwhelms organic growth (or decline). In this study, the result is that only 37 deals in the sample involved “organic” growth.

These companies are benchmarked against public market comparators, and the authors try to identify the extent of the risk-adjusted excess return, or, borrowing from the hedge fund market, “alpha”. They also, estimate the IRRs and investment multiples on the deals. In general they focus on exited investments, although 7 deals have not exited as yet. Clearly, this focus may introduce a sampling bias, as an exit is most likely once growth in firm value has been achieved and the PE fund is in a position to provide returns for its investors. On the other hand, only when the investments have exited do we know the real value created.

The authors find an alpha for their sample of private equity investments of 9 percent p.a., which is statistically significant. Note, however, that for this comparison with public markets, the sample selection biases are very relevant. In terms of the sources of out-performance, they find that much of the efficiency improvements come from improved operating performance, in particular increasing EBITDA margins. Therefore, the bottom line of this study is that private equity ownership in this sample was associated with outperformance even after controlling for leverage and risk. There is also no evidence of asset stripping: the companies grew revenue more than their quoted peers, increased capital expenditures and capital efficiency. They also increased employment, although more slowly than their quoted peers. Strong incentive structures, active management and a clear strategic direction seem to be the factors driving the out-performance – thereby giving some strong support to the case for private equity as an alternative corporate governance structure.

Few comparable studies have been performed in other European countries, or, for that matter, in the US. However, Ernst and Young have produced an analysis of the top 100 exits by private equity funds in 2007 – which includes portfolio companies from Europe, the US and Asia. Again, this focus on exits (and the largest exits) clearly creates some significant sample selection biases, although as a study of “successful” private equity transactions it nonetheless has some value.

Not surprisingly – given the way the sample was constructed – the largest 100 private equity exits outperformed comparable public companies. Furthermore, since the survey is based on exits that took place in 2007, and the average holding period of a company by a PE fund is 3–4 years, the historical scope of the survey is heavily weighted towards some of the most advantageous conditions private equity has ever experienced. It is inconceivable that private equity-held companies will create value at similar rates in 2008–9, given the extent of recent markdowns in asset values.

In terms of the sources of value creation, the study focuses on the growth in enterprise value and EBITDA. In terms of EV the compound average growth rate (CAGR) for private equity-owned companies was 24 percent compared with a public company benchmark of 12 percent. For private equity-owned companies the EBITDA CAGR was, on average, 16 percent, compared with the public benchmark of 10 percent. And in terms of EBITDA per employee, the private equity-owned companies produced a CAGR of 12 percent, compared with the public benchmark of 8 percent.

Clearly, there are serious questions about whether the results regarding value creation apply across the sector. To date, the few studies that have been conducted have tended to focus on the more successful exits and more successful funds. However, these studies – and other more stylized case-study evidence – suggest that the claim that private equity creates value merely by asset-stripping is false. At its most effective, private equity funds clearly do create value during their tenure as owners. This tends to be by growing revenues and margins. Managers are highly incentivized and are required to operate with limited free cash flow (after interest payments). When successful – and private equity ownership is certainly no magic wand that invariably produces wonderful results – the resultant operational efficiencies are magnified by the highly

leveraged structures that are adopted. Of course, these amplification effects of leverage also work in reverse, which implies that many PE-backed companies will seriously underperform their publicly-quoted peers as the world moves into recession.

### 3.3 Employment

As should now be clear, the private equity model is one of extremely sharp incentives on all parties – in particular for the management of the portfolio companies, and the private equity executives – to create value for investors. This alignment of incentives is, arguably, one of the key governance impacts of private equity ownership. Creating value is therefore the over-whelming goal of private equity, and other possible desiderata – such as maintaining or creating employment – are not part of the contract. Just like in any company that is trying to maximize its value, employment should be optimized rather than maximized.

However, as the private equity sector has become the focus of increasing attention, unions and politicians have started to claim that the private equity model, almost by construction, leads to job losses. Recall part of the earlier quote from Poul Nyrup Rasmussen: “assets are sold and workers are laid off”. The earlier evidence on the sources of value creation cast doubt upon the validity of this claim, but there have also been a few other studies that have looked in detail at the question of whether private equity companies create or destroy jobs.

Probably the most comprehensive study to date has been carried out on US data by Davis et al. (2008). This paper is instructive not only for the results they derive but also in demonstrating how difficult it is to estimate changes in employment levels at companies that are changing their strategy and organization in significant ways. Rather than focus exclusively on employment at the overall firm level, the research also delves into establishment-level data. This distinction can be important: the sale of a division or business unit would be recorded as a loss of employment at the firm level, even though the establishment may continue to employ exactly the same number of workers under the new owner. Since many private equity transactions involve a net sale of divisions or business unit, an establishment-level analysis overcomes the potentially distorting results of corporate restructuring. However, while the use of establishment data has some attractions, there are also some significant draw-

backs. In particular, since some business units are sold to other companies, tracking establishments for 5 years after an LBO, as the study does, means that it is not possible to produce a clean measure of the impact of continued private equity ownership.

The study identifies 5,000 private equity-backed US firms, covering more than 300,000 establishments, as well as an additional 1.4 million establishments used as comparators, matched by industry, age, size etc. Since most of the public policy issues that have been raised regarding employment relate to LBOs, only transactions that involved leverage are considered. Job creation and job destruction are considered separately as gross creation and destruction dwarfs net changes. The authors focus on the employment path relative to comparator firms. This is critical as all establishments – irrespective of ownership – undergo patterns of rise and fall, as new establishments replace older ones.

Despite all these caveats, the study produces some interesting results. The rate of acquisitions, sales, new plants and closures are approximately twice as high in private equity-backed firms, so there is a much greater extent of corporate restructuring. The net result for employment on a firm-level basis, across all sectors, is that those firms taken over by PE have 3.6–4.5 percent fewer employees after two years, once all acquisitions and exits are taken into account. For this part of the study, the timescale is shortened to two years, to partially mitigate the impact of major acquisitions and divestments.

However, as noted earlier, this does not necessarily imply that private equity ownership results in the loss of jobs in the overall economy. The establishment-level analysis gives some additional clues, though, with the authors concluding that US establishments taken over by PE have 10 percent fewer employees after 5 years than if they had developed in line with similar workplaces not subject to an LBO. However, as noted earlier, this result has to be interpreted with care as the establishments may have changed ownership during this period.

Overall, this study finds some relatively modest differences in employment, with private equity ownership being associated with slightly lower levels of net job creation. However, in addition to the caveats previously noted, there are various other general problems in drawing conclusions. In particular, although the authors are careful to conduct their analysis relative

to a control group, it may well be that the sorts of companies that private equity targets are precisely those where inefficiency is high or where restructuring is required. And, more generally, from a public policy perspective it cannot be an objective to protect jobs *per se* – the overarching objective is to create competitive, valuable companies. What the study does show, however, is that the perception of some commentators of private equity as being slash-and-burn owners who lay off most of the workers is quite unjustified.

No similar in-depth study has been performed on European firms. However, there have been some attempts to measure the employment effects of private equity. The European Private Equity and Venture Capital Association (EVCA) produced a study that reported various estimates of employment growth in early stage firms and LBOs (see EVCA 2005). Perhaps not surprisingly, all the evidence suggested early-stage firms grew employment rapidly, with the headline claim being that 630,000 new jobs were created by VC-backed firms within Europe over the period 2000–04 – a growth rate in employment of 5.4 percent per annum. The impact of LBOs was also claimed to be very positive, with an estimated growth rate of employment of around 2.4 percent per annum, which translated into 420,000 new jobs across Europe.

However, there are various concerns about this analysis. The impact of LBOs is based on a sample of just 99 portfolio companies that private equity funds had invested in over the period 1997–2004. The sample was derived from a voluntary on-line survey, which raises various potentially serious concerns about sample-selection biases. In particular, knowing the political environment within which private equity increasingly operates, it seems likely that funds would be more likely to complete the survey in respect of portfolio companies where employment grew strongly. Furthermore, by considering the employment effects at the firm level, the study encounters the problems identified earlier regarding restructuring. In an attempt to focus on organic growth (or contraction) the study excludes companies where employment levels changed by more than 20 percent per annum, but this does not really address the issue. Furthermore, the report benchmarks employment levels against publicly quoted European comparators. It seems likely that the latter may be larger and more mature than the LBO sample, although no information comparing the two groups is supplied. For all these reasons, the very positive impact that LBOs are claimed to have on employment levels needs to be interpreted with care.

At the national level within Europe there have been few studies that look at employment. One exception is Amess and Wright (2007), which looks at UK-based firms. One feature of this study is that it distinguishes between deals where the private equity fund works with the existing management – referred to as management buyouts (MBOs) – and those where new management is introduced by the private equity owners – referred to as management buy-ins (MBIs). The sample for the analysis comprises 1350 firms that had undergone an LBO. It is worth noting, however, that the definitions employed could include younger companies seeking growth capital (which might have low or no debt), as well as more mature companies. Hence it is questionable whether this study really focuses on the LBOs that have caught the attention of politicians and unions.

As in the other studies, comparator firms are identified and employment growth compared at the level of the firm. Companies are excluded if assets change by more than 100 percent in any one year, which is a fairly coarse control for restructuring effects. The authors conclude that employment growth is 0.5 percent per annum higher for MBOs and 0.8 percent per annum lower for MBIs as compared with the control group. Leaving aside the general problems, discussed earlier, regarding inference in these firm-level studies, these results seem directionally plausible. To the extent that MBOs can really be distinguished from MBIs, one might expect the latter – where new management is being introduced to replace the old – to be associated with more job cuts. On the other hand, the cases where incumbent management is supported by incoming private equity investors might be those companies that have been run more efficiently.

Overall, an interpretation of the results regarding the impact of private equity on employment is complex. Indeed, given that in many cases private equity owners execute significant changes in corporate strategy, it is difficult to even construct an appropriate counterfactual. For instance, comparing with public companies may not be appropriate if they are not subject to significant changes in strategy. And strategic changes are very idiosyncratic. The ability to compare “organic” employment creation or destruction is therefore limited. Overall, however, the results seem to suggest that employment grows, if anything, at somewhat lower rates under private equity ownership. Whether this is a good or bad thing is another matter. But the claims of some unions and politicians that private equity funds sack workers and cripple the

companies are based more on anecdotal than systematic evidence.

### 3.4 Financial distress

So far in this section we have reviewed the evidence on financial returns, the sources of returns, and the impact on employment. However, given the extensive leverage employed by private equity funds in many buyouts, should we expect to observe financial distress among portfolio companies, and imploding of funds in the manner witnessed amongst hedge funds? The short answer to these questions is yes and no. Starting with the issue of the impact on funds, as noted previously, PE funds are not leveraged within the fund itself. Leverage is used to acquire the portfolio company, which is kept within the acquired firm, and has recourse neither to the fund nor to the other portfolio companies. So, if an individual portfolio company becomes bankrupt, the equity stake of the private equity fund would become worthless, and the debt providers would take over ownership and control of the company. Of course, this will harm the returns of the PE fund – as their investment is written down to zero – but the impact does not spread to other companies in the portfolio.

Furthermore, investors commit money to private equity funds for up to ten years, and so cannot withdraw capital if a fund is doing poorly or if recession takes hold. In contrast, hedge funds attracted capital that was far more mobile: many hedge funds allowed withdrawals by investors with only a few months notice. The value of the “patient capital” provided by investors in private equity funds has only become fully appreciated in recent months, as investors have been scrambling for liquidity. Hedge funds have been experiencing large-scale redemption requests by investors, and little new capital being committed. In some cases this has resulted in huge asset sell-offs by hedge funds – often into markets with few buyers – and the mismatch between the relative liquidity of investor commitments and the illiquidity of many of the underlying assets has caused enormous problems. In many cases hedge funds have had to invoke “lock-up” clauses to restrict investor withdrawals, to

allow a more orderly run-down of the fund. The main problem that PE funds are experiencing is some investors are becoming seriously over-committed, in terms of asset-allocation, to private equity, given the slowdown in the rate at which capital is being returned to investors. But withdrawal of existing investments, which would impact on the portfolio companies, is simply not possible.<sup>2</sup>

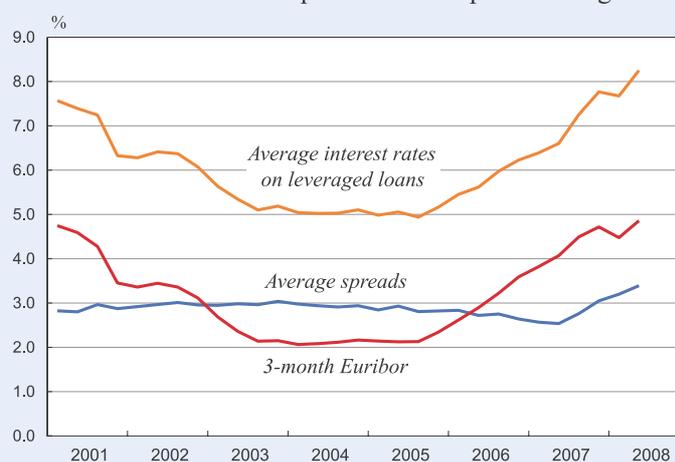
Of course, although the private equity fund structure provides long-term capital commitments, they are still exposed to the current economic realities of falling asset prices, falling liquidity and rapidly worsening macroeconomic conditions. While the funds themselves will not implode, will some of the portfolio companies experience financial distress and bankruptcy? As noted earlier, the answer to this question is undoubtedly “yes”. However, such problems are likely to be less acute in the short-term than might be assumed, given that private equity funds have been buying assets at record prices and taking on large amounts of debt (as shown by figure 3.2).

Why? Because PE funds made good use of the boom in leveraged finance in the last few years to borrow at low interest rates on relatively lenient terms from banks and other providers of debt financing. Leveraged loans for private equity buyouts are priced relative to inter-bank interest rates such as LIBOR or EURIBOR. As figure 3.4 shows, not only were inter-

<sup>2</sup> There is, however, a growing secondary market in private equity investments. Recently some high-profile investors, such as Harvard University and the Wellcome Trust, have announced that they intend to sell some of their existing investments. However, these would be sales of partnership interests to other investors, and so would not deprive the fund or their portfolio companies of money.

Figure 3.4

#### Interest rates and credit spreads on European leveraged loans



Source: [www.euribor.org](http://www.euribor.org); EVCA; Thomson Venture Economics; Thomson Reuters.

est rates low, but the average spreads on leveraged loans stayed low as lending multiples rose. Consequently, credit metrics – such as interest coverage – did not deteriorate as much as one might assume from the raw figures on the extent of debt.

Furthermore, much of the debt provided for private equity buyouts was both relatively long-term – typically loans have a 7–9 year term – and had a significant non-amortising proportion. Most corporate debt requires both interest payments and repayments of principal during the life of the loan. However, much of the debt used to fund buy-outs has involved “bullet” re-payments whereby the principal is only repaid at the end of the term of the loan. Indeed, for some portions of the debt, interest payments may not be required or may be at the discretion of the borrower. These “payment in kind” and “toggle payment” features became common during 2006 and 2007 and will provide borrowers with valuable flexibility. As long as the company can continue to meet the required interest payments, financial distress may be delayed or avoided completely. As Europe has entered what looks like a deep recession and banks remain reluctant to either extend or re-finance loans, the value of such long-term funding with low repayments will become apparent.

A final feature of the leverage boom was that covenants associated with loan agreements became looser. An extreme version of this phenomenon was the “cov-lite” loans that many private equity funds negotiated for their portfolio companies. Such loans have few on-going requirements, in terms of maintaining particular credit or balance sheet ratios, other than to keep paying the agreed interest on the debt. Of course, even paying the interest will be impossible for some companies, but this is not only true for private equity-owned companies but for the corporate sector in general. However, the relatively permissive loan agreements that were the norm during the leverage boom will reduce the number of companies entering financial distress.

In summary, many private equity funds took full advantage of the leverage boom by negotiating large, long-term loans that give their portfolios unusual amounts of flexibility in terms of repayment. The terms of such borrowing will help to reduce, but not eliminate, the number of portfolio companies that suffer financial distress.

So who paid the price for this historically unprecedented extension and pricing of credit? The answer is,

those that arranged and ultimately provided such leveraged lending. Often the lending was arranged by investment banks, and in some cases they took the entire deal onto their books before finding investors for the debt. This resulted in a huge overhang of un-syndicated leveraged loans whose market prices fell dramatically as the credit crisis developed. Leveraged loans certainly played their part in the downfall of the investment banks, but the private equity funds were – on the whole – acting entirely rationally in accepting as much mispriced debt that they were offered.

The other main losers were the plethora of financial institutions that invested in leveraged loans as they were pooled, tranced, structured, enhanced (or not) and distributed around the financial system. Hedge funds, collateralized loan obligations, monoline insurers, banks and insurance companies all shared in the pain. And, ironically, they now find some private equity funds offering to buy back the debt at a fraction of the face value.

However, there is one sting in the tail of the leverage bubble. As noted earlier, the lack of covenants on many loans reduces the likelihood of default, even if the equity in the company is essentially worthless. There are likely to be a significant number of companies that were bought by private equity funds at the top of the market where the prospects of them ever recovering their investment, let alone make a reasonable return, is low, certainly for the next few years. In normal circumstances, such companies would default and the private equity owners would hand the keys to the bankers who would take over control of the company. Losing the entire equity stake is clearly bad, but when the outcome is reasonably quick it enables the private equity executives to move onto more productive activities, such as adding value to more promising companies or sourcing new investments. Cov-lite loans are likely to result in a growing number of “zombie” companies – the living dead who only survive due to the generous borrowing taken out at the top of the market. Such firms may take much longer to default – in some cases this may be delayed until loans have to be re-financed after around 7–9 years. As a result, private equity funds will have to continue to manage and nurture such companies, even if the beneficiaries of this effort are mainly the banks and other investors who provided the debt financing rather than the equity investors.

In summary, leveraging any asset increases risk and expected return. This amplifies positive returns in

good market conditions and similarly amplifies negative returns when economic conditions worsen. There is no doubt that as the European economy now has entered recession the incidence of default and financial distress will rise, for all companies, whether private equity-owned or not. Although the amount of debt taken on by private equity buyouts in recent years hit record levels, the terms of such loans were also historically unprecedented in their leniency. It remains to be seen how these two factors balance in the coming months.

#### 4. Transparency and regulation

Within Europe considerable attention has been devoted to whether private equity should be regulated and, if so, how. It is worth noting that private equity remains an asset class that is largely the domain of institutional investors. Although retail investors can gain exposure to private equity through certain funds that operate publicly listed vehicles (such as 3i, Candover, etc.), or through asset managers who put together portfolios of private equity investments, individuals (other than the “ultra-high-net-worth”) cannot gain access to direct investments in the underlying limited partnerships.

Of all the European countries, the UK has seen more activity by private equity funds, both in terms of investment in companies, and in terms of the location of many of the private equity professionals. In part this is because the UK was one of the first countries to agree the status and taxation of limited partnerships, but also because the UK has a long-standing laissez-faire approach towards corporate ownership and M&A activity. It has also, in recent years, been the country where the private equity industry has been under the most scrutiny.

The first major review of the private equity industry was undertaken by the Financial Services Authority in 2006 (see FSA, 2006). This report broadly gave the industry a clean bill of health, although the potential for conflicts of interest between the LPs and the GPs was identified as warranting further investigation. The FSA therefore produced a thematic review of conflicts of interest, which was published in July 2008 (FSA, 2008). This report noted that, in general, “funds operated business models with a high degree of alignment between the interests of managers and fund investors”. This is not surprising, since the limited partnership agreements

are the subject of extensive discussion between the LPs and the GPs, with both sides being advised by lawyers and specialized consultants. Some investors obtained better terms than others (for instance, early “cornerstone” investors), but more often funds operated with strict equal-treatment rules regarding investor terms. In general the level of disclosure and reporting by the funds was judged to be extensive and widespread.

An interesting theme that recurs through all the various reviews and investigations is that investors report few problems with private equity funds. They have access to regular detailed reports on the performance of the individual portfolio companies and on the overall fund, and are fully informed about the returns and payments of fees and any carried interest to the GPs. So whilst private equity investments are indeed private, subject only to general laws relating to all private companies or transactions, there are no issues regarding transparency or information asymmetry between the investors and the funds.

So, two sophisticated parties agree to do business, and both are happy with the outcome. Reputations are critical, and funds are strictly time-limited, so any bad behaviour or poor performance would likely jeopardize raising a future fund. Entry into the industry constantly occurs, as experienced individuals leave larger organizations to form their own funds, on the back of previous successful transactions. Why the public concern?

The answer to this question is largely political. As private equity started acquiring much larger organizations some of which were household brands – such as the AA or Boots in the UK – public attention grew. However, a critical role was played by trade unions in the UK and elsewhere, who focused on examples where private equity-owned companies shut down plants and/or reduced employment. As noted in the previous section, whilst such cases undoubtedly exist, it is far from clear whether private equity owners, on balance, create or destroy more jobs than other forms of ownership. Nonetheless, the power of example was strong, and private equity firms, lacking experience in dealing with anyone other than their limited circle of investors, proved unable to shake off the labels of job-destroyers and asset-strippers.

In the UK this led to the industry association, the BVCA, forming a high-level working group, chaired

by Sir David Walker, to investigate disclosure and transparency in private equity. Again the dog did not bark: investors were satisfied with the level of disclosure and transparency. The final recommendations of the review therefore focused on enhanced reporting and communication to the general public.

Most of the recommendations on enhanced reporting are relatively modest, and some funds probably already satisfied many of them. The review suggested additional reporting – over and above what any private company would be required to report – by larger portfolio companies owned by larger private equity funds. With a nod to the unions, the size criteria for this enhanced reporting include employment levels (at least 1,000 UK employees) as well as the value of the company (over £500mn, or over £300mn in the case of public-to-private transactions, where the public would have previously had access to more information). Such firms are required to publish their annual reports on their website within 6 months of the year-end, reveal which private equity funds own them and to publish a business and financial review, including information relevant to employees and other stakeholders. To date, 53 companies have signed up to this enhanced level of disclosure.

The other strand of recommendations related to the private equity firms themselves. Those (generally larger) firms that own portfolio companies that are subject to the enhanced reporting, are required to publish an annual report giving information on their investment approach, their portfolio companies, the broad geographic distribution of their investors and information about the top management. To date, 32 firms have agreed to communicate such information to the general public, and a monitoring group has been established to ensure compliance with this voluntary code.

The first batch of these reports have been produced and, in some cases, make interesting reading. But, on average, they are about as interesting as the glossy annual reports from public companies that are often assigned rapidly to the re-cycling bin! It is debatable whether the benefits of such reporting and communication outweigh the costs.

The final recommendation of the Walker Review acknowledged – correctly – that the industry should “undertake rigorous evidence-based analysis of the economic impact of private equity activity”. As noted

in the previous section, evidence on the extent, and sources, of the value created by private equity ownership remains incomplete and largely anecdotal. The first report BVCA (2009), has just been published. Although it includes some interesting analysis, the current dataset – with just 14 exited investments – is too small to draw any general conclusions.

Many other countries across Europe have been conducting their versions of the Walker Review. During June 2008 both the Danish and the Swedish industry associations published their reviews of the appropriate extent of transparency and disclosure. In most important respects these mirror the approach suggested by the Walker review – in particular the establishment of a code of practice defined and policed by the industry itself, rather than the introduction of new statutory requirements. There are, of course, local differences, which in the main relate to the relevant size of companies and funds (for example, the Danish proposals cover over one-half of the private equity funds in Denmark, whereas the Walker proposals are relevant to only about 15 percent of UK private equity funds), and the extent to which existing laws already require adequate reporting by private companies, engagement with workers and board representation.

Other European countries have followed suit and have produced their own transparency proposals. What seems likely is that the pressure for a set of common guidelines that apply across Europe will grow. However, it remains to be seen who exactly benefits from this increased transparency and reporting. After all, the investors already have all the information they could possibly desire. Whilst these reviews by the various industry associations have, for the time being, calmed the political storm, a sober cost-benefit analysis might well question the value of these voluntary codes.

We now turn to a final set of public policy issues relating to taxation that continue to attract public attention to the private equity industry.

### 5. Taxation issues raised by private equity

Two main policy issues have been raised regarding private equity: whether the tax system actually encourages LBOs and results in a reduction in national tax revenues, and whether the tax treatment of the private equity executives’ carried interests in the funds is appropriate and fair. We consider these in turn.

### 5.1 Tax deductibility of debt

Most tax systems allow tax-deductibility of interest expenses on debt at the corporate level. And most tax systems treat equity financing less generously, by not allowing full tax deductibility of dividend payments or retained earnings. As a result, most companies have an incentive at the margin, other things equal, to increase the use of debt to reduce their post-tax cost of capital. The tax benefits have to be weighed against the potential costs – such as the reduction in financial flexibility or the probability of financial distress – but for many companies the potential net gains from increasing leverage are significant.

Private equity funds often transform the capital structure of companies they acquire, and thereby take full advantage of the tax deductibility of interest payments. This can significantly reduce the amount of corporation taxes flowing into the public coffers. As a result, many countries, both in Europe and elsewhere, have started to question whether the tax system should allow full tax-deductibility for interest expenses, and thereby discourage the more leveraged capital structures.<sup>3</sup>

In large part such moves seem motivated by a view that, beyond a certain point, leveraged capital structures are only motivated by the potential tax savings, and so should therefore be discouraged. On the other hand, the potential benefits of leverage extend beyond tax issues. As noted in a seminal paper by Jensen and Meckling (1976), debt can help to overcome agency issues by removing free cash-flow and sharpening the incentives of managers. The optimal level of debt will vary significantly between companies, depending on all sorts of considerations (the stability of revenues, operational leverage, competition etc.). It seems likely that any simple tax rule to limit the tax deductibility of interest payments will constrain some companies from implementing perfectly legitimate capital structures. For such companies, the post-tax cost of capital will be increased relative to their international competitors.

The other main motivation for restricting the tax-deductibility of interest payments resulted from concern about the impact on national tax revenues. To some extent one would expect that as more debt is used, tax revenues should increase from the providers

of debt capital. In the past this used to be provided by local banks, whose taxable profits might rise as a result. However, during the recent leverage boom, much of the debt was provided by hedge funds, CLO funds and others, many of whom operated offshore. As a result, the flowback of taxes from debt providers was less likely to occur. Whilst undoubtedly true, at the current time the prospect of even banks paying taxes on profits appears some way off, and few of these new financial players are likely to be providing finance for some time. In any case, this is really just an example of the difficulties national governments are finding levying taxes on the corporate sector within a global financial system. It is not hard to relocate a company to a jurisdiction that does not impose such rules, or to organize the tax affairs of a company to channel profits to lower-tax countries. Rules to arbitrarily limit the capital structure choices of companies are unlikely to be either efficient or effective in maintaining tax revenues.

It is worth making one further observation regarding the tax benefits of leverage. In large part the beneficiaries of these tax benefits are likely to be the vendors of the companies that are acquired by private equity funds, rather than the investors in the private equity fund. Why? Because leverage is a commodity that is available to all reputable private equity funds. Provided the companies are acquired in a competitive process, any tax benefits of leverage should be reflected in the purchase price paid by the private equity funds – i.e. as part of the takeover premium. Therefore, the main impact of rules to restrict the tax-deductibility of debt may be felt by the owners of existing assets, rather than in the returns reported by private equity funds.

### 5.2 How should carried interests be taxed?

The second area of public debate regarding the taxation of private equity relates to the taxation of those working in the sector. In particular, in both the US and Europe, the taxation of the carried interests of the private equity executives has become the subject of considerable debate in the media and amongst politicians.

The issue is essentially whether these carried interests – the share of the profits made by the fund – should be treated as capital gain or income? This is a complex issue. The GPs are committing capital to the funds, so capital gains tax has some justification. On the other hand, they obtain the carried interests as a result of

<sup>3</sup> Most tax systems include thin-capitalization rules to catch tax avoidance associated with the creation of debt that is, in economic terms, equity.

their role as employees of the fund, and so carried interest looks much like a profit share, which would normally be subject to income taxes.

A full discussion of this issue is beyond the scope of this chapter, although a good summary of the issues is provided by Lawton (2008). However, the current tax treatment in many European countries appears very generous, especially when capital gains tax rates are reduced to low levels for longer-term holders of assets (concessions which normally benefit private equity executives). However, dealing with the complexities of any such reform should not be underestimated. For instance, those countries – such as the UK – which have responded to the political out-cry by simply increasing capital gains tax rates (or removing taper relief) are potentially harming all sorts of other entrepreneurial incentives in a quest to raise taxes on private equity GPs. Such issues have undoubtedly moved down the political agenda in the current environment, with future carried interest payments likely to fall significantly, and private equity funds being among the few with capital to invest. But these issues are likely to re-emerge in due course.

## 6. Conclusions

Private equity plays an increasingly important role in the financial system. Despite recent market turmoil, the private equity model of ownership and governance is here to stay. Although it has attracted much negative publicity in recent years, in particular within some European countries, many of the negative claims regarding the impact of private equity on the economy are not supported by the evidence.

A major issue facing private equity funds is that there is little understanding of how they add value. This is in part due to the culture of privacy within the industry, which is a major impediment to public understanding of the role of private equity in the economy. Whilst some analysis has been published, it is often selective and partial, and frequently funded and vetted by industry associations. For many of the successful funds there is good story to tell, but to date only the large institutional investors have heard it. As a result, the claims of private equity funds are often greeted with scepticism.

One outcome of the veil of secrecy has been the push to increase transparency in many countries. As discussed, whilst no bad thing, this is likely to have lim-

ited impact. The investors in private equity funds already had access to regular, detailed reporting. There is no information asymmetry for those providing the capital, and, if there was, then as some of the largest and most sophisticated global investors they could obtain any information they desired. It is not clear that private companies should have to comply with different standards of reporting according to who the owners are. In general, the Walker Review, and similar initiatives in other countries, may have some effect at the margin in terms of information flow to employees and other interested parties but is unlikely to satisfy the critics.

Another response to the growth in private equity has been to amend tax policies. At the corporate level, tax policies to make leveraged buyouts more difficult or costly have questionable justification and uncertain impact. The optimal capital structure will differ between companies, and restricting the tax-deductibility of debt will either raise the post-tax cost of capital or encourage tax avoidance by companies that find themselves constrained by the policy. In many cases the main impact of such policies is likely to be felt by the existing owners of companies that might be acquired by private equity funds rather than in the returns earned by private equity funds themselves. At the personal level the taxation of private equity executives is an area that warrants careful consideration as it is debatable whether their profit shares should be taxed as capital gains as opposed to income, or some hybrid of the two. But given the international nature of the industry, it is questionable how much money would be raised, and poorly thought-out policy might result in significant changes in the location of the funds.

Finally, although the future returns earned by private equity funds that invested heavily in the period prior to the leverage bubble bursting in August 2007 are likely to be poor, the extent of financial distress and bankruptcy of the portfolio companies may be lower than might be expected. In large part this is due to the fact that private equity funds took full advantage of the unprecedentedly generous terms associated with debt financing during the leverage bubble. Whilst the investment banks, hedge funds and CLO funds that provided the debt have witnessed spectacular losses, many of the portfolio companies themselves now enjoy long-term fixed rate, cheap debt financing with few covenants. Of course, as the European economy is in recession, leverage increases the susceptibility to financial distress and bankruptcy, and there is no

doubt that some high-profile bankruptcies will occur. But the financial structure employed by many private equity funds may enable many of their portfolio companies to continue operating without defaulting long enough to see through the recession. What is in no doubt is that holding periods will lengthen, investment rates will slow, the terms of future lending will return to historical norms and that most existing funds will witness significantly reduced returns.

However, history informs us that some of the best periods to invest in private equity are at the start of a recession, when asset prices are low and the need for rapid corporate transformations is at a premium. It is not surprising, therefore, that private equity fundraising continues, and investor surveys show an increase in asset allocation to private equity. Economies need a diversity of sources of capital, and public policy should let the market decide which source is most appropriate for a given company, without imposing tax or other regulatory restrictions to favour one source over another.

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## FRANCE

### 1. Introduction

This chapter discusses the current issues of the French economy. It is obviously beyond the scope of this report to discuss all aspects. Our approach is therefore focussed on a central question: What is the current government trying to achieve economically and will it succeed?

In order to address this question, we first provide some macroeconomic background and discuss it in connection with the main economic policy debates that have dominated French circles in the last two decades. We then describe and analyse the main reforms implemented by the Sarkozy administration.

Our overall assessment is mixed. On the one hand, the administration has managed to get through many reforms that had failed or were not even attempted during previous conservative governments. In particular, there is an ongoing, potentially important reform of the public sector. On the other hand, the government is well in the tradition of engineering small adjustments within a well-established framework, rather than changing that framework. Thus reforms are remarkable much more by their number than by their depth, and we cast doubt on their economic efficiency especially in light of some existing contradictions.

Finally we suggest that it is time for the government to abandon this catch-all approach and use its political capital to implement a few major, vital reforms. We suggest that more care be given to the reform of government. This reform is underway and promising but it would be improved were it not for the obstacle of a constant flow of new policy measures that interfere with it. Our other suggestion is a reduction of the minimum wage,

which however has never been considered except in 1994<sup>1</sup> and remains a major taboo. Yet with more than 15 percent of workers at the minimum wage, this is becoming a huge burden that calls for action. As we discuss below, an opportunity to reduce the minimum wage was lost when the *Revenu de Solidarité Active* (RSA) was introduced.

### 2. Macroeconomic developments

This section provides some macroeconomic background for the recent evolution of the French economy and discusses it in light of the ongoing policy debates that in turn have shaped the reforms we discuss in Section 3. We start by analysing the French economy's growth and competitiveness, then discuss developments on the employment front and finally discuss the evolution of the public finances.

#### 2.1 Growth and Competitiveness

Table 4.1 shows the growth rates of the French economy since 1992, with a comparison to France's main neighbours and the euro area. Over a long period, France's performance is very similar to that of the euro area as a whole. It has avoided the stagnation of Italy and Germany (the latter having been reversed in 2006), while remaining substantially below the best

<sup>1</sup> The Balladur government tried at the time to introduce a sub-minimum wage for younger workers which was met with very violent protests and eventually withdrawn.

**Table 4.1**  
The annual growth rate of the French economy in PPP terms

Time period	France	Germany	Italy	UK	Spain	Euro area
1992–96	1.2	1.4	1.1	2.5	1.5	1.4
1997–2001	3.0	2.1	2.1	3.1	4.4	2.8
2002	1.1	0.0	0.3	2.1	2.7	0.9
2003	1.1	-0.2	0.1	2.8	3.1	0.8
2004	2.2	0.6	1.4	3.3	3.3	1.8
2005	1.9	1.0	0.7	1.8	3.6	1.7
2006	2.4	3.1	1.9	2.9	3.9	2.9
2007	2.1	2.6	1.4	3.0	3.8	2.6
2002–2007	1.8	1.2	1.0	2.6	3.4	1.8

Source: OECD Economic Outlook 84 (2008).

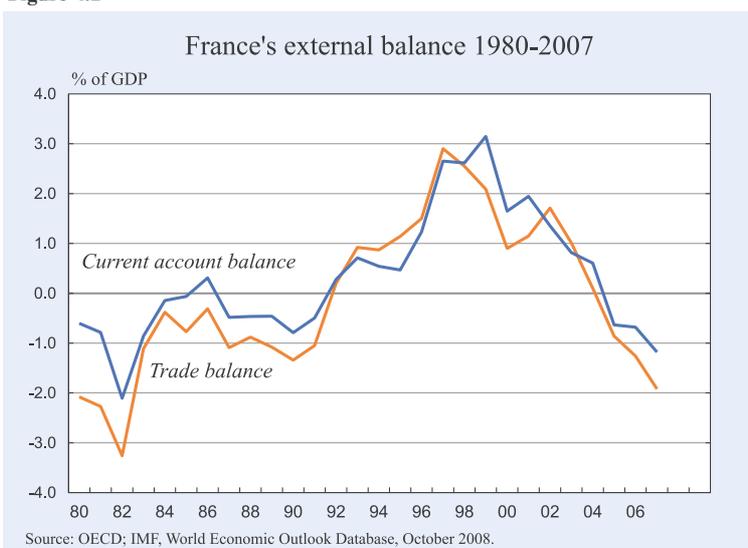
performers (Ireland, Spain, or, outside the euro area, the UK).

The 1980s and the 1990s were characterized by a slow economic decline in relative terms: the growth performance of France was below that of most other advanced economies. While most of the decline could be explained by the fall in employment and hours worked per employee, the country was also lagging in some technological indicators like information technology penetration (see Saint-Paul 2003). This pattern was overcome in the late 1990s when France's growth rate caught up with the European average. Thus France's growth performance can be summarised as "average European", which means rather modest.

However, one can see that France's performance in the last two or three years – boom years in the euro area – was again below average. It may be due to France being less cyclical than the rest of the zone – doing better in slumps and worse in booms. This is consistent with the view that its labour market is comparatively more rigid, so that employment adjusts less, both upwards and downwards. Or it may be that its relative decline had fortuitously stopped and has recently resumed, since the underlying structural weaknesses have not been addressed. Clearly, there are too few observations to support (or reject) such a statement. A third hypothesis is that it is slowing down in relative terms because it is losing competitiveness and therefore exporting less. This is especially plausible in light of the spectacular recovery of the German economy in 2006–2007, which was partly due to its internal devaluation. Clearly, any reduction in the price of German exports harms French exporters.

Traditionally, policy in France has always been somewhat mercantilist, keeping a watchful eye on the trade balance. While one should not ascribe too much importance to this statistic in the short run, we also know that protracted overvaluations of the real exchange rate can lead to significant competitiveness problems, permanent loss of the industrial base,<sup>2</sup> mounting external deficits and in the end an excess

Figure 4.1



downward correction of the real exchange rate associated with a brutal fall in living standards (this is arguably the current US scenario). In the context of the European Monetary Union such a correction cannot take place through a depreciation of the nominal exchange rate, which means that a real overvaluation can be even more long-lived than if the exchange rate were flexible and consequently that the subsequent correction must be brought about by downward pressure on prices which can only be achieved if output is below potential.<sup>3</sup> Furthermore, the longer the overvaluation period, the larger the correction in the real exchange rate needed to restore the external balance in the long run, which makes overvaluation even more problematic under fixed exchange rates arrangements. There are reasons to believe that a number of euro area countries, most notably Greece, Portugal and Spain, are in such painful overvaluation situations.<sup>4</sup>

In the 1980s and early 1990s, French macroeconomic policy was chiefly driven by the so-called *désinflation compétitive*, which aimed at reducing the trade deficit while maintaining a fixed parity vis-à-vis the Deutsch Mark. This policy was eventually successful in eliminating trade deficits but came at the cost of high unemployment over a number of years. Since then, France eventually accumulated surpluses but, as Figure 4.1 shows, its trade balance has slowly deteriorated since it entered the EMU. The most recent data

<sup>2</sup> See, for example, Baldwin and Krugman (1989).

<sup>3</sup> These issues are discussed in our 2002 EEAG report, Ch. 4.

<sup>4</sup> According to the OECD data that we use, the trade deficit in Greece, Portugal and Spain in 2007 was 13, 7.5 and 7 percent of GDP, respectively. In terms of relative prices Italy is also overvalued but the consequences for trade deficits seem milder than in these three countries.

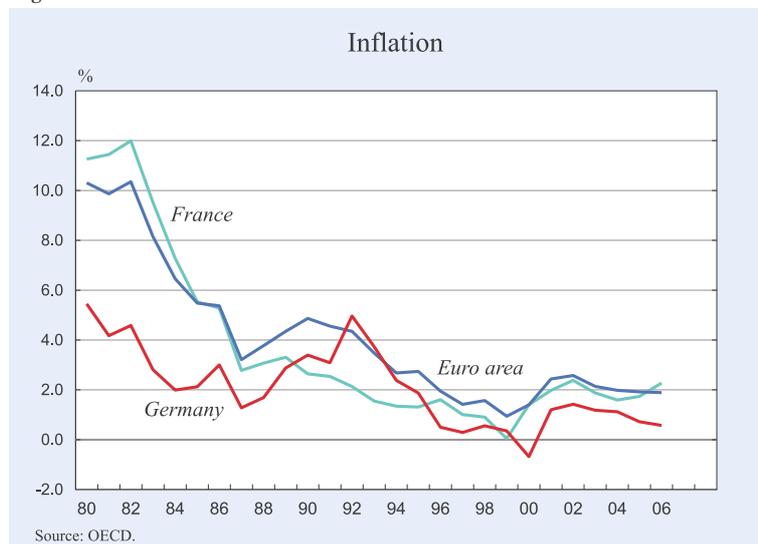
confirm this development and suggest a trade deficit in 2008 of around 3 percent of GDP.

Of course, this trend is in large part due to the euro's appreciation. However, it is compounded by the fact that while France's inflation rate is comparable to that of the euro area, it is higher than in Germany, as can be seen in Figure 4.2. And Germany is probably more of a competitor to France than the euro area countries that have high inflation rates such as Spain or Ireland.<sup>5</sup>

That being said, price developments are not the sole explanation for the recent adverse evolution of France's external accounts. A report by Fontagné et Gaulier (2008) highlights the fact that France, unlike Germany, has not been able to use outsourcing to concentrate on the skill-intensive segments of the value chain (see Sinn's "Bazaar Economy"; 2005). As a result, France has suffered a huge loss of market shares in exports in favour of Germany. According to Fontagné and Gaulier, France's market share in total world exports in 2007 is only 70 percent of its 1995 level, while Germany has almost maintained its market share over that period.<sup>6</sup>

If France's export performance is structurally weaker than Germany's, that suggests its real exchange rate should be depreciated, which in the context of the euro can only take place through lower inflation than in Germany. But as Figure 4.2 shows, the trend is in the opposite direction, suggesting a painful adjustment lies ahead, with a risk of returning to the painful years of *désinflation compétitive* and the associated high unemployment rates.

Figure 4.2



## 2.2 Trends in employment

### A. Working time

The popular vision of the French economy is that there are many unemployed people and that the employed work very few hours. We argue that this is changing. Figure 4.3 shows the evolution of the annual number of hours worked per employee since 1990. We can see that in France, as in other European countries, there is a downward trend. Furthermore, among major European countries France clearly is in the bottom league, topping Germany only. In particular, one can see a sharp drop in hours between 1998 and 2002, when the 35 hour week was implemented by the Jospin government. Interestingly, though, hours per employee then reached a trough and have increased slightly, contrary to other countries where the downward trend has continued. This is a sign that France is perhaps leaving the "bottom league", and this may be reinforced by recent reforms described below that promote the use of overtime.

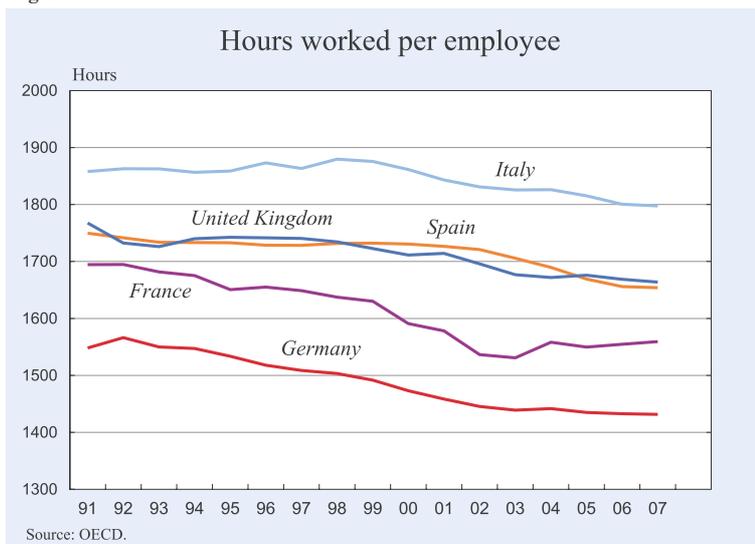
While the normal workweek has been shortened, the proportion of workers who do not work a "normal" workweek has been going up in recent years, and hours have gone up among these workers. Hence, according to OECD data, the proportion of workers working between 35 and 39 hours a week has fallen by two percentage points, from 49.8 percent to 47.5 percent between 2003 and 2007. Meanwhile, the proportion of workers working more than 40 hours a week has increased from 31.0 to 33.1 percent. So, despite the legal workweek of 35 hours, a large fraction of the workforce works more than 40 hours, and that fraction is increasing.

<sup>5</sup> Furthermore, comparing French inflation to euro area inflation is somewhat misleading as the euro area includes poorer countries which can have more inflation because of non-traded goods by virtue of the Balassa-Samuelson effect (see Balassa 1964 and Samuelson 1964); the price of tradables is equalized across countries, and convergence in living standards implies that non tradables become relatively more expensive. Consequently, poorer regions in a currency area must have higher CPI inflation.

<sup>6</sup> Intuitively, we expect both market shares to fall over time since world trade and the world economy are outpacing growth in France and Germany.

<sup>7</sup> A slightly different picture emerges if one uses OECD data instead of Eurostat data, because the gap disappears in the early two thousands.

Figure 4.3



#### B. The evolution of unemployment and the policy debate

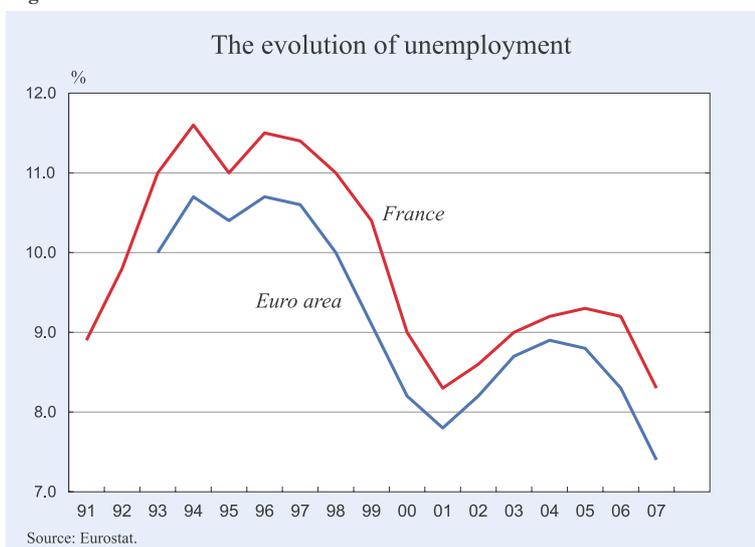
As far as unemployment is concerned, the record shows that France closely follows the euro area's experience but at a somewhat higher rate. This difference is fairly constant over time.<sup>7</sup>

The unemployment problem has been at the forefront of the policy debate for decades. It has motivated a large array of policies – including passive support to the unemployed, employment protection, job creation schemes in the public sector, deregulation of temporary contracts and reductions in employers' social security contributions. These policies have typically replaced each other at a dizzying pace and represent a large cumulative cost on the budget. Yet they do not

Thus, while a number of European countries seem to have returned to permanently lower levels of unemployment,<sup>8</sup> France is in the club of those countries where it remains high. We believe that this is for lack of substantial labour reforms; although it should be pointed out that the last two episodes of falling unemployment have not triggered inflationary tensions. This is somewhat paradoxical because in the absence of structural reforms we expect the equilibrium unemployment rate to stay constant. In principle, this means that inflation should accelerate when unemployment falls. One possible answer to this puzzle is that the natural rate has fallen despite the lack of reforms, say because the underlying trend of productivity growth is more favourable, or because the composition of the workforce gives a

great weight to groups with structurally lower unemployment (e.g., the middle-aged vs. the young). If so, we should expect unemployment to stabilise at say 7.5–8 per cent instead of returning to 9 per cent. Another possibility is that the mechanism by which unemployment returns to its long-run level is no longer accelerating inflation. One reason why this may be so is that increased international competition makes it more costly for firms to increase their prices as this would entail a

Figure 4.4



<sup>8</sup> See the discussion in Saint-Paul (2004).

severe loss of competitiveness; on the other hand, it makes it easier for them to outsource activities and substitute imported intermediate inputs for domestic workers. If this is true, an incipient fall of unemployment below the natural rate does not result in more CPI inflation but rather in a direct fall in labour demand, coupled with more outsourcing and greater imports.

The recent evolution of unemployment looks less favourable if one looks at its duration rather than its level. This is reported in Figure 4.5. Over 25 years the average duration of unemployment has never fallen below 12 months. While the first two episodes of falling unemployment were associated with a reduction in the average duration from an admittedly very high initial level (16 months) to slightly above 12 months, the recent fall in unemployment is not associated with a reduction in average duration. This confirms the view that the labour market remains sclerotic and unfriendly to new entrants and suggests that most of the decline comes from a fall in the rate at which workers leave their jobs.

### C. The issue of labour contracts

As in a number of other countries, France has attempted to make its labour market more flexible by reforming employment protection. This has been faced with substantial political opposition, and like Spain, Italy and Portugal, France has gradually reduced employment protection “at the margin” by liberalising the use of temporary contracts while not reducing the protection level associated with permanent ones. As a result, temporary contracts now

account for some 70 percent of new hires. But because there are severe restrictions on their duration and how frequently they can be renewed, they only account for 15 percent of the stock of employment. To summarise, most workers are now in one of two situations:

- A “determined duration contract” (CDD), which cannot exceed 18 months and can only be used for tasks that are “temporary in nature” (e.g., replacing an absent employee, seasonal work, etc.)
- An “undetermined duration contract” (CDI), which makes it quite difficult to lay off workers for economic reasons, due to procedural difficulties (obligation to prove the economic difficulties to a judge; obligation to propose a plan for relocating the workers into other jobs, etc.), litigation and uncertainties (legal precedents of firms being forced to rehire workers that it had laid off, etc.)

There has been a debate on the role of temporary contracts in France. Some claim that they reinforce labour market dualism by creating a class of have-nots who move constantly between temporary jobs and unemployment spells. If anything, this evidence is not accurate. A large fraction of temporary job holders end up in permanent contracts and the probability of getting a permanent contract is much larger for temporary workers than for the unemployed. Some also fear that despite this “happy ending” of labour market trajectories, they are plagued by increased precariousness, and that this has costs in terms of say, ability of workers to get loans, investment in human capital, and so on. Despite much talk about it in the media, increased precariousness is largely a myth.

Table 4.2 shows the evolution over time of two variables. One is the proportion of workers employed for less than a year, which is a measure of precariousness. The other is the proportion of workers employed for more than 10 years. While we expect these variables to be driven in part by changes in the demographic composition of the population as well as the economic cycle, we would expect a substantial trend toward shorter durations if precariousness increased over time. Over a period of 15 years the proportion of workers having worked less than a year in their current job is

Figure 4.5



**Table 4.2**  
**Proportion of the employed in short and long employment spells**

Year	% employed less than a year	% employed more than 10 years
1992	13.7	43.0
1996	12.9	43.4
2000	15.7	45.0
2004	13.5	45.4
2007	14.9	43.3

Source: OECD online data.

essentially unchanged. The same is true for the proportion of workers employed for more than 10 years. Thus there is no sign of increased precariousness.

While many economists call for uniform labour contracts, in practice the use of temporary contracts has proved to be the only politically viable way of making the labour market more flexible. The reason is that it gives firms a margin to manage their workforce while preserving the interests of incumbent insiders. Thus, recent hints at introducing a unique contract was met with resistance from both the unions and employers: while the former feared that the new contract would be more flexible than permanent ones, the latter were concerned that they would have less freedom if they could not use temporary ones. As a result, reform of employment protection has so far boiled down to a limited agreement between the social partners (see section 3.1B).

#### D. The minimum wage

One cornerstone of French redistributive policy is the minimum wage. While in most countries the minimum wage is sufficiently low to be considered as a minor distortion, this is not the case in France. Figure 4.6 documents the secular rise of the minimum wage in relative terms since the late 1960s. While there was a downward trend in the 1960s, following the 1968 *accords de Grenelle* the minimum wage jumped upwards by almost 20 percent. It was followed by two successive hikes following the election of Giscard d'Estaing in 1974 and that of Mitterrand in 1981. Since then the minimum wage has remained stable at around 60 percent of the median wage.

How high is this by international standards? This is shown on Figure 4.7, which confirms that the French minimum wage is the highest in Europe in relative terms.

The French minimum wage exerts a strong compression effect of wages at the bottom of the distribution of income. The proportion of workers paid the minimum wage has substantially increased over time.

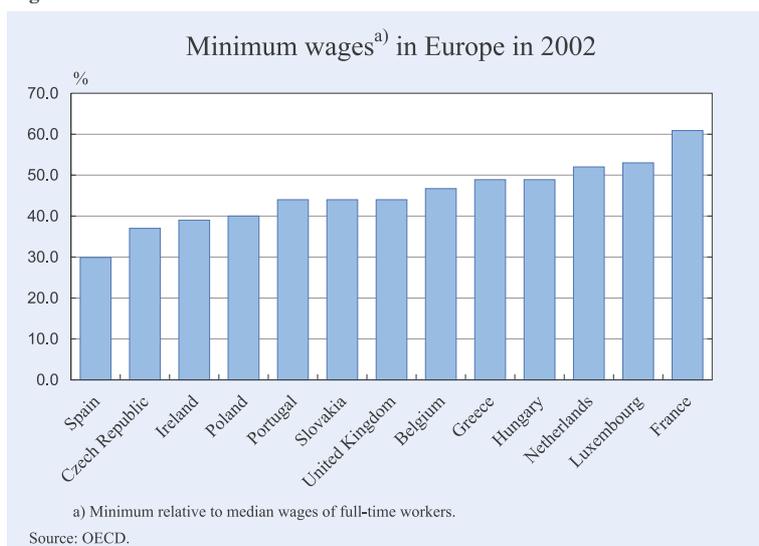
Figure 4.8 is taken from a working paper of the French Ministry of Finance (2007) and depicts the evolution of the proportion of workers paid the minimum wage over the last two decades. We note a sharp increase in this proportion since the mid-1990s, peaking at over 16 percent in 2005 (the corresponding number for the United States is 2.5 percent). This is the result of policies aimed at reducing the cost of labour by reducing employer's social security contributions for low wage earners. As a result, these contributions have become quite progressive as wages go up beyond the minimum wage, which creates disincentives for employers to increase wages above the minimum. Furthermore, these policies have mostly opened the door for discretionary increases of the take-home minimum wage, and thus had in the end little negative impact on the total labour cost of the minimum wage, except in their very first years. This induced effect, of course, further increases the proportion of minimum wage workers.

The current minimum wage trap is worrisome for a number of reasons. First, the large number of workers paid the minimum wage suggests that it is binding for a large segment of the labour market and therefore

**Figure 4.6**



Figure 4.7



that it destroys many jobs. In a well-known study, Laroque and Salanié (2000) have found that a 10 percent increase in the minimum wage in France would destroy around 300,000 jobs, which means an increase in the unemployment rate of 15 percent.<sup>9</sup>

Second, unskilled workers are discouraged from acquiring skills: they now need a larger productivity improvement than in the past to increase their take-home wage by the same amount, due to the progressivity of social security contributions. And those at the very bottom of the distribution of earnings face the additional problem that should they move up a full decile, they would still be paid the minimum wage. To grasp how big these effects are, note that according to the OECD in the United States the second decile of the distribution of wages earns a third more than the

bottom decile. This suggests that to move to the second decile, an unskilled worker would have to increase his productivity by a third on average, which with estimated returns to education is equivalent to at least three extra years of schooling. In France the incentives to do so are virtually non-existent, since with 15 percent minimum wage earners the second decile is barely richer than the first (it earns 11 percent more on average).

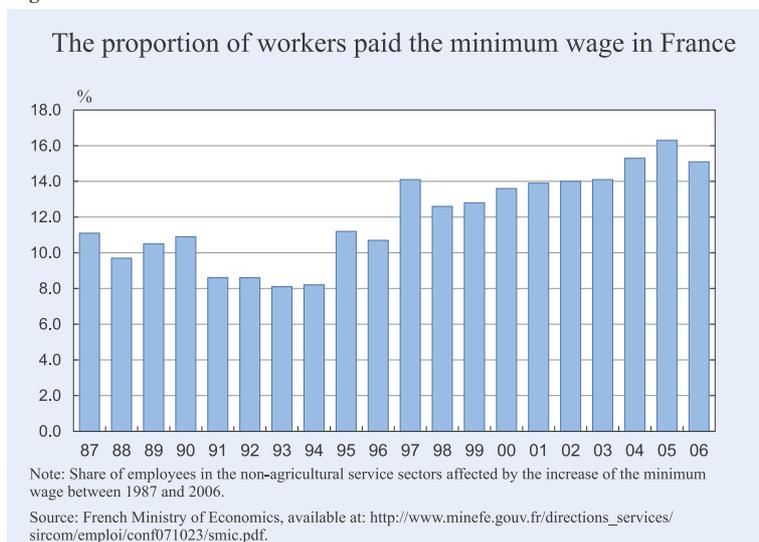
### 2.3 Fiscal policy

Having discussed the evolution of employment in France, we now turn to an important dimension of its macroeconomic developments: fiscal policy and the size of government. A stylized characterisation of France's fiscal policy could be as follows:

- A will to use budget deficits in slumps to stimulate the economy
- An incapacity to run surpluses and re-balance the budget during booms

The latter aspect is certainly due to political factors. There is considerable temptation for politicians to spend any incipient budget surplus in exchange for political benefits. Furthermore, this is aggravated by the fact that an increase in public spending is often the outcome of distributive conflicts between special interest groups.<sup>10</sup>

Figure 4.8



The result of this process, summarized in Figure 4.9, is that France has run a deficit every single year since 1973 and remains close to the 3 percent Maastricht limit since the implementation of EMU (which, along with German deficits, has led to the de-facto repudiation of the Growth and Stability Pact). The deficit is bound to deteriorate sharply with the current

<sup>9</sup> That is, if it were implemented now, unemployment as a share of the workforce would increase from some 8 percent to  $8 \times 1.15 = 9.2$  percent.

<sup>10</sup> See Alesina and Drazen (1991).

Figure 4.9

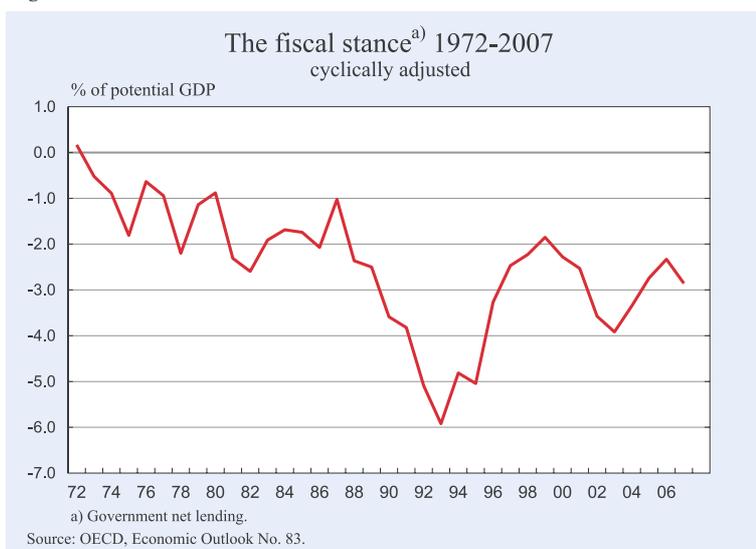


Figure 4.10

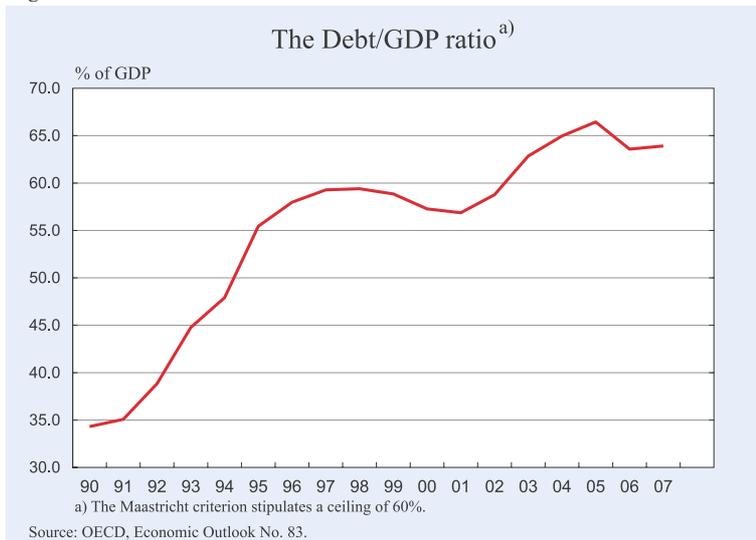
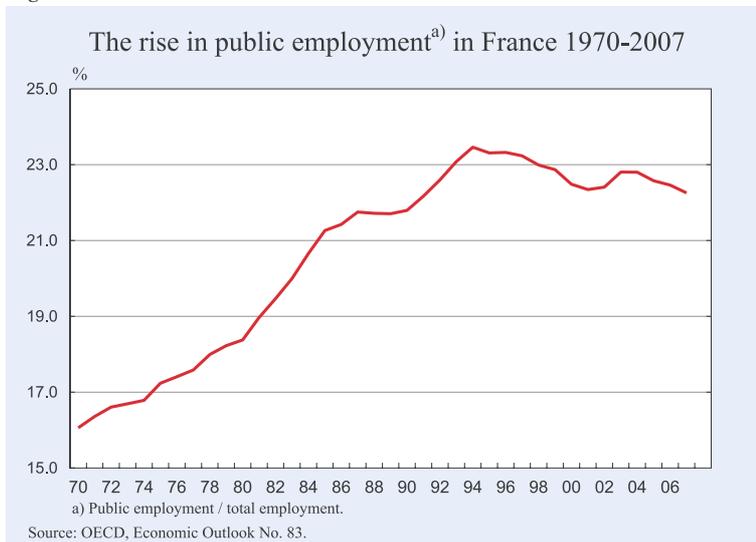


Figure 4.11



recession and the expensive stimulus package that was launched in December 2008.

Because of this apparent inability to run surpluses, the sustainability of French fiscal policy ultimately depends on the economy's growth rate: the debt/gdp ratio improves somewhat in good times and deteriorates quickly during recessions.

As Figure 4.10 shows, public debt has drifted upward. The data show no implicit target for the debt/GDP ratio that policy makers would aim at. In particular, episodes of rapid increases in national debt, such as the sharp recession of the mid-1990s, have left a large and apparently permanent increase in public debt of some 25 percent of GDP. If a similar episode were to occur again, we would expect an increase of the same order of magnitude and the debt/GDP ratio would reach 90 percent, which might become more and more problematic. Indeed, the current crisis suggests that there is every reason to be worried about such a possibility.

Of similar concern is the upward drift in public employment, the causes of which are further discussed below.

As shown on Figure 4.11, public employment as a share of total employment experienced an upward trend in the 1970s, with two accelerations after 1981 and 1988 (i.e., after socialist victories in elections). It peaked in 1994, and has decreased somewhat since then, but that is essentially because its denominator, employment, has started growing. As a result public employment is now 22.5 percent of the workforce,

and reaches 25 percent if one takes into account atypical public entities such as the social security administration and the post office. This is very high by international standards.

### Summary

The preceding analysis highlights the three main challenges that economic reform should address:

- A dismal long-term growth performance
- An unemployment rate that remains high compared to those countries that have escaped the European unemployment dilemma
- An overbloated public sector

## 3. Economic reforms

Since the election of President Sarkozy in 2007, the country has been engaged in an unprecedented wave of reforms, especially in contrast to Chirac's last term (2002–2007) where little was achieved on the economic front except the 2003 partial pension reform and the ill-fated new targeted flexible labour contracts introduced by the Villepin government in 2006.

### 3.1 What reforms?

The reforms that have been implemented are broad and eclectic and are based on different philosophies and paradigms. They are so numerous that the sheer task of presenting them is itself a challenge. We choose to group them into five main blocks: tax policy, labour markets, goods markets, the welfare state and the government.

#### A. The Fiscal Package

The so-called Fiscal Package (*paquet fiscal*), part of Sarkozy's electoral platform, was implemented immediately after the presidential and parliamentary elections of 2007. Its stated philosophy is "work more to earn more". The package is eclectic and includes tax breaks on overtime work, subsidisation of mortgage payments as well as the elimination of (some) taxes on bequests. It is clearly meant to appeal to the middle class/upper middle class voters, who are highly repre-

#### Box 4.1

#### The Fiscal Package

The Fiscal Package was the first series of economic measures of the Sarkozy administration. The general philosophy is to enhance people's incentives to work and accumulate. The four key measures of the Fiscal Package are:

- Introducing a ceiling of 50 percent on the total taxes paid by any household (the so-called fiscal shield or *bouclier fiscal*): Fiscal authorities now collate all the taxes paid by a household and send a refund for all taxes paid in excess of 50 percent of their income.
- A full-income tax credit for all overtime hours, coupled with a reduction in payroll taxes for these hours.
- An income tax credit for interest payments on mortgages.
- Suppression of inheritance taxes whenever the beneficiary is the spouse.

sented among the Sarkozy electorate. Overall, these reforms (described in Box 4.1) should increase the incentives to work and accumulate wealth – which should translate into a greater stock of capital. But the inspiration and economic rationale of these reforms is not totally clear. In particular, they have not been carefully designed on the basis of cost/benefit considerations.

The tax cuts for overtime increase incentives to work on the intensive margin.<sup>11</sup> Many analysts have criticised them on the grounds that the real problem is low employment, not low hours per person, so that acting on the extensive margin would have been more appropriate. However, it makes economic sense to tax marginal hours at a lower rate than inframarginal hours, since it is the latter that matter when workers and firms are setting their working time optimally. But the extensive margin matters too when it comes to the arbitrage between working and not working, which is key to the determination of the employment rate. Thus we think that the fiscal effort should have been more balanced, i.e., one should have lowered payroll taxes on non-overtime work instead of having a very large subsidy on overtime only; the effects on employment would have been more favourable. Also, many economists think that firms can "cheat" on the scheme by giving wage increases in the form of fictitious overtime. If these concerns are true, then the scheme would involve a substantial deadweight loss (although a good side effect is that it then becomes an employment subsidy and acts on the extensive margin).

<sup>11</sup> One typically distinguishes the margins of adjustment: the "intensive" margin, where the intensity of activity goes up and the "extensive" one, where inactive units become active. This distinction applies to all sorts of contexts. In the employment context, the intensive margin means more hours by employed workers, and the extensive margin means more employed workers.

Similarly, the tax cut on mortgage payments is likely to be largely dissipated in the form of higher house prices: it is a poor idea to subsidize the demand for housing, especially in areas that are densely populated and highly regulated, where the response of construction to an increase in house prices is not very strong. The main effect of the reform is to transfer money from taxpayers to those who initially own real estate. Worse, because the subsidy is in the form of a tax deduction, the poorest households (who pay a zero income tax) cannot access them, despite suffering from the higher house prices induced by the policy. Therefore, this policy is not only ineffective in solving the housing problem, it also increases inequality. Instead of subsidising mortgage payments, it would have been better to reduce the taxes on transactions that amount to around 10 percent of the value of the good being sold. Such a reduction would have favoured increased turnover on housing markets, hence reducing the average delay for selling or buying a home, and it would have made housing genuinely cheaper for buyers (and more profitable for sellers).

#### B. Labour market reforms

In France, labour contracts are heavily regulated. The law that governs industrial relations, the *code du travail*, has tens of thousands of pages. De-regulating the labour market, especially in the area of termination, has long been a centre-piece of the public debate. Yet it has proved quite difficult. The history

of right-wing governments in France is that of violent street protests against reforms that increased labour market flexibility and were subsequently withdrawn (the other two traditional triggers of such protests being pension reforms and reforms of the educational system).

In the aftermath of yet another failure to make the labour market more flexible by the preceding Villepin government, the Sarkozy administration has relied on collective bargaining to reach an agreement on labour market reforms. It has given a deadline to employers' associations and trade unions with the threat that if no agreement was reached by that deadline, it would impose its own law. The result is the 11 January 2008 agreement, which is described in Box 4.2.

Overall, the agreement reduces the legal uncertainties associated with termination of the employment relationship. This makes it somewhat easier for firms to lay off workers. At the same time, statutory severance payments are increased and some employer-based benefits are made more portable. The reform moves a small step in the direction of substituting protection of people for protection of jobs, in accordance with the very fashionable "flexicurity" philosophy.

But the move is not revolutionary and should only have a moderate effect on job creation. Its caution is exemplified by one of the items of the agreement, the "determined object contract". As in Italy and Spain, firms try to achieve flexibility by hiring under fixed-

#### Box 4.2

##### The labour market agreement of 11 January 2008

In January 2008, French employers and union representatives signed an agreement about reforming the laws governing labour contracts, in particular with respect to the conditions of termination. The social partners were under strong pressure by the government to bargain over these issues, as the government had threatened to impose a law and ignore them should they fail to reach an agreement by a given deadline.

The key points of the agreement that was signed on 11 January 2008 are as follows:

Introduction of a severance procedure "by mutual agreement". Under this procedure, the employee is entitled to unemployment benefits as if he had been involuntarily laid off, as well as to a severance payment. On the other hand, the scope for litigation after the separation has occurred is severely restricted. The mandated level of severance payment used to be equal to 10 percent of the monthly wage per year of tenure. It was small by European standards even though dismissals were made quite difficult for the firm due to many restrictions. The agreement doubles that level. The new mandated severance payment also applies to separation by mutual agreements.

Portability of fringe benefits into periods of unemployment: laid-off workers can now continue to draw fringe benefits (like supplementary health insurance) associated with their previous job during part of their unemployment spell. The motivation for that measure is to eliminate a disincentive for mobility associated with the automatic loss of these benefits when one loses one's job.

The new "determined mission contract" (CMD), which can last between 18 months and 36 months. It is however limited to executives and engineers. The approximate duration of the mission must be written in the contract, and the employee must be informed about the termination of the mission at least two months in advance.

term contracts as much as they can. The impossibility to renew a fixed term contract beyond 18 months implies that, to obtain such flexibility, firms must get rid of valuable employees after 18 months or else convert their contract into a CDI and bear a much higher level of employment protection. For that reason, for years employers' associations have lobbied for a "project contract", which allows firms to hire workers for the entire duration of a given project. This would conciliate flexibility with better consistency in the firm's recruitment policy and better opportunities for the workers hired under temporary contracts to accumulate valuable human capital, which in turn would improve their career opportunities and the likelihood that they get a permanent contract. While the original plan by employers was a 5-year contract, the agreement only allows for a 3-year contract which only applies to fairly skilled workers. This is more like a super CDD for the skilled than a genuine project contract.

On the downside, the reform tends to increase the incentives for workers to be unemployed. As Box 4.2 shows, it involves greater portability of a number of social benefits when people lose their jobs. Portability generally makes it easier for workers to change jobs and should be commended. But here the counterpart of greater portability is an increase in both the effective severance payment and the effective unemployment benefit replacement ratio. For example, laid off workers can keep supplementary health insurance for 7 months. But both parties, the employer and the employee, have to pay their share. This is unfortunate: the employer's share acts as an additional severance payment, but it is paid only as long as the worker does not find another job. This cumulates the negative effects of severance payment on job creation with the negative effects of unemployment benefits on job search. Ideally, employer-based benefits should be abolished; they have no economic rationale, workers could get higher wages instead and purchase whatever benefit they want on the market. The distortions associated with portability problems would then disappear. To summarize, while reducing non-wage labour costs, the agreement has increased the incentives by firms and workers to inefficiently rely on the unemployment benefit system in terminating employment when they would not want to do so if unemployment benefits did not exist.

Another intervention in the labour market took place in October 2008. The government put together a package to fight the incipient rise in unemployment

triggered by the slowdown in the world economy. These hasty measures contradict to some extent the structural approach underlying the process for reforming labour contracts.

The package involves a variety of measures of different quantitative significance. The most salient ones are the introduction of 100,000 subsidised jobs in the non-business sector and the generalisation of the so-called *contrat de transition professionnelle* (CTP), which is a kind of super-unemployment benefit scheme reserved for workers who lose their jobs in large firms and involves generous benefits along with special counselling and training.

The first measure is a revamping of old policies that were especially popular with the Left (in 1997 the Jospin government created the so-called *emploi jeunes*, which offered low-paid temporary public sector jobs to recent school leavers), and it is in contradiction with the Right's usual stance that one should refrain from creating jobs in the non-business sector (The *emploi jeunes* was discontinued after the Right assumed power in 2002.) In general, there is much scepticism about the scheme's efficacy.

The second measure, the extension of the CTP, is consistent with the general "flexicurity" philosophy, but by its very nature this scheme benefits "insiders" and does nothing to increase competition from outsiders in the labour market – indeed, the same can be said of the subsidised jobs, which withdraw outsiders from active job search while locking them in jobs of little productive value.

Also, there is some confusion in the whole approach between structural measures aimed at reducing the long-term equilibrium rate of unemployment and cyclical ones that are supposed to combat a recession. Structural measures exert their effects only after a while and are an inappropriate tool for stabilising business cycles.<sup>12</sup>

#### *C. Goods markets : The Attali Commission and the Loi de modernisation économique*

Immediately after being elected, President Sarkozy appointed Jacques Attali, a former EBRD CEO and special advisor to Mitterrand to head a commission with the goal of proposing reforms to boost the coun-

<sup>12</sup> Furthermore, it is arguably politically easier to introduce them in booms, although that is debatable. See Saint-Paul (2002).

try's growth and competitiveness.<sup>13</sup> The appointment took place in the context of the debate on France's relative economic decline. The commission, with a very eclectic membership that included economists, top civil servants, sociologists, historians, philosophers, and so on, built on previous reports that pointed out rigidities in many different areas such as regulations of good markets and retail trade, rigidities of the educational system, lack of access of small firms to credit markets, and so on. The outcome of the commission was the *loi de modernisation économique*, a catalogue of measures of various importance (Box 4.3). It should be noted that in the context of the debates associated with the law, the government suf-

fered a setback as taxi drivers mobilised against one of the most advertised propositions of the Attali Commission, namely the elimination of the quotas for taxi licenses (See Box 4.4).

#### *D. Welfare reform: Pensions and the revenu de solidarité active*

The problem of financing pensions in France is not as large as in other European countries thanks to more favourable demographics. Nevertheless, the accounts are far from balanced and the problem has been aggravated by a reduction of the retirement age to 60 in the early 1980s as well as an excessive reliance on pre-retirement schemes to cope with the unemployment problem. As illustrated in Table 4.3, this meant that the labour supply of elderly workers was quite low by international standards.

<sup>13</sup> The Attali (2008) Report is available online at <http://lesrapports.ladocumentationfrancaise.fr/BRP/084000041/0000.pdf>

#### **Box 4.3**

##### **The Attali Commission and the *loi de modernisation économique***

In the spring of 2008 the so-called *loi de modernisation de l'économie* was enacted. Its goal is to enhance the country's growth and competitiveness by lifting a number of barriers to economic activity. The law is broad and encompassing and can be summarised by 10 key items:

Creation of the status of *auto-entrepreneur*: this measure is targeted at people who want to start their own business. The auto-entrepreneur is spared all the red tape and pays a flat tax that replaces all social security contributions and income tax. He or she does not pay corporate taxes and does not pay the so-called *taxe professionnelle* (yet another tax on businesses) during the first three years. Pension rights are accumulated automatically, although it is unclear at what rate. An individual is eligible to that status only with a yearly turnover below 80,000 Euros for commercial activities and 32,000 Euros for services. The income tax deductibility only applies to the bottom three tax brackets.

Easing the life of small businesses: this allows entrepreneurs to shelter a greater fraction of their personal assets from creditors in case of bankruptcy (while letting them opt out from such protection for some assets if they want to improve their access to credit). Also, some threshold effects in payroll taxes are smoothed, although this is "experimental" and will be reviewed in 2010.

Granting preferential access to public procurement for "innovating" small- and medium-sized enterprises (SMEs). Reducing payment deadlines between firms. Important tax reductions for the inheritance of businesses, whenever the beneficiaries are family members and/or employees.

Easing regulation on retail trade. While administrative approval was needed to open a retail outlet of more than 300m<sup>2</sup>, the threshold is now 1000m<sup>2</sup>. Furthermore, representatives of competitors can no longer be members of the administrative commissions that are granting the approvals. Also, those commissions can no longer deny the permits on the grounds of "lack of economic need" but can only do so on environmental and urbanistic criteria. Finally, "back margins" are declared illegal. Back margins are a practice by which a supplier pays a retail outlet for the right to have its product sold at that outlet. The difference between back margins and lower supply prices is that the law prohibits selling below cost. Thus, back margins allow supermarkets to buy at a low effective cost while tying their own hands to charge high prices by maintaining high theoretical costs: it is an indirect way of sustaining collusion among the leading supermarket brands. The abolition of back margins forces supermarkets to negotiate price reductions with their suppliers, thereby eliminating the collusion technology.

Liberalising sales: the new law involves a marginal liberalization of sales. While in the past sales could take place 10 weeks a year, and these 10 weeks were uniformly set by the government's representative, (the *préfet*), there are now only 8 such weeks, but each business can have sales during two extra weeks of its choice. While this is surely marginal, it could nevertheless have a large impact on competition. In a way, restricting sales enforced collusion in the retail sector. A seller could not lower its price except during the sales season. Now, sellers have an incentive to "deviate" from such collusion since they can boost their turnover considerably by having a sale at a time when others do not have it. As a result it is hoped that the level of prices sustained by collusion will be lowered more than suggested by the modest size of the move.

**Box 4.4****The French Taxi conundrum**

In France, the profession of independent taxi driver is heavily regulated. To operate, one needs to take an exam which is relatively complex compared to the actual task of driving a taxi, and involves the French language, the regulation of the taxi industry, traffic rules and driving (which is redundant with the requirements for simply having a driver's license), rescue techniques, management and local topography. Furthermore, one needs to purchase a license, and the total number of licenses is fixed by the government. The number of taxis in Paris in 1992 was only 15,000, as opposed to 20,000 in 1931 and 25,000 in 1925. That number did not increase until 2003, when 1,500 new licenses were issued. New licenses are given for free to candidates who are on the waiting list. The others must purchase a license on the secondary market. The value of a license in Paris is 120,000 euros. Last but not least, each license restricts operations to a specific zone. Taxis are not allowed to accept fares that do not start in their zone. Thus, for example, a *taxi parisien* is allowed to operate in central Paris plus the immediate suburbs, but not in more remote suburbs. A taxi that transports a customer from Paris to Fontainebleau is obliged by law to return to Paris empty.

In 2008, French taxi drivers mobilised against proposals by the Attali Commission to deregulate the market for taxis, even before any attempt by the Parliament to write it into the law. Perhaps because taxi drivers are a traditional constituency for the Right, the government has given in, and taxis have been left out of the *loi de modernisation de l'économie*.

Pension reform was initiated in 1994 and then proceeded at a slow pace amidst strong opposition by organized interests.

The French pension system is segmented in a way that involves large inequalities between groups of workers.

The “general regime” involves dependent employees of the private sector and is the less generous. Civil servants have a more generous regime of their own, for the same rate of contribution – meaning the regime is more insolvent than the general regime. Finally, so-called “special regimes” are even more generous and involve an earlier retirement age. These typically involve a number of large public firms, like Electricité de France, the train company SNCF and the Banque de France. As of 2008 the ratio between contributors and pensioners in these regimes is 1:2 meaning they are actually bankrupt and that the pensions are paid by the taxpayer.

In 1994, the required duration of contributions to be eligible for retirement was increased for the “general regime” – i.e., dependent employees of the private sector – from 37.5 years to 40 years. Furthermore, the pension level was now a proportion of the average wage in the past 25 years rather than the past 10 years. Finally, pensions were indexed on prices, not on wages. However, the regime of civil servants as well as the “special regimes” were left untouched. In that respect, the reform increased the inequality between civil servants and special regimes and the general regime: all the burden of the adjustment was borne by the general regime, which was already disadvantaged compared to the other two regimes. A key political issue was the alignment of the two privileged regimes with the general regime. In 1995, the Juppé government tried to reform the special regimes and align them with the civil service regime. This reform touched off violent protests and was withdrawn. Two years later, the Right lost the election. The new socialist government did not attempt any pension

**Table 4.3**  
**Employment/population ratio for the 55 to 64 years old,**  
**1994 and 2007**

Country	1994	2007	(2007)–(1994)
Austria	28.4	38.6	+ 10.2
Belgium	22.4	33.8	+ 11.4
Czech Republic	32.3	46.0	+ 13.7
Denmark	50.2	58.7	+ 8.5
Finland	33.5	55.0	+ 21.5
France	33.4	37.9	+ 4.5
Germany	35.9	52.0	+ 16.1
Greece	39.5	42.1	+ 2.6
Hungary	31.1	33.1	+ 2.0
Ireland	39.5	54.1	+ 14.6
Italy	29.4	33.8	+ 4.4
Netherlands	29.0	50.1	+ 21.1
Norway	61.6	69.0	+ 7.4
Poland	34.4	29.7	– 4.7
Portugal	45.9	50.9	+ 5.0
Slovakia	21.3	35.7	+ 14.4
Spain	32.7	44.6	+ 11.9
Sweden	61.9	70.1	+ 8.2
Switzerland	61.1	67.2	+ 6.1
United Kingdom	47.4	57.4	+ 10.0
United States	54.4	61.8	+ 7.4

Source: OECD Employment Outlook (2008).

reform. In 2003, after the 2002 victory of the Right, the Raffarin government successfully implemented (despite violent opposition) the so-called “Fillon reform”, which set the required duration of contribution for civil servants equal to that of the general regime, while planning a gradual increase over time of the duration of contributions, which was now indexed on the average life expectancy.<sup>14</sup> The reform is probably insufficient to guarantee the financing of the pension system, and further increases in the level and/or duration of contributions are to be expected. While the increase in the duration of contributions for civil servants is commendable on equity grounds, it is not clear how long it will continue from a budgetary perspective. After all, civil servants are paid by the government and the net savings generated by the measure depends on the ability to substitute elderly workers for younger workers in the public sector. If the level of substitutability is low, one may well observe an increase in the number of civil servants, which will eliminate the gains of the reform to the (consolidated) public sector, especially since a working civil servant is more costly to the budget than a retired one.

As Table 4.3 shows, despite the reform the labour participation rate of older workers has only increased modestly in France as compared with other countries and it remains far below 50 percent.

Against that background, the Sarkozy government managed against all odds to implement a reform of the fearsome special regimes that had inflicted so much damage on the Juppé government. The reform plans to align the required duration of contributions with those of other regimes to 40 years by 2012, although a provision says that if that duration were to increase – which is very likely – the special regimes will follow with a 4-year lag.<sup>15</sup>

#### *Introducing incentives in welfare*

More recently, and borrowing ideas from the Left, the government has moved to replace the basic assistance income (RMI), which creates an inactivity trap by making it unprofitable to work half-time at the minimum wage compared to being on welfare by a new system called RSA (See Box 4.5). The new system eliminates the inactivity trap by introducing a gradual

reduction in welfare payments as hours worked go up. As a result there is (almost) no zone at the bottom of the distribution of income with confiscatory marginal tax rates.

The reduction in the trap involves an increase in the amounts redistributed and therefore a cost to the budget. As a result, the government has created a new tax on capital income which has been much criticised by employers’ associations and the parliamentary Right. The new system could hardly have been better designed as it is based on the goals of increasing incentives to work while not reducing the level of income support granted to those out of work. But it has created a new concern about an excess use of part-time work, as discussed in section 3.2. Politically, it has added to the confusion about the actual stance of the government, which had been already generated by the appointment of socialist ministers and the delegation of policy design to a prominent socialist advisor to Mitterrand.

While we do not dispute the positive incentive effects of RSA on non-working welfare recipients, it has two economic shortcomings.

First, full-time workers at the minimum wage may take advantage of it to work part-time. This would result in an overall reduction in hours worked and in a strong pressure on the budget. At face value, one might be tempted to dismiss this claim: at a marginal tax rate of 38 percent a reduction in pre-tax income of around 500 euros would entail a loss of  $0.62 \times 500 = 310$  euros per month, which is far from negligible at such low incomes. However, the picture changes considerably if one brings other dimensions of the redistributive system back into the picture. First, like the RMI before it, the RSA part of an individual’s income will not be subject to (most of) employees’ social security contributions. However, the wage part will remain subject to those taxes. If one takes that into account, the marginal tax rate for RSA recipients is no longer 0.38 but the sum of the employee’s social security contribution rate (about 20 percent) and the marginal tax rate of the RSA system, i.e.,  $0.38 + 0.20 = 0.58$ . The loss from a 500 euros income loss is now  $0.42 \times 500 = 210$  euros per month. This is not the end of the story, though, because being on welfare is associated with a number of other fringe benefits. The most important one is the CMU (*couverture maladie universelle*), which grants free and total medical coverage for any person whose monthly income is below a certain threshold (621 euros for a single person). In

<sup>14</sup> Contrary to reforms in other countries, a funded pillar was not introduced, and the degree of individual choice remains quite modest.

<sup>15</sup> See <http://archives.lesechos.fr/archives/2008/lesechos.fr/01/16/300234200.htm>

## Box 4.5

Changes in social protection: the RSA (*revenu de solidarité active*)

A key reform of social protection is the introduction of a scheme called *revenu de solidarité active*, which is a form of earned income tax credit for low earners. The scheme is meant to replace an important inactivity trap that made it unprofitable for those on welfare to take a part-time job at the minimum wage. The reason is that any hour worked eliminated eligibility to the RMI (*revenu minimum d'insertion*), a basic assistance programme which pays around 500 euros per month if one includes a related housing benefit called APL.

The new scheme eliminates the inactivity trap by smoothing the amount transferred to the worker as hours increase instead of brutally eliminating the transfer at the first hour worked. Figure 4.12 illustrates how the system works. In the initial situation there is an infinite marginal tax rate at zero income, followed by a zero marginal tax rate up to the minimum wage (depending on the family situation). Of course, in effect that means that nobody has an incentive to work for a monthly amount that is below the RMI, i.e. to be a part-timer at the hourly minimum wage. The new system leaves the income floor untouched and smoothes marginal tax rates by increasing the generosity of welfare payments. As a result there is a uniform marginal tax rate of 38 percent for all incomes below 1.04 times the minimum wage, after which the supplementary income vanishes and the worker faces the regular income tax schedule, which means a substantial drop in the marginal tax rate as one passes above the threshold.<sup>1</sup>

As Figure 4.12 makes clear, the RSA increases the overall level of redistribution and is costly to the budget. Estimates are around 10 billion euros per year and a new tax on capital income has been introduced to finance these costs.

Clearly, the incentives to take a part-time job instead of remaining unemployed are now much larger than in the past. To be sure, the blue line in Figure 4.12 is only a stylized representation of the previous system. Preceding governments had already implemented modest, partial solutions to the inactivity trap by means of the so-called *prime à l'emploi* (a small income tax deduction for workers) and *ristourne* (a scheme that allowed the unemployed to cumulate RMI with their wages for 12 months, but denied this to those who took employment without having been through welfare). While one may argue that the new system is merely consolidating and simplifying these preceding schemes, and will therefore have little effect, it is in fact far more transparent, not prone to discretionary manipulation (unlike the *ristourne*) and involves greater monetary incentives.

<sup>1</sup> These marginal tax rates are only partial in that they ignore social security contributions. Of course, when all taxes including VAT and payroll taxes are taken into account, marginal tax rates are very high in France.

itself, the CMU creates a big poverty trap. But the RSA reform makes the situation worse because it is affordable to live below the threshold, since the RSA income is not taken into account when determining eligibility to CMU. While there is no way to purchase complete coverage of all expenses on the market, good health insurance for a single person is worth around 100 euros per month. That is therefore the

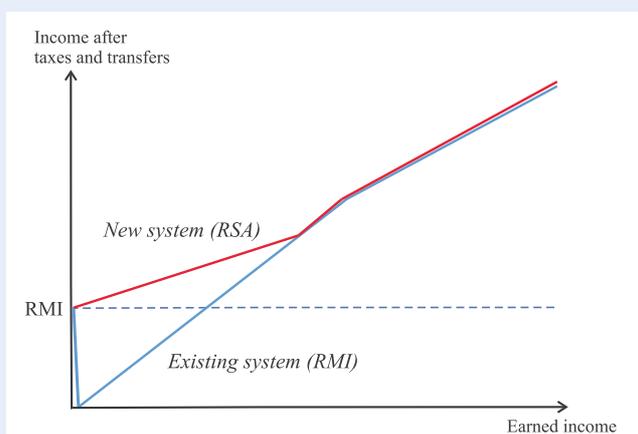
value of the CMU, implying that an increase in earnings from 621 to 622 euros amounts to a 100 euro fall in net income.

Another aspect is that the RSA part of the income is non-taxable, while wages are taxable. Finally, welfare recipients are eligible to a host of in-kind benefits, not least because local administrations typically add their

own layer of redistribution to that of the central level. These in-kind advantages include exoneration of taxes on dwellings (*taxe d'habitation*), TV sets (*redévance*), subsidised rates for phone calls, free public transportation, and, last but not least, the “Christmas bonus”, which amounts to 150 euros for a single individual and is topped-up by local authorities – e.g., the department of Bouches-du-Rhône adds another 115 euros to the state Christmas premium. It is unclear how these benefits will be transformed when the new RSA comes into place; the most likely

Figure 4.12

## The RSA reform



**Table 4.4**  
**The part-time option in the RSA system**

Hours worked per week	20	35
Gross wage	755	1321
Net wage (1)	593	1037
RSA (2)	235	0
CMU (3)	100	0
Personal Income tax (4)	3	30
Total (1)+(2)+(3)-(4)	925	1007

outcome is that they will be conditional on some income cap, thus becoming similar to the CMU.

Let us illustrate how serious the problem can become with a simple numerical example. Table 4.4 provides a back-of-the-envelope computation of the effects of the new system on the incentives to work part-time. It takes into account the employee's social security contributions, the RSA, the CMU valued at 100 euros per month, and the personal income tax. Other benefits such as the Christmas premium, etc., are ignored; our computations therefore understate the incentives to move from full-time to part-time work – i.e., they overstate the marginal hourly wage associated with such a move.

We consider a minimum wage earner who reduces his working time from 35 hours a week to 20 hours a week. The reduction in net income puts him below the threshold for eligibility to full medical coverage (CMU), which is 621 euros per month; he is thus eligible for CMU as well as for RSA, which is non-taxable and does not overturn eligibility to CMU. We find a total post-tax, monthly income for part-timers equal to 925 euros, versus 1007 euros for the full timer. The difference is only 82 euros<sup>16</sup> per month, for a difference in hours worked of about  $4 \times 15 = 60$ . The actual net marginal wage is therefore only equal to  $82/60 = 1.37$  euros per hour. These computations suggest that it makes economic sense for full-time minimum wage earners to reduce their working time to 20 hours a week.

Given that a full 15 percent of French employees work at the minimum wage, this would lead to a considerable loss of total hours worked on the order of magnitude of 3 to 4 percent.<sup>17</sup> Of course, this will be

<sup>16</sup> This would fall to some 62 euros if the move involved the gain of a Christmas bonus, some 40 euros if in addition one were to be spared the *taxe d'habitation and the redevance*, and would end up well below zero if one also takes into account free public transportation.

<sup>17</sup> Assume that out of these 15 percent of employees, two-third moves to the part-time option. They reduce their working time by a fraction  $(35-20)/35 = 3/7$ . The total reduction in hours worked will be  $3/7$  times 10 percent, i.e., some 4.2 percent.

compensated by an increase in the hours worked of those who will move from unemployment to part-time work. But, ironically, the net effect looks much like the infamous 35-hour week: a work-sharing scheme which induces stagnation or a fall in total hours worked, at a large cost to the taxpayer!

Second, the RSA ignores the demand side. Most of these workers will have minimum wage jobs and should the RSA increase the total supply of hours of the low-skilled, employers have no interest to absorb them unless the cost of labour falls. This suggests that a lot of the benefit of the RSA is going to be lost because of the minimum wage. This negative consequence would have been avoided if the government had used the RSA as an opportunity to reduce the minimum wage, replacing a distortionary and job-destroying form of support (the RSA) by another one with much better incentive properties. But this would have substantially increased the cost to the taxpayer, as part of the burden of redistribution will be redistributed from employers to the budget, although that argument has little economic meaning since the minimum wage is in fact a disguised form of tax on the employed.

#### *E. Reforming the public sector*

Finally, measures are being implemented to reduce or at least contain the size of the public sector and ensure the financing of the welfare state in the long run.

#### *The size of government*

In terms of the overall burden of public expenditure, France consistently ranks within the top 3 among developed countries, along with Sweden and Denmark. Over time, the size of the public sector has grown due to several factors:

- The development of a lavish welfare state (basic minimum income, complete universal health care for the poor, early retirement, working time reduction, in-kind subsidies, etc.).
- The decentralisation reform of the 1980s which transferred power to local governments. This led to an increase in the number of local civil servants which was not matched by an equal fall in civil servants at the central level.
- The lengthening of the time spent in the educational system and the uniformity of state-imposed degree requirements for many professions.

- The incrementality of reforms, which tends to add layers of administration on top of existing layers.
- The resolution of political stalemates through subsidy schemes.
- Policies that reduced unemployment statistics through job creation schemes in state and local administrations.

With total government expenditures around 54 percent of GDP, there seems to be no room for further public-sector growth. This has led to timid attempts to reduce the number of civil servants, which stands at about 25 percent of total employment if all administrations are taken into account. Because these enjoy employment security, and because voluntary flows to the private sector are very small (not least because for almost all skill levels the public sector has higher wages and better pensions), the only way to reduce public employment is by using retirement flows. That is what the government has started doing, with about 30 percent to 50 percent of retirees not being replaced (also, monetary incentives to leave the public sector have been introduced). The implied order of magnitude is 20,000 to 30,000 per year, i.e., some 0.4 to 0.6 percent per year. This means that it would take 20 years to reduce public employment by some 10 percent. That would reduce it to say 22 percent of total employment, which remains very high by international standards. Furthermore, this is the best case scenario, since local authorities may offset part of the downsizing by increasing their workforce.

#### *The révision générale des politiques publiques (RGPP)*

In parallel, the government is implementing a long-term, potentially far-reaching reform of the entire internal organisation of the public sector. These changes could pave the way for much larger reductions in its size in the future than the modest steps that are being taken right now. It is beyond the scope of this report to describe the RGPP in its entirety since all dimensions of the administration are involved.<sup>18</sup> Two key ideas driving the reforms are:

- Introducing incentives in the management of the public sector,
- Merging administrations whenever synergies or duplication of tasks appear.

Some of the aspects of RGPP are easy to understand, like the planned reduction in military personnel by 54,000 soldiers, the transition of 20 universities to a regime that will allow them to manage their budget in an autonomous fashion and recruit workers under private law contracts (although this reform fails on two key accounts: the ability of universities to select their students and their ability to charge tuition fees), or numerous mergers of services with similar goals in the central administration. For example, in April 2008 it was decided to merge the Ministry of Commerce's statistical service with INSEE, the national statistical institute.

Others are more complex and involve the creation of new agencies and committees to improve co-ordination and/or governance. It is not always clear that these committees are of any use. For example, in April 2008 an authority was created whose task is to “guarantee the independence of the statistical system”. It is unclear how the authority will work and how independent it will be; nor has there been any obvious concern that the statistical system's lack of independence has led to unreliable numbers.

The sheer scope and complexity of the project makes it very difficult to evaluate. At this stage, the overall assessment made by the EEAG group is positive. The reason is that the majority of measures involve cost-cutting, simplifying and better incentives. But the devil is in the details and the details are very difficult to infer from official documents. The two main risks are that the new agencies will grow out of proportion and become sclerotic, which would render the whole exercise obsolete and that the efficiency gains generated by RGPP in the central administration are offset by an increase in size and slackness at the level of the local administrations.

In the longer run, RGPP has the potential to have quite positive effects on France's economic growth, through a mechanism which is seldom mentioned in the debate but is likely to be relevant: the allocation of talent. It has been recognised, in particular by authors such as Murphy et al. (1991), that the career choices of the most talented individuals in society have a profound impact on growth. Typically, we expect more growth if those individuals elect to be engineers, scientists and innovators than if they become politicians, lawyers or bureaucrats (or in the past “mandarins” or *fermiers généraux*). This choice in turn depends on the reward structure offered by society; if top level bureaucrats have a high status and/or pay then the

<sup>18</sup> Description and monitoring of the whole RGPP is available on the following government website:  
<http://www.rgpp.modernisation.gouv.fr/>

most talented individuals will select those careers instead of more innovative jobs. In France these positions are traditionally quite prestigious; while they are not particularly well paid they open the door to top-level careers in large firms, politics or international organizations. The RGPP, however, intends to substantially reduce the number of high-level executive positions in public service. As a result public service will be less attractive to young talented individuals because of deteriorated career prospects. This is because the alternative careers that they will choose good news probably have a greater social value, but this also means that the government itself will be more poorly managed, which will partly offset the direct efficiency gains induced by RGPP.<sup>19</sup>

### 3.2 Assessing the reforms

The sheer scope of the reforms makes it obviously difficult to assess them. It is natural to believe that there is radical change under way and that France is entering a now totally different policy regime. Yet closer scrutiny shows that many of the shortcomings of previous approaches are still there, which casts doubts on the efficiency of the reforms. In particular, the quantitative impact of the reforms will be reduced by three features that have always harmed French economic policy: incrementality, complexity and reversibility. Furthermore, the reforms follow contradictory motivations and principles that stem from conflicting paradigms—thus the reforms lack a clear direction and it is difficult for economic agents to form expectations about the future policy stance.

#### *Three weaknesses*

The catalogue of reforms that we have established is impressive in its breadth. Another question, though, is whether the reforms are far-reaching, taken individually.

Traditionally, French reforms have suffered from three flaws:

- **Incrementality:** Rather than aiming at a deep change of the existing system, most often reform intervenes at its margin, often by adding new limited schemes. The Sarkozy measures are no exception. The standard regime for labour contracts is

unchanged – new restricted contracts are being introduced. Instead of eliminating the difficulties and ordeals of running a business, another category of business has been defined that escapes these rules but which is restricted in its composition and has a very restrictive cap in terms of turnover. Regulation and taxes of the housing sectors are unchanged but only marginally offset by an additional tax deduction (which adds to the complexity of the income tax).

- **Complexity:** the French legal system is one of the most complex in the world. French labour law, for example, has tens of thousands of pages. Complexity is evident in the number of different taxes, the proliferation of competing jurisdictional levels, the number of targeted subsidies to various activities, etc. The more complex the system, the more difficult it is to operate. This means that policies do not have their intended effect, either because their interaction with the pre-existing system is neglected, or because lower levels of authority have considerable discretion in applying the law, as it is practically impossible to apply it entirely. Thus, a complex environment makes reform more problematic. One may even go as far as to claim that a prerequisite for reform would be to eliminate this complexity. Yet the recent reform waves consist of incremental add-ons. This makes them difficult to evaluate and more likely to have perverse effects or be cancelled by discretionary behaviour at lower levels.
- **Reversals:** reforms have often been reversed in the face of political opposition, political changes or subsequent renegotiations. The problem is made worse by the fact that each government prefers to have its own scheme rather than using those introduced by the preceding ones. The problem is particularly salient in the area of labour policy. Specific targeted support for hiring a given category of worker under given conditions, either in the form of a special kind of labour contract or some tax deductibility, abound and have a high birth and death rate: according to the French ministry of labour, about 80 such measures were introduced between 1974 and 1993, i.e., about 4 per year. Of the two new flexible labour contracts introduced by the Villepin government, one (the CPE) was withdrawn after having been voted by Parliament in the face of violent protest, the other (the CNE) was quietly eliminated by the Sarkozy/Fillon administration in the context of the 2008 labour negotiations. With the current administration, there are signs that the reversibil-

<sup>19</sup> This also raises the problem of evaluating the RGPP, since this negative productivity effect may be considered as a shortcoming (which is true if one considers the public sector in isolation) whereas it is actually one of the benefits of RGPP.

ity syndrome is present once again. There have been hints that some measures have been introduced on an “experimental” basis, implying that they could easily be cancelled. The taxi reform was abandoned in the face of protests, as described in Box 4.4. The RSA is being financed by a tax on capital income, which amounts to a partial reversal of the fiscal package.

If reforms are highly reversible, economic agents will ignore them when setting their strategy but be happy to cash-in whatever benefits are available. The end result is that policy is ineffective, and can even have perverse effects in some cases.<sup>20</sup> For example, a firm will not invest the resources to hire an additional worker in response to some subsidy if it expects that in the near future the subsidy will vanish and will be replaced by some other scheme that does not apply to that worker. But it will be happy to earn the subsidy on any worker it would have hired absent the subsidy. In other words the deadweight loss associated with a given policy – the part of the cost of the policy which has no impact on economic outcome – is greater, the less credible the policy, i.e., the more short-lived it is expected to be. The uncertainty created by the possibility of reversal also impedes investment since a rational investor has an incentive to “wait-and-see” if the reforms will last.

To conclude, the Sarkozy administration has done more than previous administrations and has displayed a general will to boost economic activity. But it has done so in the same way as preceding governments: small reversible steps that add to the complexity of a costly and hard to control policy apparatus. This raises doubts about the effectiveness of the reforms.

#### *Four paradigms*

A key prerequisite for a successful transformation of society is an overall reform plan with clearly stated goals and measurable intermediate targets. This can create synergy effects between reforms instead of inconsistencies that reduce or nullify the overall reform effect. Unlike the Thatcher and Reagan governments or indeed Sarkozy’s socialist predecessors, there is no central organising principle to guide the reform other than the political will to act quickly and to engage in thorough and massive action. This lack of structure explains the apparent lack of consistency

of the reforms. They reflect various strands of the public debate and ideological stances. This diversity can be summarised by four distinct paradigms which often conflict with one another:

#### Paradigm 1: Free markets

This category includes all the reforms that are in accordance with the general prescription of eliminating barriers to entry in labour and product markets and freeing competition. Economists believe that deregulation and competition are good because they favour mutually profitable transactions, which inherently increase welfare. But this view is mostly absent from the French public debate. Instead, freeing markets is most often motivated on grounds that are dubious to economists:

First, a common argument is that free markets are conducive to economic growth and employment. While few economists would disagree, this view is fundamentally flawed. There are policies that increase growth and employment and have little to do with liberalisation; quite often they are associated with a poor allocation of resources and their positive aggregate effects do not justify them. This will be the case of any tax-funded increase in public investment that disregards the true value of that investment to consumers. Conversely, many deregulations benefit consumers despite having few aggregate effects. Thus, recent moves to liberalise shopping hours on Sunday have been criticised on the grounds that they would create few jobs, and that argument has played some role in the government’s reluctance to go ahead with that. Yet a simpler argument is that it makes perfect sense to allow people to buy and sell whenever they want. Indeed no one has contemplated commissioning a study on the employment effects of the reverse reform of restricting shopping hours.

Second, free markets have been motivated by the politicians’ concern to redistribute in favour of their own constituency. Right-wing governments have historically engaged much more in labour market reforms than product market ones. (In fact, rigidities in product markets and the retail sector were reinforced by the 1996 law, under a right-wing administration.) Conversely, left-wing governments have historically been less averse to deregulating goods markets while they were making labour markets more rigid. Relative to this historical record, the Sarkozy administration seems keen on deregulating both goods markets and labour markets, which is unusual

<sup>20</sup> In particular, as pointed out by Bertola and Ichino (1995), shrinking firms may use labour flexibility to reduce their workforce now, while growing ones fail to increase hirings as they expect the reform to be overturned.

and commendable, despite the Taxi hiccup discussed above.

Third, deregulation has often been used by right-wing politicians to buttress their political capital. As it is typically associated with conflict with special interest groups, it provides them with an opportunity to “flex their muscles” and signal their strength to their electorate. Of course such a strategy may backfire if the battle is lost, which has happened quite often. In that respect, the Sarkozy/Fillon government has been unusually successful. The level of protest has been quite low given the number of reforms, perhaps because labour unions have been exposed to such a high number of reforms that designing a strategy has proved problematic for them.

Therefore, the “free market” paradigm in France is quite fragile. In some sense, it could be even less influential, given the lack of support for the idea of free markets in France. As documented in Table 4.5, based on the world values survey, France is the only country where a majority of people oppose free markets. Historically, Gaullist administrations were quite dirigistic, following de Gaulle’s view, reported in his memoirs, that markets are valuable only to allocate

goods such as groceries. The Right gradually became more favourable to the market economy in the 1970s, and attempted its first wave of free-market reforms during Chirac’s last term as prime minister in 1986–1988. This was associated with considerable street protest and led to a socialist victory in 1988. Since then, pro-market reforms have proceeded at a cautious pace and politicians have typically justified them as a constraint imposed by the European Union – rhetoric that backlashed in 2005 when France rejected the European constitutional treaty.

This background explains why even when the government wants to improve the efficiency of the economy, it typically relies on taxes and subsidies or special programmes rather than a mere scrapping of existing regulations.

Paradigm 2: France Inc.

There is a traditional tendency in French economic policy to support French businesses in gaining market shares even at the cost of taxpayers’ money and/or reducing economic efficiency. This includes state aid to “strategic” sectors, political involvement to obtain contracts abroad, etc. The 2007 EEAG

**Table 4.5**

**The popular support for free markets in France**

	Total Agree	Total Disagree	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Depends/ Neither	DK/ Refused
Argentina	42	29	11	31	13	16	2	26
Brazil	57	30	18	40	19	11	4	9
Canada	65	29	22	43	19	10	2	3
China	74	20	25	49	16	4	3	4
France	36	50	10	26	27	29	3	11
Germany	65	32	29	36	24	9	2	1
Great Britain	66	27	26	39	17	10	2	5
India	70	17	34	35	12	6	3	11
Indonesia	68	29	22	46	25	4	1	3
Italy	59	31	21	38	20	12	4	5
Kenya	59	28	33	25	12	13	3	13
Mexico	61	38	21	40	27	11	0	1
Nigeria	66	29	34	31	13	16	2	4
Philippines	73	22	23	50	17	5	2	4
Poland	63	19	22	41	14	5	4	14
Russia	43	34	11	32	25	9	7	15
S. Korea	70	19	11	60	17	2	5	6
Spain	63	28	27	36	14	14	1	8
Turkey	47	36	5	42	31	6	4	12
USA	71	24	34	37	15	9	2	3
<b>Average</b>	<b>61</b>	<b>28</b>	<b>22</b>	<b>39</b>	<b>19</b>	<b>10</b>	<b>3</b>	<b>8</b>

Source: [http://65.109.167.118/pipa/pdf/jan06/FreeMarkets\\_Jan06\\_quaire.pdf](http://65.109.167.118/pipa/pdf/jan06/FreeMarkets_Jan06_quaire.pdf)

report includes a chapter on economic nationalism that discusses these issues. The Sarkozy administration has not abandoned that approach; if anything it has reinforced it. For example, the *loi de modernisation de l'économie* grants preferential access for “innovating” small businesses to public procurement, up to 15 percent of the total amounts. It is not clear how one defines an “innovative” small business and such a measure will clearly open the door to favouritism and political quid pro quos in local public commitments. While foreign firms are not discriminated against by this measure – otherwise one would violate the rules of the European Union – restricting it to small businesses clearly gives an edge to French firms, as small firms typically lack the skills and expertise to extend their operations abroad. Finally, granting preferential access to public procurement is a very inefficient way to stimulate innovation. Instead, one should promote intellectual property rights and public investment in fundamental research. The measure sounds very much like the outcome of lobbying and is likely to reduce the efficiency of public investment as well as the degree of competition in French goods markets. It is therefore in contradiction with other measures of the same *loi de modernisation de l'économie* which promote competition in other areas.

Recent developments, in particular associated with the financial crisis, suggest that economic nationalism is gathering momentum in France. Hence in late October 2008, the president announced a *grand fonds stratégique d'investissement national* (great strategic fund for national investment). The extent to which a country with soaring public debt and a trade deficit can run a sovereign fund on any significant basis is unclear. But it is likely that this fund will be managed so as to defend “strategic national interests”, i.e., will favour national firms over foreign ones, for example, by taking on participations in national champions to block foreign takeovers. This will distort the allocation of resources in the ways we have analysed in our 2007 chapter. As an example, in early November 2007, the government partially nationalised a major ship-building firm, the Chantiers de l'Atlantique, by taking a 33 percent stake.

### Paradigm 3: Reliance on social partners

Since 1950, the so-called “social partners” have played an increasing role in the design of policies. The agreements they sign apply to all the workers in the relevant economic sectors even if they are not

affiliated with the unions that have signed these agreements. The legitimacy of this system of social partnership is based on the 1950 law which names five “representative” labour unions whose agreements are binding.<sup>21</sup> Thus these unions are representative de jure regardless of their actual membership, while other unions are non-representative de jure. Furthermore, for an agreement to be applicable to the whole sector, only one “representative” union and one “representative” employer association need to have signed the agreement.

There are two issues regarding this paradigm. One is that being called representative in a 1950 law and being currently representative are two different things. In effect, the inclusion of new unions is prohibited. This is the subject of much debate and is in the process of being reformed.

Another is that there is a broad agreement in the media, the public and policy circles that collective bargaining is a legitimate source of law. Yet, as economists, we know that collective bargaining (even if it were much more representative than in the French system) is not a democratic institution as it excludes the non-employed: students, retirees, the unemployed and so forth. This exclusion leads to inefficiencies in the agreements being reached, such as excess protection of the insiders at the expense of the outsiders and consequently a high level of unemployment.

The Sarkozy administration has not challenged such legitimacy except insofar as it is implementing a reform of the concept of representativeness, which was long overdue anyway. One illustration is the delegation to “social partners” of the reform of the labour contract discussed in the preceding section, instead of handing it to Parliament. As a result, the reform that comes out of this process suffers from two drawbacks:

- It is limited in scope because of the inevitable bias toward quid pro quo and consensus. Instead, a parliamentary majority does not have to make concessions to the minority to implement its reforms.
- It ignores the interests of the outsiders of the labour market (the non-employed), as well as those who are not represented by the organisations that signed the agreement.

<sup>21</sup> These unions are: CGT, CFDT, FO, CGC and CFTC.

Thus, the reform has merely exploited the margins of improvement that were not a matter of controversy between the social partners. One may expect that if the parliamentary majority had designed the reform instead, job creation and the competitiveness of firms would have played a bigger role and the welfare of incumbent employees a smaller one.

Another drawback of relying on negotiation is that it is not immune to renegotiation. Unions have a strategic interest to renegotiate because (by virtue of the “social progress” paradigm, which is discussed next) the concessions they get are far more irreversible than the concessions they make. It is much harder to abolish some benefit once it is considered as an “acquis” than to alter things like a provision for greater contractual freedom or for stronger monitoring of the unemployed. And there are precedents. The “PARE” agreement between social partners was implemented under the Jospin government and involved tighter monitoring of the unemployed’s search activity in exchange for more generous unemployment benefits. The latter stayed but the former was quickly emptied of any real content. The *contrat nouvelle embauche* (CNE) was introduced by the Villepin government to allow firms to hire the long-term unemployed under a more flexible form of CDI. It had been widely used but was abolished by a stroke of pen in 2008 as part of the concession package to the unions in exchange for the January 11 agreement. While the CNE was not the outcome of collective bargaining (it had been designed by the office of the prime minister), its abolition came after much pressure by the unions and shows how labour market reforms can easily be cancelled. It would not be surprising if the new CMD had a similar fate.

#### Paradigm 4: Social progress

The paradigm that there should be social progress, meaning that there should be ever more redistribution and more social insurance, is highly influential in France. Historically, redistributive schemes have almost never been dismantled. Every form of “social progress” is therefore irreversible. For example, one can list a number of redistributive policies that have been implemented by the Left and that the Right considers as untouchable:

- The RMI assistance income for any individual above 25 years of age, established in 1988
- The CMU granting complete health coverage for people below a certain threshold, introduced in the late 1990s by the Jospin government
- The obligation for any municipality to have at least 20 percent of publicly subsidised “social housing”, despite the inefficiencies and unfairness of this type of redistribution
- The wealth tax (ISF), which has been regularly proved to cost more money in the form of lost VAT receipts than it brings in tax revenues, because of the exodus of the very wealthy who escape its absurdly high marginal tax rates.

To date, this paradigm has not been challenged by the Sarkozy administration and has led to compromises and contradictions.

In the area of labour regulation, the paradigm has ruled out any overall reduction in the level of worker protection à la “Anglo-Saxon” model. Instead, the popular model is the Danish model of “flexicurity”, which trades a reduction in employment protection for an increase in the generosity of unemployment benefits, associated with tighter monitoring of the unemployed’s search activity.<sup>22</sup>

In the area of income support, the constraints imposed by the paradigm have led to the *revenu de solidarité active* (RSA) reform discussed above. Any reduction in the level of support at any income level has been ruled out, so that the smoothing of the marginal tax rates needed to eliminate the inactivity trap has been associated with an increase in the amounts that will be redistributed. This is clearly costly to the taxpayer and the reform has been hastily financed by a new tax on capital income, which is in direct contradiction with the fiscal package and has sent a very confusing signal to the public about the goals of the government. Also, reducing the minimum wage in exchange for the introduction of the RSA was not considered, despite our argument that it would have greatly enhanced its effect on job creation.

#### 4. Conclusion

The current administration has claimed to have broken with past policy practices. This claim is validated by the sheer quantity of reforms that have been introduced in less than two years. Yet closer scrutiny reveals little novelty in the nature of these reforms. They remain incremental, complex and reversible as

<sup>22</sup> The “flexicurity” model was discussed in a preceding EEAG report (2007), with some critical conclusions. In particular, the PARE episode mentioned above suggests that flexicurity may be problematic or unfeasible in France because of the difficulty of imposing sanctions on the unemployed.

their predecessors, and exhibit contradictions because of the conflicting paradigms that motivate them. In that respect, the current administration has if anything aggravated the problem because it has vastly increased the number of policy reforms. Thus we are concerned that the overall effect on the economy will be quite small.

On the other hand, the approach seems to have generated political benefits by increasing the scope for action of a democratically elected government which faces entrenched special interests. Perhaps the complexity and number of reforms has helped, for example, by making it difficult for opponents to co-ordinate their agenda on a given item.<sup>23</sup> A natural course of action for the next three years would be to build on this political capital to elect a small number of far-reaching reforms and focus on them.

The most promising one is the RGPP because it may yield the largest long-term benefits. Furthermore, it has the merit of being quite sheltered from political opposition, because it lacks obvious distributive consequences. As we have argued, it is difficult to evaluate. But we believe random policy measures do not help it, both because they divert human resources that could be better used in the RGPP and because they interfere with it, for example by artificially boosting the need for administrative units that could otherwise be dismantled or shrunk.

Another untouched issue is the minimum wage, which is increasingly a burden. In this respect the government has lost a golden opportunity to bundle the RSA reform with a reduction in the minimum wage.

This would have been politically difficult but worth the benefits: while the RSA itself would have been far more effective, the reform would have broken the taboo that redistribution can never go too far and helped to remove the low-skilled trap that we discussed above.

<sup>23</sup> This may explain why Sarkozy was successful with his reform of *régimes spéciaux* while Juppé was not.

#### List of abbreviations:

CDD	contrat à durée déterminée	determined duration contract
CDI	contrat à durée indéterminée	undetermined duration contract
CMD	contrat à durée déterminée	determined mission contract
CMU	couverture maladie universelle	universal health care coverage
CNE	contrat nouvelle ebauche	flexible labour contract
CPE	contrat première embauche	flexible labour contract
CTP	contrat de transition professionnelle	supplementary unemployment benefits for some workers
ISF	impôt de solidarité sur la fortune	wealth tax
RGPP	révision générale des politiques publiques	general revision of public policy
RMI	revenue minimum d'insertion	basic assistance income
RSA	revenue de solidarité active	earned income tax credit

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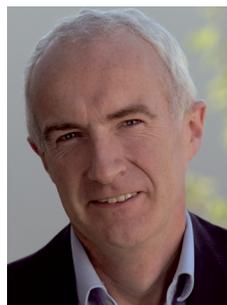


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11:00	<b>Press conference</b>	9:00	<b>Welcome and Introduction</b> Hans-Günther Vieweg, Ifo Institute, Munich
12:00	Cold buffet lunch	9:10	<b>Bricks May Be Solid, Real Estate Values Will Melt Further?</b> Tobias Just, Deutsche Bank Research, Frankfurt
12:45	<b>Welcome and Introduction</b> Hans-Werner Sinn, Ifo Institute, Munich	9:35	<b>Investment Cycles in the Oil Industry</b> Enno Harks, BP, Berlin
13:00	<b>Origins and Lessons of the Crisis</b> Hans-Werner Sinn, Ifo Institute, Munich	10:00	<b>European Steel Industry</b> Julian Steer, ArcelorMittal, Luxembourg
13:40	<b>Challenges for Policy Makers</b> Axel Bertuch-Samuels, International Monetary Fund (IMF), Washington	10:25	Discussion
14:10	<b>When Will the World Recover?</b> Jim O'Neill, Goldman Sachs, London	10:40	Coffee break
14:40	<b>Weak Banks and Other Obstacles to Economic Recovery in Europe</b> Kai Carstensen, Ifo Institute, Munich	11:00	<b>Chemicals</b> Ralf Gronych, BASF, Ludwigshafen
15:10	Discussion	11:25	<b>European Engineering Outlook: Recovery When?</b> Anders Rune, Association of Swedish Engineering Industries, Stockholm
15:40	Coffee break	11:50	<b>Automotive Industry</b> Arndt Ellinghorst, Credit Suisse, London
16:00	<b>The Russian Economy</b> Erik Berglöf, European Bank for Reconstruction and Development (EBRD), London (invited)	12:15	<b>Electronic Industry: Beyond the Crisis, New Issues and Market Drivers</b> David Enu, Decision, Paris
16:30	<b>Is the Dragon Grounded? Taking Stock and Looking Ahead</b> Sonja Oppen, Lund University, Lund	12:40	General discussion
17:00	<b>Latin America: Back to the Future?</b> Javier Santiso, OECD, Paris	13:00	End of session
17:30	General discussion	14:30	Hot buffet lunch
18:00	End of session		
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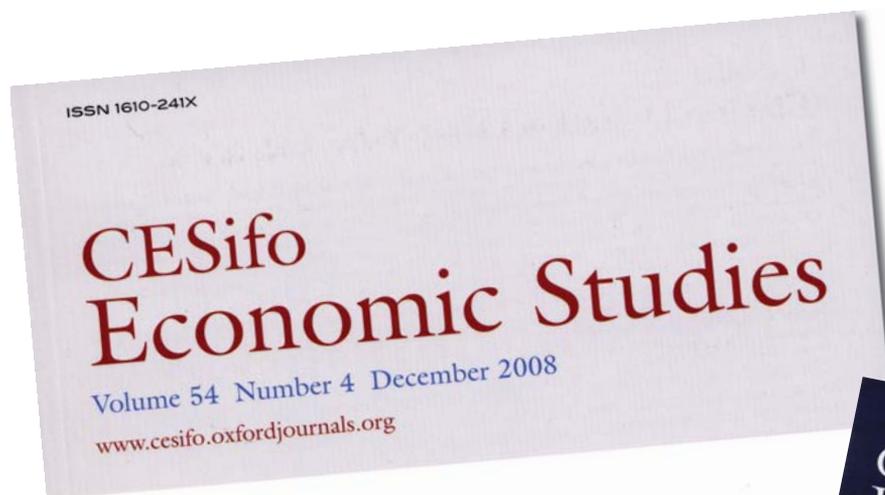
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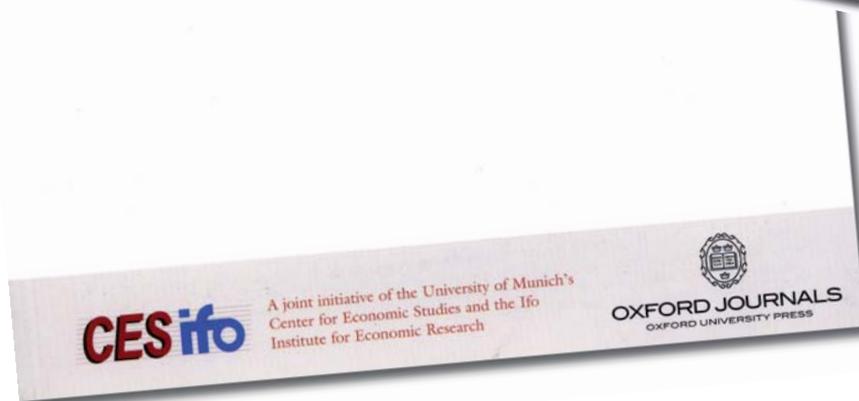
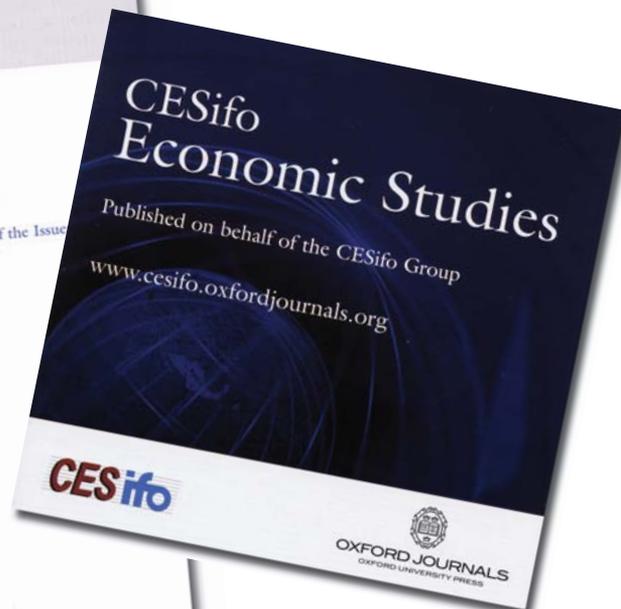
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